



Technical catalog - Preliminary

SACE Tmax XT UL/CSA

New low voltage molded case
circuit breakers up to 250A for UL 489
and CSA C22.2 Standards

Power and productivity
for a better world™





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New SACE Tmax XT. Simply XTraordinary.



ABB SACE is proud to present the result of a long and intense research and development project: the new SACE Tmax XT up to 250A - ABB SACE's new family of molded case circuit breakers.



Today a highly advanced range of circuit breakers has been introduced, with unparalleled versatility of use and the ability to solve all installation problems brilliantly. You can find the new SACE Tmax XT in three-pole and four-pole, fixed, plug-in and withdrawable versions. They are fitted with the very latest generation thermomagnetic and electronic trip units, with the possibility of interchangeability. The new SACE Tmax XT sets a new technological standard and

provides the freedom to build installations with extraordinary performances. An extraordinary demonstration of ABB SACE's innovation capability. Extraordinary latest generation electronics. Extraordinary coverage of all plant requirements. Extraordinary performances in compact dimensions. Extraordinary simplicity of installation and putting into service. Extraordinary range of accessories available.

[New SACE Tmax XT. Simply XTraordinary.](#)

New SACE Tmax XT. XTraordinary completeness of range.



There are the 4 new SACE Tmax XT UL/CSA frames:

- small XT1 up to 125A
- high-performing XT2 up to 125A
- reliable XT3 up to 225A
- powerful XT4 up to 250A



The new SACE Tmax XT go everywhere and fear no tests because they are made to respond successfully to all plant engineering requirements, from the standard to the most technologically advanced, thanks to the extraordinary fullness of their range. They provide a complete offering up to 250A for distribution, for energy metering, for motor protection, for generator protection, as switch-disconnectors and for any other needs. In addition, a new range of both thermomagnetic and electronic protection trip units, interchangeable right from

the smallest frames, has been created. This is to say nothing of the new and vast line of dedicated accessories available, even for special applications.

All that remains is making a simple selection: XT1 and XT3, with ABB SACE's unquestioned reliability and safety, for standard installations, or XT2 and XT4, with top of the market performance, for technologically advanced installations. The new SACE Tmax XT: simply extraordinary, for any choice.

[New SACE Tmax XT. XTreme protection.](#)

New SACE Tmax XT. XTraordinary advanced electronics.



Welcome a totally renewed, high-performing and versatile range of electronic trip units.

Ekip: the new, very latest generation electronic trip units which equip the new frames of SACE Tmax XT2 and SACE Tmax XT4 circuit breakers.



Ekip trip units are interchangeable and guarantee absolute tripping reliability and precision. Apart from the continuous green LED, which indicates correct operation of the protection trip unit, all the Ekip trip units also have an LED to signal intervention of all the protection functions.

To allow the Ekip units to communicate and exchange information with the other devices, the Ekip Com module can be inserted inside the circuit breaker, freeing space inside the electric panel.

All the Ekip trip units can be fitted with a vast range of dedicated accessories. The main accessories include:

- the Ekip Display, to be applied onto the front of the electronic trip unit for simpler setting and for better reading of information;
- the Ekip LED Meter, a device to be installed on the front of the trip unit to simplify current readings;
- the Ekip TT, the new trip test unit;
- the Ekip T&P, the extraordinary testing and programming unit.

Finally, for the first time an integrated energy metering function is available on the 250A frame Ekip: isn't all this simply XTraordinary?

[New SACE Tmax XT. XTended technology.](#)

Construction characteristics

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Construction characteristics

1

Molded case circuit breakers (MCCB)

XT1

Frame Size		[A]	125		
Rated		80% rated	■		
		100% rated TM	up to 100A		
		100% rated Ekip	-		
Poles		[No.]	3, 4		
Rated voltage	(AC) 50-60Hz	[V]	600Y/347		
	(DC)	[V]	500		
Versions			Fixed, Plug-in		
Interrupting ratings			N	S	H
240 V (AC)		[kA]	50	65	100
480 V (AC)		[kA]	25	35	65
600Y/347 V (AC)		[kA]	18	22	25
600 V (AC)		[kA]	-	-	-
250 V (DC) 2 poles in series		[kA]	35	42	50
500 V (DC) 3 poles in series		[kA]	-	-	-
500 V (DC) 4 poles in series		[kA]	35	50	50
600 V (DC) 3 poles in series		[kA]	-	-	-
Mechanical life		[No. Operations]	25000		
		[No. Hourly operations]	240		
Dimensions - Fixed (Width x Depth x Height)	3 poles	[mm]/[in]	[76,2 x 70 x 130] / [3 x 2.75 x 5.12]		
	4 poles	[mm]/[in]	[101,6 x 70 x 130] / [4 x 2.75 x 5.12]		
Weight	Fixed 3/4 poles	[kg]/[lbs]	[1,1 - 2.43] / [1,4 - 3.07]		
	Plug-in (EF) 3/4 poles	[kg]/[lbs]	[2,21 - 4.87] / [2,82 - 6.22]		
	Withdrawable (EF) 3/4 poles	[kg]/[lbs]	-		
Total opening time	CB with SOR	[ms]	15		
	CB with UVR	[ms]	15		
Trip units for power distribution					
TMF			■		
TMA					
Ekip LS/I					
Ekip I					
Ekip LSI					
Ekip LSIG					
Ekip E-LSIG					
Interchangeable protection trip units					

⁽¹⁾ Current Limiting circuit breaker in 480V AC and 600V AC

⁽²⁾ 2-poles version available only as complete circuit breaker with TMF, trip units interchangeable; 4-poles version available only as complete circuit breaker from In=80 to In=250 with TMF, trip units interchangeable

⁽³⁾ With F, EF, ES, FCCuAI installation

⁽⁴⁾ 100kA up to 150A, 65kA from 175A up to 250A

Motor protection ⁽¹⁾

XT1

Frame Size		[A]	125		
Poles		[No.]	3		
Rated service voltage	(AC) 50-60Hz	[V]	600Y/347		
	(DC)	[V]	500		
Versions			Fixed, Plug-in		
Rating level			H		
Trip units for motor protection					
MA (MCP)			■		
Ekip M-LIU (MPCB)					

⁽¹⁾ Available only as complete circuit breaker

Molded case disconnect switches (MCS)

XT1

Frame Size		[A]	125		
Poles		[No.]	3, 4		
Rated voltage	(AC) 50-60Hz	[V]	600Y/347		
	(DC)	[V]	500 4p series / 3p CB up to 250V DC 2p series		
Versions			Fixed, Plug-in		
Rating level			N	S	H
Magnetic Override		[A]	1250		

XT2							XT3		XT4						
125							225		250						
■							■		■						
up to 100A							fixed version only		up to 250A ⁽³⁾						
■							-		up to 250A ⁽³⁾						
3, 4							3, 4		2 (for N version) 3, 4						
600							600Y/347		600						
500							500		600						
Fixed, Plug-in, Withdrawable							Fixed, Plug-in		Fixed, Plug-in, Withdrawable						
N	S	H ⁽¹⁾	L ⁽¹⁾	V ⁽¹⁾	X		N	S	N	S	H ⁽¹⁾	L ⁽¹⁾	V ⁽¹⁾	X	
65	100	150	200	200	200		50	65	65	100	150	200	200	200	
25	35	65	100	150	200		25	35	25	35	65	100	150	200	
-	-	-	-	-	-		10	10	-	-	-	-	-	-	
18	22	25	35	42	42		-	-	18	22	25	50	65	100/65 ⁽⁴⁾	
35	50	65	75	85	85		25	35	35	42	50	85	100	-	
35	50	65	75	85	85		25	35	-	-	-	-	-	-	
-	-	-	-	-	-		-	-	-	-	-	-	-	-	
-	-	-	-	-	-		-	-	35	50	65	75	85	-	
25000							25000		25000						
240							240		240						
[90 x 82,5 x 130] / [3.54 x 3.25 x 5.12]							[105 x 70 x 150] / [4.13 x 2.75 x 5.90]		[105 x 82,5 x 160] - [4.13 x 3.25 x 6.3]						
[120 x 82,5 x 130] / [4.72 x 3.25 x 5.12]							[140 x 70 x 150] / [5.51 x 2.75 x 5.90]		[140 x 82,5 x 160] - [5.51 x 3.25 x 6.3]						
[1.2 - 2.65] / [1.6 - 3.53]							[1.7 - 3.37] / [2.1 - 4.63]		[2.5 - 5.51] / [3.5 - 7.72]						
[2.54 - 5.60] / [3.27 - 7.21]							[3.24 - 7.14] / [4.1 - 9.04]		[4.19 - 9.24] / [5.52 - 12.17]						
[3.32 - 7.32] / [4.04 - 8.91]									[5 - 11.02] / [6.76 - 14.90]						
15							15		15						
15							15		15						
■							■		■						
■							■		■						
■							■		■						
■							■		■						
■							■		■						
■							■		■						
■							■		■						
■							■		■						

XT2							XT3		XT4						
125							225		250						
3							3		3						
600							600Y/347		600						
500							500		600						
Fixed, Plug-in, Withdrawable							Fixed, Plug-in		Fixed, Plug-in, Withdrawable						
H							S		H						
■							■		■						
■							■		■						

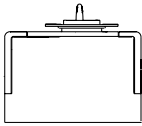
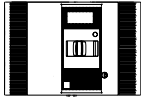
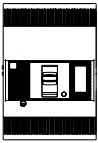
XT2							XT3		XT4						
125							225		250						
3, 4							3, 4		3, 4						
600							600Y/347		600						
500 3p series							500 3p series		600 3p series						
Fixed, Plug-in, Withdrawable							Fixed, Plug-in		Fixed, Plug-in, Withdrawable						
N	H		L	V			N	S	N	S	H	L	V		
1250							2250		2500						

Construction characteristics

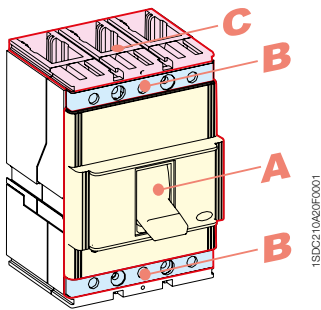
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Positive operation



Installation positions



Protection degrees



Test pushbutton

The references in round brackets ^(G1.x) refer to the Glossary in the final chapter of the technical catalog.

All circuit breakers in the SACE Tmax XT family are made with the following construction characteristics:

- double insulation^(G1.5);
- positive operation^(G1.6);
- isolation behavior^(G1.7);
- electromagnetic compatibility^(G1.8);
- tropicalization^(G1.9);
- impact and vibration resistance^(G1.10);
- power supply from the top towards the bottom or vice versa, except for over 480V on XT2 and over 600V on XT4;
- installation versatility. Circuit breaker can be mounted in a horizontal or vertical position or laid flat without any derating of rated characteristics;
- no nominal performance derating for use up to an altitude of 2000m/6561ft. Above 2000m/6561ft, atmospheric properties (air composition, dielectric strength, cooling power and pressure) change, affecting the main parameters that define the circuit breaker. The table below shows changes to the main performance parameters:

Altitude		2000m/ 6561ft	3000m/ 9842ft	4000m/ 13123ft	5000m/ 16404ft
Rated employ voltage, U _e	[V AC]	600	528	468	408
Rated uninterrupted current	%	100	98	93	90

- SACE Tmax XT circuit breakers can be used in ambient temperatures between -25°C/-13°F and +70°C/158°F and stored in ambient temperatures between -40°C/-40°F and +70°C/158°F. For temperatures outside these ranges, see the “Temperature performance” paragraph of the “Typical curves and technical information” chapter;
- different degrees of IP (International Protection)^(G 1.11);

Circuit-breaker	With front	Without front ⁽¹⁾	With front for lever -FLD-	With rotary handles	With extended rotary handle and accessory IP54	With high terminal covers HTC	With low terminal covers LTC
A	IP40	IP20	IP40	IP40	IP54	IP40	IP40
B	IP20	IP20	IP20	IP20	IP20	IP40	IP40
C	NC	NC	NC	NC	NC	IP40	IP30

⁽¹⁾ During the installation of electrical accessories
NC Not classifiable

Accessories	Motor operator MOD, MOE or MOE-E	Residual current devices	Residual current from switchboard RCQ020	Automatic transfer switch ATS021 and ATS022
On Front	IP30	IP40	IP41	IP40

- all circuit breakers in the XT family have a pushbutton for performing the release test. The circuit breaker must be closed, with no current, while the test is being performed.



Hologram



Naval Registers

Conformity with Standards

SACE Tmax XT circuit breakers and their accessories are constructed in conformity with:

- Standard^(G6.1):
 - UL 489;
 - CSA C22.2 No. 5;
 - IEC 60947-2;
- Directives^(G6.2):
 - EC “Low Voltage Directive” (LVD) N° 2006/95/EC (replacing 73/23/EEC and subsequent amendments);
 - EC “Electromagnetic Compatibility Directive” (EMC) 2004/108/CE;
- Naval Registers^(G6.3) (ask ABB SACE for the versions available):
 - ABS.

Certification of conformity with the product Standards is carried out in the ABB SACE test laboratory (accredited by SINAL) in respect of the EN 45011 European Standard, by the Italian certification body ACAE (Association for Certification of Electrical Apparatus), member of the European LOVAG organization (Low Voltage Agreement Group) and by the Swedish certification body SEMKO belonging to the International IECEE organization.

The SACE Tmax XT series has a hologram on the front, obtained using special anti-forgery techniques. This ensures the quality and authenticity of the circuit breaker as a genuine ABB SACE product.

Company Quality System

The ABB SACE Quality System conforms to the following Standards:

- ISO 9001 International Standard;
- EN ISO 9001 (equivalent) European Standards;
- UNI EN ISO 9001 (equivalent) Italian Standards;
- IRIS International Railway Industry Standard.

The ABB SACE Quality System attained its first certification with the RINA certification body in 1990.

Environmental management system, social responsibility and ethics

For ABB SACE, environmental protection is a top priority, as evidenced when ours was the first industry in Italy's electromechanical sector to have obtained the RINA's Environmental Management System certification in recognition of the company's commitment in conformity with the International ISO 14001 Standard.

In 1999, the Environmental Management System and the Occupational Health and Safety Management System were integrated according to the OHSAS 18001 Standard. In 2005, the SA 8000 (Social Accountability 8000) Standard was integrated, committing itself to respect business ethics and working conditions.

Our commitment to environmental protection is solidified through:

- selection of materials, processes and packaging which mitigate the true environmental impact of the product;
- use of recyclable materials;
- voluntary adherence to the RoHS directive^(G6.4).

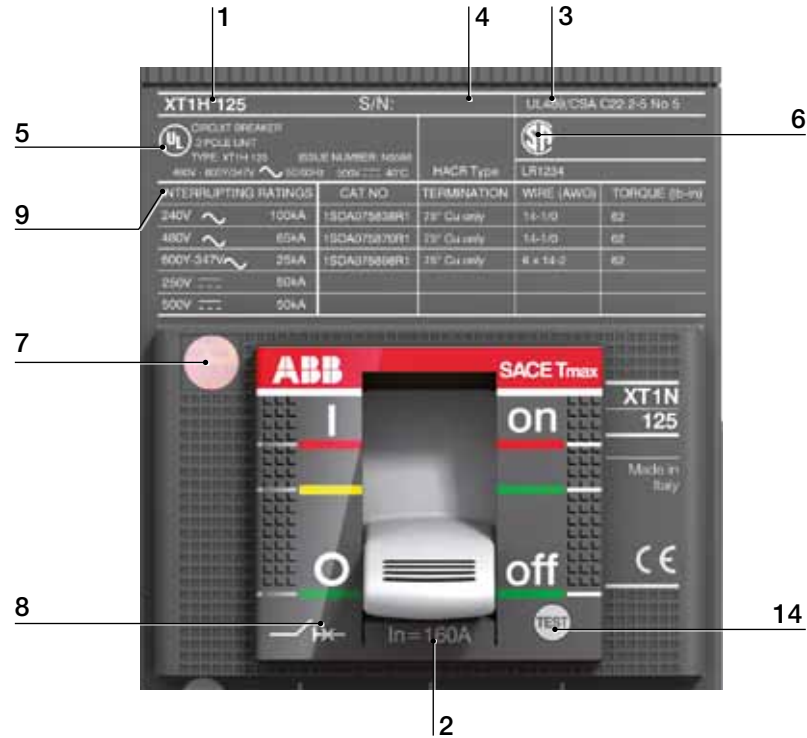
ISO 14001, 18001 and SA8000 recognitions together with ISO 9001 made it possible for ABB SACE to obtain RINA BEST FOUR CERTIFICATION.

Identification of the SACE Tmax XT circuit breakers

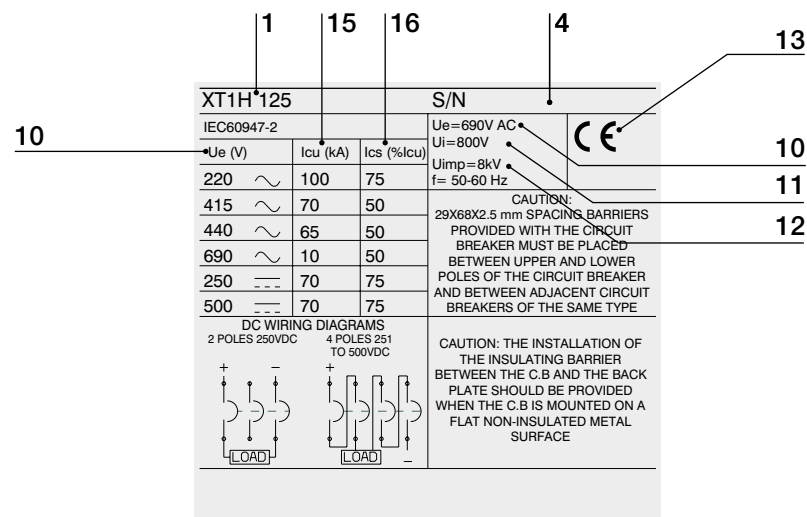
1

The specifications of each circuit breaker appear on the rating name plate on both the front and side of the unit.

Front label



Side label



- | | | | |
|---|----------------------------------|----|--|
| 1 | Name and performance level | 9 | Interrupting ratings |
| 2 | In: rated current | 10 | Rated service voltage |
| 3 | Reference standard UL489/CSA22.2 | 11 | Rated insulation voltage |
| 4 | Serial number | 12 | Rated impulse withstand voltage |
| 5 | UL marking | 13 | CE marking |
| 6 | CSA marking | 14 | Test pushbutton |
| 7 | Anti-forgery logo | 15 | Rated ultimate short-circuit breaking capacity |
| 8 | Symbol of isolation behavior | 16 | Rated short-circuit duty breaking capacity |

Nomenclature of the trip units

1

The tables below outline the logic behind the naming of each thermomagnetic and electronic trip unit.

Magnetic trip units		
Family name		Protection
M: magnetic	+	A: with adjustable threshold

Thermomagnetic trip units		
Family name		Protection
TM: thermomagnetic	+	F: with fixed threshold A: with adjustable thermal and magnetic threshold

Example:

- MA: magnetic only trip unit, with adjustable protection threshold (MCP);
- TMF: thermomagnetic trip unit, with fixed thermal and fixed magnetic protection threshold;

Electronic trip units				
Family name		Application		Protection
Ekip	+: Distribution M: Motor protection E: Energy measurements	+	I LS/I LSI LSIG LIU

Example:

- Ekip LS/I: electronic trip unit for distribution networks protection, with “L” against overload and either “S” protection function against delay short circuit or “I” protection function against instantaneous short circuit;
- Ekip M-LIU: electronic trip unit for motor protection, with LIU protection functions.

Residual current protection devices		
Family name		Typology
RC	+	Inst: instantaneous type ‘A’ Sel: selective type ‘A’ Sel 200: selective type ‘A’ reduced to 200mm B Type: selective type ‘B’

The SACE Tmax XT ranges

The SACE Tmax XT family ranges 2/2

Circuit breakers for power distribution

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Thermomagnetic trip units	2/4
Electronic trip units	2/6

Circuit breakers for motor protection

Main characteristics	2/13
Magnetic trip units	2/14
Electronic trip units	2/15

Molded case switch disconnectors

Main characteristics	2/16
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Current Limiting

Electrical characteristics	2/17
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Special applications

Communication system	2/18
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The SACE Tmax XT family ranges

2

The SACE Tmax XT molded case circuit breaker family for UL/CSA complies with different installation requirements. Circuit breakers are available with trip units dedicated to different applications, such as power distribution and motor protection. Molded case switch disconnectors are also available.

In = Rated uninterrupted current ^(G2.2) [A]	XT1 125	XT2 125	XT3 225	XT4 250
Power distribution				
Thermomagnetic trip units				
TMF	15...125	15...70	60...225	25...250
TMA		80...125		80...250
Electronic trip units				
Ekip LS/I		10...125		40...250
Ekip I		10...125		40...250
Ekip LSI		10...125		40...250
Ekip LSIG		10...125		40...250
Ekip E-LSIG				40...250
Motor protection				
Magnetic trip units				
MA (MCP)	3...125	3...125	100...200	25...250
Electronic trip units				
Ekip M-LIU (MPCB)		25...100		40...150
Molded case switch disconnectors				
Standard	■	■	■	■
Special applications				
Communication		■		■

Circuit breakers for power distribution

Main characteristics

SACE Tmax XT moulded case circuit breakers are the ideal solution for all distribution levels, from the main low voltage switchboard to panelboards throughout the installation. They feature high specific let-through current peak and energy-limiting characteristics that allow the circuits and equipment on the load side to be sized optimally. SACE Tmax XT circuit breakers with thermomagnetic and electronic trip units protect against overloads, short-circuits, ground faults and indirect contacts in low voltage distribution networks.

The SACE Tmax XT family of moulded case circuit breakers can be equipped with:

- thermomagnetic trip units^(G3.2), for direct and alternating current network protection, using the physical properties of a bimetal and an electromagnet to detect overloads and short-circuits;
- electronic trip units^(G3.4), for alternating current network protection. Releases with microprocessor technology obtain protection functions that make the operations extremely reliable and accurate. The power required for operating them is supplied straight from the current sensors of the releases. This ensures they trip even in single-phase conditions at the minimum setting. The electronic protection trip unit consists of:
 - 3 or 4 current sensors (current transformers);
 - a protection unit;
 - an opening solenoid (built into the electronic trip unit).

Characteristics of SACE Tmax XT Ekip Electronic trip units

Operating temperature	-25°C/-13°F...+70°C/+158°F
Relative humidity	98%
Self-supplied	0.2xIn (single phase) ⁽¹⁾
Auxiliary supply (where applicable)	24V DC ± 20%
Operating frequency	45...66Hz or 360...440Hz
Electromagnetic compatibility	IEC 60947-2 Annex F

⁽¹⁾ For 10A: 0.4In

Characteristics of circuit breakers for power distribution

		XT1	XT2	XT3	XT4
Size ^(G2.1)	[A]	125	125	225	250
Poles	[No.]	3, 4	3, 4	3, 4	2 ⁽¹⁾ , 3, 4,
Rated service voltage, Ue ^(G2.4)	(AC) 50-60Hz	[V] 600Y/347	600	600Y/347	600
	(DC)	[V] 500	500	500	600
Versions		Fixed, Plug-in	Fixed, Plug-in, Withdrawable	Fixed, Plug-in	Fixed, Plug-in, Withdrawable
Breaking capacities		N S H	N S H⁽²⁾ L⁽²⁾ V⁽²⁾ X	N S	N S H⁽²⁾ L⁽²⁾ V⁽²⁾ X
Trip units		Thermomagnetic	Thermomagnetic, Electronic	Thermomagnetic	Thermomagnetic, Electronic
TMF	[In A]	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125	15, 20, 25, 30, 35, 40, 50, 60, 70	60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225	25, 30, 35, 40, 50, 60, 70, 80 ⁽³⁾ , 90 ⁽³⁾ , 100 ⁽³⁾ , 110 ⁽³⁾ , 125 ⁽³⁾ , 150 ⁽³⁾ , 175 ⁽³⁾ , 200 ⁽³⁾ , 225 ⁽³⁾ , 250 ⁽³⁾
TMA	[In A]	–	80, 90, 100, 110, 125	–	80, 90, 100, 110, 125, 150, 175, 200, 225, 250
Ekip LS/I	[In A]	–	10, 25, 60, 100, 125	–	40, 60, 100, 150, 225, 250
Ekip I	[In A]	–	10, 25, 60, 100, 125	–	40, 60, 100, 150, 225, 250
Ekip LSI	[In A]	–	10, 25, 60, 100, 125	–	40, 60, 100, 150, 225, 250
Ekip LSIG	[In A]	–	10, 25, 60, 100, 125	–	40, 60, 100, 150, 225, 250
Ekip E-LSIG	[In A]	–	–	–	40, 60, 100, 150, 225, 250
Interchangeability		–	Yes	–	Yes

⁽¹⁾ XT4 2-pole version is available in the N breaking capacity only.

⁽²⁾ XT2 and XT4 in the H, L and V breaking capacities are current limiting circuit breakers.

⁽³⁾ Available in 3-pole and 2-poles (N) version only.

Circuit breakers for power distribution

Thermomagnetic trip units

TMF

Main characteristics:



- available for XT1 and XT3 in the three-pole and four-pole versions;
- protections:
 - against overload (L): fixed $I_1 = I_n$ protection threshold, with inverse long-time trip curve;
 - against instantaneous short-circuits (I): fixed $10 \times I_n$ protection threshold at 500A for $I_n < 50A$ and $10 \times I_n$ for $I_n \geq 50A$, with instantaneous trip curve;

Example with XT1 125A





XT1

TMF

	$I_1 = 1 \times I_n$	I_n [A]	15	20	25	30	35	40	45	50	60	70	80	90	100	110	125
		I_1	15	20	25	30	35	40	45	50	60	70	80	90	100	110	125
	$I_3 = 10 \times I_n$	I_n [A]	15	20	25	30	35	40	45	50	60	70	80	90	100	110	125
		I_3	500	500	500	500	500	500	500	500	600	700	800	900	1000	1100	1250

XT3

TMF

	$I_1 = 1 \times I_n$	I_n [A]	60	70	80	90	100	110	125	150	175	200	225
		I_1	60	70	80	90	100	110	125	150	175	200	225
	$I_3 = 10 \times I_n$	I_n [A]	60	70	80	90	100	110	125	150	175	200	225
		I_3	600	700	800	900	1000	1110	1250	1500	1750	2000	2250

TMF/TMA

Main characteristics:

- available for XT2 and XT4 in the two-pole (XT4 N version only) three-pole and four-pole versions, except where noted;
- protections:
 - against overload (L):
 - fixed protection threshold $I_1=I_n$;
 - adjustable protection threshold from $0.7\ldots 1\times I_n$, with inverse long time trip curve;
 - against instantaneous short-circuit (I):
 - fixed protection threshold at $I_1=400\text{A}$ for $I_n<40\text{A}$ and $I_1=10\times I_n$ for $I_n\geq 40\text{A}$;
 - adjustable threshold between $5\ldots 10\times I_n$;
- the thermal and magnetic protection settings on the TMA versions are made by turning the corresponding dials on the front of the release.

Example with XT4 250A



XT2

TMF/TMA

		I_n [A]	15 ⁽¹⁾	20 ⁽¹⁾	25 ⁽¹⁾	30 ⁽¹⁾	35 ⁽¹⁾	40 ⁽¹⁾	50	60	70	80	90	100	110	125
L	$I_1 = 1\times I_n$ (TMF)	I_1 TMF	15	20	25	30	35	40	50	60	70	—	—	—	—	—
	$I_1 = 0.7\ldots 1\times I_n$ (TMA)	I_1 TMA	—	—	—	—	—	—	—	—	—	56...80	63...90	70...100	77...110	87.5...125
I		I_n [A]	15 ⁽¹⁾	20 ⁽¹⁾	25 ⁽¹⁾	30 ⁽¹⁾	35 ⁽¹⁾	40 ⁽¹⁾	50	60	70	80	90	100	110	125
	$I_3 = 400\text{A}$ (TMF)	I_3 TMF	400	400	400	400	400	400	—	—	—	—	—	—	—	—
	$I_3 = 10\times I_n$ (TMF)	I_3 TMF	—	—	—	—	—	—	500	600	700	—	—	—	—	—
	$I_3 = 5\ldots 10\times I_n$ (TMA)	I_3 TMA	—	—	—	—	—	—	—	—	—	400...800	450...900	500...1000	550...1100	625...1250

⁽¹⁾ Available as complete circuit breaker only.

XT4

TMF/TMA

		I_n [A]	25	30	35	40	50	60	70	80 ⁽²⁾	90 ⁽²⁾	100 ⁽²⁾	110 ⁽²⁾	125 ⁽²⁾
L	$I_1 = 1\times I_n$ (TMF)	I_1 TMF	25	30	35	40	50	60	70	80	90	100	110	125
	$I_1 = 0.7\ldots 1\times I_n$ (TMA)	I_1 TMA	—	—	—	—	—	—	—	56...80	63...90	70...100	77...110	87.5...125
I		I_n [A]	25	30	35	40	50	60	70	80 ⁽²⁾	90 ⁽²⁾	100 ⁽²⁾	110 ⁽²⁾	125 ⁽²⁾
	$I_3 = 400\text{A}$ (TMF)	I_3 TMF	400	400	400	400	—	—	—	—	—	—	—	—
	$I_3 = 10\times I_n$ (TMF)	I_3 TMF	—	—	—	—	500	600	700	800	900	1000	1100	1250
	$I_3 = 5\ldots 10\times I_n$ (TMA)	I_3 TMA	—	—	—	—	—	—	—	400...800	450...900	500...1000	550...1100	625...1250

⁽¹⁾ Available as loose trip unit only.

TMF/TMA

		I_n [A]	150 ⁽¹⁾	175 ⁽¹⁾	200 ⁽¹⁾	225 ⁽¹⁾	250
L	$I_1 = 1\times I_n$ (TMF)	I_1 TMF	150	175	200	225	250
	$I_1 = 0.7\ldots 1\times I_n$ (TMA)	I_1 TMA	105...150	122.5...175	140...200	157.5...225	175...250
I		I_n [A]	150 ⁽¹⁾	175 ⁽¹⁾	200 ⁽¹⁾	225 ⁽¹⁾	250
	$I_3 = 10\times I_n$ (TMF)	I_3 TMF	1500	1750	2000	2250	2500
	$I_3 = 5\ldots 10\times I_n$ (TMA)	I_3 TMA	750...1500	875...1750	1000...2000	1125...2250	1250...2500

⁽²⁾ TMF version available in 3-pole and 2-pole (N) versions only.

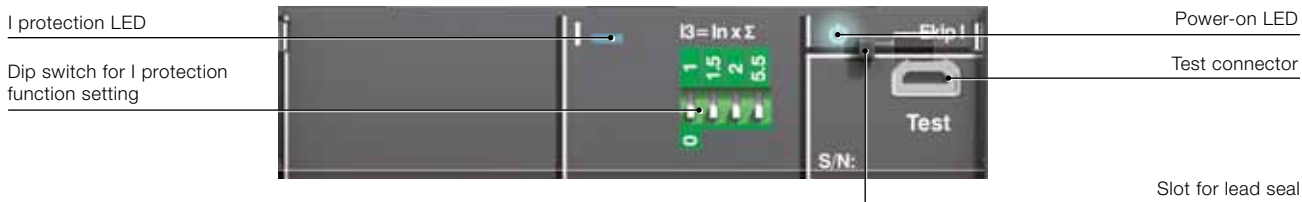
Circuit breakers for power distribution

Electronic trip units


Ekip I

Main characteristics:

- usable with the XT2 and XT4 circuit breaker in the three-pole and four-pole versions;
- protections:
 - against instantaneous short-circuit (I): adjustable protection threshold from 1...10xIn, with instantaneous trip curve;
 - of the neutral in four-pole circuit breakers:
 - for In≥100A in the OFF or ON positions, 50% and 100% of the phases can be selected;
 - for In<100A, neutral protection is fixed at 100% of the phases and disabled by user;
- manual setting using the corresponding dip-switches, which allow the settings to be made even when the trip unit is off;
- LED:
 - LED lit with a steady green light indicating that the trip unit is supplied correctly. The LED comes on when the current exceeds 0.2xIn;
 - LED with a steady red light, indicating that protection I has tripped; red LED light on connecting Ekip TT or Ekip T&P accessories after circuit breaker opening for “I protection” intervention;
 - Ekip I is equipped with a trip coil disconnection protection device that detects whether the opening solenoid has disconnected. Signaling is made by a flashing red LED;
- test connector on the front of the trip unit;
 - the Ekip TT trip test unit, allows trip test, LED test and signaling the latest trip;
 - the Ekip T&P unit, allows the measurements to be read, the trip test to be conducted and the I protection function test to be carried out;
- self-supply from a minimum current of 0.2xIn up.



Ekip I

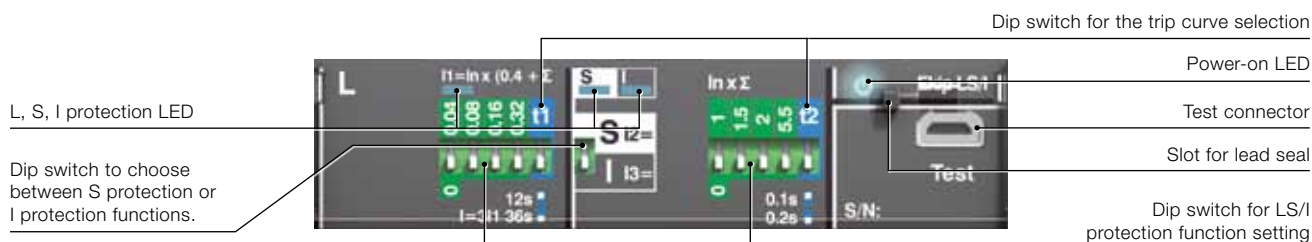
Protection function	Trip threshold	Trip curve ⁽¹⁾	Excludability	Relation
 Against short-circuits with adjustable threshold and instantaneous trip time	Manual setting: $I_3 = 1, 1.5, 2, 2.5, 3, 3.5, 4.5, 5.5, 6.5, 7, 7.5, 8, 8.5, 9, 10 \times I_n$ Tolerance: $\pm 20\% I > 4I_n$ $\pm 10\% I \leq 4I_n$	$\leq 20\text{ms}$	Yes	$t = k$

⁽¹⁾ Tolerances in case of:
– self-powered trip unit at full power;
– 2 or 3-phase power supply.
In conditions other than those stated, the trip time is $\leq 60\text{ms}$.

Ekip LS/I

Main characteristics:

- available for XT2 and XT4 in the three-pole and four-pole versions;
- protections:
 - against overload (L): $0.4...1 \times I_n$ adjustable protection threshold, with adjustable time trip curve;
 - against short-circuit with delay (S): $1...10 \times I_n$ adjustable protection threshold, with adjustable time trip curve (as an alternative to I protection);
 - against instantaneous short-circuit (I): $1...10 \times I_n$ adjustable protection threshold, with instantaneous trip curve (as an alternative to S protection);
 - of the neutral in four-pole circuit breakers:
 - for $I_n \geq 100A$ can be selected in the OFF or ON positions, 50%, 100% of the phases;
 - for $I_n < 100A$, neutral protection is fixed at 100% of the phases and disabled by user;
- manual setting using the corresponding dip-switches on the front of the trip unit, which allow the settings to be made even when the trip unit is off;
- LED:
 - LED with steady green light indicating that the trip unit is supplied correctly. The LED comes on when the current exceeds $0.2 \times I_n$;
 - red LED for each protection:
 - L: LED with steady red light, indicates pre-alarm for current exceeding $0.9 \times I_1$;
 - L: LED with flashing red light, indicates alarm for current exceeding set threshold;
 - LS/I: LED with steady red light, shows that a protection has tripped. After the circuit breaker has opened, connect the Ekip TT or Ekip T&P accessory to find out which protection function tripped the trip unit;
- Ekip LS/I is equipped with a trip coil disconnection detection device that detects whether the opening solenoid has disconnected. Signaling is made by all the red LEDs flashing simultaneously;
- test connector on the front of the release:
 - the Ekip TT trip test unit, allows trip test, LED test and signaling about the latest trip;
 - the Ekip T&P unit, allows the measurements to be read, the trip test to be conducted and the protection functions test to be carried out;
- thermal memory which can be activated by Ekip T&P;
- self-supply from $0.2 \times I_n$ minimum current up.



Ekip LS/I

Protection function	Trip threshold	Trip curve ⁽¹⁾	Excludability	Relation	Thermal memory
L Against overloads with long inverse time delay trip and trip characteristic according to an inverse time curve ($t^2t=k$)	Manual setting: $I_1 = 0.4...1 \times I_n$ step 0.04 Tolerance: trip between $1.05...1.3 I_1$	Manual setting: $t_1 = 12-36s$ at $I=3 \times I_1$ Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	–	$t = k/I^2$	Yes
S Against short-circuits with independent time delay ($t=k$)	Manual setting: $I_2 = 1-1.5-2-2.5-3-3.5-4.5-5.5-6.5-7-7.5-8-8.5-9-10 \times I_n$ Tolerance: $\pm 10\%$	$t_2 = 0.1-0.2s$ Tolerance: $\pm 15\%$	Yes	$t = k$	–
I Against short-circuits with adjustable threshold and instantaneous trip time	Manual setting: $I_3 = 1-1.5-2-2.5-3-3.5-4.5-5.5-6.5-7-7.5-8-8.5-9-10 \times I_n$ Tolerance: $\pm 10\%$	$\leq 20ms$	Yes	$t = k$	–

⁽¹⁾ Tolerances in case of:
 – self-powered trip unit at full power;
 – 2- or 3-phase power supply.
 In conditions other than those stated, the following tolerances hold:

Protection	Trip threshold	Trip time
L	release between 1.05 and $1.3 \times I_1$	$\pm 20\%$
S	$\pm 10\%$	$\pm 20\%$
I	$\pm 15\%$	$\leq 60ms$

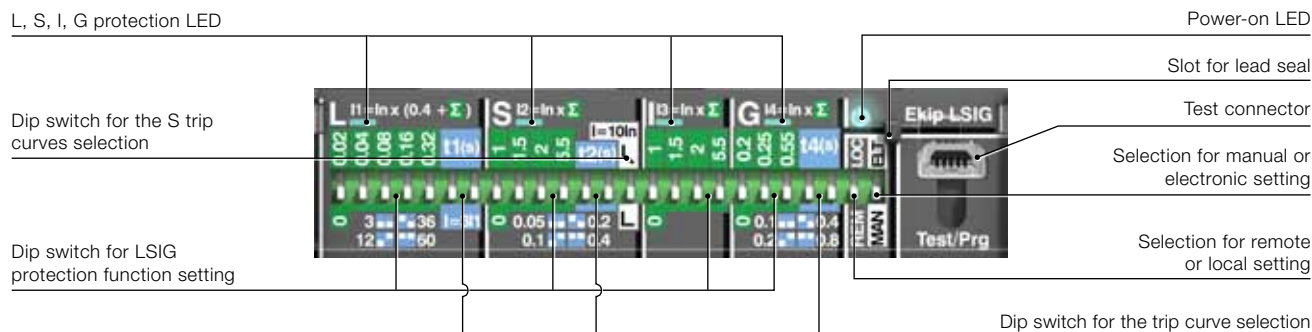
Circuit breakers for power distribution

Electronic trip units

Ekip LSI and Ekip LSIG

Main characteristics:

- available for XT2 and XT4 in three-pole and four-pole versions;
- protections:
 - against overloads (L): $0.4 \dots 1 \times I_n$ adjustable protection threshold, with adjustable time trip curve;
 - against short-circuits with delay (S): $1 \dots 10 \times I_n$ adjustable protection threshold, with adjustable time trip curve (short inverse time ($t=k^2$) or independent time ($t=k$));
 - against instantaneous short-circuits (I): $1 \dots 10 \times I_n$ adjustable protection threshold, with instantaneous trip curve;
 - against ground faults (G): $0.2 \dots 1 \times I_n$ adjustable protection threshold, with independent time trip curve;
 - of the neutral in four-pole circuit breakers:
 - for $I_n \geq 100A$ can be selected in OFF or ON, 50%, 100% of phases;
 - for $I_n < 100A$ neutral protection is fixed on 100% of phases and disabled by user;
- setting:
 - manual setting using the corresponding dip-switches on the front of the trip unit, which allows the settings to be made even when the trip unit is off;
 - electronic setting, made both locally using the Ekip T&P or Ekip Display accessory and via remote control, by means of the Ekip Com unit;
- LED:
 - LED on with steady green light indicating that the trip unit is supplied correctly. The LED comes on when the current exceeds $0.2 \times I_n$;
 - red LED for each protection:
 - L: LED with steady red light, indicates pre-alarm for current exceeding $0.9 \times I_1$;
 - L: LED with flashing red light, indicates alarm for current exceeding set threshold;
 - LSIG: LED with steady red light, shows that a protection has tripped. After the circuit breaker has opened, connect the Ekip TT or Ekip T&P accessory to find out which protection function tripped the trip unit;
 - the trip unit is equipped with a device that detects the eventual opening solenoid disconnection thanks to the simultaneous blinking of all the LED;
- test connector on the front of the release:
 - the Ekip TT trip test unit allows trip test, LED test and signaling about the latest trip;
 - the Ekip T&P unit allows measurements to be read, trip test to be conducted, protection functions test to be carried out, electronic setting of the trip unit's protection functions and communication parameters;
- thermal memory which can be activated by Ekip T&P or Ekip Display;
- self-supply from a minimum current of $0.2 \times I_n$ up;
- the three-pole version can be accessorized with external neutral;
- with the addition of the Ekip Com in the circuit breaker, you can:
 - acquire and transmit a wide range of information via remote control;
 - command the circuit breaker to open and close by means of the motor operator in the electronic version (MOE-E);
 - know the state of the circuit breaker (open/closed/trip) via remote control;
 - set the configuration and program the unit, such as the current thresholds and the protection function curves.



Ekip LSI – Ekip LSIG

Protection function	Trip threshold	Trip curve ⁽¹⁾	Excludability	Relation	Thermal memory
L Against overloads with long inverse time delay trip and trip characteristic according to an inverse time curve ($I^2t=k$)	Manual setting: $I_1 = 0.4 \dots 1 \times I_n$ step 0.02 Tolerance: trip between $1.05 \dots 1.3 I_1$ (IEC 60947-2)	Manual setting: $t_1 = 3-12-36-60s$ at $I=3 \times I_1$ Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	–	$t = k/I^2$	Yes
	Electronic setting: $I_1 = 0.4 \dots 1 \times I_n$ step 0.01 Tolerance: trip between $1.05 \dots 1.3 I_1$ (IEC 60947-2)	Electronic setting: $t_1 = 3 \dots 60s$ at $I=3 \times I_1$ step 0.5 Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	–	$t = k/I^2$	Yes
S Against short-circuits with inverse short ($t=k/I^2$) or independent ($t=k$) time delay trip	Manual setting: $I_2 = 1-1.5-2-2.5-3-3.5-4.5-5.5-6.5-7-7.5-8-8.5-9-10 \times I_n$ Tolerance: $\pm 10\%$	Manual setting: $t_2 = 0.05-0.10-0.20-0.40s$ at $10 \times I_n$ Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	Yes	$t = k/I^2$	–
	Electronic setting: $I_2 = 1 \dots 10 \times I_n$ step 0.1 Tolerance: $\pm 10\%$	Electronic setting: $t_2 = 0.05 \dots 0.40s$ at $10 \times I_n$ step 0.01 Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	Yes	$t = k/I^2$	–
	Manual setting: $I_2 = 1-1.5-2-2.5-3-3.5-4.5-5.5-6.5-7-7.5-8-8.5-9-10 \times I_n$ Tolerance: $\pm 10\%$	Manual setting: $t_2 = 0.05-0.1-0.2-0.4s$ Tolerance: $\pm 15\%$ $t_2 > 100ms$ $\pm 20\%$ $t_2 \leq 100ms$	Yes	$t = k$	–
	Electronic setting: $I_2 = 1 \dots 10 \times I_n$ step 0.1 Tolerance: $\pm 10\%$	Electronic setting: $t_2 = 0.05 \dots 0.4s$ step 0.01 Tolerance: $\pm 15\%$ $t_2 > 100ms$ $\pm 20\%$ $t_2 \leq 100ms$	Yes	$t = k$	–
I Against short-circuits with adjustable threshold and instantaneous trip time	Manual setting: $I_3 = 1-1.5-2-2.5-3-3.5-4.5-5.5-6.5-7-7.5-8-8.5-9-10 \times I_n$ Tolerance: $\pm 10\%$	$\leq 40ms$	Yes	$t = k$	–
	Electronic setting: $I_3 = 1 \dots 10 \times I_n$ step 0.1 Tolerance: $\pm 10\%$	$\leq 40ms$	Yes	$t = k$	–
G Against ground fault with independent time delay trip ⁽²⁾	Manual setting: $I_4 = 0.2-0.25-0.45-0.55-0.75-0.8-1 \times I_n$ Tolerance: $\pm 10\%$	Manual setting: $t_4 = 0.1-0.2-0.4-0.8s$ Tolerance: $\pm 15\%$	Yes	$t = k$	–
	Electronic setting: $I_4 = 0.2 \dots 1 \times I_n$ step 0.02 Tolerance: $\pm 10\%$	Electronic setting: $t_4 = 0.1 \dots 0.8s$ step 0.05 Tolerance: $\pm 15\%$	Yes	$t = k$	–

⁽¹⁾ Tolerances in case of:
– self-powered trip unit at full power;
– 2- or 3-phase power supply.
In conditions other than those stated, the following tolerances hold:

Protection	Trip threshold	Trip time
L	release between 1.05 and $1.3 \times I_1$	$\pm 20\%$
S	$\pm 10\%$	$\pm 20\%$
I	$\pm 15\%$	$\leq 60ms$
G	$\pm 15\%$	$\pm 20\%$

⁽²⁾ Protection G is inhibited for currents higher than $2 I_n$.

Circuit breakers for power distribution

Electronic trip units

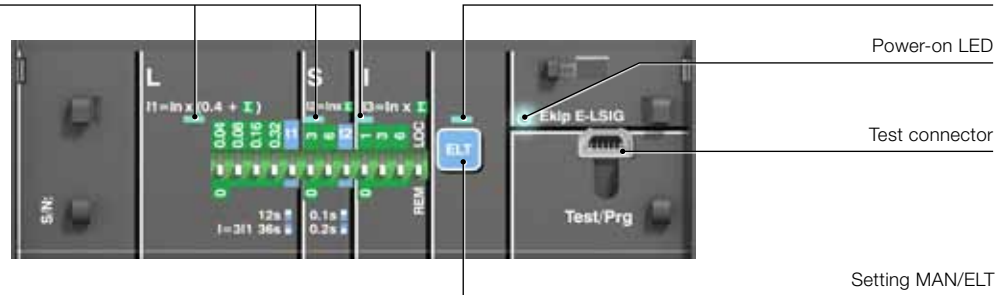
Ekip E-LSIG

Main characteristics:

- available for XT4 in three-pole and four-pole versions;
- protections:
 - against overloads (L): $0.4 \dots 1 \times I_n$ adjustable protection threshold, with adjustable time trip curve;
 - against short-circuits with delay (S): $1 \dots 10 \times I_n$ adjustable protection threshold, with adjustable time trip curve;
 - against instantaneous short-circuits (I): $1 \dots 10 \times I_n$ adjustable protection threshold, with instantaneous trip curve;
 - of the neutral in four-pole circuit breakers;
- measurements:
 - available from $0.2 \times I_n$ in Vaux mode and starting from $0.5 \times I_n$ in self supply mode; external current or voltage transformers are not required. See table for ranges and accuracy;
 - Currents: three phases (L_1, L_2, L_3), neutral (Ne) and ground fault;
 - Voltage: phase-phase, phase-neutral;
 - Power: active, reactive and apparent;
 - Power factor;
 - Frequency and peak factor;
 - Energy: active, reactive, apparent, counter;
- setting:
 - manual setting using the corresponding dip-switches on the front of the trip unit, which allow the settings to be made even when the trip unit is off;
 - electronic setting, made both locally using Ekip T&P or Ekip Display accessory and via remote control, by means of the dialog unit Ekip Com. The electronic settings have a wider range and more regulation steps. Use of electronic setting allows other functions to be activated:
 - function for protection against ground faults (G): $0.2 \dots 1 \times I_n$ adjustable protection threshold, with a time constant trip curve;
 - over voltage protection $0.5 \dots 0.95 U_n$ with a time constant trip curve;
 - under voltage protection $1.05 \dots 1.2 U_n$ with a time constant trip curve;
- LED:
 - LED on with steady green light indicating that the trip unit is supplied correctly. The LED comes on when the current exceeds $0.2 \times I_n$;
- red LED for each protection:
 - L: LED with steady red light, indicates pre-alarm for current exceeding $0.9 \times I_1$;
 - L: LED with flashing red light, indicates alarm for current exceeding set threshold;
 - fixed LED MAN/ELT shows the version of active parameters;
 - LSIG: LED with steady red light, shows that a protection has tripped. After the circuit breaker has opened, connect the Ekip TT or Ekip T&P accessory to find out which protection function tripped the trip unit;
- the trip unit is equipped with a device that detects the opening solenoid disconnection. It is communicated by the simultaneous blinking of all the LEDs;
- test connector on the front of the release:
 - the Ekip TT trip test unit, allows trip test, LED test and signaling about the latest trip;
 - the Ekip T&P unit allows measurements to be read, trip test to be conducted, protection functions test to be carried out, electronic setting of the trip unit's protection functions and communication parameters;
- self-supply from a minimum current of $0.2 \times I_n$ up; measurements starting from $0.5 \times I_n$;
- the three-pole version can be accessorized with external neutral current transformer and external neutral voltage connection kit;
- with the addition of Ekip Com in the circuit breaker, you can:
 - acquire and transmit a wide range of information via remote control;
 - command the circuit breaker to open and close by means of the motor operator in the electronic version (MOE-E);
 - know the circuit breaker's state (open/closed/trip) via remote control;
 - set the configuration and program the unit, such as the current thresholds and the protection function curves.

L, S, I protection LED

LED for electronic/manual setting



2

Ekip E-LSIG

Protection function	Trip threshold	Trip curve ⁽¹⁾	Excludability	Relation	Thermal memory
L Against overloads with long inverse time delay trip and trip characteristic according to an inverse time curve ($t^2t=k$)	Manual setting: $I_1 = 0.4...1xI_n$ step 0.04 Tolerance: trip between $1.05...1.3 I_1$ (IEC 60947-2)	Manual setting: $t_1 = 12-36s$ at $I=3xI_1$ Tolerance: $\pm 10\%$ up to $4xI_n$ $\pm 20\%$ from $4xI_n$	—	$t = k/I^2$	—
	Electronic setting: $I_1 = 0.4...1xI_n$ step 0.01 Tolerance: trip between $1.05...1.3 I_1$ (IEC 60947-2)	Electronic setting: $t_1 = 3...60s$ at $I=3xI_1$ step 0.5 Tolerance: $\pm 10\%$ up to $4xI_n$ $\pm 20\%$ from $4xI_n$	—	$t = k/I^2$	—
S Against short-circuits with inverse short ($t=k/I^2$) or independent ($t=k$) time delay trip	Manual setting: $I_2 = \text{OFF } 3-6-9$ Tolerance: $\pm 10\%$	Manual setting: $t_2 = 0.10-0.20s$ at $10xI_n$ Tolerance: $\pm 10\%$ up to $4xI_n$ $\pm 20\%$ from $4xI_n$	Yes	$t = k$	—
	Electronic setting: $I_2 = 1...10xI_n$ step 0.1 Tolerance: $\pm 10\%$	Electronic setting: $t_2 = 0.05...0.4s$ at $10xI_n$ step 0.01 Tolerance: $\pm 10\%$ up to $4xI_n$ $\pm 20\%$ from $4xI_n$	Yes	$t = k/I^2$	—
	Electronic setting: $I_2 = 1...10xI_n$ step 0.1 Tolerance: $\pm 10\%$	Electronic setting: $t_2 = 0.05...0.4s$ step 0.01 Tolerance: $\pm 10\%$ up to $4xI_n$ $\pm 20\%$ from $4xI_n$	Yes	$t = k$	—
I Against short-circuits with adjustable threshold and instantaneous trip time	Manual setting: $I_3 = \text{OFF } 1-3-4-7-9-10$ Tolerance: $\pm 10\%$	$\leq 40ms$	Yes	$t = k$	—
	Electronic setting: $I_3 = 1...10xI_n$ step 0.1 Tolerance: $\pm 10\%$	$\leq 40ms$	Yes	$t = k$	—
G Against ground fault with independent time delay trip ⁽²⁾	Electronic setting: $I_4 = 0.2...1xI_n$ step 0.02 Tolerance: $\pm 10\%$	Electronic setting: $t_4 = 0.1...0.8s$ step 0.05s Tolerance: $\pm 15\%$	Yes	$t = k$	—
UV Against undervoltage with adjustable constant time	Electronic setting: $U_g = 0.5...0.95xU_n$ step $=0.01xU_n$ Tolerance: $\pm 5\%$	Electronic setting: $t_g = 0.1...5s$ step 0.1s Tolerance: min ($\pm 20\% \pm 100ms$)	Yes	$t = k$	—
OV Against overvoltage with adjustable constant time	Electronic setting: $U_g = 1.05...1.2xU_n$ step $=0.01xU_n$ Tolerance: $\pm 5\%$	Electronic setting: $t_g = 0.1...5s$ step 0.1s Tolerance: min ($\pm 20\% \pm 100ms$)	Yes	$t = k$	—

⁽¹⁾ Tolerances in case of:
– self-powered trip unit at full power;
– 2- or 3-phase power supply.
In conditions other than those stated, the following tolerances hold:

Protection	Trip threshold	Trip time
L	release between 1.05 and $1.3 \times I_1$	$\pm 20\%$
S	$\pm 10\%$	$\pm 20\%$
I	$\pm 15\%$	$\leq 60ms$
G	$\pm 15\%$	$\pm 20\%$

⁽²⁾ Protection G is inhibited for currents higher than $2 I_n$.

Circuit breakers for power distribution

Electronic trip units

2

		Value	Range	Accuracy	Specified measuring range
Current		Phase current (I1, I2, I3, IN)	0...12 In	Cl 1	0.2...1.2 In
		Phase current minimum value			
		Phase current maximum value			
		Ground current (Ig)	0...4 In	–	–
Voltage		Phase voltage runtime, max and min (V1N, V2N, V3N) ⁽¹⁾	5V...480V	±0.5%	30V...400V
		Line voltage runtime, max and min (U12, U23, U31)	10V...828V	±0.5%	50V...690V
Power	Active	Phase power runtime, max and min (P1, P2, P3) ⁽¹⁾	-1440kW...1440kW	Cl 2	-120kW...-1,5kW 1,5kW...120kW ⁽³⁾
		Total power runtime, max and min	-4320kW...4320kW	Cl2	-360kW...-4,5kW 4,5kW...360kW ⁽³⁾
	Reactive	Phase power runtime, max and min (Q1, Q2, Q3) ⁽¹⁾	-1440kVar...1440kVar	Cl 2	-120kVar...-1,5kVar 1,5kVar...120kVar ⁽³⁾
		Total power runtime, max and min	-4320kVar...4320kVar	Cl 2	-360kVar...-4,5kVar 4,5kVar...360kVar ⁽³⁾
	Apparent	Phase power runtime, max and min (S1, S2, S3) ⁽¹⁾	InVA...1440kVA	Cl 2	1,5kVA...120kVA
		Total power runtime, max and min	750VA...4320kVA	Cl 2	4,5kVA...369kVA
Energy	Active	Total energy	1 kWh...214,75 GWh	Cl 2	1 kWh...214,75 GWh
		Incoming energy			
		Outgoing energy			
	Reactive	Total energy	1 kvarh...214,75 GVarh	Cl 2	1 kvarh...214,75 GVarh
		Incoming energy			
		Outgoing energy			
Power quality	Apparent	Total energy	1 kVAh...214,75 GVAh	Cl 2	1 kVAh...214,75 GVAh
		Harmonic analysis ⁽²⁾	11th (50 - 60Hz)	–	–
		THD of phase L1, L2, L3 ⁽²⁾	0...1000%	±10%	0 ... 500%
		Frequency runtime, max, min	44...440Hz	±0.5%	45 ... 66 Hz
		PF of phase L1, L2, L3 ⁽¹⁾	-1...1	±2%	-1 ... -0.5 0.5 ... 1

⁽¹⁾ Not available if Neutral is not connected

⁽²⁾ Available on demand by sending a Modbus command

⁽³⁾ For 0,2*In>Ii>1,2*In and 30V<Vi>400V

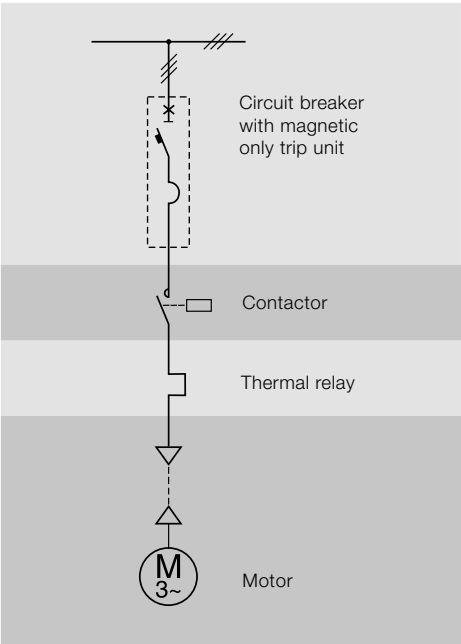
Circuit breakers for motor protection

Main characteristics

When choosing and manufacturing a system for starting(G4.3 and G4.4) and monitoring motors, a given solution’s safety and reliability are important considerations. Start-up is a particularly critical phase for the motor itself and for the installation powering it. Even rated service needs to be adequately monitored and protected in order to deal with any faults that might occur.

When it comes to direct starting, ABB SACE offers two different solutions:

- **a conventional system** equipped with a circuit breaker with a magnetic only trip unit for protection against short-circuits, a thermal relay for protection against overloads

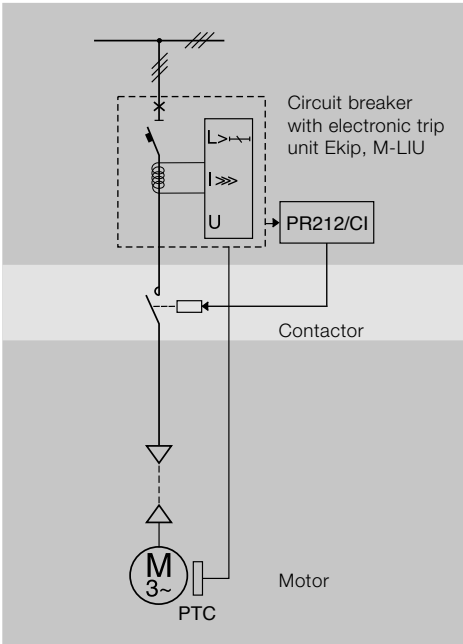


Conventional system

- and phase failure or imbalance, and a contactor to operate the motor;
- **an advanced protection system** which integrates all the protection and monitoring functions in the circuit breaker itself and a contactor for operating the motor.

Several different factors must be considered when choosing and coordinating the protection and operating devices, e.g.:

- the electrical specifications of the motor (type, power rating, efficiency, cosφ);
- the starting type and diagram;
- the fault current and voltage in the part of the network where the motor is installed.



Advanced protection system

Characteristics of circuit breakers for motor protection

		XT1	XT2	XT3	XT4
Size ^(G2.1)	[A]	125	125	225	150/250
Poles	[No.]	3	3	3	3
Rated service voltage, Ue ^(G2.4)	(AC) 50-60Hz	[V] 600Y/347	600	600Y/347	600
	(DC)	[V] 500	500	500	600
Versions		Fixed, Plug-in	Fixed, Plug-in, Withdrawable	Fixed, Plug-in	Fixed, Plug-in, Withdrawable
Breaking capacities		H	H	S	H
Trip Units		Magnetic	Magnetic, Electronic	Magnetic	Magnetic, Electronic
MA (MCP)	[In A]	3, 7, 15, 30, 50, 70, 80, 100, 125	3, 7, 15, 30, 50, 70, 80, 100, 125	100, 110, 125, 150, 200	25, 50, 80, 100, 110, 125, 150, 175, 200, 225, 250
Ekip M-LIU (MPCB)	[In A]	–	25, 60, 100	–	40, 60, 100, 150

Circuit breakers for motor protection

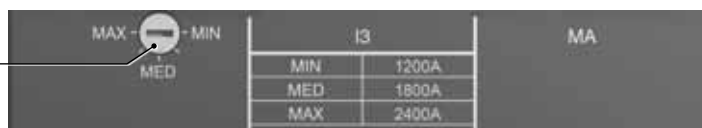
Magnetic trip units

MA (MCP)

Main characteristics:

- available for XT1, XT2, XT3 and XT4 in the three-pole version only. These trip units are mainly used for protecting motors, in conjunction with a thermal relay and a contactor;
- protections:
 - against instantaneous short-circuit (I) for XT1: the protection threshold I is adjustable from 4...11xIn for $I_n \leq 7A$ and 3...11xIn for $I_n > 7A$;
 - against instantaneous short-circuit (I) for XT2: for $I_n \leq 7A$ the protection threshold I is adjustable from 4...11xIn for $15A \leq I_n \leq 100A$ the protection threshold I is adjustable from 3...11xIn, whereas for $I_n = 125A$, the protection threshold I is adjustable from 5...10xIn;
 - against instantaneous short-circuit (I) for XT3: the protection threshold I is adjustable from 6...12xIn;
 - against instantaneous short-circuit (I) for XT4: for $I_n \leq 50A$, the protection threshold I is adjustable from 3...11xIn, whereas for $I_n > 50A$ the protection threshold I is adjustable from 5...10xIn;
- the magnetic protection setting is made by turning the appropriate dial on the front of the release.

Rotary dial for magnetic protection setting



XT1

MA (MCP)

	I_n [A]	3	7	15	30	50	70	80	100	125
I	$I_3 = 4 \dots 11 I_n$	I_3	12...33	28...77	–	–	–	–	–	–
	$I_5 = 3 \dots 11 I_n$	I_5	–	–	45...165	90...330	150...550	210...770	240...880	300...1100 375...1375

XT2

MA (MCP)

		I_n [A]	3	7	15	30	50	70	80	100	125
I	$I_3 = 4...11xI_n$	I_3	12...33	28...77	–	–	–	–	–	–	–
	$I_3 = 3...11xI_n$	I_3	–	–	45...165	90...330	150...550	210...770	240...880	300...1100	–
	$I_3 = 5...10xI_n$	I_3	–	–	–	–	–	–	–	–	625...1250

XT3

MA (MCP)

		I_n [A]	100	110	125	150	200
I	$I_3 = 6...12xI_n$	I_3	600...1200	660...1320	750...1500	900...1800	1200...2400

XT4

MA (MCP)

		I_n [A]	25	50	80	100	110	125	150	175	200	225	250
I	$I_3 = 3...11xI_n$	I_3	75...275	150...550	–	–	–	–	–	–	–	–	–
	$I_3 = 5...10xI_n (>50A)$	I_3	–	–	400...800	500...1000	550...1100	625...1250	750...1500	875...1750	1000...2000	1125...2250	1250...2500

Circuit breakers for motor protection

Electronic trip units

Ekip M-LIU (MPCB)

Main characteristics:

- available for XT2 and XT4 in the three-pole version, this device protects motors. The L protection function protects the motor against overloads, in accordance with the indications and classes defined by standard IEC 60947-4-1;
- protections:
 - against overloads (L): $0.4...1 \times I_n$ adjustable threshold. The operating time is established by choosing the operating class defined by Standard IEC 60947-4-1: Class 3E, 5E, 10E, 20E;
 - against short-circuits (I): $6...13 \times I_n$ adjustable threshold with instantaneous operating time;
 - against phase loss (U): the protection can be selected either in the ON or OFF position. When the selector is in the ON position, the threshold is $50\% I_1$, with fixed operating time;
- manual setting using the corresponding dip-switches on the front of the release;
- LED:
 - LED on with steady green light indicating that the trip unit is supplied correctly. The LED comes on when the current exceeds $0.2 \times I_n$;
 - red LED for each protection:
 - L: LED with steady red light, indicates pre-alarm for current exceeding $0.9 \times I_1$;
 - L: LED with flashing red light, indicates alarm for current exceeding set threshold;
 - LIU: LED with steady red light, shows that a protection has tripped. After the circuit breaker has opened, connect the Ekip TT or Ekip T&P accessory to find out which protection function tripped the trip unit;
- Ekip M-LIU is equipped with a trip coil disconnection device that detects whether the opening solenoid has disconnected. Signal is all red LEDs flashing simultaneously;
- test connector on the front of the release:
 - the Ekip TT trip test unit, allows trip test, LED test and signaling about the latest trip;
 - the Ekip T&P unit allows measurements to be read, trip test to be conducted and protection function test to be carried out;
- thermal memory always active;
- self-supply starting from a minimum current of $0.2 \times I_n$;
- compliant with UL60947-4-1.



Ekip M-LIU

Protection function	Trip threshold	Trip curve ⁽¹⁾	Excludability	Relation	Thermal memory
L Against overloads with long inverse time delay trip and trip characteristic according to an inverse time curve ($t^2=k$)	Manual setting: $I_1 = 0.4...1 \times I_n$ step 0.04 Tolerance: trip between $1.05...1.2 \times I_1$	Manual setting: Operating class: 3E, 5E, 10E, 20E Tolerance: $\pm 10\%$ up to $4 \times I_n$ $\pm 20\%$ from $4 \times I_n$	–	$t = k/t^2$	Yes
I Against short-circuits with adjustable threshold and instantaneous trip time	Manual setting: $I_3 = 6...13 \times I_n$ step 1 Tolerance: $\pm 10\%$	$\leq 20\text{ms}$	–	$t = k$	–
U Against phase loss with independent time delay (IEC 60947-4-1)	Manual setting: $I_6 = \text{ON} / \text{OFF}$ When ON, $I_6 = 50\% I_1$ Tolerance: $\pm 15\%$	Manual setting: When ON, $t_6 = 2\text{s}$ Tolerance: $\pm 10\%$	Yes	$t = k$	–

⁽¹⁾ Tolerances in case of:
– self-powered trip unit at full power;
– 2- or 3-phase power supply.
In conditions other than those stated, the following tolerances hold:

Protection	Trip threshold	Trip time
L	release between 1.05 and $1.2 \times I_1$	$\pm 20\%$
I	$\pm 15\%$	$\leq 60\text{ms}$
U	$\pm 20\%$	$\pm 20\%$

Molded case switch disconnectors

Main characteristics

2



XT1D



XT2D



XT3D



XT4D

The molded case switch disconnector ("switch") is a device created from the corresponding circuit breakers. It features the same overall dimensions, versions, fastening mechanisms and can be fitted with accessories.

Its main function is to disconnect the circuit it's installed in. In the open position, the switch disconnects and ensure sufficient insulation distance between contacts for safety and to prevent an electrical arc from striking.

Applications

Molded case switch disconnectors are normally used as:

- general sub-switchboard disconnectors;
- operating/disconnecting devices for lines, pan-assemblies or groups of equipment;
- bus-ties;
- general disconnecting devices for groups of machines;
- general group disconnecting devices for motor operation and protection;
- insulation of small tertiary distribution units.

Protection

A switch is unable to automatically break the short-circuit or overload current. For this reason, each molded case switch disconnector must be protected on the supply side by a coordinated device that safeguards it against short-circuits.

Ic [A]	XT1	XT2	XT3	XT4
AC 22A	125	125	225	250
AC 23A	125	125	200	200
DC 22A	125	125	225	250
DC 23A	125	125	200	200

Characteristics of molded case switch disconnectors

		XT1	XT2	XT3	XT4
Size ^(G2.1)	[A]	125	125	225	150/250
Poles	[No.]	3, 4	3, 4	3, 4	3, 4,
Rated service voltage, Ue ^(G2.4)	(AC) 50-60Hz [V]	600Y/347	600	600Y/347	600
	(DC) [V]	500 4p series ⁽¹⁾	500 3p series	500 3p series	500 2p series
Versions		Fixed, Plug-in	Fixed, Plug-in, Withdrawable	Fixed, Plug-in	Fixed, Plug-in, Withdrawable
Rating level		N S H	N H L V	N S	N S H L V
Magnetic Override	[A]	1500	1500	2700	3000

⁽¹⁾ 3p CB up to 250V DC 3p series

Switch disconnector coordination

			Load side	XT1D	XT2D	XT3D	XT4D
Supply side	Version	Icu	In	125	125	225	250
XT1	N	25	125	25	25	25	25
	S	35		35	35	35	35
	H	65		65	65	65	65
XT2	N	25	125	25	25	25	25
	S	35		35	35	35	35
	H	65		65	65	65	65
	L	100		65	100	65	100
XT3	N	25	225			65	150
	S	35				25	25
	H	65				35 ⁽¹⁾	35
XT4	N	25	250			25 ⁽¹⁾	25
	S	35				35 ⁽¹⁾	35
	H	65				65 ⁽¹⁾	65
	L	100				65 ⁽¹⁾	100
	V	150				65 ⁽¹⁾	150

⁽¹⁾ The configuration is valid only with I_t < 225A setting on XT4 circuit breaker

Current Limiting

Electrical characteristics

Current, existing UL circuit breakers Tmax XT2 and Tmax XT4 have undergone specific tests as per the UL 489 Standard in order to be classified as UL Current Limiting circuit breakers. They have specific characteristics in terms of limiting peak current and specific let-through energy.

According to the UL 489 Standard, Current Limiting circuit breakers will be signed "Current Limiting" on the front and will have a label on the right side specifying peak current and specific let-through energy values. Accessories and trip are the same as available for standard UL Tmax MCCBs.

Tmax XT Current Limiting

		XT2						XT4					
Trip Units		TMF, TMA, EKIP						TMF, TMA, EKIP					
In	[A]	Up to 125A ⁽¹⁾						Up to 250A ⁽²⁾					
Voltage Rating	[V AC]	480V AC			600V AC			480V AC			600V AC		
Breaking Capacities		H	L	V	H	L	V	H	L	V	H	L	V
Threshold Current													
I _{rms}	[kA]	6	6	6	6	6	6	10	10	10	10	10	10
I _p	[kA]	10	10	10	10	10	10	14,4	14,4	14,4	13,7	13,7	13,7
I ² t	[10 ⁶ A ² s]	266	266	266	301	301	301	499	499	499	582	582	582
Intermediate Point [®]													
I _{rms}	[kA]	30	50	65	14	22	25	42	50	65	18	22	30
I _p	[kA]	19	21	23,2	14,1	18	18	26,4	26,4	30	19,1	22,3	24,2
I ² t	[10 ⁶ A ² s]	480	486	512	472	655	655	853	853	980	791	990	1058
Interrupting Rating													
I _{rms}	[kA]	65	100	150	25	35	42	65	100	150	25	50	50
I _p	[kA]	23,2	31,1	31,1	18	20	21,4	30	44,5	44,5	22,3	30,4	30,4
I ² t	[10 ⁶ A ² s]	512	704	704	655	650	691	980	1142	1142	990	1162	1162

(1) Includes TMF, TMA with In = 15-125A and Ekip with In= 10,25,60,100,125A

(2) Includes TMF, TMA with In = 25-250A and Ekip with In= 40,60,100, 150,225,250A

Special applications

Communication system

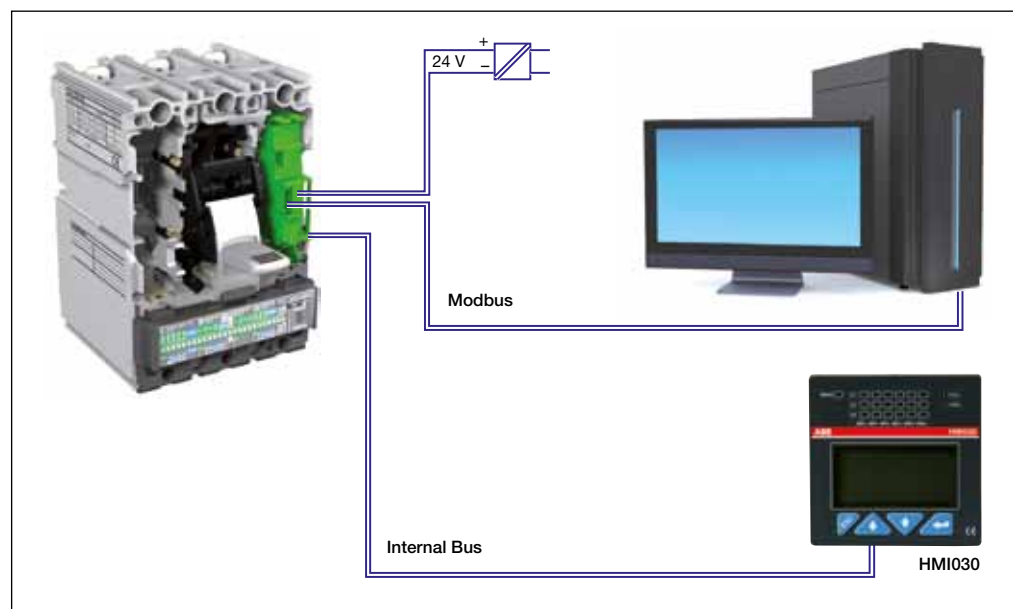
2

The XT2 and XT4 molded case circuit breakers, equipped with an Ekip LSI, Ekip LSI^G or Ekip E-LSIG trip unit and Ekip Com dialog module, can be integrated in monitoring systems to control and manage electrical and technological plants. The protocol available for communication on bus^(G5,4) is Modbus RTU.

Communications accessories include:

- Ekip Com communication module and electronic auxiliary contacts (1 Q + 1 SY) included in the Ekip Com module. For further details, see the "Accessories" chapter.
- Electronic motor operator MOE-E.

Configuration 1: Monitoring (Electronic trip unit and Ekip Com)



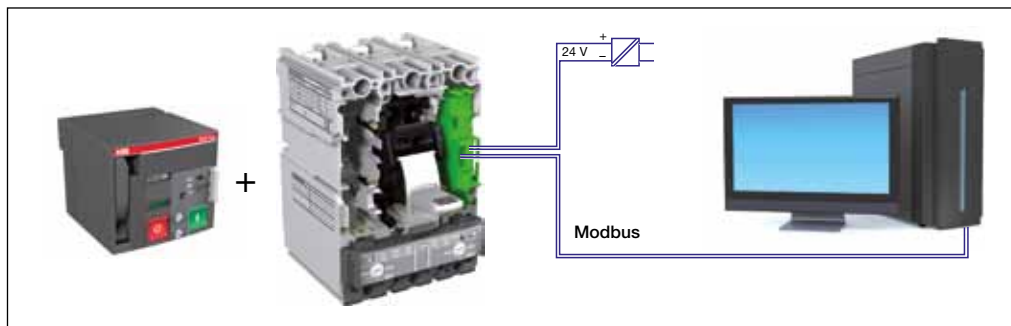
Positioned in the right-hand slot of the circuit breaker, the Ekip Com accessory connects to the Ekip LSI, Ekip LSI^G or Ekip E-LSIG trip unit via the supplied connector. Six cables come out of Ekip Com. Two are required for auxiliary supply, two for connection to the Modbus and two for connection to Internal Bus.

This configuration allows you to:

- read the measurements and settings from the electronic trip unit in remote mode;
- program the electronic trip unit in remote mode;
- know the state of the circuit breaker (Open/Closed/Tripped) in remote mode;
- locally visualize the relevant information of the circuit breaker on the HMI030.

Consult the Electric Diagrams chapter for further details about wiring.

Configuration 2: Monitoring and remote control (Thermomagnetic trip unit or molded case switch disconnecter, Ekip Com and MOE-E)



The Ekip Com accessory is positioned in the right-hand slot of the circuit breaker and attaches to a connector at the rear of the MOE-E.

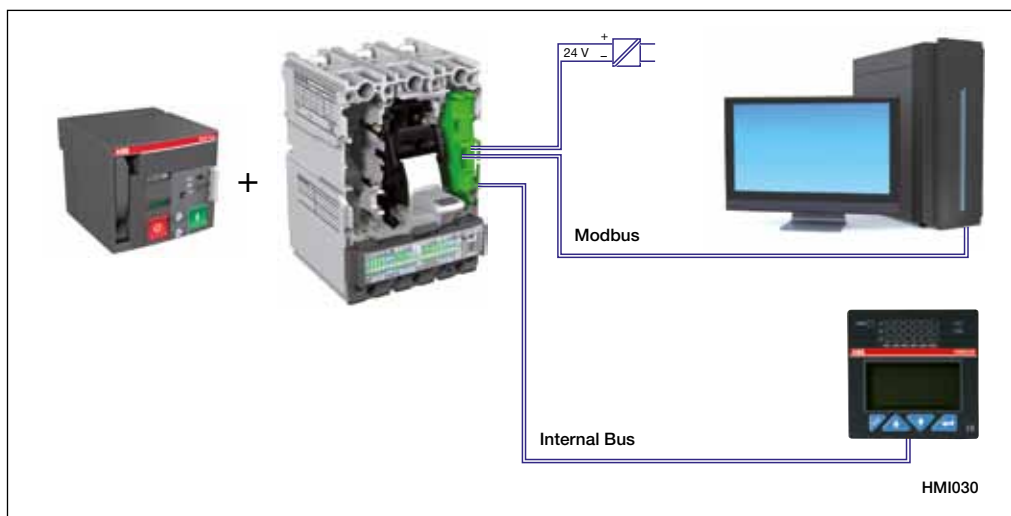
Six cables come out of the Ekip Com. Two are needed for the auxiliary power supply and two for connection to the Modbus.

With this configuration, it is possible to:

- read the Open/Closed/Tripped state of the circuit breaker remotely;
- open/close the circuit breaker or molded case switch disconnecter remotely.

For further details about cabling the various devices, please refer to the "Electric diagrams" chapter.

Configuration 3: Monitoring and remote control (Electronic trip unit, Ekip Com and MOE-E)



Positioned in the right-hand slot of the circuit breaker, the Ekip Com accessory connects to the Ekip LSI, Ekip LSIG or Ekip E-LSIG trip unit via connector supplied with Ekip Com and to the MOE-E via connector on that unit. Six cables come out of Ekip Com. Two are required for auxiliary supply, two for connection to the Modbus and two for connection to the Internal Bus.

This configuration allows you to:

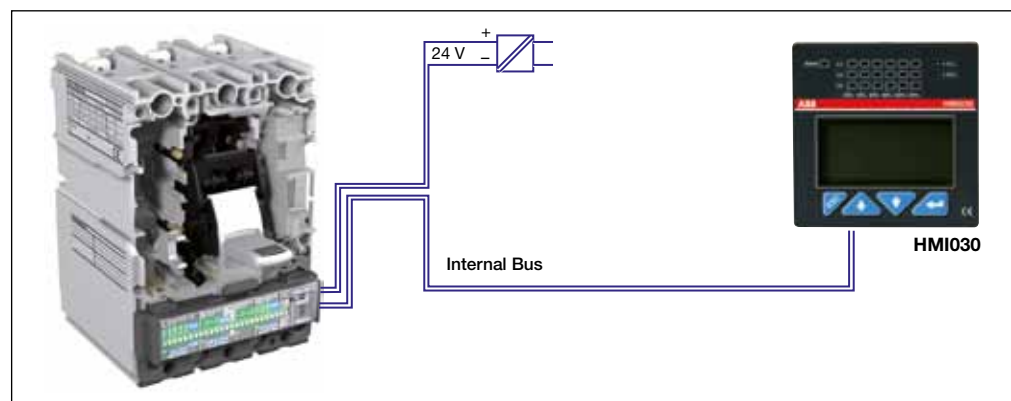
- read the measurements and settings from the solid-state release in remote mode;
- program the electronic trip unit in remote mode;
- read the state of the circuit breaker (Open/Closed/Tripped) in remote mode;
- open/close the circuit breaker in remote mode;
- visualize locally on HMI 030 all the relevant information of the circuit breaker.

Consult the "Electric diagrams" chapter for further details about wiring.

Special applications

Communication system

Configuration 4: Interface from front panel (Electronic trip unit and HMI030 unit)



When XT2 and XT4 circuit breakers are equipped with an Ekip LSI, Ekip LSI or Ekip E-LSIG electronic trip unit plus an HM1030 interface, electrical values and the most recent trip information can be displayed directly on the panel door.

The necessary accessories, are:

- interface device HMI030;
- kit of 24V DC auxiliary voltage for electronic trip unit.

Four cables come out of the Ekip E-LSIG, Ekip LSI or Ekip LSI or Ekip LSI trip unit. Two are needed for the auxiliary power supply and two for connection to the HMI030 on Internal Bus. This configuration allows measurements and alarms from the electronic trip unit to be read on the HM1030 interface accessory, positioned on the front of the panel. For further details on cabling the various devices, refer to the "Electric diagrams" chapter.

Measurement, signaling and available data functions

	Ekip LSI Ekip LSIG	Ekip E-LSIG	Ekip LS/I TM Molded case switch disconnecter
Electrical quantities			
Phase current (I_{L1}, I_{L2}, I_{L3})	■	■	
Neutral current (I_N) ⁽¹⁾	■	■	
Ground current (I_g)	■ ⁽¹⁾	■	
Phase to phase voltage ($V_{12}-V_{23}-V_{31}$)		■	
Phase-Neutral Voltage ($V_{1N}-V_{2N}-V_{3N}$) ⁽²⁾		■	
Frequency		■	
Power (active P, reactive Q, apparent S) total power and phase power ⁽²⁾		■	
Power factor (total and phase) ⁽²⁾		■	
Energy (active, reactive, apparent) total		■	
Harmonic calculation (THDi, specter)		■	
Status information			
CB status (open, closed, tripped)	■	■	■
Modality (local, remote)	■	■	
Protection parameters	■	■	
Thermal memory	■	■	
Maintenance data			
Total number of operations	■	■	
Total number of protection trips	■	■	
Total number of trip tests	■	■	
Total number of manual operations	■	■	
Total number of failed trips	■	■	
Last trip data recording	20	20	
Protection alarm			
I Protection (trip)	■	■	
S Protection (timing and trip)	■	■	
L Protection (timing and trip)	■	■	
G Protection (timing and trip)	■ ⁽¹⁾	■	
L Protection pre-alarm ⁽³⁾	■	■	
Diagnostic Alarm			
Trip command failed	■	■	
Trip coil disconnected	■	■	
Commands			
CB Open/CB Close (with MOE-E motor operator)	■	■	■
CB Reset (with MOE-E motor operator)	■	■	■
Alarm reset	■	■	
Trip test	■	■	
Protection parameter setting	■	■	
Run Time Events			
CB status changes, protection status change and alarms status change	■	■	

⁽¹⁾ Only with Ekip LSIG trip unit

⁽²⁾ Measurements available only with Neutral connected

⁽³⁾ $90\%I_n < I < 105\%I_n$

Versions and types

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Compatibility of accessories

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Accessories

Versions and types

3



Fixed circuit breaker

Tmax XT circuit breakers are available in the following versions:

- **FIXED.** These have a current-interrupting part connected to the trip unit, to be installed on the back plate of the box;
- **PLUG-IN.** These have a moving part and a fixed part. The latter must be installed on the back plate of the box. The moving part comes in the kit that converts the fixed version into a plug-in version;
- **WITHDRAWABLE.** These have a moving part and a fixed part, equipped with side runners to allow easy racking in/out of the moving part. The fixed part is installed on the back plate of the box. The moving part comes in the kit that converts the fixed version into a withdrawable version. To create the withdrawable circuit breaker, it's necessary to order a front accessory to maintain the IP40 degree of protection over the circuit breaker's entire isolation run.

If the plug-in circuit breaker is fitted with electrical accessories, appropriate connectors for insulating the corresponding auxiliary circuits must also be ordered. For the withdrawable version, there are dedicated accessories fitted with connectors enabling automatic disconnection when racking-out. (Consult the “Connectors for electrical accessories” section of this chapter).

Using the fixed version as a base, SACE Tmax XT circuit breakers can easily be converted into plug-in and withdrawable versions with the appropriate conversion kits. The moving part can always be obtained in the required version, fully pre-engineered in the factory, by ordering the fixed circuit breaker and the conversion kit at the same time.



Plug-in circuit breaker

	Version		
	Fixed	Plug-in	Withdrawable
XT1	■	■	
XT2	■	■	■
XT3	■	■	
XT4	■	■	■

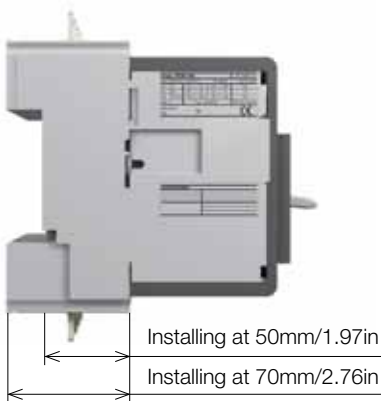


Withdrawable circuit breaker

Fixed part of plug-in and withdrawable versions

The fixed parts of the plug-in/withdrawable versions are available with extended front terminals (EF). The fixed parts can be equipped with some of the same terminal, terminal-cover and phase barrier kits used for the fixed circuit breakers, by using the proper adapter.

The fixed parts of a plug-in/withdrawable circuit breaker can be installed at a distance of 50mm/1.97in from the back of the panel or at 70mm/2.76in as shown in the picture.





Conversion kit for turning a fixed circuit breaker into the moving part of a plug-in circuit breaker



Conversion kit for turning a fixed circuit breaker into the moving part of a withdrawable circuit breaker



Conversion kit for turning a fixed part of plug-in version into the fixed part of a withdrawable version

Conversion kits

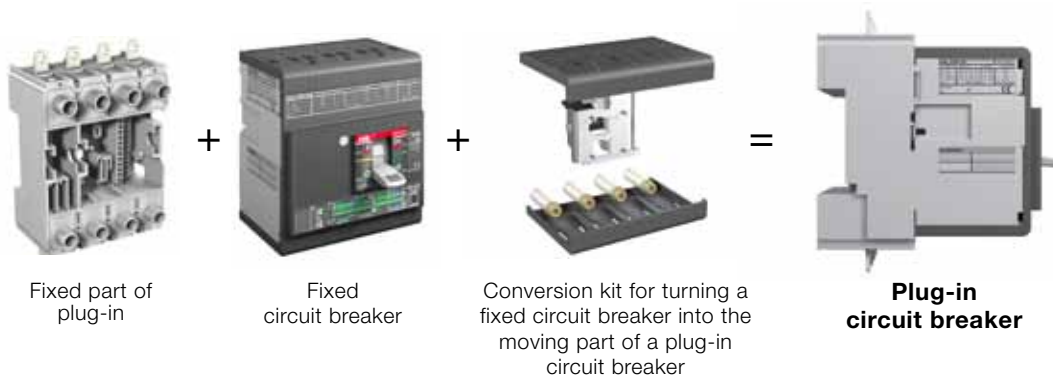
The following conversion kits can be obtained in order to create the different versions:

- **Kit for converting the fixed circuit breaker into the moving part of plug-in/withdrawable versions.** When withdrawable versions are made, it is essential to order an accessory to apply to the front of the circuit breaker in order to maintain the IP40 degree of protection over the entire isolation run. This accessory can be chosen from:
 - front for lever operating mechanism (FLD);
 - motor operator (MOE);
 - direct or extended rotary handle operating mechanisms (RHD or RHE).
 If no accessory is indicated, the front for lever operating mechanism (FLD) is automatically included in the order.
- **Kit for converting the fixed part of plug-in versions into the fixed part of withdrawable versions.** The kit comprises:
 - a guide for turning the fixed part of the plug-in circuit breaker into the fixed part of the withdrawable circuit breaker;
 - a racking-out rotary handle that allows the moving part to be inserted and withdrawn. The mechanism allows the circuit breaker to be set to the isolated position (with the power and auxiliary circuits disconnected) with the compartment door closed, for operator safety. The rotary handle can only be inserted when the circuit breaker is open. Once it has been removed or withdrawn, the circuit breaker can be set to the open/closed position;
 - a flange for the compartment door, which replaces the one supplied with the fixed version of the circuit breaker.
- **Kit for converting fixed type into the plug-in version for RC Sel residual current devices for XT2-XT4.** RC Sel four-pole residual current devices for XT2 and XT4 can be converted from the fixed version into the plug-in version using the special kit.
- **Kit for converting plug-in types into the withdrawable version for RC Sel residual current devices for XT2-XT4.** RC Sel four-pole residual current devices for XT2 and XT4 can be converted from the plug-in version to the withdrawable version using the special kit, which comprises a bellows to apply to the front of the residual current device so as to allow it and the residual current part to be withdrawn when the panel door is closed. This kit can also be assembled on fixed circuit breakers fitted with the front part for locks or the direct rotary handle, thus adding to the range of uses for residual current devices. In the plug-in to withdrawable conversion kit, there is also a 6-pin connector to be applied onto the right side of the circuit breaker to facilitate disconnecting the auxiliary circuits connected to the residual current device. This kit contains also the shunt opening release of the residual current device dedicated to the withdrawable version, which is fitted with a connector for the fixed part and the moving part.

Accessories

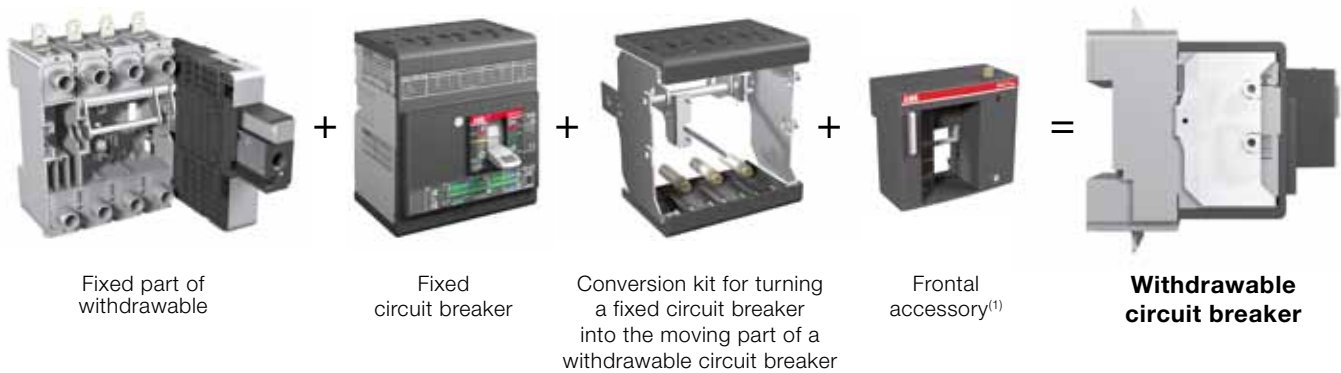
Versions and types

Plug-in version

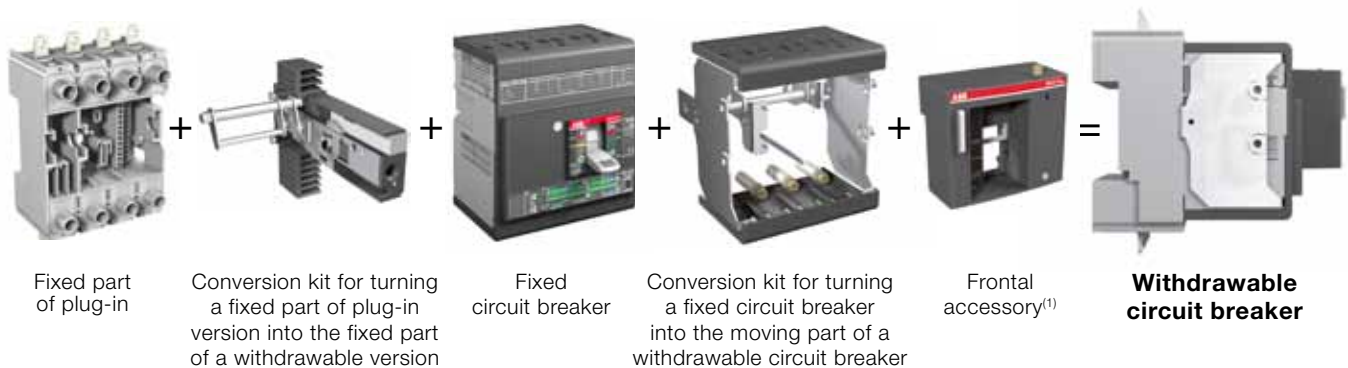


Withdrawable version

1st solution



2nd solution



⁽¹⁾ Frontal accessory is mandatory. If not specified in the order, the FLD is supplied automatically

Accessories

Mechanical accessories

		UL Listed	XT1	XT2	XT3	XT4
Terminals	F - Front terminals	■	■	■	■	■
	EF - Extended front terminals	■	■	■	■	■
	ES - Extended spread terminals	■	■	■	■	■
	FCCu - Front for copper cables	■	■	■	■	■
	FCCuAl - Front for copper/aluminum cables	■	—	—	■	■
	FB - For flexible busbars	—	■	■	■	■
	MC - Multi cable for copper cable	■	■	■	■	■
	R - Rear oriented	—	■	■	■	■
	EF - Extended front for the fixed part	■	■	■	■	■
	HR/VR - Horizontal rear / Vertical rear for fixed part	—	■	■	■	■
	R for RC - Rear for residual current release	—	■	—	■	—
Terminal covers	LTC - Low terminal cover	■	■	■	■	■
	HTC - High terminal cover	■	■	■	■	■
Phase barriers	PB - 25mm/0.98in	■	■	■	■	■
	PB - 100mm/3.94in	■	■	■	■	■
	PB - 200mm/7.87in	■	■	■	■	■
Flange handle operating mechanism	MKC - Cable operated flange handles	■	■	■	■	■
Rotary handle operating mechanism	RHD - Direct rotary handle	■	■	■	■	■
	RHE - Extended rotary handle	■	■	■	■	■
	RHS - Side rotary handle (right and left sides)	■	■	■	■	■
	LH - Long "pistol" rotary handle (for RHE or RHS)	■	■	■	■	■
	RHL - Rotary handle/front lever lock, open	■	■	■	■	■
	RHL - Rotary handle/front lever lock, open/closed	■	■	■	■	■
Front for operating lever mechanism	FLD - Front for locks	■	—	■	—	■
Locks on circuit breaker	PLL - Padlock device, removable	■	■	—	■	—
	PLL - Padlock device, open	■	■	■	■	■
	PLL - Padlock device, open/closed	■	■	■	■	■
	KLC - Key lock, open	■	■	■	■	■
	KLC - Key lock, open/closed	■	■	■	■	■
Mechanical interlock	MIR - Mechanical interlock (HR and VR)	■	■	■	■	■

Connection terminals

Connection terminals allow the circuit breaker to be connected to the system in the way best suited to the installation requirements. By and large, they consist of front terminals for connecting cables or busbar directly from the front of the circuit breaker.

Where possible, the terminals have laser markings on the surface to indicate the tightening torques for the correct isolation of cables and bars.

Fixed version

Standard SACE Tmax XT circuit breakers for UL and CSA are supplied with front terminals (F). However, they can be fitted with the following types of terminal as accessories thanks to the special kits:

- extended front (EF);
- extended spread front (ES);
- front for copper/aluminum cables (FCCuAl), for XT3 and XT4 sizes;
- front for copper cables (FCCu);
- multicable for copper cable (MC);
- for flexible busbar (FB);
- rear oriented (R).

For XT1 and XT3 sizes, the use of non-insulated busbar with $U_e \leq 480V$ involves the mandatory assembly of terminal-covers HTC.

Accessories

Mechanical accessories

3

Plug-in and withdrawable versions

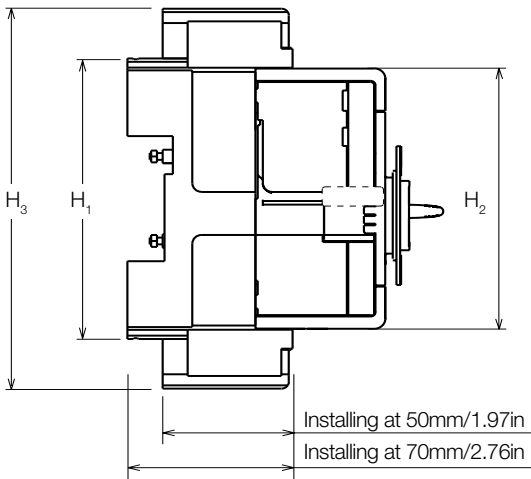
The fixed part of plug-in and withdrawable version circuit-breakers is normally supplied with extended front terminals (EF) or horizontal/vertical rear terminals (HR/VR).

Horizontal/vertical rear terminals (HR/VR) are factory-mounted in the horizontal position. If needed, the terminals can easily be field-rotated to the vertical position.

A fixed part with front terminals (EF) can be converted into a fixed part with rear terminals (HR/VR) by ordering the appropriate terminal kit. The fixed parts can also be fitted with some of the same types of terminal available on the fixed circuit breaker after an adapter has been installed on the terminal zone of the fixed part itself. Consequently, the following types of connection terminals are also acceptable for use with the fixed part:

- extended spread front (ES);
- for copper cables (FCCu);
- multi-cable (MC).
- for copper and aluminum cables (FCCuAl);
- for flexible bars (FB).

The adapter mimics the terminal zone of the fixed circuit breaker. This means that fixed parts can also be equipped with the same terminal covers and phase separators as those used for fixed circuit breakers.



Fixed part adapter

Fixed part adapter

Circuit breakers	H ₁ fixed part [mm/in]	H ₂ circuit breaker [mm/in]	H ₃ fixed part with two adapters [mm/in]
XT1	146/5.75	134/5.28	181/7.13
XT2	153/6.02	134/5.28	188/7.40
XT3	166/6.54	154/6.06	225/8.86
XT4	182/7.17	164/1.46	228/8.98

Front terminals - F ⁽¹⁾

CB.	Vers.	Busbar dimensions [mm/in]						Cable terminals [mm/in]		Tightening [Nm/lb-in]		H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W min	W max	H	Ø	D min	D max	W	Ø	Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	13/0.512	16/0.630	7.5/0.295	6.5/0.256	3.5/0.138	5/0.197	16/0.630	6.5/0.256	M6	6/53.1	–	R	–	S	R	R
XT2	F	13/0.512	20/0.787	7.5/0.295	6.5/0.256	2.5/0.098	5/0.197	20/0.787	6.5/0.256	M6	6/53.1	–	R	–	S	R	R
XT3	F	17/0.669	25/0.984	9.5/0.374	8.5/0.335	5/0.197	8/0.315	24/0.945	8.5/0.335	M8	8/70.8	–	–	R	S	R	R
XT4	F	17/0.669	25/0.984	10/0.394	8.5/0.335	5/0.197	8/0.315	25/0.984	8.5/0.335	M8	8/70.8	–	–	R	S	R	R

⁽¹⁾ UL Listed

Front terminal - F



F terminal with cable lug



F terminal with busbar

Front extended terminals - EF ⁽¹⁾

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]			H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W	D	Ø	W	Ø	Terminal /CB		Cable or busbar /Terminal	2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	20/0.787	4/0.157	8.5/0.335	20/0.787	8.5/0.335	M6	6/53.1	M8	9/79.7	–	R	–	S	R
XT2	F	20/0.787	4/0.157	8.5/0.335	20/0.787	8.5/0.335	M6	6/53.1	M8	9/79.7	–	S	–	S	R
XT3	F	20/0.787	6/0.236	10/0.394	20/0.787	10/0.394	M8	8/70.8	M10	18/159.3	–	–	R	S	R
XT4	F	20/0.787	10/0.394	10/0.394	20/0.787	10/0.394	M8	8/70.8	M10	18/159.3	–	–	S	S	R

⁽¹⁾ UL Listed

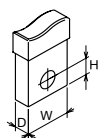
Front extended terminal - EF



EF terminal with cable lug



EF terminal with busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

3

Front extended spread terminals - ES ⁽¹⁾

CB	Vers.	Busbar dimensions MAX [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]				H Terminal covers [mm/in]			H Phase separators [mm/in]		
		W	D	Ø	W	Ø	Terminal /CB		Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F-P	25/0.984	4/0.157	8.5/0.335	25/0.984	8.5/0.335	M6	6/53.1	M8	9/79.7	–	–	–	–	–	S
XT2	F-P-W	30/1.181	4/0.157	10.5/0.413	30/1.181	10.5/0.413	M6	6/53.1	M10	18/159.3	–	–	–	–	–	S
XT3	F-P	30/1.181	4/0.157	10.5/0.413	30/1.181	10.5/0.413	M8	8/70.8	M10	18/159.3	–	–	–	–	–	S
XT4	F-P-W	30/1.181	10/0.394	10.5/0.413	30/1.181	10.5/0.413	M8	8/70.8	M10	18/159.3	–	–	–	–	–	S

⁽¹⁾ UL Listed



Front extended spread terminal - ES



ES terminal with cable lug



ES terminal with busbar

Terminals for copper cables - FCCu ⁽²⁾

CB	Type of terminal	Vers.	Cable		Inner dimensions [mm/in]	Tightening [Nm/lb-in]	L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]		
			AWG/kcmil	mm ²							25/0.98	100/3.94	200/7.87
XT1 ⁽³⁾	Internal	F-P	1x14...1/0	1x2.5...70	12x12/0.472x0.472	7/61.95	16/0.629	–	R	–	S ⁽¹⁾	R	R
XT1 ⁽⁴⁾	Internal	F-P	1x14...1/0	1x1.5...70	9.5x16/0.37x0.63	7/61.95	16/0.629	–	R	–	S ⁽¹⁾	R	R
XT2	Internal	F-P-W	1x14...1/0	1x2.5...95	14x14/0.551x0.551	<50mm ² (1/10 AWG): 7/61.95	14/0.551	–	R	–	S ⁽¹⁾	R	R
						≥50mm ² (1/10 AWG): 8.5/75.23							
XT3	Internal	F-P	1x10...250	1x6...185	18x18/0.709x0.709	14/123.91	20/0.787	–	–	R	S ⁽¹⁾	R	R
XT4	Internal	F-P	1x10...250	1x6...185	18x18/0.709x0.709	14/123.91	16/0.787	–	–	R	S ⁽¹⁾	R	R
XT4	Internal	F-P	1x14-1/0	1x2.5...50	1x2.5...50	–	–	–	–	–	–	–	–

⁽¹⁾ Phase separators are supplied as standard with the basic version of the circuit breaker; ⁽²⁾ UL Listed; ⁽³⁾ MCCB only application; ⁽⁴⁾ MCCB/MCP application.



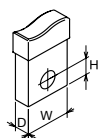
FCCu terminal



FCCu terminal with cable



FCCu terminal with busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Terminals for copper cables - FCCuAl ⁽¹⁾

CB	Type of terminal	Vers.	Cable		Tightening [Nm/lb-in]		L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]		
			AWG/kcmil	mm ²	Terminal/CB	Cable or busbar/Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT2	internal	F-P	1x14...1/0	1x2.5...50	2.5/22.12	M6 ≤ 8mm ² (8 AWG): 4.5/39.82 > 8mm ² (8 AWG) 5.7/50.44	15,5/0.61	—	—	—	S	R	R
XT3	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	slot 5.6/50	15,5/0.61	—	—	—	S	R	R
	internal	F-P	1x4...300	1x25...150	9/79.7	M6 22.6/200	20/0.787	—	—	—	S	R	R
XT4	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	slot 5.6/50	15,5/0.61	—	—	—	S	R	R
	internal	F-P	1x4...300	1x25...150	9/79.7	M6 22.6/200	20/0.787	—	—	—	S	R	R
XT4	internal	F-P	1x250...350	1x127...177	not app	M6 25/221	24	—	—	—	S	R	R
XT4 X	internal	F-P	1x14...1/0	1x2.5...50	9/79.7	M6 <8mm ² (8 AWG): 2.3/20.35 ≥8mm ² (8 AWG) 5.6/49.56	16	—	—	—	S	R	R

⁽¹⁾ UL Listed

Internal FCCuAl terminal for copper/aluminum cables



Internal FCCuAl terminal for copper and aluminum cable with take-up of auxiliary voltage



FCCuAl internal terminal with cable

Terminals for flexible busbars - FB

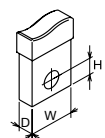
CB	Type of terminal	Vers.	Busbar dimensions MIN [mm/in]			Busbar dimensions MAX [mm]			Tightening [Nm/lb-in]	H Terminal covers [mm/in]			H Separators [mm/in]		
			W	D	Nr	W	D	Nr		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	internal	F-P	10/0.394	0,8/0.031	2/0.078	10/0.394	0,8/0.031	9/0.354	7/61.95	—	R	—	S ⁽¹⁾	R	R
XT2	internal	F-P-W	10/0.394	0,8/0.031	2/0.078	10/0.394	0,8/0.031	9/0.354	7/61.95	—	R	—	S ⁽¹⁾	R	R
XT3	internal	F-P	16/0.629	0,8/0.031	2/0.078	16/0.629	0,8/0.031	10/0.394	14/123.91	—	—	R	S ⁽¹⁾	R	R
XT4	internal	F-P-W	16/0.629	0,8/0.031	2/0.078	16/0.629	0,8/0.031	10/0.394	14/123.91	—	—	R	S ⁽¹⁾	R	R

⁽¹⁾ Phase separators supplied as standard with basic version circuit breaker

Terminal for flexible busbars (FB)



FB terminal with flexible busbars



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

3

Multi-cable terminals - MC Cu ⁽¹⁾

CB	Type of terminal	Vers.	Cable		Tightening [Nm/lb-in]		L cable stripping [mm/in]	H Terminal covers [mm/in]			H Phase separators [mm/in]		
			AWG/kcmil	mm ²	Terminal /CB	Cable or busbar /Terminal		2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	external	F-P	6x14...2	6x2.5...35	6/53.1	7/61.95	10, 20, 30 / 0.394, 0.787, 1.181	–	S	–	–	–	–
XT2	external	F-P-W	6x14...2	6x2.5...35	6/53.1	7/61.95	10, 20, 30 / 0.394, 0.787, 1.181	–	S	–	–	–	–
XT3	external	F-P	6x12...2	6x2.5...35	8/70.8	7/61.95	15, 30 / 0.591, 1.181	–	–	S	–	–	–
XT4	external	F-P	6x12...2	6x2.5...35	8/70.8	7/61.95	15, 30 / 0.591, 1.181	–	–	S	–	–	–

Installation on load side only

⁽¹⁾ UL Listed



Multi-cable terminals (MC)



Multi-cable terminals with cables

Rear horizontal terminals - R

CB	Vers.	Busbar dimensions MAX [mm]				Tightening [Nm/lb-in]				H Terminal covers [mm]			H Separators [mm]		
		W	H	D	Ø	Terminal/CB	Cable or busbar/terminal			2/0.08	50/1.97	60/2.36	25/0.98	100/3.94	200/7.87
XT1	F	15/0.590	7.5/0.295	5/0.196	6.5/0.255	M5	5/44.2	M6	6/53.1	S	–	–	–	–	–
XT2	F	20/0.787	9/0.354	4/0.157	8.5/0.335	M6	6/53.1	M8	8/70.8	S	–	–	–	–	–
XT3	F	20/0.787	9/0.354	6/0.236	8.5/0.335	M8	8/70.8	M8	8/70.8	S	–	–	–	–	–
XT4	F	20/0.787	9/0.354	6/0.236	8.5/0.335	M8	8/70.8	M8	8/70.8	S	–	–	–	–	–



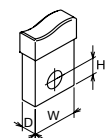
Rear horizontal terminals (R)



R terminal with horizontal busbar



R terminal with vertical busbar



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Extended front terminals for fixed part - EF ⁽¹⁾

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]				Phase separators [mm/in]	
		W	D	Ø	W	Ø	Terminal/ CB		Cable or busbar /Terminal		100/3.94	200/7.87
XT1	P	20/0.787	5/0.197	8.5/0.335	21/0.827	6.5/0.256	M6	6/53.1	M6	9/79.7	S	R
XT2	P-W	20/0.787	5/0.197	8.5/0.335	21/0.827	6.5/0.256	M6	6/53.1	M6	9/79.7	S	R
XT3	P	25/0.984	8/0.315	8.5/0.335	30/1.181	8.5/0.335	M6	8/70.8	M8	18/159.3	S	R
XT4	P-W	25/0.984	8/0.315	8.5/0.335	30/1.181	8.5/0.335	M6	8/70.8	M8	18/159.3	S	R

⁽¹⁾ UL Listed

EF terminals for fixed part

Rear flat horizontal terminals for fixed part - HR

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]			Rear Separators [mm/in]	
		W	D	Ø	W	Ø	Terminal/ CB	Cable or busbar /Terminal		90/3.543	
XT1	P	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1		9/79.7	R
XT2	P-W	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1		9/79.7	R
XT3	P	25/0.984	6	8.5/0.335	25/0.984	8.5/0.335		8/70.8		9/79.7	R
XT4	P-W	25/0.984	10	8.5/0.335	25/0.984	8.5/0.335		8/70.8		9/79.7	R



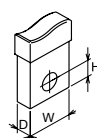
HR terminals for fixed part

Rear flat vertical terminals for fixed part - VR

CB	Vers.	Busbar dimensions [mm/in]			Cable terminals [mm/in]		Tightening [Nm/lb-in]			Rear Separators [mm/in]	
		W	D	Ø	W	Ø	Terminal/ CB	Cable or busbar /Terminal		90/3.543	
XT1	P	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1		9/79.7	R
XT2	P-W	20/0.787	4	8.5/0.335	20/0.787	8.5/0.335		6/53.1		9/79.7	R
XT3	P	25/0.984	6	8.5/0.335	25/0.984	8.5/0.335		8/70.8		9/79.7	R
XT4	P-W	25/0.984	10	8.5/0.335	25/0.984	8.5/0.335		8/70.8		9/79.7	R



VR terminals for fixed part



W Width
H Hole height
D Depth

F Fixed
P Plug-in
W Withdrawable
Ø Diameter
S Standard
R On Request

Accessories

Mechanical accessories

3



Terminal covers



Phase barriers

Terminal covers and phase barriers

Terminal covers are applied to the circuit breaker to prevent accidental contact with live parts, thereby providing protection against direct contacts. The terminal covers are pre-punched for knock-outs on the front to facilitate installing busbars and and/or cables and ensuring correct insulation.

The phase barrier partitions increase the insulation characteristics between the phases on a level with the connections. They are mounted from the front, even when the circuit breaker has already been installed, by inserting them into the corresponding slots.

The table lists the various terminal covers and phase barriers available for each SACE Tmax XT circuit breaker. The terminal covers/phase barriers that are able to ensure adequate circuit breaker installation and correct insulation are listed in the “Connection terminals” section of this chapter, alongside each terminal.

		XT1	XT2	XT3	XT4
HTC - High terminal covers	[mm/in]	50/1.97	50/1.97	60/2.36	60/2.36
LTC - Low terminal covers	[mm/in]	2/0.08	2/0.08	2/0.08	2/0.08
Phase barrier - low	[mm/in]	25/0.98	25/0.98	25/0.98	25/0.98
Phase barrier - medium	[mm/in]	100/3.94	100/3.94	100/3.94	100/3.94
Phase barrier - high	[mm/in]	200/7.87	200/7.87	200/7.87	200/7.87
Rear phase barrier for FP	[mm/in]	90/3.54	90/3.54	90/3.54	90/3.54

Rotary handle operating mechanism

This device allows the circuit breaker to be operated by means of a rotary handle, which makes the circuit breaker easier to open and close.

Different types of handle are available:

- direct (RHD): installed directly on the front of the circuit breaker. Allows it to be operated from the front;
- extended (RHE): installed on the panel door. Allows the circuit breaker to be operated by means of a rod which acts on a base installed on the front of the circuit breaker;
- side, for lateral left (RHS-L) and lateral right (RHS-R). Allows operation from the side by means of a shaft which acts on the base installed on the front of the circuit breaker.

A long handle grip (LH) which can be combined with the extended handle (RHE) and with the side handle (RHS), is also available.



Direct rotary handle (RHD)



Extended rotary handle (RHE)



(LH) Long handle



(RHS) Side rotary handle

All rotary handles are available in two versions:

- standard: grey color;
- emergency: red on a yellow background. Suitable for operating machine tools.

Rotary handles can be ordered:

- by specifying one single sales code (for RHD, RHE, RHS L/R);
- by indicating the following three devices (only for RHE):
 - rotary handle on compartment door with normal standard handgrip (RHE_H, RHE_H LH) or emergency handgrip (RHE_H_EM, RHE_H_EM LH);
 - 60.5mm/2.38" and 170.5mm/6.71" rod (RHE_S). The minimum and maximum distances between the fixing plate and the door are 60.5mm/2.38" and 170.5mm/6.71";
 - base to fix to the circuit base (RHE_B).

Using the rotary handle is an alternative to the motor operator and to all accessories of the front type. The rotary handles can be locked by means of a vast range of key locks and padlocks (consult the "Locks" section of this chapter).

The direct and extended rotary operating mechanisms allow early contacts to be used on closing in order to supply the undervoltage release in advance of the circuit breaker's closing (consult the "Early auxiliary contacts" section of this chapter).



IP54 protection

IP54 Protection

A device that can be applied onto the transmitted rotary and lateral handle allowing IP54 degree of protection^(G.1.11) to be achieved.



Front for operating lever mechanism

Front for operating lever mechanism

This device can be installed on the front of the circuit breaker, allowing it to be locked with key locks and padlocks.

The front for operating lever mechanism can only be installed on XT2 and XT4 three-pole and four-pole circuit breakers. It can be fitted with a vast range of key locks and padlocks (see the "Locks" section of this chapter).

Accessories

Mechanical accessories



Key lock



Fixed padlock in open position



Fixed padlock in open/closed position



Removable padlock in open position



Key lock/padlock for withdrawable fixed part

Locks

Padlocks or key locks prevent the circuit breaker from being closed and/or opened. They can be fitted:

- directly on the front of the circuit breaker;
- on the rotary handle operating mechanism;
- on the front for lever operating mechanism;
- on the motor;
- to the fixed and withdrawable part, to prevent the moving part from being inserted;
- on the front of the thermomagnetic trip unit, to prevent the thermal part adjustor from being tampered with.

All locks that hold the circuit breaker in the open position ensure circuit isolation in accordance with the IEC 60947-2 Standard. In the closed position, the locks do not prevent the mechanism from releasing after a fault or remote control.



Circuit breaker with removable padlock in open position



Circuit breaker with fixed padlock in open position



Circuit breaker with fixed padlock in open/close position



RHD with key lock



RHE with key lock



FLD with key lock



MOD with key lock



MOE with key lock



Withdrawable fixed part with key lock/padlock

Type of lock		Circuit-breaker	Optional/ Standard supply	Position of circuit breaker lock	Type of lock	Removability of key
Circuit-breaker	PLL Fixed padlock device	XT1...XT4	Optional	OPEN / CLOSED	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
		XT1...XT4	Optional	OPEN	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
	PLL Removable padlock device	XT1, XT3	Optional	OPEN	padlocks max 3 padlocks Ø 7mm stem (not supplied)	—
		XT1...XT4	Optional	OPEN	Ronis Same key (A, B, C, D type)	OPEN
	KLC Key lock ⁽⁵⁾	XT1...XT4	Optional	OPEN	Ronis Different key	OPEN
		XT1...XT4	Optional	OPEN	Ronis Same key	OPEN / CLOSED
Rotary handle (RHD/RHE/ RHE-LH/ RHS)	RHL Key lock ⁽¹⁾	XT1...XT4	Optional	OPEN	Ronis Same key	OPEN
		XT1...XT4	Optional	OPEN	Ronis Different key	OPEN
		XT1...XT4	Optional	OPEN / CLOSED	Ronis Different key	OPEN / CLOSED
	Padlock device	XT1...XT4	Standard	OPEN	padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
	Door lock ⁽⁴⁾	XT1...XT4	Standard	DOOR LOCKED WHEN CIRCUIT BREAKER CLOSED	—	—
Frontal for operating lever (FLD)	Padlock device	XT2, XT4	Standard	OPEN	padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
	Door lock	XT2, XT4	Standard	DOOR LOCKED WHEN CIRCUIT BREAKER CLOSED	—	—
	RHL Key lock ⁽¹⁾	XT2, XT4	Optional	OPEN	Ronis Same key	OPEN
		XT2, XT4	Optional	OPEN	Ronis Different key	OPEN
		XT2, XT4	Optional	OPEN / CLOSED	Ronis Different key	OPEN / CLOSED
Motor (MOD, MOE, MOE-E)	Padlock device	XT1...XT4	Standard	OPEN	padlocks max 3 padlocks Ø 8mm stem (not supplied)	—
	Key lock on motor MOL-D MOL-S	XT1...XT4	Optional	OPEN	Ronis Different keys	OPEN
		XT1...XT4	Optional	OPEN	Ronis Same keys	OPEN
	Key lock against manual operation MOL-M ⁽²⁾	XT1...XT4	Optional	MANUAL	Ronis key	WITH LOCK INSERTED
Fixed part of withdrawable	KLF-FP Key lock / padlock for fixed part of withdrawable device	XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Ronis key Different + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Ronis key Same + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Giussani key Different + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
		XT2, XT4	Optional	Key WITHDRAWN / INSERTED Padlock WITHDRAWN	Giussani key Same + padlocks max 3 padlocks Ø 6mm stem (not supplied)	—
Trip unit	Lock of thermal regulation ⁽³⁾	XT1, XT3	Optional	—	—	—
		XT2, XT4	Standard	—	—	—

⁽¹⁾ On the transmitted rotary handle (RHE), the lock is mounted on the base. The key lock is not available on the lateral handle (RHS).

⁽²⁾ Only for MOE and MOE-E.

⁽³⁾ Applied to the cover of the circuit breakers on a level with the regulator of the thermal element of thermomagnetic release TMD to prevent it from being tampered with.

⁽⁴⁾ This function can be totally inhibited by the customer when the handle is assembled by means of a simple operation that can be reversed if needed.

Moreover, if the door lock function is not disabled by the customer during the assembly phase, the door lock can be temporarily deactivated with a tool in exceptional cases, so that the door can be opened without opening the circuit breaker.

⁽⁵⁾ Incompatible with electrical accessories mounted in the third pole.

Accessories

Mechanical accessories

3



Interlock

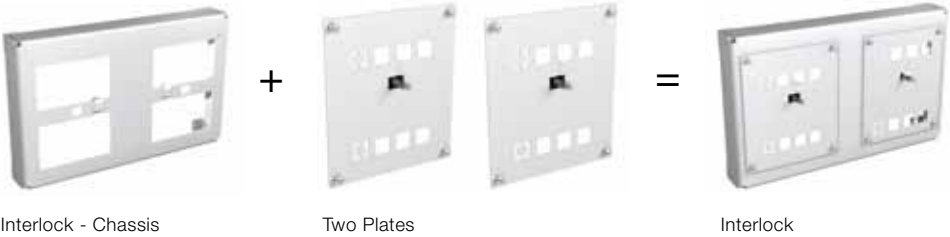
Rear mechanical interlock

Support designed for rear installation of two circuit breakers that, through connections, prevents the two installed breakers from closing simultaneously. The circuit breakers in the Tmax XT family are interlocked two-by-two (IO-OI-OO) by means of a chassis and special plates. Interlocked circuit breakers can be of a fixed, plug-in or withdrawable version. Both circuit breakers and molded case switch disconnectors in the three-pole and four-pole versions can be interlocked. Acceptable combinations are:

	XT1	XT2	XT3	XT4
XT1	■	■	■	■
XT2	■	■		■
XT3	■		■	
XT4	■	■		■

The following equipment must be ordered to make the rear interlock:

- a vertical or horizontal chassis;
- a plate for each circuit breaker to be interlocked.



Bracket for fixing on DIN rail

Bracket for fixing on DIN rail

Support designed to be installed on the back of the circuit breakers to simplify assembly on standardized DIN EN 50022 rail. The following can be installed on DIN EN 50022 rail:

- all Tmax XT circuit breakers in the fixed three-pole or four-pole versions;
- XT1, XT3 circuit breakers equipped with RC Sel 200; RC Inst, RC Sel for XT1 and XT3 residual current releases.

Flanges

A flange is a plastic plate that acts as an interface between the circuit breaker and the hole in the panel door. All the Tmax XT series flanges are newly designed and do not require screws for installation. Flanges are applied:

- around the front part of the fixed/plug-in circuit breaker;
- around the operating lever for all fixed/plug-in/circuit breakers;
- around the MOD or MOE motor operator;
- around the front for FLD locks;
- around the direct rotary handle operating mechanism;
- around the extended rotary handle operating mechanism;
- around the RC Inst, RC Sel for XT1 and XT3, RC Sel for TX2 and TX4 residual current release.



XT1-XT3
with standard flange



XT2-XT4
with standard flange



XT1-XT4
with operating lever
flange



Rotary handle
with flange



MOE
with flange



MOD
align flush left
under MOD

Accessories

Electrical accessories

3

Tmax XT UL/CSA electrical accessories		UL Listed	XT1	XT2	XT3	XT4
Shunt opening release	SOR / SOR-C (uncabled and cabled)	■	■	■	■	■
Undervoltage release	UVR / UVR-C (uncabled and cabled)	■	■	■	■	■
Time-delay device for undervoltage release	UVD	—	■	■	■	■
Cabled auxiliary contacts, 1m	1 Q 1 SY 24V DC	■	■	■	■	■
	3 Q 1 SY 24V DC	■	—	■	■	■
Q: signaling contact open/closed	1 S51 24V DC	■	—	■	—	■
SY: trip position signaling contact	1 Q 1 SY 250V AC/DC	■	■	■	■	■
	2 Q 2 SY 1 S51 250V AC/DC	■	—	■	—	■
S51: signaling contact due to trip unit tripping or interaction	3 Q 2 SY 250V AC/DC	■	—	■	—	■
	3 Q 1 SY 250V AC/DC	■	—	■	■	■
	1 S51 250V AC/DC	■	—	■	—	■
	3 Q on left 250V AC/DC	■	■	■	■	■
	2 Q 1 SY 250V AC/DC	■	■	■	■	■
	1 Q 1 SY 400V AC	■	—	■	—	■
	2 Q 400V AC	■	—	■	—	■
Uncabled auxiliary contacts	24V DC	■	■	■	■	■
	S51 24V DC	■	—	■	—	■
	250V AC/DC	■	■	■	■	■
	S51 250V AC/DC	■	—	■	—	■
Auxiliary position contacts	AUP - Inserted (24V and 250V)	■	■	■	■	■
	AUP - Withdrawn (24V and 250V)	■	—	■	—	■
Early auxiliary contacts in the rotary handle	AUE - 2 contacts closed	■	■	■	■	■
	AUE - 2 contacts open	■	■	■	■	■
Motor operators	MOD	■	■	—	■	—
	MOE	■	—	■	—	■
	MOE-E	—	—	■	—	■
Residual current devices	RC Inst	—	■	—	■	—
	RC Sel 200	—	■	—	—	—
	RC Sel for XT1 XT3	—	■	—	■	—
	RC Sel for XT2 XT4	—	—	■	—	■
	RC B Type	■	—	—	■	—
Ekip electronic trip unit accessories	Ekip Display	—	—	■	—	■
	Ekip LED Meter	—	—	■	—	■
	Ekip Com	—	—	■	—	■
	HMI030 interface on the front of the switchboard	—	—	■	—	■



Cabled SOR - UVR



Cabled SOR - UVR
for withdrawable circuit breaker



Uncabled SOR - UVR

Service releases

Shunt opening release (SOR). Allows the circuit breaker to be opened by means of a non-permanent electrical control. Release operation is ensured for voltages between 70% and 110% of the rated power supply voltage U_n , in both alternating and direct current. The SOR is equipped with a built-in limit contact to shut off the power supply in the open position with the relay tripped.

A remote controlled emergency opening command can be created by connecting an opening button to the SOR.

Undervoltage release (UVR). Allows the circuit breaker to open when the release is subjected to either a power failure or a voltage drop. Opening is ensured when the voltage is between 70% and 35% of the rated power supply U_n . After tripping, the circuit breaker can be closed again if the voltage exceeds 85% of U_n . When the undervoltage release is not energized, neither the circuit breaker nor the main contacts can be closed. A remote controlled emergency opening command can be created by connecting an opening button to the UVR.

None of the service releases in the Tmax XT series requires screws for installation. They are extremely easy to fit. Just use slight pressure to snap the release into the appropriate place. All service releases are available in two versions:

- cabled (AWG20 cable section - 0.5mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- not cabled:
 - for fixed/plug-in circuit breakers with cables from (1.5 mm²/14 AWG in section).

In circuit breakers:

- three-pole: either one SOR or one UVR can be installed in the slot on the left of the operating lever;
- four-pole: two service releases can be installed at the same time by using the third and fourth poles. If the circuit breaker is the withdrawable type, the connector for the fourth pole must be ordered to be able to install an SOR or UVR in the fourth pole.



SOR Electrical specifications

Version	Max power absorbed on inrush	
	AC [VA]	DC [W]
12V DC		50
24-30V AC/DC	50	50
48-60V AC/DC	60	60
110...127V AC-110...125V DC	50	50
220...240V AC-220...250V DC	50	50
380-440V AC	55	
480-525V AC	55	

UVR Electrical specifications

Version	Power absorbed during normal operation	
	AC [VA]	DC [W]
24-30V AC/DC	1.5	1.5
48V AC/DC	1	1
60V AC/DC	1	1
110...127V AC-110...125V DC	2	2
220...240V AC-220...250V DC	2.5	2.5
380-440V AC	3	
480-525V AC	4	

Accessories

Electrical accessories

3



Time delay device for undervoltage release

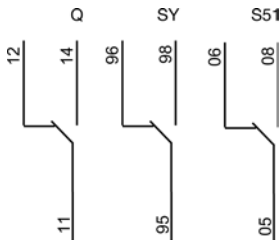
Time delay device for undervoltage release (UVD)

The undervoltage release (UVD) can be combined with an external electronic power supply time delay. This allows the circuit breaker opening to be delayed with preset and adjustable timing if the power supply voltage of the release either drops or fails, thus preventing untimely tripping caused by temporary faults. The time delay must be used with the undervoltage release (UVR) of the corresponding voltage.

A remote control positive safety opening command can be created by connecting an opening pushbutton to the UVR combined with the UVD.

UVD - Electrical specifications

Power supply Voltage [V]	24...30V AC/DC
	48...60V AC/DC
	110...125V AC/DC
	220...250V AC/DC
Settable delay [s]	0.25 - 0.5 - 0.75 - 1 - 1.25 - 2 - 2.5 - 3
Opening time tolerance	±15%



Auxiliary contacts

Contacts which allow information about the operating state of the circuit breaker to be routed outside the circuit breaker. The following information is available:

- open/closed: indication of the position of the circuit breaker power contacts (Q);
- trip: signaling circuit breaker opening due to the current release tripping (owing to overload or short-circuit), opening or undervoltage releases, emergency opening pushbutton of the motor operator, or use of the test button (SY);
- trip unit tripping: indicates that one of the protection functions of the electronic or thermomagnetic trip unit has tripped (S51).

Changeover of auxiliary contacts Q (open/closed), SY (relay tripped) and S51 (trip unit tripping)

Normal sequence	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
Trip sequence (trip caused by: SOR, UVR, trip test)	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
	CB Trips	Q=12	SY=98	S51=06
	CB Resets	Q=12	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Open	Q=12	SY=96	S51=06
	CB Closed	Q=14	SY=96	S51=06
	CB Trips	Q=12	SY=98	S51=08
	CB Resets	Q=12	SY=96	S51=06



Cabled auxiliary contact



Uncabled auxiliary contact



Cabled auxiliary contact for withdrawable circuit breaker

24V DC and 250V AC/DC auxiliary contacts

250V AC/DC and 24VAC/ DC auxiliary contacts are installed without the need for screws. They are extremely easy to fit. Simply use slight pressure to snap the auxiliaries into the appropriate place. The following versions of auxiliary contacts are available:

- cabled (AWG20 cable section - 0.5mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- heavy duty cabled (AWG20 cable section - 0.5mm²):
 - for applications requiring cable capacity to 600V;
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector;
- not cabled:
 - for fixed/plug-in circuit breakers with cables from 0.5 up to 1.5 mm² in section.

Auxiliary contacts are supplied for each circuit breaker in the SACE XT family in various combinations, as shown in the table. The following items can be ordered to make installation even more flexible:

- a non-cabled auxiliary contact can create different signals (Q or SY) based on its position within the circuit breaker;
- a non-cabled S51 auxiliary contact, which can be used for XT2 or XT4 circuit breakers;
- a cabled auxiliary contact, with non numbered cables. By changing the placement in the circuit breaker, it's possible to obtain different signals (Q or SY).

This version is available with standard cables and with a heavy duty (600V) cable option.

Accessories

Electrical accessories

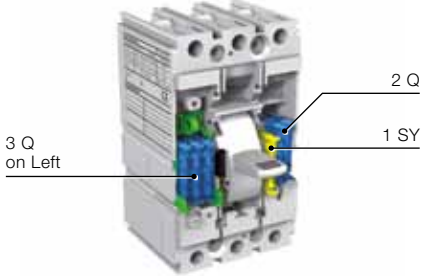
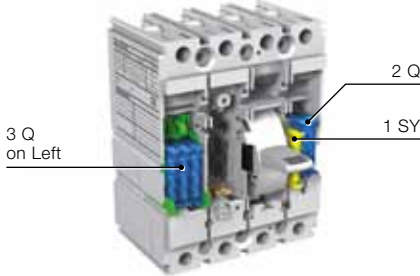
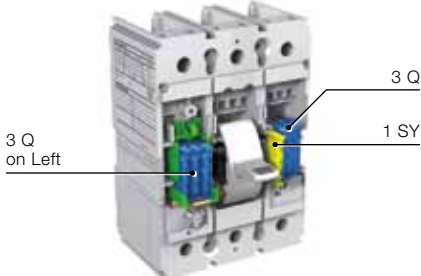

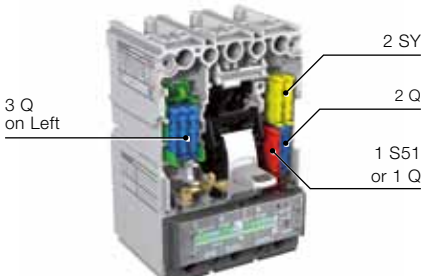
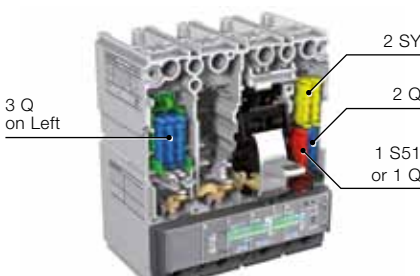
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Combinations of cabled auxiliary contacts with numbered cables	XT1	XT2	XT3	XT4
	3/4p	3/4p	3/4p	3/4p
1 Q + 1 SY 24V DC ⁽¹⁾	F-P	F-P-W	F-P	F-P-W
3 Q + 1 SY 24V DC	–	F-P-W	F-P	F-P-W
1 S51 24V DC	–	F-P-W	–	F-P-W
1 Q + 1 SY 250V AC/DC ⁽¹⁾	F-P	F-P-W	F-P	F-P-W
2 Q + 2 SY + 1 S51 250V AC/DC	–	F-P-W	–	F-P-W
3 Q + 2 SY 250V AC/DC	–	F-P-W	–	F-P-W
3 Q 1 SY 250V AC/DC	–	F-P-W	F-P	F-P-W
1 S51 250V AC/DC	–	F-P-W	–	F-P-W
3 Q on left 250V AC/DC	F-P	F-P	F-P	F-P
2 Q + 1 SY 250V AC/DC	F-P	F-P	F-P	F-P

F = Fixed, P = Plug-in, W = Withdrawable

(1) Available in standard and HD versions

Auxiliary contacts 24V DC - 250V AC/DC

	Circuit breaker 3p	Circuit breaker 4p
XT1	 <p>3 Q on Left</p> <p>2 Q</p> <p>1 SY</p>	 <p>3 Q on Left</p> <p>2 Q</p> <p>1 SY</p>
XT3	 <p>3 Q on Left</p> <p>3 Q</p> <p>1 SY</p>	 <p>3 Q on Left</p> <p>3 Q</p> <p>1 SY</p>
XT2 XT4	 <p>3 Q on Left</p> <p>2 SY</p> <p>2 Q</p> <p>1 S51 or 1 Q</p>	 <p>3 Q on Left</p> <p>2 SY</p> <p>2 Q</p> <p>1 S51 or 1 Q</p>

AUX 250V AC/DC - Electrical specifications

Power supply Voltage [V]	Class of use ^(G2.16)	Operating current [A]	
		AC	DC
110 AC/DC	DC-12	–	0.5
	DC-13 and DC-14	–	0.05
125 AC	AC-12, AC-13, AC-14	6	–
	AC-15	5	–
250 AC/DC	AC-12 and DC-12	6	0.3
	AC-13 and DC-13	6	0.03
	AC-14 and DC-14	5	0.03
	AC-15	4	–

AUX 24V DC - Electrical specifications

Power supply Voltage [V]	Operating current [A]	
	DC	
5 DC	0.01	
24 DC	0.1	

400V AC auxiliary contacts

400V AC auxiliary contacts are only available for XT2 and XT4 circuit breakers in the following versions:

- cabled (AWG17 cable section -1mm²):
 - for fixed/plug-in circuit breakers with 1m long cables;
 - for withdrawable circuit breakers with fixed part and moving part connector.

The 400V auxiliary contacts take up the whole right-hand slot of the circuit breaker.



Cabled auxiliary contact





Cabled auxiliary contact for withdrawable circuit breaker

Combinations	XT1	XT2	XT3	XT4
	3/4p	3/4p	3/4p	3/4p
1 Q + 1 SY 400V	–	F-P-W	–	F-P-W
2 Q 400V	–	F-P-W	–	F-P-W

F = Fixed, P = Plug-in, W = Withdrawable

Auxiliary contacts 400V AC

	Circuit breaker 3p	Circuit breaker 4p
XT2 XT4	 <p>AUX 400V</p>	 <p>AUX 400V</p>

Accessories

Electrical accessories

3



Auxiliary position contact

AUX 400V AC - Electrical specifications

Power supply Voltage [V]	Class of use (G2.16)	Operating current [A]	
		AC	DC
125 DC	DC-13 and DC-12	–	0.5
250 AC/DC	AC-13 and AC-14	12	–
	DC-12 and DC-13	–	0.3
400 AC	AC-13 and AC-14	3	–

Auxiliary position contacts - AUP

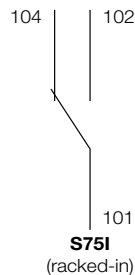
These contacts allow information about the position of the circuit breaker relative to the fixed part of plug-in or withdrawable versions to be routed outside the circuit breaker itself. Two types of position contact (AUP) are available, at 250V AC/DC and 24V AC/DC:

- racked-in contact for all plug-in and withdrawable SACE Tmax XT circuit breakers, to be positioned in the fixed part;
- racked-out contact for all withdrawable SACE Tmax XT2 and XT4 circuit breakers, to be installed in the side part of the withdrawable version.

For further details about the electrical specifications of the contacts, consult the “24V DC and 250V AC contacts” section of this chapter.

Circuit breaker		N° racked-in contact	N° racked-out contact
XT1	3/4 poles	4	–
	3 poles	2	–
XT2	3 poles	2	2
	4 poles	4	2
XT3	3/4 poles	4	–
	3 poles	2	–
XT4	3/4 poles	4	2
	3 poles	2	2

Plug-in circuit breaker with racked-in contact

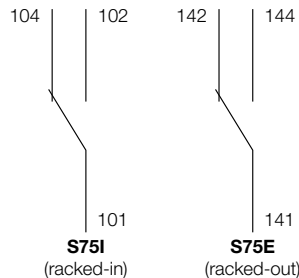


S75I=104



S75I=102

Withdrawable circuit breaker with racked-in/racked-out contacts



S75I=102
S75E=144



S75I=102
S75E=142



S75I=104
S75E=142



Early auxiliary contacts in the handle

Early make/break auxiliary contacts - AUE

Early contacts in relation to **closing (early/make)**: allow the undervoltage release to be supplied before the main contacts close, in accordance with the IEC 60204-1, VDE 0113 Standards.

Early contacts in relation to **opening (early/break)**: allow any electronic devices connected to the system that could be damaged owing to overvoltages generated by the circuit breaker opening operation to be disconnected in advance.

The early opening/closing auxiliary contacts can be installed inside the direct and extended rotary handle operating mechanisms for all the SACE Tmax XT circuit breakers (max two contacts @ 400V):

- in the cabled version with 1m long cables (AWG20 cable sections);
- a dedicated code is available in the withdrawable version which includes the connector for the moving part and fixed part.

For further details about the electrical specifications of the contacts, consult the “400V DC contacts” section of this chapter.

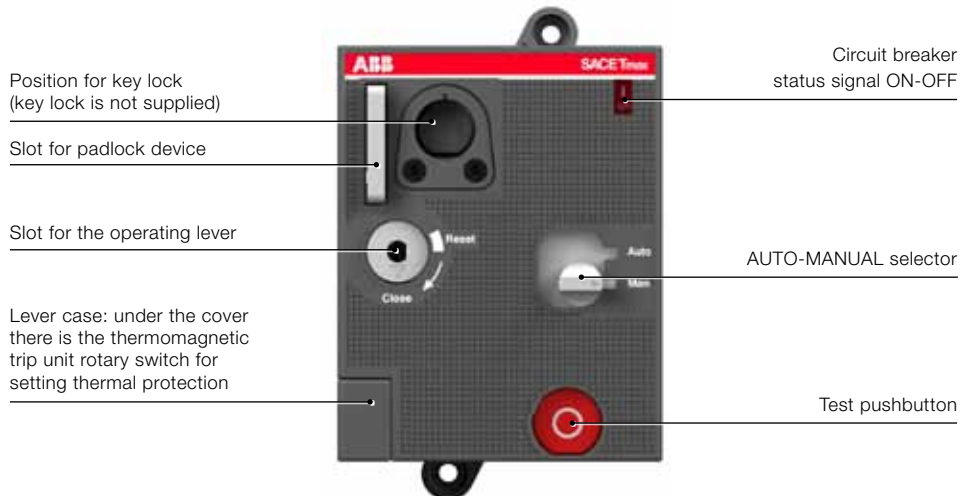
Motor operators

Devices that allow circuit breaker opening and closing to be controlled:

- in the remote mode, by means of electric controls;
- locally, directly from the front, by means of special mechanisms.



Direct action motor operator (MOD)



MOD direct action motor operator

The direct action motor control is available for XT1 and XT3 and is supplied:

- complete with 1m long cables;
- with flange, to replace the standard one supplied with the circuit breaker;
- with padlock device, only removable when the motor is in the open position. The padlock device accepts up to three 8mm/0.31in padlocks;
- auxiliary contacts (AU-MO) which allow the motor control mode (manual or auto) signal to be routed outside;
- (on request) the motor operator can be fitted with a key lock (consult the "Locks" section of this chapter).

Accessories

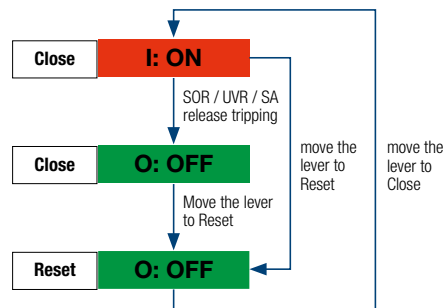
Electrical accessories

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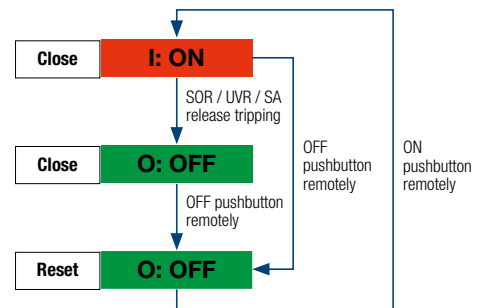
Operating principles:

- a selector on the front of the MOD is used for selecting the operating mode:
 - AUTO: when the selector is in this position, circuit breaker closing can only take place remotely by means of an electric impulse, whereas opening is allowed both remotely and from the front of the motor;
 - MANUAL: when the selector is in this position, the circuit breaker can only be opened/closed from the front of the motor by means of the corresponding lever housed in a slot made in the motor itself;
- operation of the motor operator via remote control is also ensured by permanent electrical opening/closing impulses;
- the resetting modes shown in the diagrams below depend on the reset wiring diagram chosen by the customer (consult the reset wiring diagrams in the “Electric diagrams”) chapter.

Operating mode: Manual



Operating mode: Auto



Stored energy motor operators (MOE)

Stored energy motor operators - MOE and MOE-E



The MOE or MOE-E stored energy motor operator is available for XT2 and XT4 and is supplied:

- complete with 1m long cables;
- complete with connector for the fixed part and moving part of withdrawable devices. If the motor operator is used with fixed or plug-in circuit breakers, the connector can be easily removed;
- with flange, to use instead of the standard one supplied with the circuit breaker;
- with padlock device, only removable when the motor is in the open position. The padlock device accepts up to three 8mm/0.31in padlocks;
- with lock of the AUTO-MANUAL selector;

- with auxiliary contacts (AUX-MO) that allow the motor's control mode (manual or remote) signal to be routed outside;
- (on request) the motor operator can be fitted with a key lock (consult the "Locks" section in this chapter);
- (on request) the motor operator can be equipped with a lock to safeguard against manual operation MOL-M (consult the "Locks" section in this chapter).

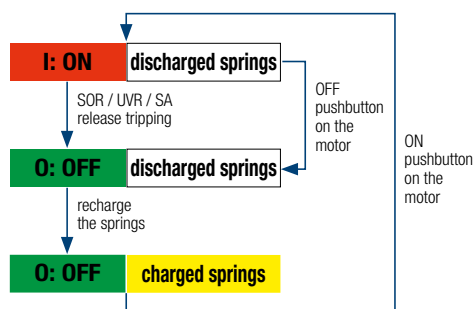
Operating principles:

- a selector on the front of the MOE, is used for selecting the operating mode:
 - AUTO: when the selector is in this position, the pushbuttons on the front of the motor are locked. Circuit breaker closing can only take place remotely by means of an electric impulse, whereas opening is allowed both remotely and from the front of the motor;
 - MANUAL: the circuit breaker can only be opened/closed from the front of the motor using the appropriate pushbuttons;
 - LOCKED: when the selector is in this position, the circuit breaker is in the open position. The padlock device can be withdrawn and the motor locked in the open position;
- operation of the motor operator via remote control is also ensured by permanent electrical opening/closing impulses. Once an opening command has been given, the next closing command (permanent) is taken over by the motor operator once opening has been completed. Likewise, an opening command is taken over once the previous closing operation has been completed;
- the resetting modes shown in the diagrams below depend on the reset wiring diagram chosen by the customer (consult the reset wiring diagrams in the "Electric diagrams" chapter).

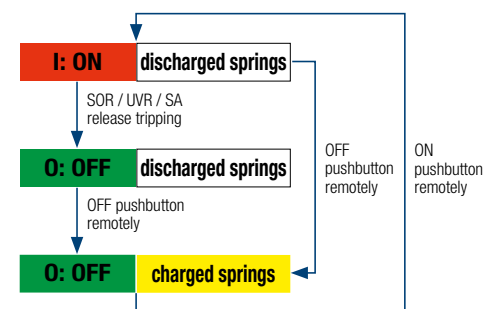
If the electronic trip unit (Ekip LSI, Ekip LSIG or Ekip E-LSIG) with Ekip Com module is used, motor operator MOE-E can be used instead of motor operator MOE.

MOE-E allows the digital signals from the monitoring system to be used by means of the release and Ekip Com contacts and to be converted into power signals for operating the motor operator. All the features described above for the MOE motor operator are also valid for the MOE-E version.

Operating mode: Manual



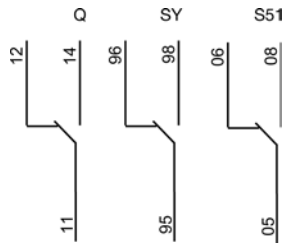
Operating mode: Auto



Accessories

Electrical accessories

3



Changeover of auxiliary contacts Q (open/closed), SY (relay-tripped) and S51 (trip unit tripping)

Circuit breaker with MOE (MANUAL Mode)

Normal sequence	CB Closed	Q=14	SY=96	S51=06
	By pressing the Red pushbutton, the CB trips	Q=12	SY=98	S51=06
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by: - SOR, - UVR, - trip test)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=06
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=08
	Charging the springs, CB opens	Q=12	SY=96	S51=06
	By pressing the Green pushbutton, the CB Closes	Q=14	SY=96	S51=06

Circuit breaker with MOE (AUTO Mode)

Normal sequence	CB Closed	Q=14	SY=96	S51=06
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=98	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by: - SOR, - UVR, - trip test)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=06
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=96	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06
Trip sequence (trip caused by trip unit)	CB Closed	Q=14	SY=96	S51=06
	CB trips	Q=12	SY=98	S51=08
	By pressing the Opening pushbutton remotely, the CB opens	Q=12	SY=96	S51=06
	By pressing the Closing pushbutton remotely, the CB Closes	Q=14	SY=96	S51=06

Electrical specifications		MOD		MOE and MOE-E	
Rated voltage, Un	[V]	–	24 DC	–	24 DC
	[V]	–	48...60 DC	–	48...60 DC
	[V]	110...125 AC	110...125 DC	110...125 AC	110...125 DC
	[V]	220...250 AC	220...250 DC	220...250 AC	220...250 DC
	[V]	380...440 AC	–	380...440 AC	–
	[V]	480...525 AC	–	480...525 AC	–
Operating Voltage	[% Un]	MIN=85% Un; MAX=110% Un			
Power absorbed on inrush Ps	[VA - W]	≤ 500	≤ 500	≤ 300	≤ 300
Power absorbed in Pc service	[VA - W]	≤ 300	≤ 300	≤ 150	≤ 150
Operating frequency	[Hz]	50..60		50..60	
Duration ⁽¹⁾	CL → OP [s]	< 0.1		< 1.5	
	OP → CL [s]	< 0.1		< 0.1	
	TR → OP [s]	< 0.1		< 3	
Mechanical life	[N° operations]	25000		25000	
Minimum duration of electrical opening and closing command	[ms]	≥ 150		≥ 150	

⁽¹⁾ Total time, from transmission of impulse to opening/closing of circuit breaker

Connectors for electrical accessories

Plug-in circuit breaker

In the plug-in version of SACE Tmax XT circuit breakers, the auxiliary circuits can be disconnected by means of two different types of adapter:

- plug and socket adapter to be fixed on the bottom of the panel: for XT1, XT2, XT3, XT4;
- plug and socket adapter installed on the rear of the circuit breaker and in the fixed part of plug-in devices: for XT2, XT4.



Plug and socket adapters on the back of the panel



Plugged and socket adapter placed on the back moving part



Plug and socket adapter in the fixed part



Cabling of withdrawable version

Plug and socket adapters on the panel

To make it easier to connect/disconnect auxiliary circuits, wired electrical accessories can be connected to one or more plug and socket connectors to be installed on the back of the panel.

3, 6, 9 and 15-PIN connectors are available. The cables connect/disconnect to and from the connector quickly and easily without any special tools.

Consider the number of cables each electrical accessory requires when calculating the number of connectors needed.

Accessory	Number of cables
SOR, UVR, External Neutral	2
1 AUX	3
AUE	4
MOE-E	5
Ekip Com	6
MOE (with AUX-MO), MOD (with AUX-MO)	7

Plug and socket adapters installed on the rear of the circuit breaker and in the fixed part

Only for the plug-in versions of Tmax XT2 and XT4 circuit breakers can the auxiliary circuits be automatically disconnected. This is accomplished by an adapter installed on the rear of the circuit breaker and in the fixed part of the plug-in version.

The 12-PIN connector can only be used with accessories that function at a voltage not exceeding 250V AC/DC. Cables are connected to/disconnected from the connector quickly and easily with no special tools required. Wiring is to be carried out by the customer.

Withdrawable circuit breaker

When withdrawable circuit breakers are used, the codes of the electrical accessories specifically designed for this version must be ordered. These dedicated codes contain the wired electrical accessory with connector for both the moving and the fixed parts to be inserted in the side of the fixed part. If the MOE motor operator is ordered, connectors for the fixed part and moving part are always supplied since there is no dedicated code for the withdrawable version.

Electrical accessory connectors for withdrawable circuit breakers must all be installed in housings on the right-hand side of their fixed part. This type of connection allows for automatic disconnection of auxiliary circuits when the circuit breaker is withdrawn from the fixed part. If the customer wants to wire the fixed part in advance of the moving part, mounting connectors for the fixed part can be ordered as spare parts.

Residual current releases

Both circuit breakers and switch-disconnectors are pre-engineered for assembly combined with residual current releases.

Residual current circuit breakers, derived from the circuit breaker, are known as "mixed". In addition to protecting against circuit breakers' typical overloads and short circuits, they also protect people against ground fault currents. This, in turn, protects against direct and indirect contact and the risk of fire.

Residual current circuit breakers, derived from the switch-disconnector, known as "pures". They only provide residual current protection and not the protections typical of circuit breakers. "Pures" are only sensitive to ground fault current and are generally used as main switches in small panels for distribution to end users.

Using "pure" and "mixed" residual current circuit breakers allows for continuous monitoring of the installation's insulation status. It ensures effective protection against the risk of fire, explosion and, in the case of detecting fault at $I_{\Delta n} < 30\text{mA}$ devices, also protects people against indirect and direct contacts, incorporating compulsory measures established by the accident prevention standards and regulations.

The residual current releases comply with the following Standards:

- IEC 60947-2 annex B;
- IEC 61000: for protection against unwarranted tripping.

The table shows all the residual current devices that can be used with the Tmax XT family of circuit breakers:

	XT1		XT2		XT3		XT4	
	3p	4p	3p	4p	3p	4p	3p	4p
RC Inst	F	F			F	F		
RC Sel XT1-XT3	F	F			F	F		
RC Sel 200		F						
Rc Sel XT2-XT4				F-P-W				F-P-W
RC B type						F		

F = Fixed, P = Plug-in, W = Withdrawable

All Tmax XT residual current devices:

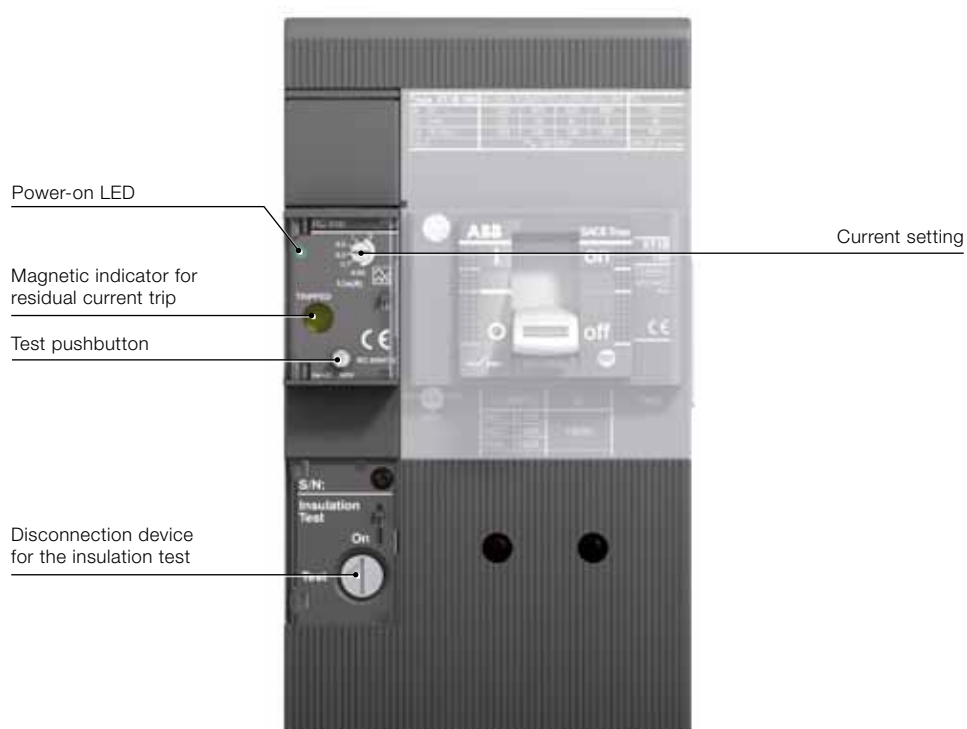
- feature microprocessor technology and act directly on the circuit breaker by means of a dedicated opening solenoid (supplied with the residual current release and also available as a spare part) which must be housed in the corresponding slot in the third pole left of the operating lever;
- do not need an auxiliary supply; they are powered directly from the mains;
- can be supplied either from above or below;
- functionality is ensured even with a single phase plus neutral or just two live phases and in the presence of pulsating unidirectional currents with direct components (minimum auxiliary voltage PHASE-NEUTRAL 85 Vrms);
- all possible connection combinations are permitted, as long as the neutral connection to the first pole on the left in the four-pole version is ensured.

RC Sel 200 residual current releases (type A) XT1

Thanks to its low height, the RC Sel 200 residual current release can be installed in 200mm modules. Its special shape also reduces the installation's footprint if two or more units are to be installed side by side.



RC Inst residual current releases for XT1 and XT3

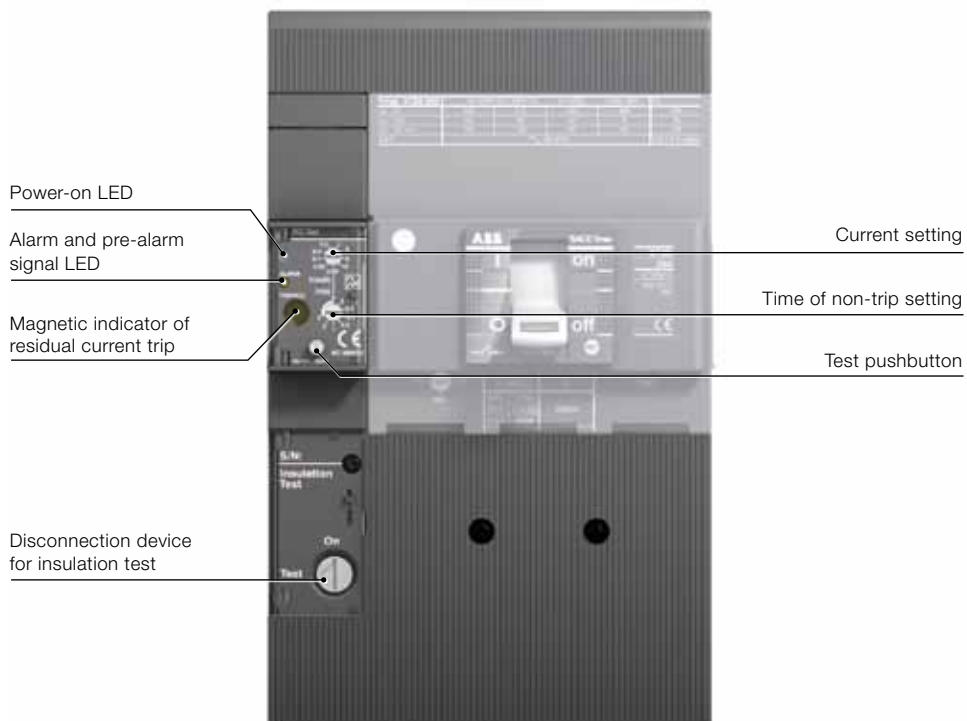


Accessories

Electrical accessories

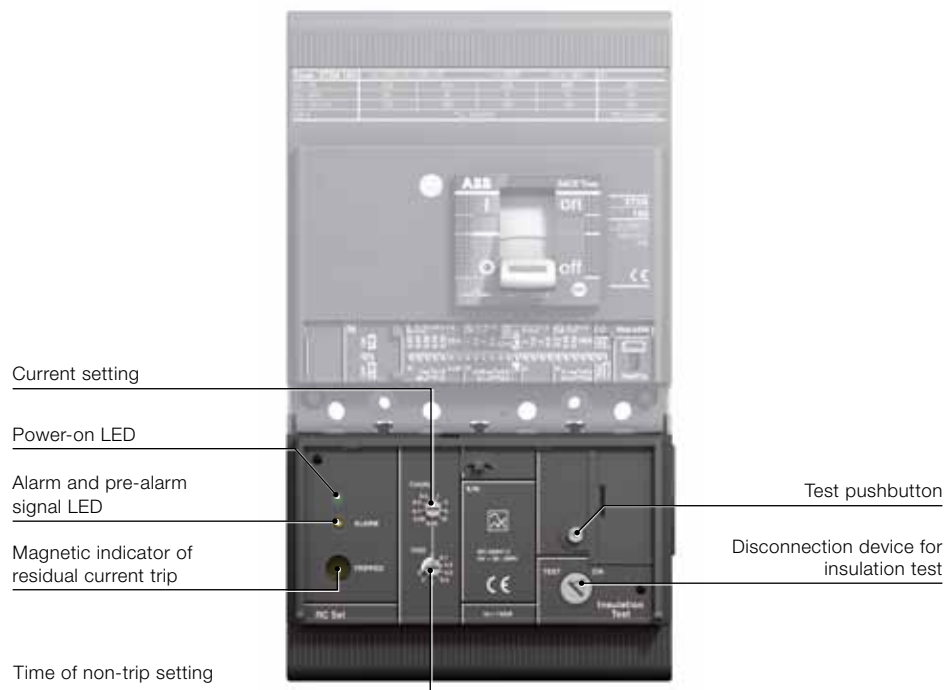
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RC Sel residual current releases (type A) for XT1 and XT3



With RC Inst and RC Sel residual current release for XT1 - XT3, available only in Fixed version, it is possible to have rear terminal connection, by ordering RC Rear terminals 4p kits.

RC Sel residual current releases (type A) for XT2 and XT4



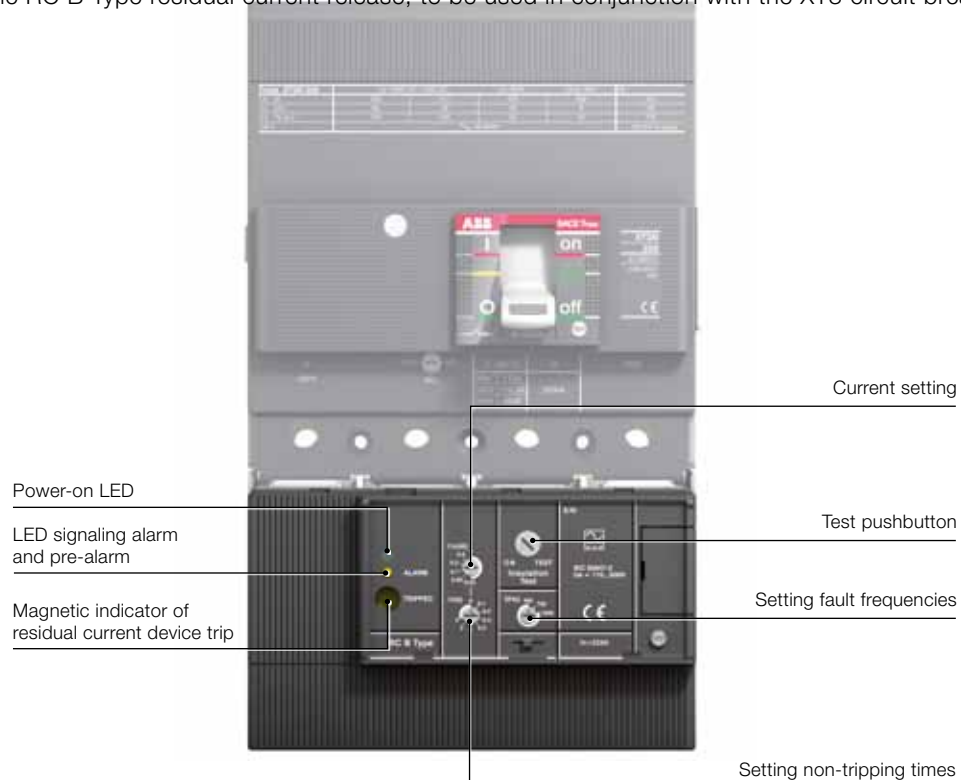
The fixed version of the RC Sel residual current release can easily be converted:

- into the plug-in type:
 - by ordering the kit for converting the residual current release from the fixed to the plug-in version;
- into the withdrawable type:
 - by ordering the kit for converting the residual current release from the plug-in to the withdrawable version. This kit contains the shunt opening release of the withdrawable residual current device to replace the one supplied with the fixed version. The shunt opening release of the withdrawable residual current device contains connectors for both the moving and fixed parts. The 160A frame with residual current withdrawable breaker can be used up to a maximum current of 135A; the 250A frame can be used up to 210A.

With the RC Sel residual current release for XT2-XT4, it is possible to use the same terminals for the fixed circuit breaker and for the fixed parts of plug-in and withdrawable circuit breakers.

RC B Type residual current release (type B) for XT3

The RC B Type residual current release, to be used in conjunction with the XT3 circuit breaker,



has the following features:

- it complies with type B operation, which guarantees sensitivity to residual fault currents with alternating, pulsating alternating and direct current components (IEC 60947-1, IEC 60947-2 Annex B, IEC 60755);
- the maximum frequency band of the residual fault current can be selected (3 steps: 400 - 700 - 1000Hz). The residual current device can therefore be adapted to suit various industrial installation requirements according to the prospective fault frequencies generated on the load side of the release. Typical installations that may require different frequency thresholds from the standard ones (50 - 60Hz) are welding systems for the automobile industry (1000Hz), the textile industry (700Hz), airports and three-phase drives (400Hz)
- UL Listed.

Accessories

Electrical accessories

3

Electrical characteristic	Residual current devices				
	RC Sel 200mm XT1	RC Inst XT1-XT3	RC Sel XT1-XT3	RC Sel XT2-XT4	RC B Type XT3
Primary power supply Voltage [V]	85...690	85...690	85...690	85...690	110...500
Operating frequency [Hz]	45...66	45...66	45...66	45...66	45...66
Fault frequency [Hz]	50-60	50-60	50-60	50-60	400-700-1000
Test operating range [V]	85...500	85...500	85...500	85...690	110...500
Rated operating current [A]	up to 160	XT1 up to 160 XT3 up to 250	up to 160 XT1 up to 250 XT3	up to 160 XT2 ⁽²⁾ up to 250 XT4 ⁽²⁾	up to 225
Adjustable trip thresholds [A]	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.1-0.3 0.5-1-3	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.05-0.1-0.3 0.5-1-3-5-10	0.03-0.05-0.1 0.3-0.5-1
Selective type S	■	—	■	■	■
Adjustable NON-trip time settings [s] at 2xI _{Δn}	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous 0.1-0.2-0.3- 0.5-1-2-3	instantaneous 0-0.1-0.2-0.3- 0.5-1-2-3
Power input	<10 W at 500V AC	<8 W at 500V AC	<10 W at 500V AC	<5 W at 500V AC	<10 W at 500V AC
Trip Coil with switch contact for trip signal	■	■	■	■	■
Input for remote controlled opening command	■	—	■	■	■
NO contact for pre-alarm signal	■	—	■	■	■
NO contact for alarm signal	■	—	■	■	■
Prealarm indication from 25% I _{Δn} . Steady yellow LED light	■	—	■	■	■
Alarm timing indication at 75% I _{Δn} . Flashing yellow LED light ⁽¹⁾	■	—	■	■	■
Type A for pulsating alternating current, Type AC for alternating current	■	■	■	■	■
Type B for pulsating current and direct current	—	—	—	—	■

⁽¹⁾ indication of alarm timing at 90% I_{Δn} for 30mA

⁽²⁾ plug-in and withdrawable version: the 160 frame can be used with a max I_n = 135A
the 250 frame can be used with a max I_n = 210A



Toroid

SACE RCQ020/A panel type residual current release (type A)

Tmax circuit breakers can also be used in conjunction with RCQ020 panel type residual current relays with separate toroid to be installed on the line conductors ("A" letter show the necessity to have on auxiliary power supply).

Thanks to its wide range of settings, the panel relay is suitable for:

- applications where the installation conditions are particularly restrictive, such as circuit breakers already installed or limited space in the circuit breaker compartment;
- creating a residual current protection system coordinated at various distribution levels, from the main switchboard to the end user;
- where residual current protection with low sensitivity is required, e.g. in partial (current) or total (time) selective chains;
- highly sensitive applications (physiological sensitivity) for protecting people against direct contacts.

Thanks to the 115-230...415V external auxiliary power supply, the RCQ020 panel-type residual current device is able to detect current leakage from 30mA to 30A and to act with a trip time that can be adjusted from instantaneous to delayed by 5s. The opening mechanism is the indirect action type and acts on the circuit breaker release mechanism by means of the shunt opening or undervoltage release of the circuit breaker itself.

The opening command to the circuit breaker (Trip delay) can be temporarily inhibited, and the circuit breaker can be opened by remote control by means of the RCQ020 device.

The following equipment must be requested when ordering:

- the RCQ020 device;
- an opening coil (SOR) or an undervoltage release (UVR) of the circuit breaker to be housed in the corresponding slot in the left pole of the circuit breaker itself;
- a closed toroid with a diameter from 60mm to 185mm that can be used for cables and busbars.

Signals available:

- LED to indicate the residual current device's status (supplied or not supplied). RCQ02 is equipped with a positive safety function that commands automatic circuit breaker opening in the absence of auxiliary voltage;
- LED for signaling faults;
- LED for signaling tripping of the residual current device;
- pre-alarm/alarm/trip electrical signals.



RCQ020/A residual current release

Power supply Voltage	AC [V]	115-230...415
Operating frequency	[Hz]	45÷66Hz
Inrush current	@115V AC	500mA for 50ms
	@230V AC	150mA for 50ms
	@415V AC	100mA for 50ms
Power input at full rate		2 [VA] / 2 [W]
Trip threshold adjustment $I_{\Delta n}$	[A]	0.03-0.05-0.1-0.3-0.5-1-3-5-10-30
No trip time adjustment	[s]	instantaneous 0.1-0.2-0.3-0.5-0.7-1-2-3-5
Pre-alarm threshold	x $I_{\Delta n}$	25%
A type for pulsing alternate current		■

Signals

Device powered visual signaling	■
Visual signaling of device not functioning/ not configured	■
Visual signaling of residual current protection	■
Electrical alarm/pre-alarm signal	■
Electric trip signal	■

Controls

Remotely controlled opening command	■
Remotely controlled reset command	■

Operating range of closed transformers

Ø 60 [mm] toroidal transformer	[A]	In max = 250A Use 0.03...30A
Ø 110 [mm] toroidal transformer	[A]	In max = 400A Use 0.03...30A
Ø 185 [mm] toroidal transformer	[A]	In max = 800A Use 0.1...30A
Connection to toroidal transformer		By means of 4 shielded or twisted conductors. Maximum tolerated length: 15m
Dimensions W x H x D	[mm]	96 x 96 x 77
Drilling for assembly on door	[mm]	92 x 92
Standard		IEC 60947-2 annex M

Accessories

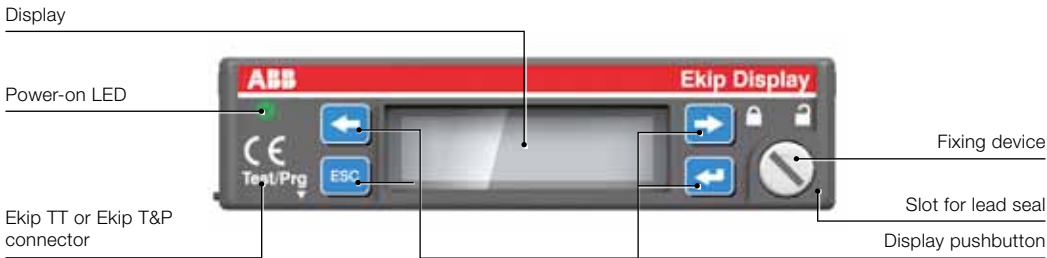
Accessories for electronic trip units

3

	Accessories for electronic trip units		
	Ekip Display	Ekip LED Meter	External neutral
Distribution protection			
Ekip LS/I	–	–	–
Ekip I	–	–	–
Ekip LSI	■	■	■
Ekip LSIG	■	■	■
Motor protection			
Ekip M-LIU	–	–	–
Energy measurement			
Ekip E-LSIG	■	■	■

Ekip Display

This unit can be installed on the front of the solid state trip unit to show current values, alarms and protection/communication parameter programming.

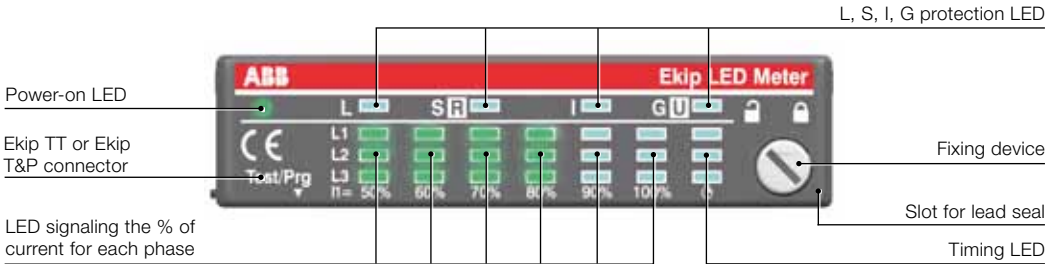


Main features:

- **installation:** Ekip Display can easily be installed on the front of the Ekip LSI, Ekip LSIG and Ekip E-LSIG electronic trip units. It is connected by means of the test connector on the front of the trip unit. Installation is simple and reliable thanks to a specially designed mechanism. It also provides a practical way of fastening the accessories to the circuit breaker in order to prevent undesired access to the dip-switches. Installation can be carried out under any conditions, even with the door closed and the electronic trip unit already on and functioning;
- **functions:** Ekip Display has four buttons for browsing through the menus. It functions in the self-supply mode starting from a current of $I > 0.2 \times I_n$ circulating through at least one phase. Backlighting is activated in the presence of higher loads, making displayed information more legible. Backlighting comes on in self-supply for a current $I > 0.4 \times I_n$ and is always on when there is electronic trip unit auxiliary power supply.
Ekip Display:
 - shows the current, voltage, power and energy values;
 - shows the settings of the protection functions in Amperes or in I_n ;
 - shows the protection that caused the release to trip and the fault current (only when there is 24V external voltage or the Ekip TT unit);
 - allows the trip thresholds of the trip unit to be programmed and the communication parameters to be set on bus system;
- **compatibility:** Ekip Display can be fitted even when front accessories, such as the motor, direct and transmitted rotary handles etc. are already installed. It's possible to use Ekip TT or Ekip T&P without removing Ekip Display. It's not possible to use Ekip Display with the withdrawable version of circuit breaker.

Ekip LED Meter

The Ekip LED Meter can be applied to the front of the electronic trip unit. It displays the current values and alarms.



Main features:

- **installation:** Ekip LED Meter can be easily installed on the front of Ekip LSI, Ekip LSIG and Ekip E-LSIG electronic trip units. It is connected by means of the test connector on the front of the release. Installation is simple and reliable thanks to a specially designed mechanism. It also provides a practical way of fastening accessories to the circuit breaker in order to prevent undesired access to dip-switches. Installation can be carried out under any conditions, even with the door closed and the electronic trip unit already on and functioning;
- **functions:** Ekip LED Meter provides an accurate indication of the value of the current circulating in the trip unit. It does this by means of its. Its different colors allow the normal operation, prealarm and alarm states of the circuit breaker to be recognized at a glance. It functions in self-supply mode from a current of $I > 0.2 \times I_n$ circulating through at least one phase or when electronic trip unit's auxiliary power is available;
- **compatibility:** the Ekip LED Meter can also be fitted with front accessories, such as the motor, direct and transmitted rotary handles. Ekip TT or Ekip T&P can be used without removing Ekip LED Meter. Ekip LED Meter cannot be used when the breaker is in the withdrawable version.

Current sensor for external neutral

The current sensor for external neutral is applied to the uninterrupted neutral conductor. It allows neutral current for all protection functions to be read.

Main features:

- **installation:** the external neutral current sensor is available for XT2 and XT4 three-pole circuit breakers in the fixed/plug-in and withdrawable version equipped with an Ekip LSI or an Ekip LSIG electronic trip unit. The sensor must be connected to the release with the specific connector, which must be ordered separately.

Connection accessories

Devices that allow the electronic trip unit to be connected to external plant units or components. These connectors are available for the circuit breakers in fixed, plug-in and withdrawable versions.



Connector for 24V

Name of connector	Trip Units
External neutral connector	Ekip LSI – Ekip LSIG – Ekip E-LSIG
Connector for 24V DC auxiliary power supply	Ekip LSI – Ekip LSIG – Ekip E-LSIG

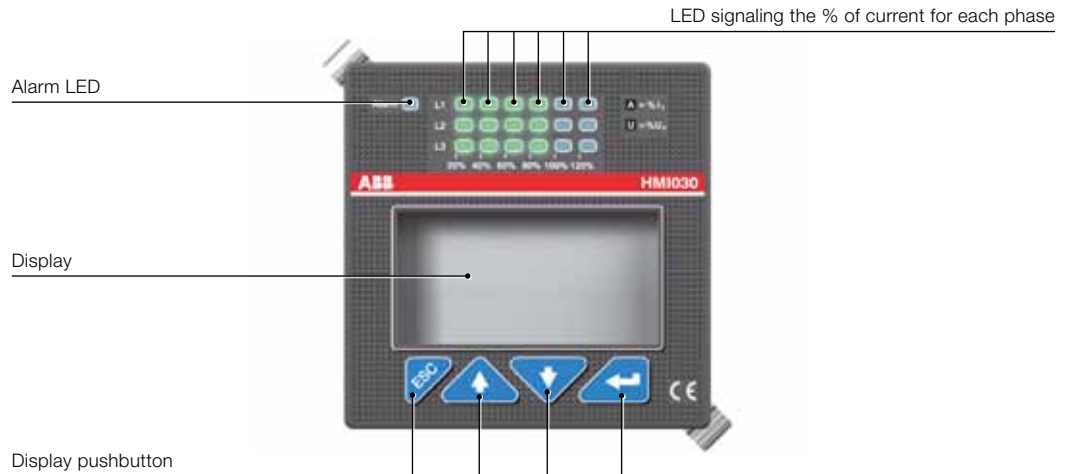
The connector for the auxiliary power supply is inserted inside the right-hand slot of the circuit breaker, and occupies the space of two due auxiliary contacts. To check compatibility with the auxiliary contacts, consult the compatibility tables in this chapter.

Accessories

Communication devices and systems

HMI030 interface on the front of the switchboard

HMI030 is an interface on the front of the switchboard and is usable with protection trip units fitted with Ekip Com.



Main features:

- **installation:** HMI030 can be fitted into the hole in the door using the automatic click-in method. In situations where mechanical stress is particularly intense, it can also be installed by using the special clips supplied. It must be connected directly to the Ekip LSI, Ekip LSIg or Ekip E-LSIg protection trip unit with Ekip Com via the serial communication line. HMI030 requires a 24V DC power supply;

- **functions:** HMI030 consists of a graphic display and 4 buttons for browsing through the menus. This accessory allows you to view:
 - the measurements taken by the release to which it is connected;
 - the alarms/events of the release.

Thanks to its high level of accuracy, the same as that of the trip unit protection, the device is a valid substitute for conventional instruments without any additional current transformers.

- **communication:** HMI030 is provided with two communication lines. Either one can be used.
 - Modbus
 - Local Bus.

Connecting Ekip LSI, Ekip LSIg or Ekip E-LSIg to the Local Bus allows the Modbus line to be connected to a different communication network.

Consult the "Electrical diagrams" chapter for further details about wiring.

Ekip Com



Ekip Com allows the MOE-E motor operator to be controlled, determines the ON/OFF/TRIP state of the circuit breaker and connects the electronic trip unit to a Modbus communication line.

Ekip Com is available in two versions: one for fixed/plug-in circuit breakers and one, complete with connectors for both the fixed and moving parts, for withdrawable circuit breakers.

Main characteristics:

- **installation:** the Ekip Com module is inserted into the special area in the right-hand pole of the circuit breaker and can be fastened without screws or tools.
To connect with the trip unit, a special cable that is fitted with a cable guide is used to ensure an easy and safe installation. The Modbus line is connected by means of a terminal box, to which a 24V DC auxiliary power supply must be connected. The connection of the Modbus line is made by means of the terminal box to which a 24V DC auxiliary power supply must also be connected. The auxiliary power activates both the module and the protection trip unit;
- **functions:** the Ekip Com module allows for remote reading of the circuit breaker's status. In combination with an MOE-E motor operator, it can open/close the circuit breaker remotely. Combined with a trip unit fitted with a communication device (Ekip LSI, Ekip LSIG or Ekip E-LSIG), the Ekip Com module allows the trip unit's connection to a Modbus network. This allows protections to be programmed, measurements to be taken and alarms to be sent when it's connected to a control and/or monitoring system. Connected to the HMI030 interface, these data can be displayed directly on the front of the switchboard.

For further details on the communication systems which can be made by means of the Ekip Com module, refer to the "Communication systems" section in the "Ranges" chapter.

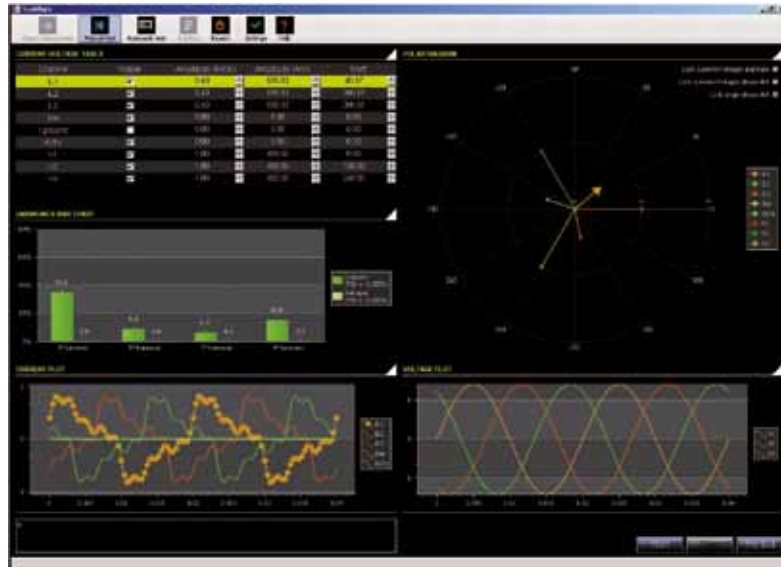
Ekip Com	
	Circuit breaker 3p
	Circuit breaker 4p
XT2 XT4	
	

Accessories

Communication devices and systems

Ekip Connect

Installation and diagnosis software for ABB SACE products with Modbus RTU communication. The software can be used during the commissioning stage, or for troubleshooting in an up and running communication network.



Ekip Connect automatically scans the RS-485 bus, detects all the connected devices and checks their configuration, all possible addresses, parity and baud rate combinations. A simple click over SCAN will highlight:

- devices that fail to respond;
- configuration errors;
- incorrect addresses and parity;
- any wiring errors (with the SACE electronic trip unit);

achieving a complete diagnosis of the communication network.

This user-friendly software makes installing the Modbus communication network very easy.

Ekip Connect can be downloaded free of charge from the BOL (<http://bol.it.abb.com>) or ABB (www.abb.com) websites.

Accessories

Test and configuration accessories



Ekip T&P

Ekip T&P

Ekip T&P is a kit used to monitor, configure and test electronic protection trip units.

The kit includes:

- Ekip T&P unit;
- Ekip TT unit;
- Adapters for Emax and Tmax trip units;
- USB cable for connecting the Ekip T&P unit to the electronic trip unit;
- CD for installing Ekip Connect and the Ekip T&P driver.

The Ekip T&P unit is connected on one side to the USB port of a PC and on the other, by means of a cable provided, to the protection trip unit of the SACE Tmax XT series.

The Ekip T&P unit allows automatic, manual and trip tests of the device it is connected to.

These functions are managed by means of the Ekip T&P Interface which can only be activated directly by the Ekip Connect when the Ekip T&P is present and connected to the PC.



Ekip TT

Ekip TT

The Ekip TT accessory is supplied with a special connector to facilitate connection between the electronic trip unit and the Ekip TT unit. The kit also includes an adapter that allows the Ekip TT unit to be used with the current Tmax breakers.

Ekip TT is a device which allows:

- verification that the electronic trip unit's opening solenoid and the circuit breaker's trip mechanism (trip test) are functioning properly;
- testing the LEDs on the electronic trip unit it's connected to;
- supplying auxiliary power to show the most recent protection interruption in the event of an intervention by the electronic unit. Simply linking Ekip TT to the electronic trip unit (or to the Ekip display or Ekip LED Meter), illuminates the LED light on the most recently interrupted protection.

Its reduced dimension makes it pocket sized.

	Ekip T&P functions						Ekip TT functions		
	Trip Test	Protection function test	Parameter reading	Protection parameter programming	Communication parameter programming	Thermal memory enabling/disabling	Trip test	LED test	Latest trip detection
Distribution protection									
Ekip LS/I	■	■	■	—	—	■	■	■	■
Ekip I	■	■	■	—	—	—	■	■	■
Ekip LSI	■	■	■	■	■	■	■	■	■
Ekip LSIG	■	■	■	■	■	■	■	■	■
Ekip E-LSIG	■	■	■	■	■	—	■	■	■
Motor Protection									
Ekip M-LIU	■	■	■	—	—	—	■	■	■

Accessories

Automatic network-generator transfer unit ATS021-ATS022



ATS021



ATS022

The ATS (Automatic Transfer Switch) is the network-generator transfer unit used in installations where switching the main power line to an emergency one is required, in order to ensure power supply to the loads in the case of anomalies in the main line.

The unit is able to manage the entire transfer procedure automatically, and prepares the commands for carrying out the procedure manually as well.

In the case of an anomaly in the main line voltage, in accordance with the parameters set by the user, the opening of the circuit breaker of the main line, the starting of the generator set (when provided) and the closing of the emergency line are performed. In the same way, in the case of the main line returning, the procedure of reverse transfer is controlled automatically.

The new generation of ATS (ATS021 and ATS022) offers the most advanced and complete solutions to ensure service continuity. The ATS021 and ATS022 can both be used with all the circuit breakers in the SACE Tmax XT family and with the switch-disconnectors.

ATS021 and ATS022 devices have been designed to operate on self-supply. The ATS022 unit also prepares the connection for auxiliary power supply, allowing additional functions to be used.

ATS021 and ATS022 devices control both of the power supply lines and analyze:

- phase unbalance;
- frequency unbalance;
- phase loss.

Apart from its standard control functions, the ATS022 unit makes it possible to:

- select the priority line;
- controlling a third circuit breaker;
- incorporate it into a monitoring system with Modbus communication (auxiliary power supply is needed);
- read/set parameters and show measurements and alarms on a graphic display.

Typical applications include: power supply to UPS (Uninterrupted Power Supply) units, operating rooms and primary hospital services, emergency power supply for civil buildings, airports, hotels, data banks and telecommunication systems, power supply of industrial lines for continuous processes.

For correct configuration, each circuit breaker connected to the ATS021 or ATS022 must be fitted with the following accessories:

- mechanical interlock;
- motorized control of opening and closing;
- key lock against purely manual operation for the motor operator;
- contact for signaling the status (open/closed) and contact for tripped;
- contact for racked-in (in the case of a withdrawable version circuit breaker).

Accessories

Test and configuration accessories

3

	ATS021	ATS022
General		
Auxiliary Power Supply	Not Required	Not Required (24-110V DC is required only for Modbus dialog and 16 2/3 Hz system)
Rated Voltage, Un [VAC]	Max 480	Max 480
Frequency [Hz]	50, 60	16 2/3, 50, 60, 400
Dimensions (HxLxD) [mm]	96x144x170	96x144x170
Type of installation	Door mounting DIN-rail mounting	Door mounting DIN-rail mounting
Operating Mode	Auto/Manual	Auto/Manual
Features		
Monitoring of the Normal and Emergency lines	■	■
Controlling CBs of the Normal and Emergency lines	■	■
Generator set startup	■	■
Generator set shutdown with adjustable delay	■	■
Bus-tie	—	■
No-priority Line	—	■
Modbus RS485	—	■
Display	—	■
Ambient conditions		
Operating temperature	-20...+60 °C	-20...+60 °C
Humidity	5% - 90% without condensation	5% - 90% without condensation
Align flush left thresholds		
Minimum voltage	-30%...-5%Un	-30%...-5%Un
Maximum voltage	+5%...+30%Un	+5%...+30%Un
Fixed frequency thresholds	-10%...+10%fn	-10%...+10%fn
Test		
Test Mode	■	■
Compliance with standards		
Electronic equipment for use in power installations	EN-IEC 50178	EN-IEC 50178
Electromagnetic compatibility	EN 50081-2	EN 50081-2
	EN 50082-2	EN 50082-2
Environmental conditions	IEC 68-2-1	IEC 68-2-1
	IEC 68-2-2	IEC 68-2-2
	IEC 68-2-3	IEC 68-2-3

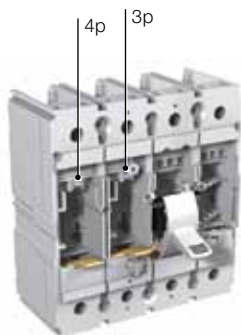
Accessories

Compatibility of accessories

3



Three-pole circuit breaker



Four-pole circuit breaker

Check whether the different devices are compatible/incompatible with each other when ordering accessories. The following table provides a simple check between:

- mechanical accessories, accessories for electronic trip units and motors;
- internal electrical accessories.

To better understand the abbreviations used to identify the accessories, refer to the “Symbols” paragraph in chapter 8, “Glossary”.

Example of reading the compatibility tables

Fixed/plug-in circuit breaker compatibility XT1-XT3

	SOR 3p	UVR 3p	3Q 3p	SOR 4p	UVR 4p
SOR 3p				✓	✓	
UVR 3p ¹	↑ ²	↑ ³	↑ ⁴	↑ ⁵	↑ ⁶	↑
3Q sx 3p →	→	→	→	→	→	→
SOR 4p	✓	✓	✓	✓	✓	
UVR 4p	✓	✓	✓	✓	✓	
.....						

The **UVR** positioned in the slot of the **3rd pole⁽¹⁾** is:

- incompatible with the SOR positioned in the 3rd pole⁽²⁾;
- incompatible with the UVR positioned in the 3rd pole⁽³⁾;
- incompatible with the 3Q contacts on the left in the 3rd pole⁽⁴⁾;
- compatible with the SOR positioned in the slot of the 4th pole⁽⁵⁾;
- compatible with the UVR positioned in the slot of the 4th pole⁽⁶⁾.
-

Compatibility of mechanical accessories

	RHD	RHE	RHS	FLD	PLL on CB	KLC on CB	KLC on RHX	KLC on FLD	MOD/ MOE/ MOE-E	Ekip Display	Ekip LED Meter	SOR/ UVR/ 3 Form C/Q L 3p	1 Q + 1 SY	2 Q + 1 SY	3 Q + 1 SY
RHD							✓			✓	✓	✓	✓	✓	✓
RHE							✓			✓	✓	✓	✓	✓	✓
RHS										✓	✓	✓	✓	✓	✓
FLD								✓		✓	✓	✓	✓	✓	✓
PLL on CB										✓	✓	✓	✓	✓	✓
KLC on CB										✓	✓	✓	✓	✓	✓
KLC on RHX	✓	✓								✓	✓	✓	✓	✓	✓
KLC on FLD				✓						✓	✓	✓	✓	✓	✓
MOD/MOE/MOE-E										✓	✓	✓	✓	✓ ⁽¹⁾	✓ ⁽²⁾
Ekip Display	✓	✓	✓			✓	✓	✓	✓			✓	✓	✓	✓
Ekip LED Meter	✓	✓	✓			✓	✓	✓	✓			✓	✓	✓	✓
SOR/PS-SOR/UVR/3 Form C/Q L	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1 Q + 1 SY	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2/Q + 1 SY	✓	✓	✓	✓		✓	✓	✓	✓ ⁽¹⁾	✓	✓	✓	✓	✓	✓
3 Q + 1 SY	✓	✓	✓	✓		✓	✓	✓	✓ ⁽²⁾	✓	✓	✓	✓	✓	✓

✓ Compatibility

⁽¹⁾ Not valid for XT1

⁽²⁾ Not valid for XT3

Compatibility of electrical accessories

Fixed/plug-in circuit breaker compatibility XT1-XT3

	SOR 3p	UVR 3p	SA 3p	3 Q L 3p	SA 3p	SOR 4p	UVR 4p	3 Q L 4p	1 Q + 1 SY	2 Q + 1 SY	3 Q + 1 SY	KLC on CB	MOD
SOR 3p						✓	✓	✓	✓	✓	✓		✓
UVR 3p						✓	✓	✓	✓	✓	✓		✓
3 Q L 3p						✓	✓	✓	✓	✓	✓		✓
SA 3p						✓	✓	✓	✓	✓	✓		✓
SOR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
UVR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
3 Q L 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
1 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
2 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓ ⁽¹⁾
3 Q + 1 SY	✓	✓	✓	✓	✓	✓	✓	✓				✓	
KLC on CB						✓	✓	✓	✓		✓		
MOD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽¹⁾			

✓ Compatibility

⁽¹⁾ Not valid for XT1

Fixed/plug-in circuit breaker compatibility XT2-XT4

	SOR 3p	UVR 3p	3Q sx 3p	SA	AUE internal 3p	SOR 4p	UVR 4p	3Q sx 4p	S51	1Q 1SY	2Q 1SY	3Q SY	3Q 2SY	2Q 2SY 1S51	400V 2Q	400V 1Q 1SY	24V	Ekip Com	KLC on CB
SOR 3p					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UVR 3p					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3Q sx 3p						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SA					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AUE internal 3p	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SOR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UVR 4p	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q sx 4p	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
S51	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓						✓	✓	✓
1Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓	✓								✓		✓
2Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓	✓										✓
3Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
3Q 2SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
2Q 2SY 1S51	✓	✓	✓	✓	✓	✓	✓	✓											✓
400V 2Q	✓	✓	✓	✓	✓	✓	✓	✓											✓
400V 1Q 1SY	✓	✓	✓	✓	✓	✓	✓	✓											✓
24V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓									✓
Ekip Com	✓	✓	✓	✓	✓	✓	✓	✓	✓										✓
KLC on CB						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ Compatibility

Accessories

Compatibility of accessories

3

Withdrawable circuit breaker compatibility XT2-XT4

	S51	1Q 1SY	3Q 1SY	3Q 2SY	2Q 2SY S51	400V 2Q	400V 1Q 1SY	Ekip Com	24V	NE	MOE	MOE-E	AUX- MOE	AUE	SOR 3p	UVR 3p	SA	SOR 4p	UVR 4p
S51		✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1Q 1SY	✓								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q 1SY										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3Q 2SY											✓	✓	✓	✓	✓	✓	✓	✓	✓
2Q 2SY S51											✓	✓	✓	✓	✓	✓	✓	✓	✓
400V 2Q										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
400V 1Q 1SY										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ekip Com	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24V	✓	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
NE	✓	✓	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
MOE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓ ⁽¹⁾		✓	✓	✓	✓	✓
MOE-E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓ ⁽¹⁾		✓	✓	✓	✓	✓
AUX-MOE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁽¹⁾	✓ ⁽¹⁾			✓	✓	✓	✓	✓
AUE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓
SOR 3p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
UVR 3p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
SA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
SOR 4p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			
UVR 4p	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		

✓ Compatibility

⁽¹⁾ AUX-MOE always supplied with MOE and MOE-E

Characteristic curves and technical information

Characteristic curves	
Examples of curve reading	4/2
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Example of curve reading

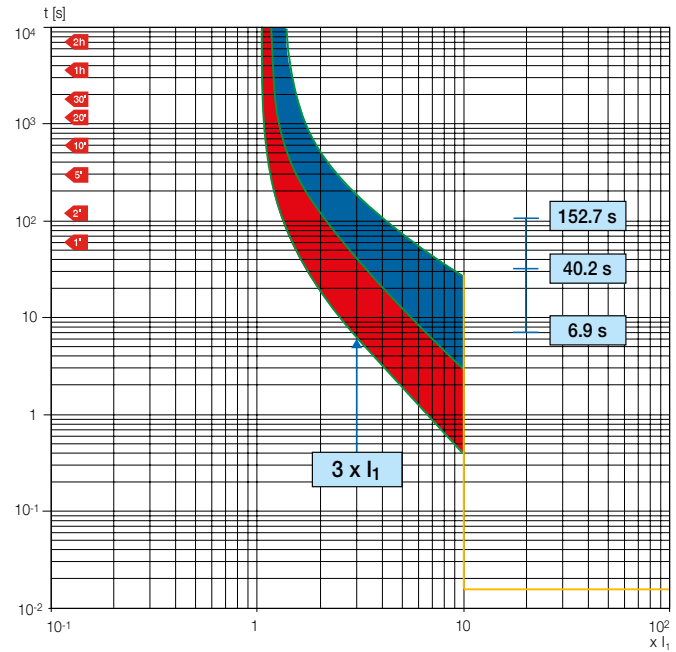
Example 1 – XT3N 225

Trip curves for distribution (thermomagnetic trip unit)

Let us consider an XT3N TMF $I_n = 225A$ circuit-breaker. According to the conditions the overload is found in; i.e., with the circuit-breaker at thermal regime or not, thermal protection tripping varies considerably.

For example, for an overload current $3 \times I_1$, the trip time is between 152,7s and 40,2s for cold tripping and between 40,2s and 6,9s for hot tripping.

For fault current values higher than 225A. The circuit-breaker trips with the instantaneous magnetic protection I3.

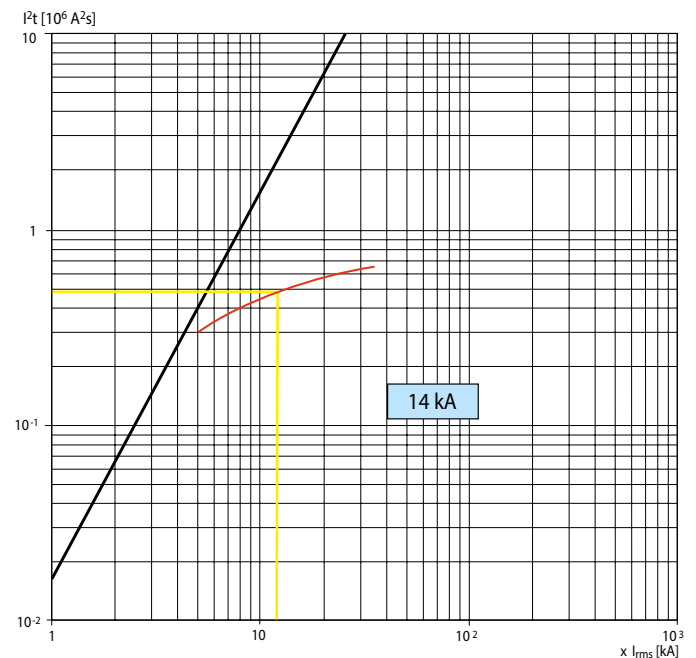


Example 2 – XT2H 125

Specific let-through energy curves

This figure shows a sample graph of the specific let-through energy of the XT2H 125 circuit-breaker at a voltage of 220/230V.

The prospective symmetrical short-circuit current is indicated on the abscissas, whereas the values of the specific let-through energy expressed in A^2s are shown on the ordinates. The circuit-breaker lets through a value of I^2t equal to $0,42 \cdot 10^6 \cdot A^2s$ relative to a short-circuit current of 14kA.



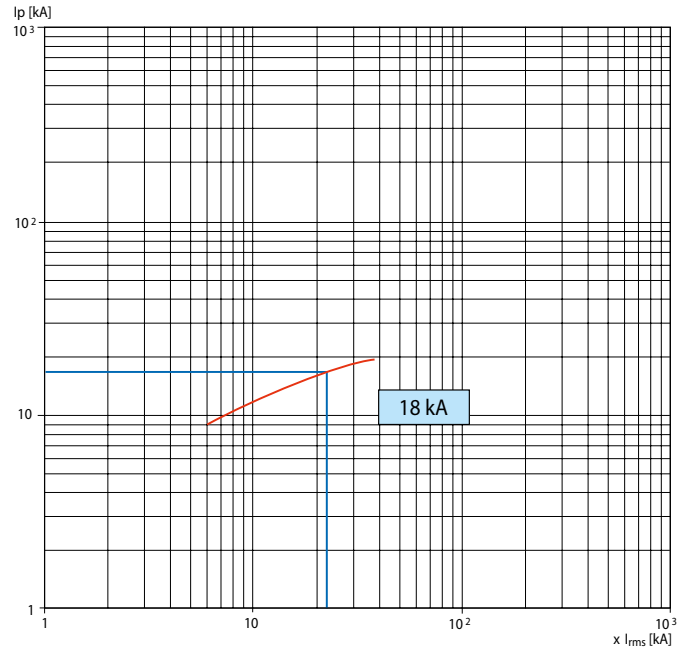
Example 3 – XT2L 125

Limitation curves

The figure at right gives the trend of the Limitation curves of the XT2L 125 $I_n = 125\text{A}$ circuit-breaker.

The effective value of the prospective symmetrical short-circuit current is given on the abscissas of the diagram, whereas the peak value corresponding to the prospective short-circuit current is indicated on the ordinates.

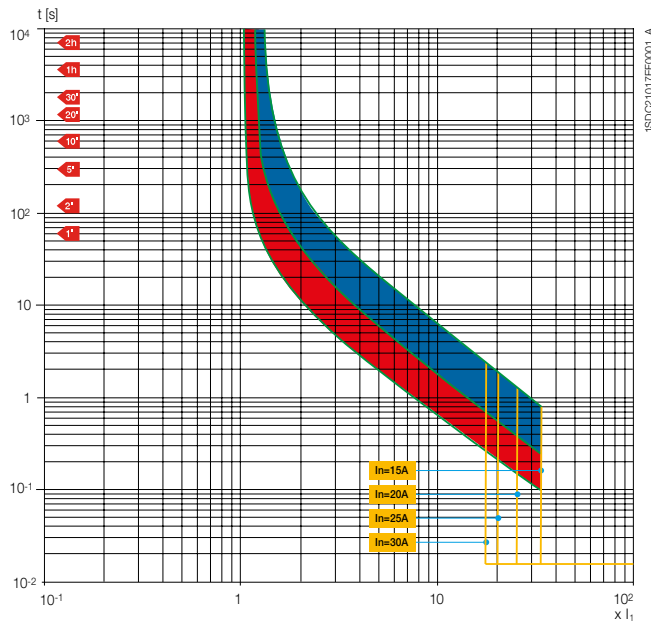
For a value current of 22kA, the XT2L 125 circuit breaker with a thermomagnetic trip unit $I_n = 125\text{A}$ limits the peak prospective short-current current to 18kA at a voltage of 600V.



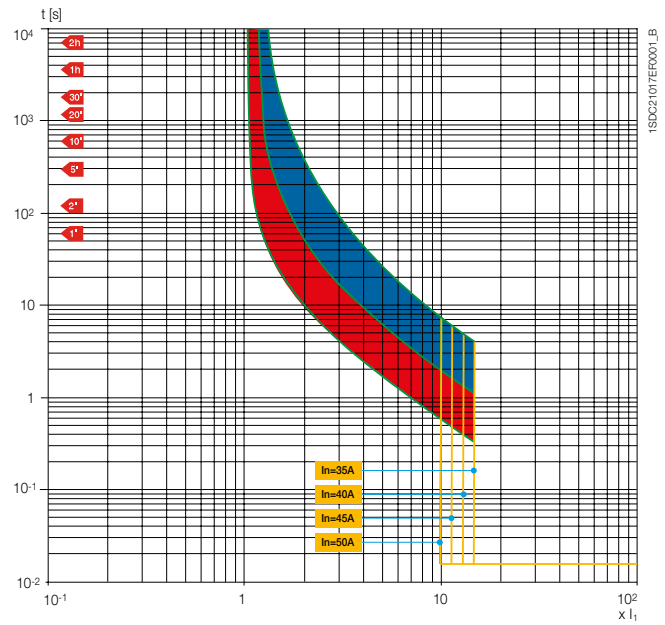
Trip curves with thermomagnetic trip unit

Trip curves for distribution

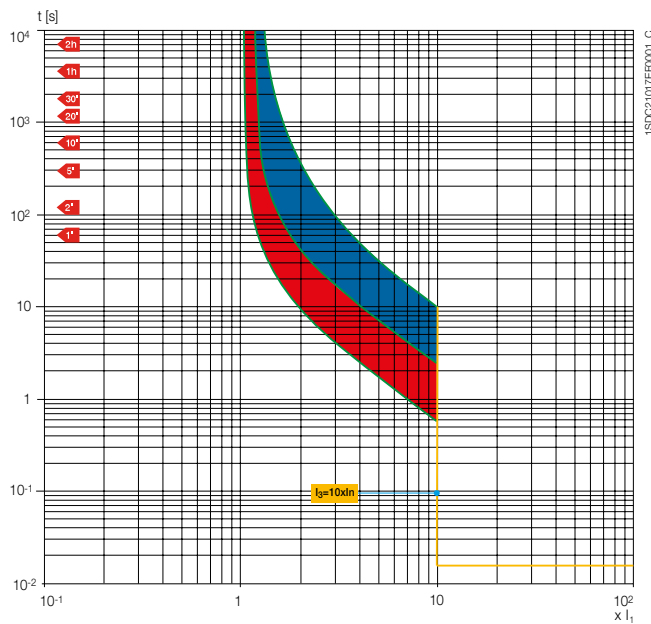
XT1 125 TMF $I_n=15\ldots30A$



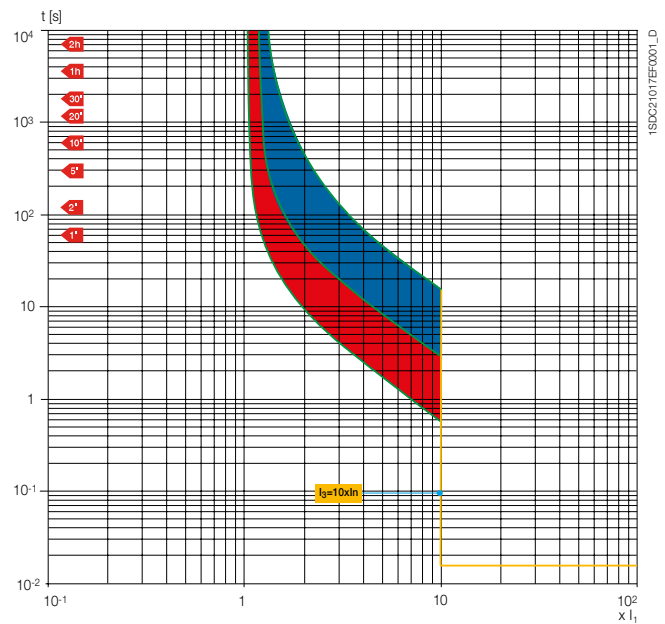
XT1 125 TMF $I_n=35\ldots50A$



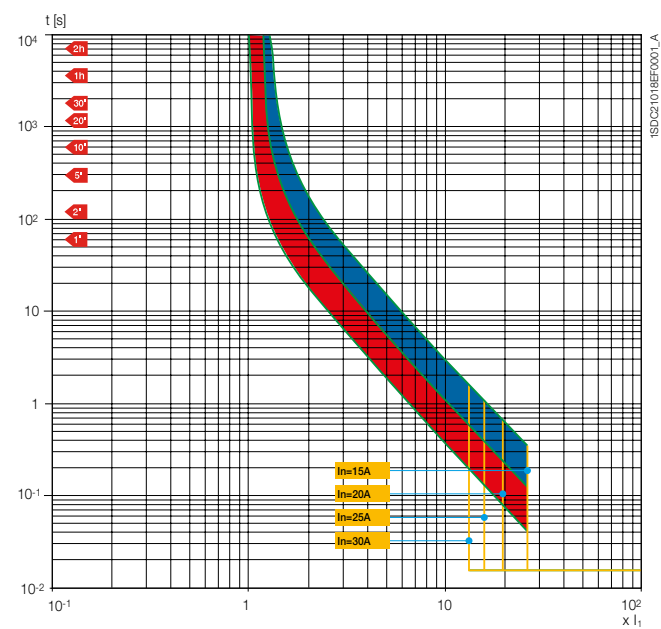
XT1 125 TMF $I_n=60\ldots100A$



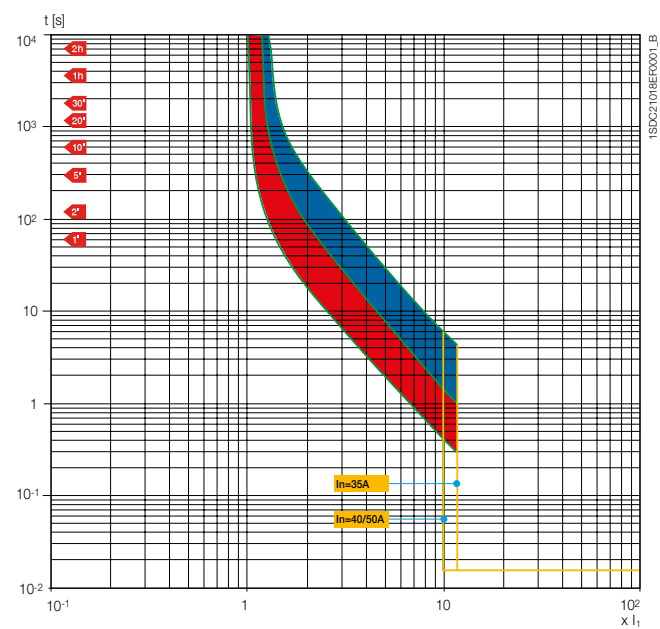
XT1 125 TMF $I_n=125A$



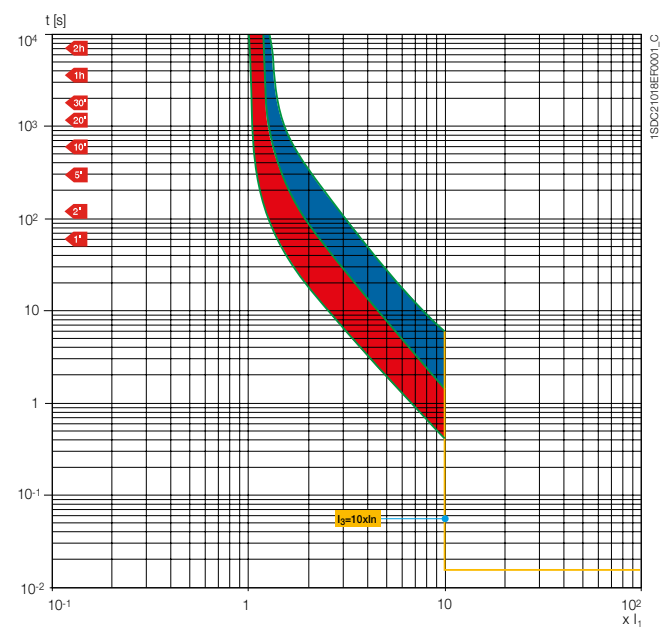
XT2 125 TMF In=15...30A



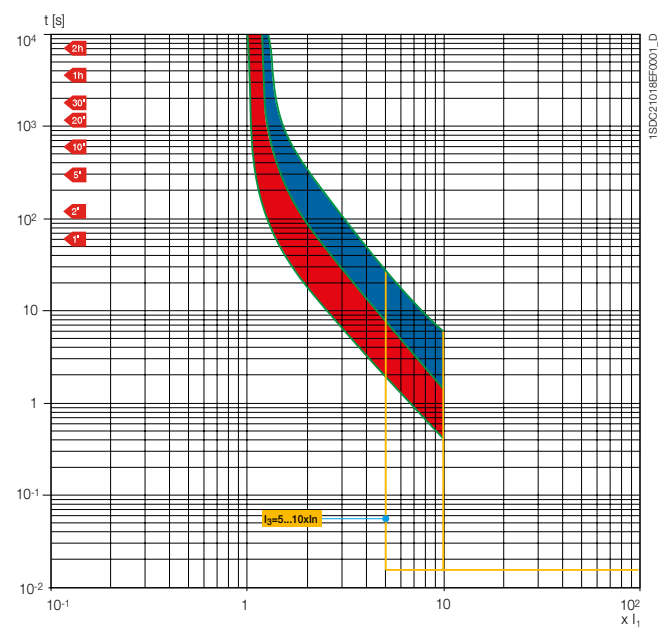
XT2 125 TMF In=35...50A



XT2 125 TMF In=60...70A



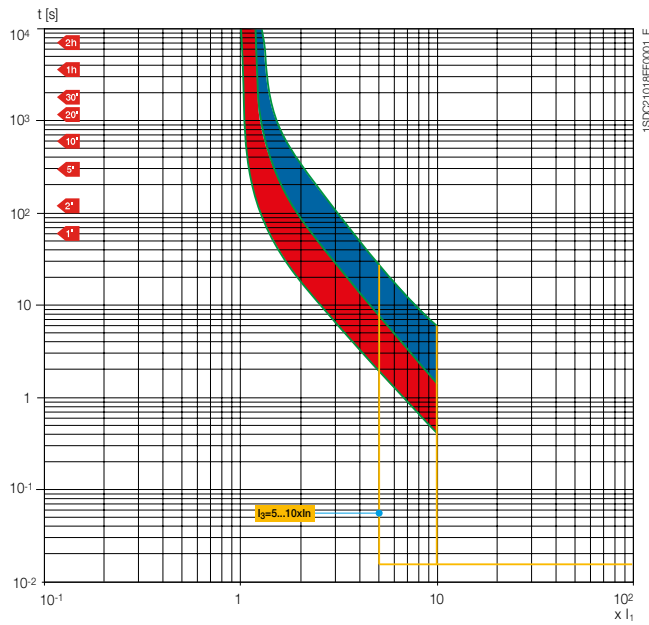
XT2 125 TMA In=80...100A



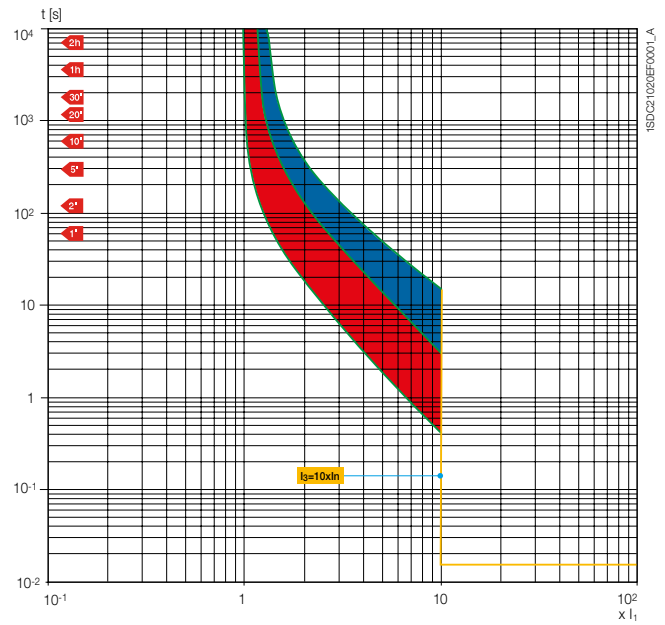
Trip curves with thermomagnetic trip unit

Trip curves for distribution

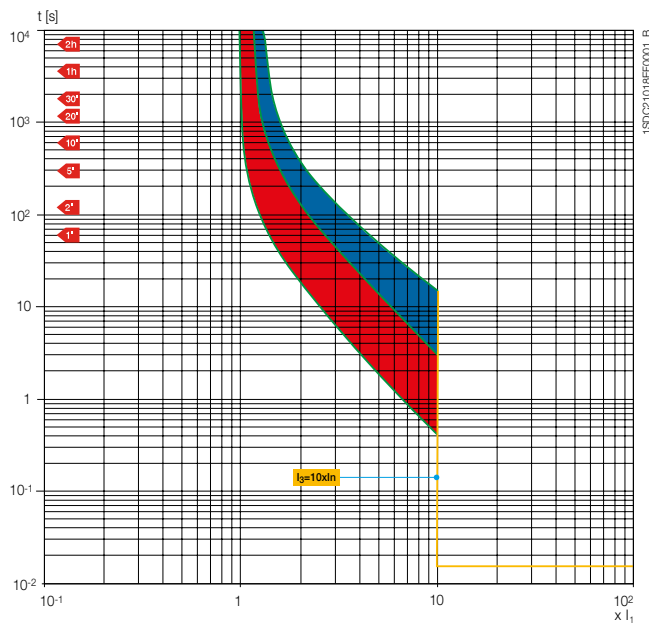
XT2 125 TMA In=110...125A



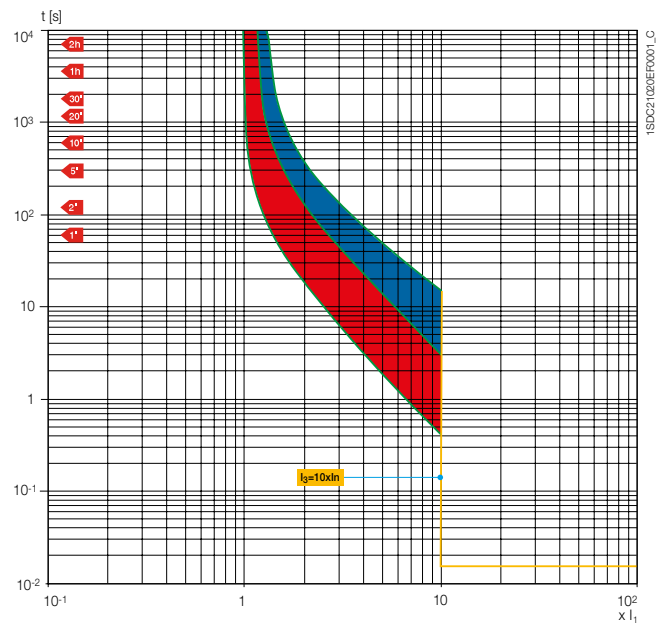
XT3 225 TMF In=60..100A



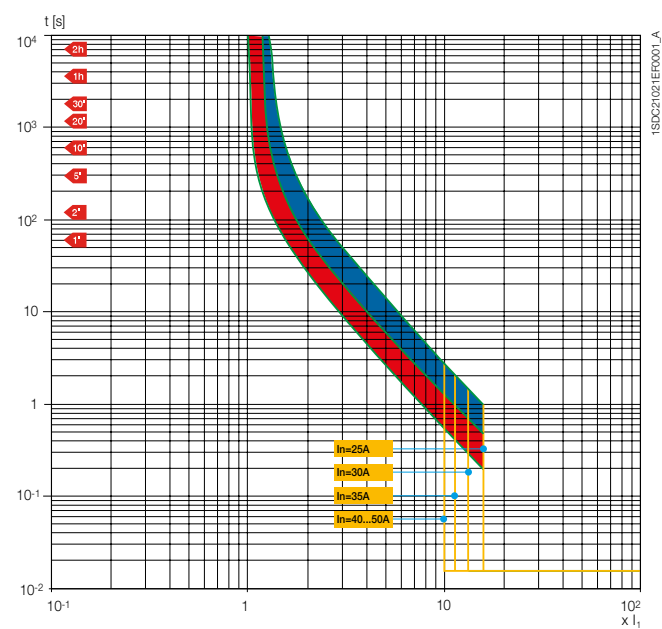
XT3 250 TMF In=110..150A



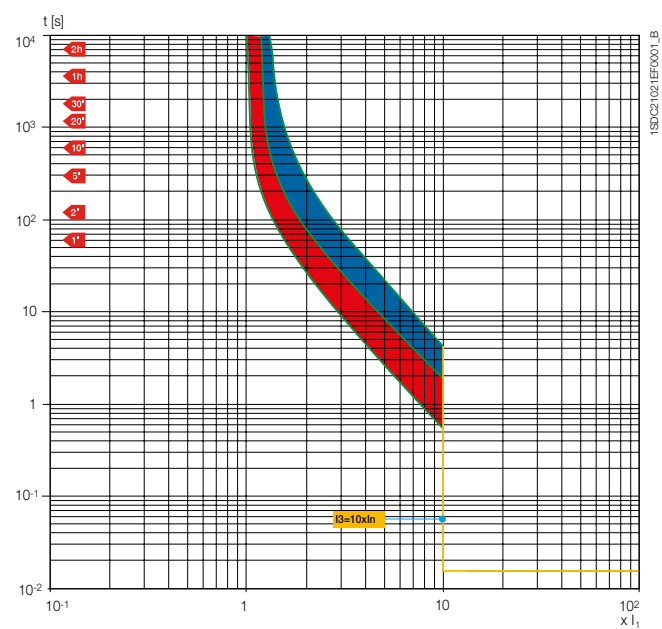
XT3 250 TMF In=160..225A



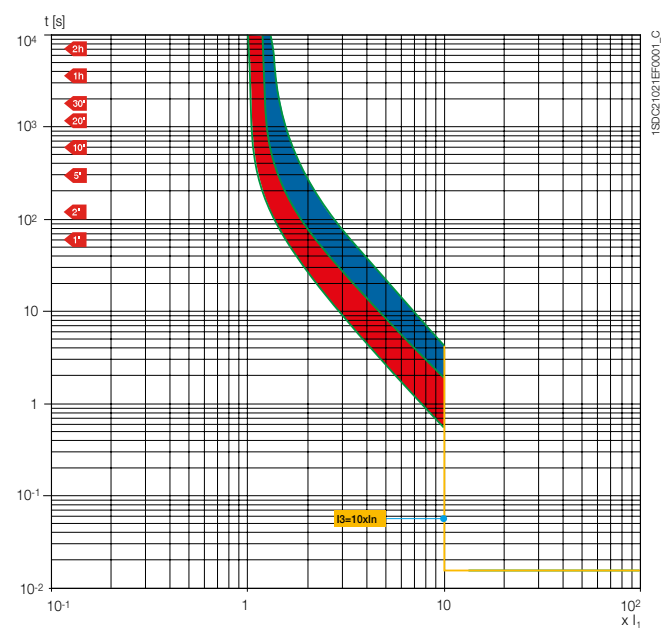
XT4 250 TMF In=25...50A



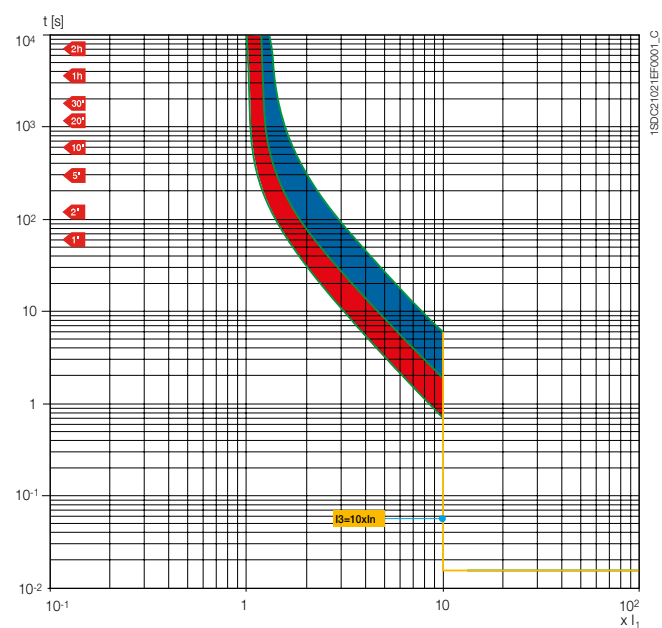
XT4 250 TMF In=60...70A



XT4 250 TMF In=80...100A



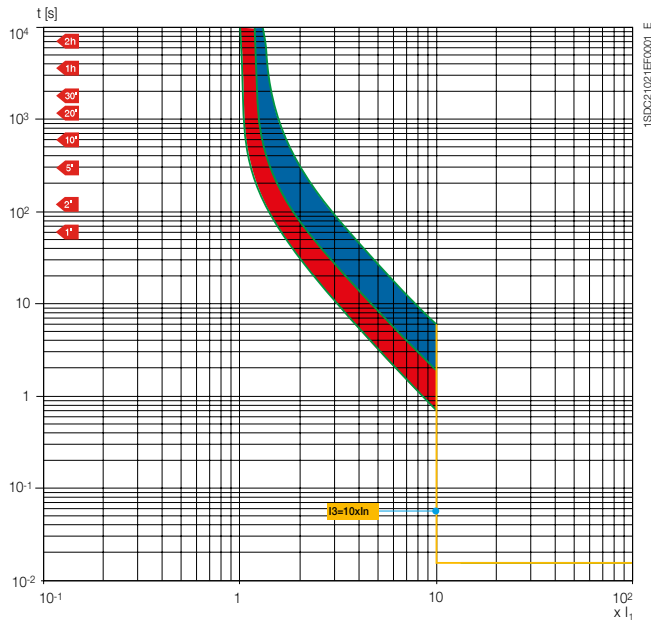
XT4 250 TMF In=110...150A



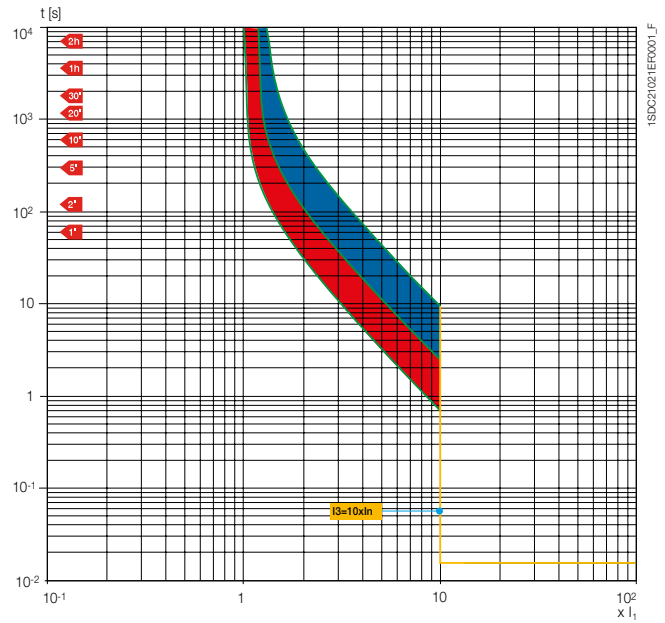
Trip curves with thermomagnetic trip unit

Trip curves for distribution

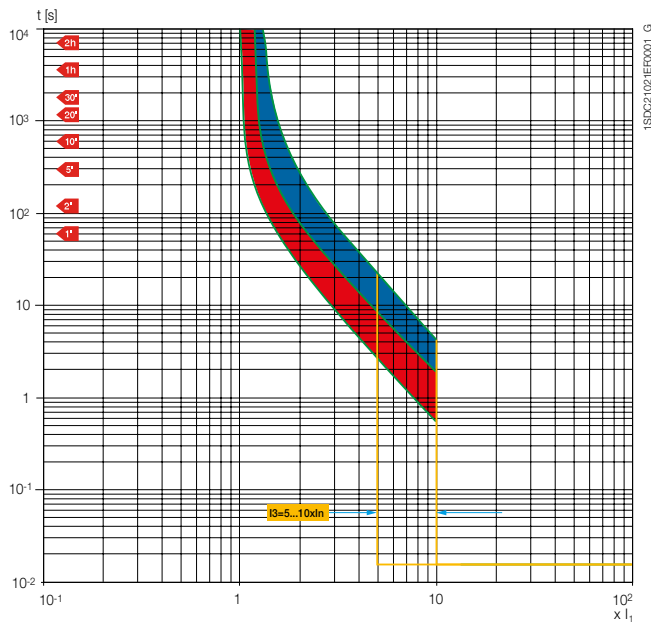
XT4 250 TMF In=160...225A



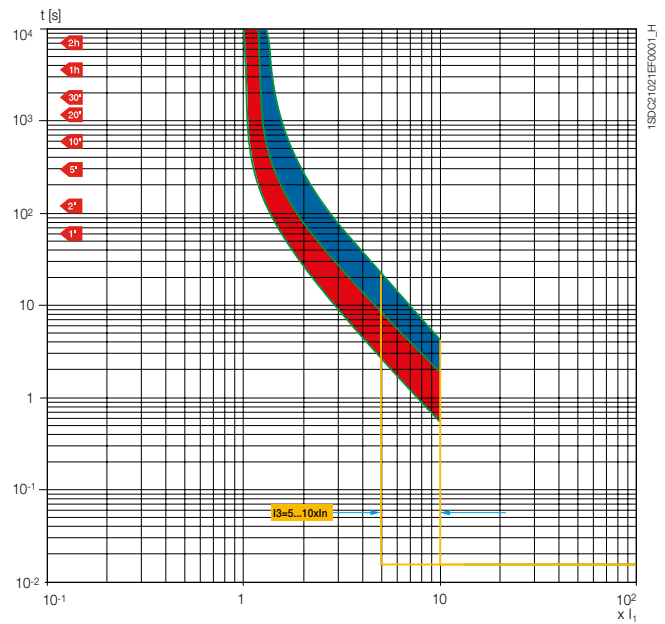
XT4 250 TMF In=250A



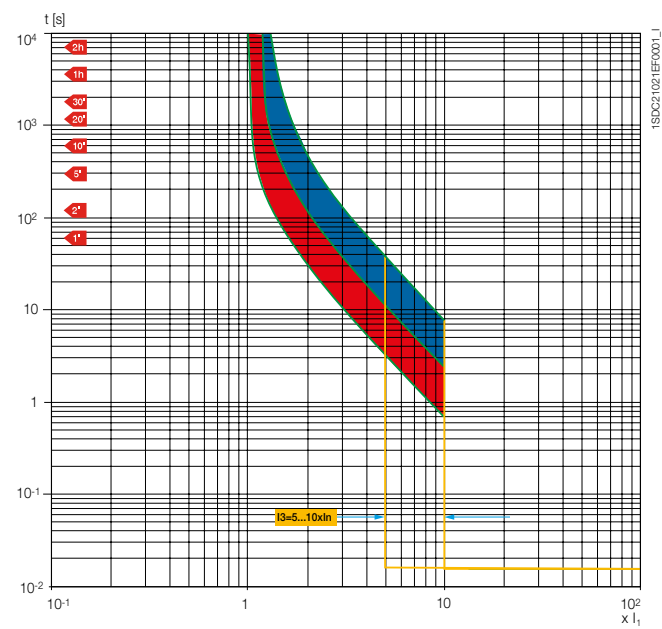
XT4 250 TMA In=80...100A



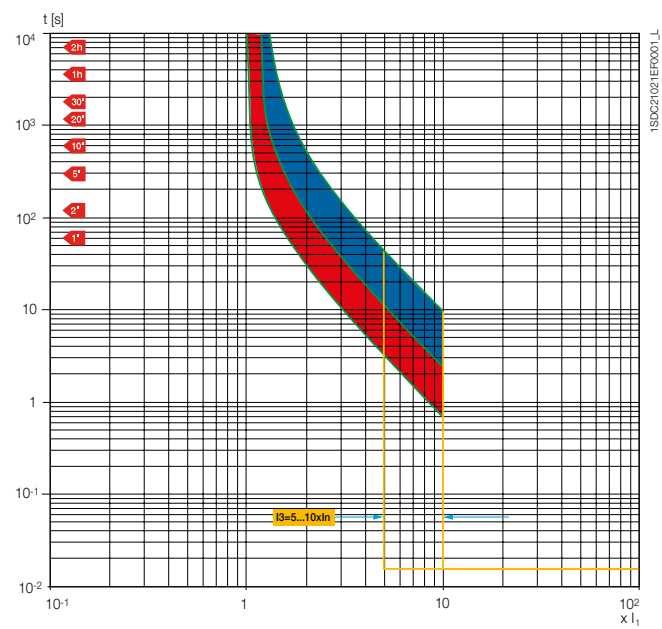
XT4 250 TMA In=110...150A



XT4 250 TMA In=160...225A



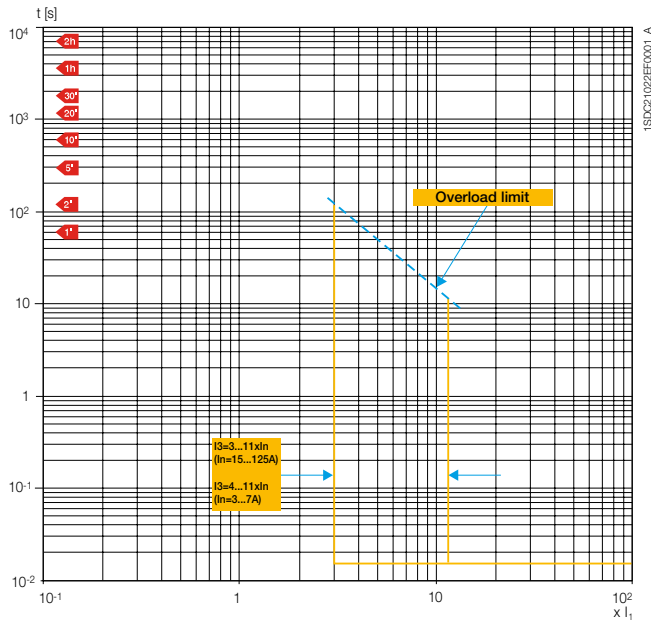
XT4 250 TMA In=250A



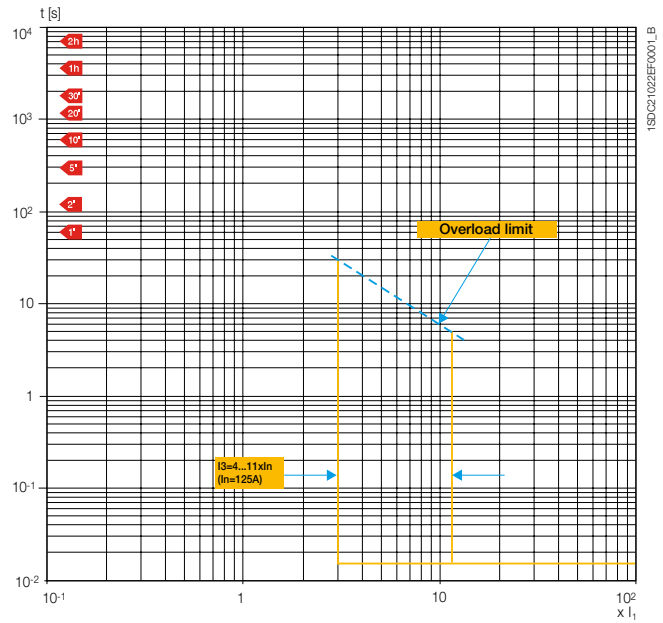
Trip curves with thermomagnetic trip unit

Trip curves for motor protection

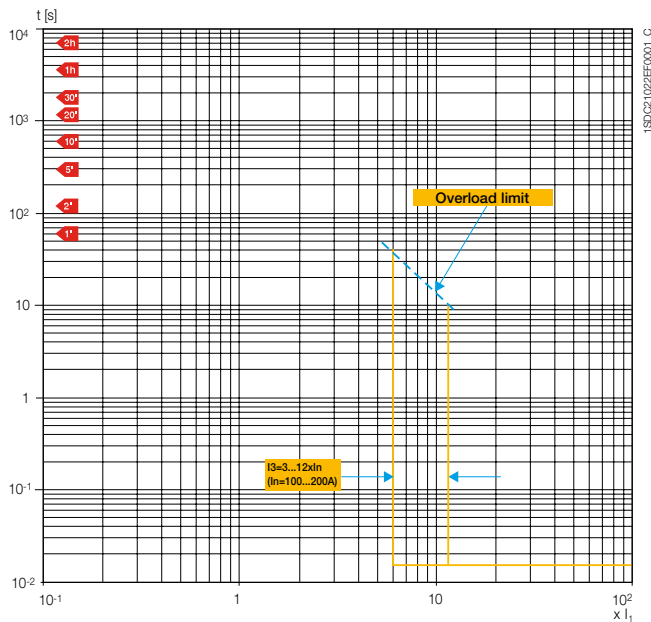
XT1 125 MA $I_n=3...125A$



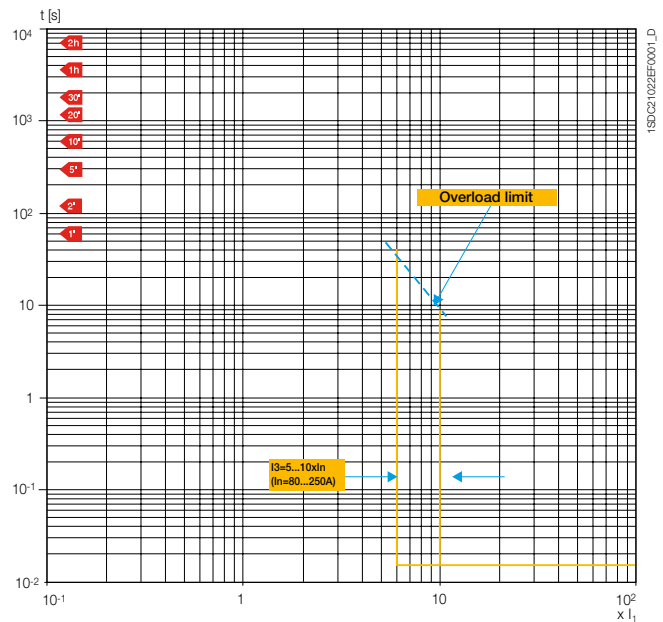
XT2 125 MA $I_n=125A$



XT3 225 MA $I_n=100...200A$



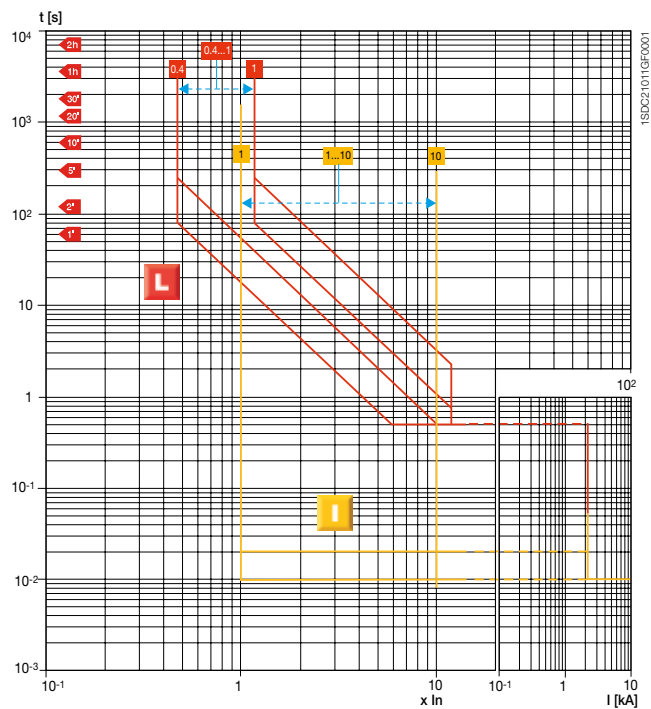
XT4 250 MA $I_n=80...250A$



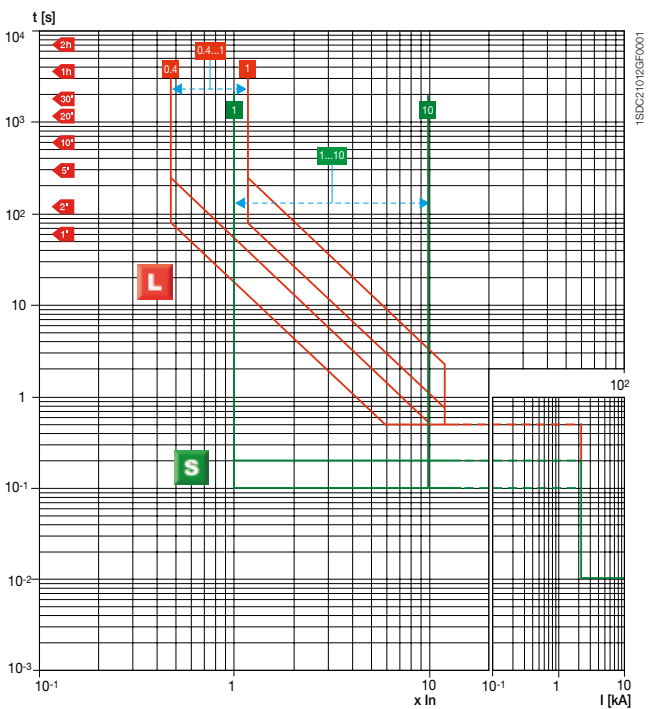
Trip curves with electronic trip unit

Trip curves for distribution

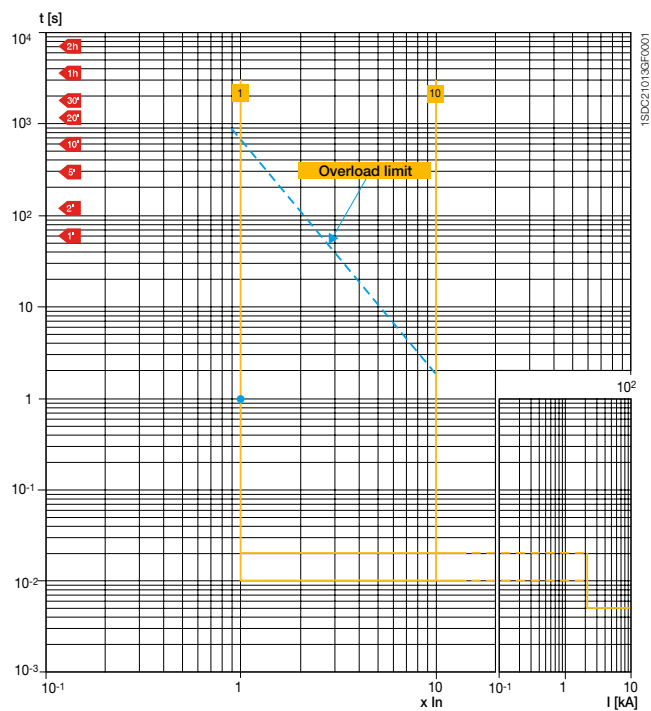
XT2 Ekip LS/I
L-I functions



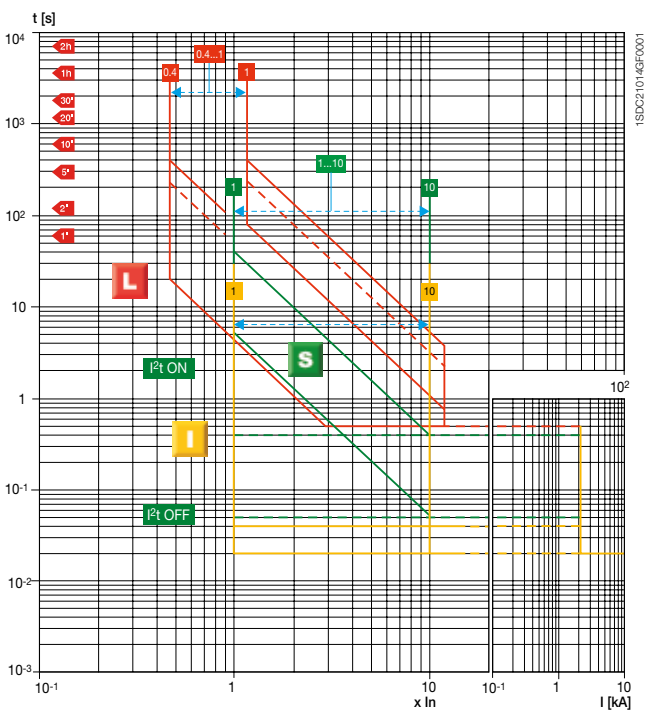
XT2 Ekip LS/I
L-S functions



XT2 Ekip I
I function



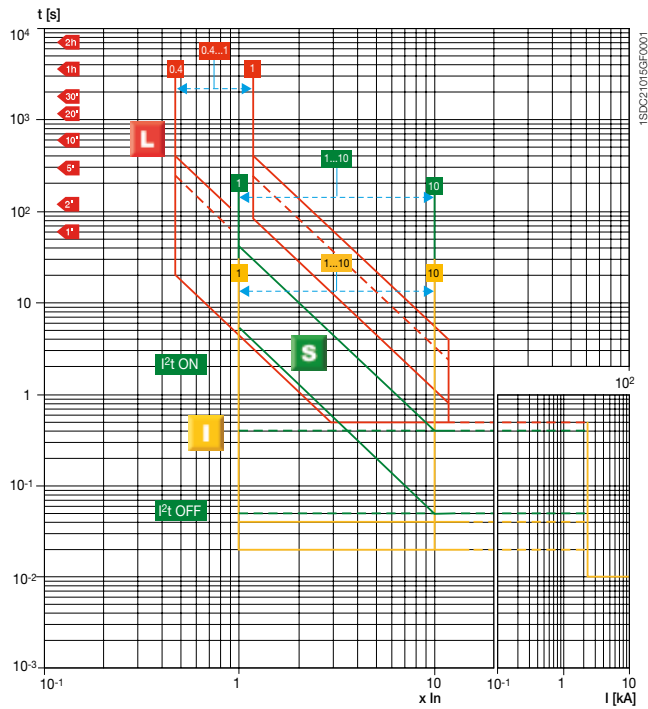
XT2 Ekip LSI
L-S-I functions



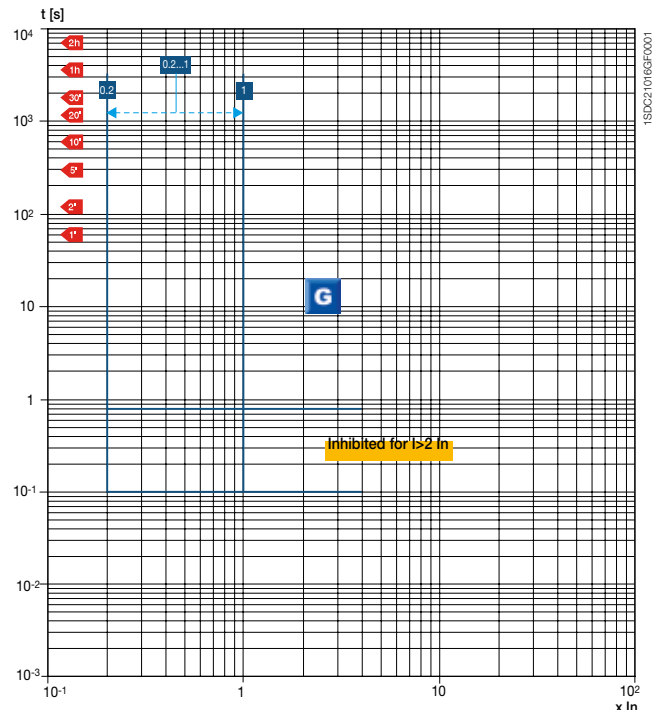
Trip curves with electronic trip unit

Trip curves for distribution

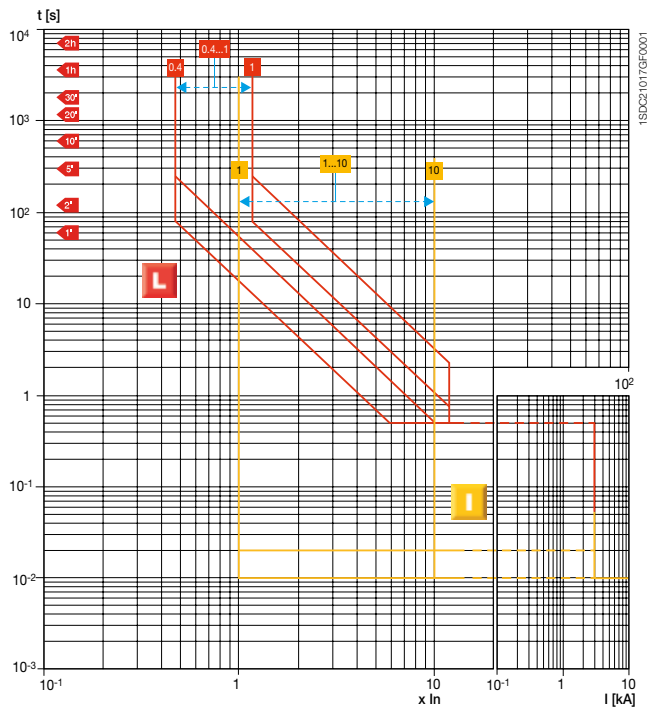
XT2 Ekip LSIG
L-S-I functions



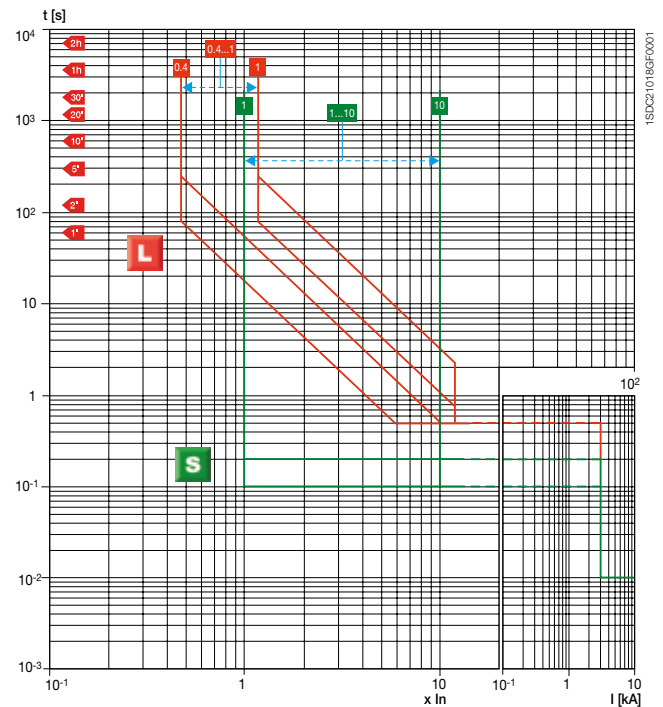
XT2 Ekip LSIG
G function



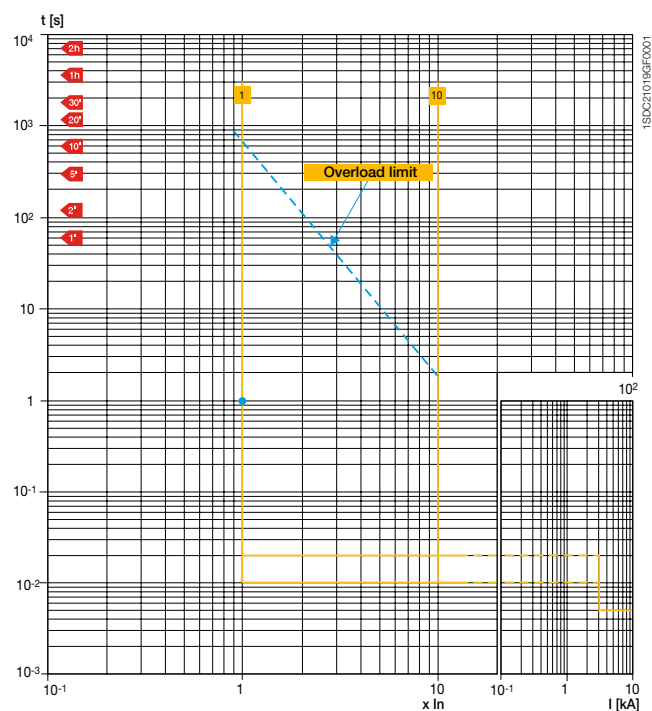
XT4 Ekip LS/I
L-I functions



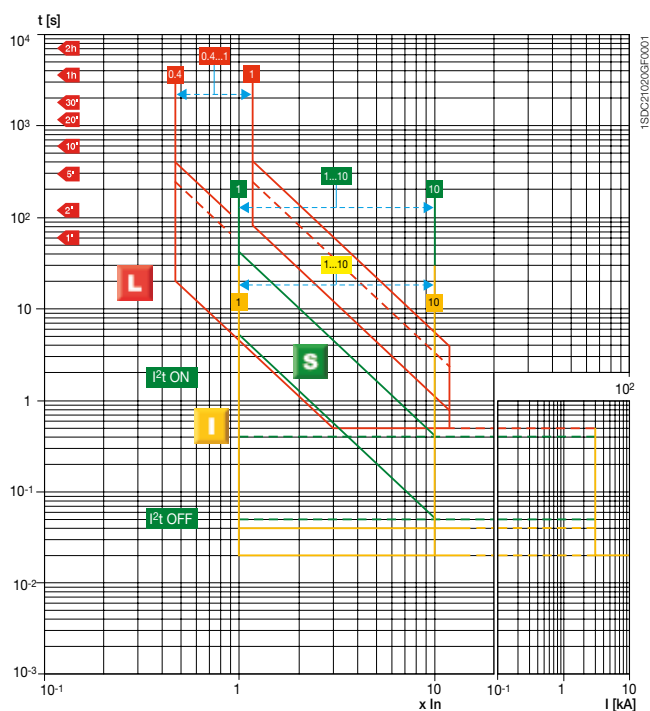
XT4 Ekip LS/I L-S
functions



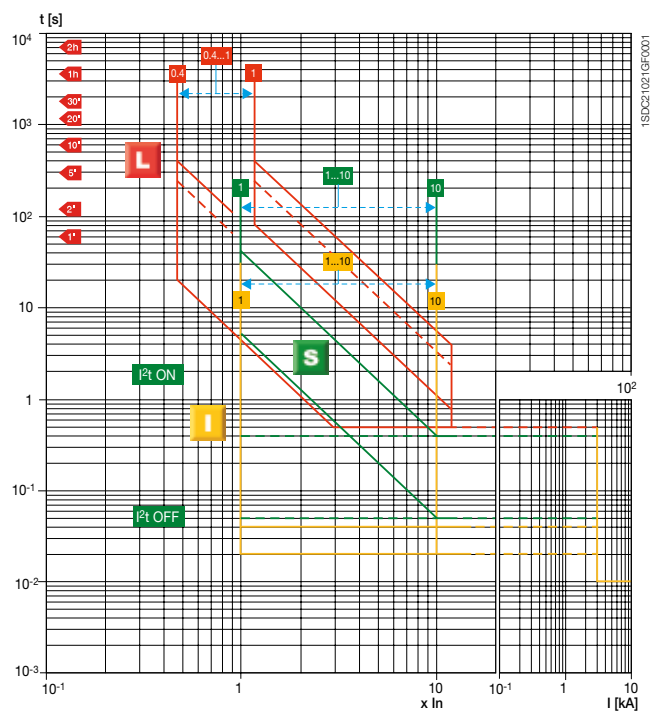
XT4 Ekip I



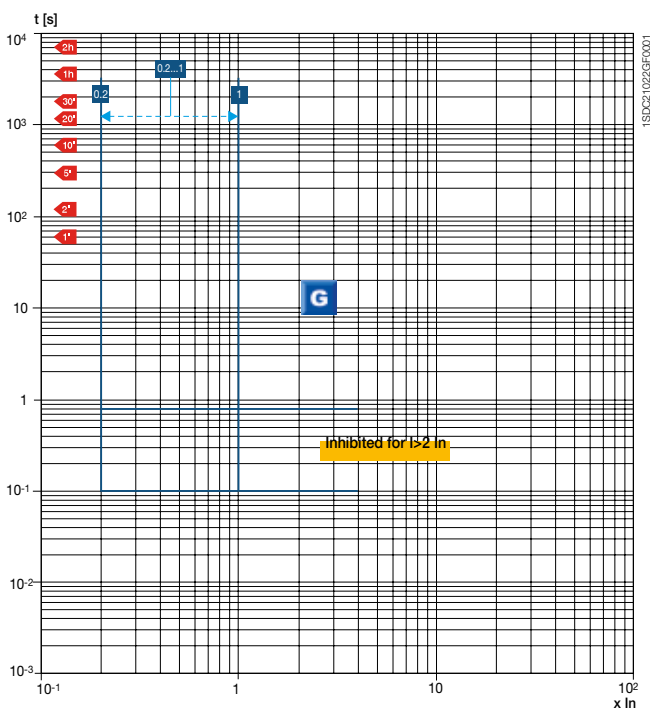
XT4 Ekip LSI L-S-I functions



XT4 Ekip LSIG, Ekip E-LSIG L-S-I functions



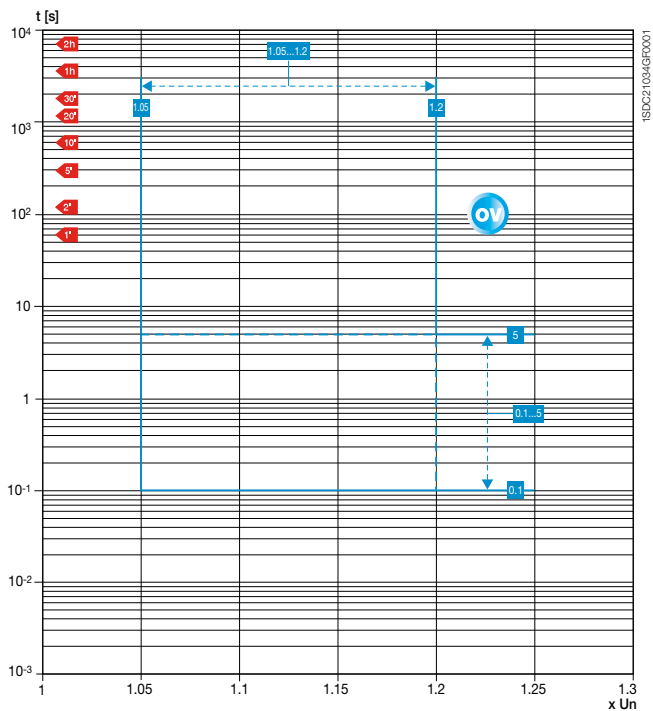
XT4 Ekip LSIG, Ekip E-LSIG G function



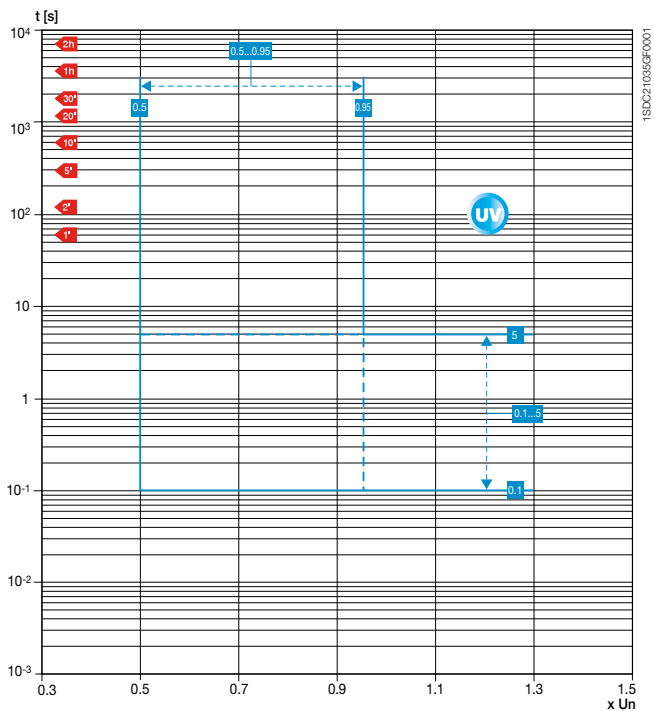
Trip curves with electronic trip unit

Trip curves for distribution

XT4 Ekip E-LSIG
OV protection



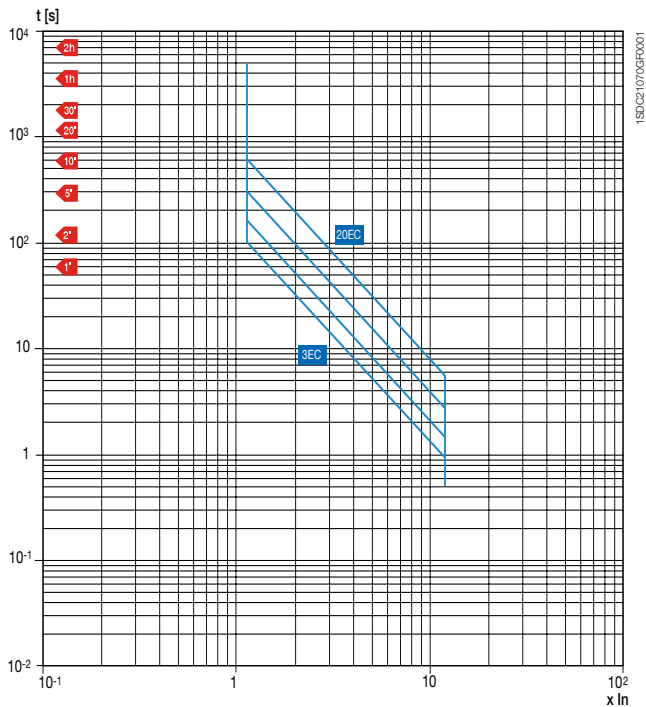
XT4 Ekip E-LSIG
UV protection



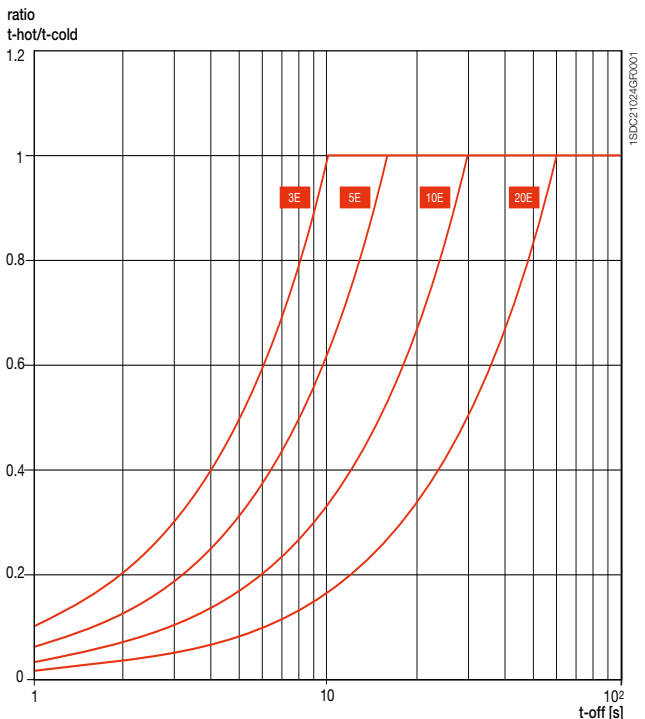
Trip curves with electronic trip unit

Trip curves for motor protection

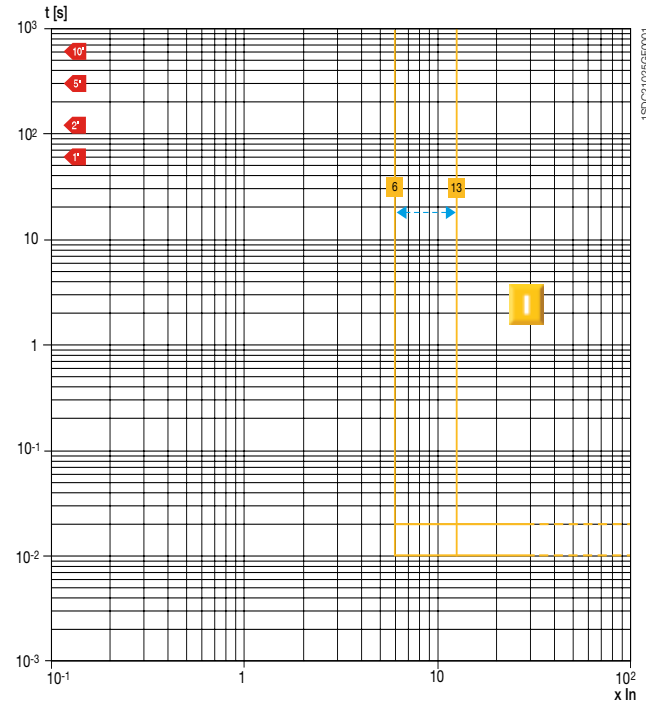
XT2-XT4 Ekip M-LIU
L function (cold trip)



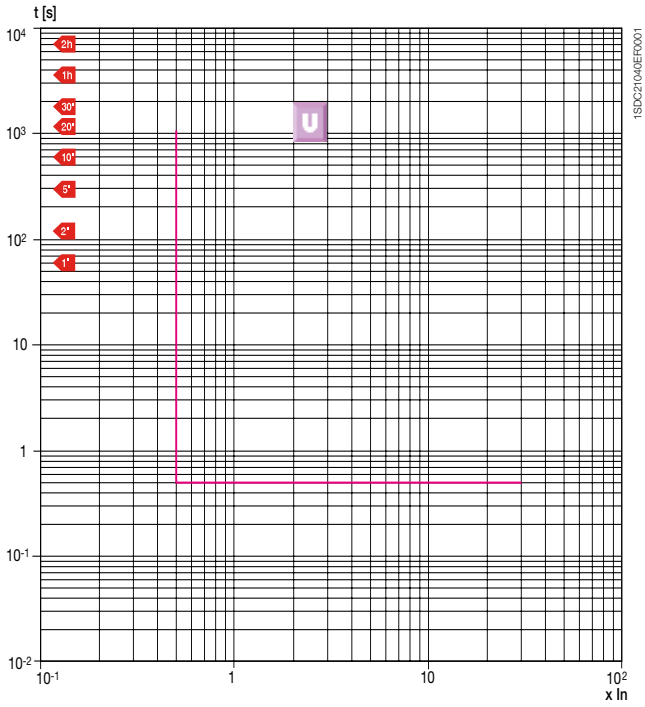
XT2-XT4 Ekip M-LIU
(hot trip)



XT2-XT4 Ekip M-LIU
I function



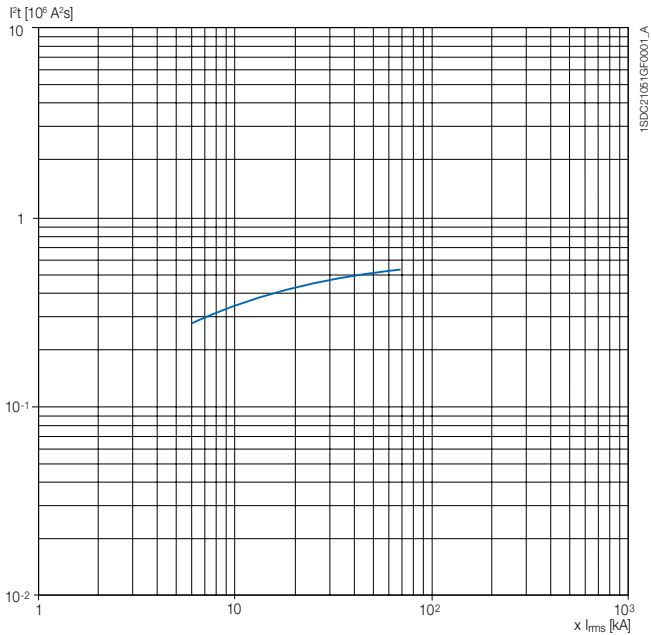
XT2-XT4 Ekip M-LIU
U function



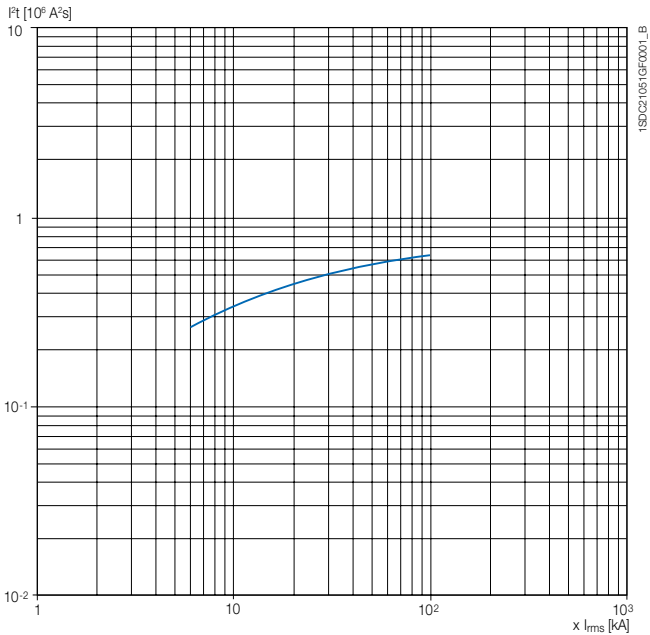
Specific let-through energy curves

480V

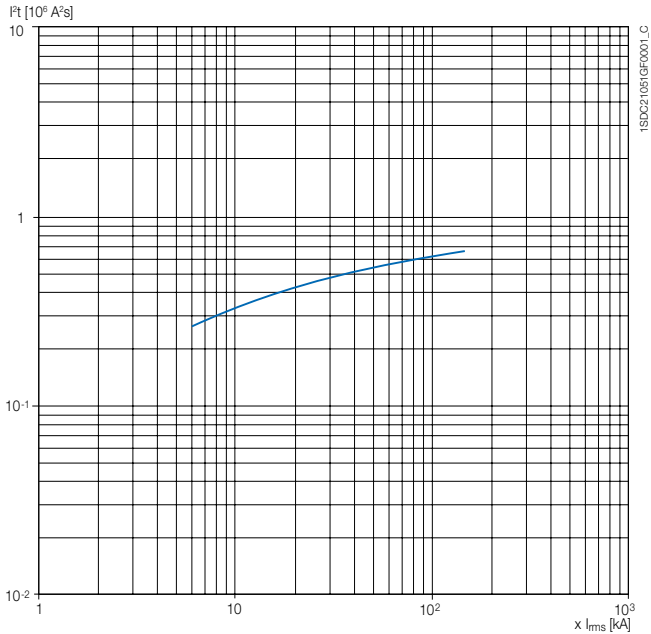
XT2H



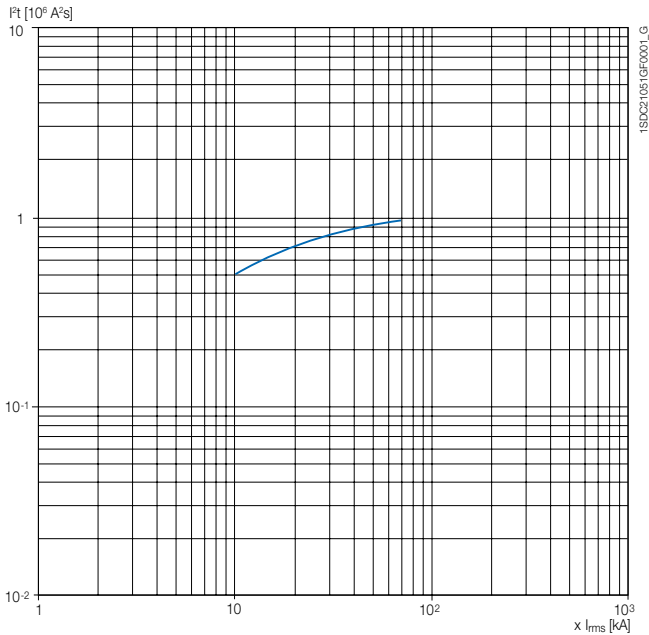
XT2L



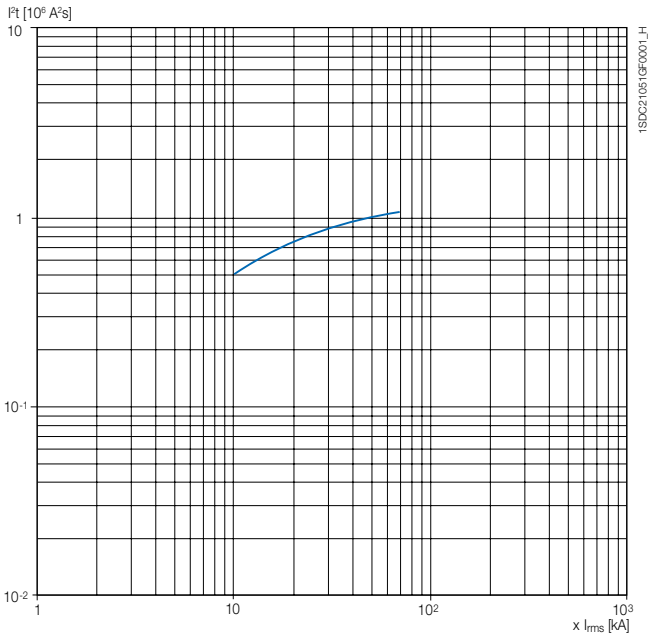
XT2V



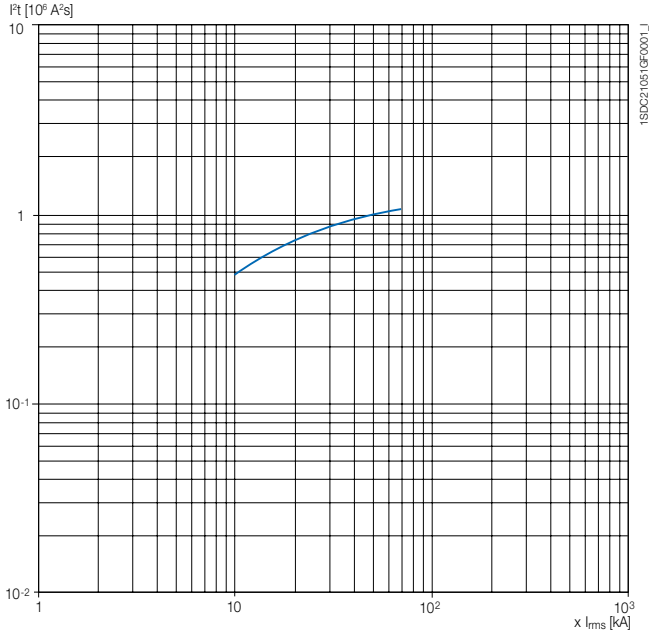
XT4H



XT4L

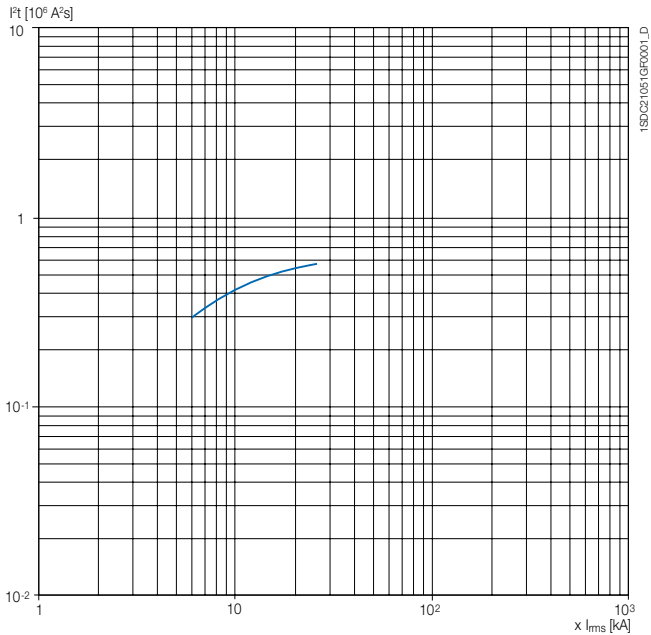


XT4V

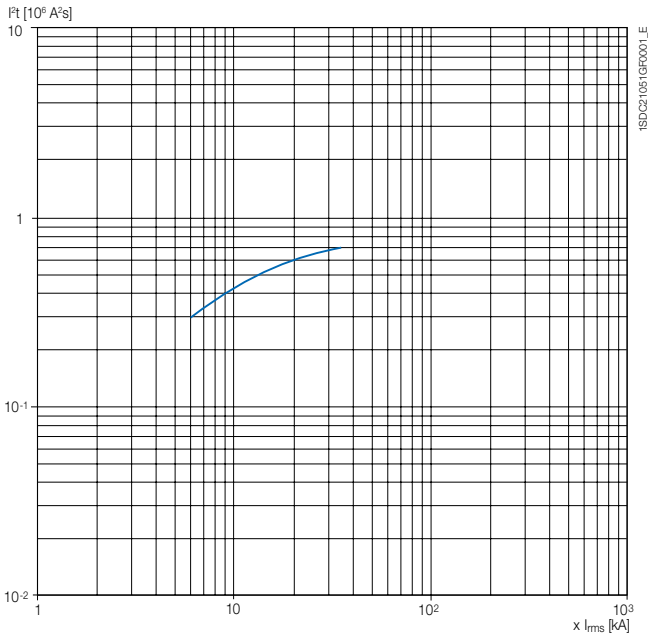


Specific let-through energy curves 600V

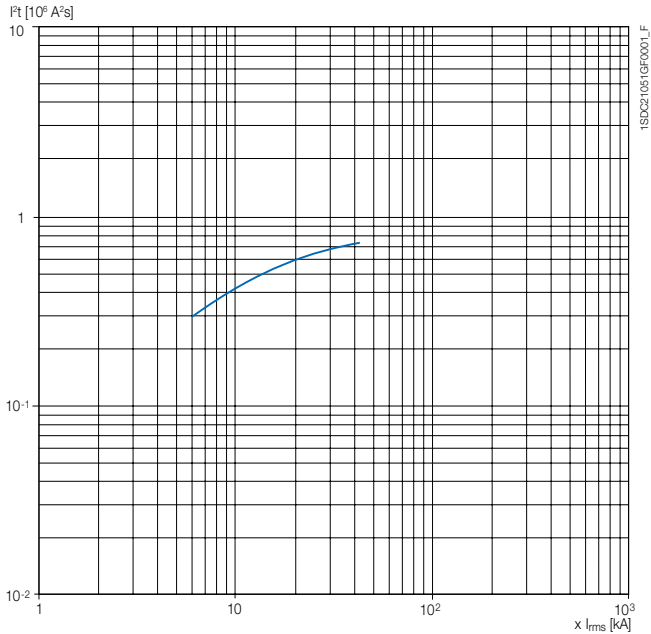
XT2H



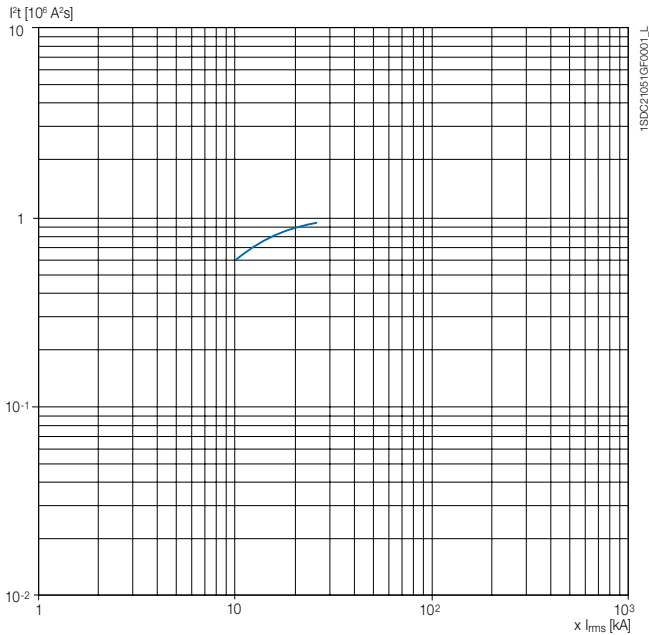
XT2L



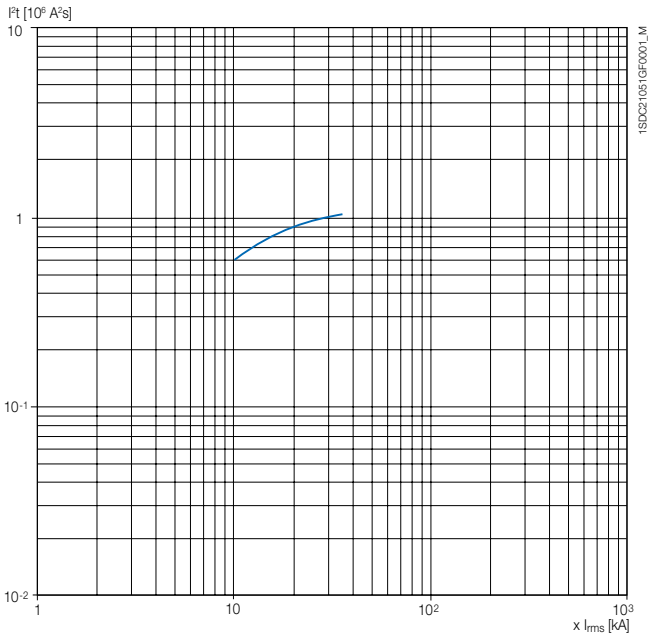
XT2V



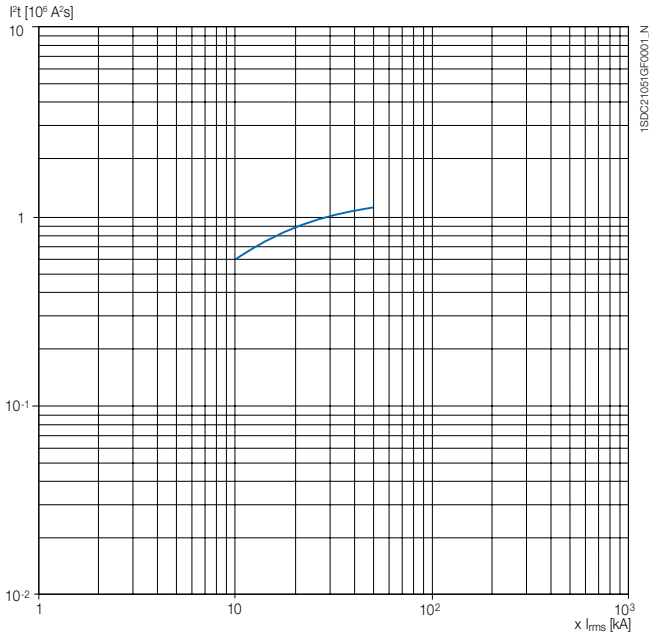
XT4H



XT4L



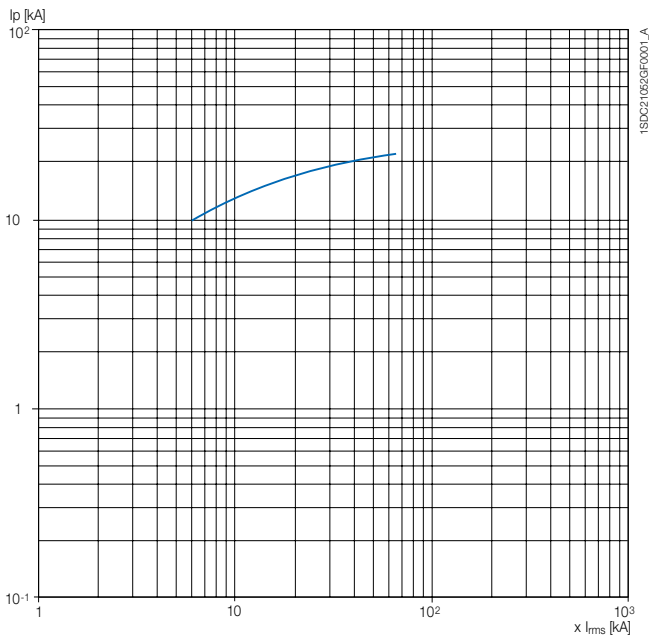
XT4V



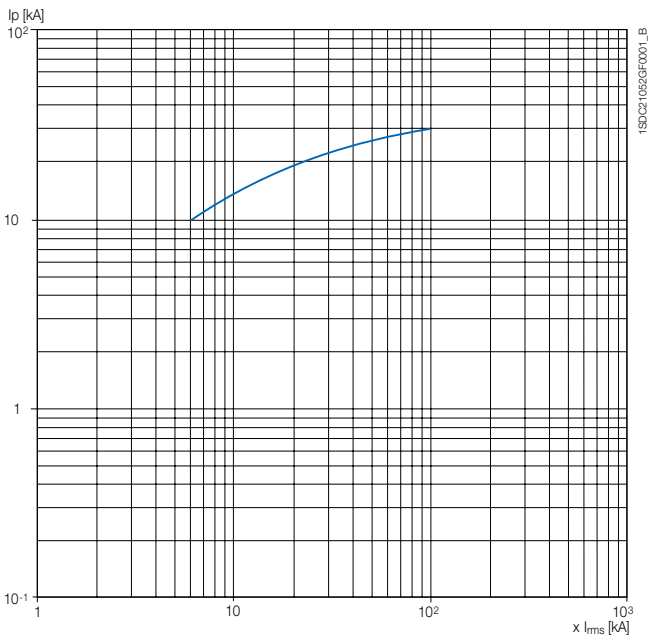
Limiting curves

480V

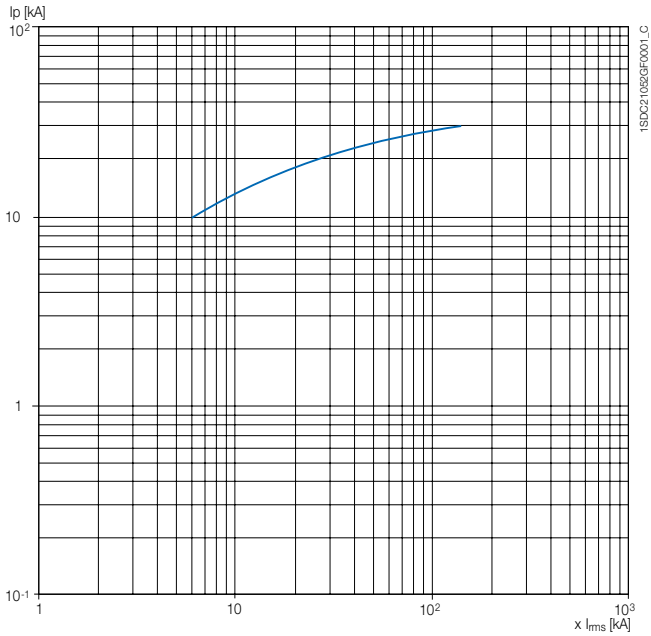
XT2H



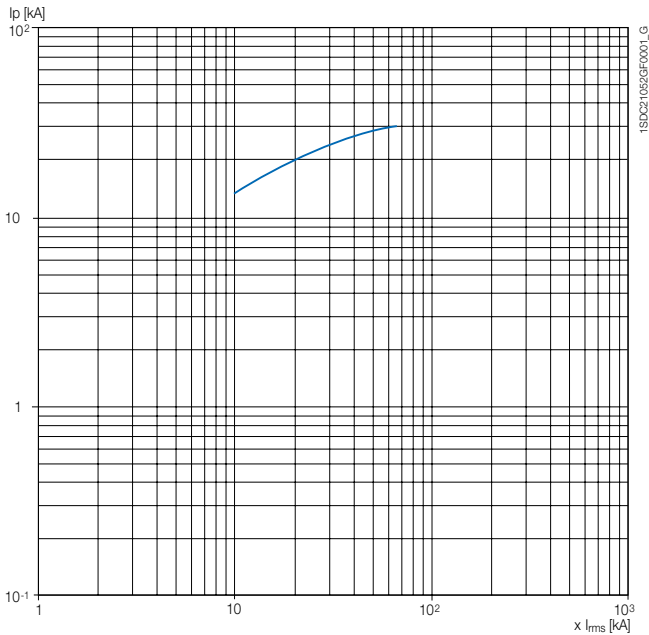
XT2L



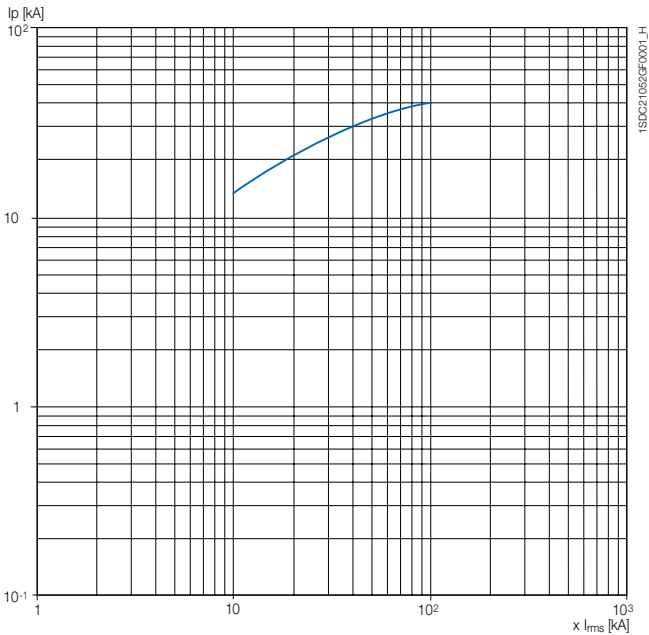
XT2V



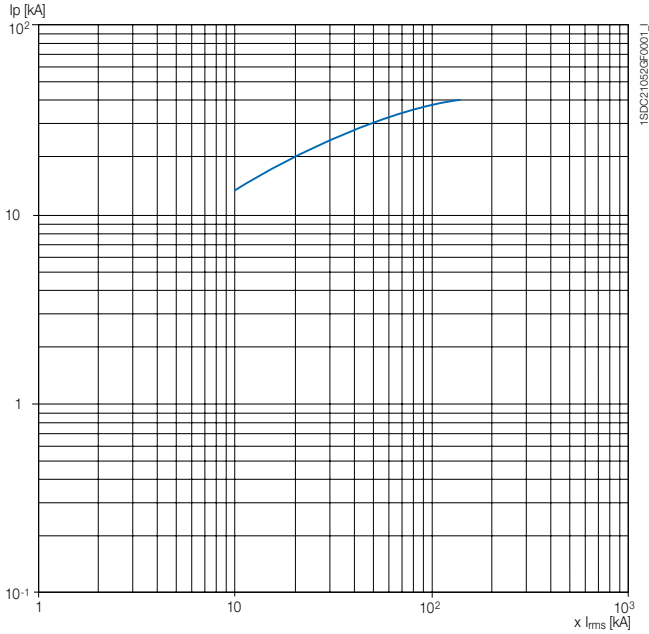
XT4H



XT4L

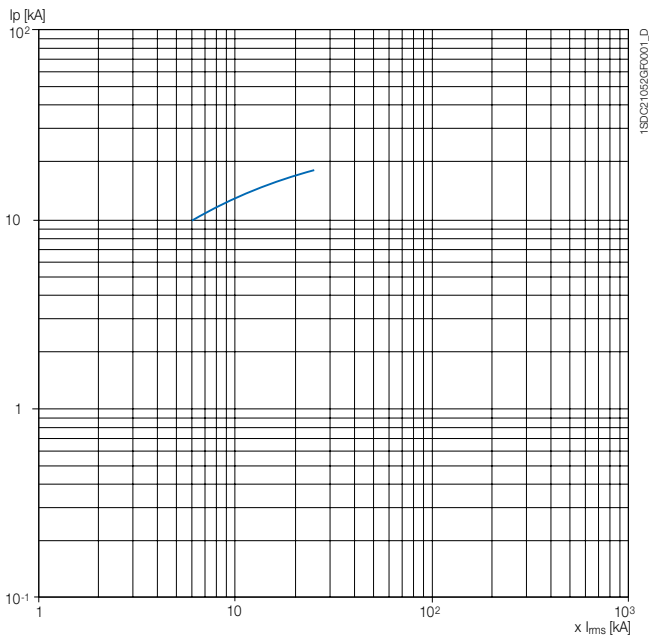


XT4V

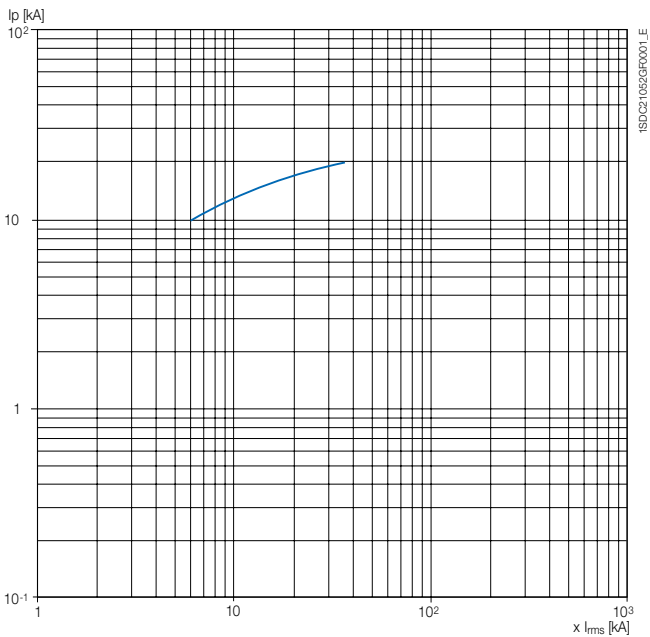


Limiting curves 600V

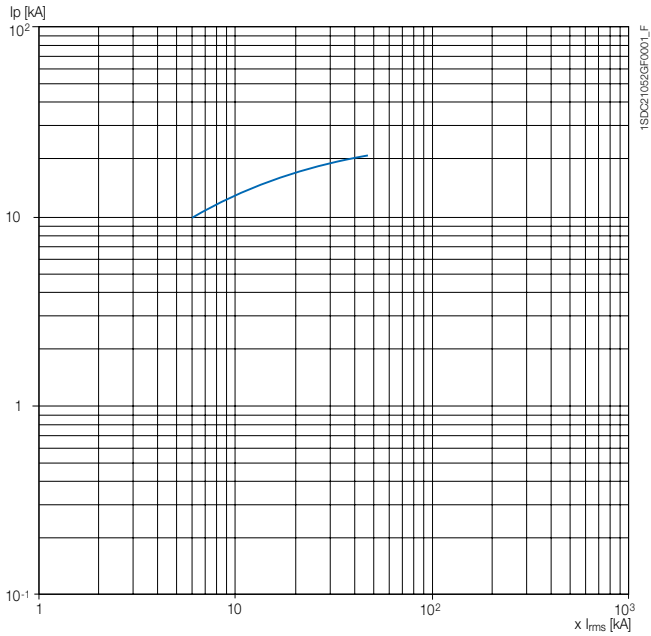
XT2H



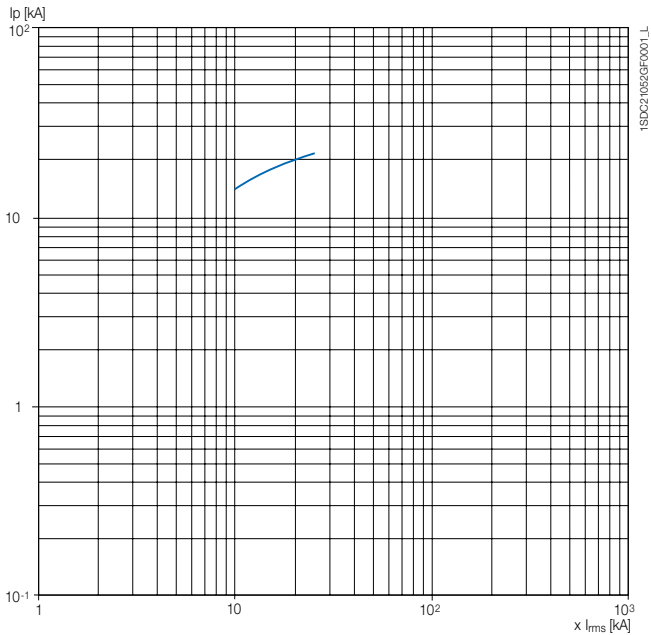
XT2L



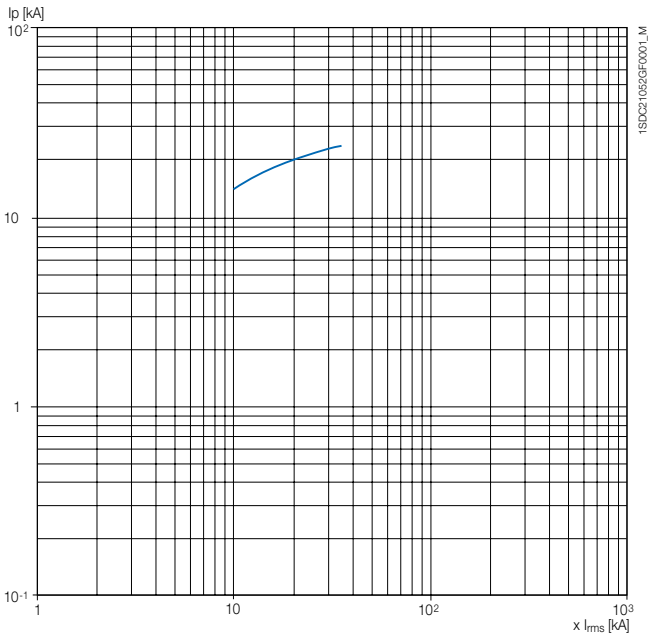
XT2V



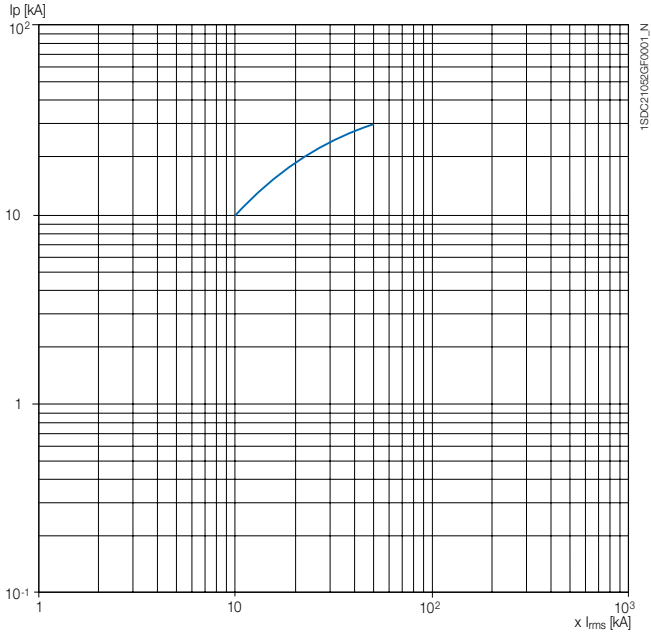
XT4H



XT4L



XT4V



Temperature performance

All Tmax XT circuit-breakers can be used under the following environmental conditions:

- -25°C +70°C: range of atmospheric temperature where the circuit-breaker is installed;
- -40°C +70°C: range of atmospheric temperature where the circuit-breaker is stored.

Circuit-breakers fitted with a thermomagnetic trip unit have the thermal element set for a reference temperature of +40°C. With the same setting, for temperatures other than +40°C, there is a variation in the thermal trip threshold as indicated in the tables below.

XT1 - TMF

In [A]	30°C	40°C	50°C	60°C	70°C
15	16	15	14	13	12
20	21	20	19	18	16
25	26	25	23	22	20
30	32	30	28	26	24
40	42	40	38	35	33
45	48	45	42	40	37
50	53	50	47	44	41
60	63	60	56	52	49
70	74	70	66	61	57
90	95	90	85	79	73
100	105	100	94	88	81
110	115	110	103	96	90
125	131	125	117	109	102

XT2 - TMF

In [A]	30°C	40°C	50°C	60°C	70°C
15	16	15	14	13	12
20	21	20	19	17	16
25	26	25	23	22	20
30	32	30	28	26	24
35	37	35	32	31	28
40	42	40	37	35	32
50	53	50	47	43	40
60	63	60	56	52	49
70	74	70	66	61	57

XT3 - TMF

In [A]	30°C	40°C	50°C	60°C	70°C
60	63	60	56	52	49
70	74	70	66	60	56
80	84	80	75	69	64
90	95	90	84	78	72
100	105	100	93	87	80
110	116	110	102	95	88
125	132	125	116	108	100
150	158	150	140	130	121
175	185	175	163	151	141
200	211	200	186	173	161
225	237	225	210	194	181

XT4 - TMF

In [A]	30°C	40°C	50°C	60°C	70°C
25	27	25	23	21	19
30	34	30	25	23	20
32	36	32	27	24	21
35	37	35	32	30	26
40	43	40	37	34	30
50	54	50	46	42	39
60	64	60	56	51	45
63	67	63	58	53	48
70	75	70	65	58	51

XT2 - TMA

	30°C		40°C		50°C		60°C		70°C	
In [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]
80	59	84	56	80	53	75	49	70	46	65
90	66	95	63	90	59	84	55	78	51	73
100	74	105	70	100	65	93	61	87	57	81
110	81	116	77	110	72	103	67	96	62	89
125	92	132	88	125	82	117	76	109	71	101

XT4 - TMA

	30°C		40°C		50°C		60°C		70°C	
In [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]	MIN [A]	MAX [A]
80	60	86	56	80	52	74	46	66	41	58
90	67	95	63	90	60	86	54	77	47	68
100	74	106	70	100	67	95	60	85	53	75
110	83	118	77	110	71	101	65	92	59	84
125	94	134	88	125	81	115	74	105	67	95
150	110	158	105	150	98	141	90	128	85	122
175	129	184	123	175	116	166	107	153	98	140
200	147	210	140	200	133	190	123	175	112	160
225	168	241	158	225	146	208	133	190	119	170
250	183	262	175	250	168	240	161	230	154	220

The electronic overcurrent trip units do not undergo any variations in performance as the temperature varies.

However, even if heating does not affect the trip thresholds of the electronic trip units, in the case of temperatures exceeding +40°C, it is advisable to reduce the maximum setting for protection against overloads (L) to preserve the copper parts of the circuit-breaker against high temperatures.

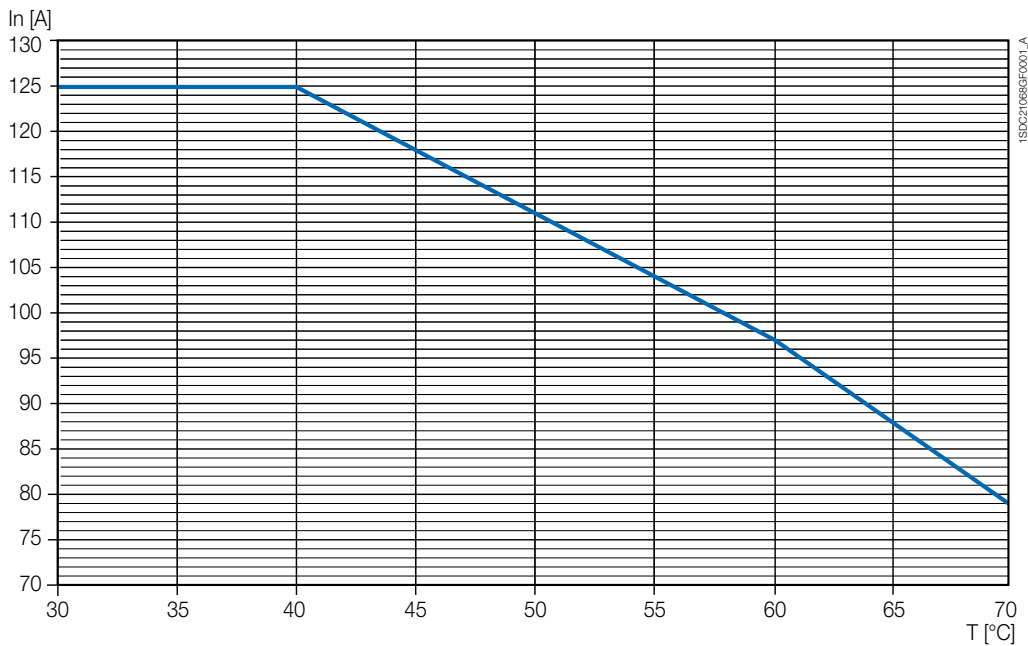
The same considerations apply to the switch-disconnectors and magnetic only circuit-breakers.

The table and graph below show the maximum adjustment at which the threshold I₁ of the overcurrent protection (L) must be set according to the ambient temperature and to the type of terminals used.

Temperature performance

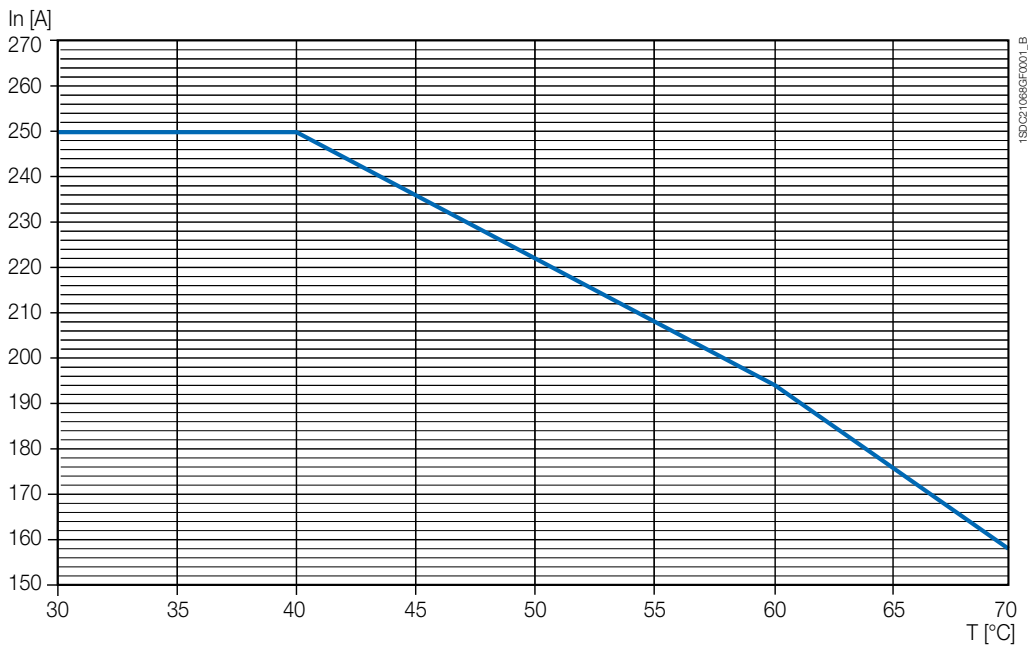
XT2 - Fixed circuit-breakers with electronic trip unit, magnetic trip unit or switch-disconnectors				
T[°C]	40°C	50°C	60°C	70°C
I _{max} [A]	125	112	97	79

XT2 Ekip - MCP - MCS



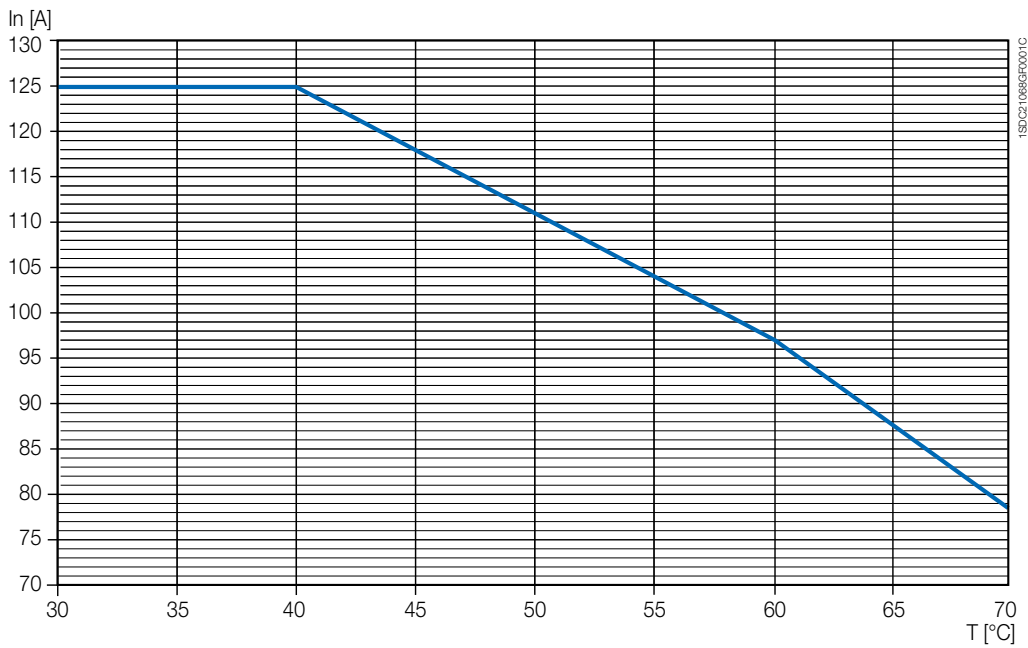
XT4 - Fixed circuit-breakers with electronic trip unit, magnetic trip unit or switch-disconnectors				
T[°C]	40°C	50°C	60°C	70°C
I _{max} [A]	250	224	194	158

XT4 Ekip - MCP - MCS



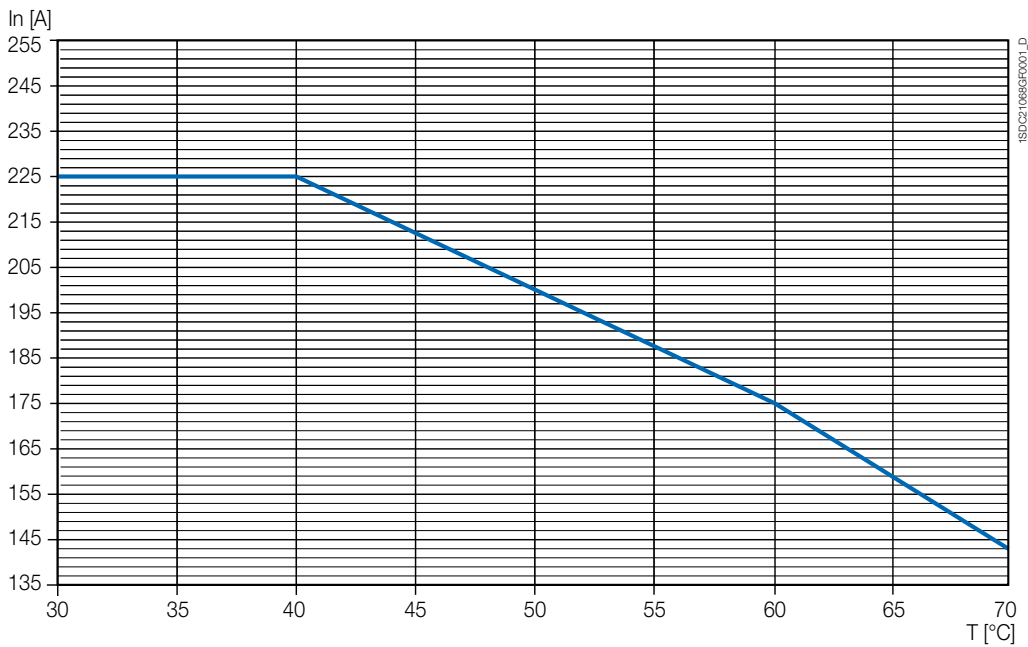
XT1 - Fixed circuit-breakers with electronic trip unit, magnetic trip unit or switch-disconnectors				
T[°C]	40°C	50°C	60°C	70°C
I _{max} [A]	125	112	97	79

XT1 MCS - MCP



XT3 - Fixed circuit-breakers with electronic trip unit, magnetic trip unit or switch-disconnectors				
T[°C]	40°C	50°C	60°C	70°C
I _{max} [A]	225	201	174	142

XT3 MCS - MCP



Dissipated powers

4

Molded case circuit breakers

Trip unit	In [A]	XT1 [W/pole]	XT2 [W/pole]	XT3 [W/pole]	XT4 [W/pole]
TM	15	1.3	1.1	-	-
	20	1.8	1.6	-	-
	25	2.0	1.8	-	2.7
	30	1.8	2.3	-	3.9
	35	2.0	2.8	-	4.4
	40	2.6	3.7	-	4.5
	45	3.0	-	-	-
	50	3.7	4.1	-	4.7
	60	3.9	4.4	3.9	4.8
	70	3.7	4.4	3.7	5.4
	80	4.8	5.8	4.8	5.5
	90	5.7	6.6	4.5	6.0
	100	7.0	8.1	5.6	6.2
	110	8.3	8.8	5.8	6.7
	125	10.7	11.4	6.6	7.4
	150	-	-	6.9	7.8
	160	-	-	7.9	8.9
	175	-	-	10.1	9.1
	200	-	-	13.2	11.9
	225	-	-	14.4	13.3
	250	-	-	-	16.4
Ekip LS/I	10	-	0.1	-	-
Ekip I	25	-	0.8	-	-
Ekip LSI	40	-	-	-	0.6
Ekip LSIg	60	-	1.5	-	1.3
Ekip E-LSIg	100	-	4.2	-	3.5
	125	-	6.6	-	-
	150	-	-	-	7.8
	225	-	-	-	13.3
	250	-	-	-	16.4

Values refers to fixed version

Motor protection

In [A]	XT1 [W/pole]	XT2 [W/pole]	XT3 [W/pole]	XT4 [W/pole]
3	1.4	3.7	-	-
7	3.2	9.3	-	-
15	1.1	6.4	-	-
25	-	-	-	2.6
30	2.3	3.8	-	-
50	3.1	5	-	6.8
70	5.3	5.5	-	-
80	5.3	6.8	-	5.5
100	6.6	8.1	4.5	6.2
110	-	-	3.3	6.7
125	10.3	14	4.1	7.4
150	-	-	6.5	7.8
175	-	-	-	9.1
200	-	-	8.6	11.9
225	-	-	-	13.3
250	-	-	-	16.4

Values refers to fixed version

Overall dimensions

Tmax XT1

Installation for fixed circuit breaker	5/2
Terminals for fixed circuit breaker	5/5
Accessories for fixed circuit breaker	5/8
Installation for plug-in circuit breaker	5/16
Terminals for plug-in circuit breaker	5/19
Accessories for plug-in circuit breaker	5/23

Tmax XT2

Installation for fixed circuit breaker	5/24
Terminals for fixed circuit breaker	5/27
Accessories for fixed circuit breaker	5/30
Installation for plug-in circuit breaker	5/36
Terminals for plug-in circuit breaker	5/38
Accessories for plug-in circuit breaker	5/42
Installation for withdrawable circuit breaker	5/46
Terminals for withdrawable circuit breaker	5/49
Accessories for withdrawable circuit breaker	5/54

Tmax XT3

Installation for fixed circuit breaker	5/58
Terminals for fixed circuit breaker	5/61
Accessories for fixed circuit breaker	5/65
Installation for plug-in circuit breaker	5/68
Terminals for plug-in circuit breaker	5/74
Accessories for plug-in circuit breaker	5/77

Tmax XT4

Installation for fixed circuit breaker	5/78
Terminals for fixed circuit breaker	5/81
Accessories for fixed circuit breaker	5/85
Installation for plug-in circuit breaker	5/91
Terminals for plug-in circuit breaker	5/95
Accessories for plug-in circuit breaker	5/99
Installation for withdrawable circuit breaker	5/103
Terminals for withdrawable circuit breaker	5/105
Accessories for withdrawable circuit breaker	5/109

Tmax XT - Common accessories	5/111
Distances to be respected	5/113

Overall dimensions

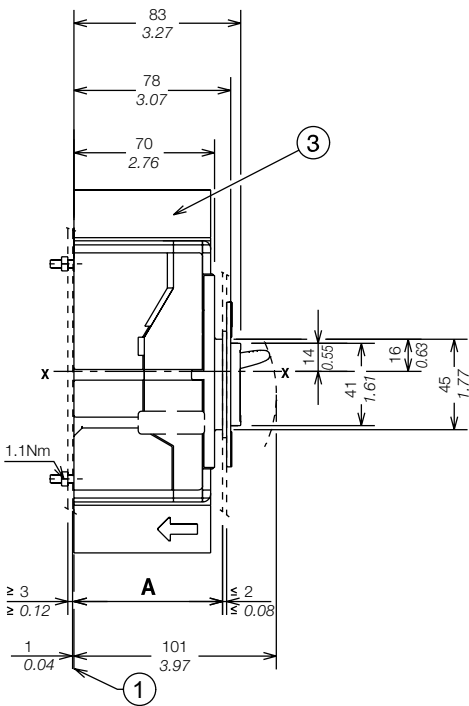
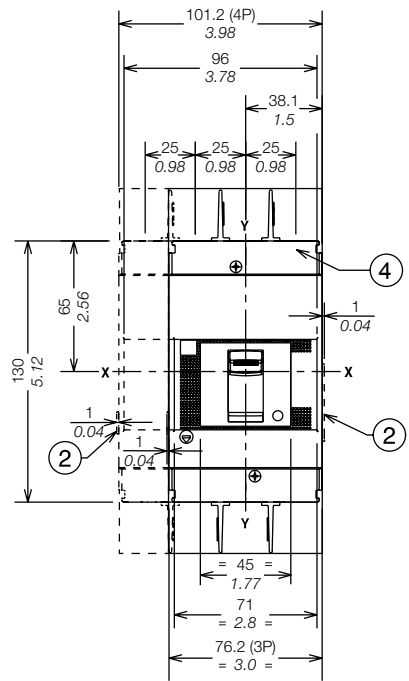
Tmax XT1 - Installation for fixed circuit breaker

5

Mounting on the backplate

Captions

- ① Insulating plate (compulsory)
- ② Overall dimension of optional wiring ducts
- ③ 25mm insulating barriers between phases (compulsory) provided
- ④ Front carter obligatory for through door of the panel ≤ 25mm/0,98"

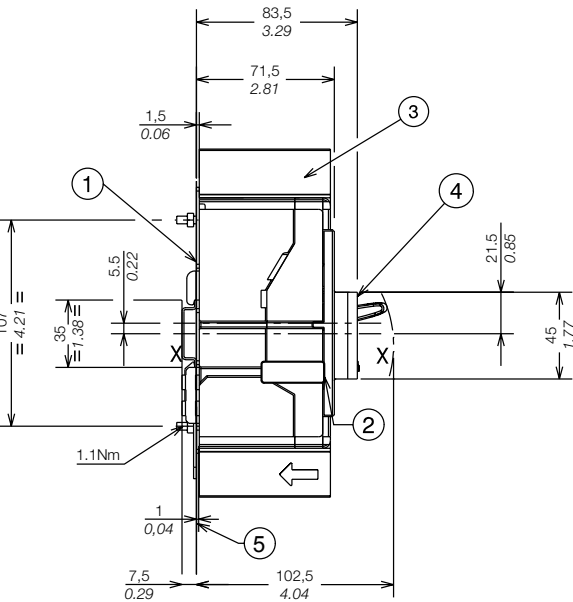
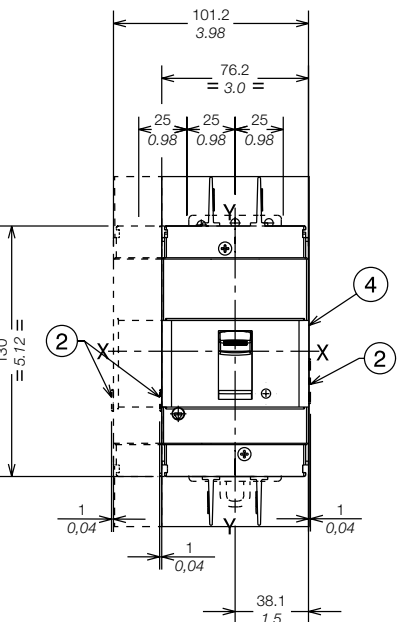


		A
With standard flange	III - IV	74
Without flange	III - IV	71
	III - IV	79

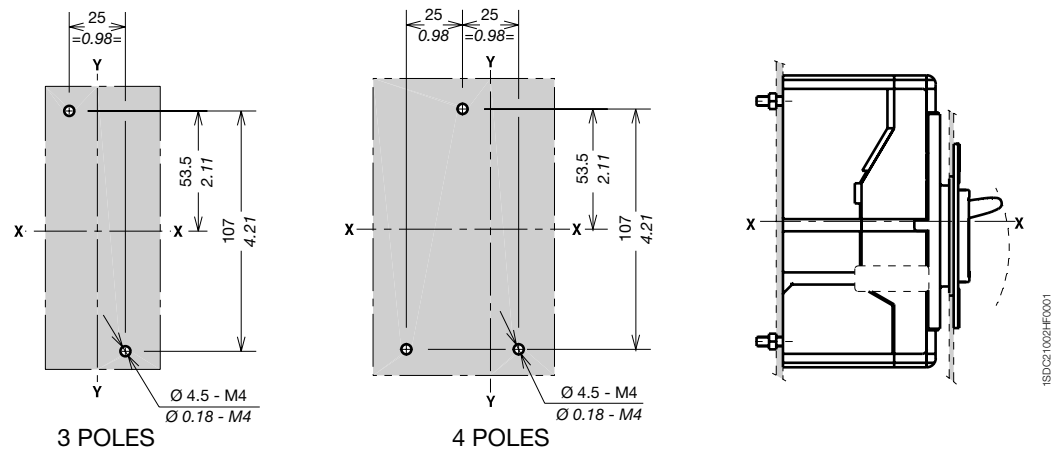
Mounting on DIN 50022 rail

Captions

- ① Mounting bracket
- ② Overall dimension of optional wiring ducts
- ③ 25mm insulating barriers between phases (compulsory) provided
- ④ Optional front cover for DIN rail
- ⑤ Insulating plate (compulsory)



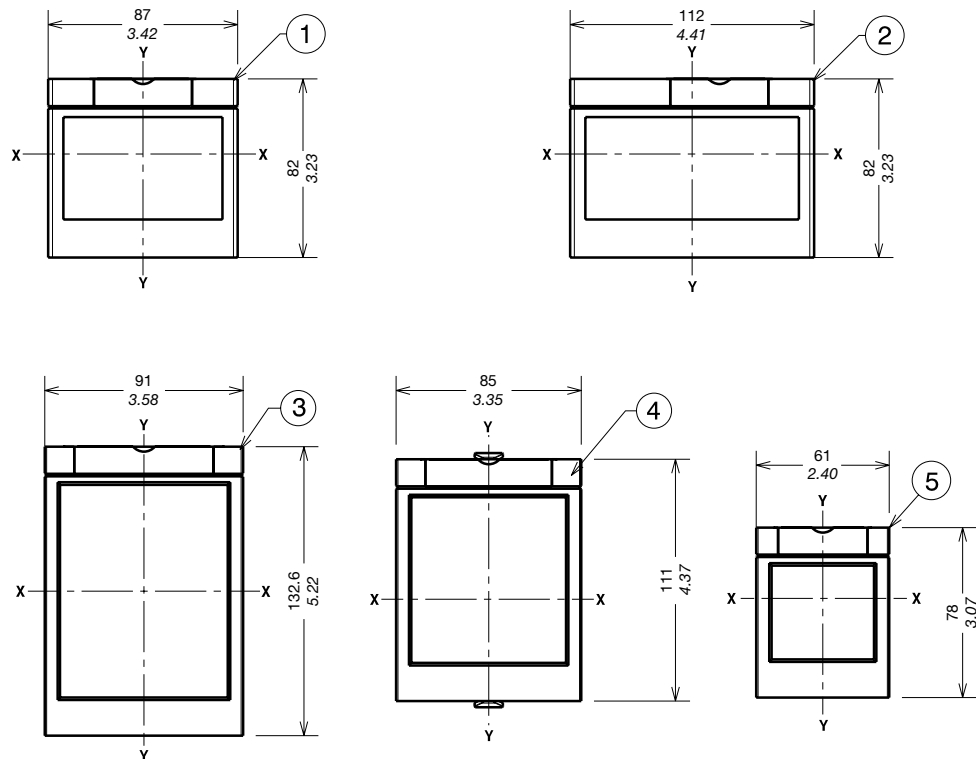
Drilling template for circuit breaker mounting



Flanges

Captions

- ① Flange for circuit breaker III
- ② Flange for circuit breaker IV
- ③ Flange for fixed III-IV with direct motor operator (MOD)
- ④ Flange for III-IV with direct rotary handle (RHD)
- ⑤ Optional flange

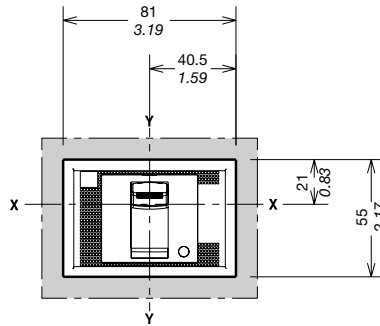


Overall dimensions

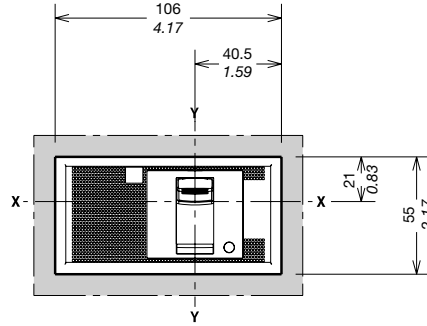
Tmax XT1 - Installation for fixed circuit breaker

Drilling templates for compartment door

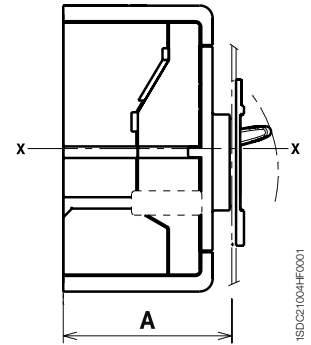
With standard flange



A=74
3 POLES

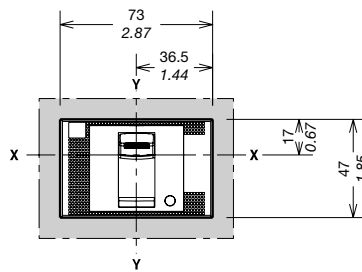


A=74
4 POLES

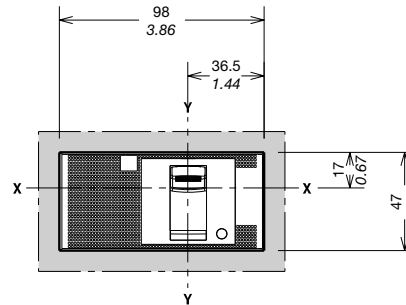


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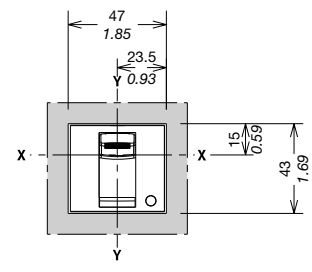
Without flange



A=71
3 POLES



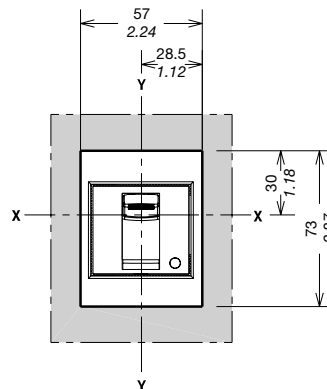
A=71
4 POLES



A=79
3-4 POLES

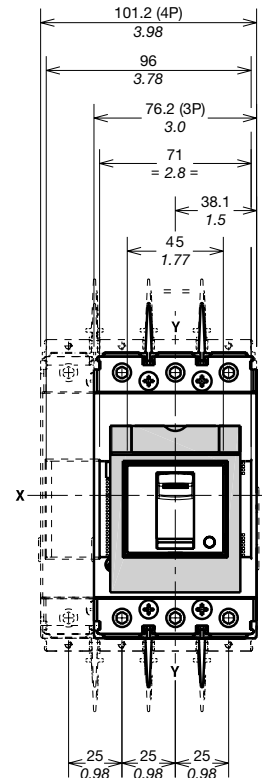
1SDC21005HF0001

With optional flange



A=79
3-4 POLES

1SDC21006HF0001



1SDC21007HF0001

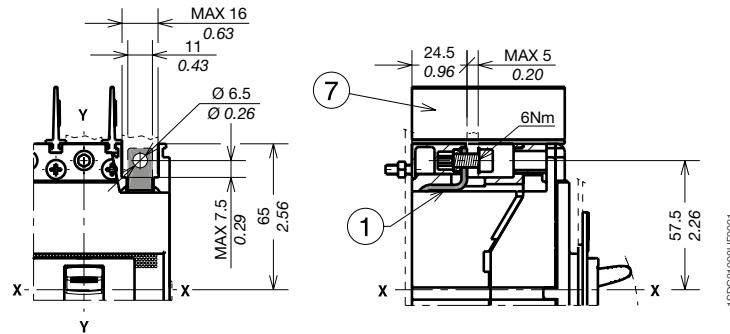
Overall dimensions

Tmax XT1 - Terminals for fixed circuit breaker

Terminals F

Captions

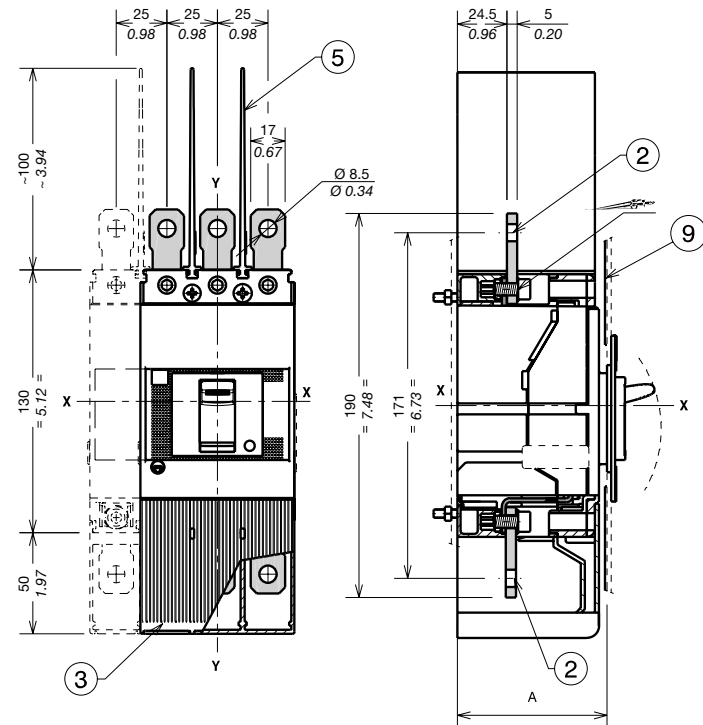
- ① Front terminals for busbar connection
- ⑦ 25mm insulating barriers between phases (compulsory) provided



Terminals EF

Captions

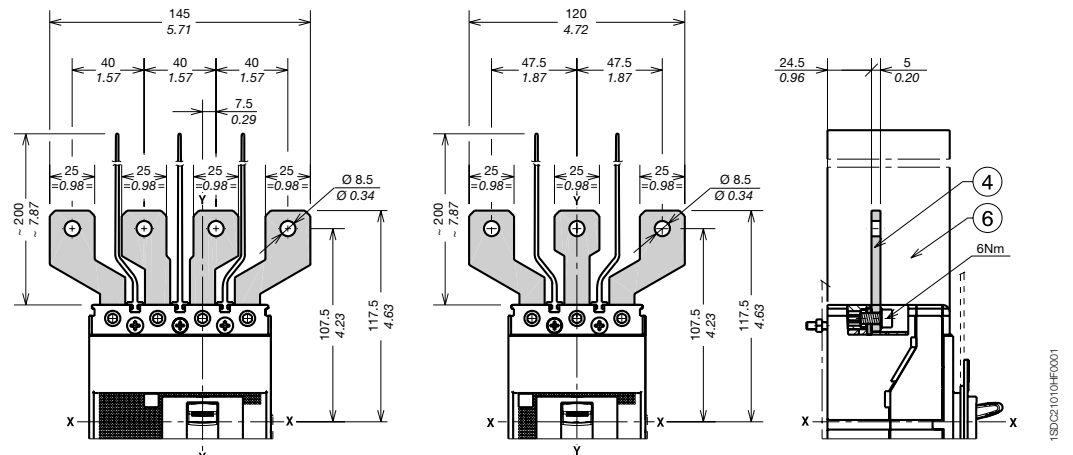
- ② Front extended terminals
- ③ High terminal covers with degree of protection IP40 (optional) not provided
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑨ Internal insulating plate compulsory with phase barriers (customer)



Terminals ES

Captions

- ④ Front extended spread terminals for busbar connection
- ⑥ 200mm insulating barriers between phases (compulsory) provided

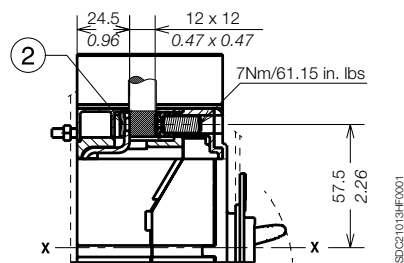
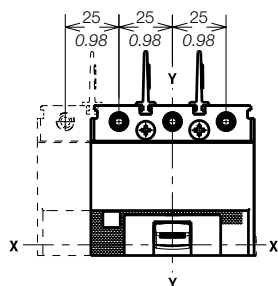


Tmax XT1 - Terminals for fixed circuit breaker

Terminals FCCu

Captions

- ② Front terminal FCCu



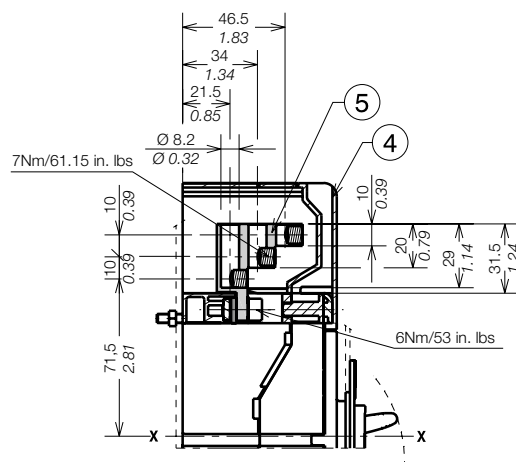
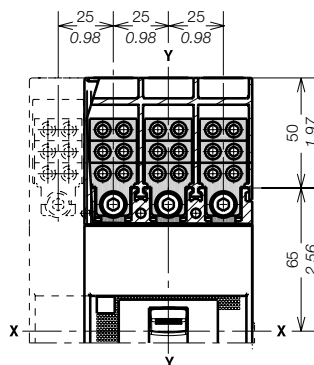
SN021013HE0001

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Terminals MC

Captions

- ④ Terminal covers with degree of protection IP40 (compulsory) provided
- ⑤ Front terminal for multi-cable connection

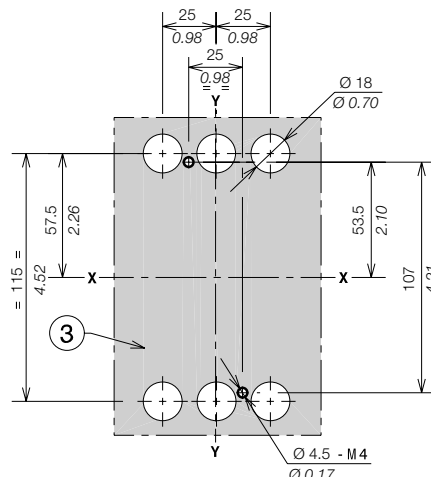
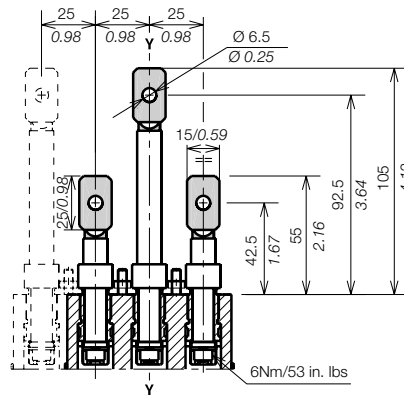
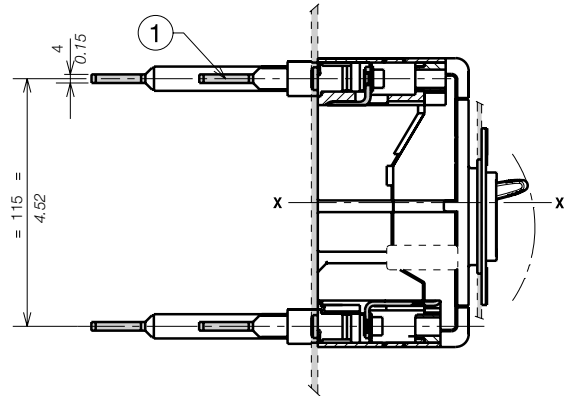
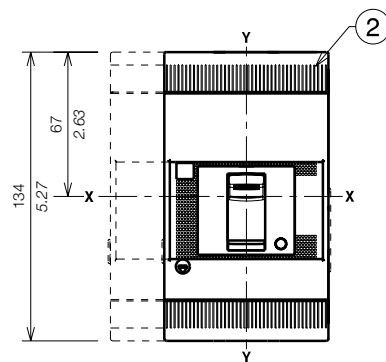


1500374 POLY-2001

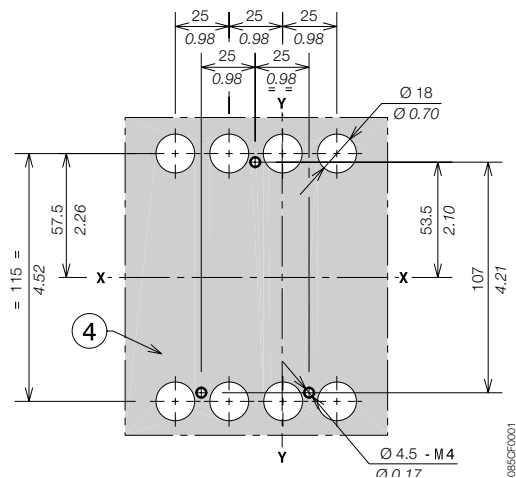
Terminals R

Captions

- ① Adjustable rear terminals
- ② Bottom terminal covers with degree of protection IP30 (optional) not provided
- ③ Drilling template for mounting circuit breaker III on sheet
- ④ Drilling template for mounting circuit breaker IV fixing on sheet



3 POLES



4 POLES

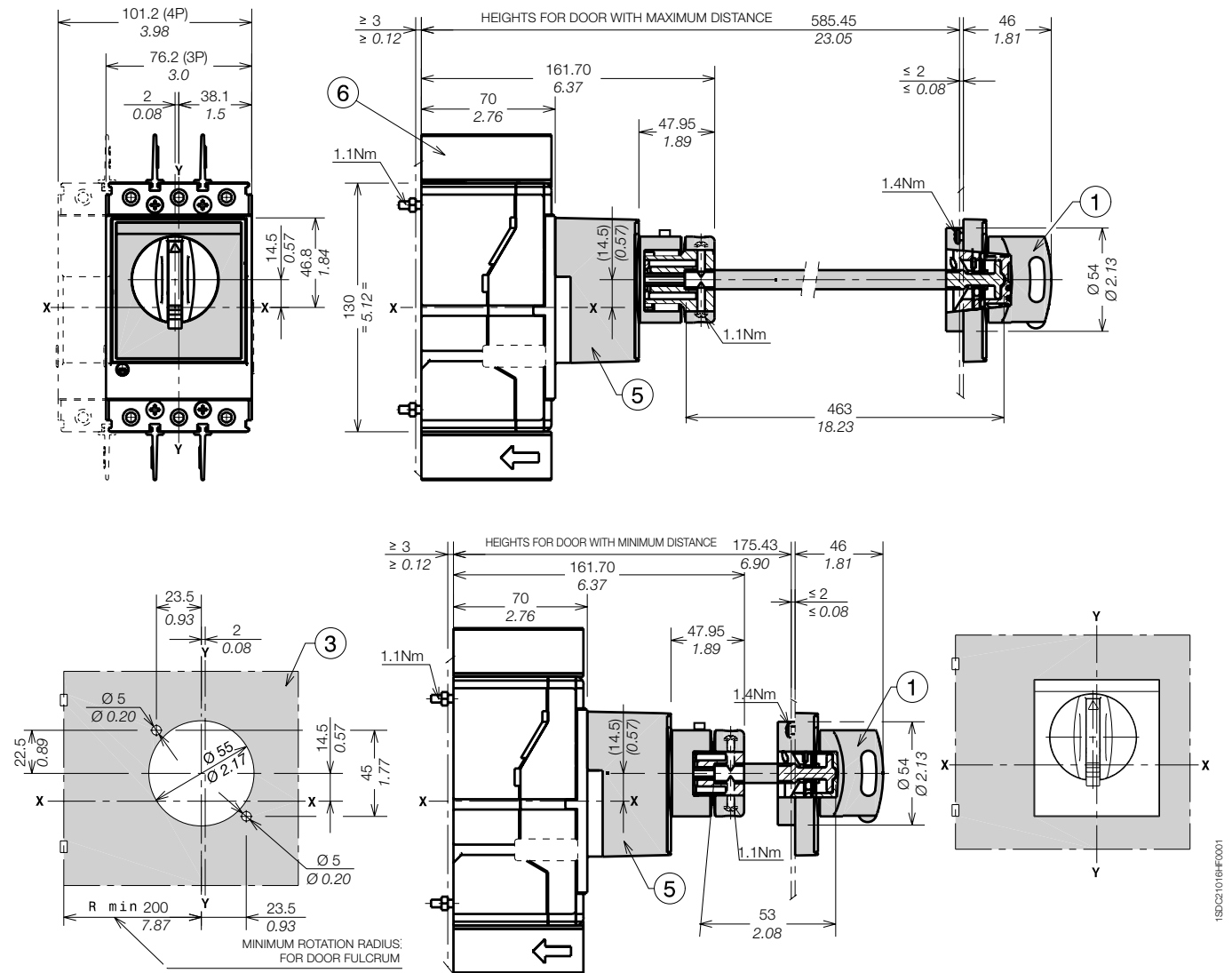
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[illegible]

- ② Rotary handle operating mechanism on circuit breaker RHD
- ④ Door drilling template with direct rotary handle
- ⑥ 25mm insulating barriers between phases (compulsory) provided

Rotary handle operating mechanism on the compartment door (RHE)

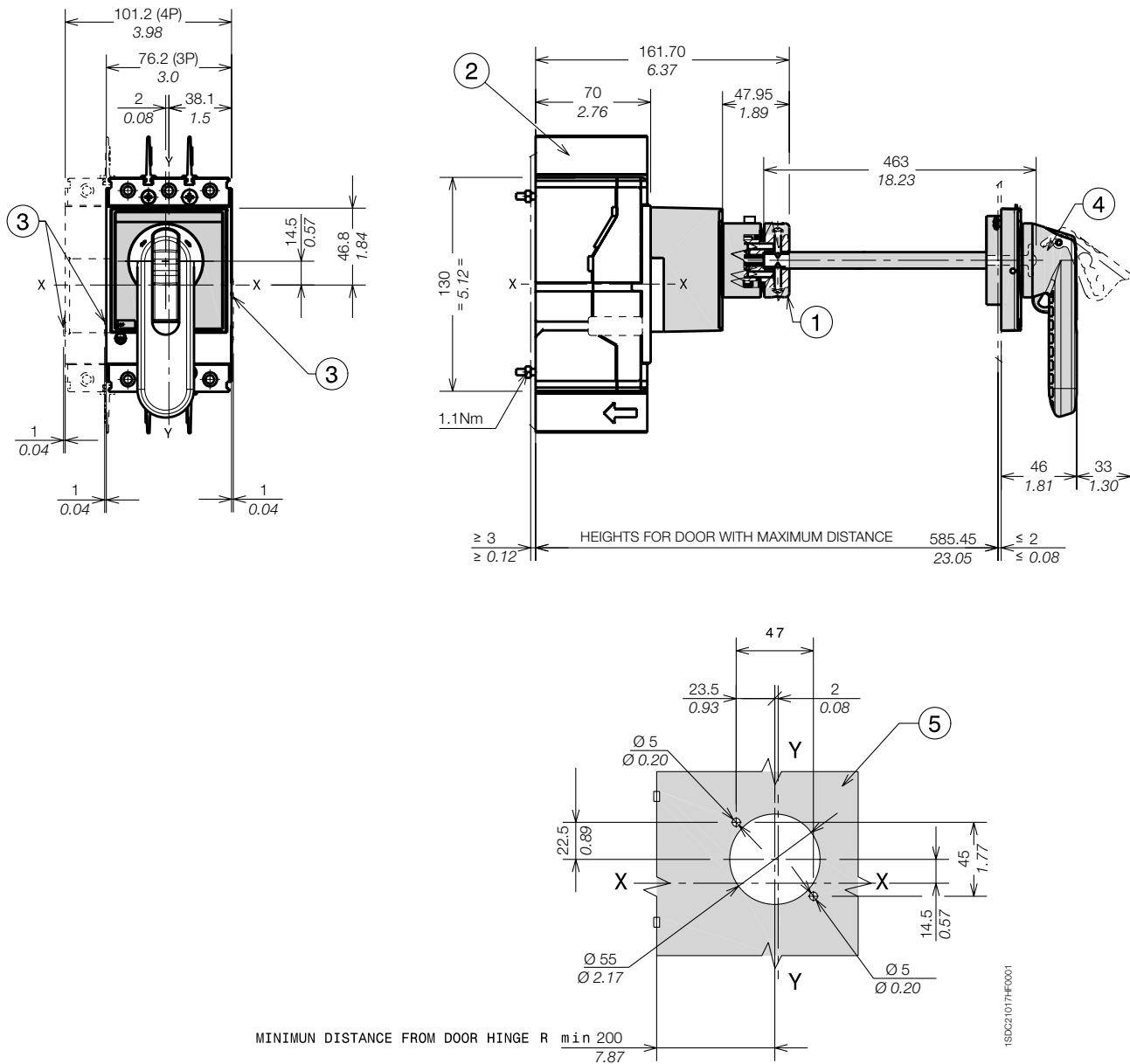


Captions

- ① Transmitted rotary handle
- ③ Door drilling template with transmitted rotary handle
- ⑤ Transmission unit
- ⑥ 25mm insulating barriers between phases provided with circuit breaker

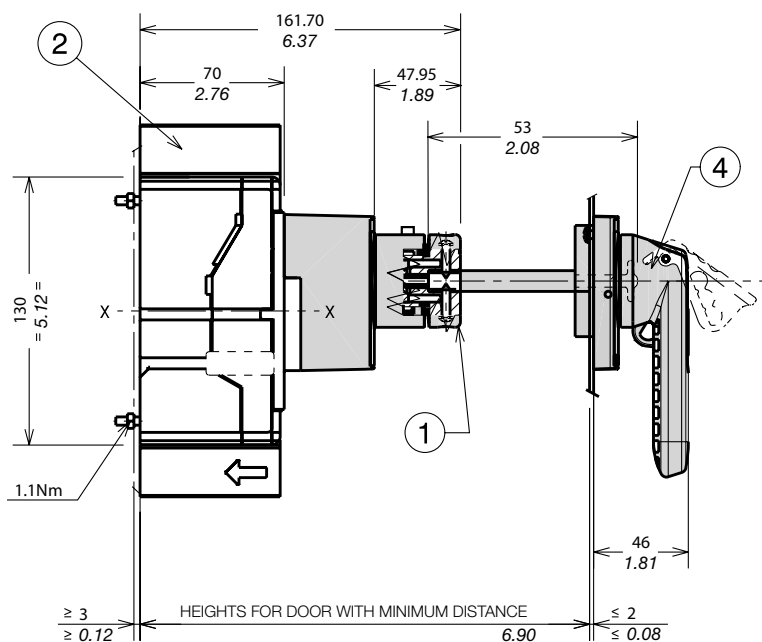
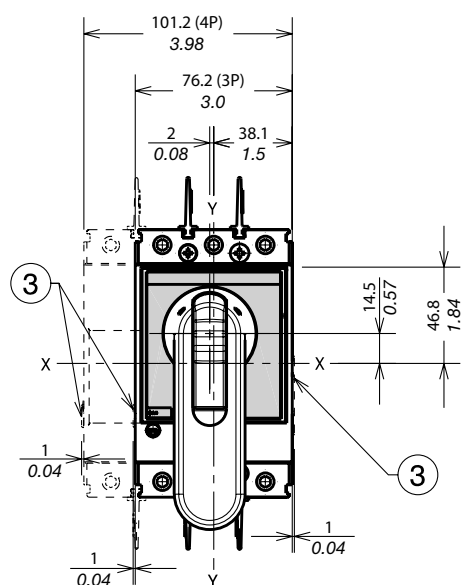
Tmax XT1 - Accessories for fixed circuit breaker

Large rotary handle operating mechanism on the compartment door (RHE-LH)



Captions

- ① Transmission unit
- ② 25mm insulating barriers between phases provided with circuit breaker
- ③ Optional wiring ducts
- ④ Wide type rotary handle
- ⑤ Door drilling template with extended rotary handle



Captions

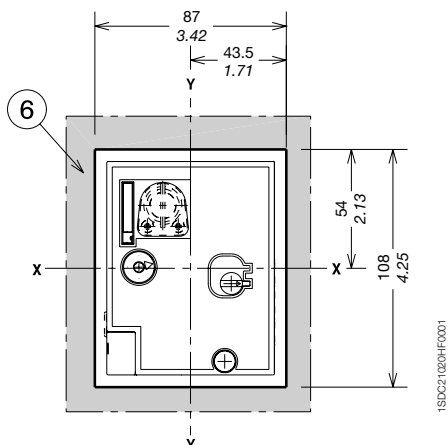
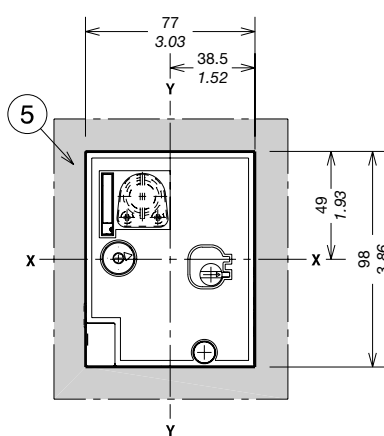
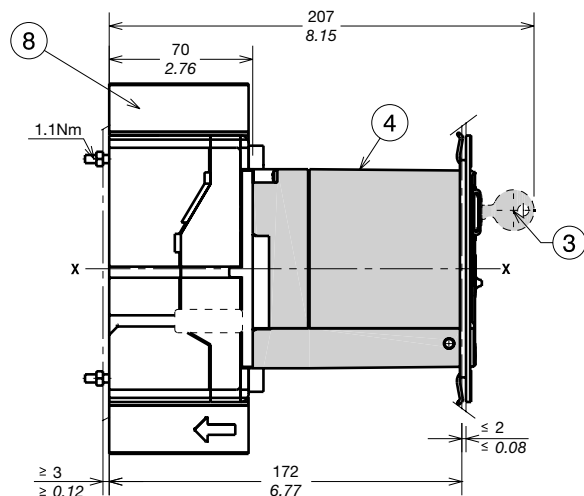
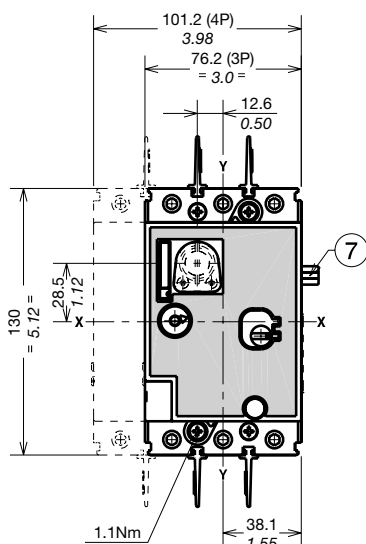
- ① Transmission unit
- ② 25mm insulating barriers between phases (compulsory) provided
- ③ Optional wiring ducts
- ④ Wide type rotary handle

Tmax XT1 - Accessories for fixed circuit breaker

Direct motor operator (MOD)

Captions

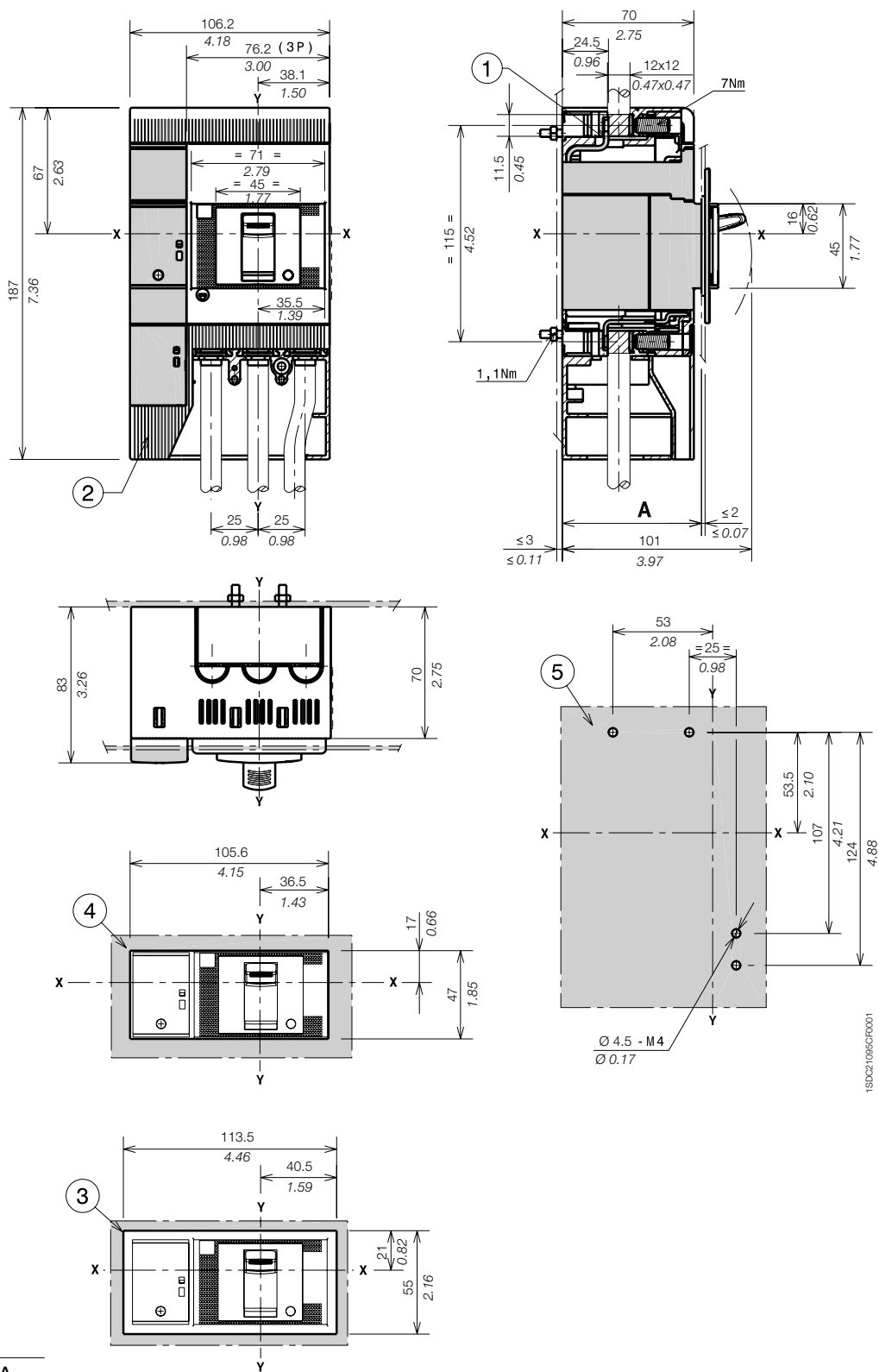
- ③ Key lock (not provided)
- ④ Direct motor operator (MOD)
- ⑤ Drilling template of door with MOD without flange
- ⑥ Drilling template of door with MOD with flange
- ⑦ Cable connections
- ⑧ 25mm phase barriers



RC Inst and RC Sel residual current release for 3-pole circuit breaker

Captions

- ① Front terminals for busbar connection
- ② Terminal covers with degree of protection IP40
- ③ Drilling template of door with direct rotary handle with flange
- ④ Drilling template of door with direct rotary handle without flange
- ⑤ Drilling template for mounting circuit breaker on sheet



		A
With standard flange	III	74
Without flange	III	71

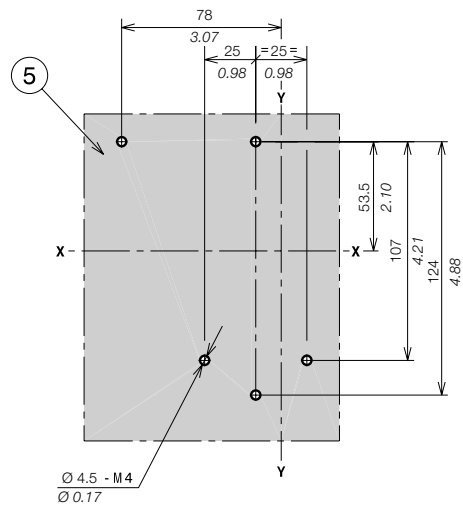
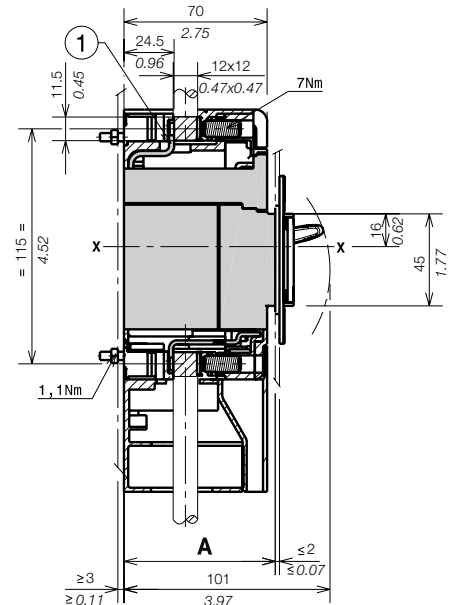
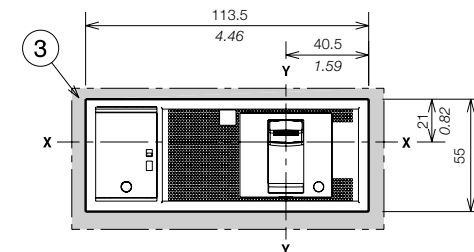
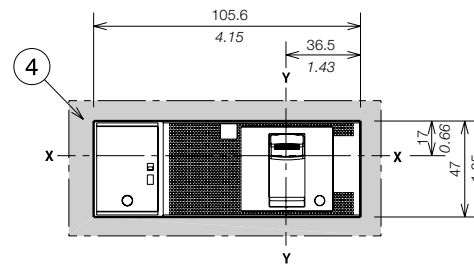
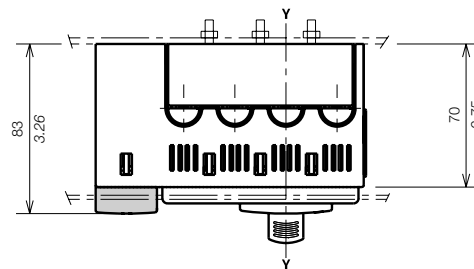
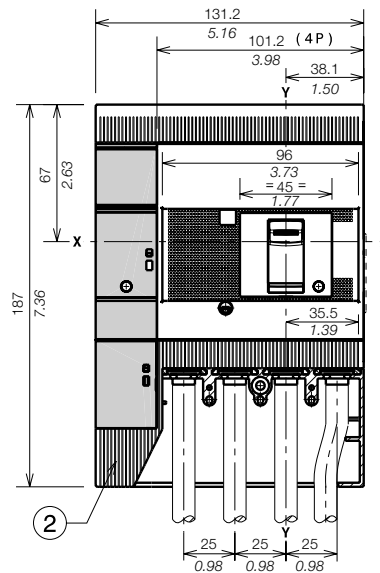
Overall dimensions

Tmax XT1 - Accessories for fixed circuit breaker

RC Inst and RC Sel residual current release for 4-pole circuit breaker

Captions

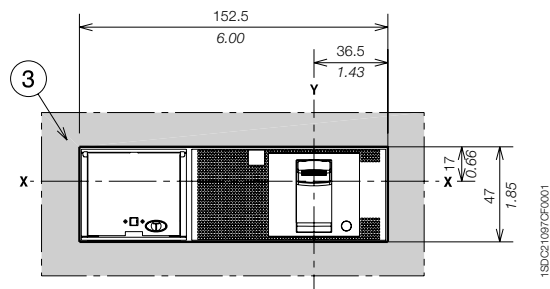
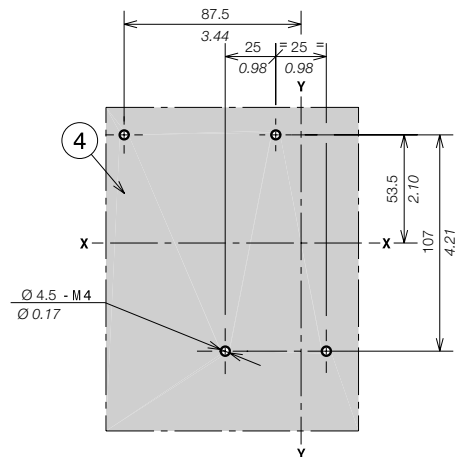
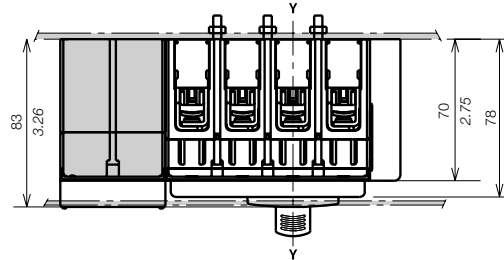
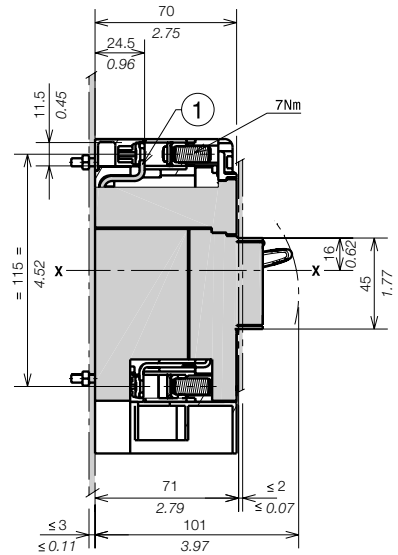
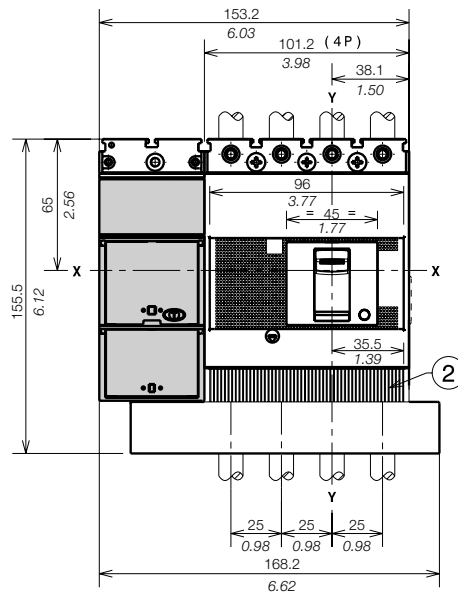
- ① Front terminals for busbar connection
- ② Terminal covers with degree of protection IP40
- ③ Drilling template of door with direct rotary handle with flange
- ④ Drilling template of door with direct rotary handle without flange
- ⑤ Drilling template for mounting circuit breaker on sheet



		A
With standard flange	IV	74
Without flange	IV	71

5

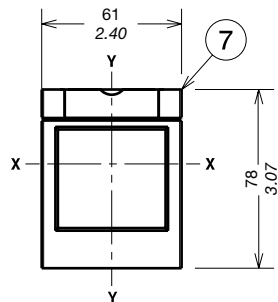
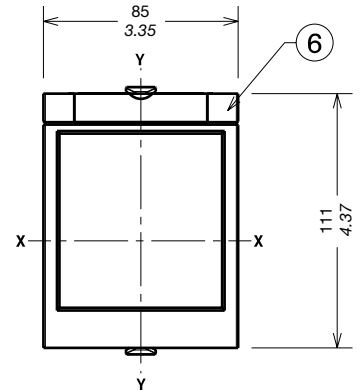
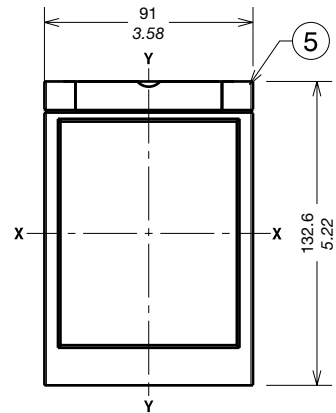
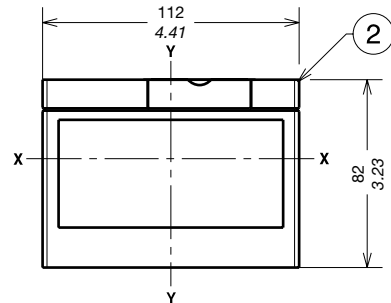
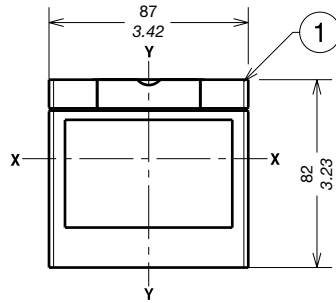
- ① Front terminals for busbar connection
- ② Terminal covers with degree of protection IP40
- ③ Drilling template of door with direct rotary handle
- ④ Drilling template for mounting circuit breaker on sheet



Flanges

Captions

- ① Flange for plug-in circuit breaker III
- ② Flange for circuit breaker IV
- ⑤ Flange for plug-in circuit breaker III-IV with direct motor operator (MOD)
- ⑥ Flange for plug-in circuit breaker III-IV with direct rotary handle RHD
- ⑦ Optional flange



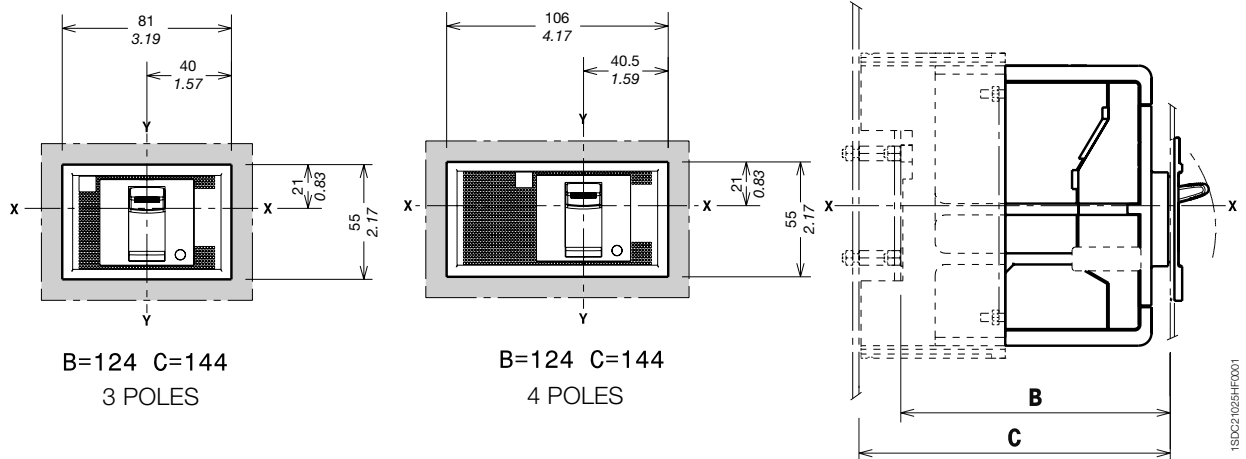
1SDC21021#F0001

Overall dimensions

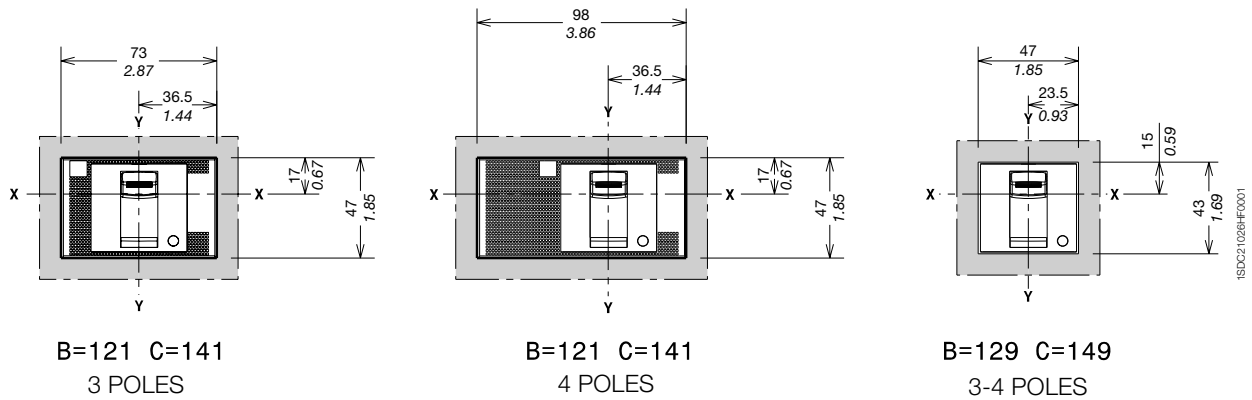
Tmax XT1 - Installation for plug-in circuit breaker

Drilling templates for compartment door

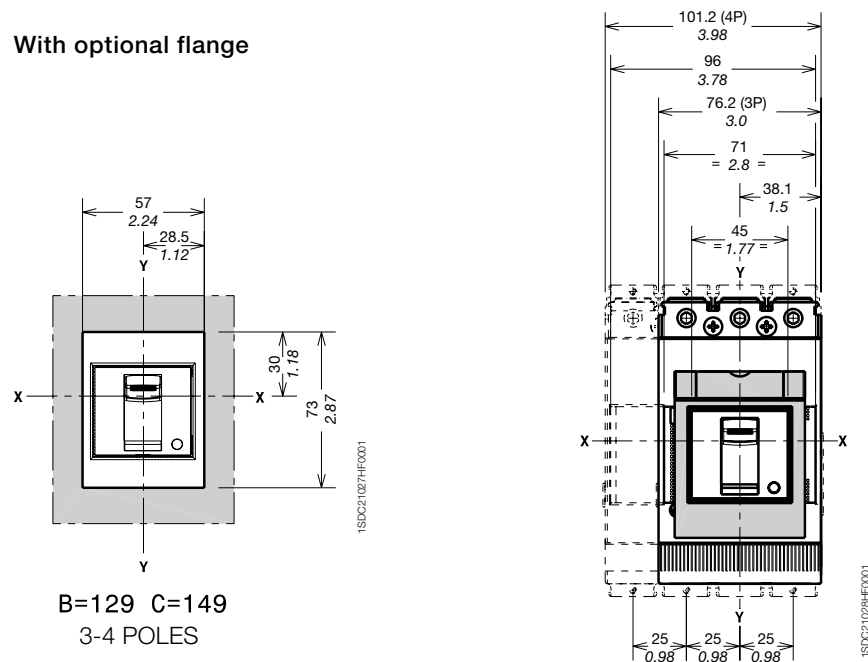
With standard flange



Without flange



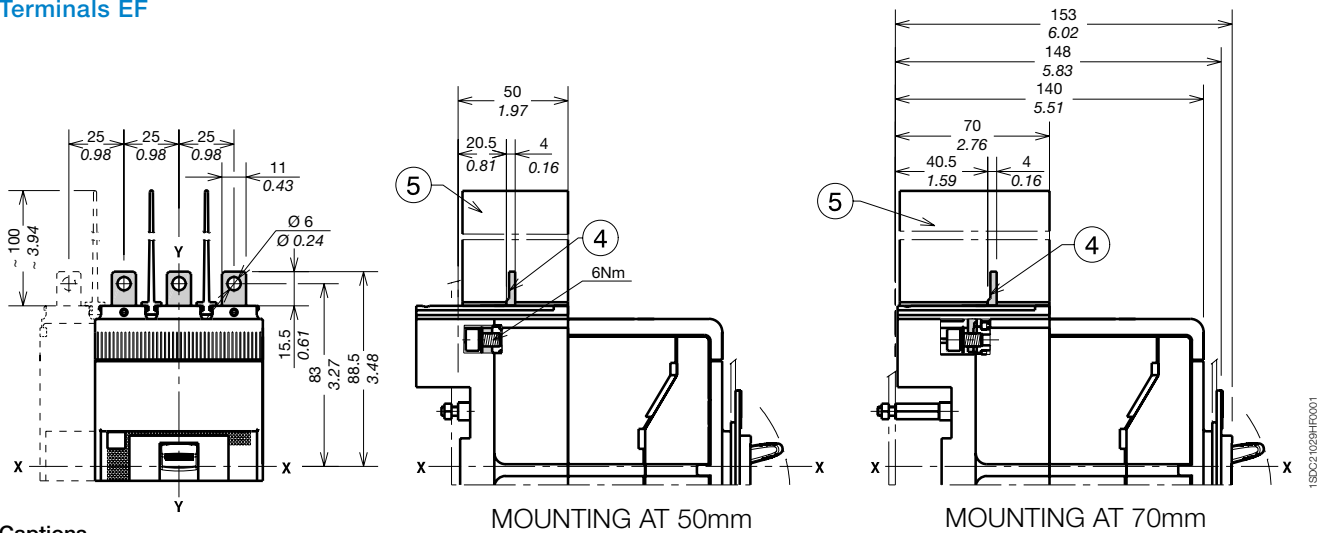
With optional flange



Overall dimensions

Tmax XT1 - Terminals for plug-in circuit breaker

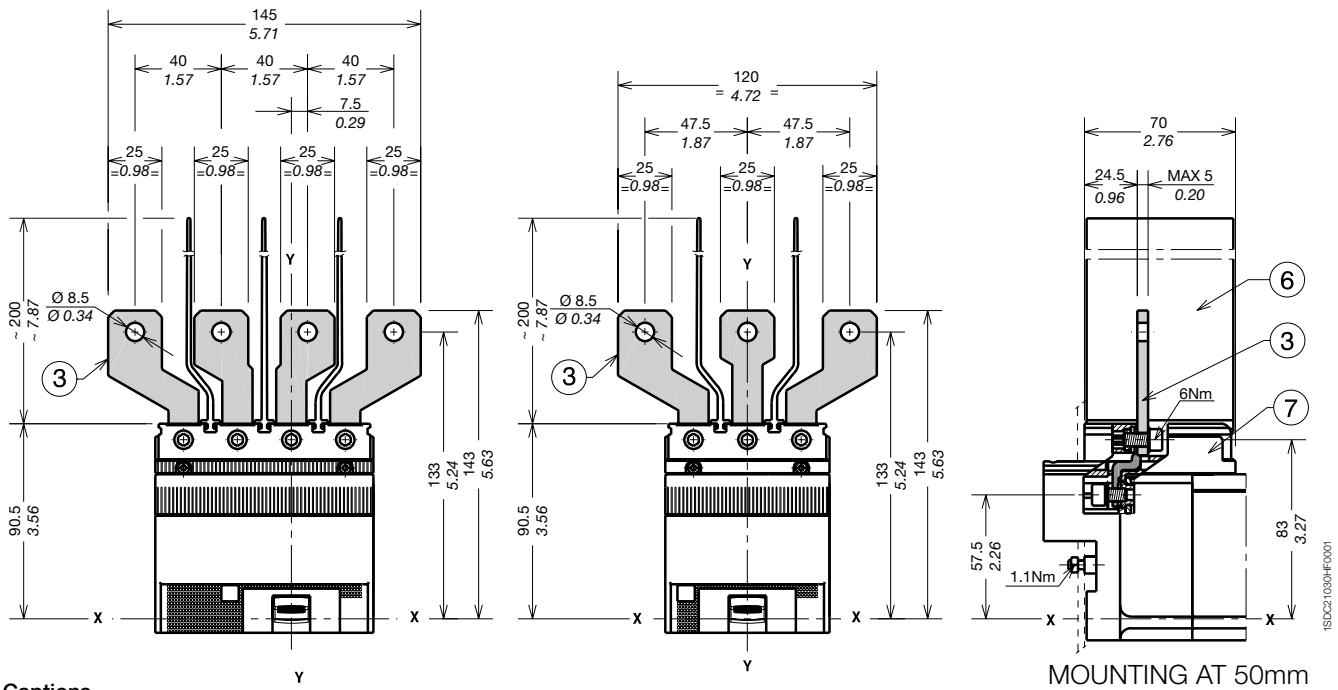
Terminals EF



Captions

- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory) provided

Terminals ES



Captions

- ③ Front extended spread terminals
- ⑥ 200mm insulating barriers between phases (compulsory) provided
- ⑦ Adapter (compulsory) not provided

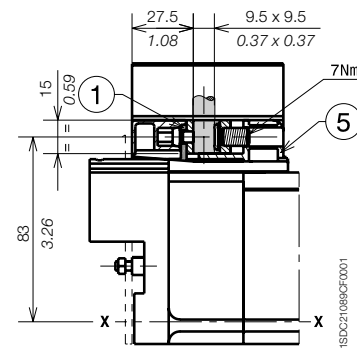
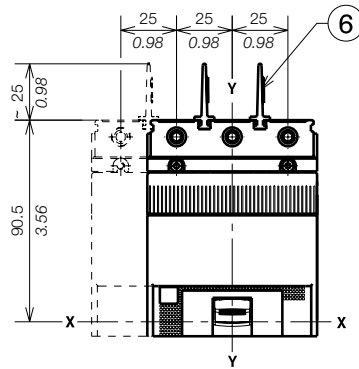
Overall dimensions

Tmax XT1 - Terminals for plug-in circuit breaker

1x1.5...50mm² terminals FCCuAl

Captions

- ① 1x1.5...50mm² front terminal FCCuAl
- ⑤ Adapter (compulsory) optional
- ⑥ 25mm insulating barriers between phases (compulsory) provided

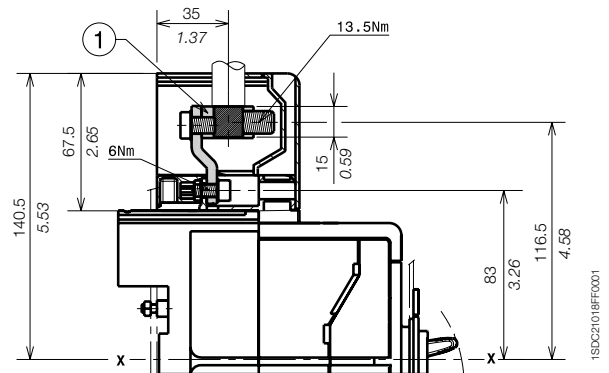
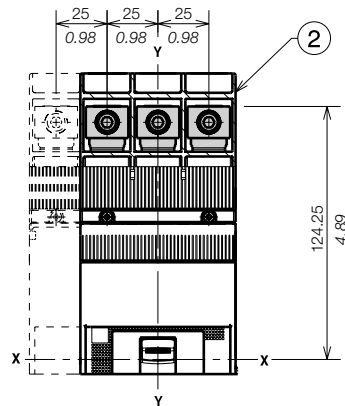


MOUNTING AT 50mm

1x35...95mm² terminals FCCuAl

Captions

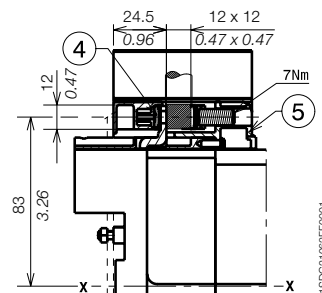
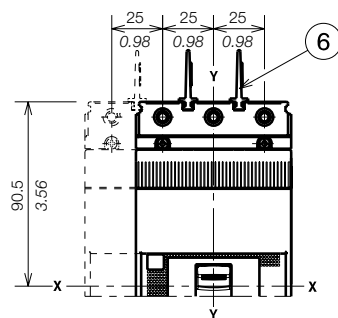
- ① External terminal FCCuAl
- ② High terminal covers with degree of protection IP40 (optional) provided



Terminals FCCu

Captions

- ④ Terminals FCCu
- ⑤ Adapter (compulsory) not provided
- ⑥ 25mm insulating barriers between phases (compulsory) provided

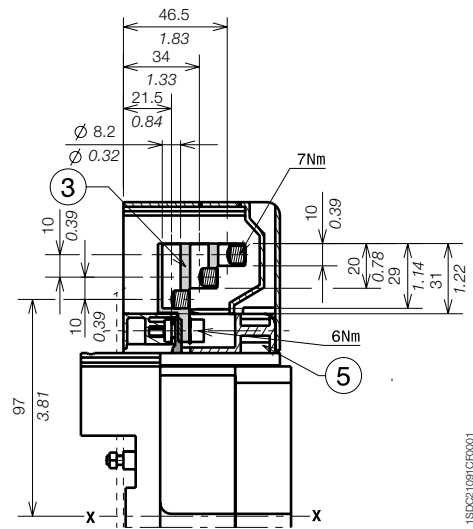
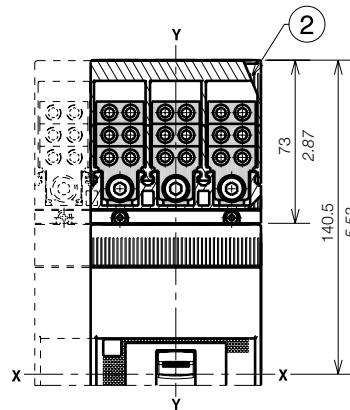


MOUNTING AT 50mm

Terminals MC

Captions

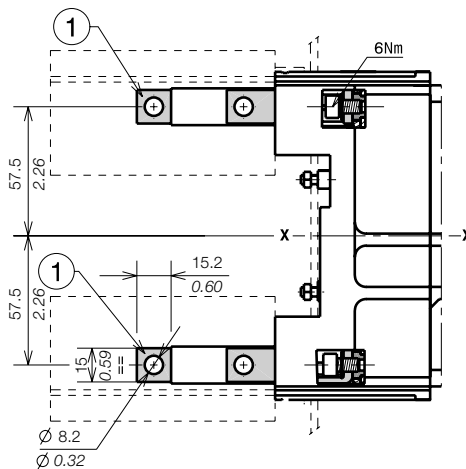
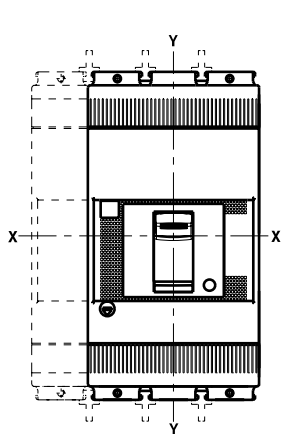
- ② Terminal covers with degree of protection IP40 (optional) provided
- ③ Front terminal for multi-cable connection
- ⑤ Adapter (compulsory) not provided



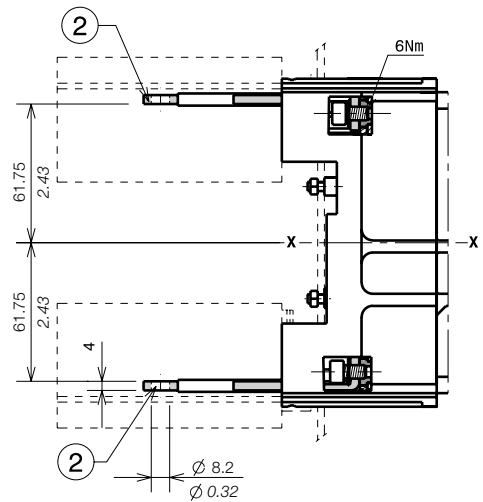
MOUNTING AT 50mm

1SDC21091CF0001

Terminals HR/VR



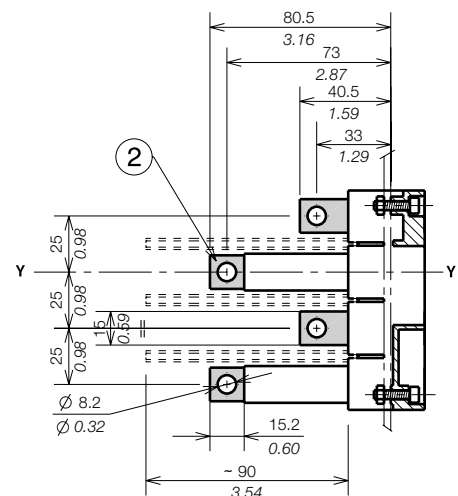
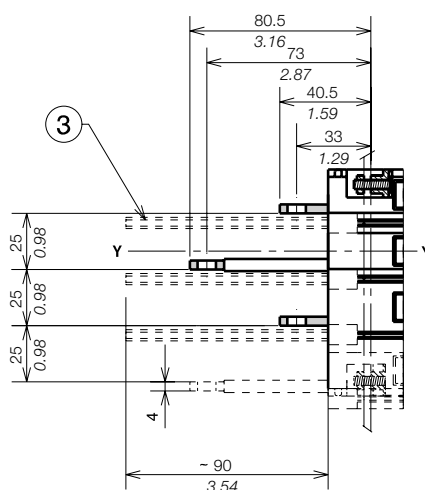
MOUNTING AT 50mm



MOUNTING AT 50mm

Captions

- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided

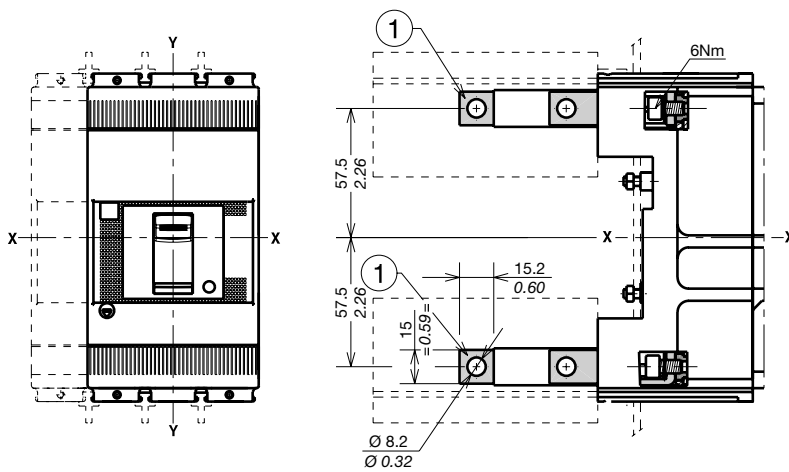


1SDC21092CF0001

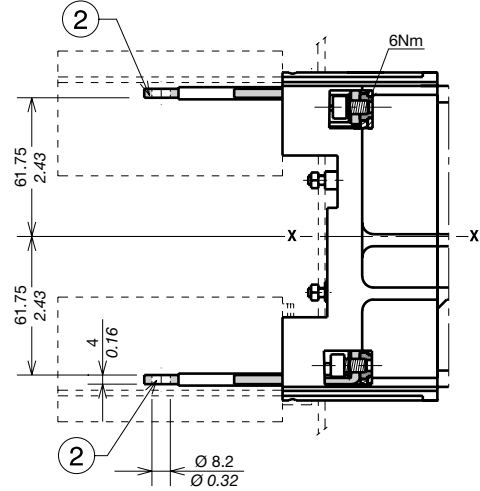
Overall dimensions

Tmax XT1 - Terminals for plug-in circuit breaker

Terminals HR/VR



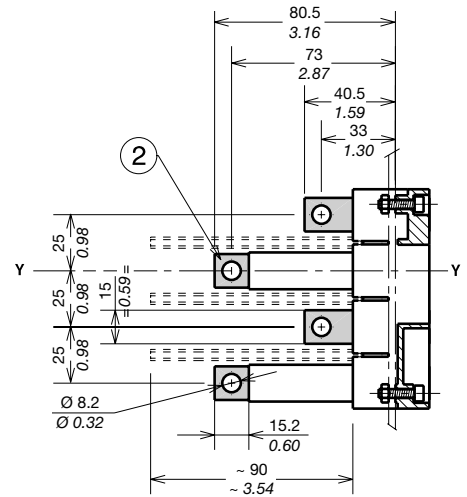
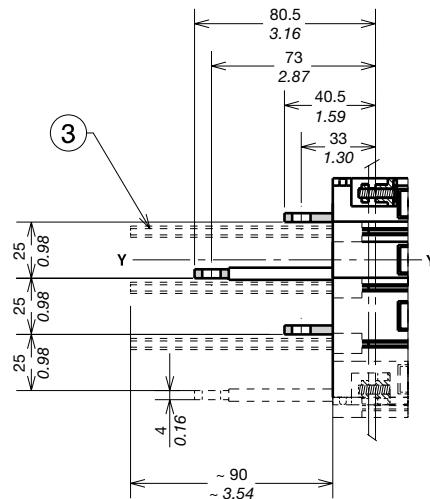
MOUNTING AT 50mm



MOUNTING AT 50mm

Captions

- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided



1SDC21034FR001

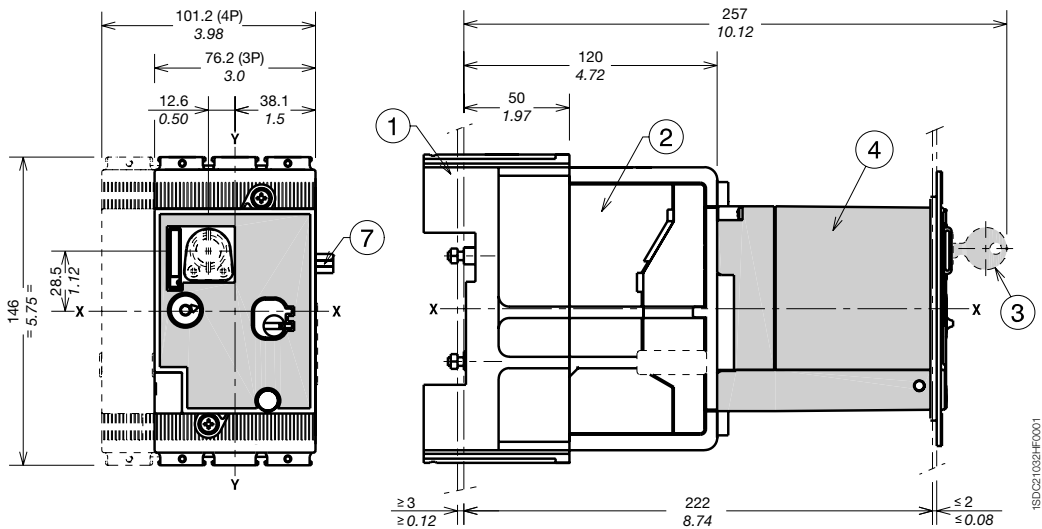
Overall dimensions

Tmax XT1 - Accessories for plug-in circuit breaker

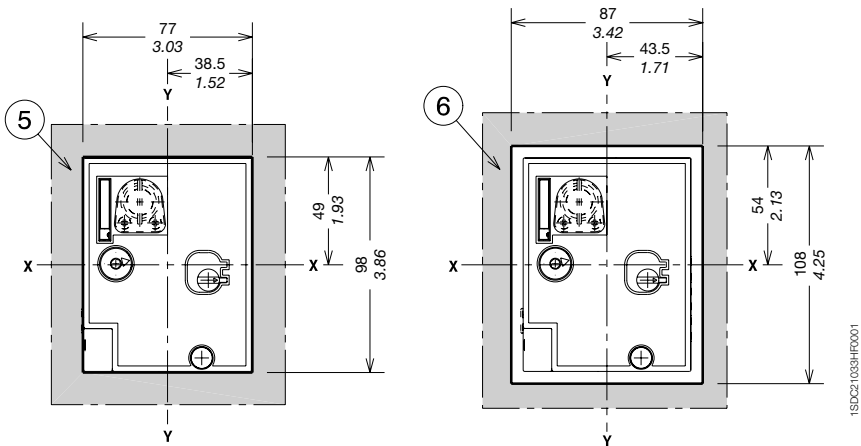
Direct motor operator (MOD)

Captions

- ① Fixed part
- ② Moving part
- ③ Key lock (not provided)
- ④ Direct motor operator (MOD)
- ⑤ Drilling template of door with MOD without flange
- ⑥ Drilling template of door with MOD with flange
- ⑦ Cable connection



MOUNTING AT 50mm



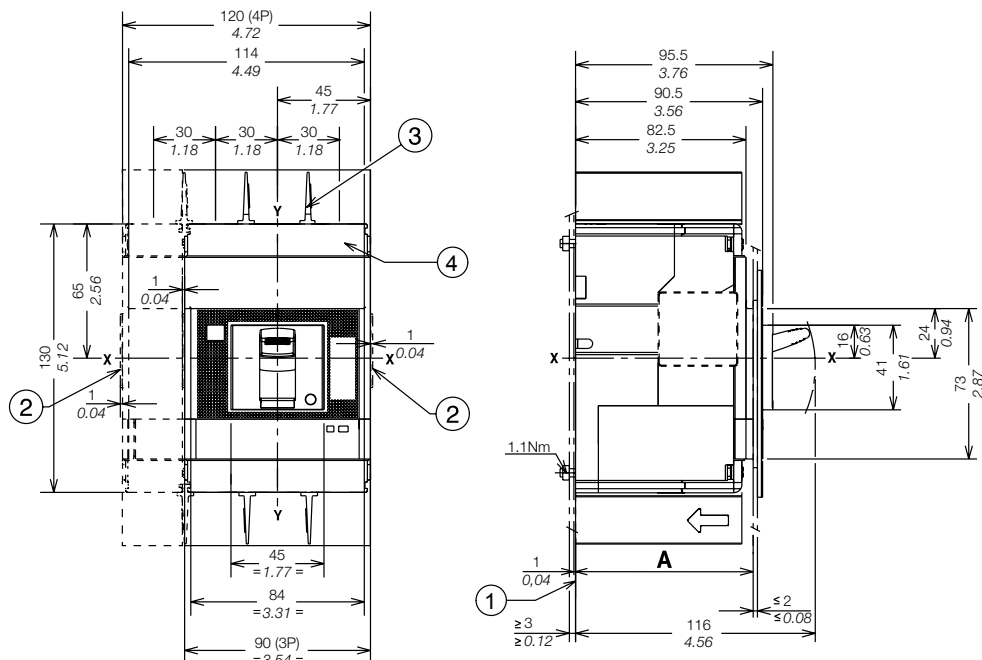
Overall dimensions

Tmax XT2 - Installation for fixed circuit breaker

Fixed circuit breaker mounting on the backplate

Captions

- ① Insulating plate compulsory
- ② Optional wiring ducts
- ③ 25mm insulating barriers between phases (compulsory) provided
- ④ Front carter compulsory for through door of the panel $\leq 25\text{mm}/0,98''$

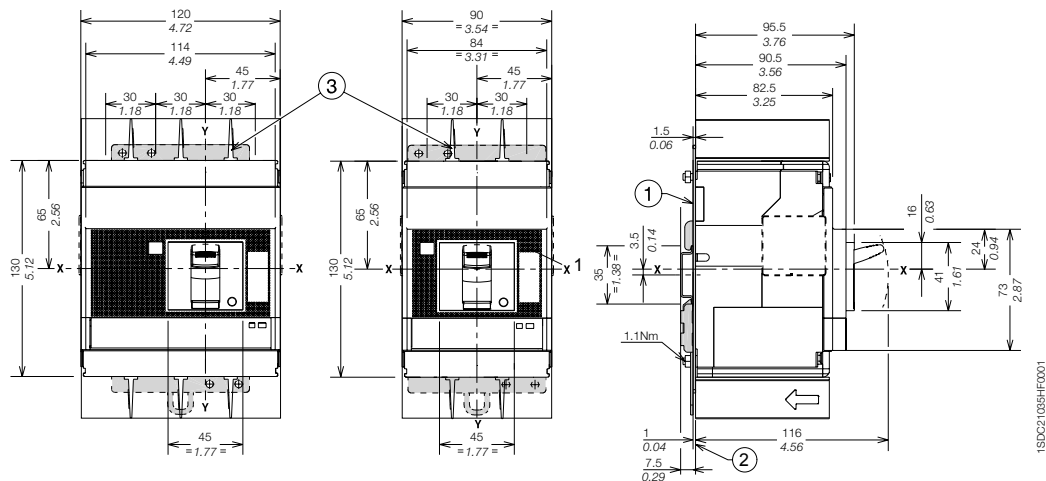


	A
With standard flange: III - IV	86
Without flange: III - IV	83.5
III - IV	91.5

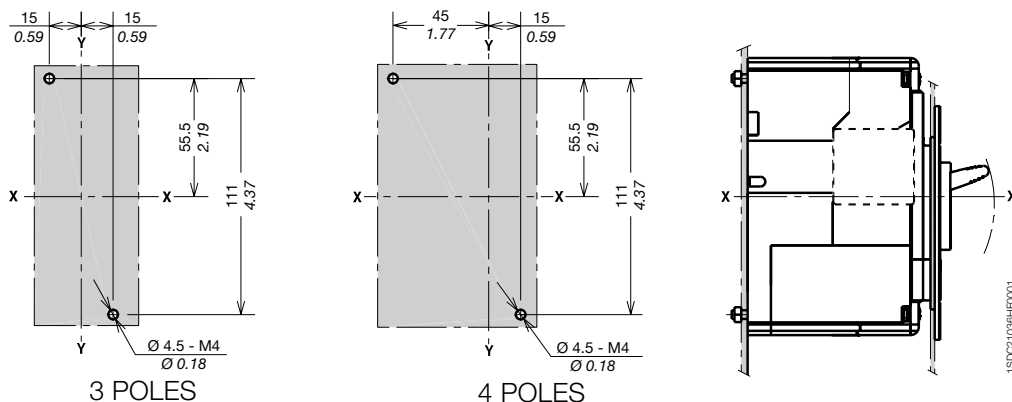
Fixed circuit breaker mounting on DIN EN 50022 rail

Captions

- ① Mounting bracket
- ② Insulating plate compulsory
- ③ 25mm insulating barriers between phases (compulsory) provided



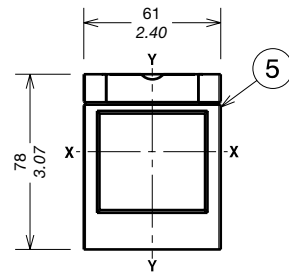
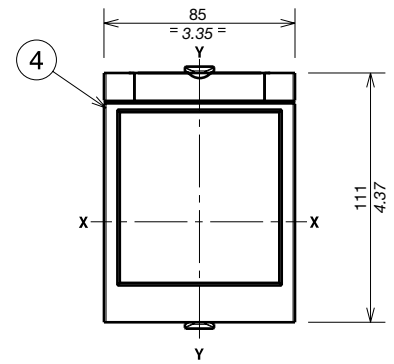
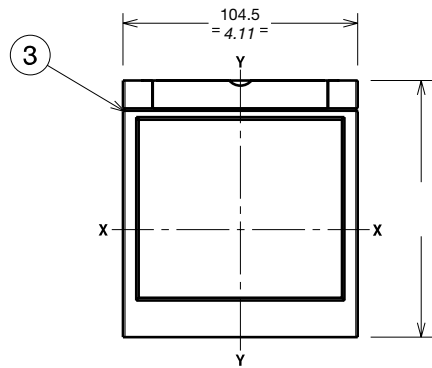
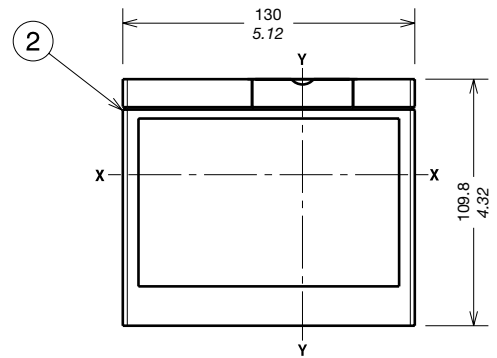
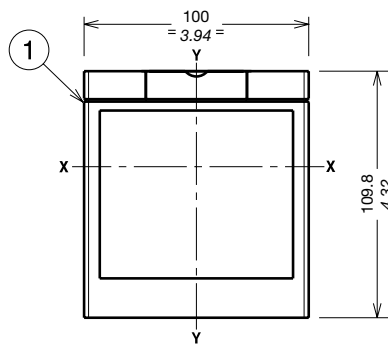
Drilling templates



Flanges

Captions

- ① Flange for fixed circuit breaker III
- ② Flange for fixed circuit breaker IV
- ③ Flange for fixed circuit breaker III-IV with MOE and FLD
- ④ Flange for circuit breaker III-IV with direct rotary handle RHD
- ⑤ Optional flange



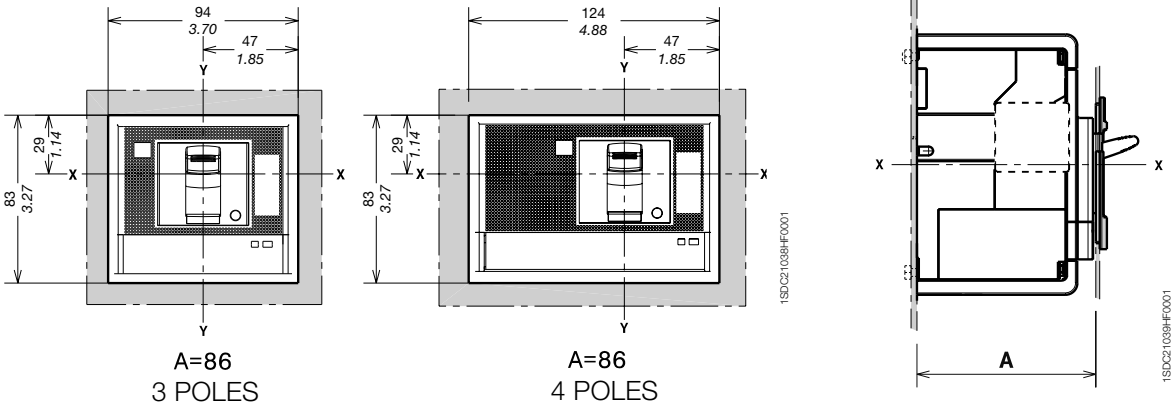
1SDC21037-HF0001

Overall dimensions

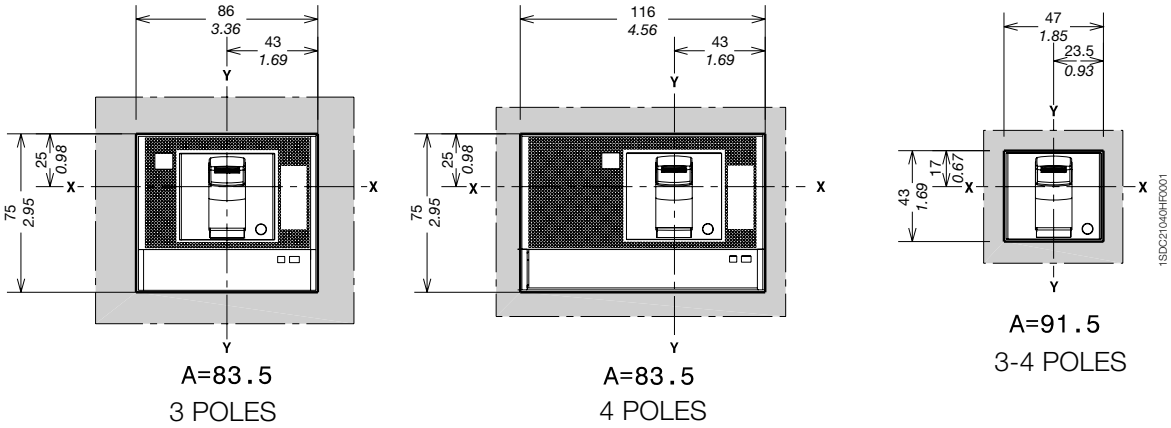
Tmax XT2 - Installation for fixed circuit breaker

Drilling templates for compartment door

With standard flange



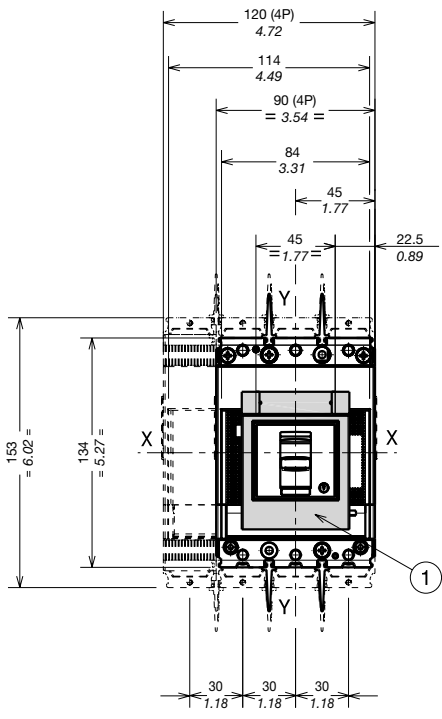
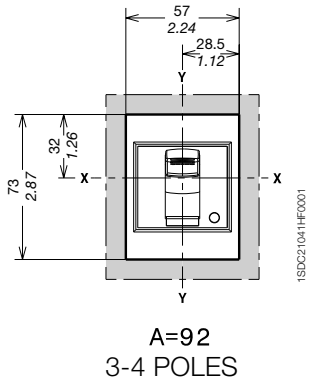
Without flange



With optional flange

Caption

- ① Optional flange



	Execution	A	B	C
With optional flange	fixed	92		3-4 poles
	plug-in, mounting at 50mm		142	3-4 poles
	plug-in, mounting at 70mm		162	3-4 poles

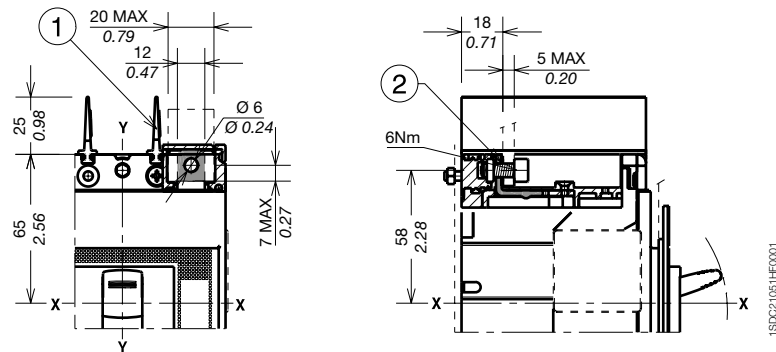
Overall dimensions

Tmax XT2 - Terminals for fixed circuit breaker

Terminals F

Captions

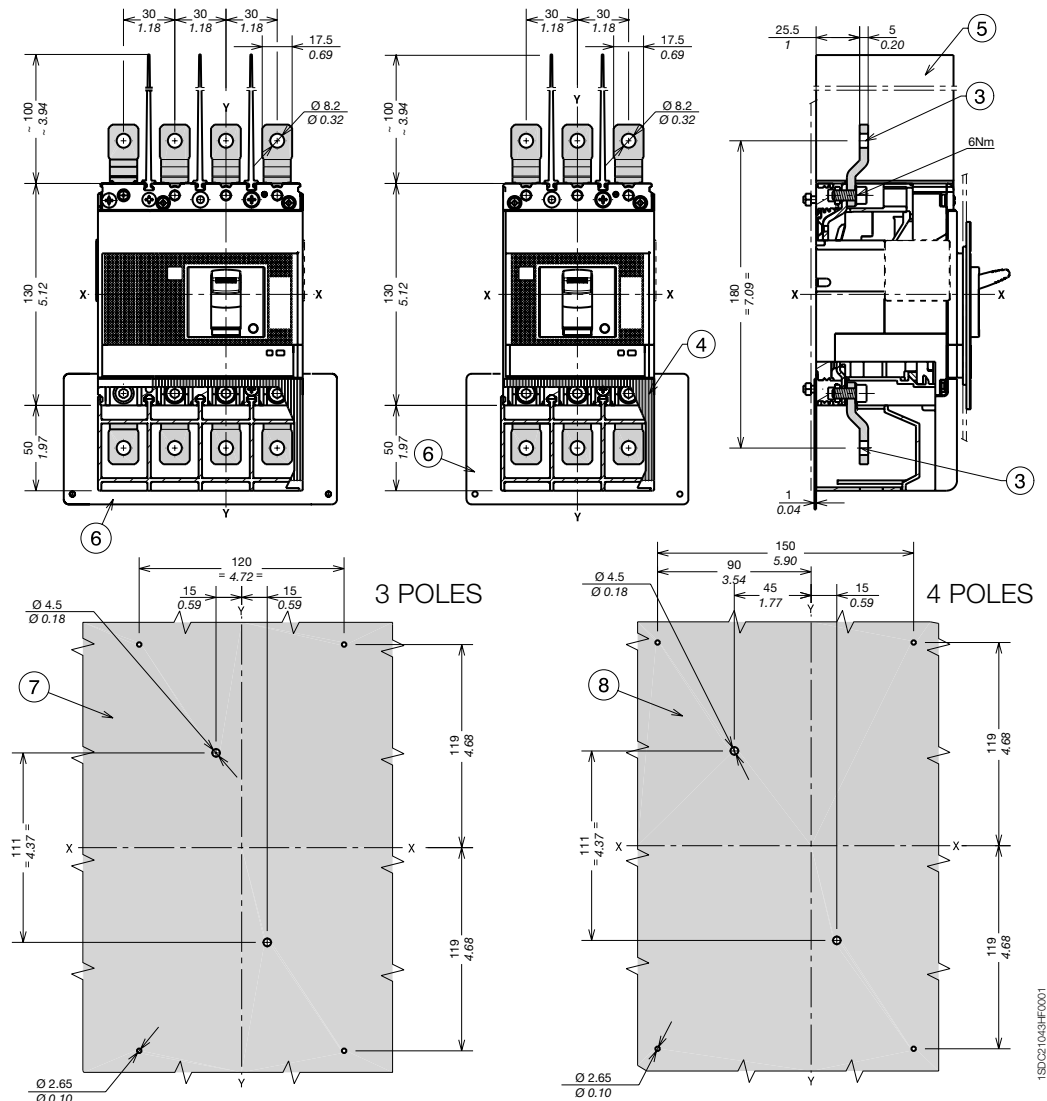
- ① 25mm insulating barriers between phases (compulsory) not provided
- ② Front terminals for busbar connection



Terminals EF

Captions

- ③ Front extended terminals
- ④ Terminal covers with degree of protection IP40 (optional) not provided
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Insulated plate (compulsory) provided for XT2 Ue>440V
- ⑦ Drilling template for 3p circuit breaker Ue>440V (compulsory)
- ⑧ Drilling template for 4p circuit breaker Ue>440V (compulsory)



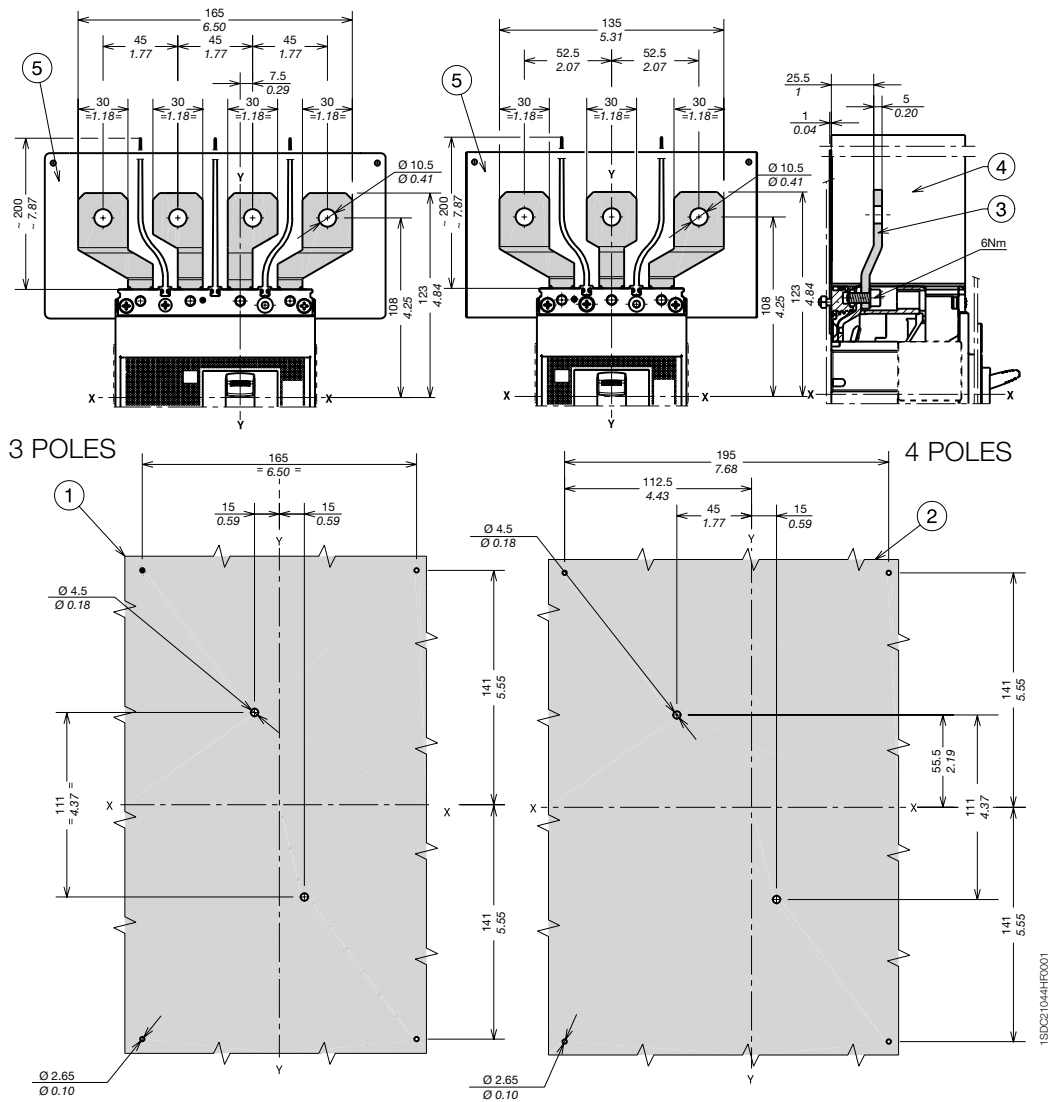
Overall dimensions

Tmax XT2 - Terminals for fixed circuit breaker

Terminals ES

Captions

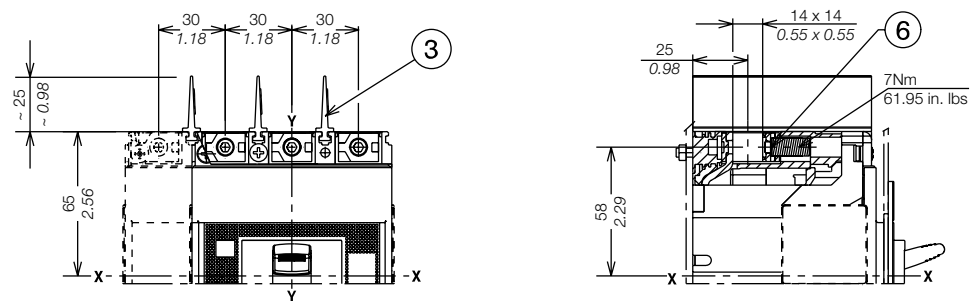
- ① Drilling template for 3p circuit breaker Ue>440V (compulsory)
- ② Drilling template for 4p circuit breaker Ue>440V (compulsory)
- ③ Front extended spread terminals
- ④ 200mm insulating barriers between phases (compulsory) provided for Ue>440V
- ⑤ Insulated plate (compulsory) provided for XT2 Ue>440V



Terminals FCCu

Captions

- ③ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker
- ⑥ Terminals FCCu

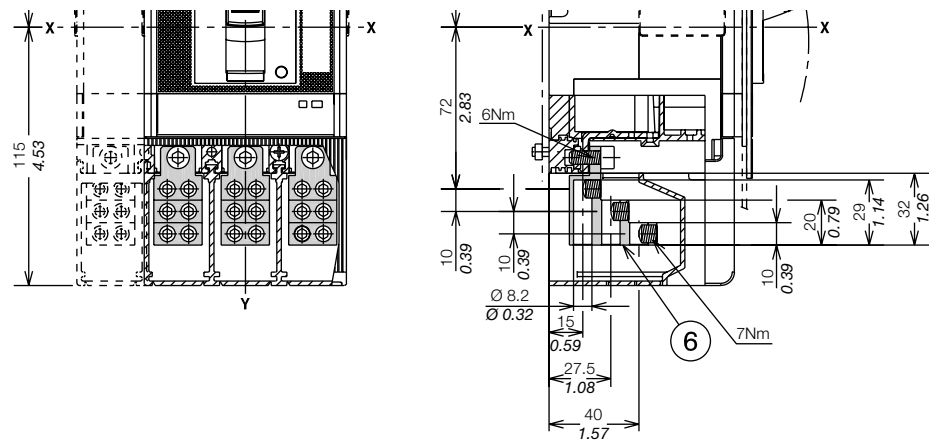


1SDC21048HF0001

Terminals MC

Caption

- ⑥ Multi-cable terminals

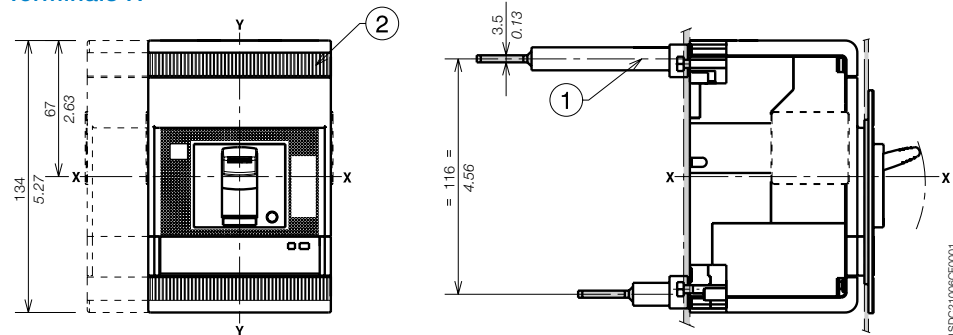


1SDC21049HF0001

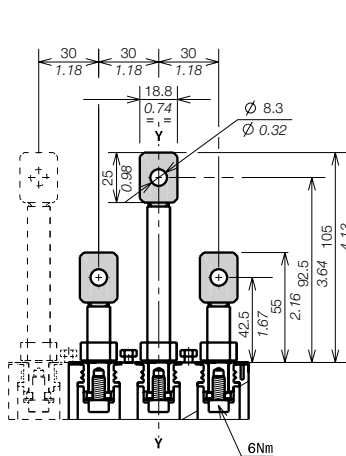
Terminals R

Captions

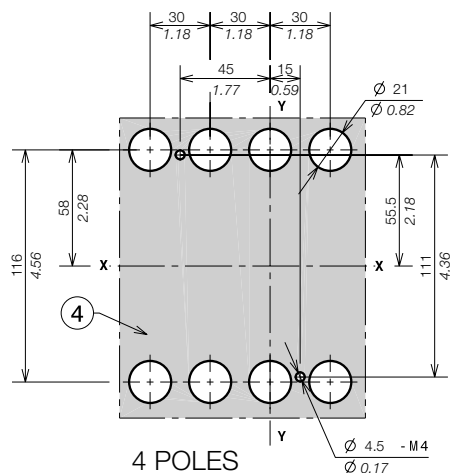
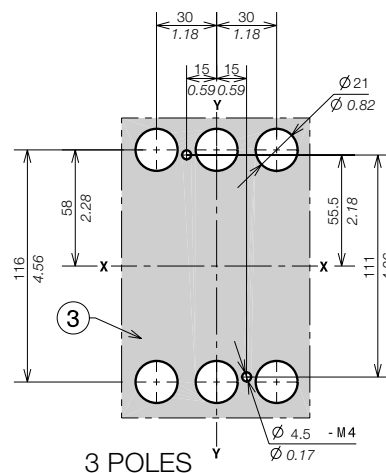
- ① Rear adjustable terminals
- ② Bottom terminal covers with degree of protection IP30 (optional) provided
- ③ Drilling template for mounting circuit breaker III sheet
- ④ Drilling template for mounting circuit breaker IV sheet



1SDC21060CF0001



1SDC21002CF0001

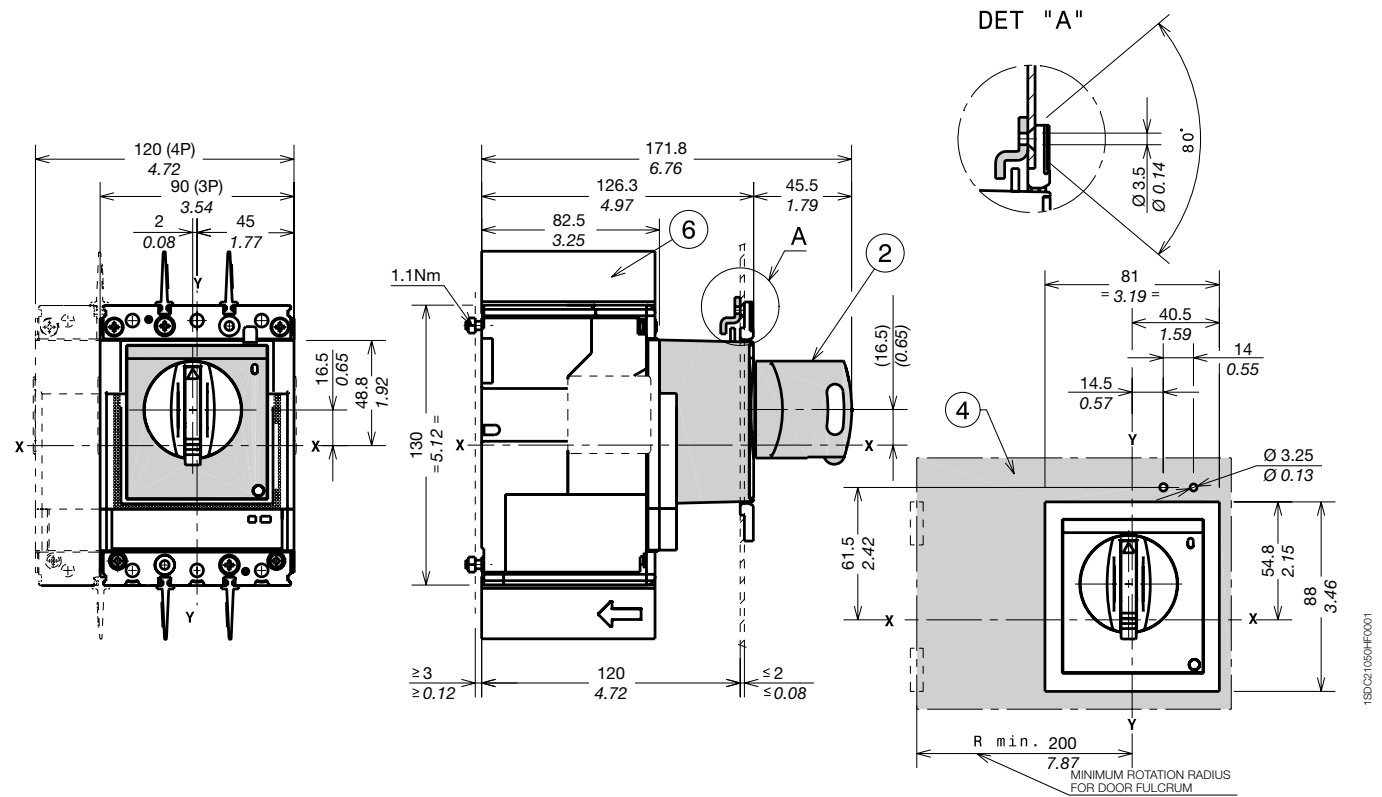


1SDC21007CF0001

Overall dimensions

Tmax XT2 - Accessories for fixed circuit breaker

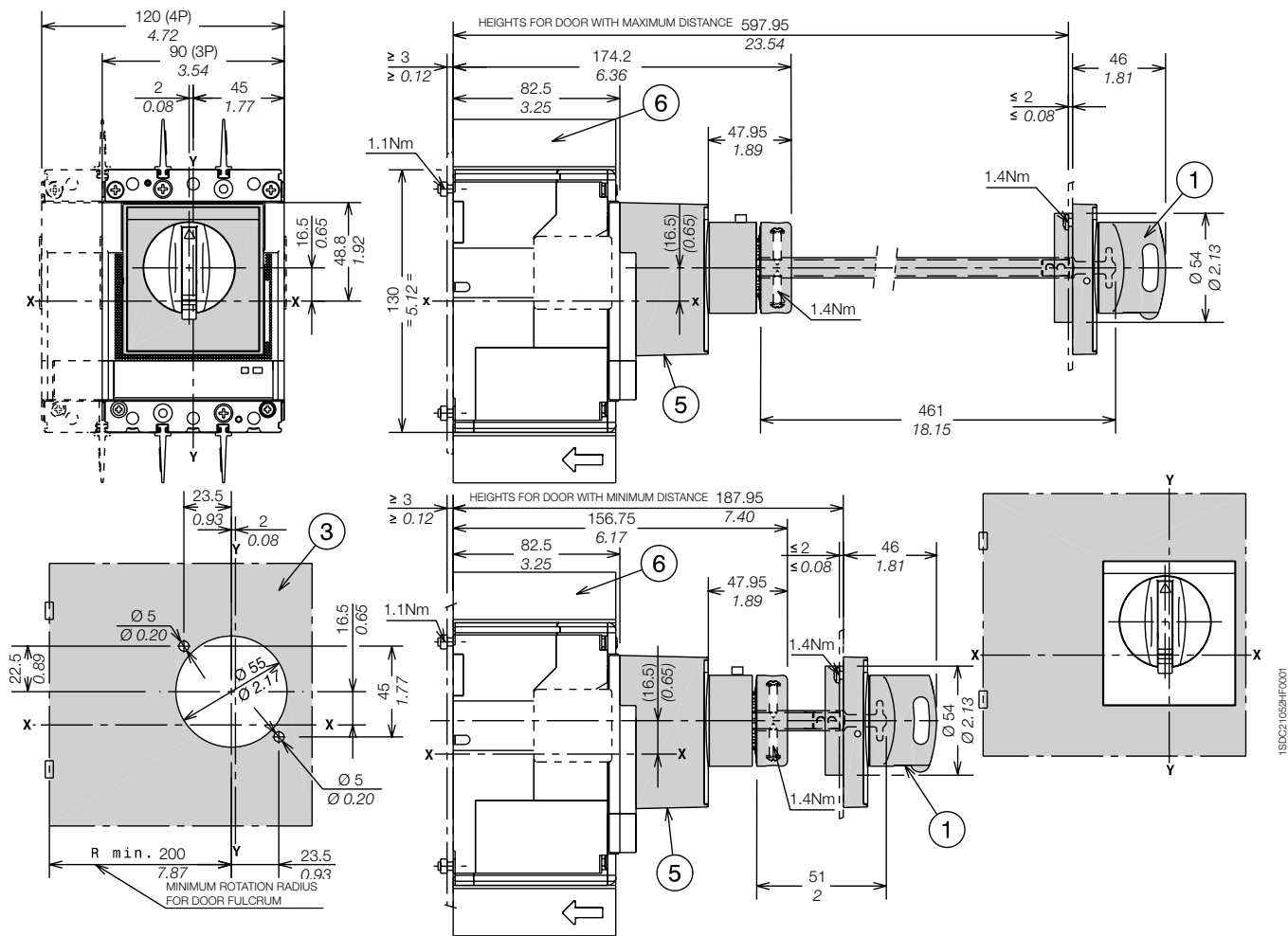
Rotary handle operating mechanism on circuit breaker (RHD)



Captions

- ② Rotary handle operating mechanism on circuit breaker
- ④ Drilling template of door with direct rotary handle
- ⑥ 25mm insulating barriers between phases provided with circuit breaker

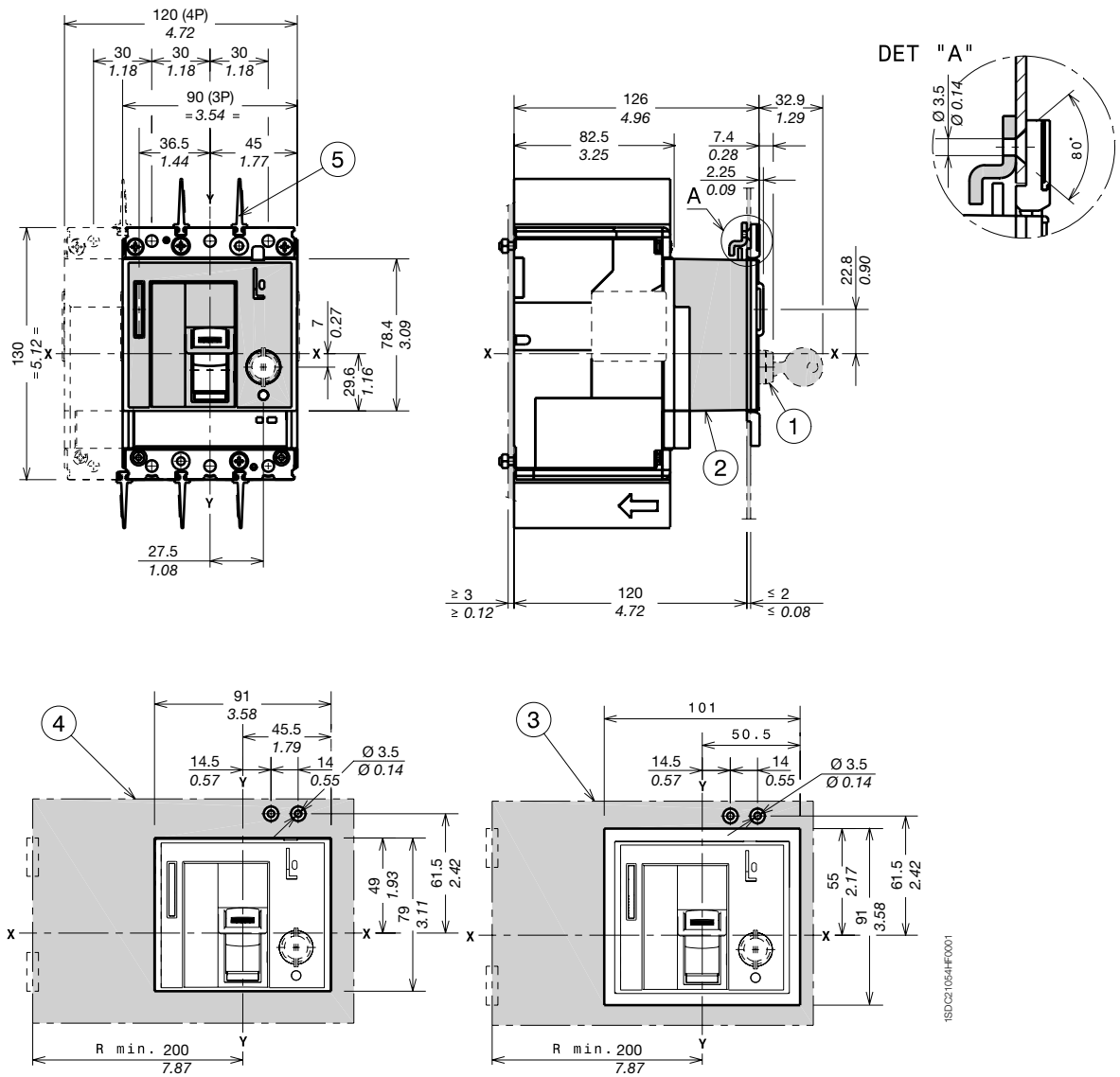
Rotary handle operating mechanism on the compartment door (RHE)



Captions

- ① Extended rotary handle operating mechanism
- ③ Door drilling template with extended rotary handle
- ⑤ Transmission unit
- ⑥ 25mm insulating barriers between phases provided with circuit breaker

Front for lever operating mechanism (FLD)



Captions

- ① Key lock optional
- ② Front for lever operating mechanism (FLD)
- ③ Drilling template of door with FLD with flange
- ④ Drilling template of door with FLD without flange
- ⑤ 25mm insulating barriers between phases provided with circuit breaker

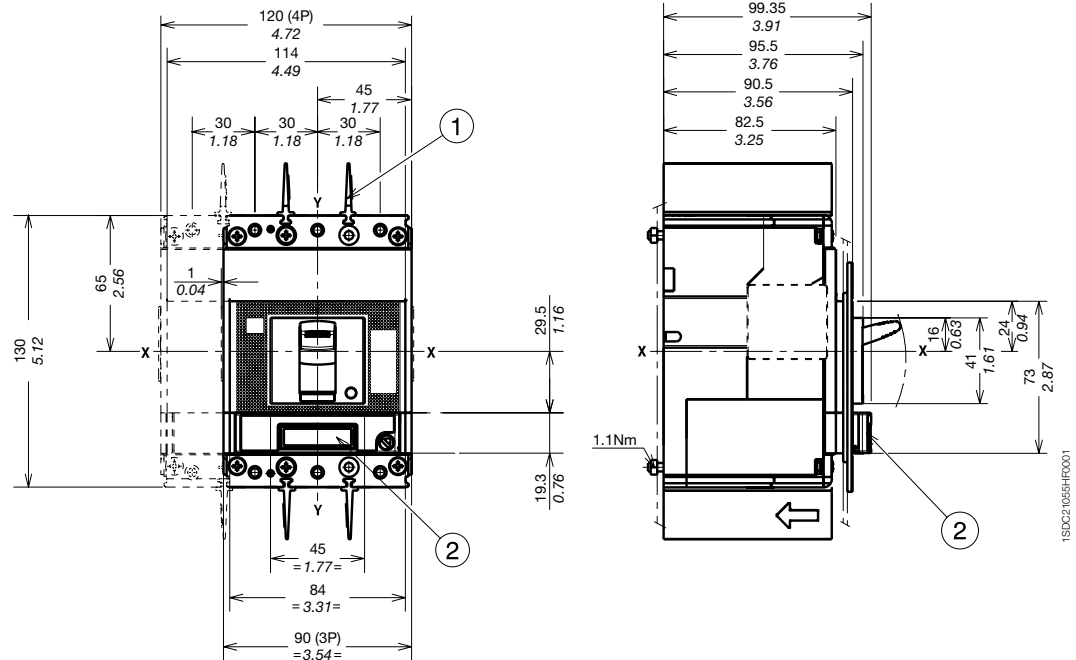
Overall dimensions

Tmax XT2 - Accessories for fixed circuit breaker

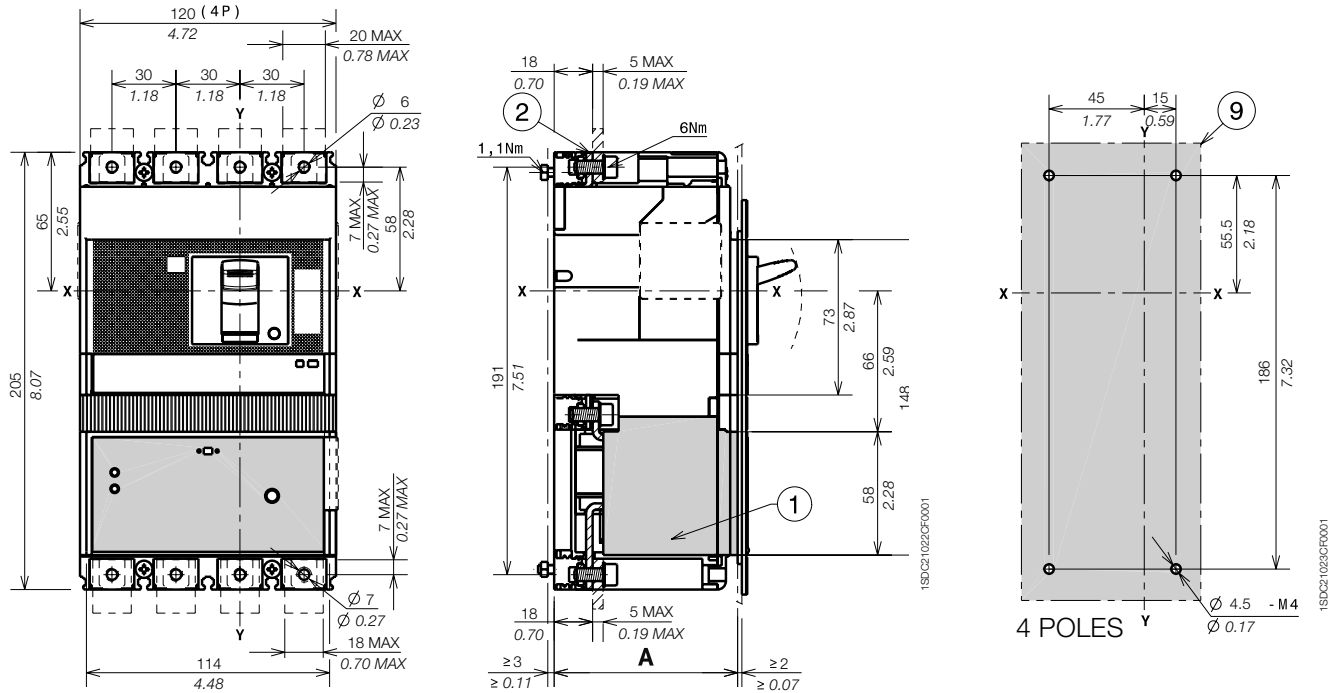
Ekip Display or Ekip LED Meter

Captions

- ① 25mm insulating barriers between phases provided with circuit breaker
- ② Ekip Display or Ekip LED Meter

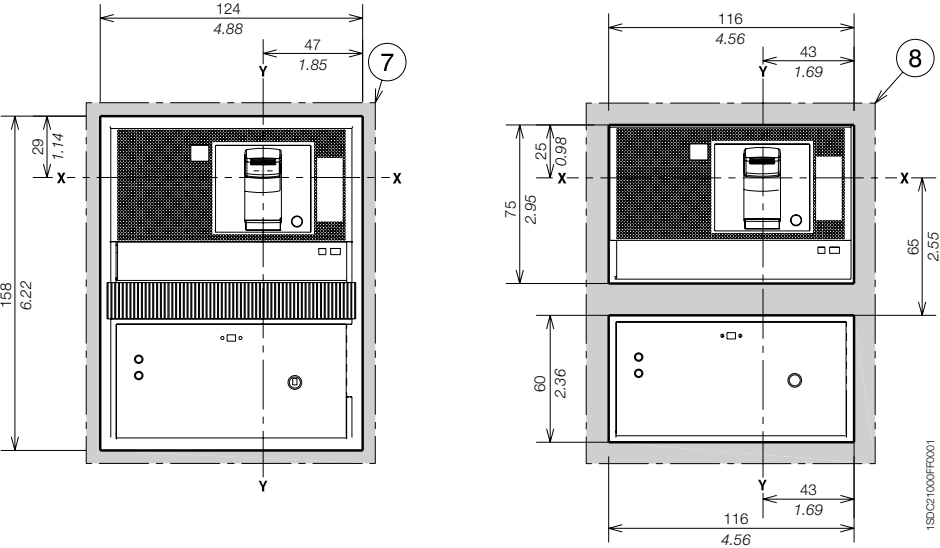


Residual current RC Sel



Captions

- ① Residual current
- ② Front terminals
- ⑦ Drilling template of door with direct rotary handle and mounting with flange
- ⑧ Drilling template of door with direct rotary handle and mounting without flange
- ⑨ Drilling template for mounting circuit breaker on sheet



		A
With standard flange	IV	86
Without flange	IV	83.5

Overall dimensions

Tmax XT2 - Installation for plug-in circuit breaker

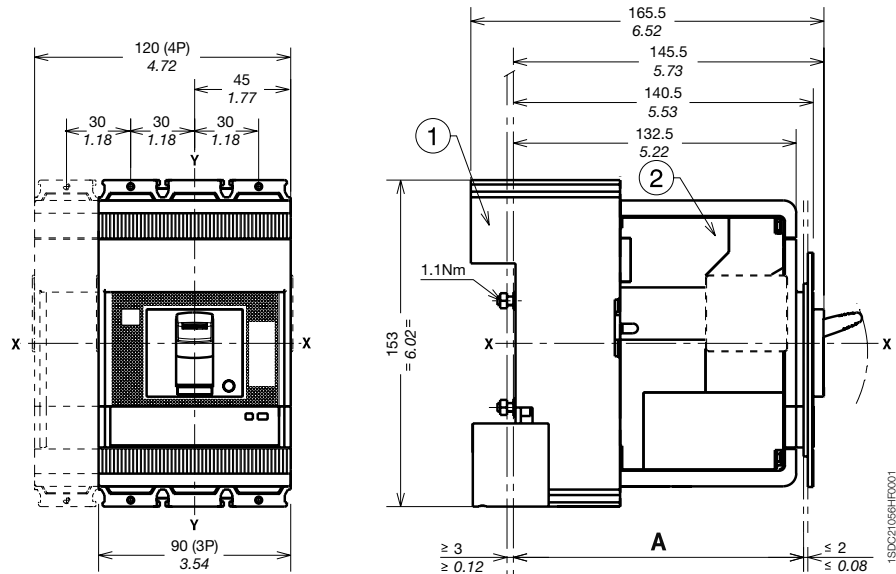
Plug-in circuit breaker mounting on sheet

Captions

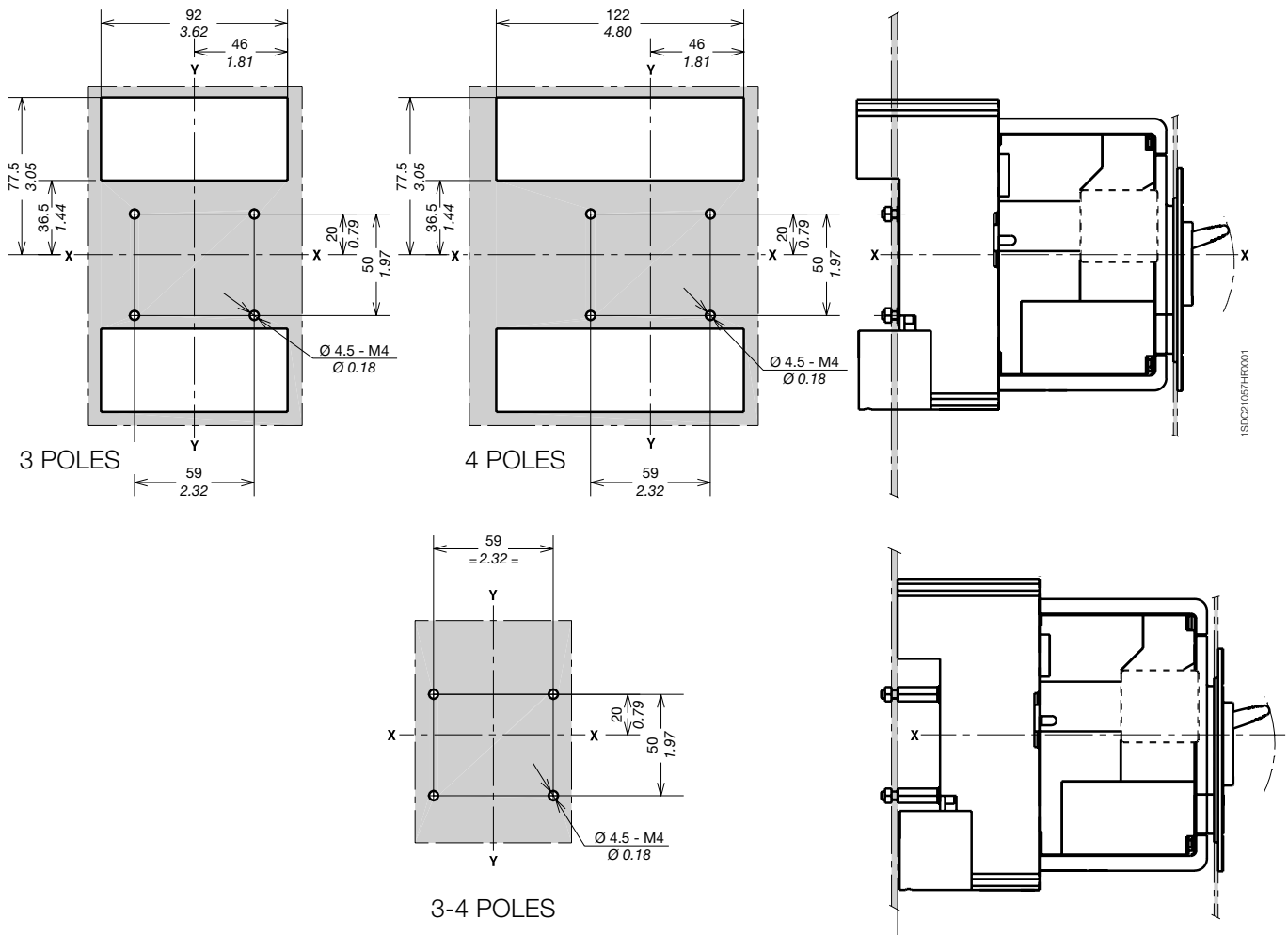
- ① Fixed part
- ② Moving part

Mounting at 50mm		A
With standard flange	III - IV	136
Without flange	III - IV	133.5
	III - IV	141.5

Mounting at 70mm for extended front terminals		A
With standard flange	III - IV	156
Without flange	III - IV	153.5
	III - IV	161.5



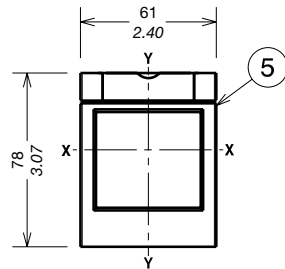
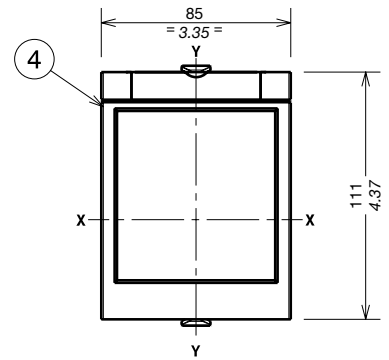
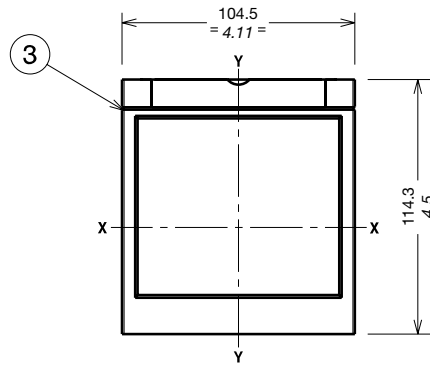
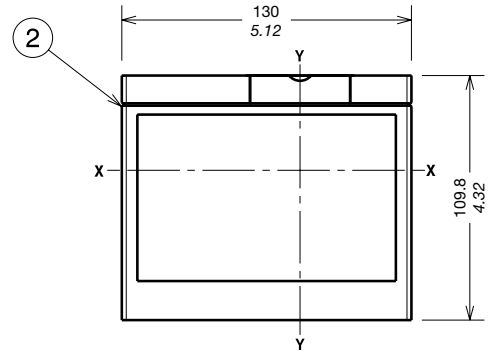
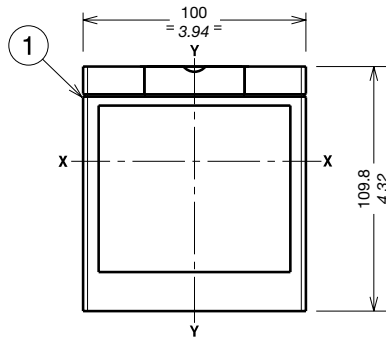
Drilling templates for the backplate



Flanges

Captions

- ① Flange for withdrawable circuit breaker III
- ② Flange for circuit breaker IV
- ③ Flange for plug-in circuit breaker III-IV with MOE and FLD
- ④ Flange for circuit breaker III-IV with direct rotary handle (RHD)
- ⑤ Optional flange



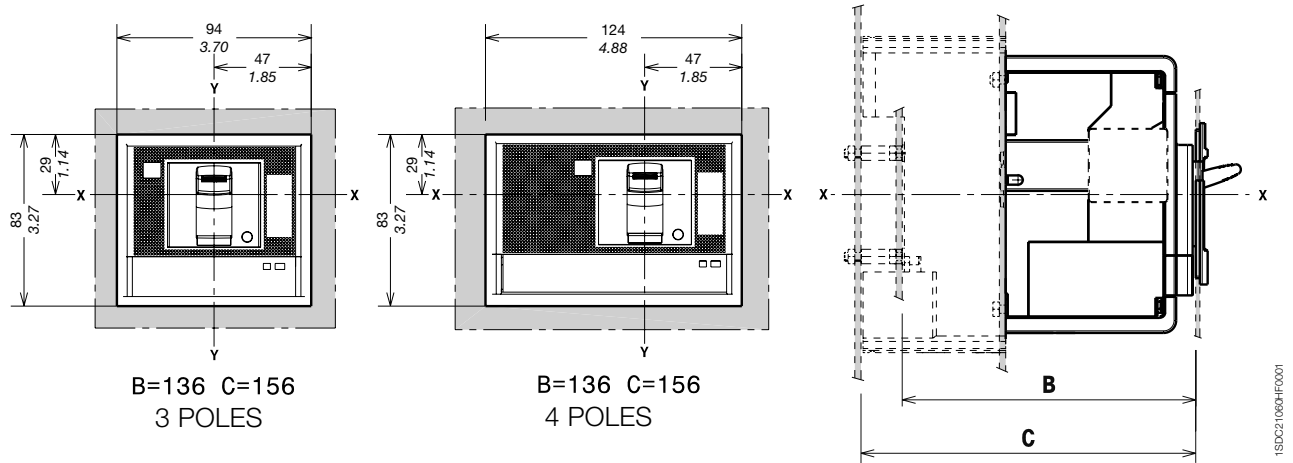
1SDC21059H0001

Overall dimensions

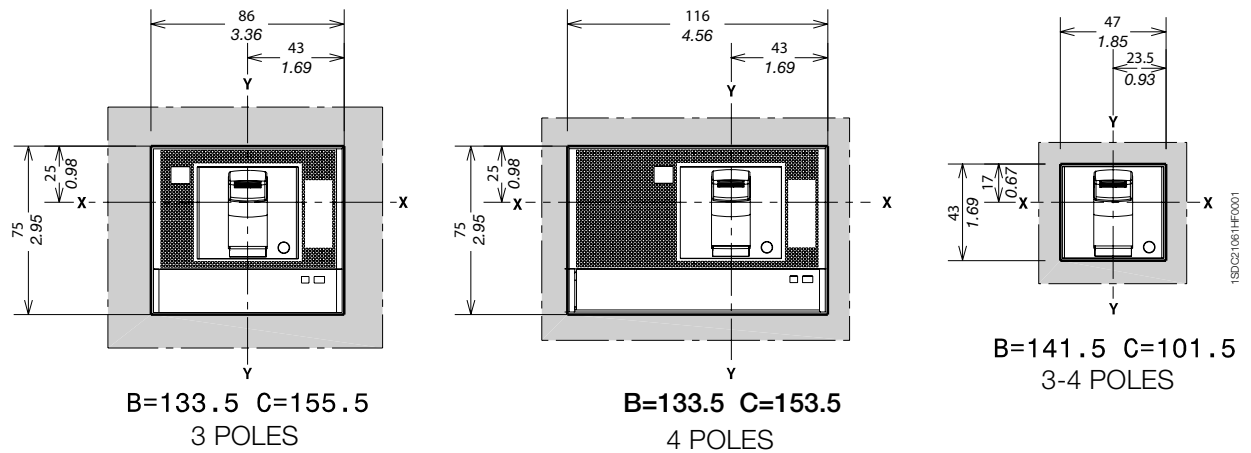
Tmax XT2 - Terminals for plug-in circuit breaker

Drilling templates for compartment door

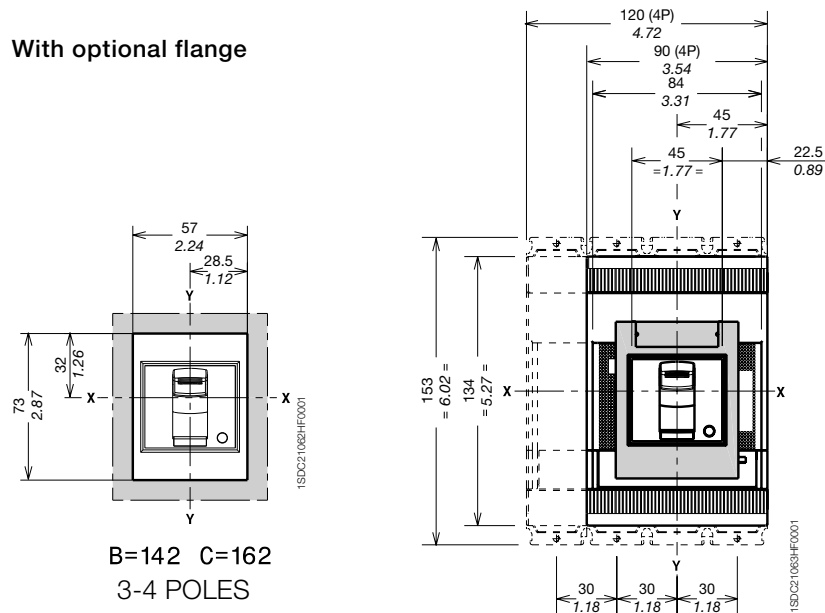
With standard flange



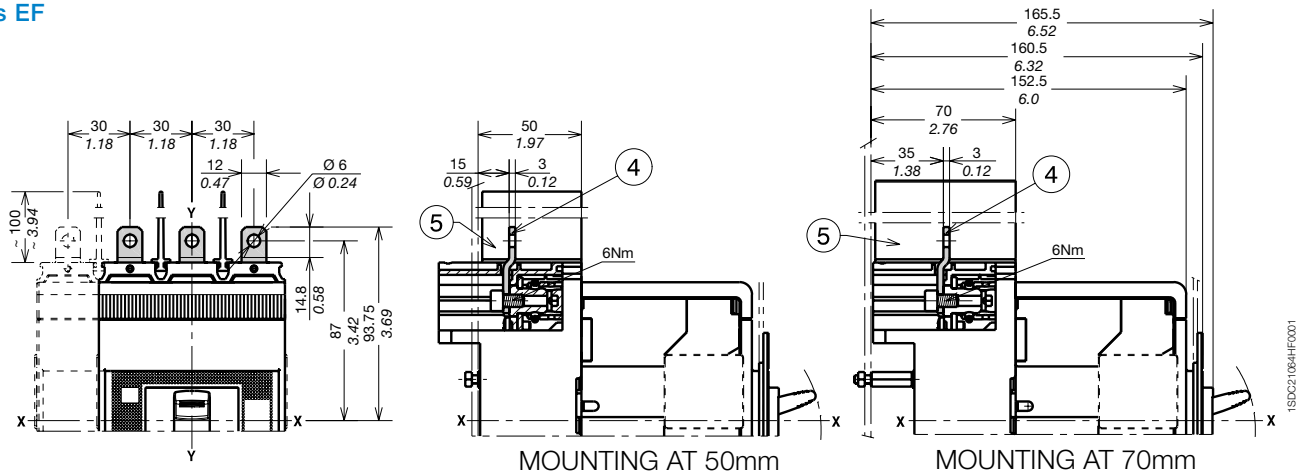
Without flange



With optional flange



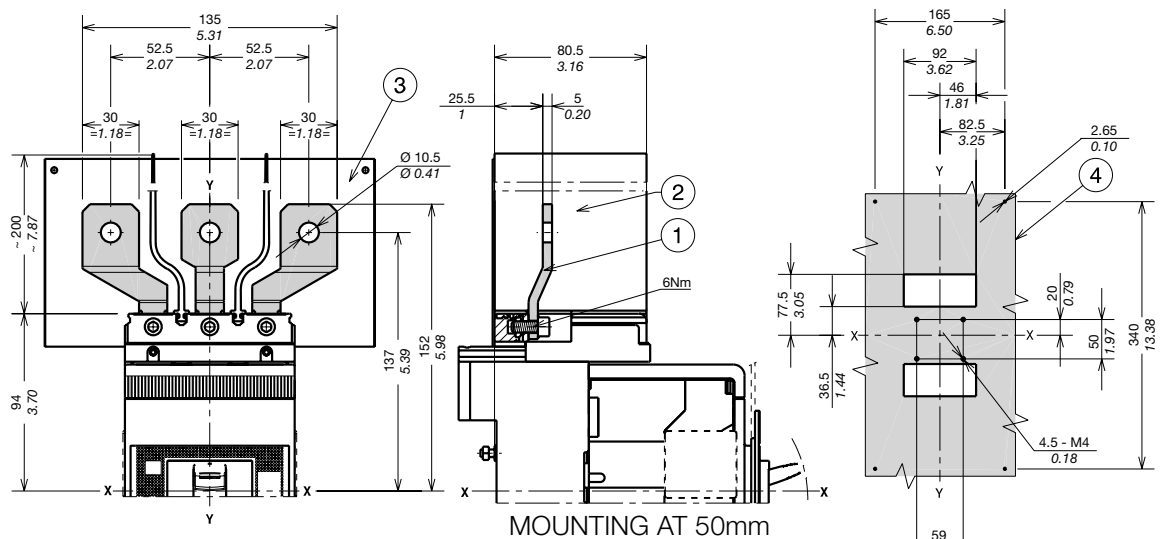
Terminals EF



Captions

- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory) provided

Terminals ES



Captions

- ① Front extended spread terminals
- ② 200mm insulating barriers between phases (compulsory) provided
- ③ Insulated plate (compulsory) provided
- ④ Drilling template for 3p circuit breaker $U_e > 440V$ (compulsory)
- ⑤ Drilling template for 4p circuit breaker $U_e > 440V$ (compulsory)

Overall dimensions

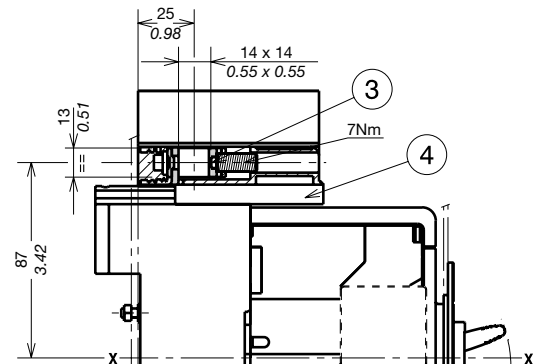
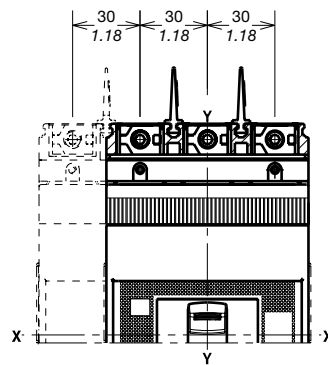
Tmax XT2 - Terminals for plug-in circuit breaker

Terminals FCCu

Captions

- ③ Terminals FCCu
- ④ Adapter (compulsory) not provided

Note: 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



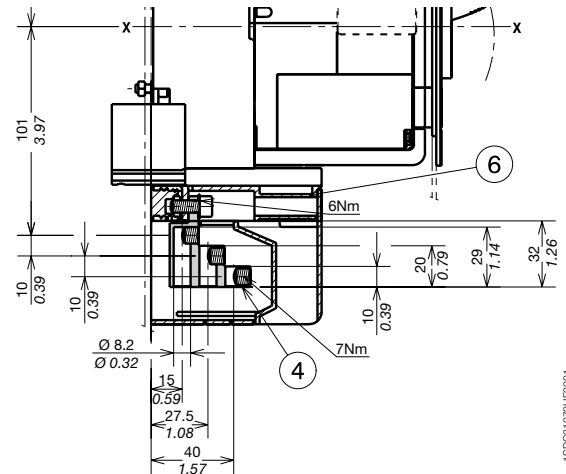
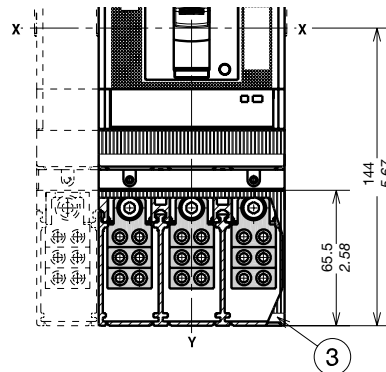
MOUNTING AT 50mm

1SDC21069-HF0001

Terminals MC

Captions

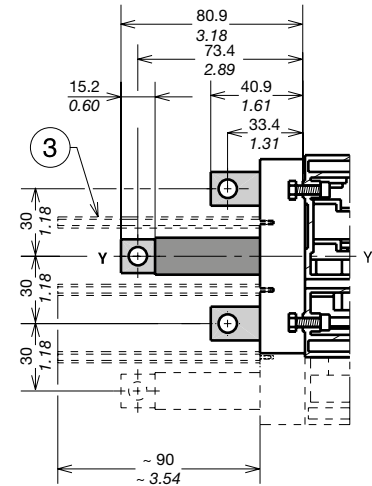
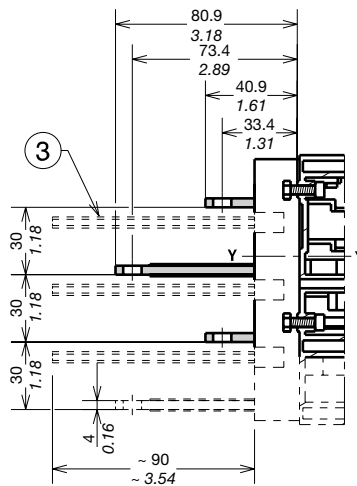
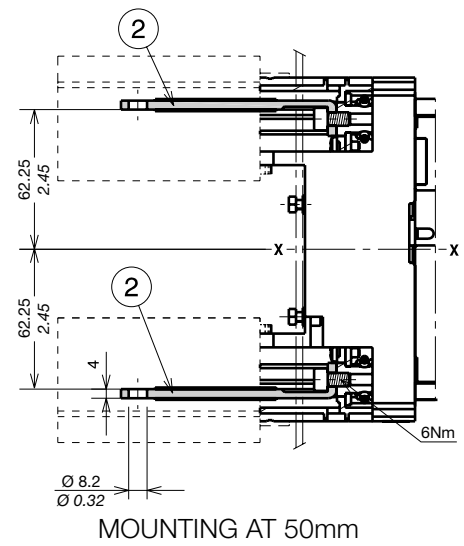
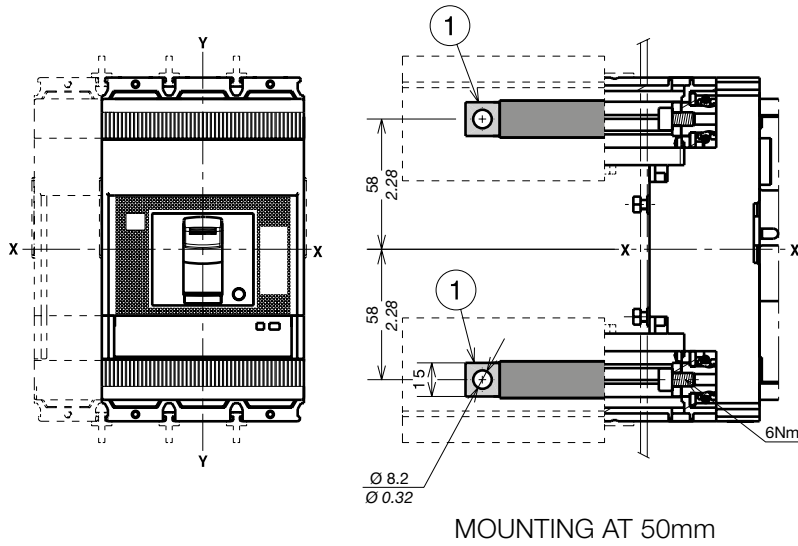
- ③ High terminal covers with degree of protection IP40 (optional) provided
- ④ Multi-cable terminals
- ⑥ Adapter (compulsory) not provided



MOUNTING AT 50mm

1SDC21070-HF0001

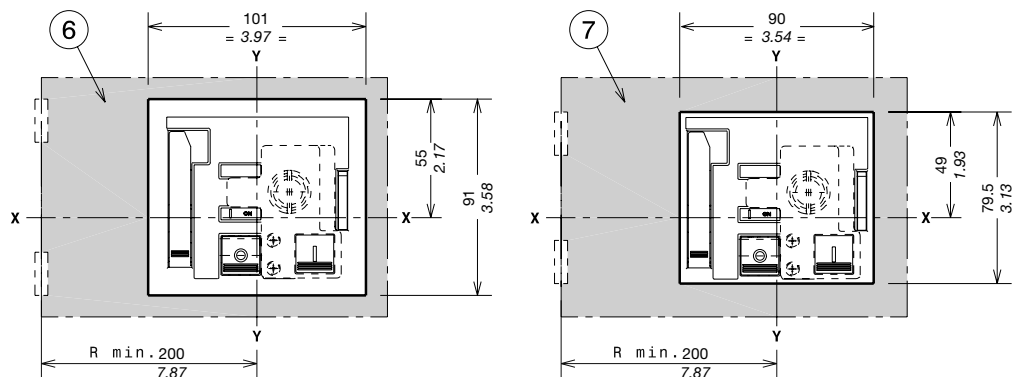
Terminals HR/VR



Captions

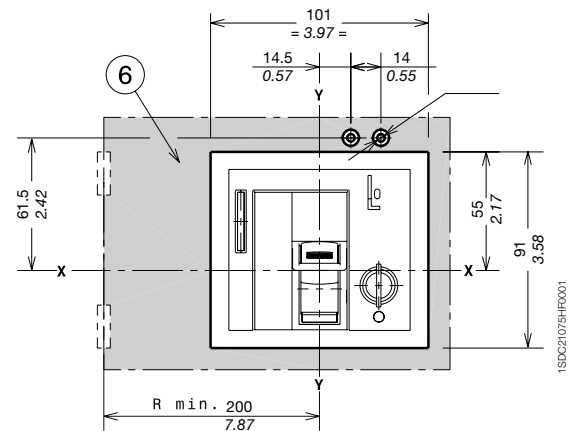
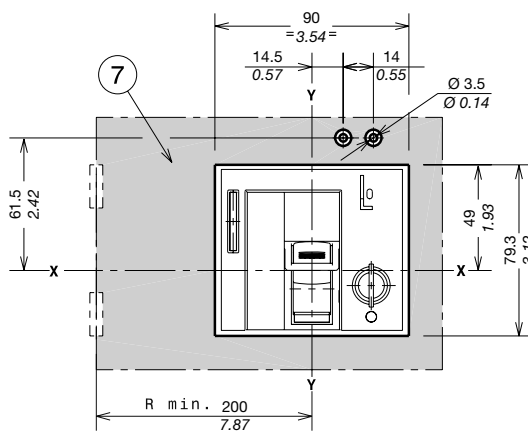
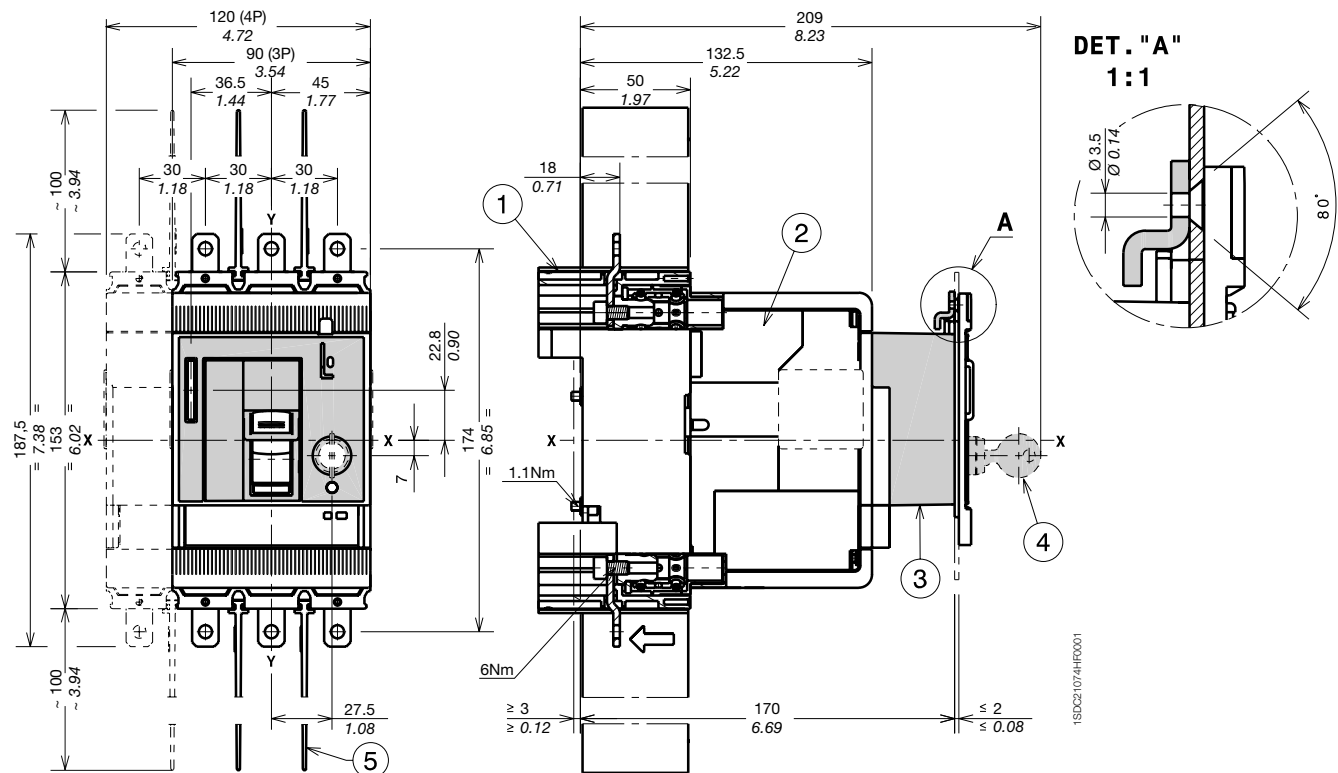
- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory)
not provided

5

[illegible]

- ① Fixed part
- ② Moving part
- ③ MOE
- ④ Key lock (not provided)
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Drilling template of door with direct rotary handle with flange
- ⑦ Drilling template of door with direct rotary handle without flange

Front for lever operating mechanism (FLD)



Captions

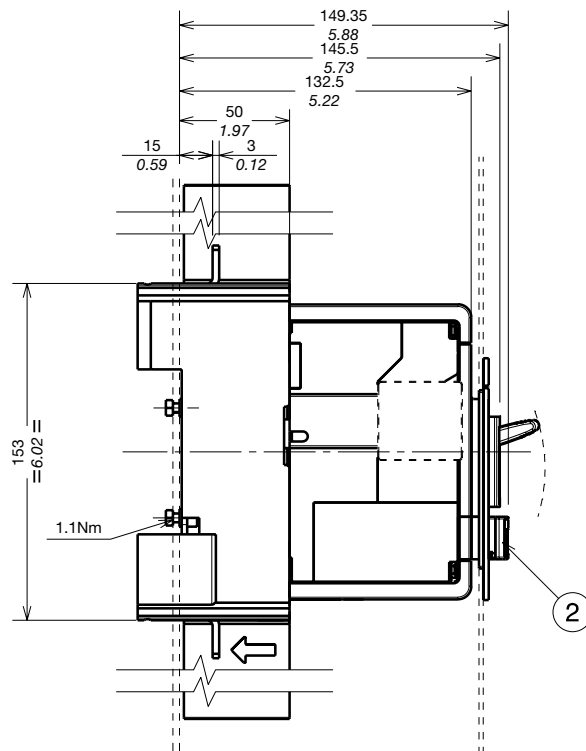
- ① Fixed part
- ② Moving part
- ③ Front for lever operating mechanism (FLD)
- ④ Key lock (not provided)
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Drilling template of door with direct rotary handle with flange
- ⑦ Drilling template of door with direct rotary handle without flange

5

Technical drawing of a 120 (4P) circuit breaker in the closed position. The drawing shows a cross-section of the device with dimensions in millimeters and inches. Key dimensions include:

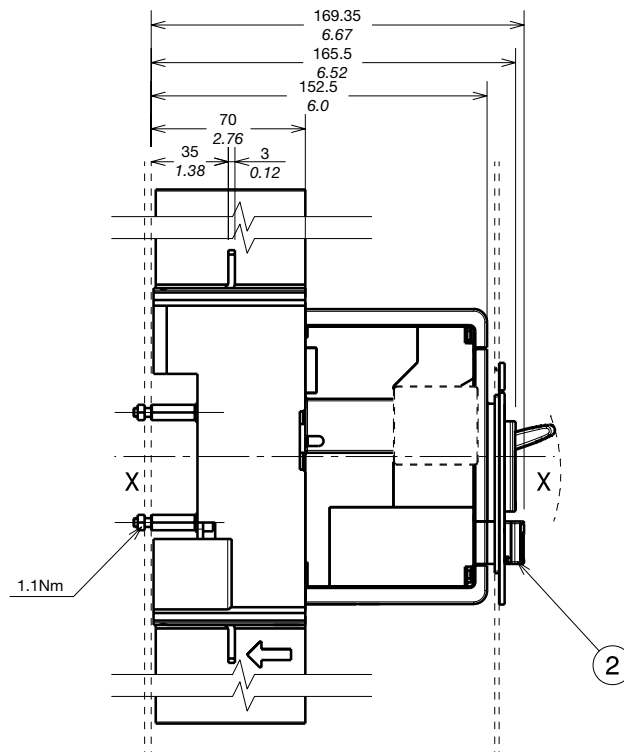
- Total width: 120 (4P) / 4.72
- Internal width: 90 (3P) / 3.54
- Terminal spacing: 45 / 1.77
- Total height: 153 / 6.02
- Terminal height: 100 / 3.94
- Internal height: 78.6 / 3.10

The drawing also shows the internal mechanism, including the main switch and the thermal-magnetic release. Callouts 1 and 2 point to specific components.



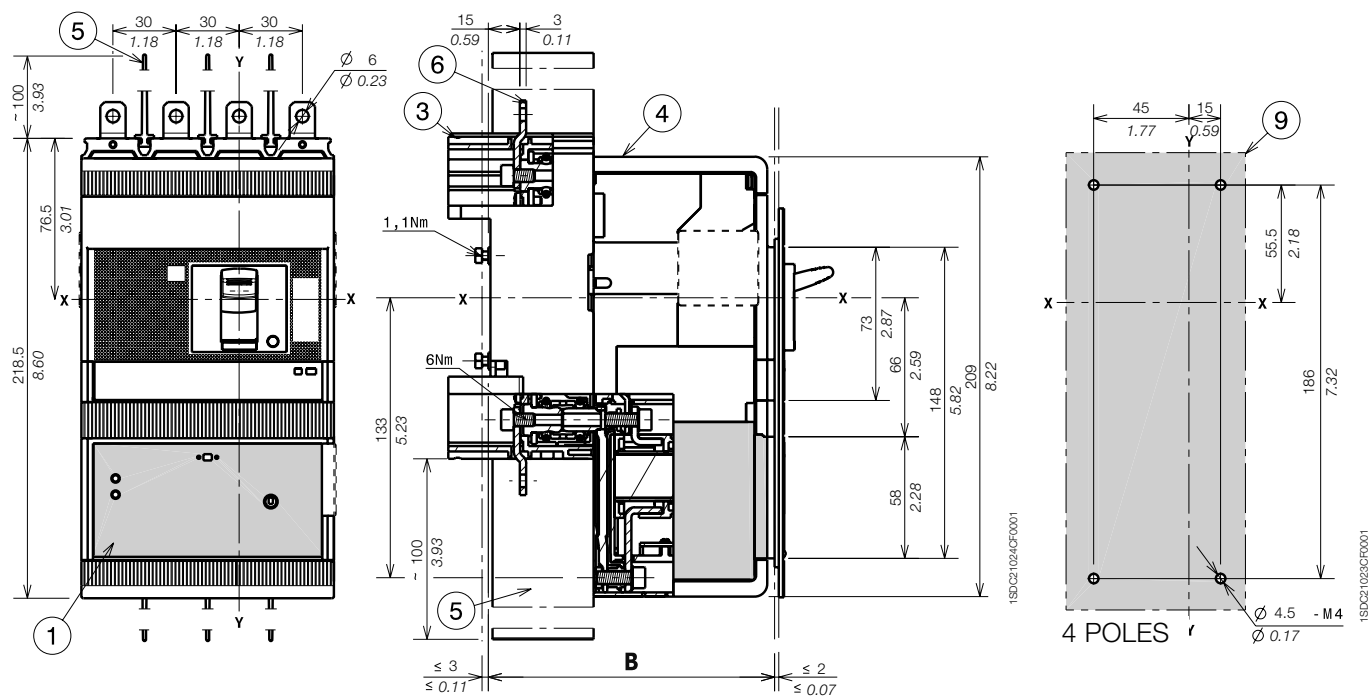
Captions

- ① 100mm insulating barriers between phases
- ② Ekip Display or Ekip LED Meter



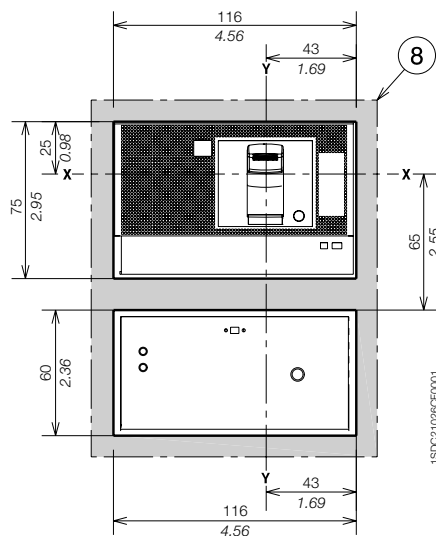
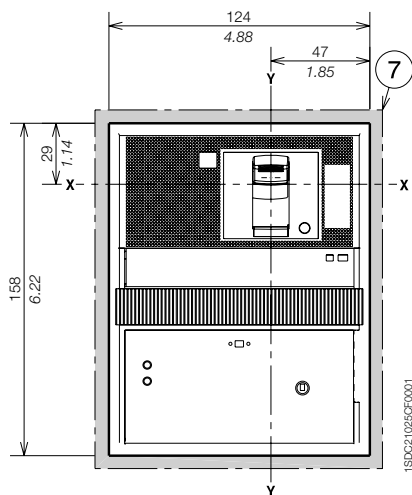
MOUNTING AT 50mm

Residual current RC Sel



Captions

- ① Residual current
- ③ Fixed part
- ④ Moving part
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Extended terminals
- ⑦ Drilling template of door with direct rotary handle and mounting with flange
- ⑧ Drilling template of door with direct rotary handle and mounting without flange
- ⑨ Drilling template for mounting circuit breaker on sheet

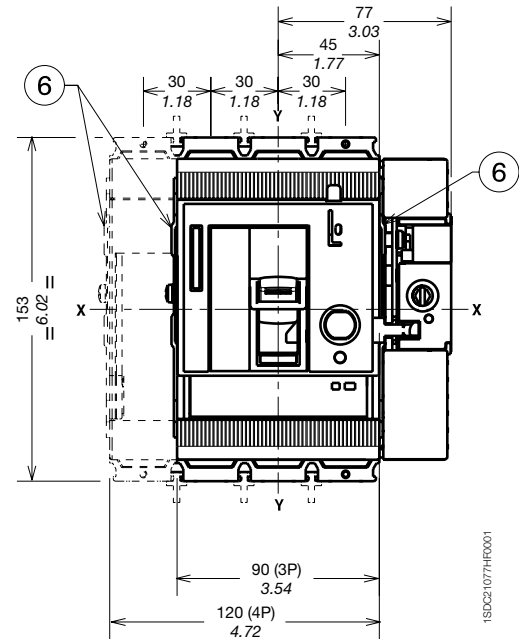
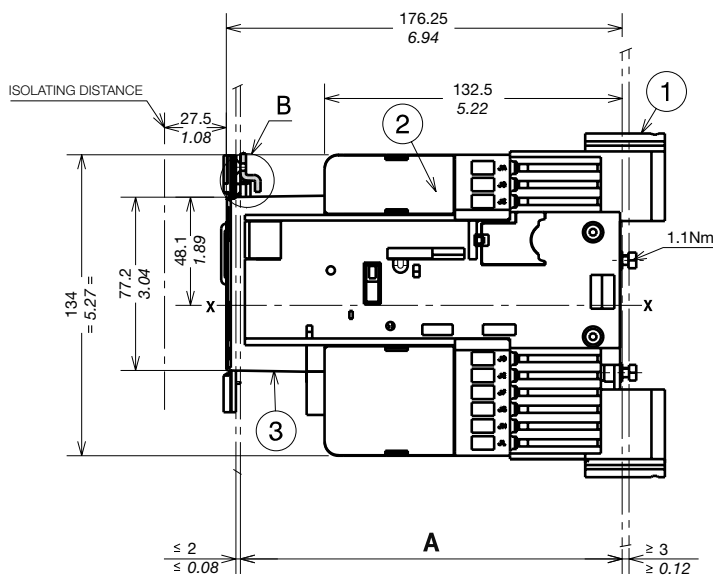
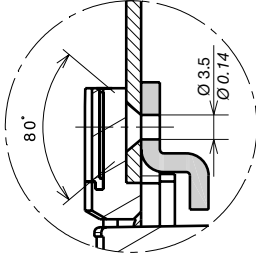


		A
With standard flange	IV	136
Without flange	IV	133,5

Tmax XT2 - Installation for withdrawable circuit breaker

Fixing on the backplate

DET. "B"
1:1

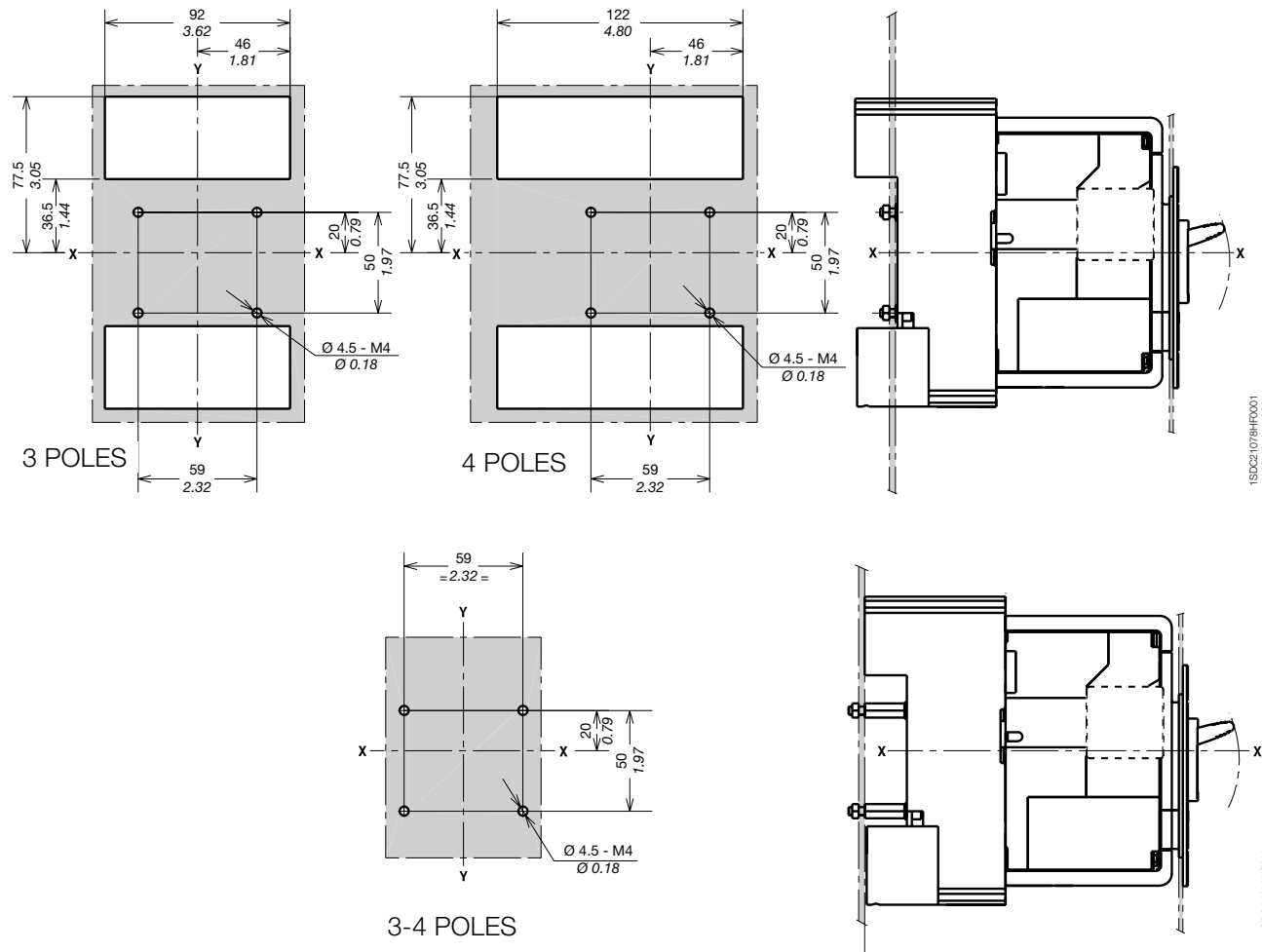


Captions

- ① Fixed part
- ② Moving part
- ③ FLD (FLD or RHD or RHE or MOE) compulsory for withdrawable version
- ⑥ Optional wiring ducts

			A
With standard flange	III - IV	Mounting at 50mm	170
	III - IV	Mounting at 70mm for extended front terminals	190

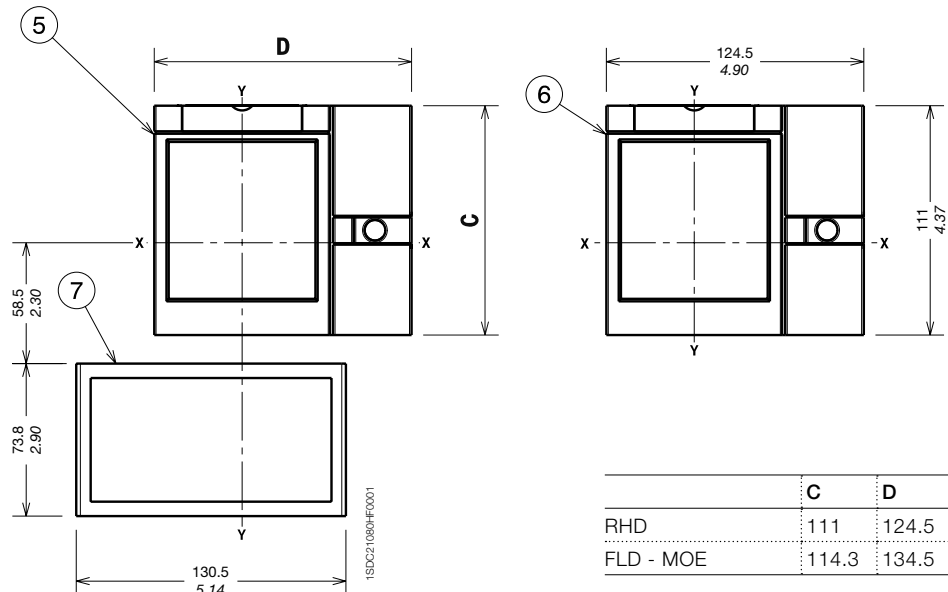
Drilling templates for the backplate



Flanges

Captions

- ⑤ Flange for circuit breaker III-IV withdrawable
- ⑥ Flange for withdrawable circuit breakers III IV with direct rotary handle RHD
- ⑦ Flange for withdrawable circuit breakers III IV with front extended terminals

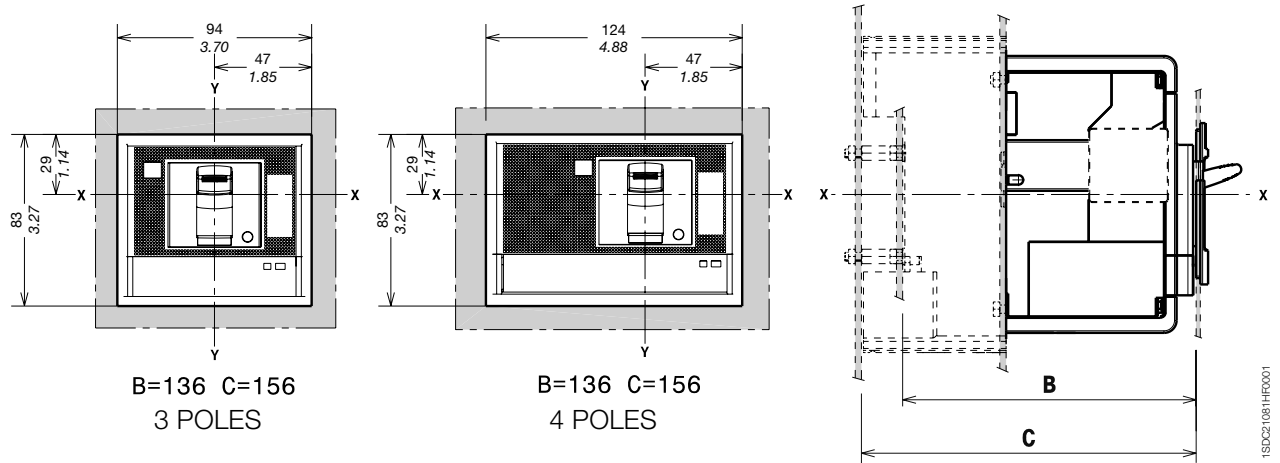


Overall dimensions

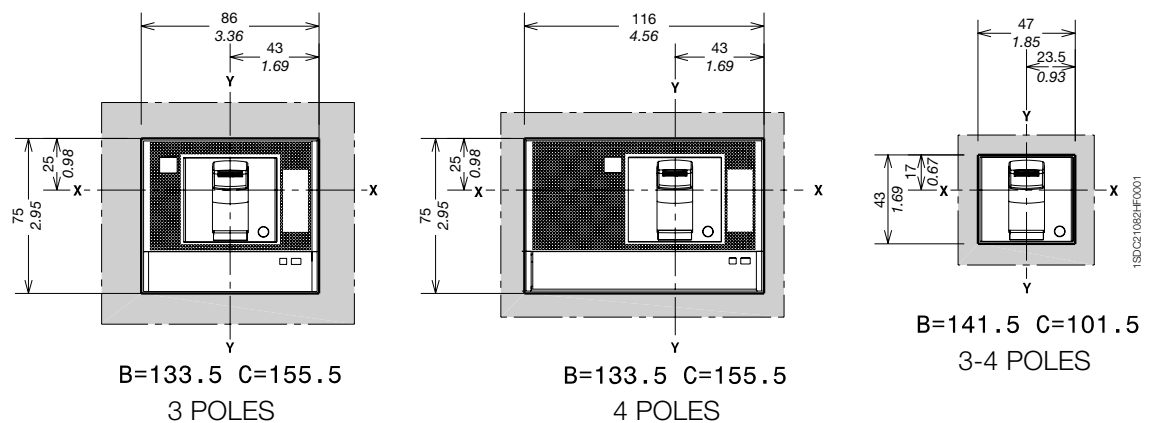
Tmax XT2 - Installation for withdrawable circuit breaker

Drilling templates compartment door

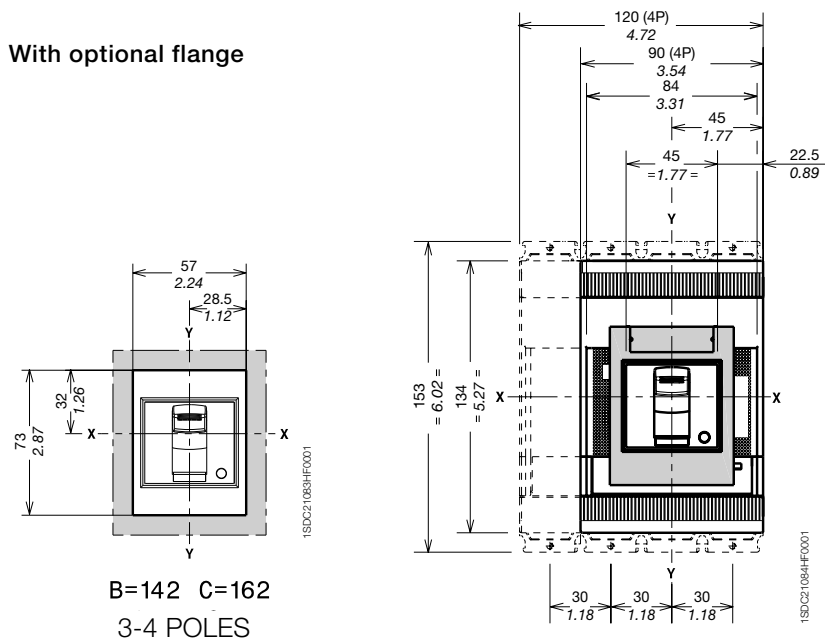
With standard flange



Without flange



With optional flange



Tmax XT2 - Terminals for withdrawable circuit breaker

The image contains three technical drawings of the 1SD021085H-F0001 device, showing mounting dimensions for two configurations: 50mm and 70mm.

Left Drawing: MOUNTING AT 50mm

- Overall width: 196.25 (7.73)
- Distance from left edge to center of component 2: 152.5 (6.0)
- Distance from left edge to center of component 3: 27.5 (1.08)
- Isolating distance: Indicated by a horizontal line.
- Component 3: A small component on the left.
- Component 2: A large rectangular component.
- Component 1: The main body of the device.
- Component 4: A small component on the right.
- Component 5: A small component on the right.
- Mounting torque for component 4: 6Nm
- Mounting torque for component 5: 1.1Nm

Middle Drawing: MOUNTING AT 70mm

- Overall width: 50 (1.97)
- Distance from left edge to center of component 4: 3 (0.12)
- Distance from left edge to center of component 5: 15 (0.59)
- Component 4: A small component on the left.
- Component 5: A small component on the right.
- Mounting torque for component 4: 6Nm
- Mounting torque for component 5: 1.1Nm

Right Drawing: MOUNTING AT 70mm (Top View)

- Overall width: 100 (3.94)
- Distance from left edge to center of component 4: 30 (1.18)
- Distance from left edge to center of component 5: 30 (1.18)
- Distance from left edge to center of component 6: 30 (1.18)
- Distance from left edge to center of component 7: 12 (0.47)
- Component 4: A small component on the left.
- Component 5: A small component on the right.
- Component 6: A small component on the right.
- Component 7: A small component on the right.
- Mounting torque for component 4: 6Nm
- Mounting torque for component 5: 1.1Nm
- Mounting torque for component 6: 1.1Nm
- Mounting torque for component 7: 1.1Nm

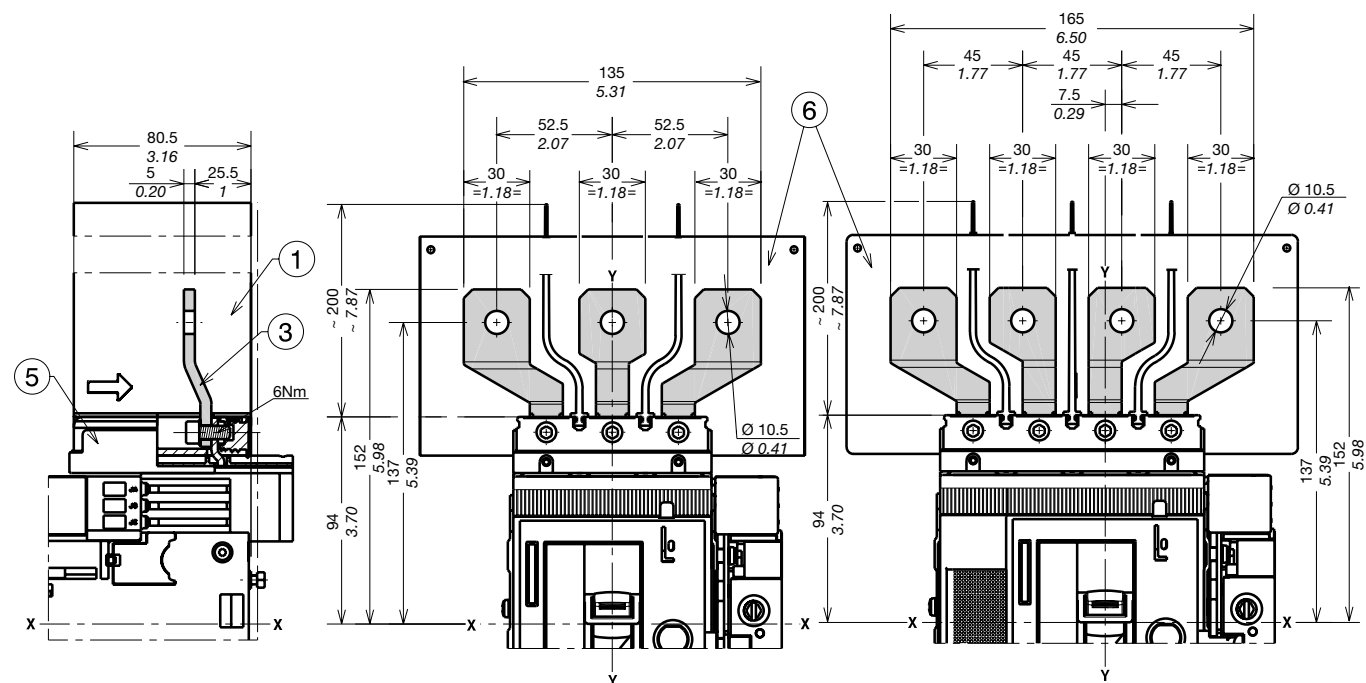
- ② Moving part
- ③ FLD (FLD or RHD or RHE or MOE) compulsory for withdrawable version
- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory) provided

5

Overall dimensions

Tmax XT2 - Terminals for withdrawable circuit breaker

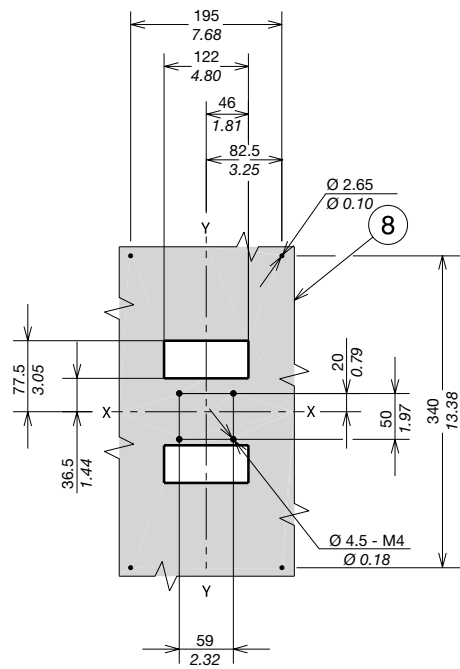
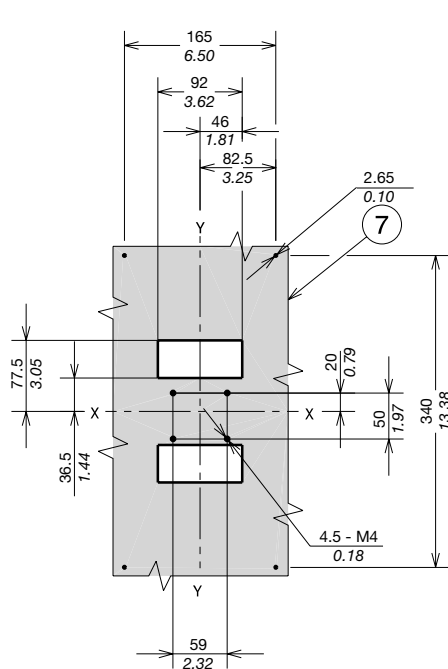
Terminals ES



MOUNTING AT 50mm

Captions

- ① 200mm insulating barriers between phases (compulsory) provided
- ③ Front extended spread terminals
- ⑤ Adapter (compulsory) not provided
- ⑥ Insulated plate (compulsory) provided
- ⑦ Drilling template for 3p circuit breaker $U_e > 440V$ (compulsory)
- ⑧ Drilling template for 4p circuit breaker $U_e > 440V$ (compulsory)

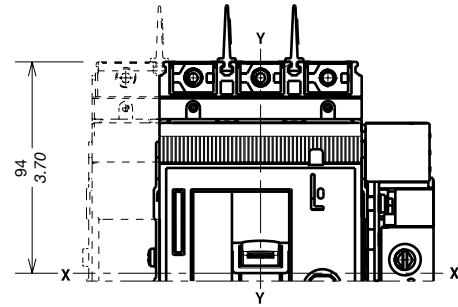
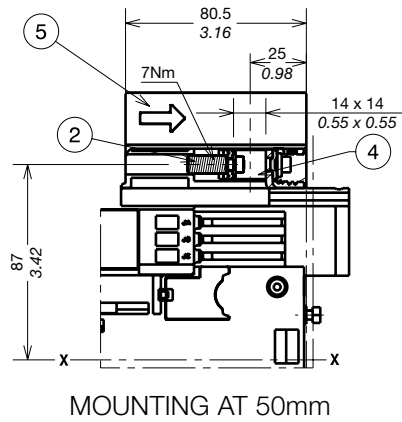


1SDC21086H-F0001

Terminals FCCu

Captions

- ② Terminals FCCu
- ④ Adapter (compulsory) not provided
- ⑤ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



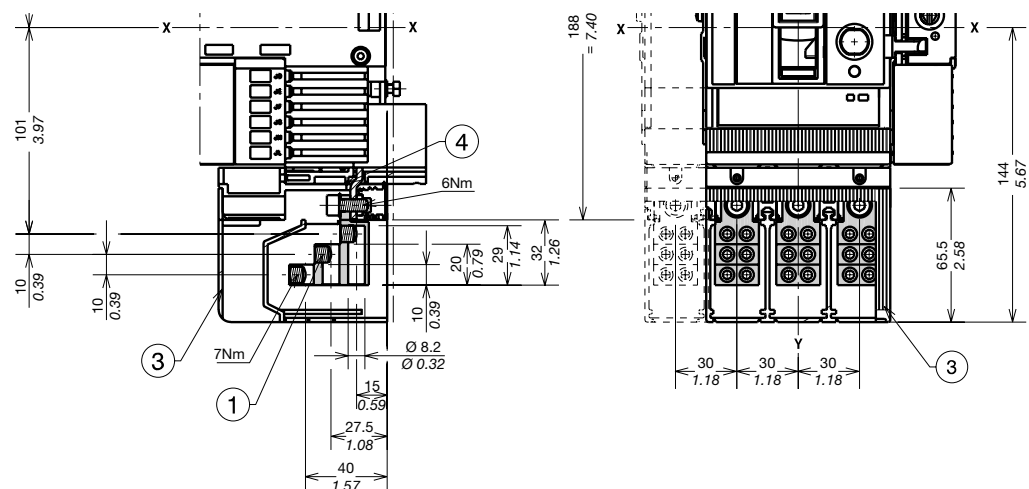
1SDC210001-F0001

Tmax XT2 - Terminals for withdrawable circuit breaker

Terminals MC

Captions

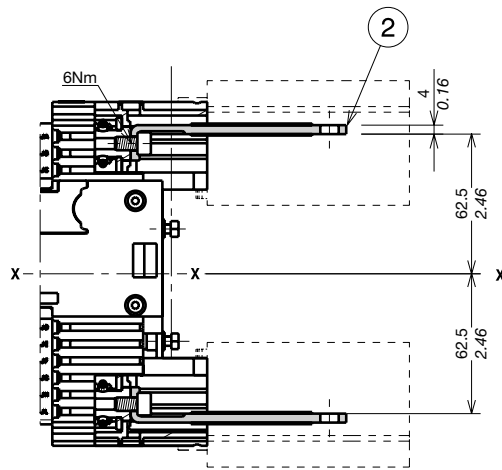
- ① Multi-cable terminals
- ③ High terminal covers with degree of protection IP40 (optional) provided
- ④ Adapter (compulsory) not provided



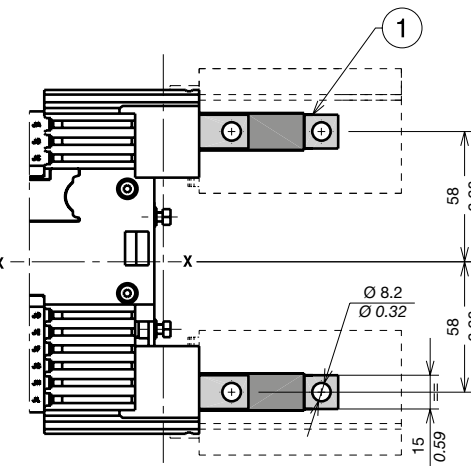
MOUNTING AT 50mm

SDC:21091HE0001

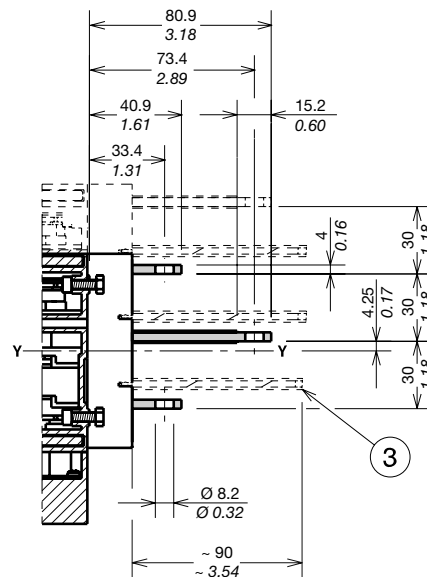
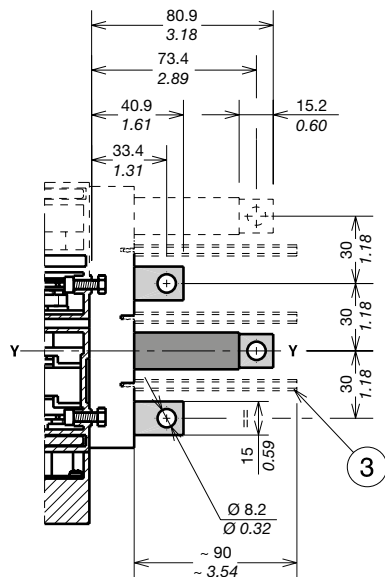
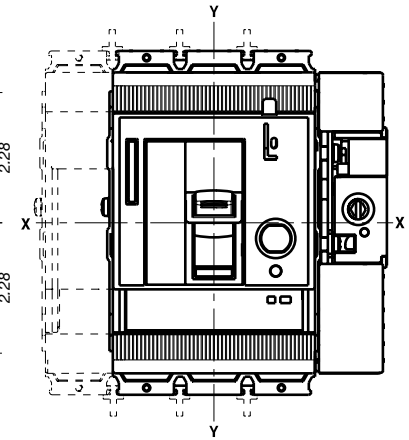
Terminals HR/VR



MOUNTING AT 50mm



MOUNTING AT 50mm



1SDC210021-H0001

Captions

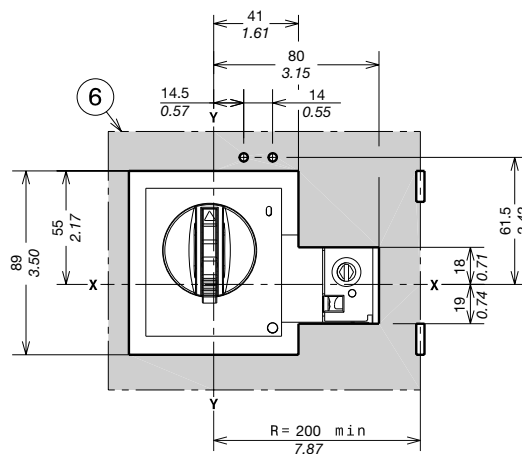
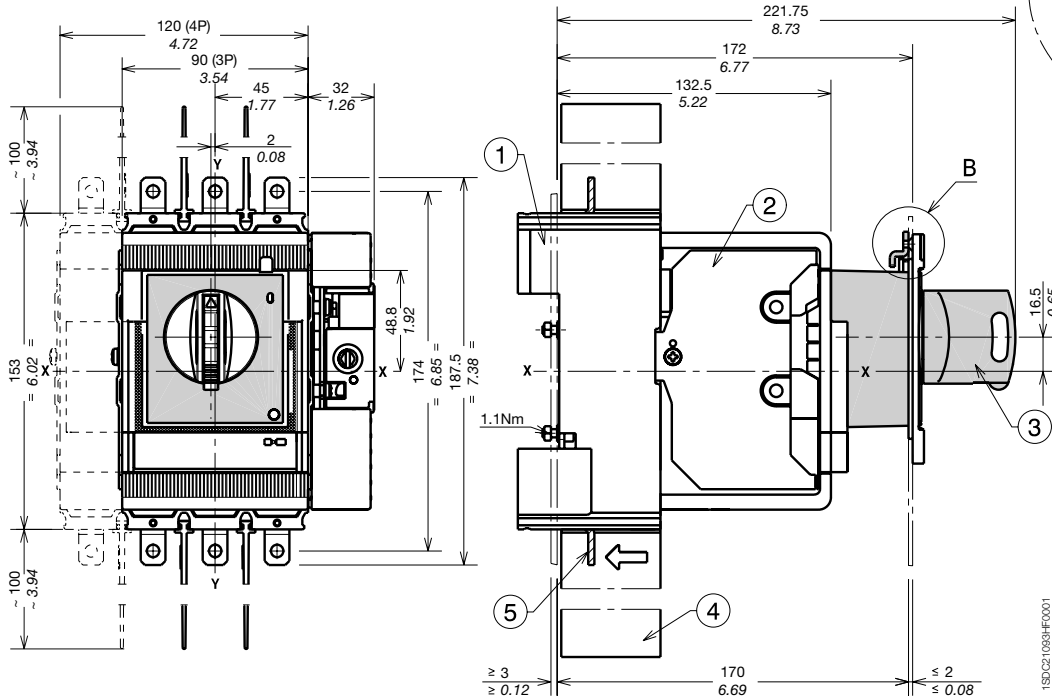
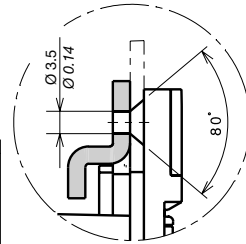
- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided

Overall dimensions

Tmax XT2 - Accessories for withdrawable circuit breaker

Rotary handle operating mechanism on circuit breakers (RHD)

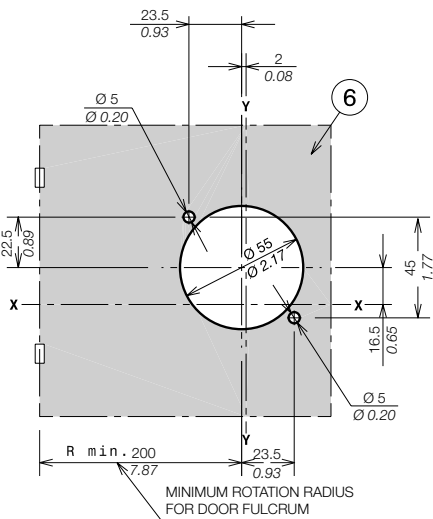
DET "B"



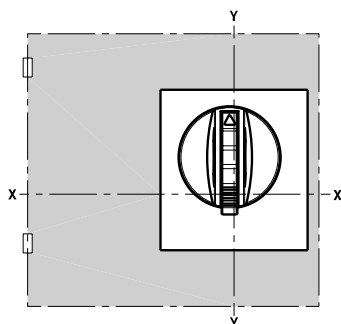
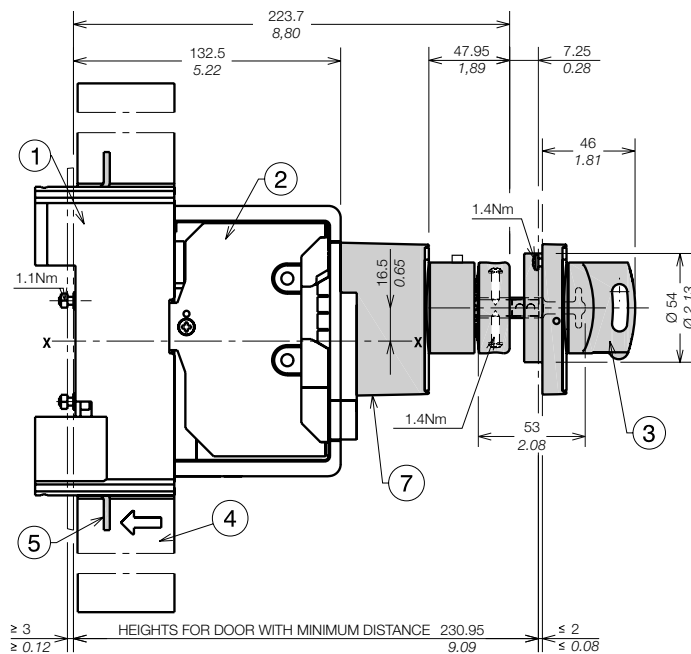
Captions

- ① Fixed part
- ② Moving part
- ③ Rotary handle operating mechanism on circuit breaker
- ④ 100mm insulating barriers between phases (compulsory) provided
- ⑤ Extended terminals
- ⑥ Drilling template of door with direct rotary handle

5



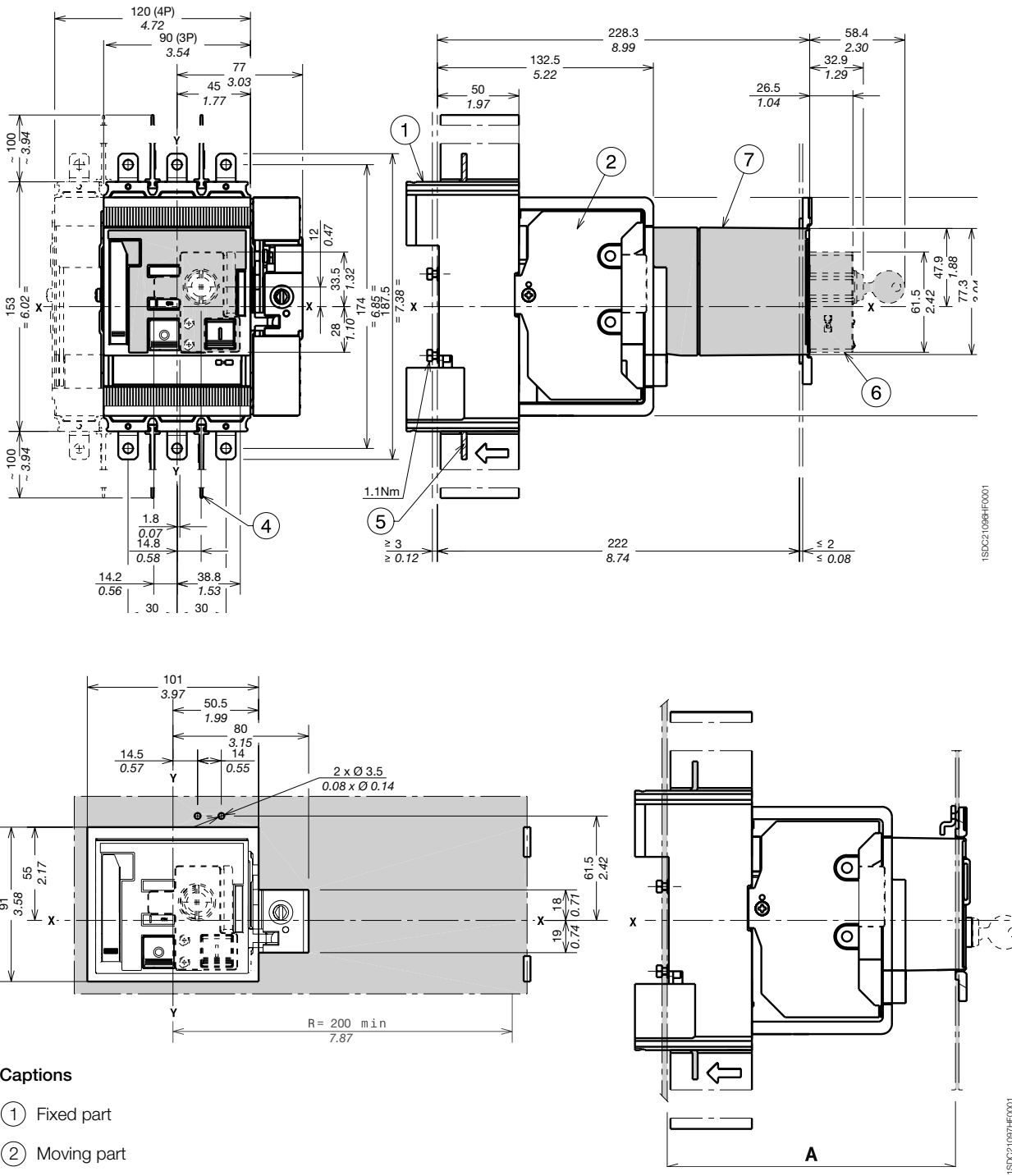
- ① Fixed part
- ② Moving part
- ③ Rotary handle operating mechanism on the compartment door (RHE)
- ④ 100mm insulating barriers between phases (compulsory) provided
- ⑤ Extended terminals
- ⑥ Door drilling template with extended rotary handle
- ⑦ Transmission unit



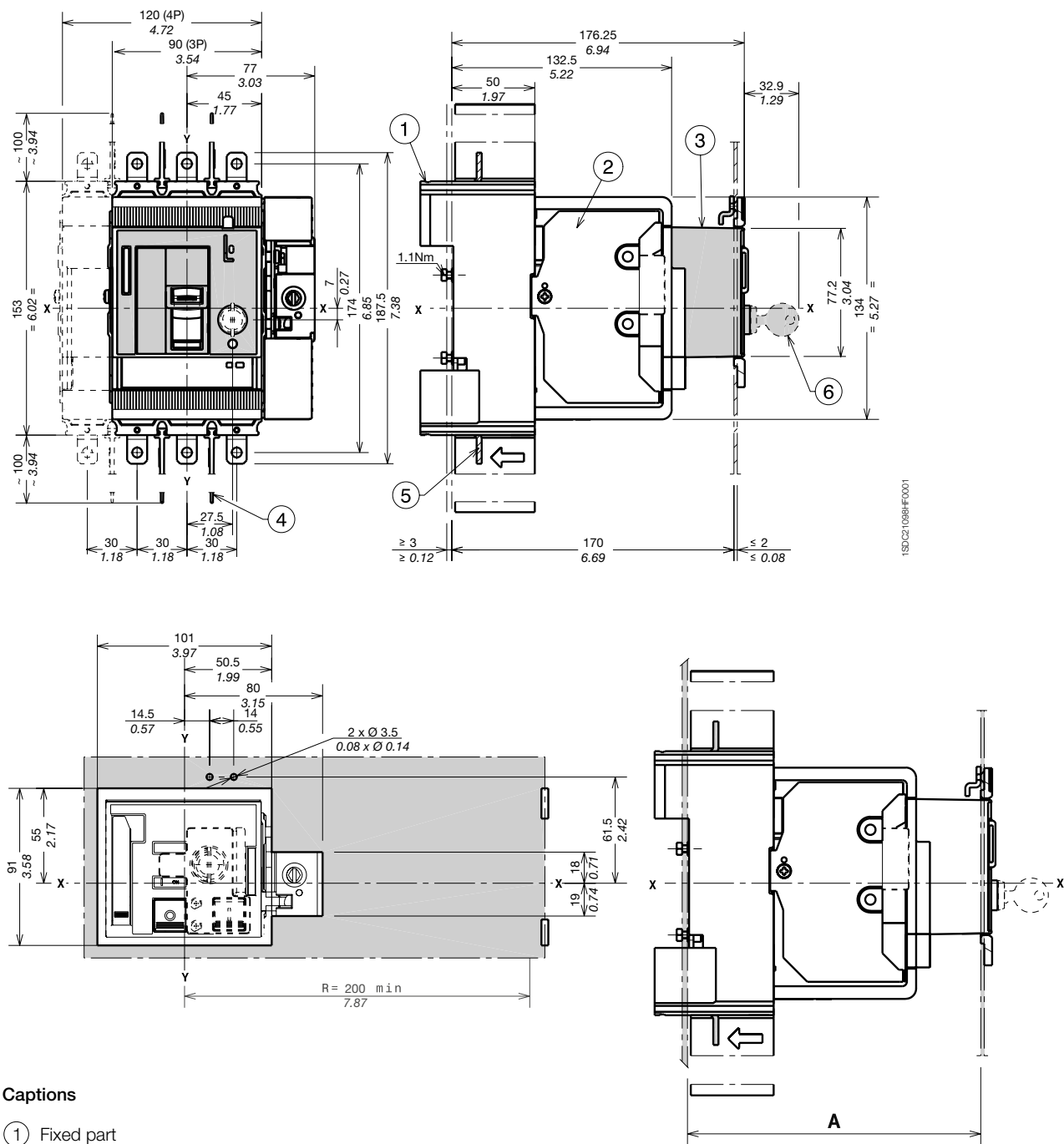
Overall dimensions

Tmax XT2 - Accessories for withdrawable circuit breaker

Stored energy motor operator (MOE)



Front for lever operating (FLD)



Captions

- 1 Fixed part
- 2 Moving part
- 3 Front for lever operating (FLD)
- 4 100mm insulating barriers between phases (compulsory) provided
- 5 Extended terminals
- 6 Key lock (not provided)

		A
Front for lever operating FLD	III - IV	170

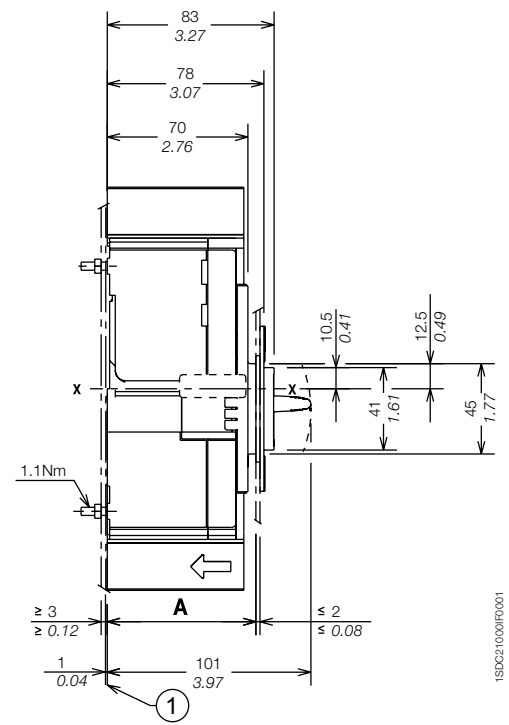
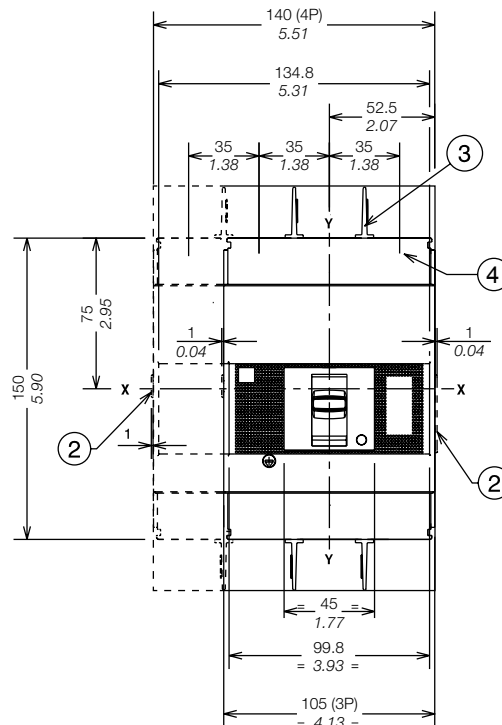
Overall dimensions

Tmax XT3 - Installation for fixed circuit breaker

Mounting on the backplate

Captions

- ① Insulating plate compulsory
- ② Overall dimension of optional wiring ducts
- ③ 25mm insulating barriers between phases (compulsory) provided
- ④ Front carter compulsory for through door of the panel $\leq 25\text{mm}/0,98''$

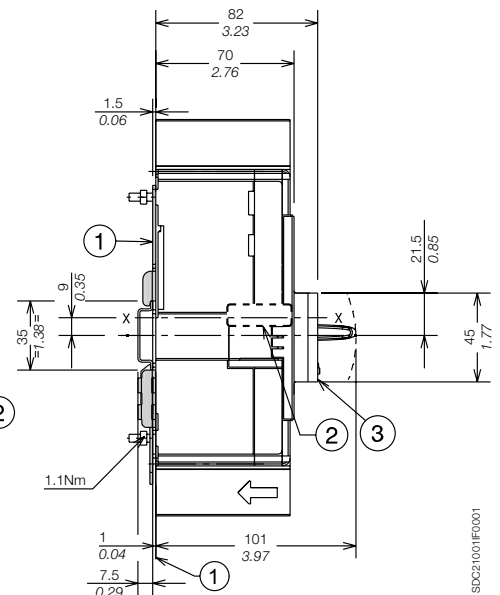
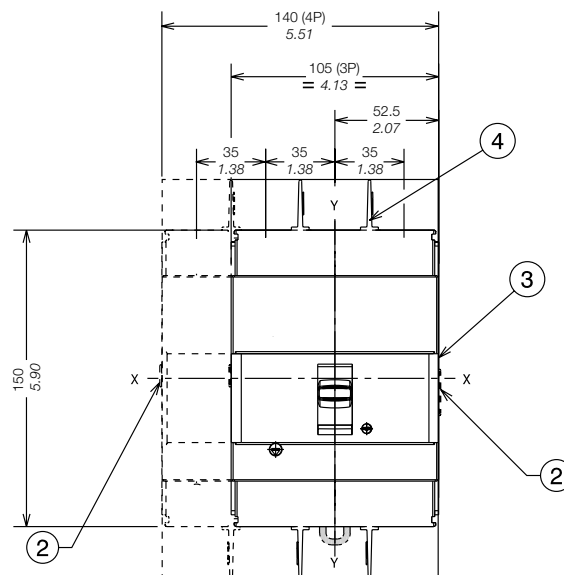


		A
With standard flange	III - IV	74
Without flange	III - IV	71
	III - IV	79

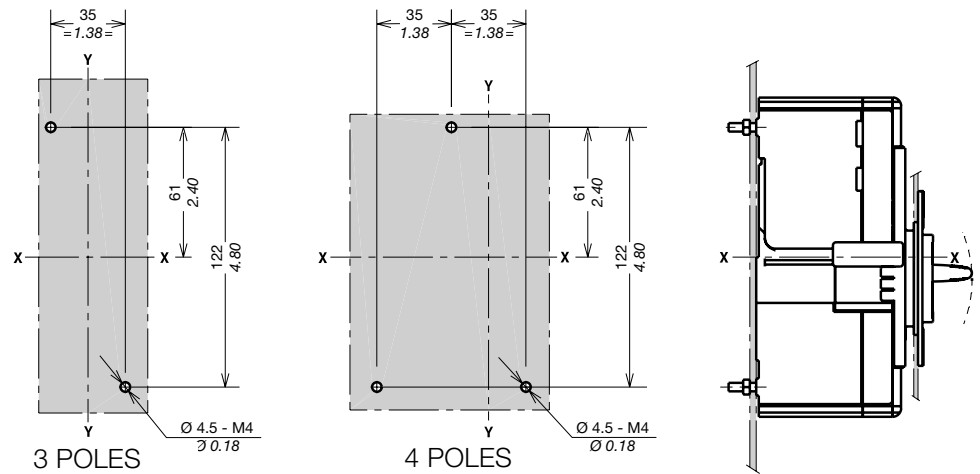
Mounting on DIN EN 50022 rail

Captions

- ① Mounting bracket
- ② Optional wiring ducts
- ③ Optional front cover for DIN rail
- ④ 25mm insulating barriers between phases (compulsory) provided



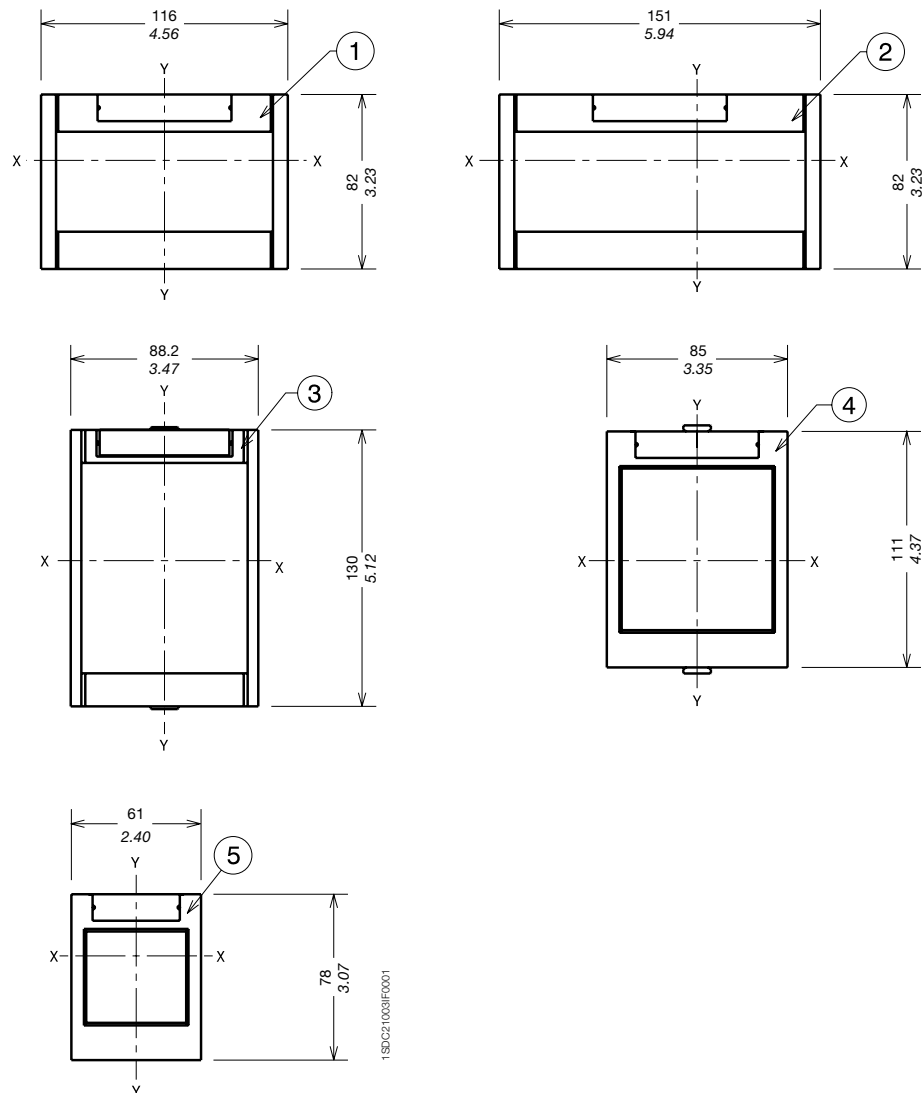
Drilling template



Flanges

Captions

- ① Flange for fixed circuit breaker III
- ② Flange for fixed circuit breaker IV
- ③ Flange for circuit breaker with direct motor operator MOD
- ④ Flange for circuit breaker with direct rotary handle (RHD)
- ⑤ Optional flange

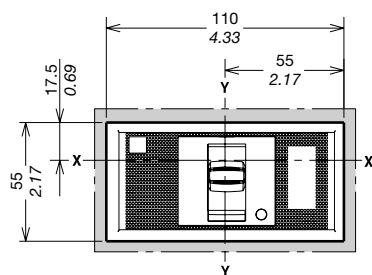


Overall dimensions

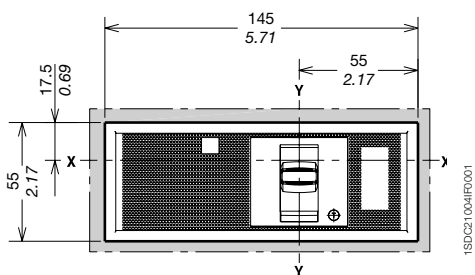
Tmax XT3 - Installation for fixed circuit breaker

Drilling templates for compartment door

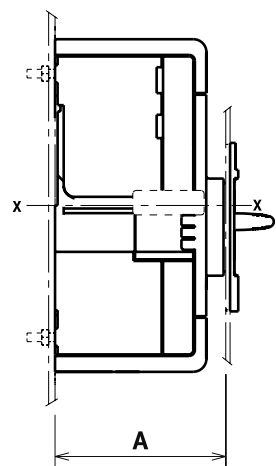
With standard flange



A=74
3 POLES

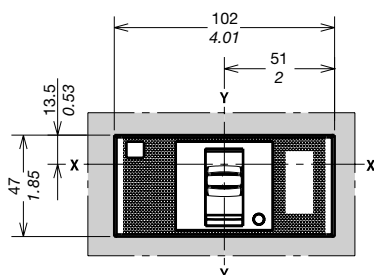


A=74
4 POLES

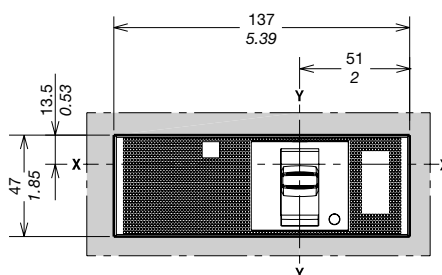


1SDC21004IF0001

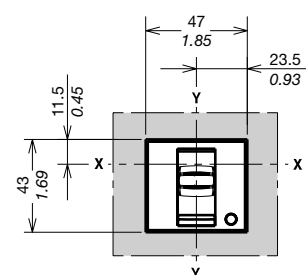
Without flange



A=71
3 POLES



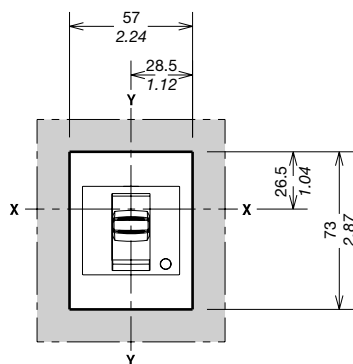
A=71
4 POLES



A=79
3-4 POLES

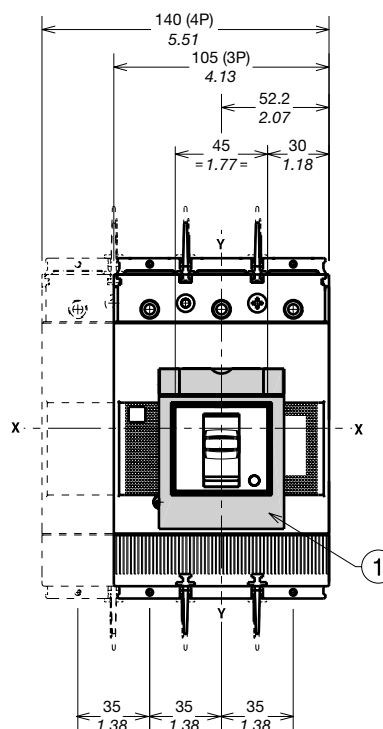
1SDC21008IF0001

With optional flange



A=79
3-4 POLES

1SDC21007IF0001



1SDC21008IF0001

Caption

- ① Optional flange

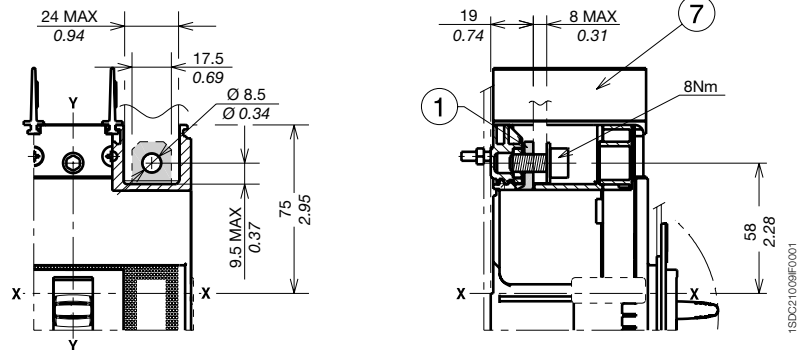
Overall dimensions

Tmax XT3 - Terminals for fixed circuit breaker

Terminals F

Captions

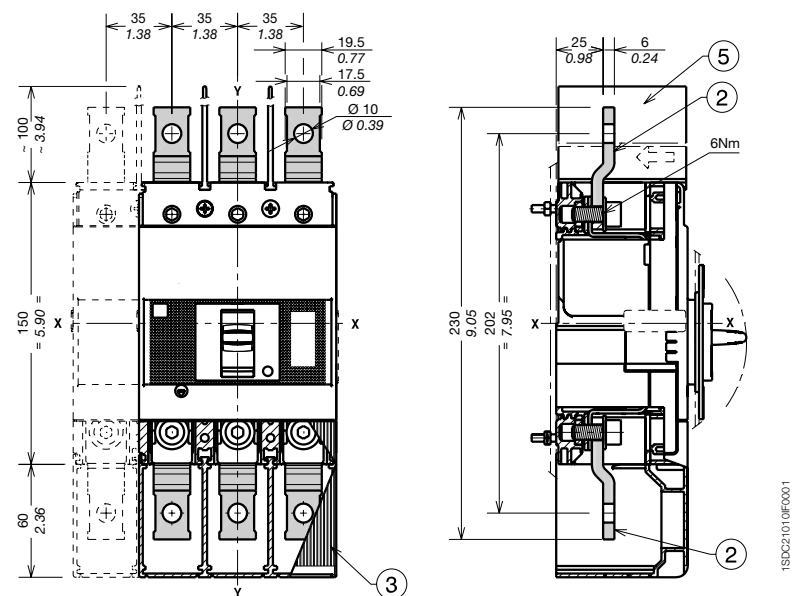
- ① Front terminals for busbar connection
- ⑦ 25mm insulating barriers between phases (compulsory) provided



Terminals EF

Captions

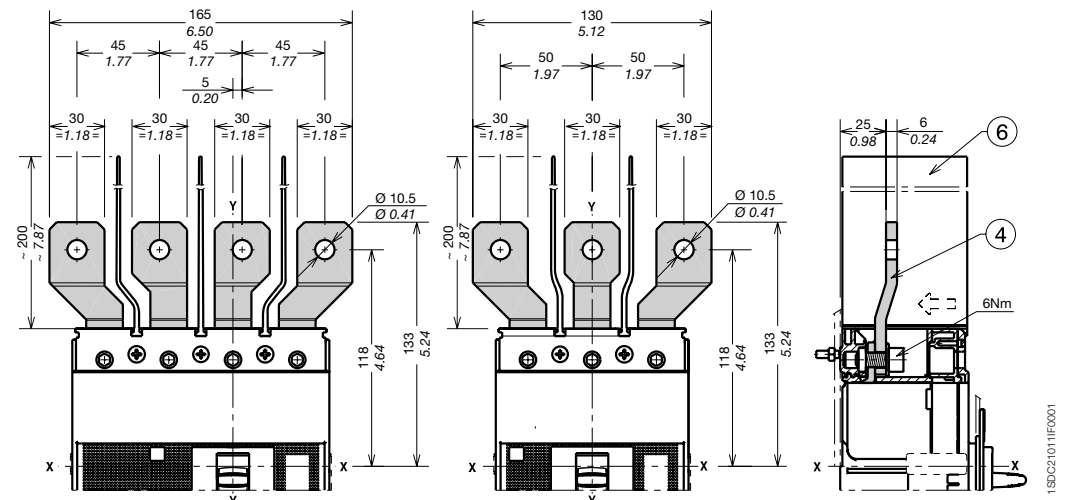
- ② Front extended terminals
- ③ Terminal covers with degree of protection IP40 (optional) not provided
- ⑤ 100mm insulating barriers between phases (compulsory) provided



Terminals ES

Captions

- ④ Front extended spread terminals for busbar connection
- ⑥ 200mm insulating barriers between phases (compulsory) provided

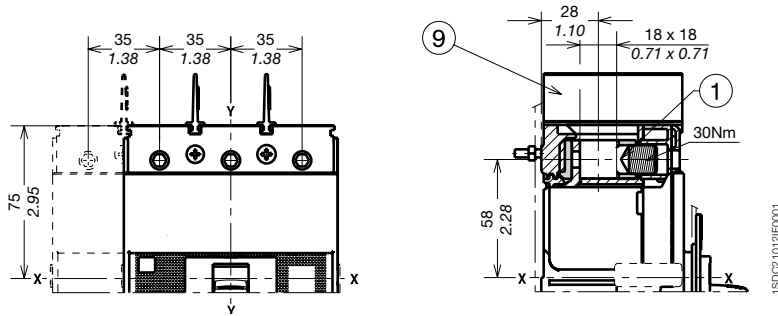


Tmax XT3 - Terminals for fixed circuit breaker

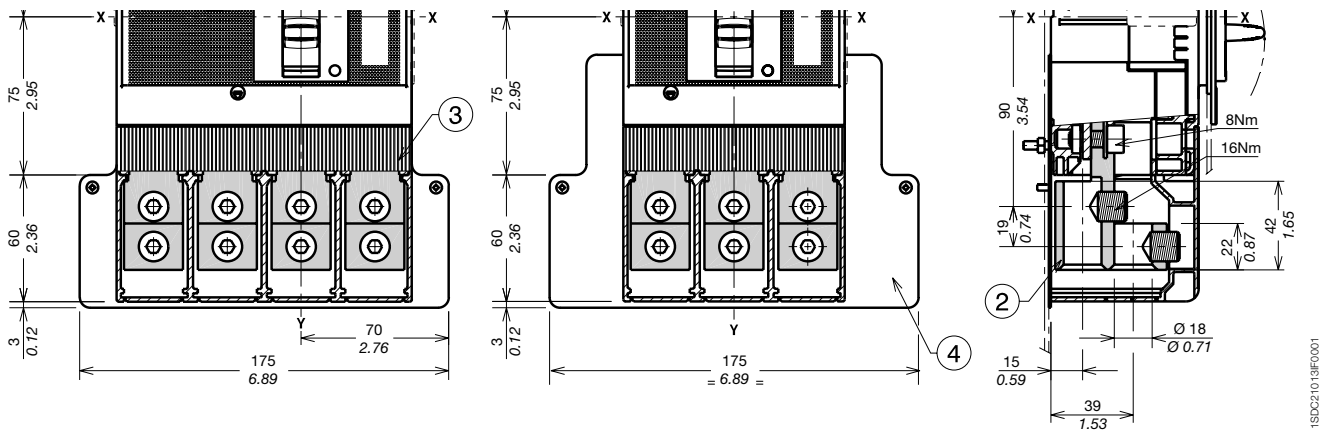
1x2,5...50mm² terminals FCCuAl

Captions

- 1x2,5...50mm² terminals
FCCuAl
- 25mm insulating barriers
between phases (compulsory)
provided as standard with the
circuit breaker

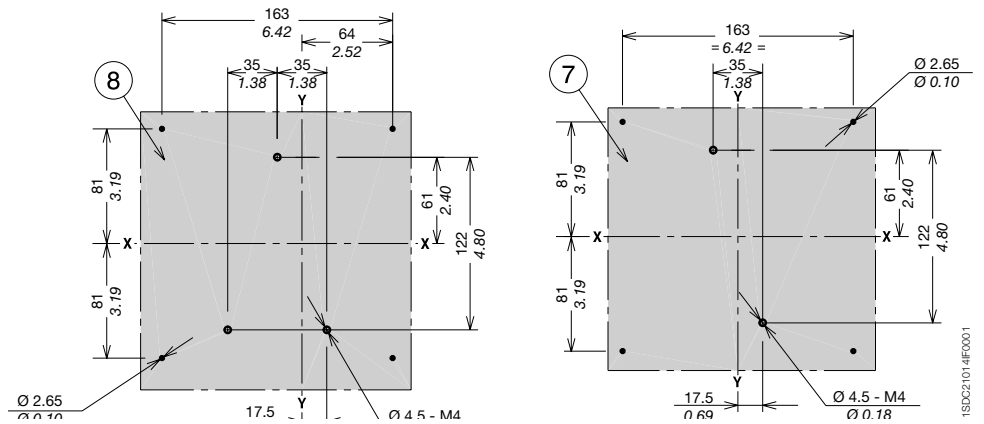


2x35...150mm² terminals FCCuAl



Captions

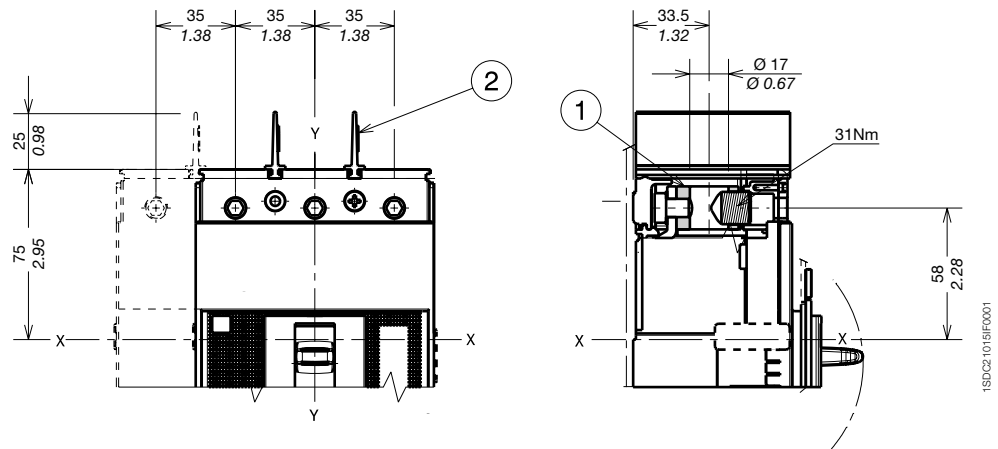
- ② 2x35...150mm² terminals
FCCuAl
- ③ Terminal covers with degree
of protection IP40 (optional)
provided
- ④ Provided rear insulated pla-
te (compulsory for CuAl
2x150mm² cables)
- ⑦ Drilling template for mounting
circuit breaker on sheet III with
rear insulated plate
- ⑧ Drilling template for mounting
circuit breaker on sheet IV with
rear insulated plate



25...150mm² terminals FCCuAl

Captions

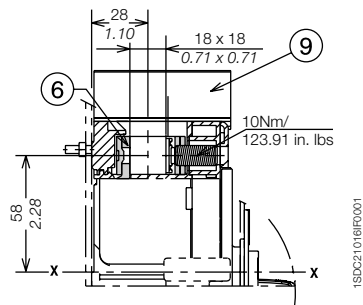
- ① 25...150mm² terminals FCCuAl
- ② 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



Terminals FCCu

Captions

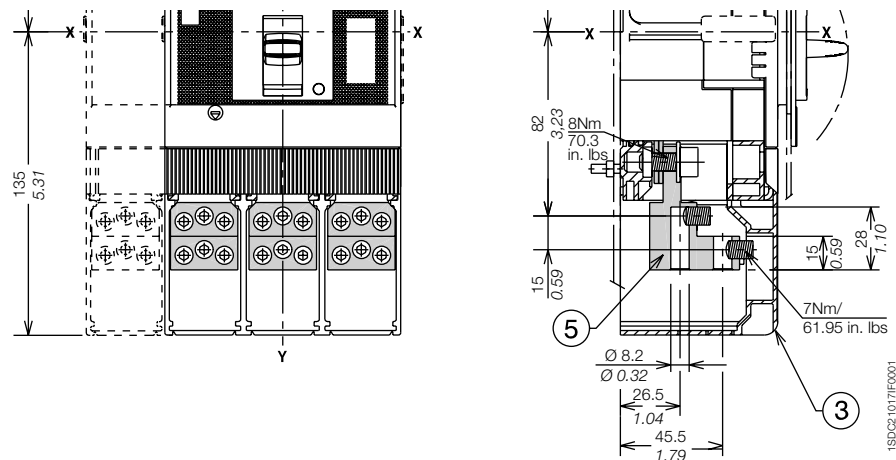
- ⑥ Front terminals FCCu
- ⑨ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



Terminals MC

Captions

- ③ Terminal covers with degree of protection IP40 (optional) provided
- ⑤ Front terminal for multi-cable connection



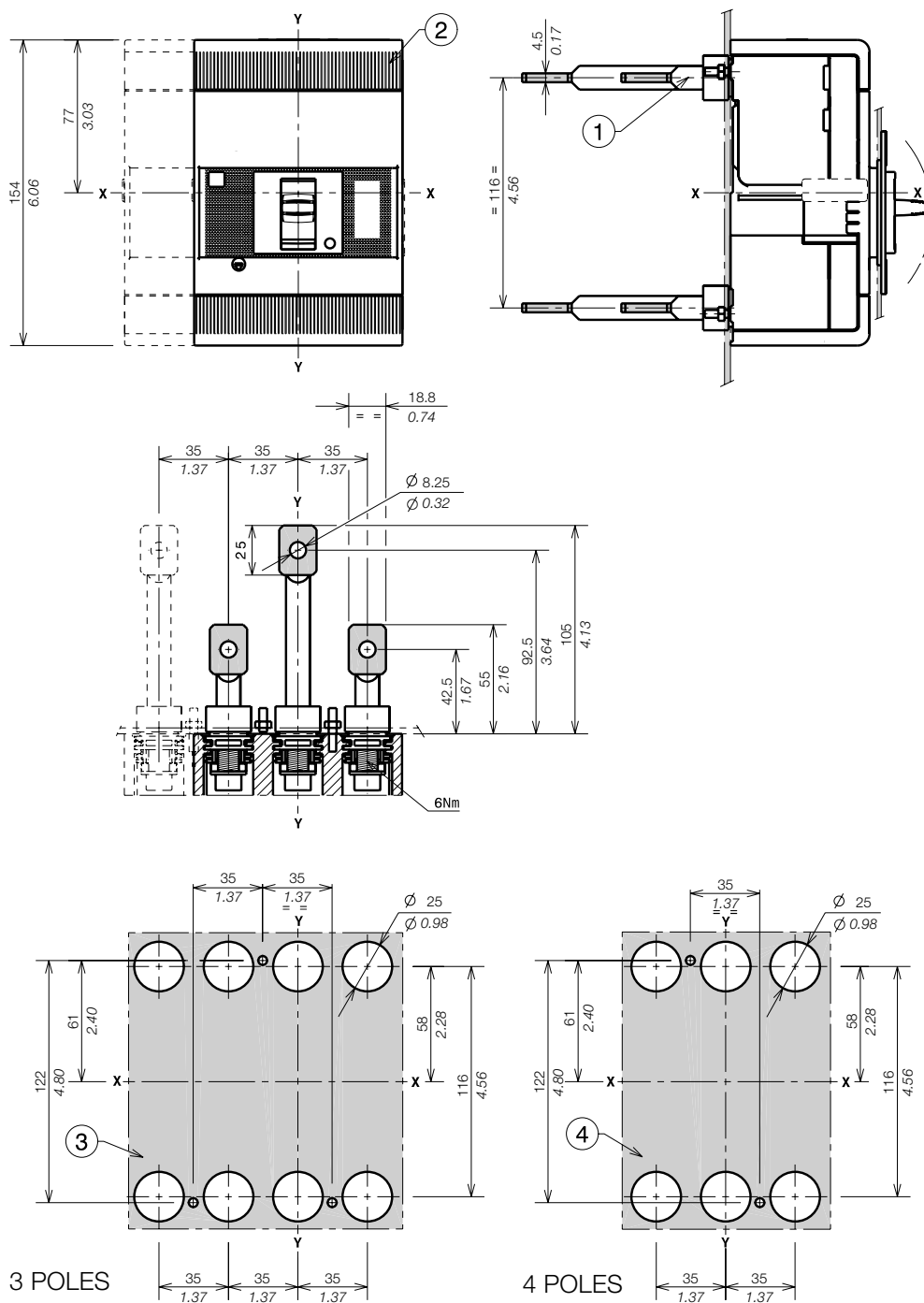
Overall dimensions

Tmax XT3 - Terminals for fixed circuit breaker

Terminals R

Captions

- ① Adjustable rear terminals
- ② Bottom terminal covers with degree of protection IP30 (optional) provided
- ③ Drilling template for mounting circuit breaker IV on sheet
- ④ Drilling template for mounting circuit breaker III on sheet



1SDC21053D0001

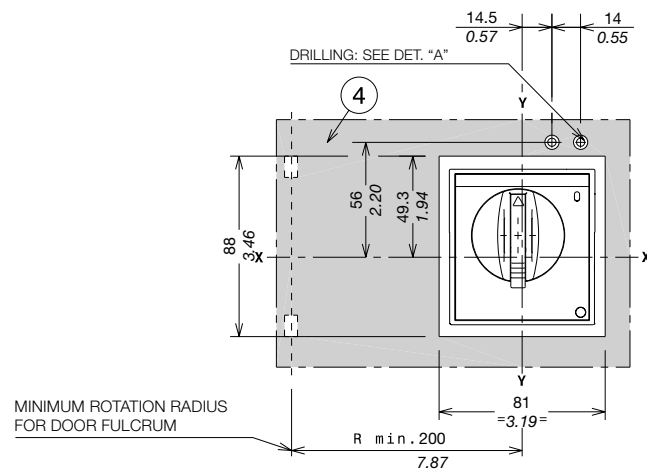
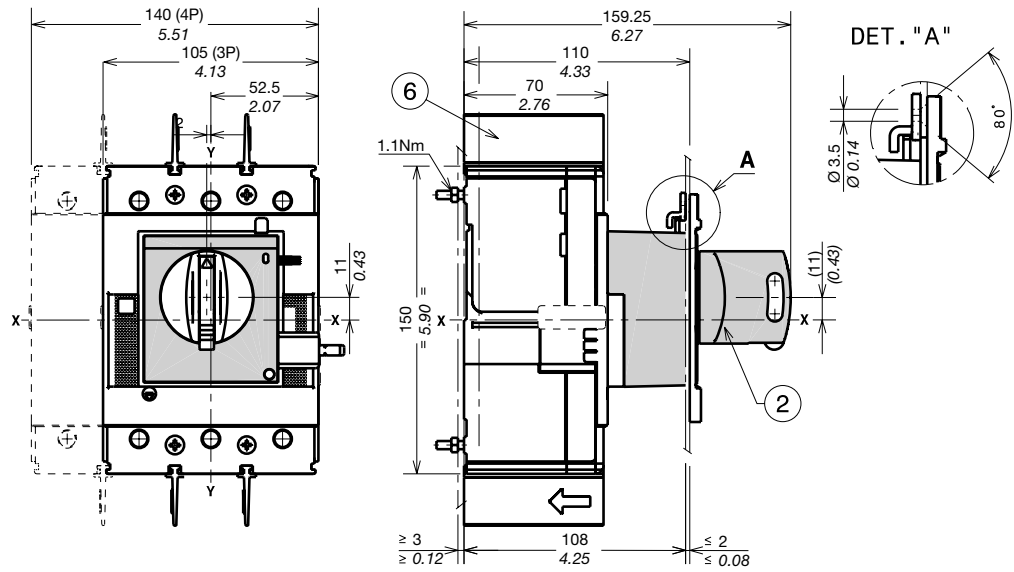
Overall dimensions

Tmax XT3 - Accessories for fixed circuit breaker

Rotary handle operating mechanism on circuit breaker (RHD)

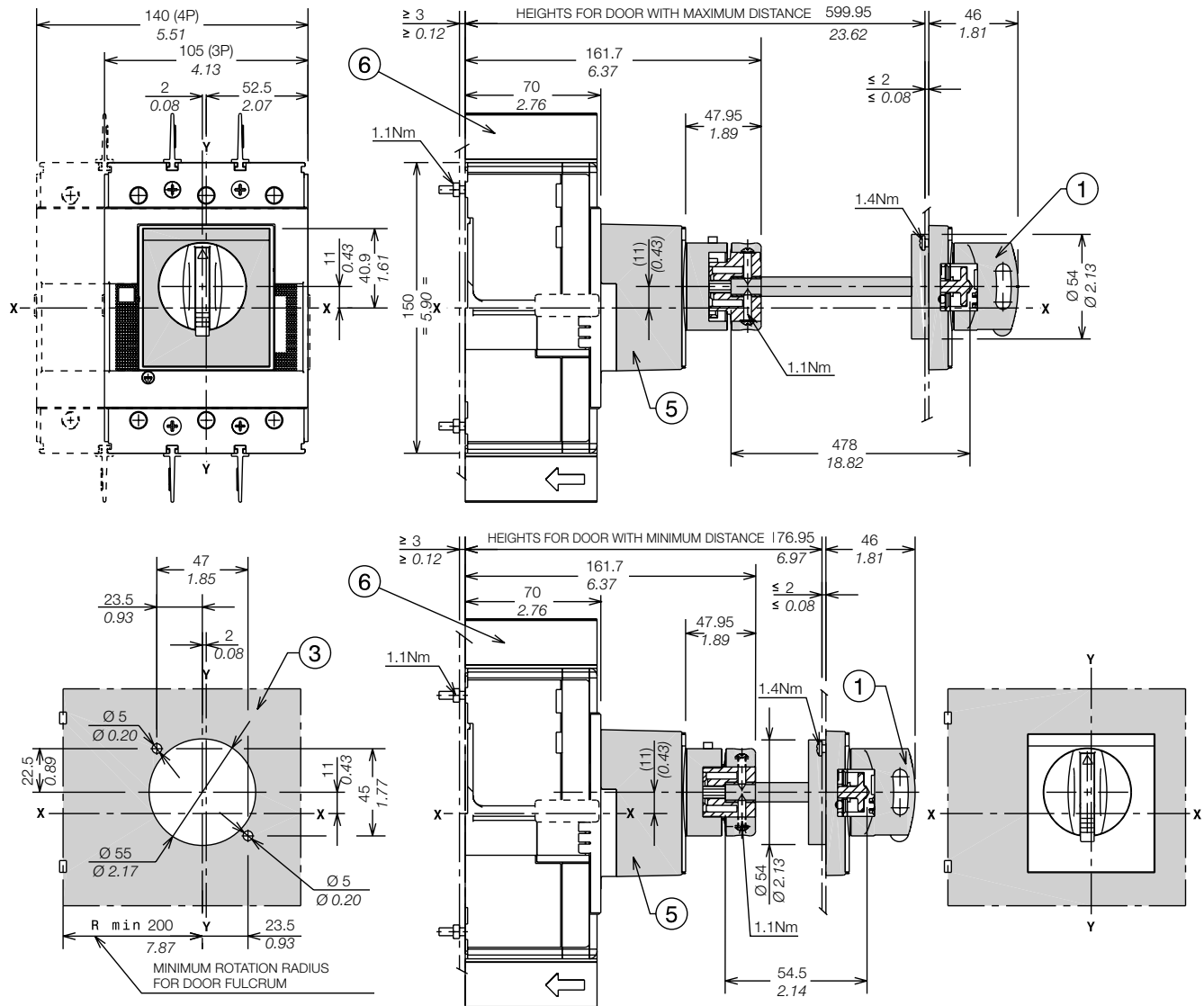
Captions

- ② Rotary handle operating mechanism on circuit breaker RHD
- ④ Drilling template of door with direct rotary handle
- ⑥ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



Tmax XT3 - Accessories for fixed circuit breaker

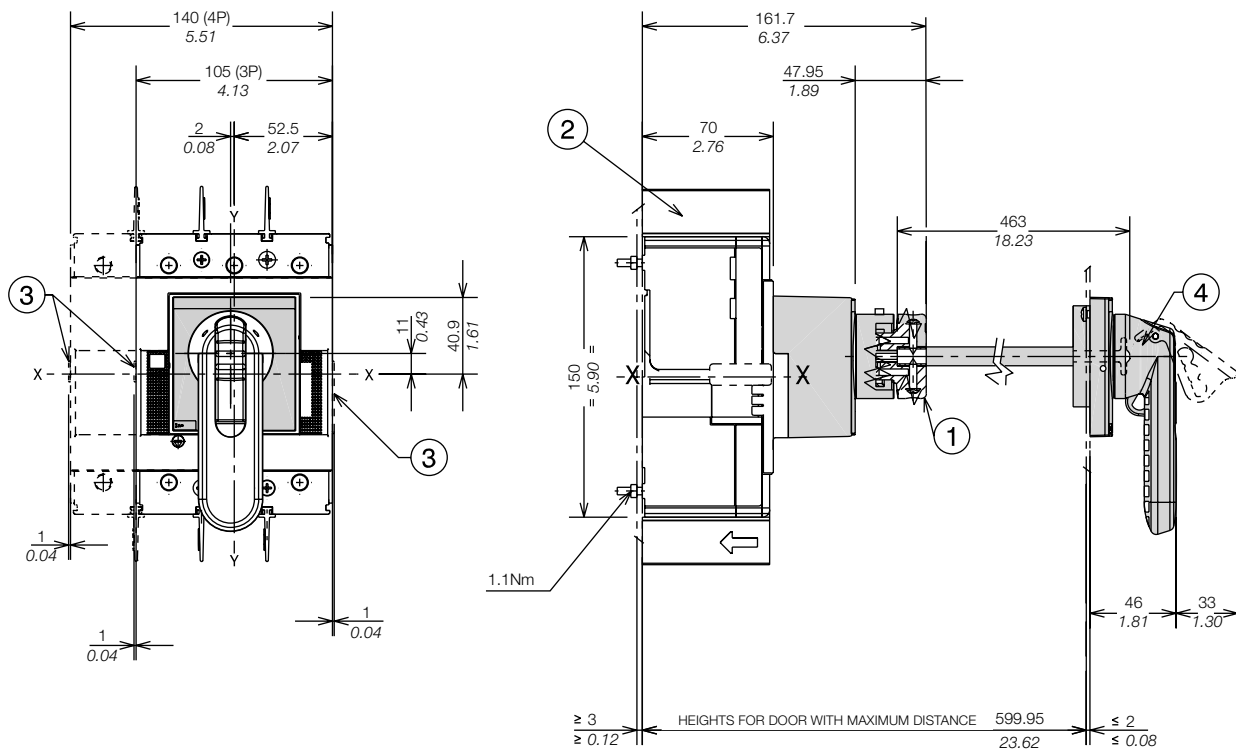
Rotary handle operating mechanism on the compartment door (RHE)



Captions

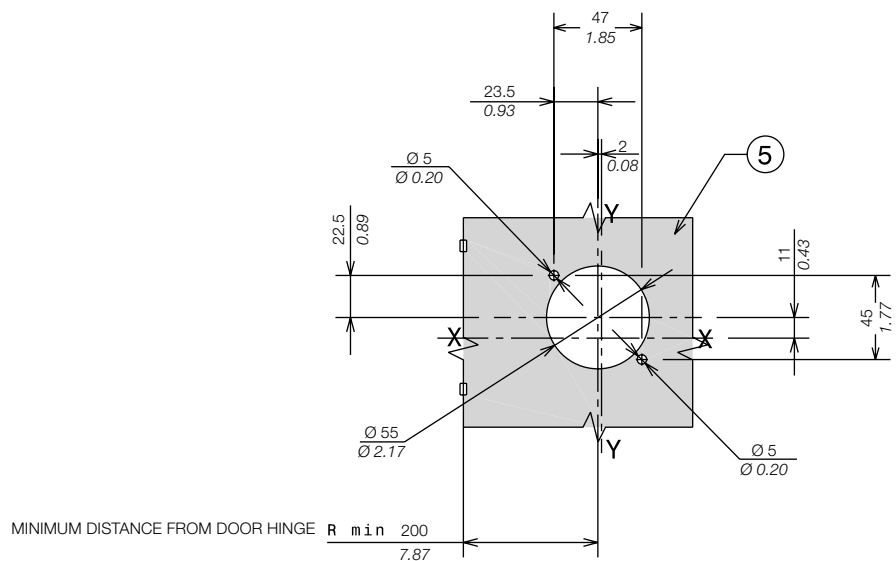
- ① Rotary handle operating mechanism on the compartment door (RHE)
- ③ Drilling template of door with extended rotary handle (RHE)
- ⑤ Transmission unit
- ⑥ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker

Large rotary handle operating mechanism on the compartment door (RHE-LH)



Captions

- ① Transmission unit
- ② 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker
- ③ Optional wiring ducts
- ④ Large transmitted rotary handle
- ⑤ Drilling template of door with large transmitted rotary handle



1SDC210201F001

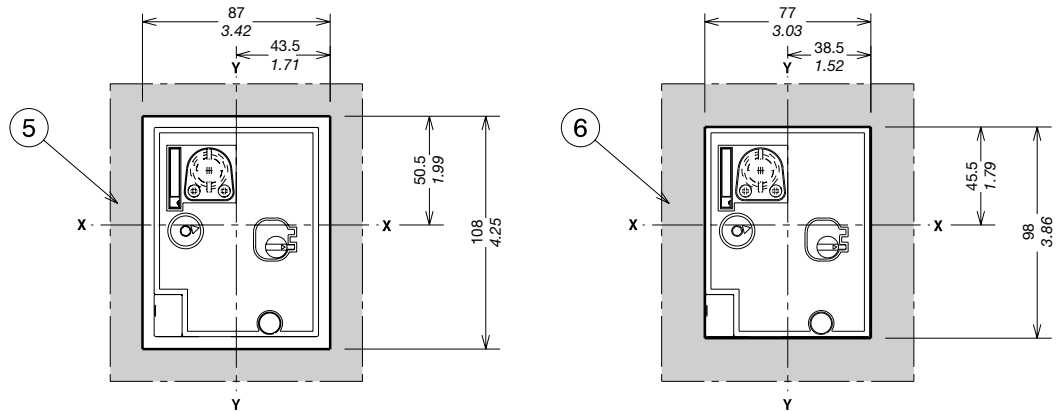
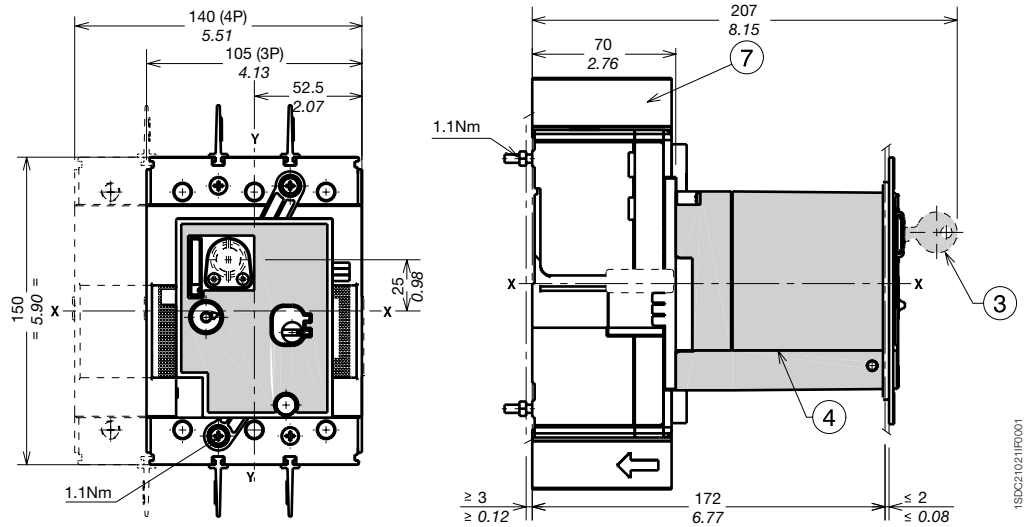
Overall dimensions

Tmax XT3 - Installation for plug-in circuit breaker

Direct motor operator (MOD)

Captions

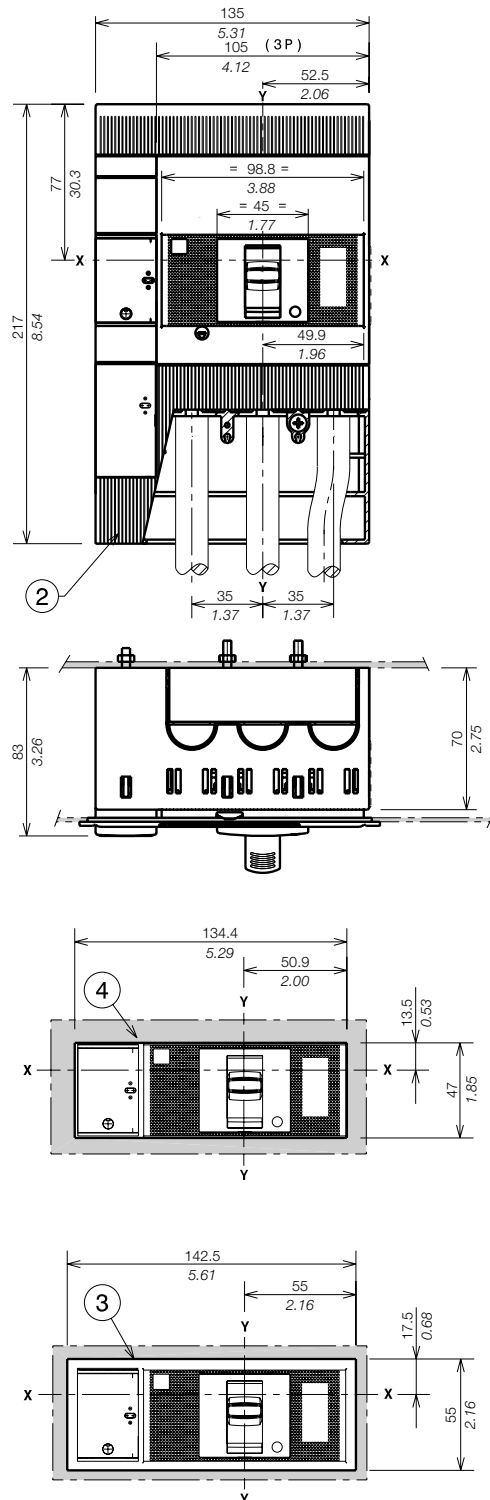
- ③ Key lock (not provided)
- ④ Direct motor operator MOD
- ⑤ Drilling template of door with MOD with flange
- ⑥ Drilling template of door with MOD without flange
- ⑦ 25mm insulating barriers



RC Inst and RC Sel residual current release for 3-pole circuit breaker

Captions

- ① Front terminals for cable connection
- ② Terminal covers with degree of protection IP40
- ③ Drilling template of door with direct rotary handle with flange
- ④ Drilling template of door with direct rotary handle without flange
- ⑤ Drilling template for mounting circuit breaker on sheet



		A
With standard flange	III	74
Without flange	III	71

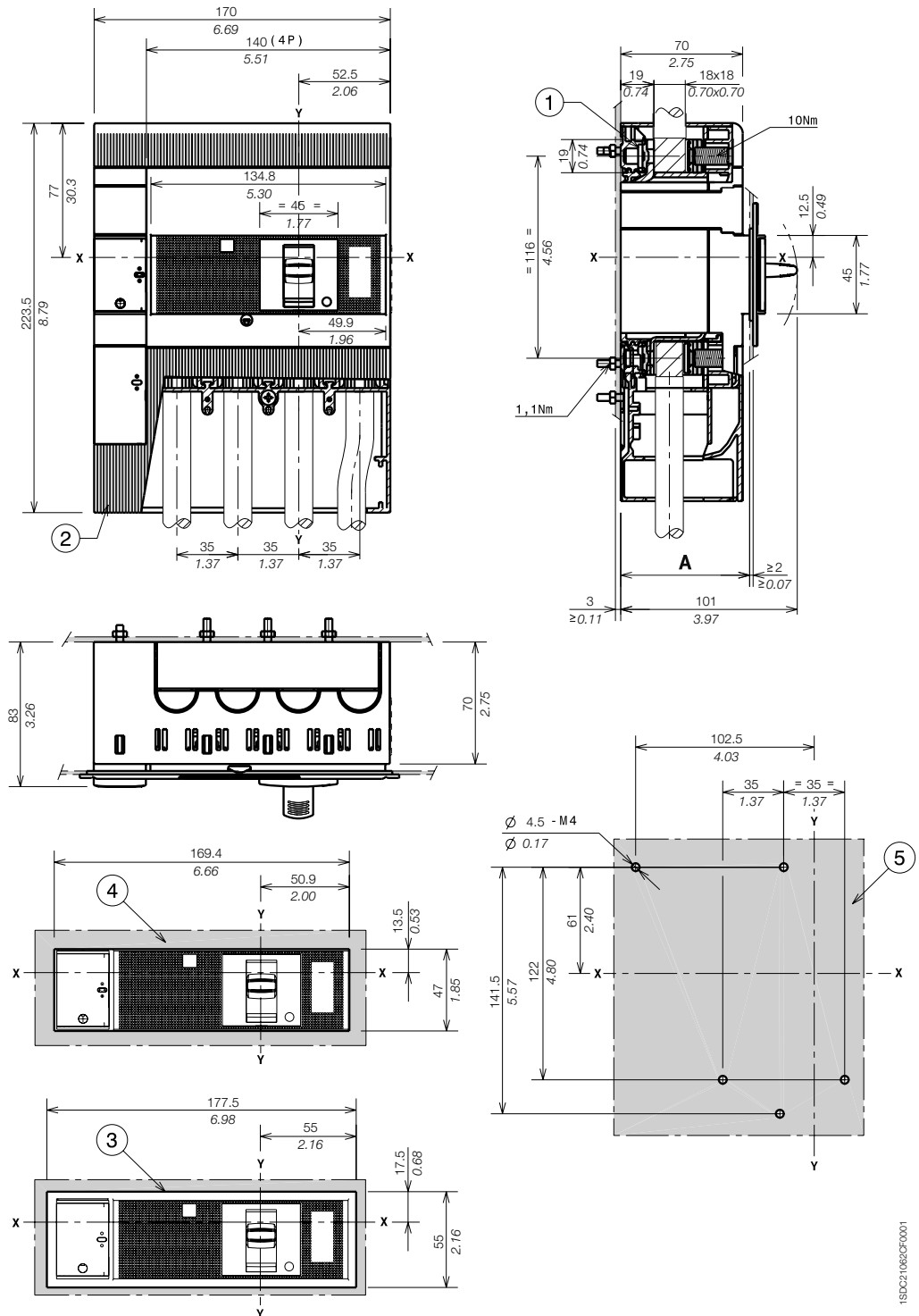
Overall dimensions

Tmax XT3 - Installation for plug-in circuit breaker

RC Inst and RC Sel residual current release for 4-pole circuit breaker

Captions

- ① Front terminals for cable connection
- ② Terminal covers with degree of protection IP40
- ③ Drilling template of door with direct rotary handle with flange
- ④ Drilling template of door with direct rotary handle without flange
- ⑤ Drilling template for mounting circuit breaker on sheet

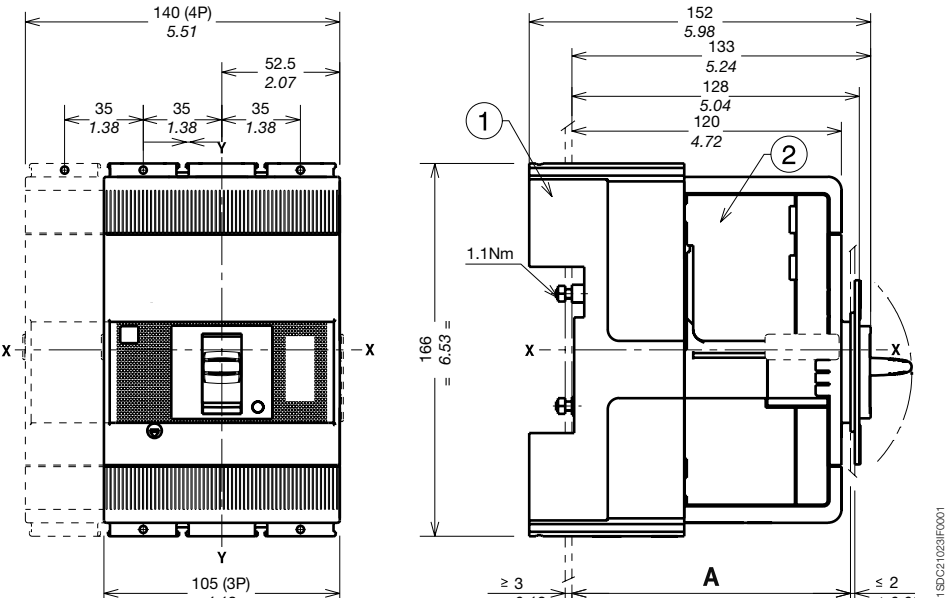


		A
With standard flange	IV	74
Without flange	IV	71

Mounting on the backplate

Captions

- ① Fixed part
- ② Moving part



Mounting at 50mm		A
With standard flange	III - IV	124
Without flange	III - IV	121
	III - IV	129

Mounting at 70mm for extended front terminals		A
With standard flange	III - IV	144
Without flange	III - IV	141
	III - IV	149

5

Technical drawings of the 1024F001 connector, showing top, side, and cross-sectional views for 3 and 4 pole configurations.

Top View (Left): 3 POLES

- Overall width: 103
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Top View (Right): 4 POLES

- Overall width: 136.5
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Side View (Left): 3 POLES

- Overall width: 87
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Side View (Right): 4 POLES

- Overall width: 122
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Cross-sectional View (Left): 3 POLES

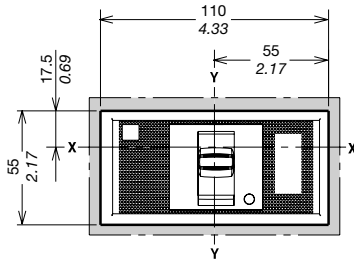
- Overall width: 103
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Cross-sectional View (Right): 4 POLES

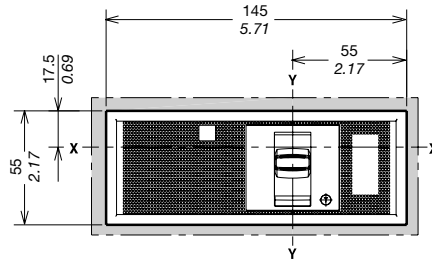
- Overall width: 136.5
- Overall height: 84
- Distance between pole centers: 51.5
- Distance from center to pole center: 25
- Distance from center to mounting hole center: 50
- Distance from center to mounting hole center (horizontal): 43.5
- Distance from center to mounting hole center (vertical): 1.97
- Mounting hole diameter: $\varnothing 4.5 - M4$
- Mounting hole tolerance: $\varnothing 0.18$

Drilling templates for compartment door

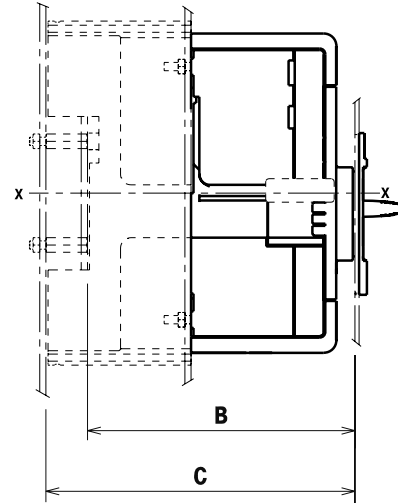
With standard flange



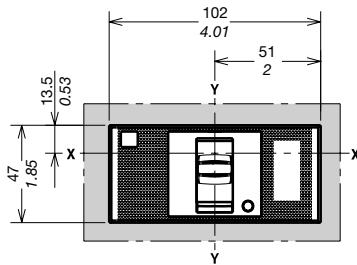
B=124 C=144
3 POLES



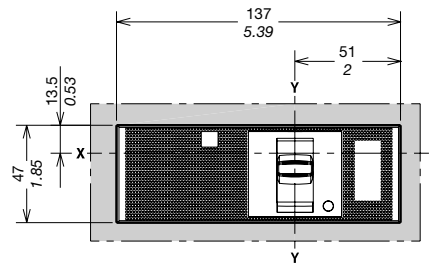
B=124 C=144
4 POLES



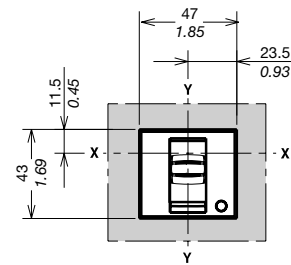
Without flange



B=121 C=141
3 POLES

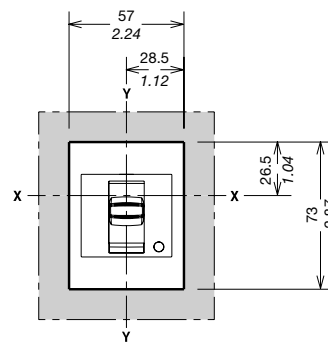


B=121 C=141
4 POLES

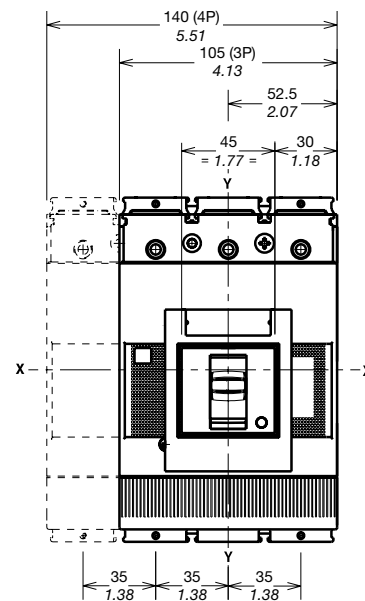


B=129 C=149
3-4 POLES

With optional flange



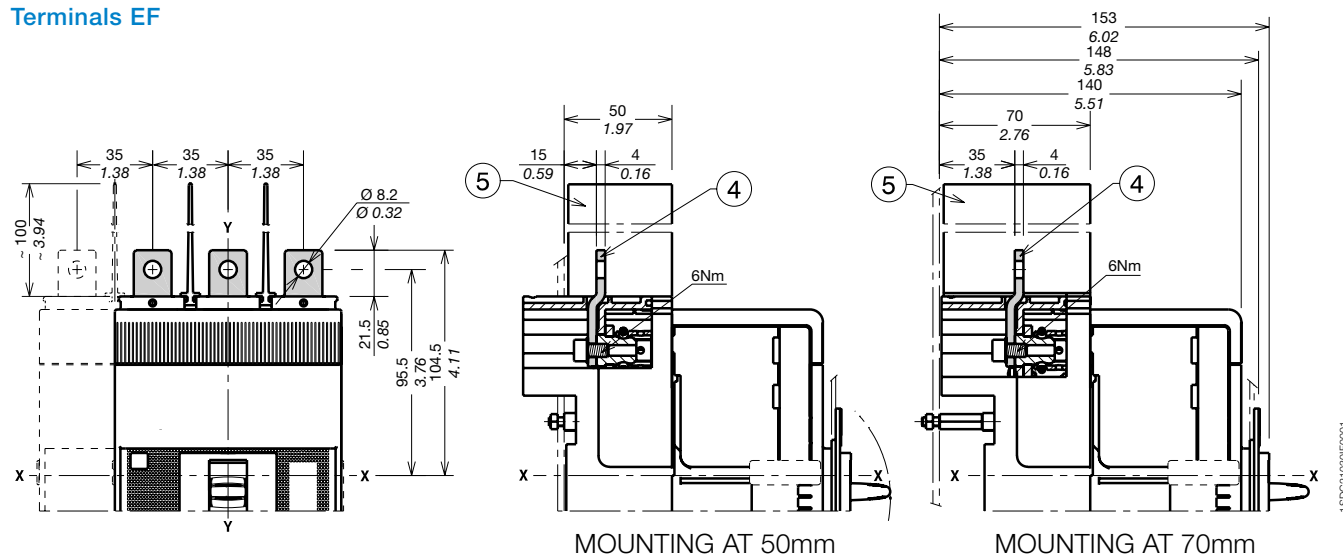
B=129 C=149
3-4 POLES



Overall dimensions

Tmax XT3 - Terminals for plug-in circuit breaker

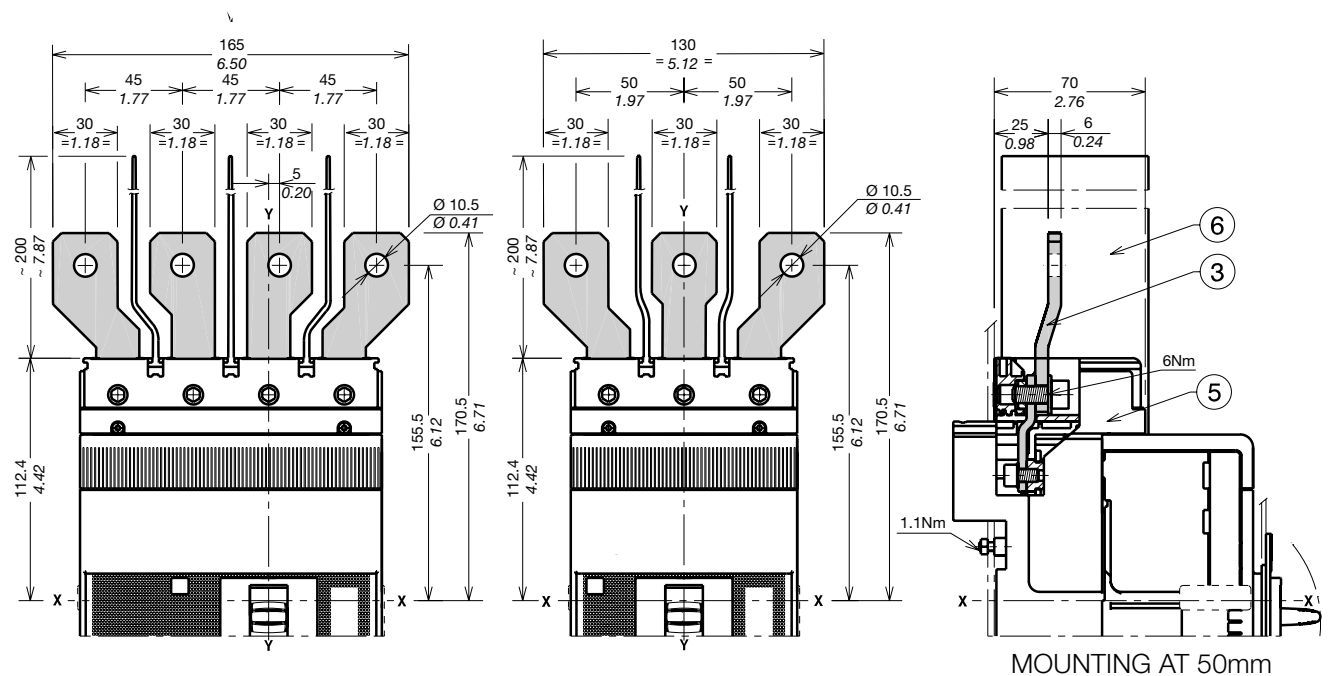
Terminals EF



Captions

- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory) provided

Terminals ES

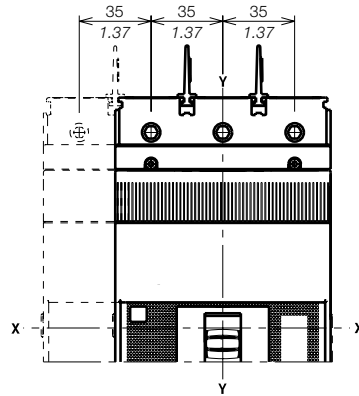


Captions

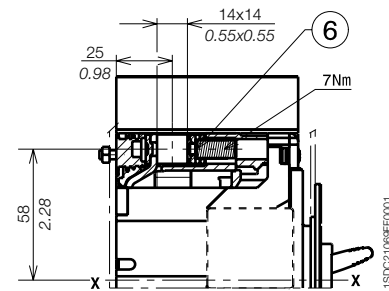
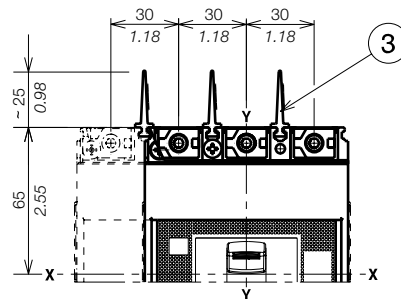
- ③ Front extended spread terminals for busbar connection
- ⑤ Adapter for fixed part (compulsory) not provided
- ⑥ 200mm insulating barriers between phases (compulsory) provided

5

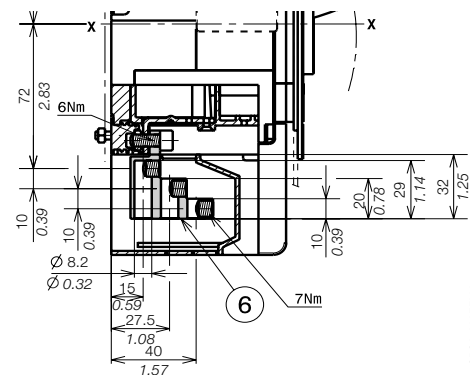
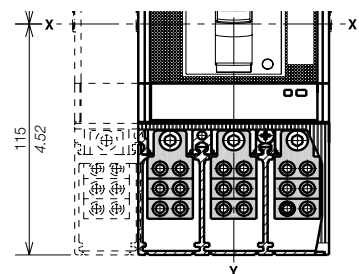
- ① 1x90...185mm² front terminal FCCuAl
- ⑤ Adapter for fixed part (compulsory) not provided
- ⑥ 25mm insulating barriers between phases (compulsory) provided



- ③ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker
- ⑥ Terminals FCCu



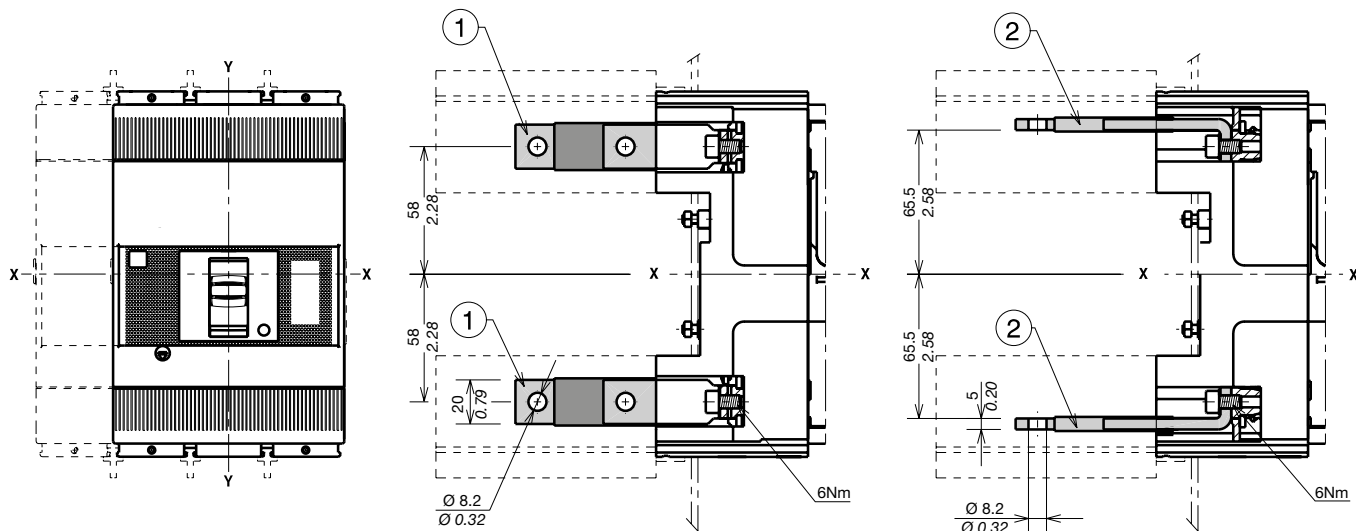
⑥ Multi-cable terminals



Overall dimensions

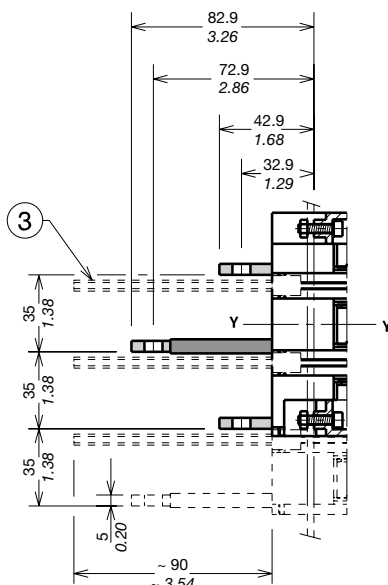
Tmax XT3 - Terminals for plug-in circuit breaker

Terminals HR/VR

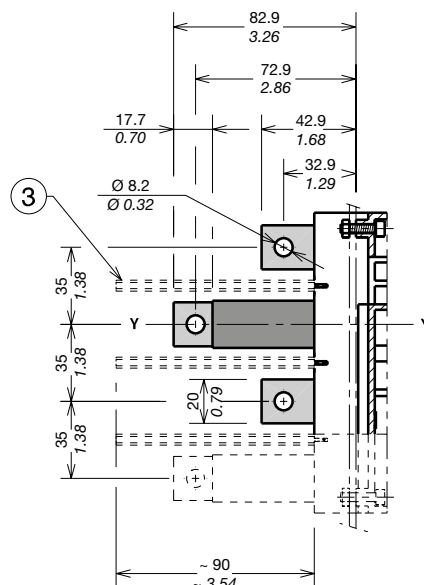


Captions

- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided



MOUNTING AT 50mm



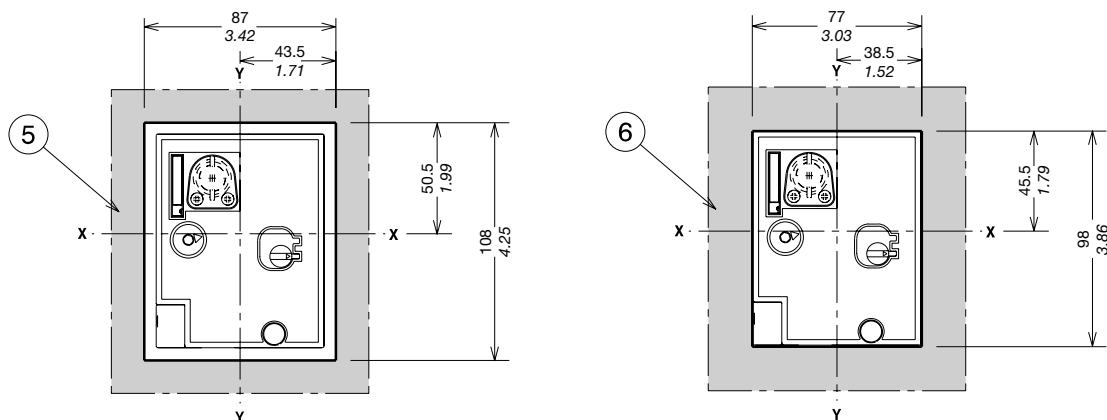
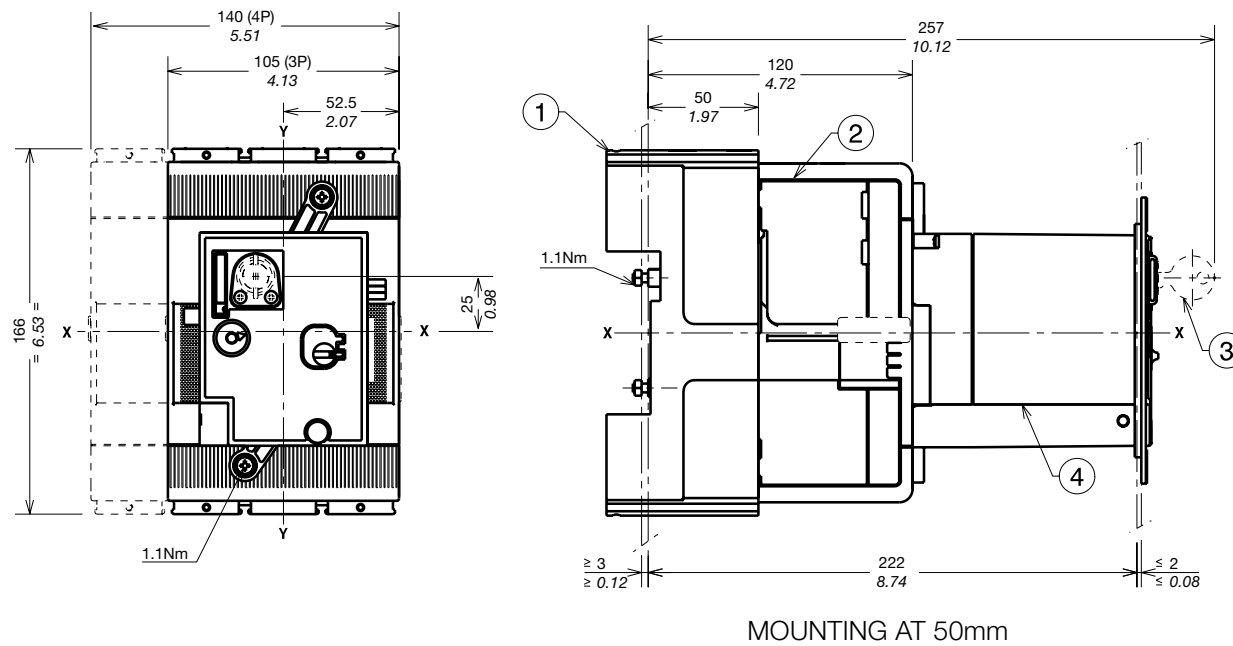
MOUNTING AT 50mm

1SDC210421F0001

Overall dimensions

Tmax XT3 - Accessories for plug-in circuit breaker

Direct motor operator (MOD)



Captions

- ① Fixed part
- ② Moving part
- ③ Key lock (not supplied)
- ④ Direct motor operator MOD
- ⑤ Drilling template of door with MOD with flange
- ⑥ Drilling template of door with MOD without flange

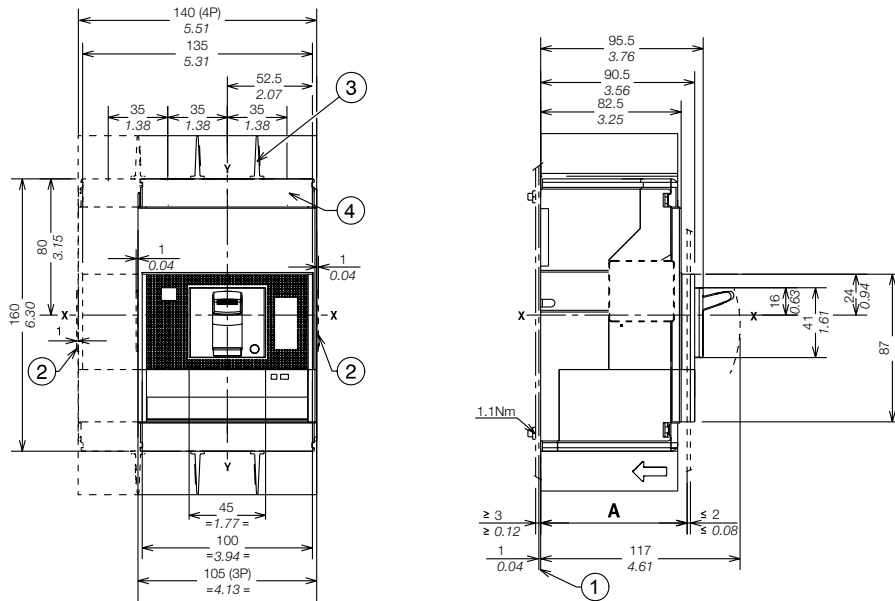
Overall dimensions

Tmax XT4 - Installation for fixed circuit breaker

Mounting on the backplate

Captions

- ① Insulating plate compulsory
- ② Overall dimension of optional wiring ducts
- ③ 25mm insulating barriers between phases (compulsory) provided
- ④ Front carter compulsory for through door of the panel $\leq 25\text{mm}/0,98''$

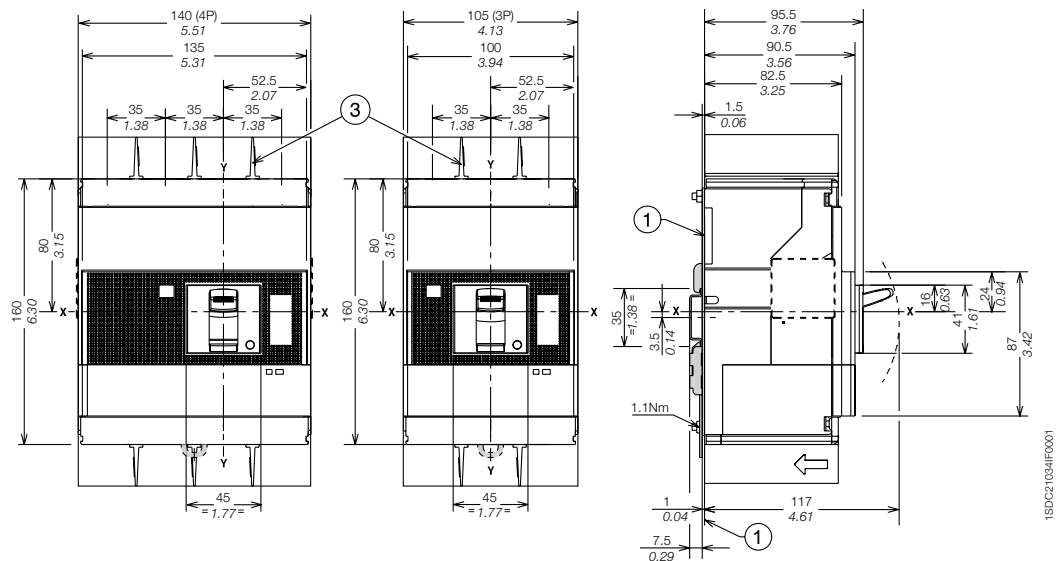


		A
With standard flange	III - IV	86
Without flange	III - IV	83.5
	III - IV	91.5

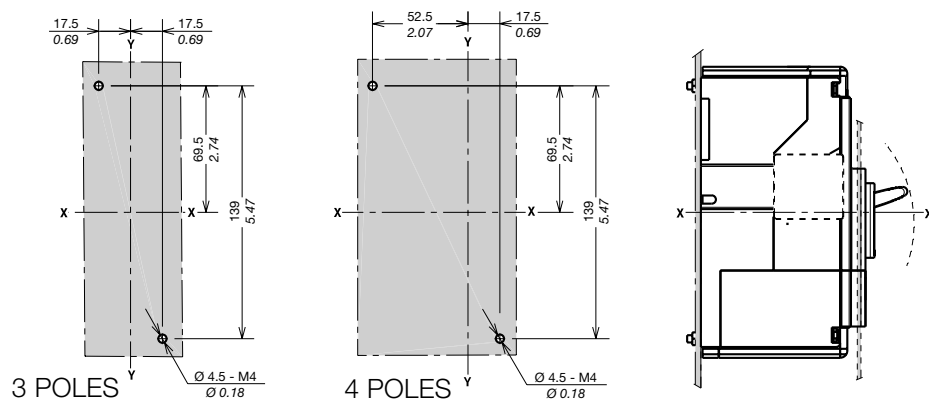
Mounting on DIN 50022 rail

Captions

- ① Mounting bracket
- ③ 25mm insulating barriers between phases (compulsory) provided



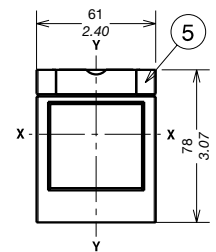
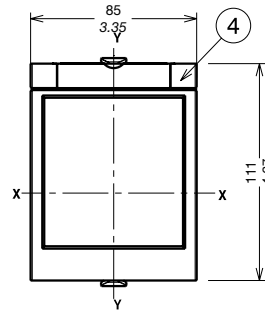
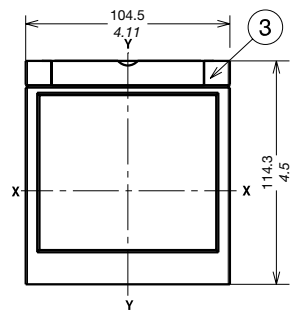
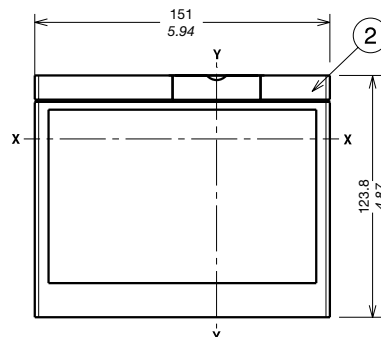
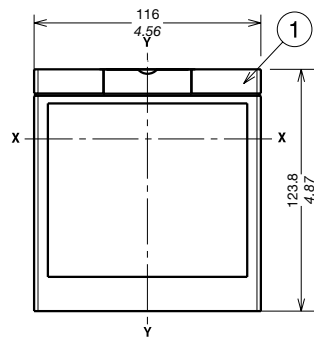
Drilling templates for the backplate



Flanges

Captions

- ① Flange for fixed circuit breaker III
- ② Flange for fixed circuit breaker IV
- ③ Flange for fixed circuit breaker III-IV with MOE and FLD
- ④ Flange for circuit breaker III-IV with direct rotary handle RHD
- ⑤ Optional flange



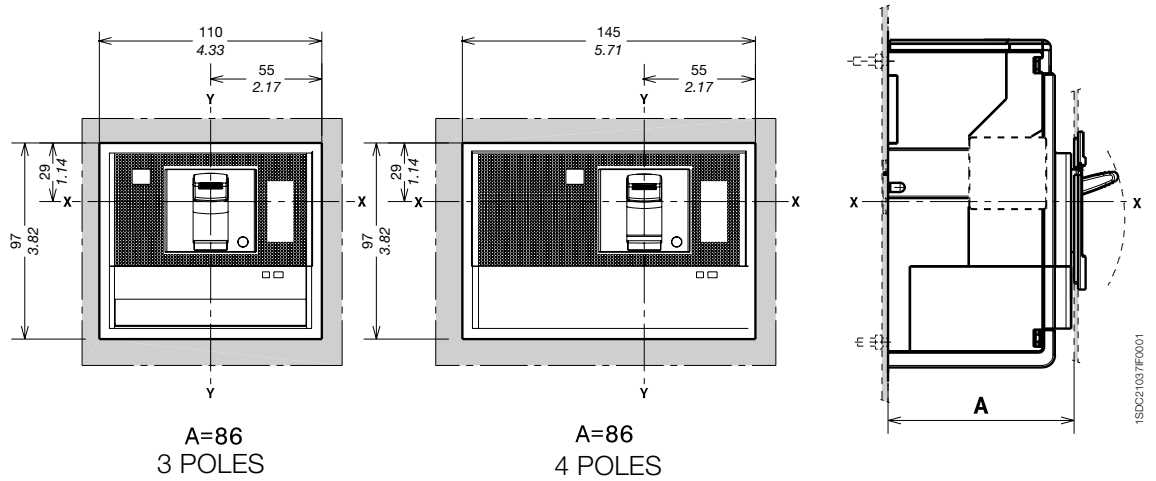
1SDC210381F0001

Overall dimensions

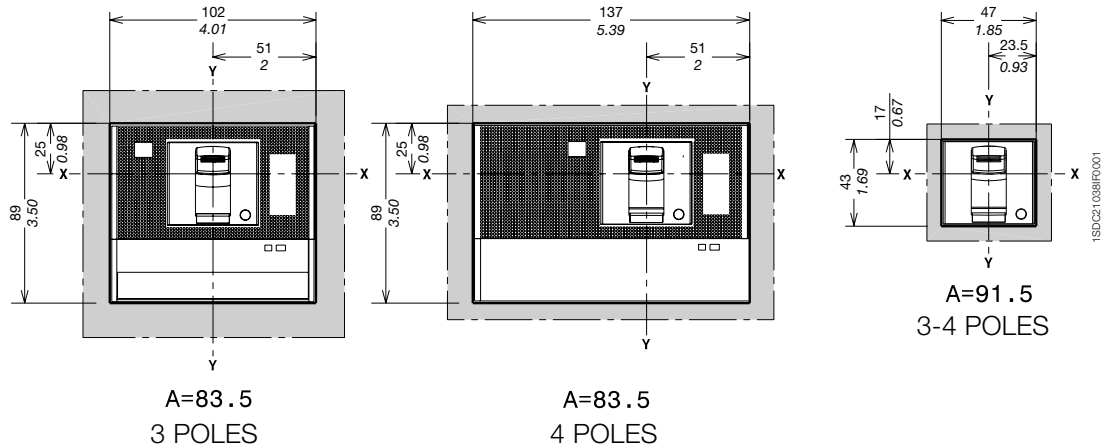
Tmax XT4 - Installation for fixed circuit breaker

Drilling templates for compartment door

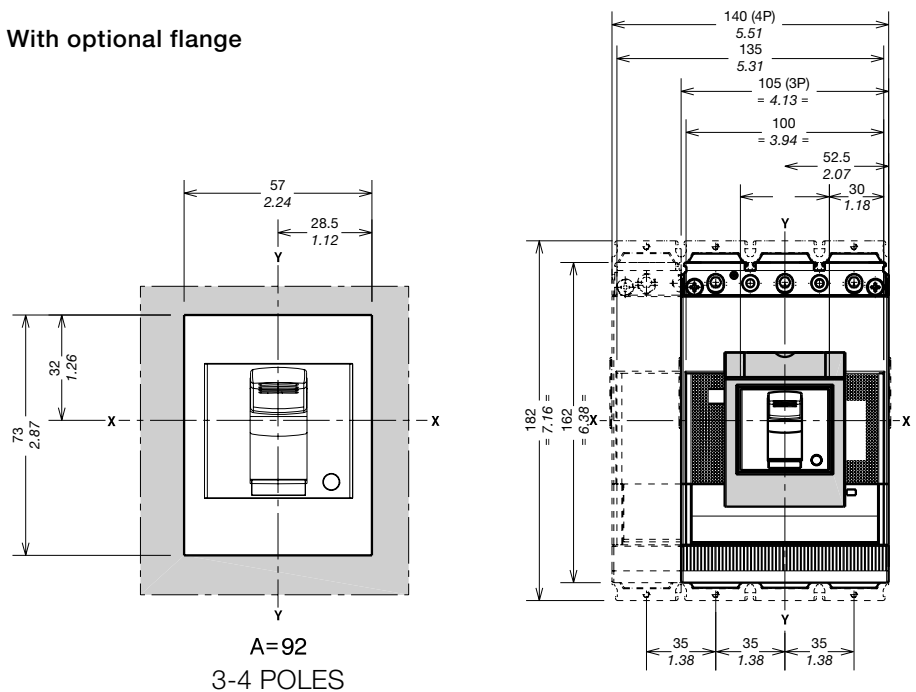
With standard flange



Without flange



With optional flange



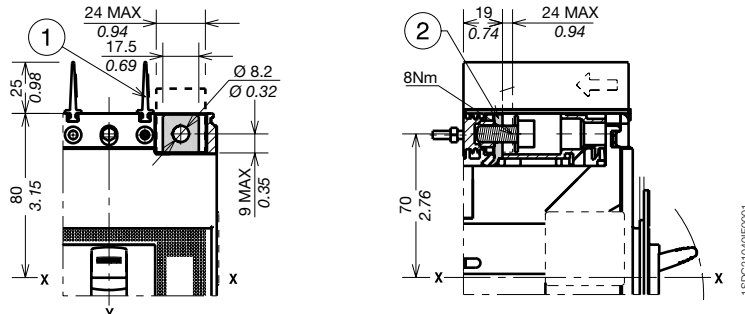
Overall dimensions

Tmax XT4 - Terminals for fixed circuit breaker

Terminals F

Captions

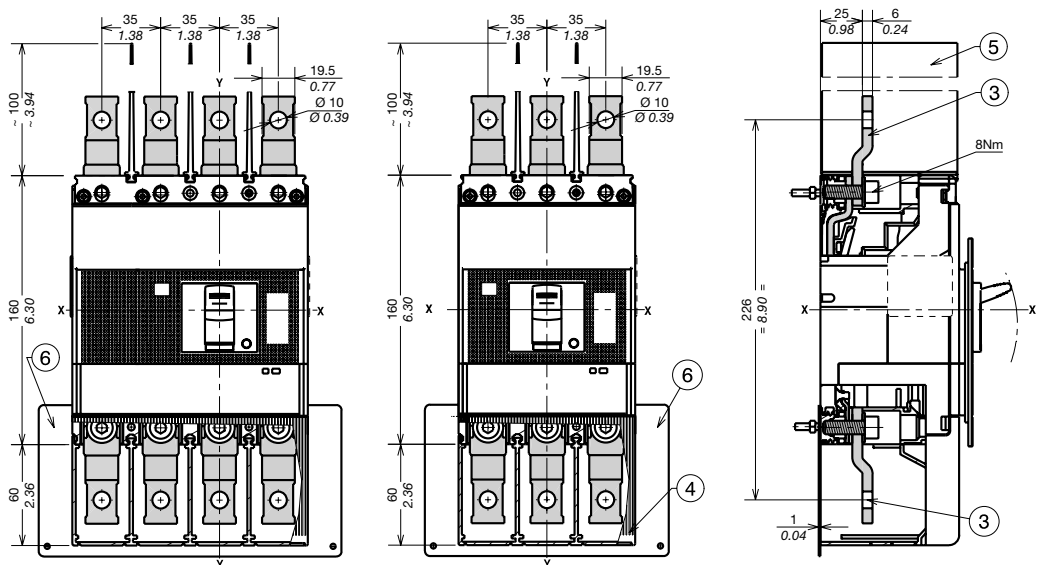
- ① 25mm insulating barriers between phases (compulsory) provided
- ② Top terminal covers with degree of protection IP30 (optional) not provided



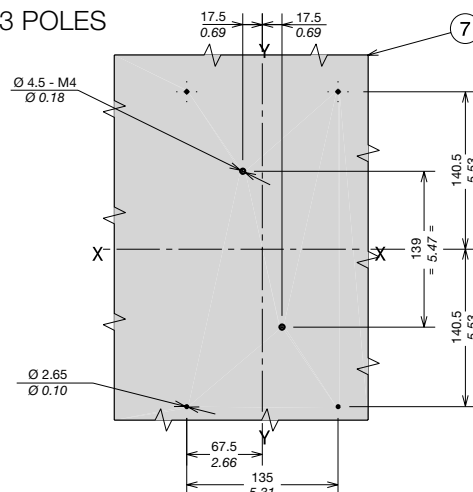
Terminals EF

Captions

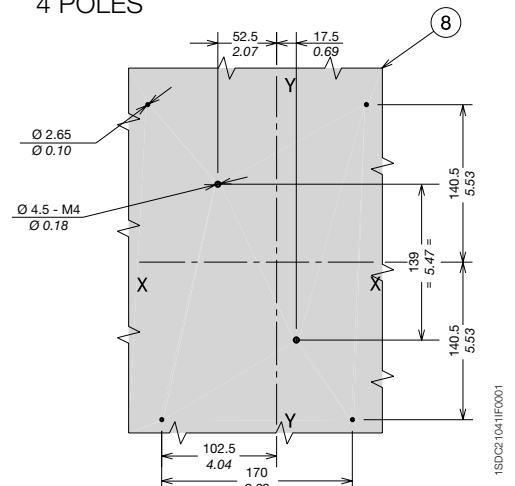
- ③ Front extended terminals
- ④ Terminal covers with degree of protection IP40 (optional) not provided
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Insulated plate provided compulsory for $U_e > 440V$
- ⑦ Drilling template for 3p circuit breaker
- ⑧ Drilling template for 4p circuit breaker



3 POLES



4 POLES



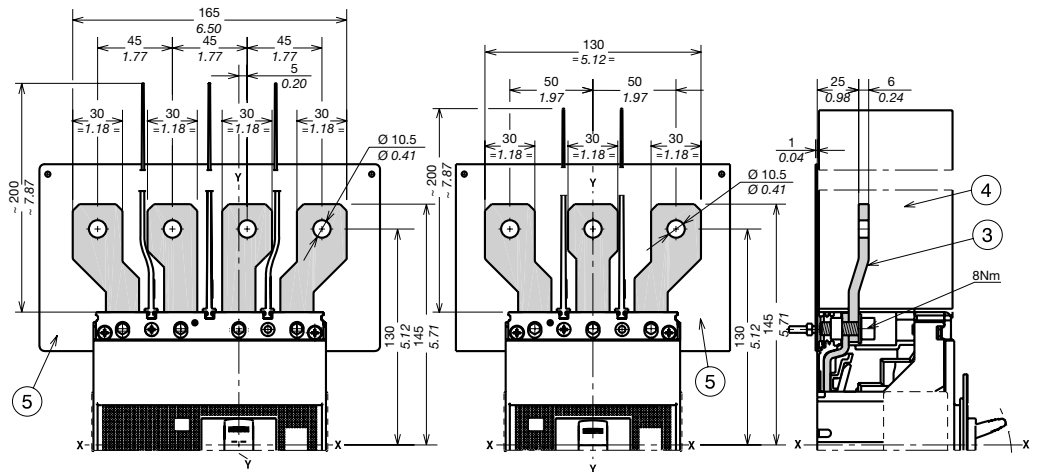
Overall dimensions

Tmax XT4 - Terminals for fixed circuit breaker

Terminals ES

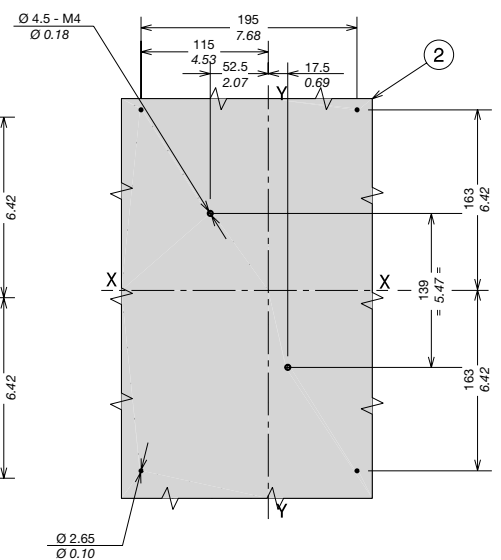
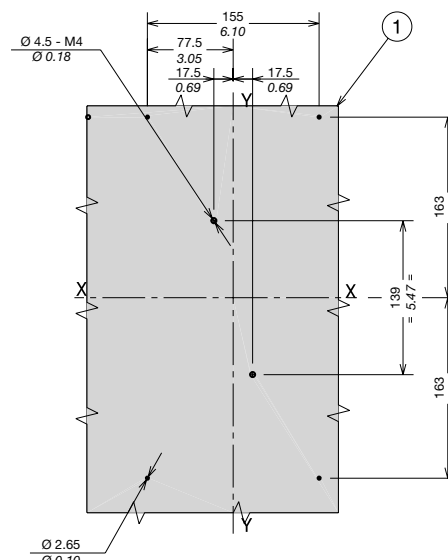
Captions

- ① Drilling template for 3p circuit breaker
- ② Drilling template for 4p circuit breaker
- ③ Front extended spread terminals
- ④ 200mm insulating barriers between phases (compulsory) provided
- ⑤ Insulated plate provided compulsory for $U_e > 440V$



3 POLES

4 POLES

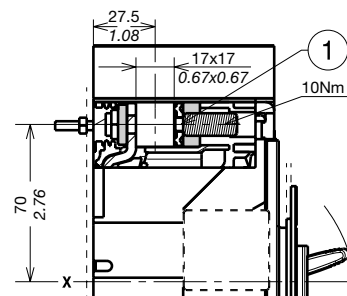
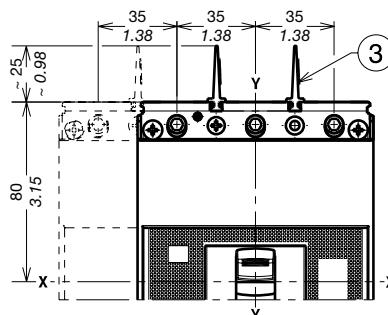


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1x2,5...50mm² terminals FCCuAl

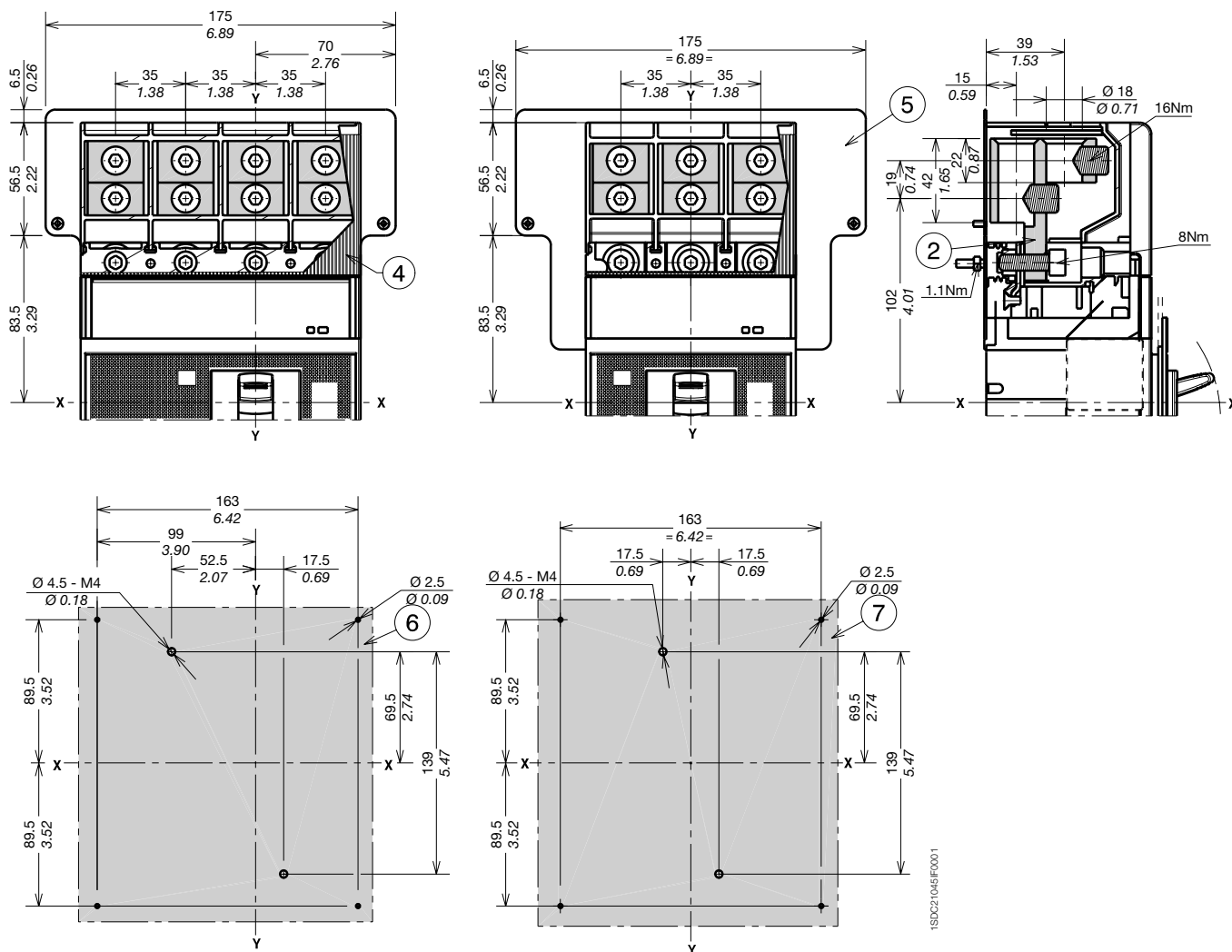
Captions

- ① 1x2,5...50mm² terminals FCCuAl
- ③ 25mm insulating barriers between phases (compulsory) provided



1SDC21044F0001

2x35...150mm² terminals FCCuAl



Captions

- ② 2x35...150mm² terminals FCCuAl
- ④ Terminal covers with degree of protection IP40 (optional) provided
- ⑤ Provided rear insulated plate (compulsory for CuAl 2x150mm² cables)
- ⑥ Drilling template for mounting circuit breaker IV with insulating plate
- ⑦ Drilling template for mounting circuit breaker III with insulating plate

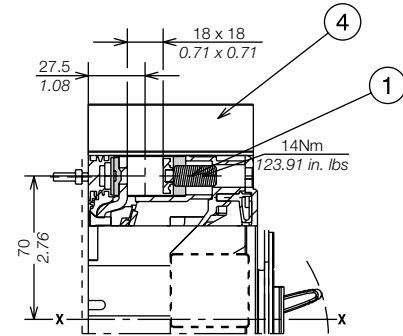
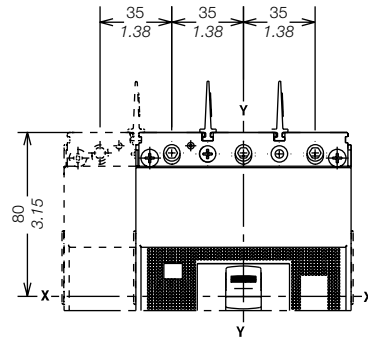
Overall dimensions

Tmax XT4 - Terminals for fixed circuit breaker

Terminals FCCu

Captions

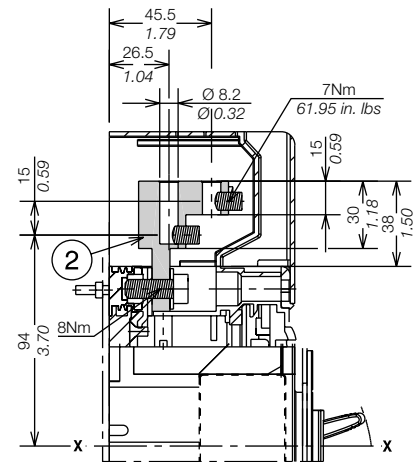
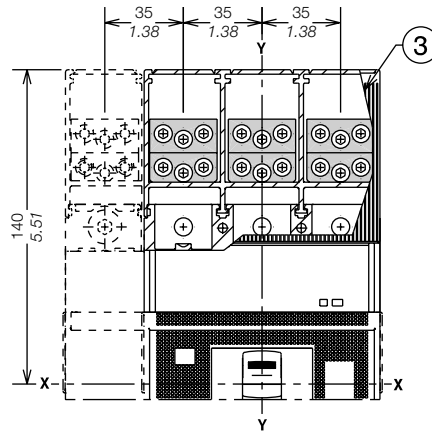
- ① Terminals FCCu
- ④ 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker



Terminals MC

Captions

- ② Multi-cable terminals
- ③ Terminal covers with degree of protection IP40 (optional) provided



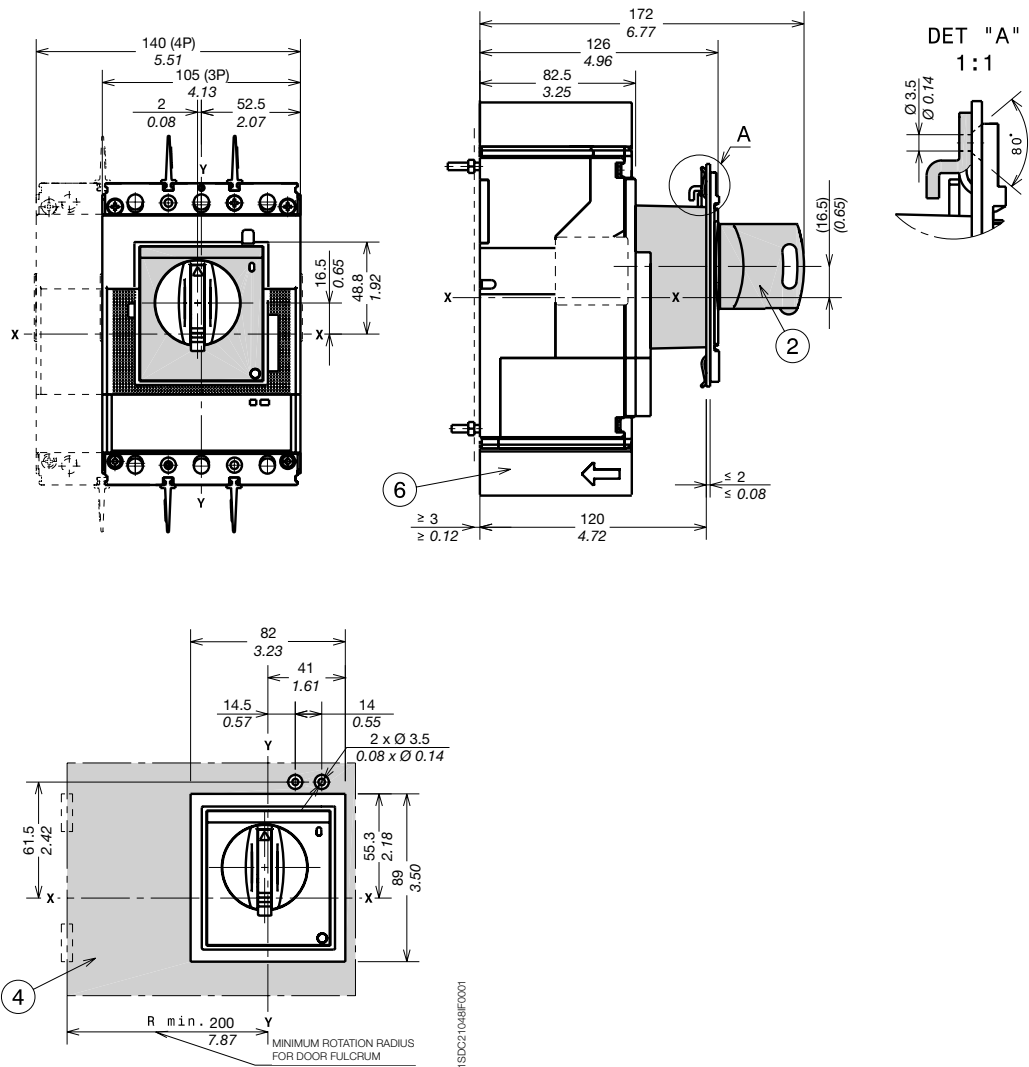
Overall dimensions

Tmax XT4 - Accessories for fixed circuit breaker

Rotary handle operating mechanism on circuit breaker (RHD)

Captions

- ② Rotary handle operating mechanism on circuit breaker
- ④ Drilling template of door with direct rotary handle
- ⑥ 25mm insulating barriers between phases

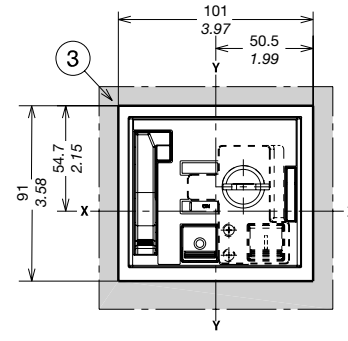
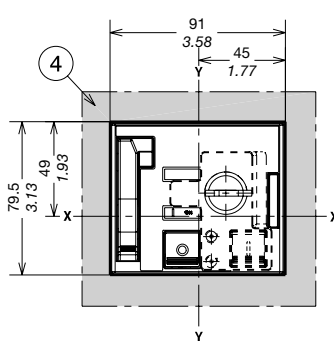
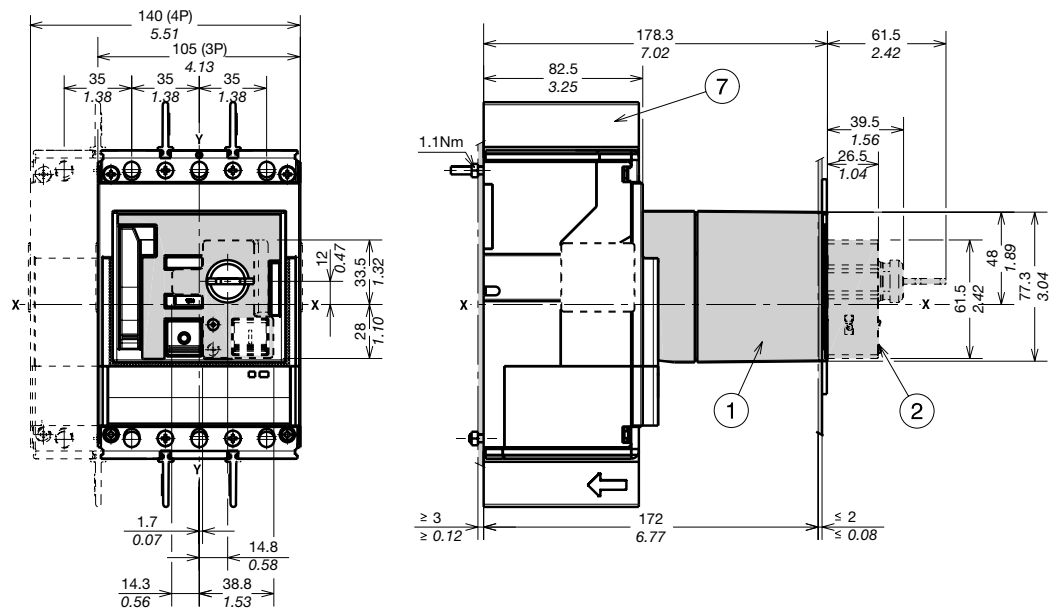


5

[illegible]

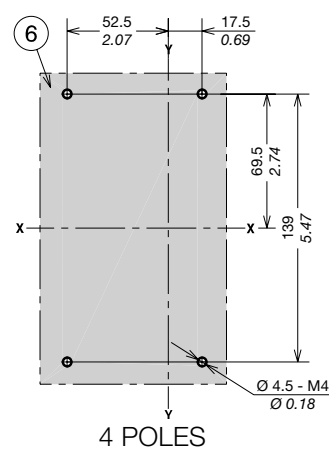
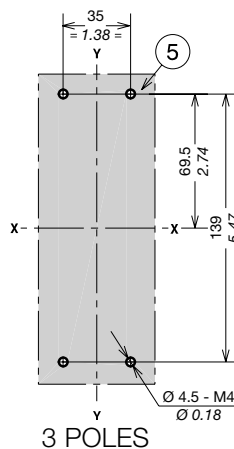
- ① Rotary handle operating mechanism of the compartment door
- ③ Drilling template for RHE
- ⑤ Transmission unit
- ⑥ 25mm insulating barriers between phases

Stored energy motor operator (MOE)



Captions

- ① Stored energy motor operator (MOE)
- ② Key lock (not provided)
- ③ Drilling template of door with direct rotary handle with flange (MOE)
- ④ Drilling template of door with direct rotary handle without flange (MOE)
- ⑤ Drilling template for mounting circuit breaker III on the backplate
- ⑥ Drilling template for mounting circuit breaker IV on the backplate
- ⑦ 25mm insulating barriers between phases

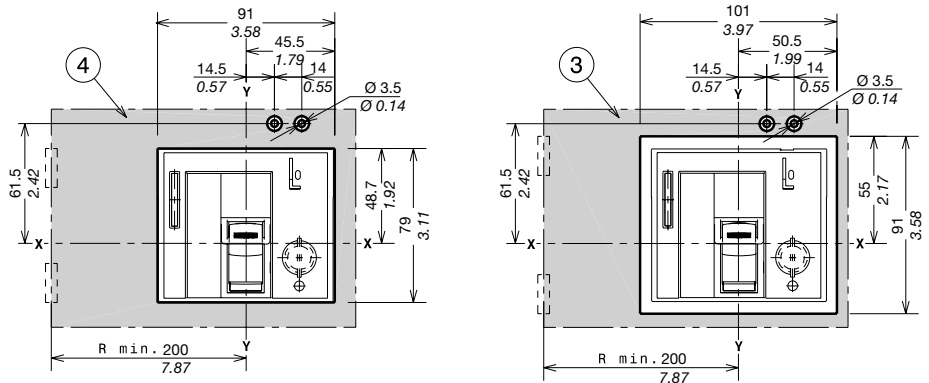
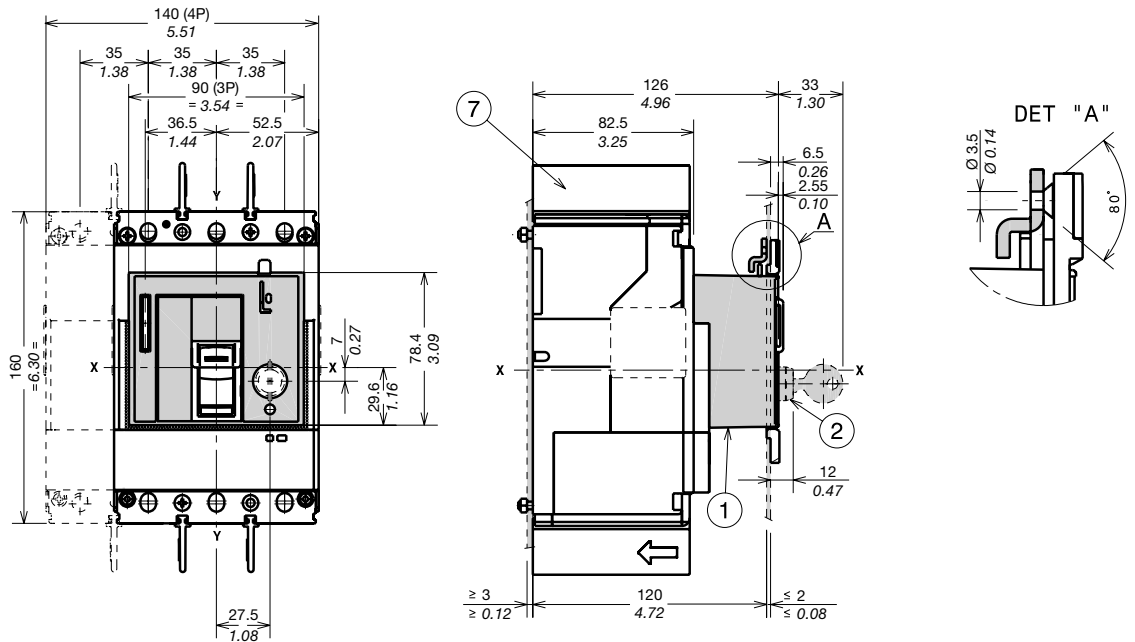


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Overall dimensions

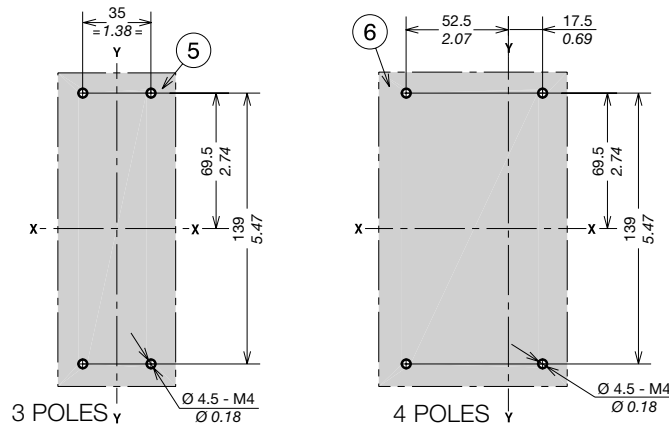
Tmax XT4 - Accessories for fixed circuit breaker

Front for lever operating mechanism (FLD)



Captions

- ① Front for lever operating mechanism (FLD)
- ② Key lock (not provided)
- ③ Drilling template of door with direct rotary handle with flange (FLD)
- ④ Drilling template of door with direct rotary handle without flange (FLD)
- ⑤ Drilling template for mounting circuit breaker III on the backplate
- ⑥ Drilling template for mounting circuit breaker IV on the backplate
- ⑦ 25mm insulating barriers between phases

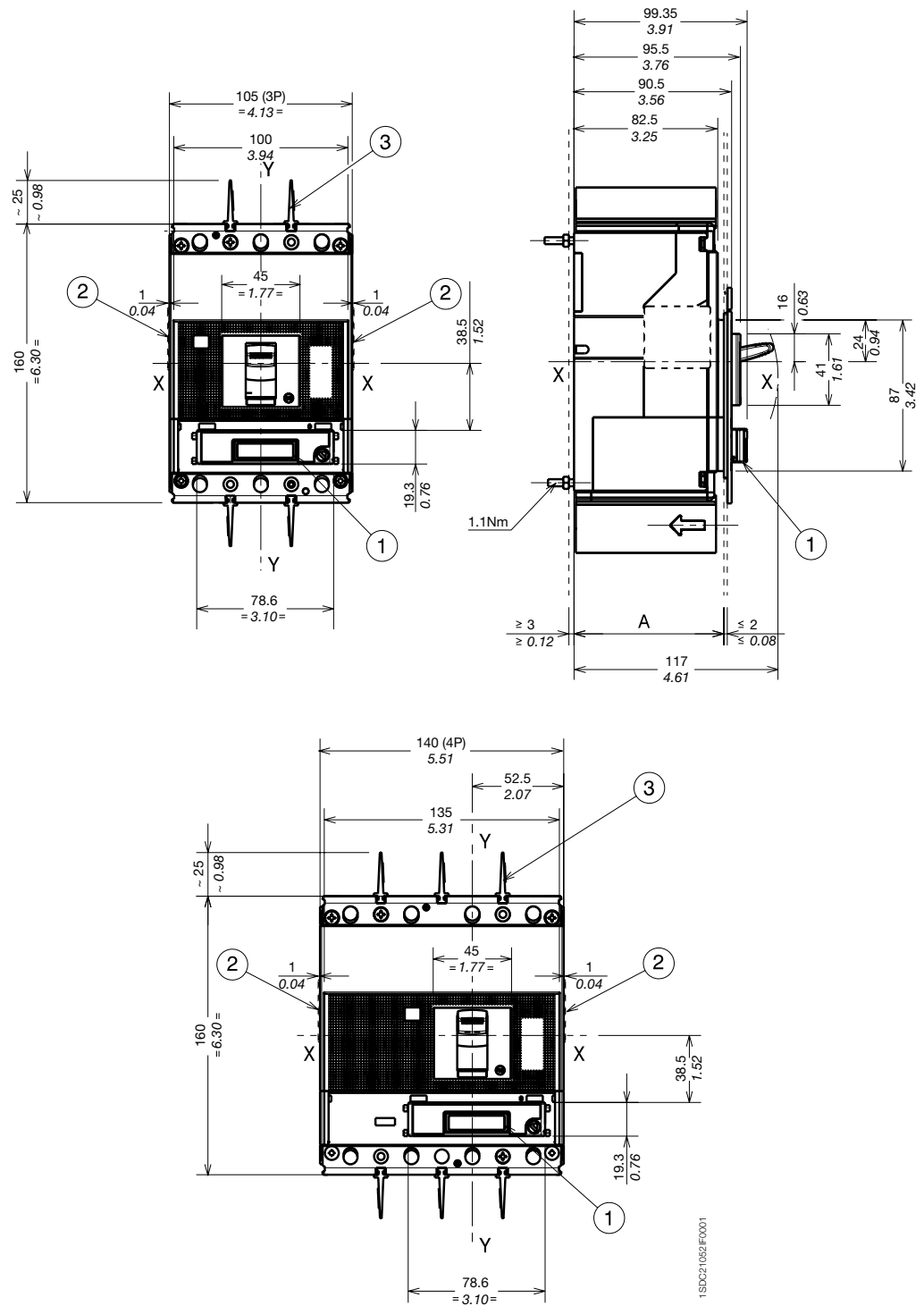


1SDC210051F0001

Ekip Display or LED Meter

Captions

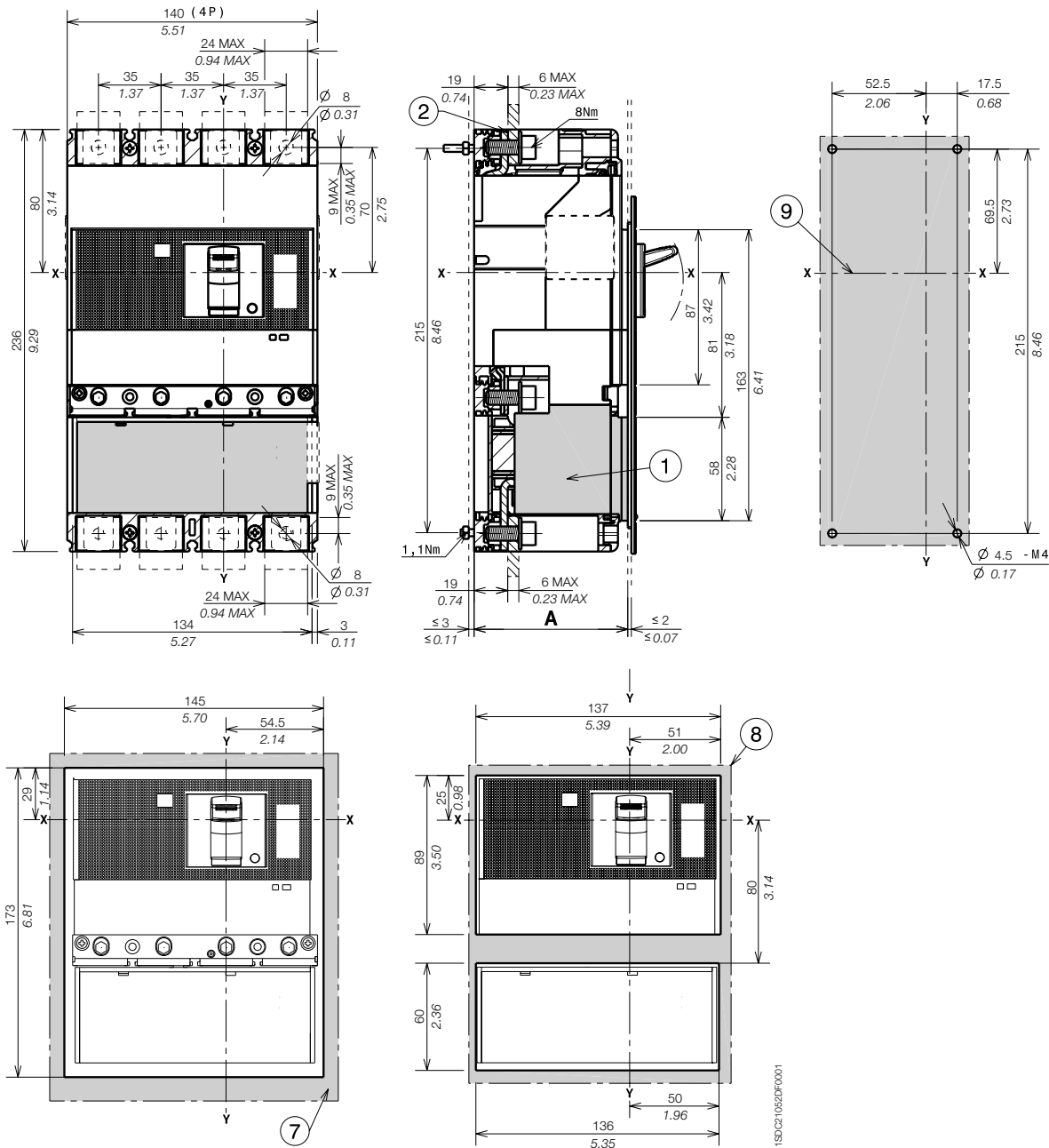
- ① Ekip Display or LED Meter
- ② Optional wiring ducts
- ③ 25mm insulating barriers between phases



Overall dimensions

Tmax XT4 - Accessories for fixed circuit breaker

Residual current RC Sel



Captions

- ① Residual current
- ② Front terminals
- ⑦ Drilling template of door with direct rotary handle and mounting with flange
- ⑧ Drilling template of door with direct rotary handle and mounting without flange
- ⑨ Drilling template for mounting circuit breaker on sheet

		A
With standard flange	IV	86
Without flange	IV	83.5

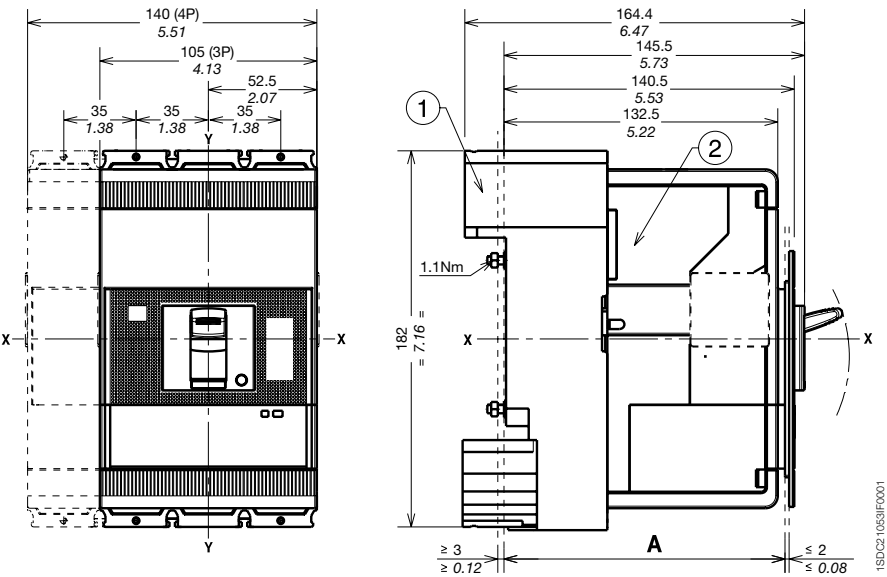
Overall dimensions

Tmax XT4 - Installation for plug-in circuit breaker

Mounting on the backplate

Captions

- ① Fixed part
- ② Moving part



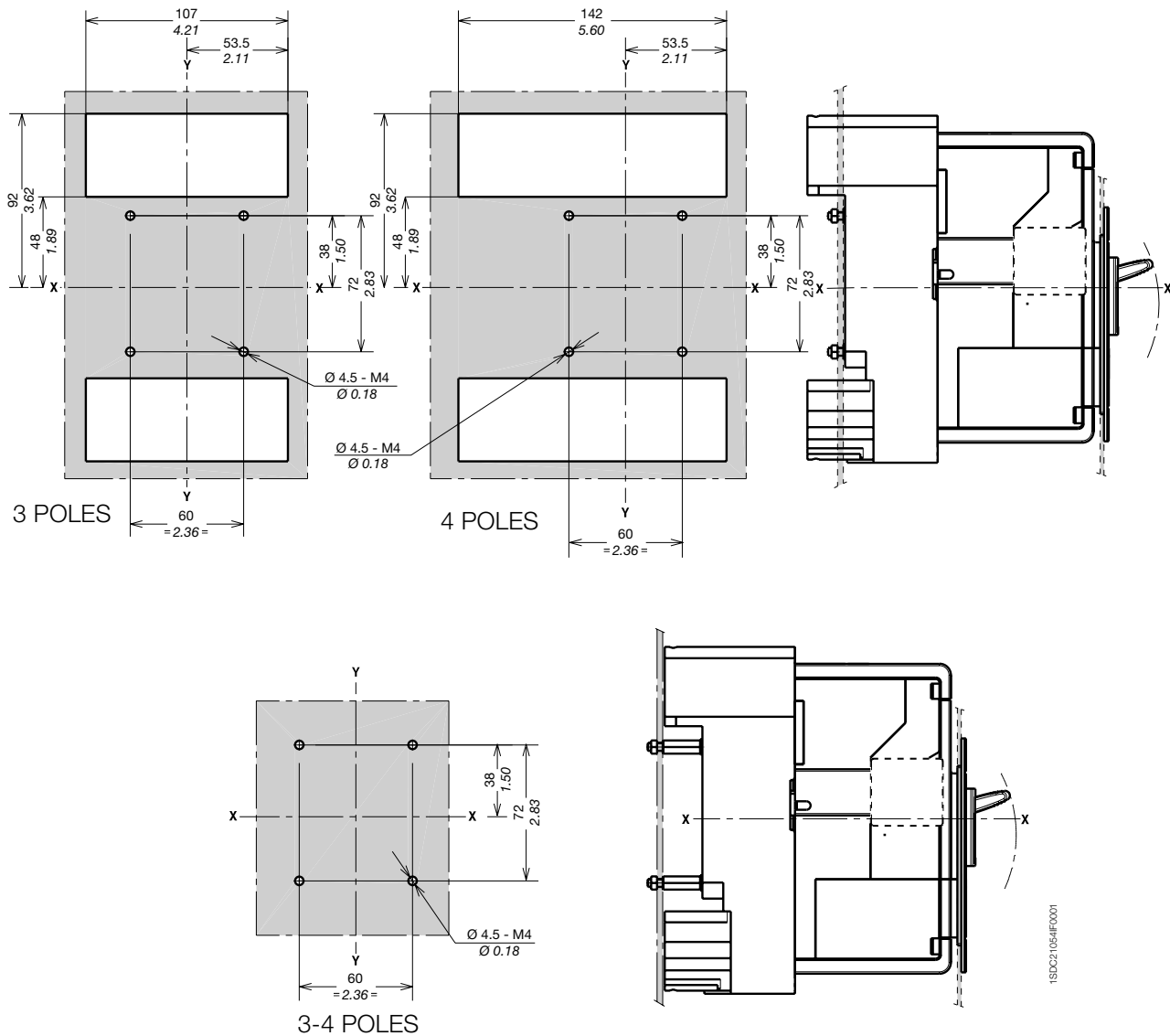
Mounting at 50mm	A
With standard flange : III - IV	136
Without flange	133.5
	141.5

Mounting at 70mm for front extended terminals	A
With standard flange : III - IV	156
Without flange	153.5
	161.5

Overall dimensions

Tmax XT4 - Installation for plug-in circuit breaker

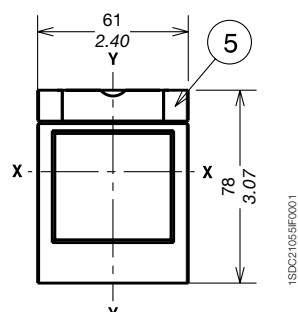
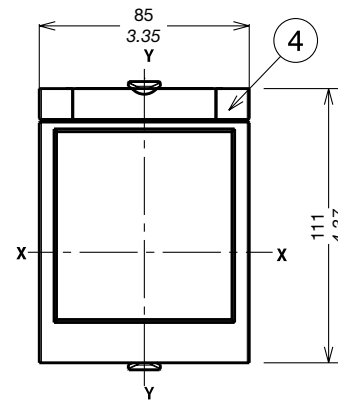
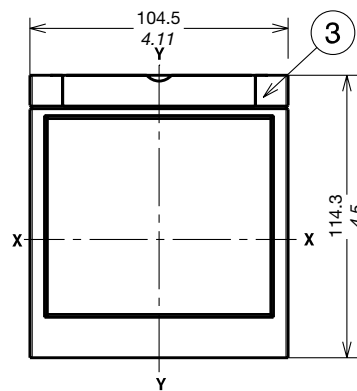
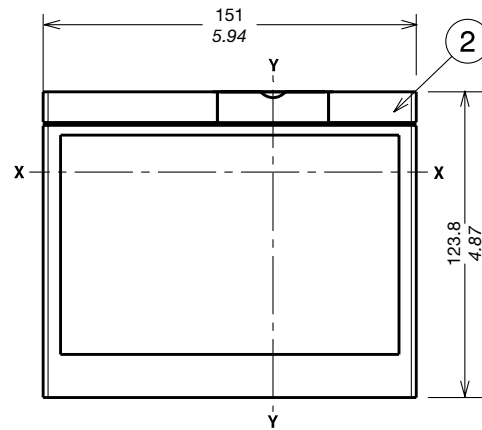
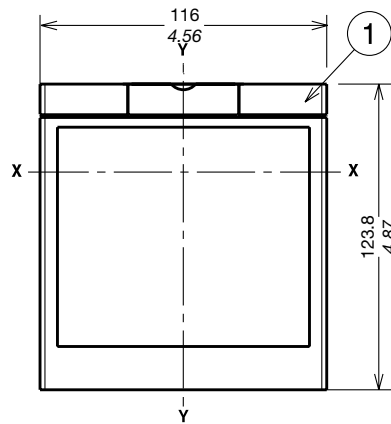
Drilling templates



Flanges

Captions

- ① Flange for plug-in circuit breaker III
- ② Flange for plug-in circuit breaker IV
- ③ Flange for plug-in circuit breaker III-IV with MOE and FLD
- ④ Flange for circuit breaker III-IV with direct rotary handle
- ⑤ Optional flange



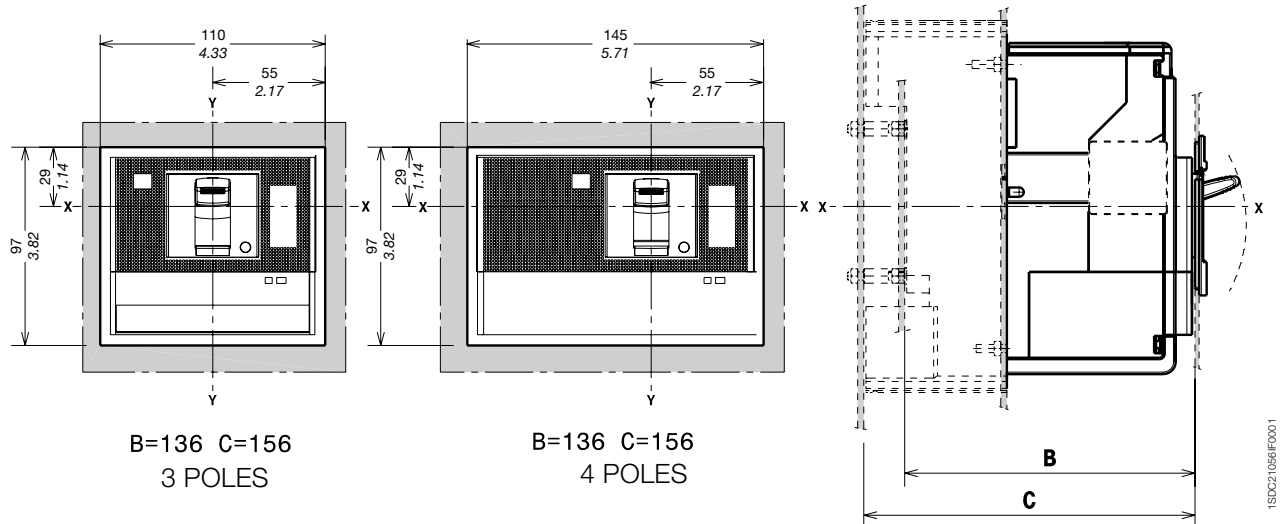
1SDC21055F0001

Overall dimensions

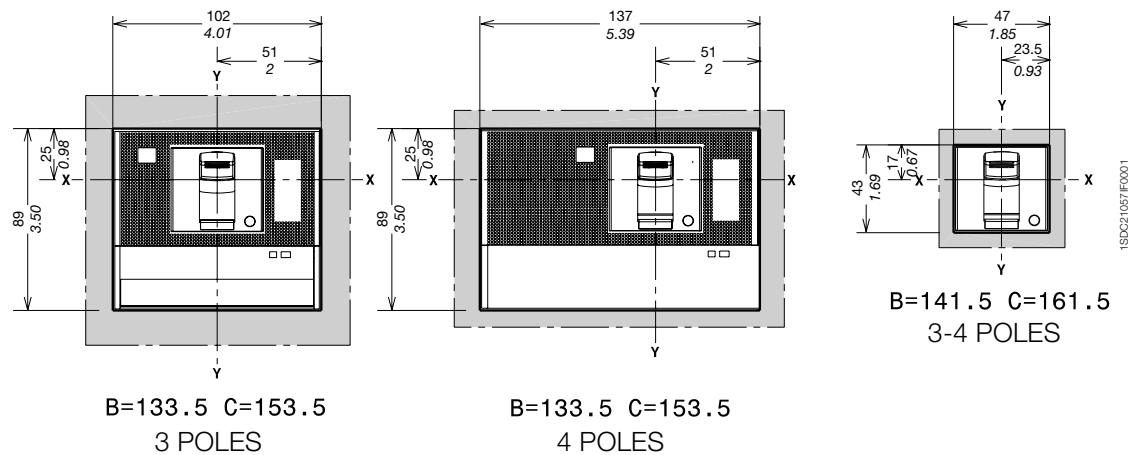
Tmax XT4 - Installation for plug-in circuit breaker

Drilling templates compartment door

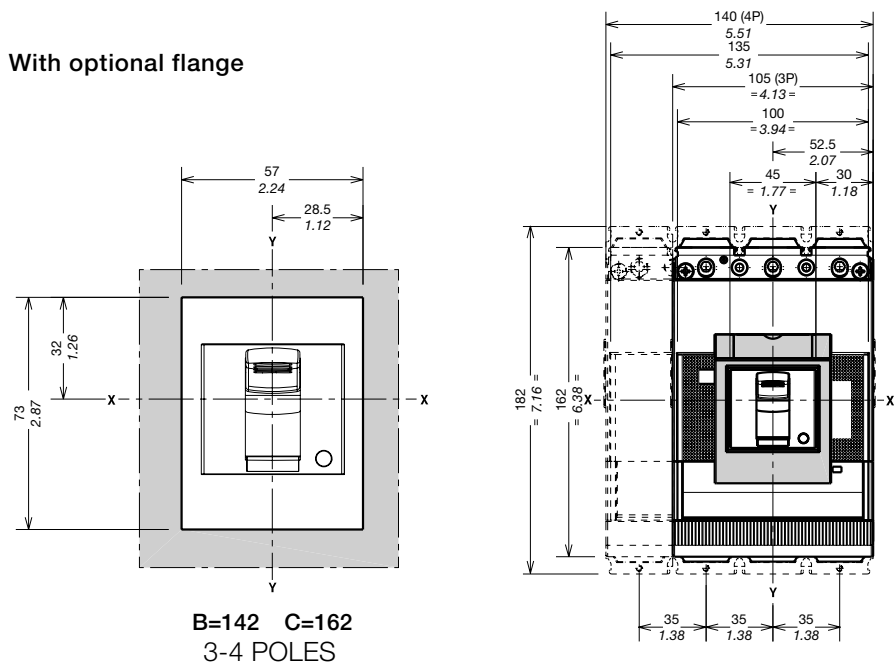
With standard flange



Without flange



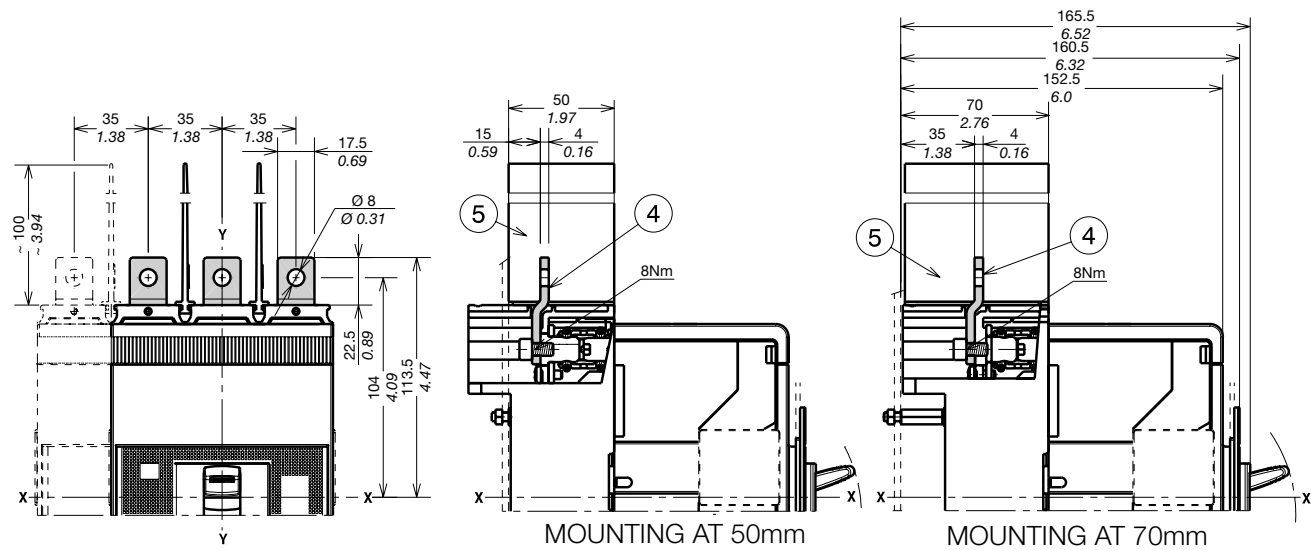
With optional flange



Overall dimensions

Tmax XT4 - Terminals for plug-in circuit breaker

Terminals EF



Captions

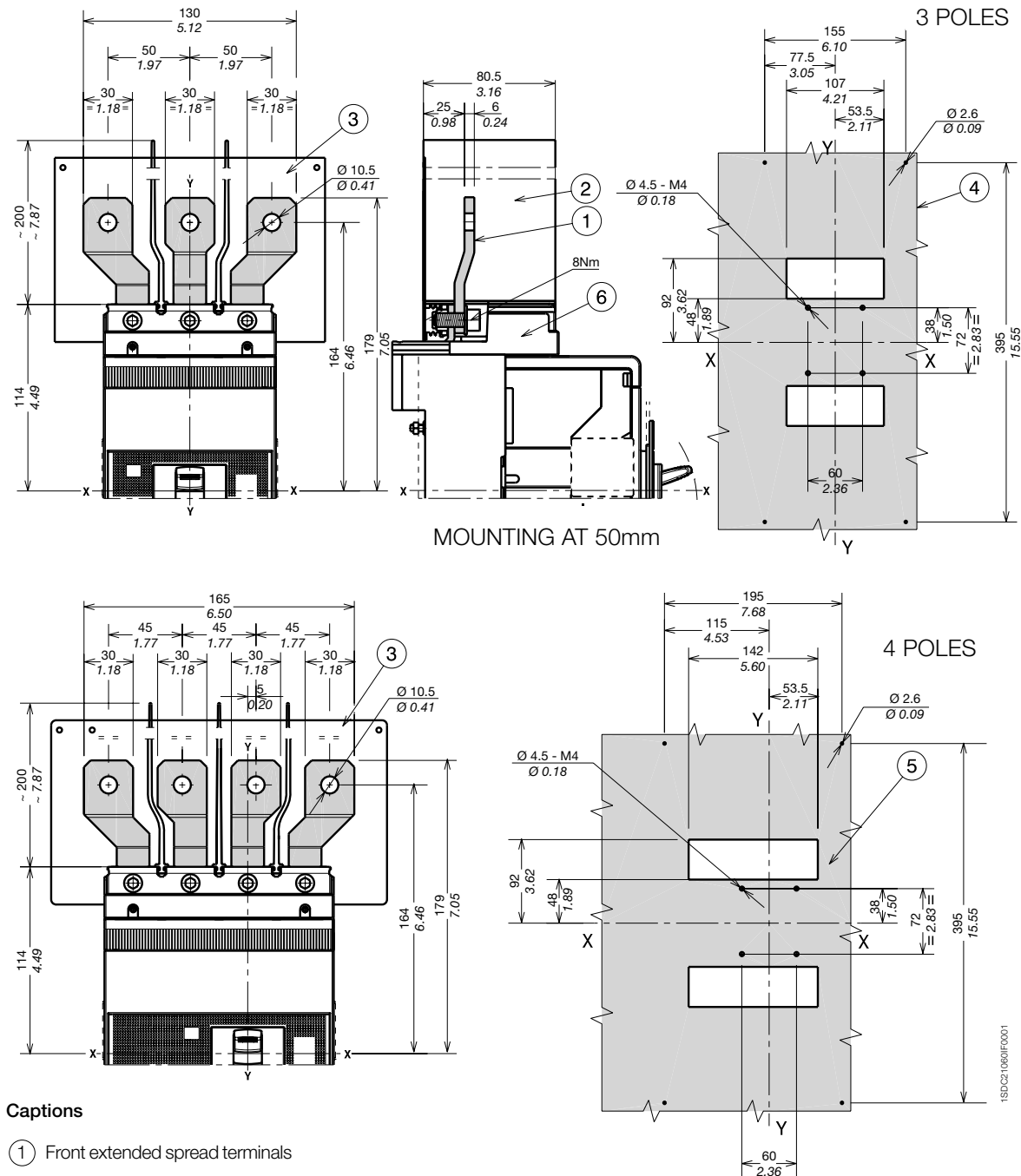
- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory provided)

Note: insulated plate to be provided by customer

Overall dimensions

Tmax XT4 - Terminals for plug-in circuit breaker

Terminals ES



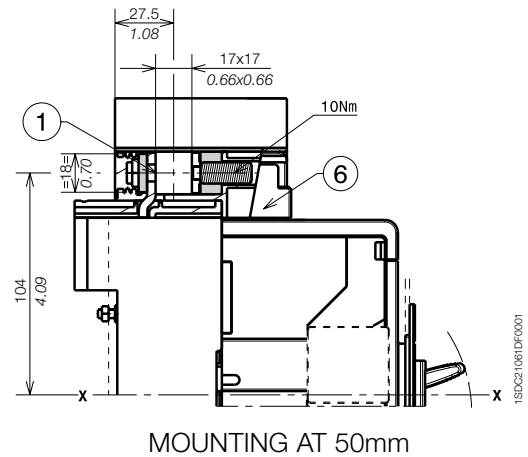
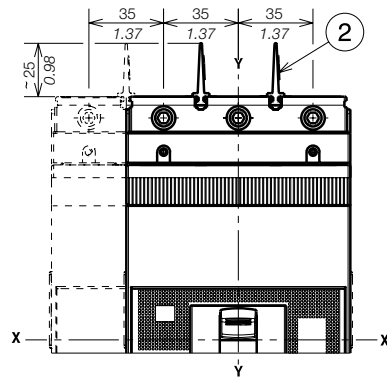
Captions

- ① Front extended spread terminals
- ② 200mm insulating barriers between phases (compulsory) provided
- ③ Insulated plate (compulsory) provided
- ④ Drilling template for 3p circuit breaker
- ⑤ Drilling template for 4p circuit breaker
- ⑥ Adapter (compulsory) not provided

1x2.5...50mm² terminals FCCuAl

Captions

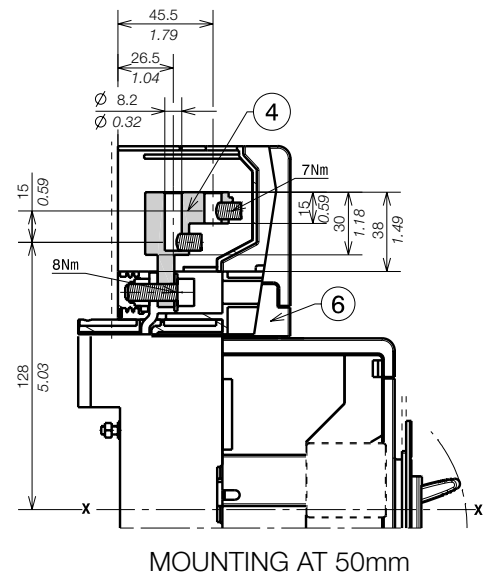
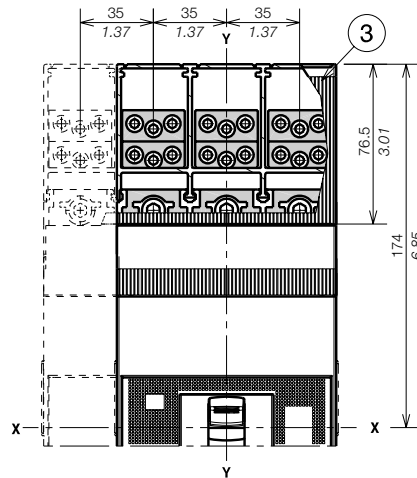
- ① 1x1...185mm² front terminals FCCuAl
- ② 25mm insulating barriers between phases (compulsory) provided
- ⑥ Adapter (compulsory) not provided



Terminals MC

Captions

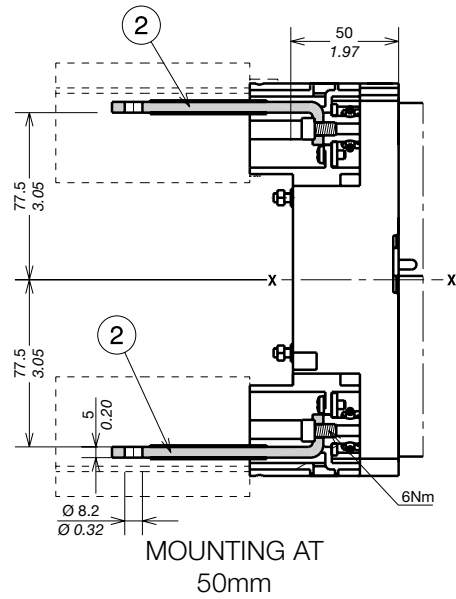
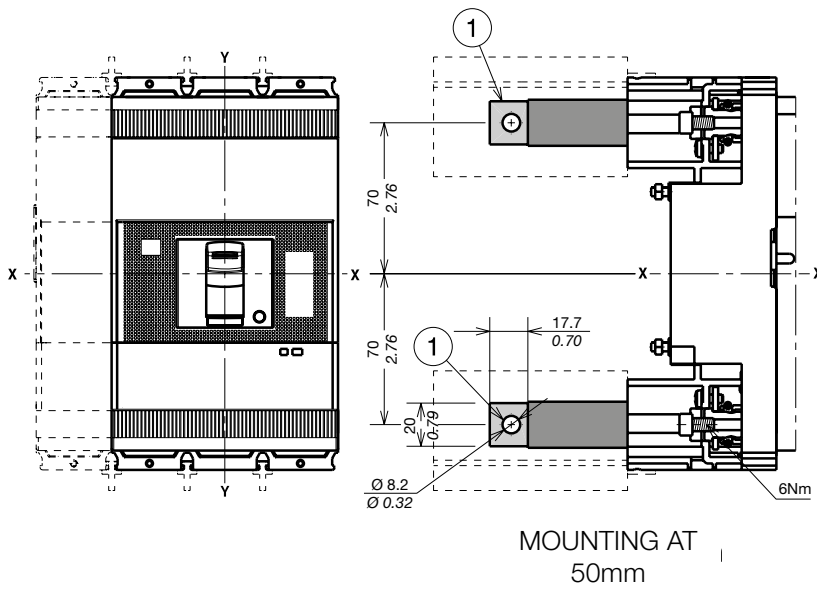
- ③ Provided high terminal covers with degree of protection IP40 (compulsory for multicable terminals)
- ④ Multicable terminals
- ⑥ Adapter (compulsory) not provided



Overall dimensions

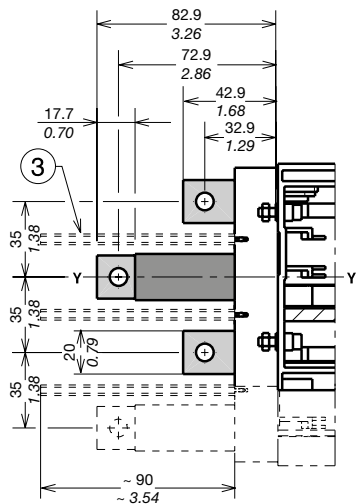
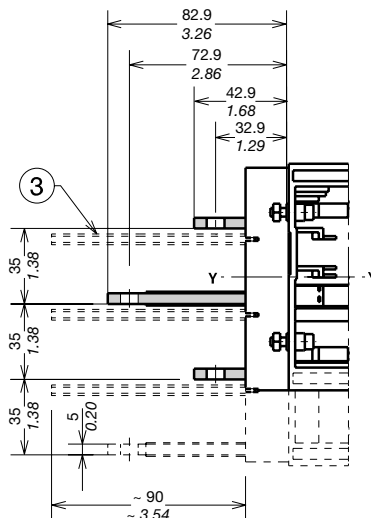
Tmax XT4 - Terminals for plug-in circuit breaker

Terminals HR/VR



Captions

- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided

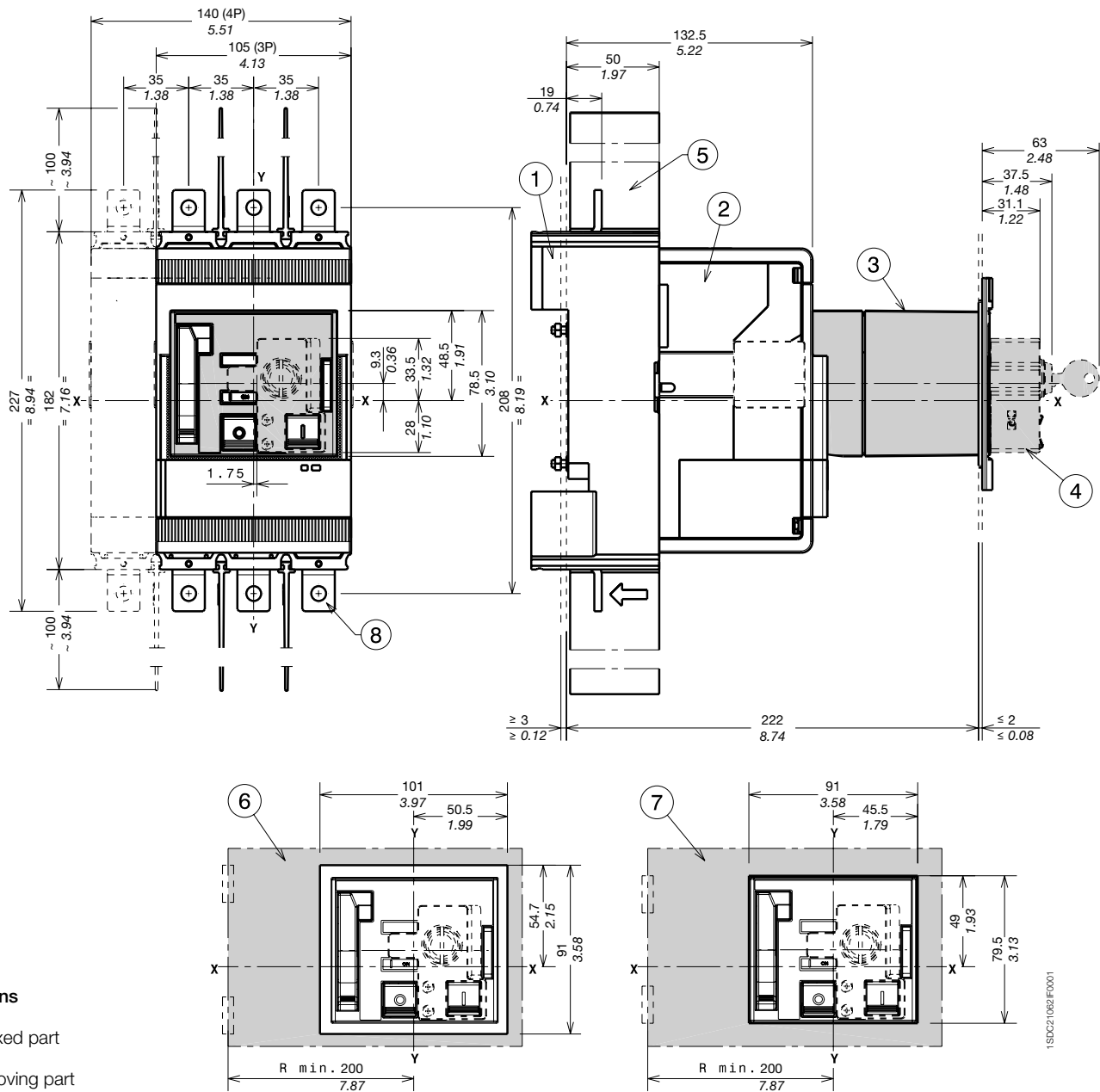


1SDC21061/FC001

Overall dimensions

Tmax XT4 - Accessories for plug-in circuit breaker

Stored energy motor operator (MOE)



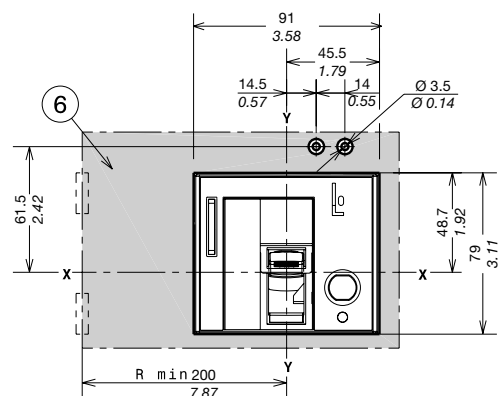
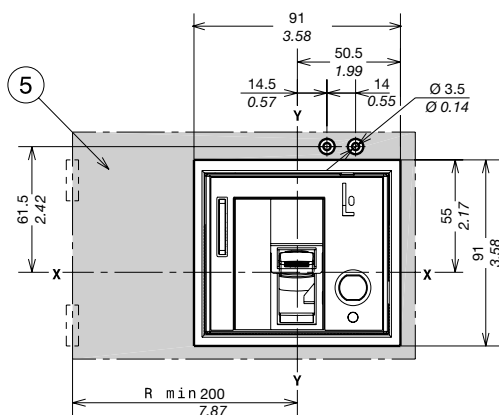
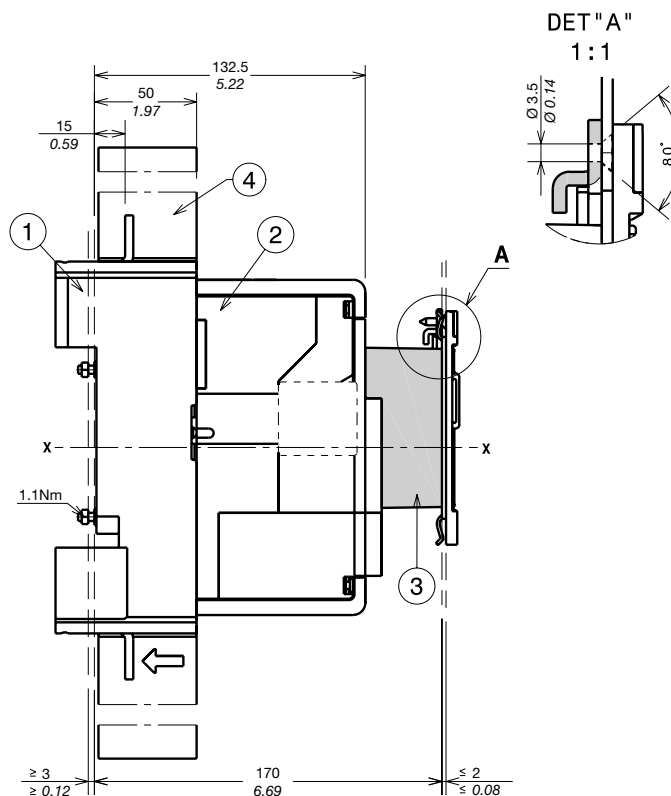
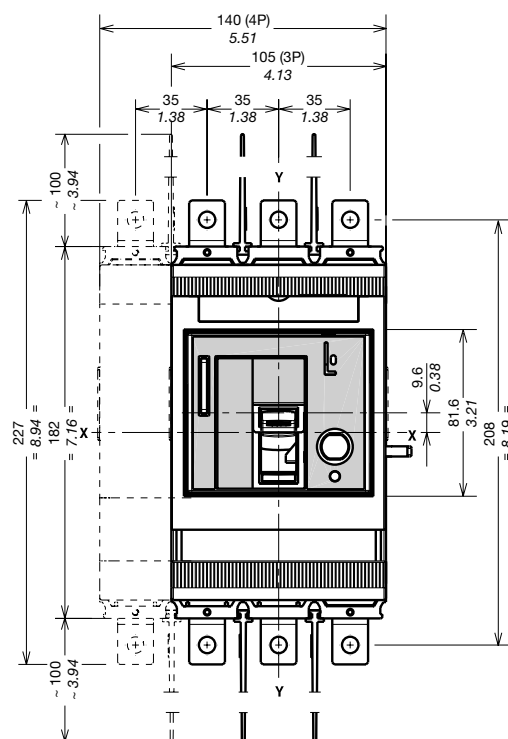
Captions

- ① Fixed part
- ② Moving part
- ③ Stored energy motor operator (MOE)
- ④ Key lock (not provided)
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Drilling template of door with direct rotary handle with flange
- ⑦ Drilling template of door with direct rotary handle without flange
- ⑧ Extended terminals

Overall dimensions

Tmax XT4 - Accessories for plug-in circuit breaker

Front for lever operating mechanism (FLD)



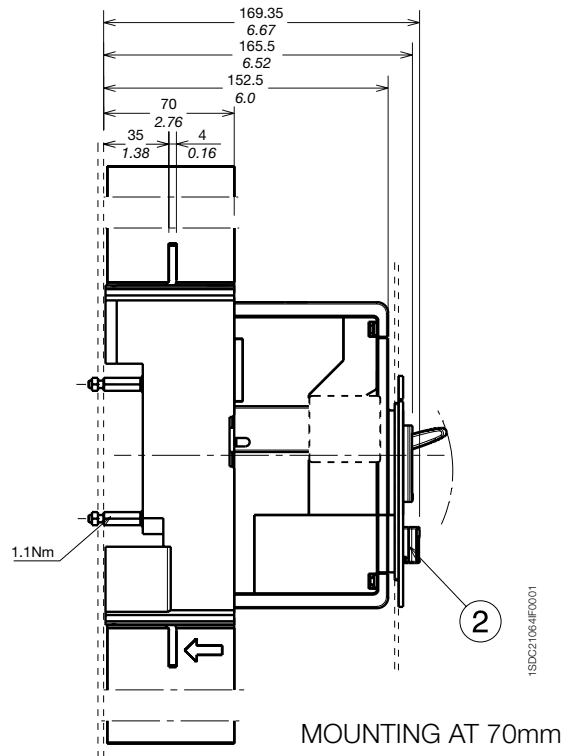
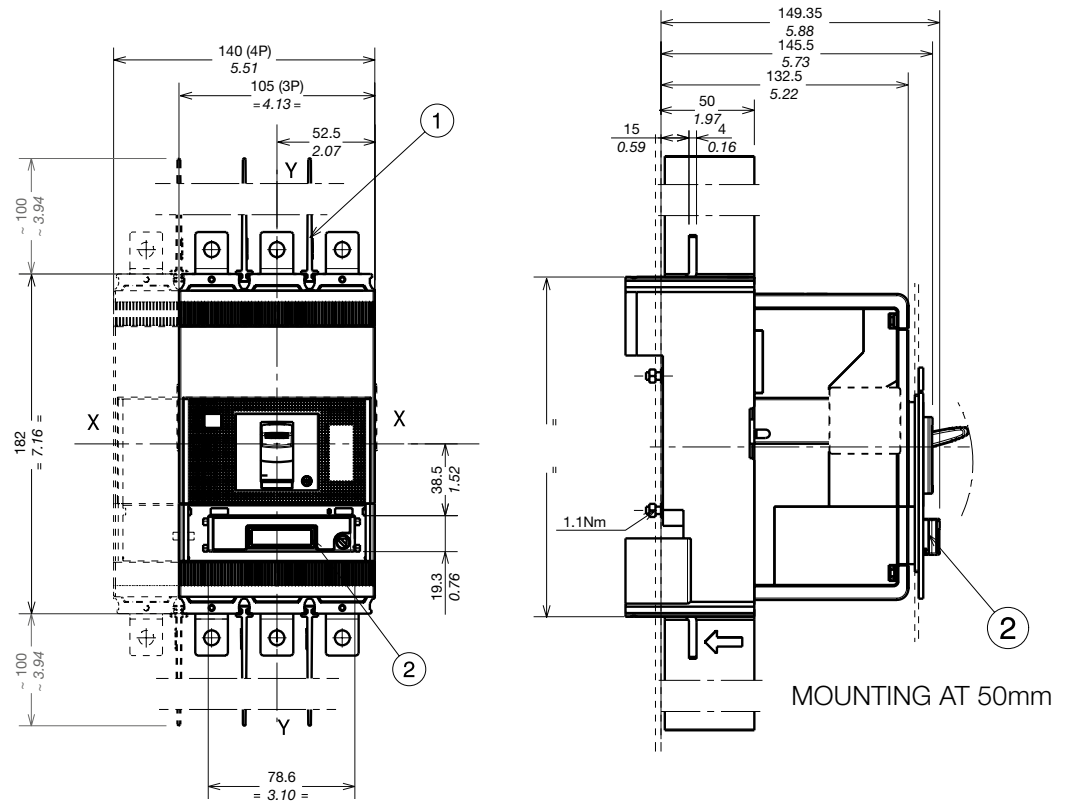
Captions

- ① Fixed part
- ② Moving part
- ③ Front for lever operating mechanism (FLD)
- ④ 100mm insulating barriers between phases (compulsory) provided
- ⑤ Drilling template of door with direct rotary handle with flange
- ⑥ Drilling template of door with direct rotary handle without flange

Ekip Display or LED Meter

Captions

- ① 100mm insulating barriers between phases (compulsory) provided
- ② Ekip Display or LED Meter



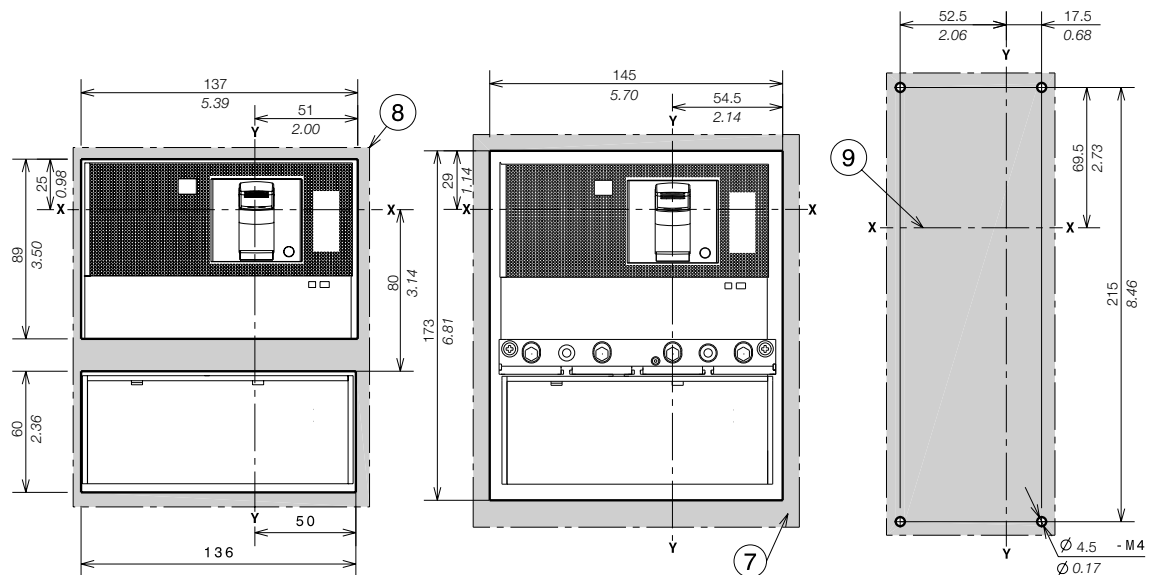
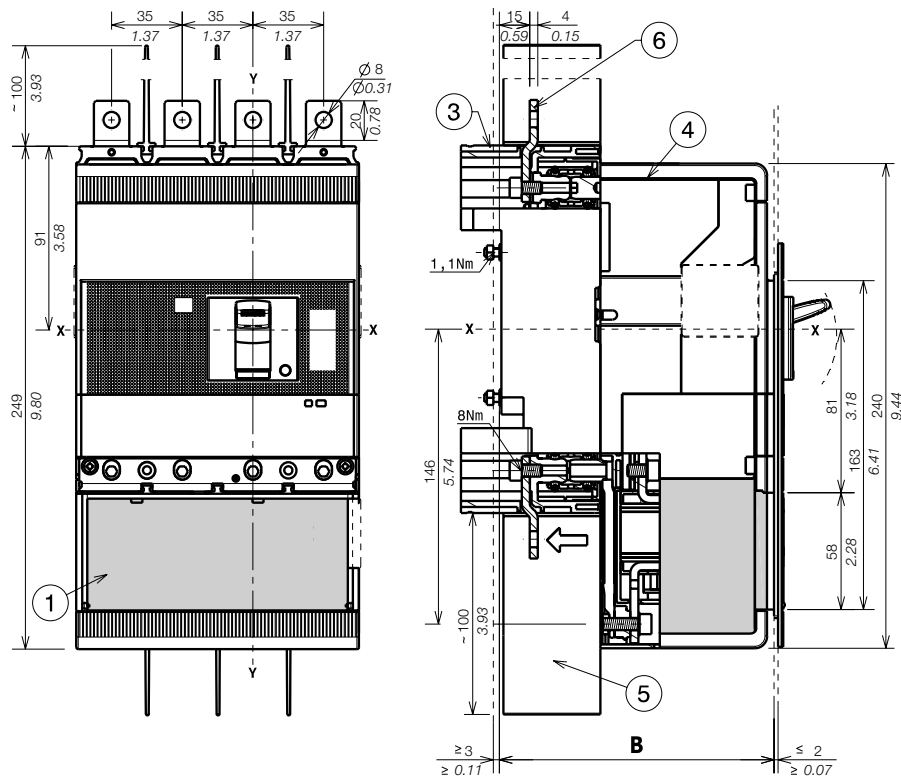
Overall dimensions

Tmax XT4 - Accessories for plug-in circuit breaker

Residual current RC Sel

Captions

- ① Residual current
- ③ Fixed part
- ④ Moving part
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Extended terminals
- ⑦ Drilling template of door with direct rotary handle and mounting with flange
- ⑧ Drilling template of door with direct rotary handle and mounting without flange
- ⑨ Drilling template for mounting circuit breaker on sheet



		B
With standard flange	IV	136
Without flange	IV	133.5

Tmax XT4 - Installation for withdrawable circuit breaker

Technical drawings of the 3-4 POLES terminal block, showing front, side, and cross-sectional views with dimensions in mm.

Front View (Left): Dimensions include 107 (4.21) for the top width, 53.5 (2.11) for the top offset, 92 (3.62) for the total height, 48 (1.89) for the top offset, 38 (1.50) for the pole height, 72 (2.83) for the pole pitch, and 60 (2.36) for the pole width. The block is labeled "3 POLES".

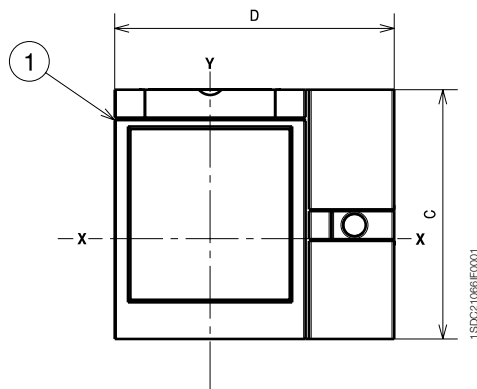
Front View (Right): Dimensions include 142 (5.60) for the top width, 53.5 (2.11) for the top offset, 92 (3.62) for the total height, 48 (1.89) for the top offset, 38 (1.50) for the pole height, 72 (2.83) for the pole pitch, and 60 (2.36) for the pole width. The block is labeled "4 POLES".

Side View (Bottom): Dimensions include 38 (1.50) for the pole height, 72 (2.83) for the pole pitch, and 60 (2.36) for the pole width. The block is labeled "3-4 POLES".

Side View (Right): A cross-sectional view showing the internal structure of the terminal block, including the mounting rail and the internal wiring terminals.

Dimensions: All dimensions are in mm. The dimensions in parentheses are the imperial equivalents.

① Flange for withdrawable circuit breaker III-IV



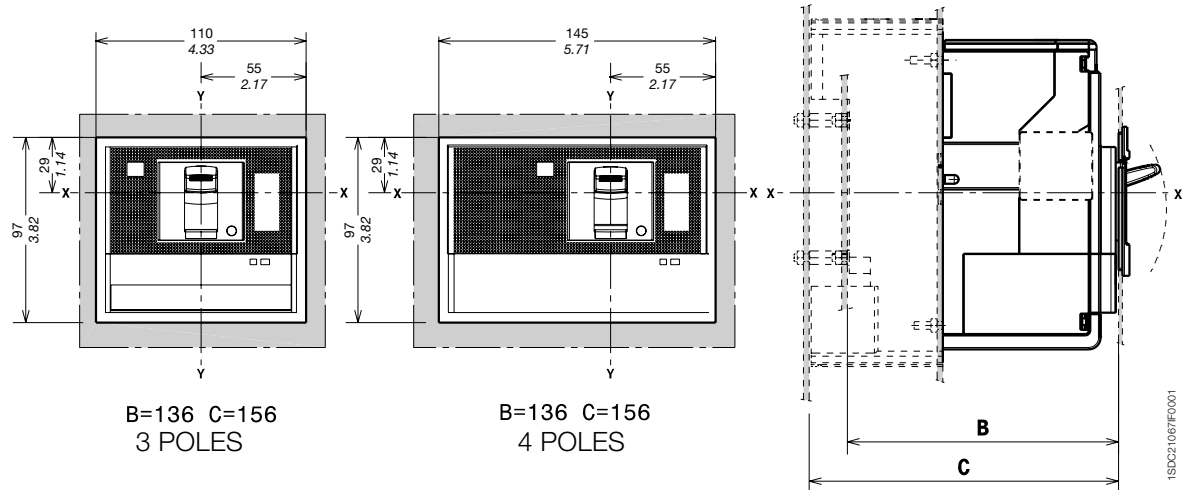
	C	D
RHD	111	124.5
FLD - MOE	114.3	134.5

Overall dimensions

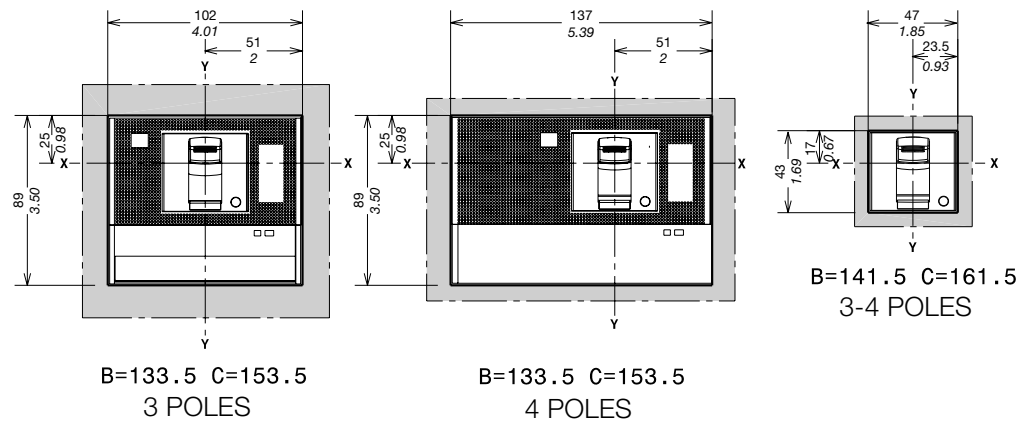
Tmax XT4 - Installation for withdrawable circuit breaker

Drilling templates for compartment door

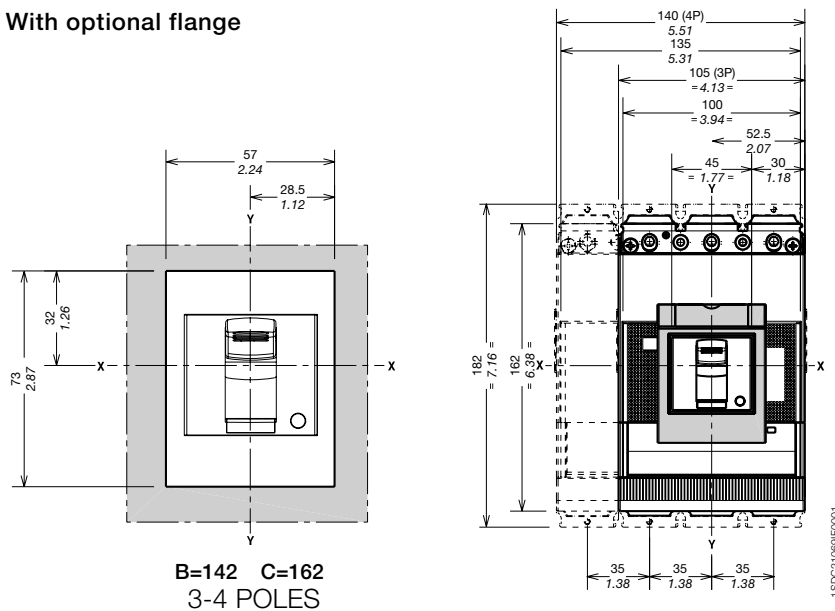
With standard flange



Without flange



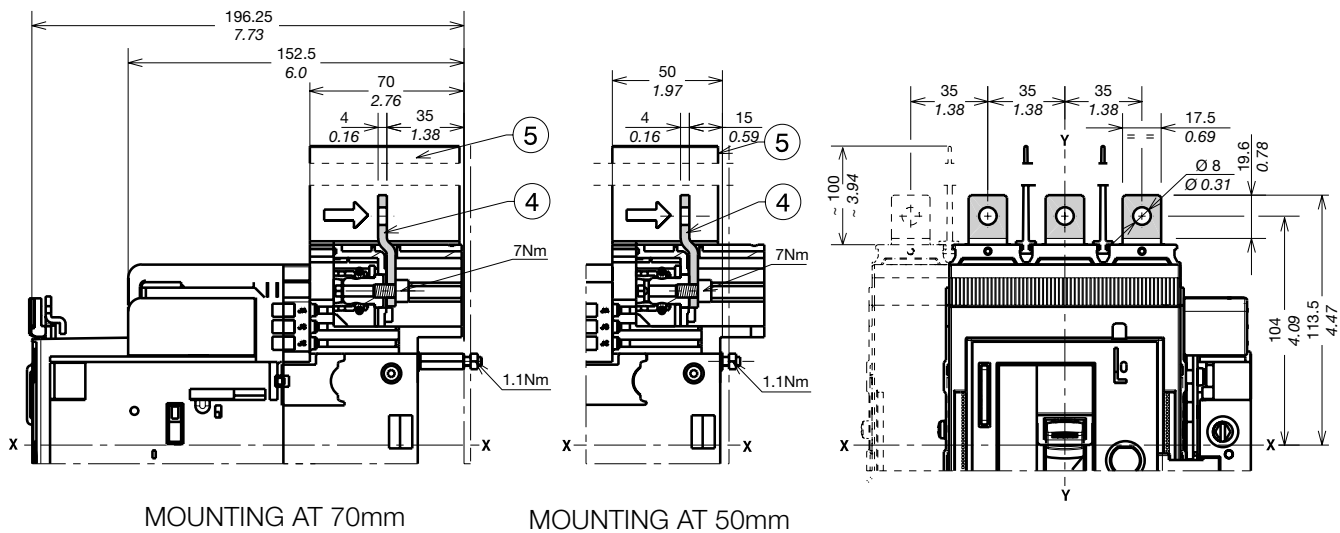
With optional flange



Overall dimensions

Tmax XT4 - Terminals for withdrawable circuit breaker

Terminals EF



Captions

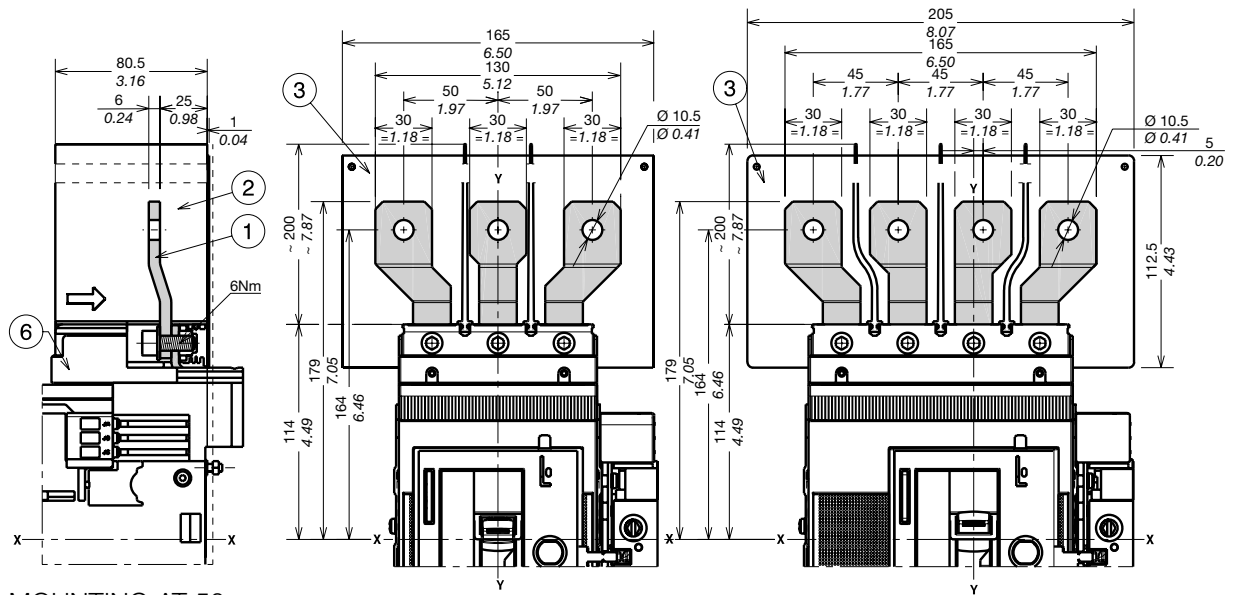
- ④ Front extended terminals
- ⑤ 100mm insulating barriers between phases (compulsory) provided

Note: insulated plate (compulsory) provided

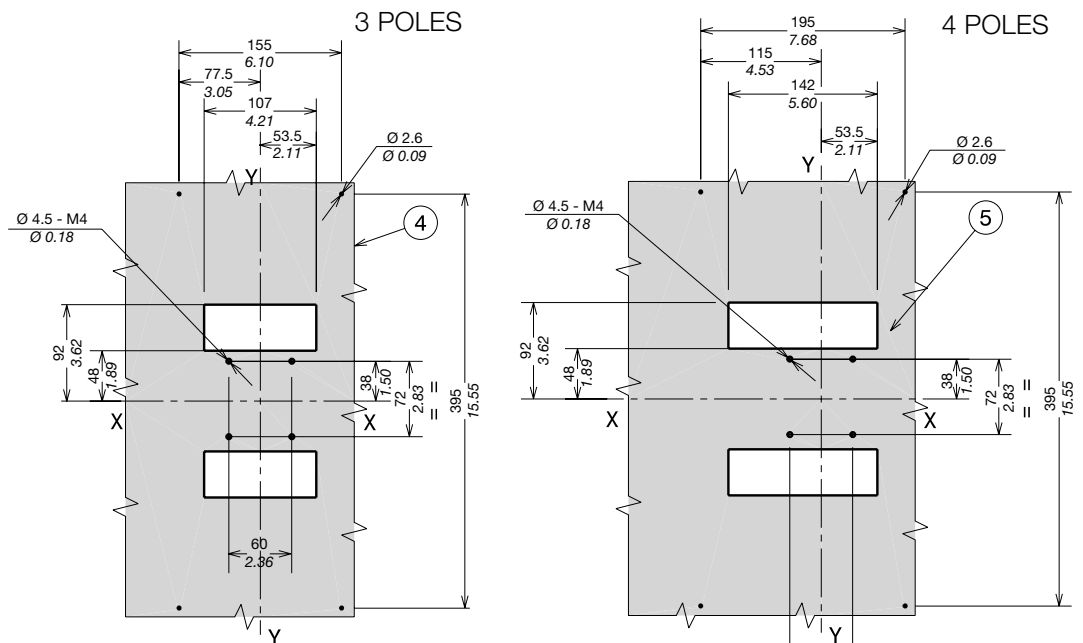
Overall dimensions

Tmax XT4 - Terminals for withdrawable circuit breaker

Terminals ES



MOUNTING AT 50 mm



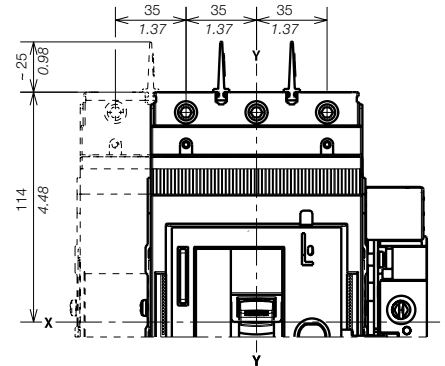
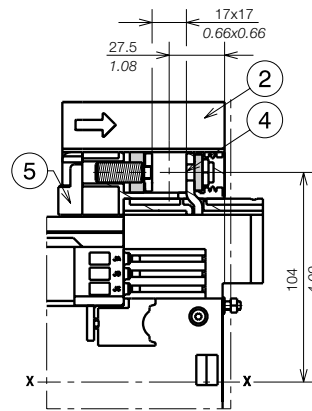
Captions

- ① Front extended spread terminals
- ② 200mm insulating barriers between phases (compulsory) provided
- ③ Insulated plate provided compulsory for $U_e > 440V$
- ④ Drilling template for 3p circuit breaker
- ⑤ Drilling template for 4p circuit breaker
- ⑥ Adapter (compulsory) not provided

1x2.5...50mm² terminals FCCuAl

Captions

- ② 25mm insulating barriers between phases (compulsory) provided
- ④ Front terminals FCCuAl
- ⑤ Adapter (compulsory) not provided



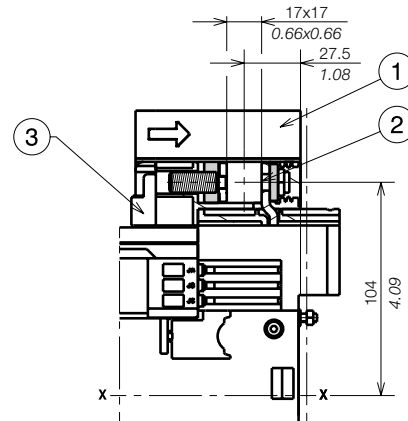
1SDC21076DF0001

MOUNTING AT 50 mm

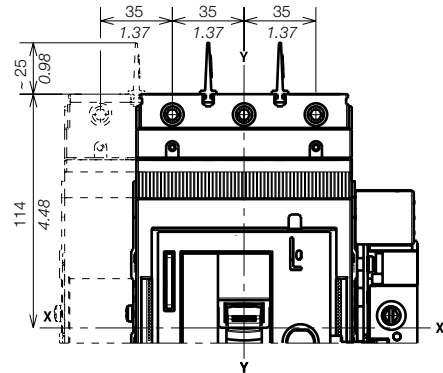
Terminals FCCu

Captions

- ① 25mm insulating barriers between phases (compulsory) provided as standard with the circuit breaker
- ② Terminals FCCu
- ③ Adapter (compulsory) not provided



MOUNTING AT 50 mm

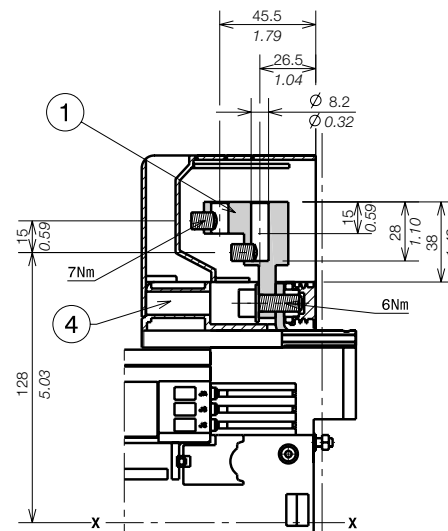


1SDC21036GF0001

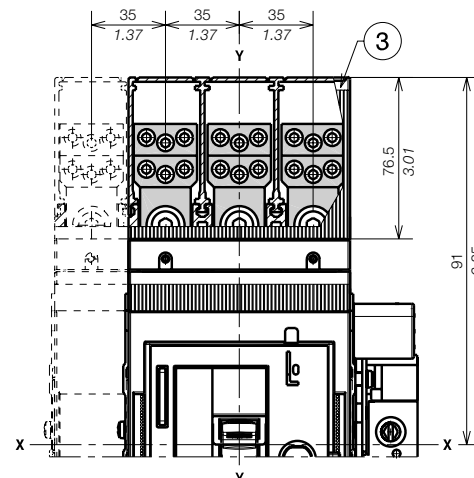
Terminals MC

Captions

- ① Multicable terminals
- ③ High terminal covers with degree of protection IP40 (optional) provided
- ④ Adapter (compulsory) not provided

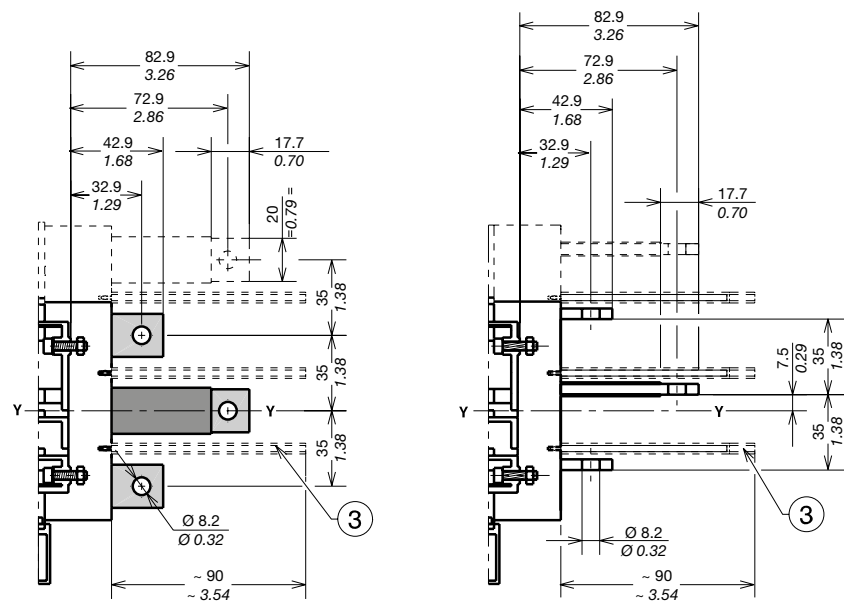


MOUNTING AT 50 mm



1SDC21079DF0001

Tmax XT4 - Terminals for withdrawable circuit breaker

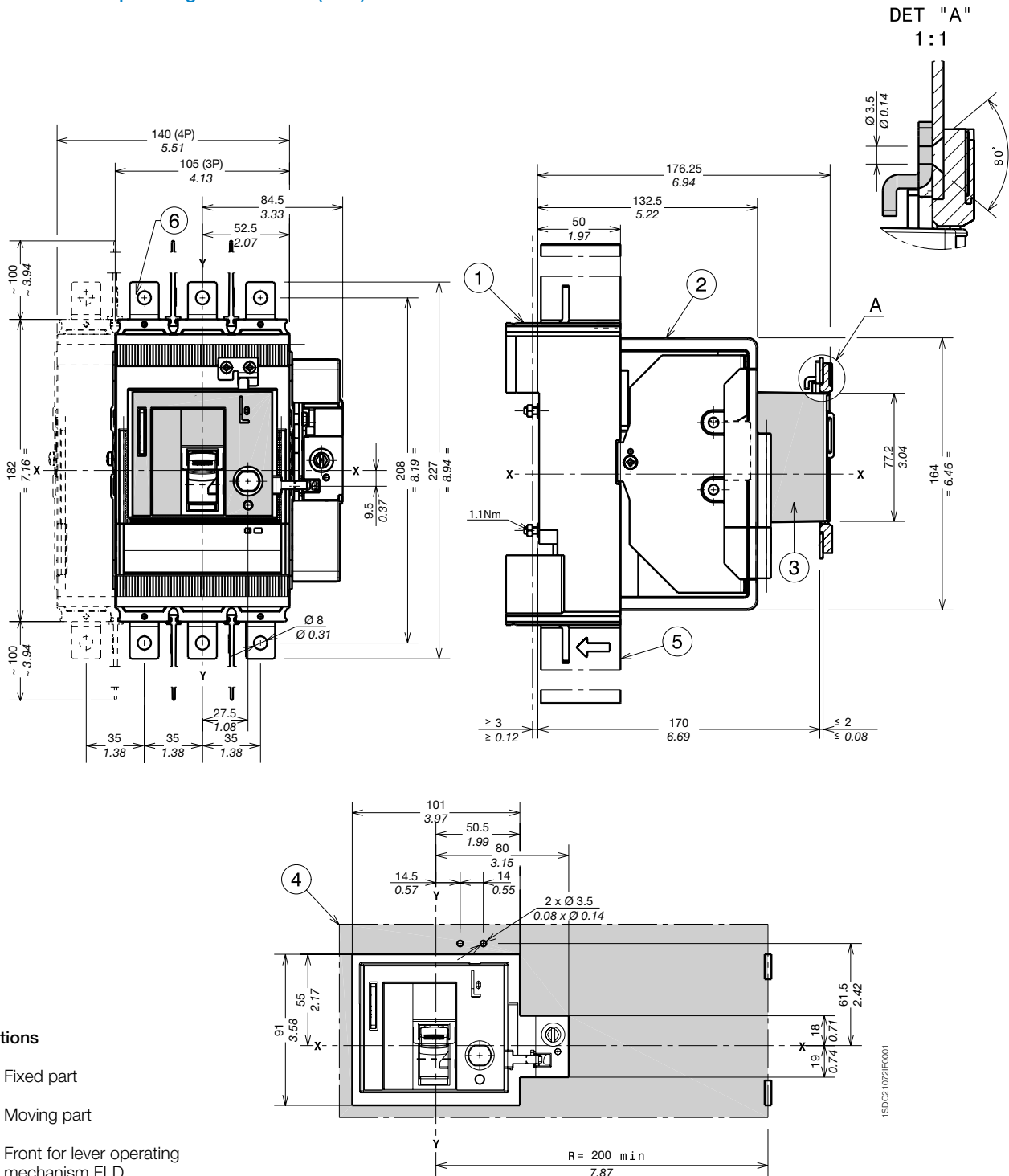
[illegible]

- ① Rear vertical terminals
- ② Rear horizontal terminals
- ③ 90mm insulating barriers between phases (compulsory) not provided

Overall dimensions

Tmax XT4 - Accessories for withdrawable circuit breaker

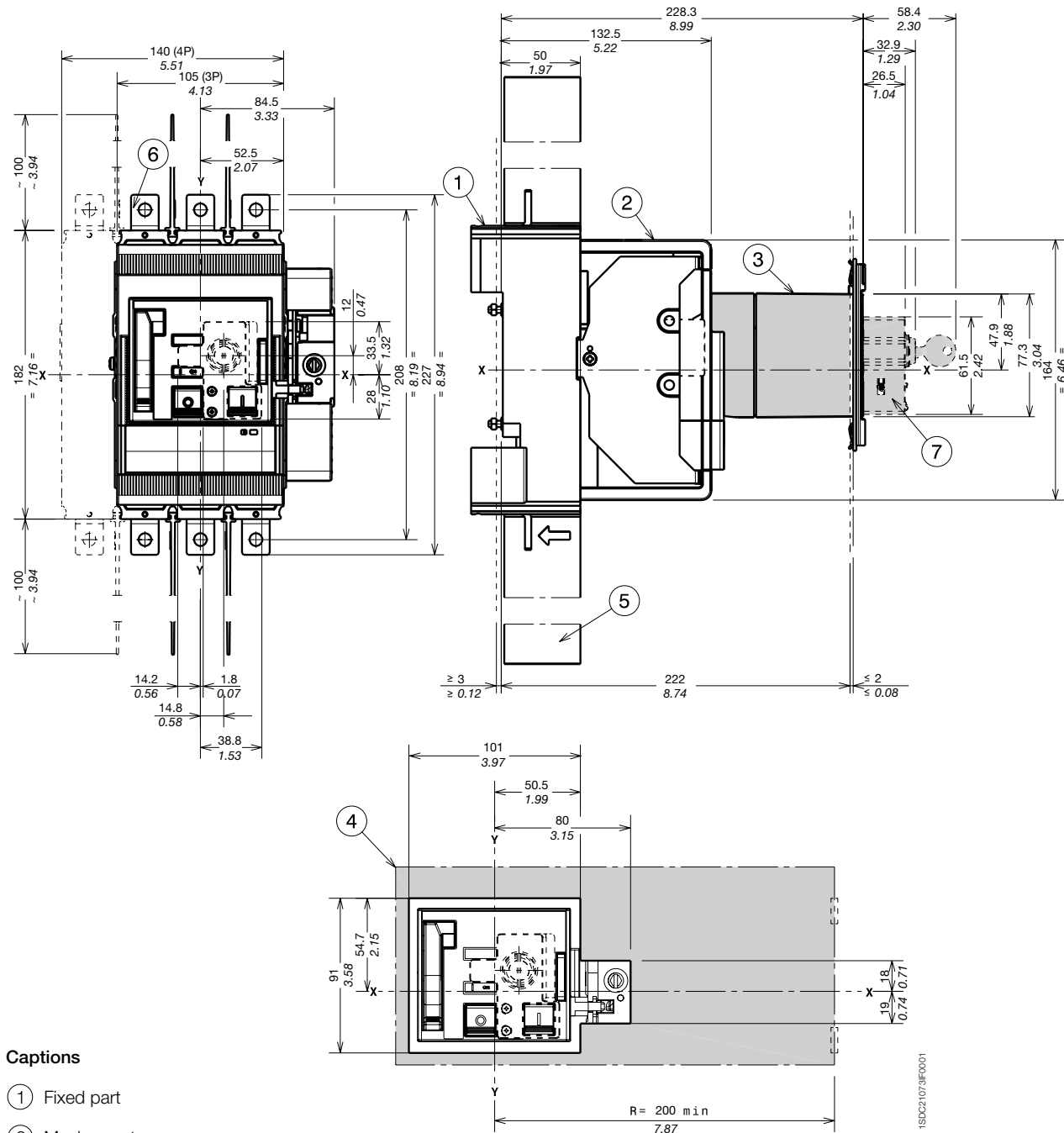
Front for lever operating mechanism (FLD)



Overall dimensions

Tmax XT4 - Accessories for withdrawable circuit breaker

Stored energy motor operator (MOE)



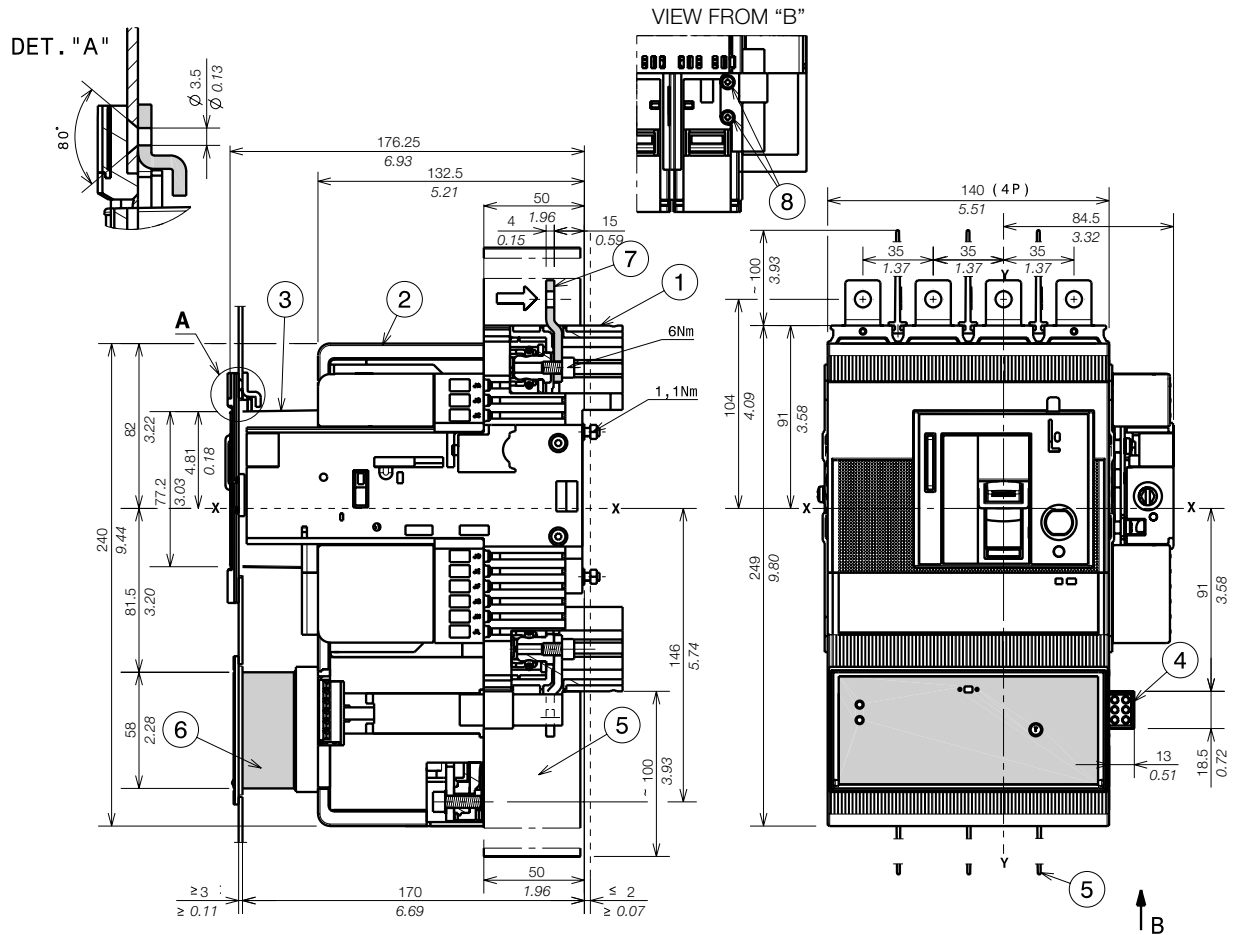
Captions

- ① Fixed part
- ② Moving part
- ③ Stored energy motor operator (MOE)
- ④ Drilling template of door with MOE and fixing flange
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Extended terminals
- ⑦ Key lock (not provided)

Overall dimensions

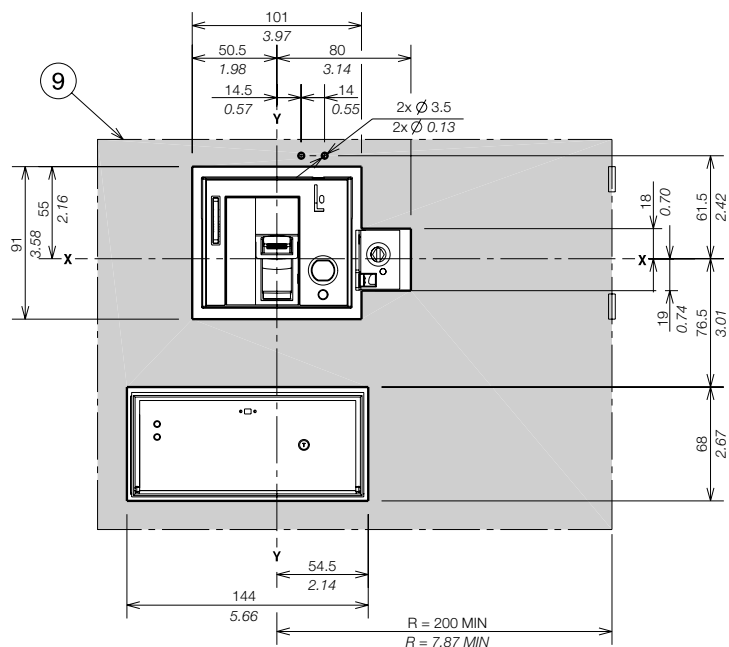
Tmax XT - Common accessories

Residual current RC Sel 4 poles



Captions

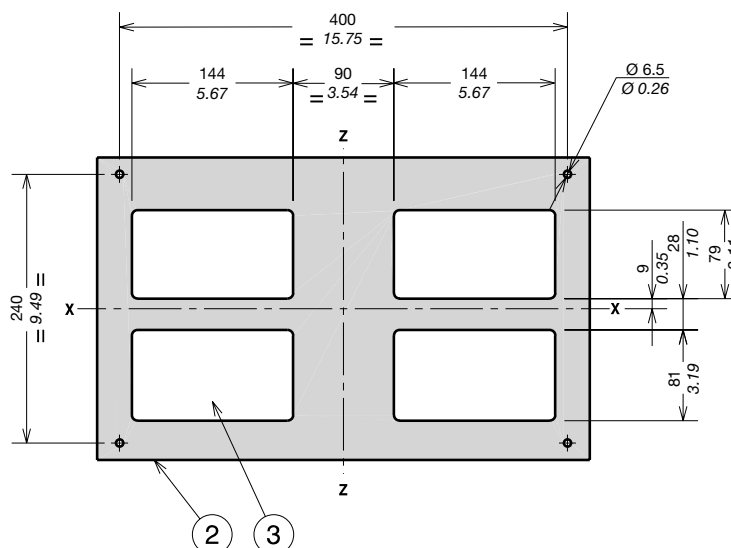
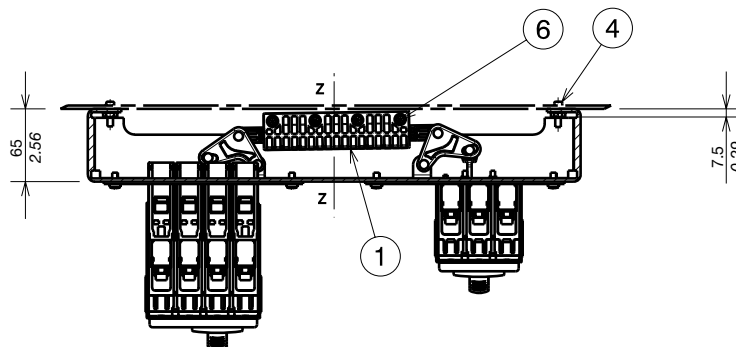
- ① Fixed part
- ② Moving part
- ③ Front for lever operating mechanism
- ④ Connector residual current (optional)
- ⑤ 100mm insulating barriers between phases (compulsory) provided
- ⑥ Residual current
- ⑦ Extended terminals
- ⑧ Mounting screws for fixed part of connector
- ⑨ Drilling template of door with direct rotary handle and fixed flange



9

Captions

-



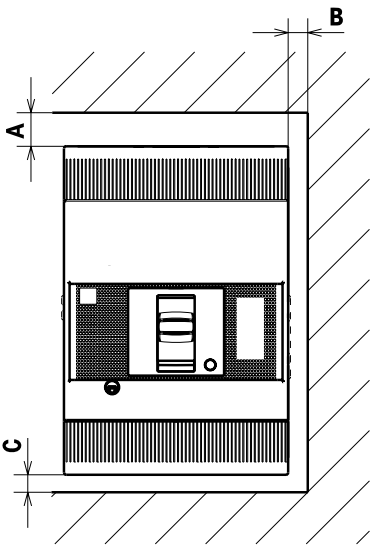
1
2
3
4
5
6
7
8
9
10

Overall dimensions

Distances to be respected

Insulation distances for installation in metallic cubicles

Circuit breakers	A (mm/in)	B (mm/in)	C (mm/in)
XT1	120 / 4.72	70 / 2.76	120 / 4.72
XT2	90 / 3.54	45 / 1.77	90 / 3.54
XT3	110 / 4.34	55 / 2.17	110 / 4.34
XT4	110 / 4.34	45 / 1.77	110 / 4.34



Wiring diagrams

Information on how to read the diagrams	6/2
Graphic symbols (IEC 60617 and CEI 3-14...3-26 Standards)	6/3
Wiring Diagrams of the circuit breakers	6/4
Wiring Diagrams of the accessories	6/8
Resetting instructions	6/22

Wiring diagrams

Information on how to read the diagrams

Shown

The diagrams are shown in the following conditions:

- fixed version circuit breaker, open;
- withdrawable or plug-in version circuit breaker, open and connected;
- contactor for starting the motor open;
- circuits de-energized;
- trip units not tripped;
- motor operator with springs charged.

The diagram shows a circuit breaker or a switch-disconnector in the withdrawable or plug-in version, but is also valid for fixed version circuit breakers or switch-disconnectors.

For fixed version circuit breakers, auxiliary circuits are headed at terminal box XV: connectors J.. and XB.., XC.., XD.. and XE.. are not supplied.

For plug-in version circuit breakers, auxiliary circuits are headed at connectors XB.., XC.., XD.. and XE..: connectors J.. are not supplied.

For withdrawable version circuit breakers, auxiliary circuits are headed at connectors J...: connectors XB.., XC.., XD.. and XE.. are not supplied.

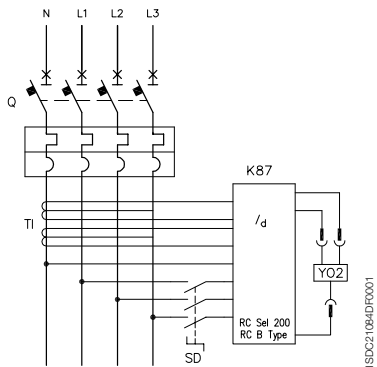
Wiring diagrams

Graphic symbols (IEC 60617 and CEI 3-14 ...3-26 Standards)

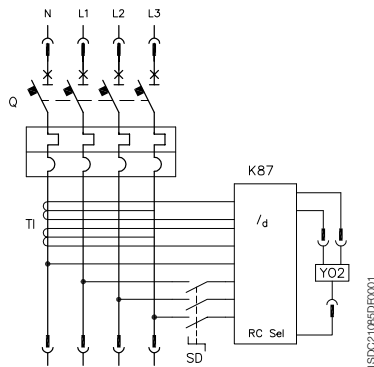
	Thermal effect		Conductors with corded cables (example two conductors)		Opening contact		Overcurrent release with short adjustable time delay characteristic
	Electromagnetic effect		Connection of conductors		Changeover contact with momentary break		Overcurrent release with short inverse adjustable time delay characteristic
	Timing		Terminal or clamp		Closing position contact (limit switch)		Overcurrent release with long inverse adjustable time delay characteristic
	Mechanical connection		Socket and plug (female and male)		Opening position contact (limit switch)		Overcurrent release for earth fault with short inverse time characteristic
	Manual mechanical operating mechanism (general case)		Resistor (general symbol)		Changeover contact with momentary break (limit switch)		Current relay for unbalance between phases
	Rotary handle operating mechanism		Resistor dependent on the temperature		Contactor (closing contact)		Residual current release
	Pushbutton operating mechanism		Motor (general symbol)		Power cut-off of switch-disconnector power with automatic opening		Relay for detecting lack of phase in a three-phase system
	Key operating mechanism		Three-phase asynchronous motor, with short-circuited rotor (cage)		Switch-disconnector		Relay for detecting blocked rotor by means of current measurement
	Cam operating mechanism		Current transformer		Control coil (general symbol)		Lamp, general symbol
	Ground (general symbol)		Current transformer with primary consisting of 4 passing conductors and with wound secondary, with socket		Thermal trip unit		Motor with excitation in series
	Converter separated galvanically		Closing contact		Instantaneous overcurrent release		Brush
	Conductors in shielded cable (example two conductors)		Voltmeter		Ammeter		Wattmeter
	Watt-hour meter						

Wiring diagrams of the circuit breakers

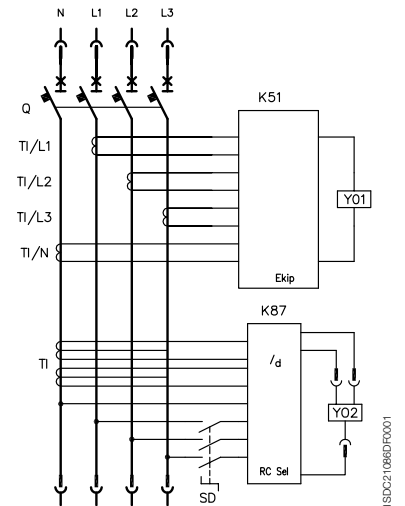
6



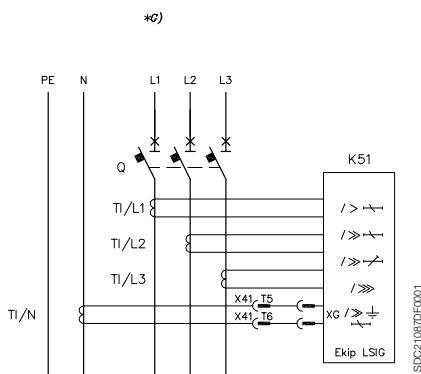
Four-pole circuit breaker with thermomagnetic trip unit and RC Sel 200 or RC B type residual current release



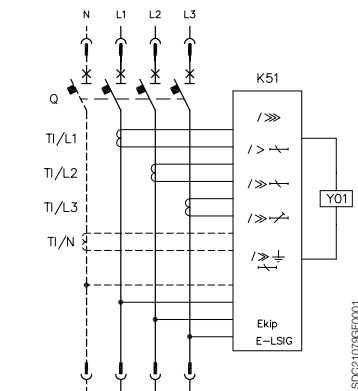
Four-pole circuit breaker with thermomagnetic trip unit and RC Sel residual current release



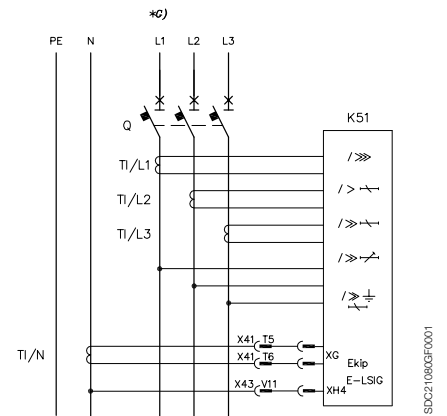
Four-pole circuit breaker with electronic trip unit and RC Sel residual current release



Three-pole fixed version circuit breaker with current transformer on the neutral conductor outside the circuit breaker



Three-pole or four-pole XT4 circuit breaker with Ekip E-LSIG microprocessor based release



Fixed version three-pole XT4 circuit breaker with Ekip E-LSIG with current transformer on neutral conductor, external to circuit breaker

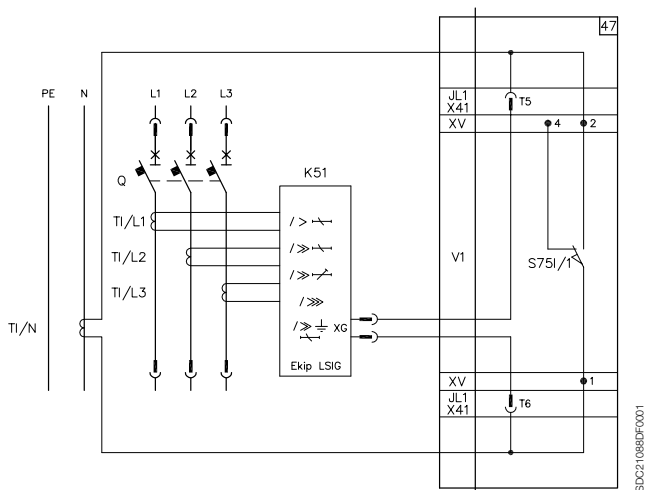
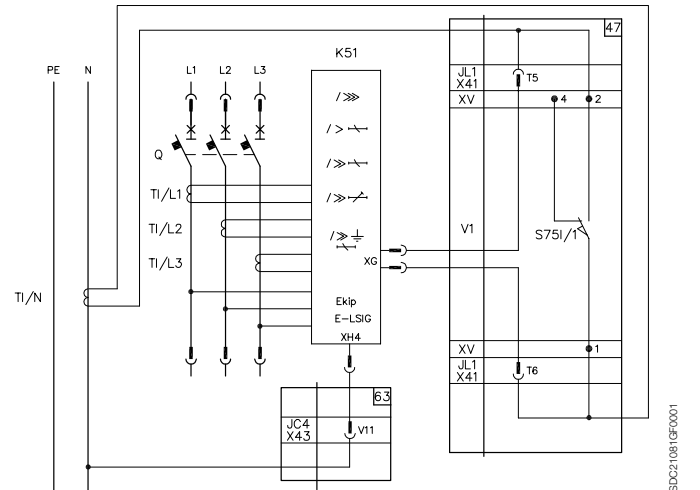


Diagram recommended for three-pole plug-in or withdrawable version circuit breakers with current transformer on the neutral conductor outside the circuit breaker



Recommended diagram for plug-in or withdrawable version three-pole circuit breakers with current transformer and voltage connection on neutral conductor, external to circuit breaker

Description of figures

- Fig. 47 = Current transformer circuit on the neutral conductor outside the circuit breaker (for plug-in or withdrawable version circuit breaker).
- Fig. 63 = Circuit of the voltage socket on the neutral conductor outside the circuit breaker (for Ekip E_LSIG type microprocessor-based plug-in or withdrawable circuit breaker).

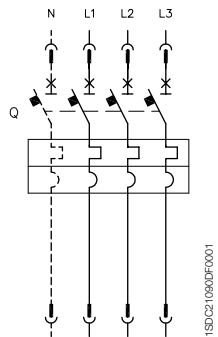
Notes

- G) To remove the circuit breaker from a three-pole fixed version with a current transformer on the neutral conductor outside the circuit breaker, the TI/N transformer terminals must be short-circuited.

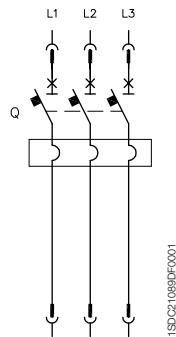
Caption

- = Diagram figure number
- * = See the note indicated by the letter
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously.
- K51 = Electronic trip unit:
- overcurrent release type Ekip I, Ekip LS/I, Ekip N-LS/I, Ekip LSI, Ekip LSIG, Ekip E-LSIG
 - of motor protection type Ekip M-LIU
- K87 = Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
- Q = Main circuit breaker
- S75I/1..4 = Contacts for electrical signaling of circuit breaker in the connected position (only provided with plug-in or withdrawable version circuit breakers)
- S75S/1-2 = Contacts for electrical signaling of circuit breaker in the racked-out position (only provided with withdrawable version circuit breakers)
- SD = Power supply switch-disconnector of the residual current release type RC Inst, RC Sel, RC Sel 200 or RC B Type
- TI = Toroidal current transformer
- TI/L1 = Current transformer placed on phase L1
- TI/L2 = Current transformer placed on phase L2
- TI/L3 = Current transformer placed on phase L3
- TI/N = Current transformer placed on the neutral
- V1 = Circuit breaker applications
- X41 = Circuit connector for external neutral
- XG-XH = Electronic trip unit connectors
- XV = Terminal boxes of circuit breaker applications
- YO1 = Opening solenoid of the microprocessor-based overcurrent release
- YO2 = Opening solenoid of the residual current release

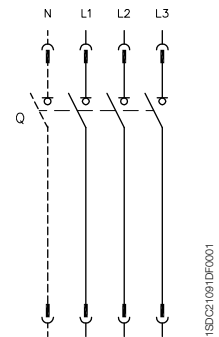
Wiring diagrams of the circuit breakers



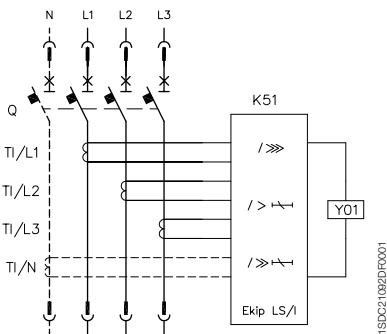
Three-pole or four-pole circuit breaker
with TMF or TMA
thermomagnetic trip unit



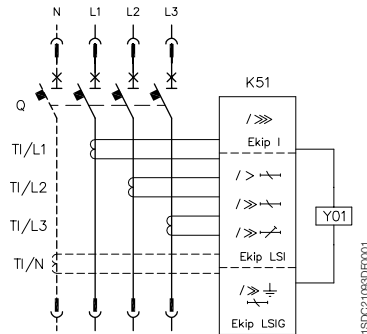
Three-pole circuit breaker
with MCP (MA) magnetic trip unit



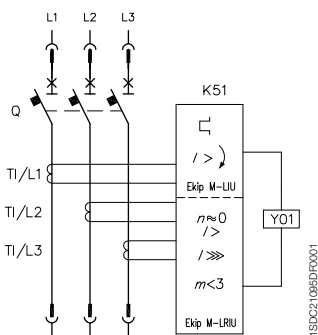
Three-pole or four-pole
molded case
switch-disconnector



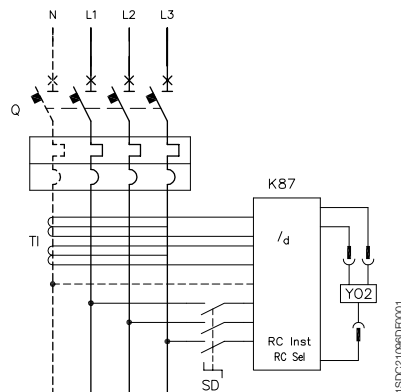
Three-pole or four-pole circuit breaker
with Ekip LS/I
electronic trip unit



Three-pole or four-pole circuit breaker
with Ekip I, Ekip LSI or Ekip LSIG
electronic trip unit



Three-pole circuit breaker with
Ekip M-LIU
electronic trip unit



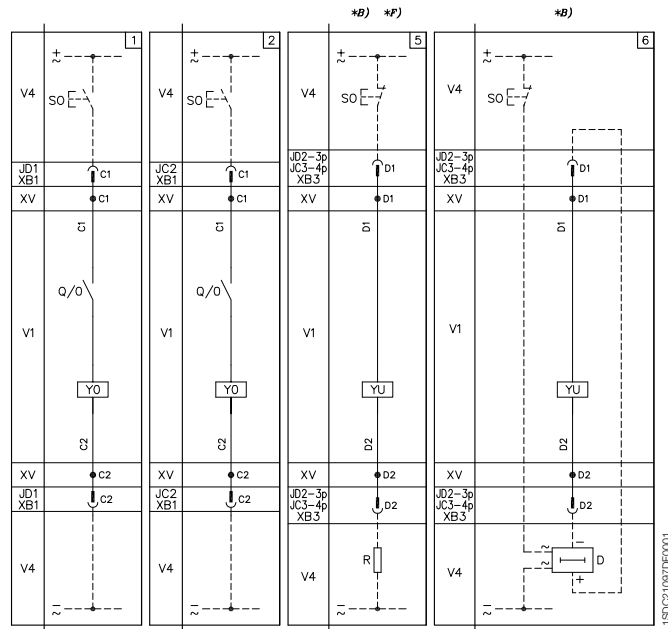
Three-pole or four-pole circuit breaker
with thermomagnetic trip unit and RC Inst
or RC Sel residual current release

Captions

□	= Diagram figure number
*	= See the note indicated by the letter
K51	= Microprocessor-based release: <ul style="list-style-type: none">– overcurrent release type Ekip I, Ekip LS/I, Ekip N-LS/I, Ekip LSI, Ekip LSIG, Ekip E-LSIG– motor protection release type Ekip M-LIU
K87	= Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
Q	= Main circuit breaker
SD	= Power supply switch-disconnector of the residual current release type RC Inst, RC Sel, RC Sel 200 or RC B Type
TI	= Toroidal current transformer
TI/L1	= Current transformer placed on phase L1
TI/L2	= Current transformer placed on phase L2
TI/L3	= Current transformer placed on phase L3
TI/N	= Current transformer placed on the neutral
YO1	= Opening solenoid of the microprocessor-based overcurrent release
YO2	= Opening solenoid of the residual current release

Wiring diagrams of the accessories

Service releases



Description of figures

- Fig. 1 = Shunt opening release.
- Fig. 2 = Supplementary shunt opening release (only for four-pole circuit breakers).
- Fig. 5 = Instantaneous undervoltage release (see Notes B and F).
- Fig. 6 = Undervoltage release with electronic time delay device outside the circuit breaker, see note B).

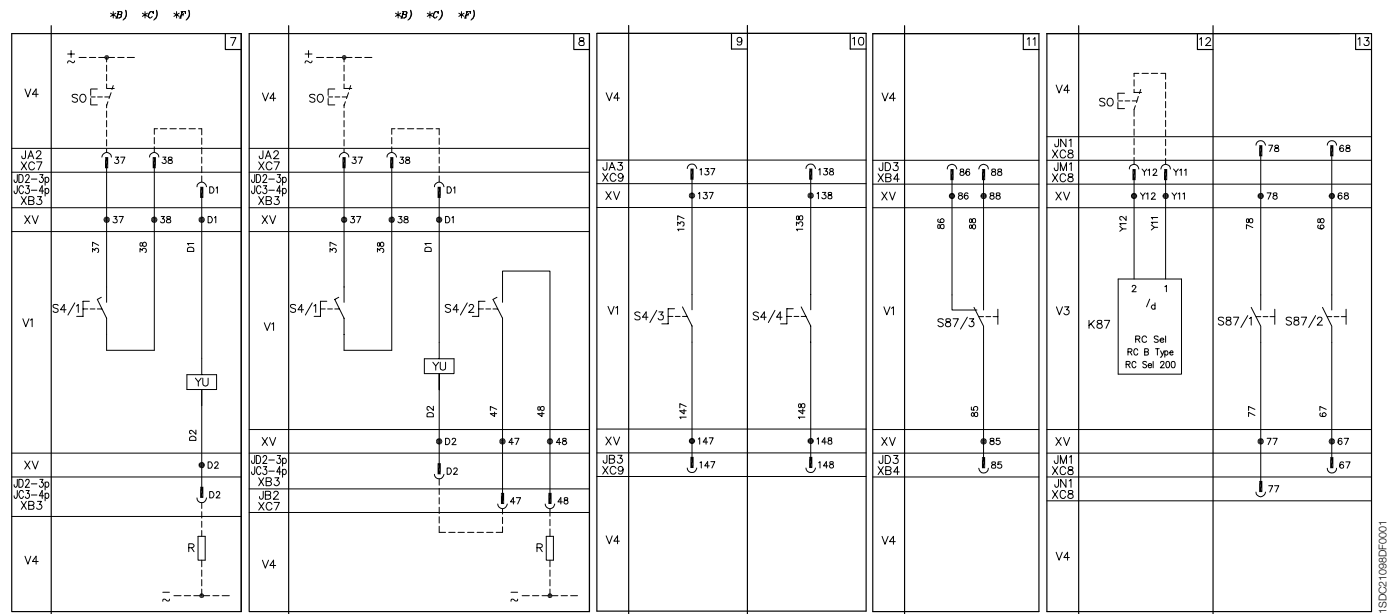
Notes

- B) The undervoltage release is supplied for power supply branched on the supply side of the circuit breaker or from an independent source: closing is only possible with the release energized (the lock on closing is made mechanically).
- F) Additional external resistor for undervoltage supplied at 380/440V AC and 480/525V AC.

Caption

- = Diagram figure number
- * = See the note indicated by the letter
- D = Undervoltage release electronic time delay device (outside the circuit breaker) (only for voltages up to 250V)
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
- Q/0..7 = Circuit breaker auxiliary contacts
- R = Resistor (see note F)
- SO = Pushbutton or contact for opening the circuit breaker
- V1 = Circuit breaker applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- XB.. = Three-way connector for the plug-in version circuit breaker auxiliary circuits
- XV = Terminal boxes of circuit breaker applications
- YO = Shunt opening release
- YU = Undervoltage release (see note B)

Service releases



Description of figures

- Fig. 7 = Instantaneous undervoltage release in the version for machine tools with one contact in series (see notes B, C and F).
 Fig. 8 = Instantaneous undervoltage release in the version for machine tools with two contacts in series (see Notes B, C and F).
 Fig. 9 = First auxiliary early contact operated by the crank handle.
 Fig. 10 = Second auxiliary early contact operated by the crank handle.
 Fig. 11 = One changeover contact for electrical signaling of circuit breaker open due to tripping of the residual current release type RC Inst, RC Sel, RC B Type or RC Sel 200.
 Fig. 12 = Residual current release circuits type RC Sel, RC B Type or RC Sel 200.
 Fig. 13 = Two contacts for electrical signaling of residual current release pre-alarm and alarm type RC Sel, RC B Type or RC Sel 200.

Notes

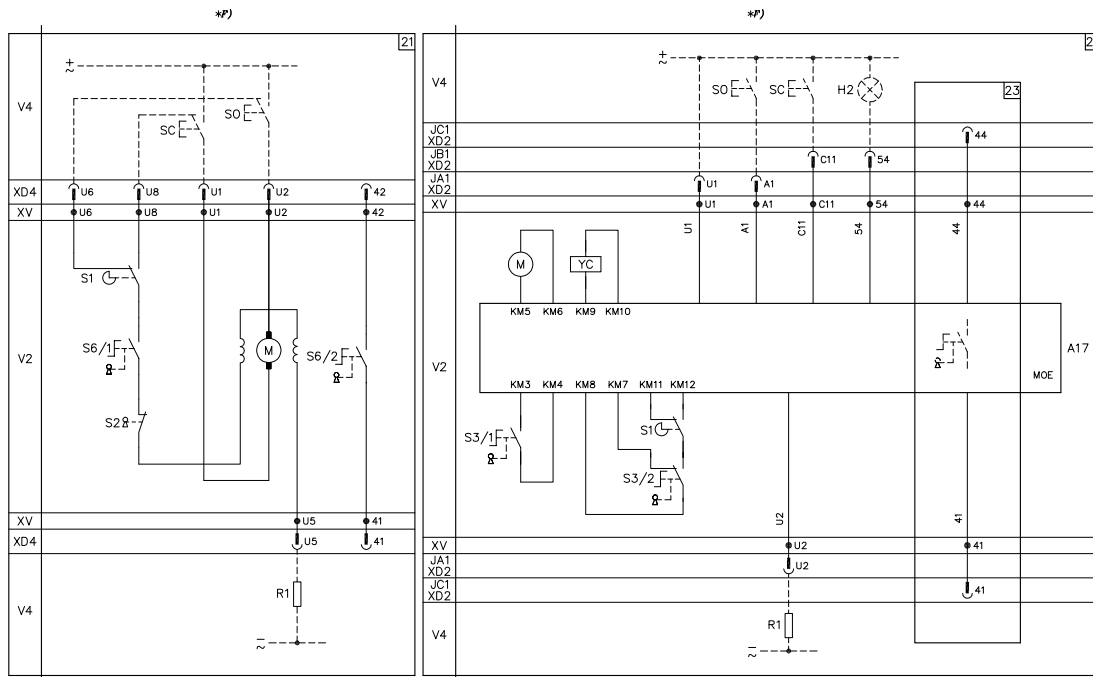
- B) The undervoltage release is supplied for power supply branched on the supply side of the circuit breaker or from an independent source: closing is only possible with the release energized (the lock on closing is made mechanically).
 C) Contacts S4/1 and S4/2 shown in figures 7-8 open the circuit with the circuit breaker open and reclose it when a manual closing command is given by means of the rotary handle, in accordance with the Standards regarding machine tools (in any case closing does not take place if the undervoltage release is not supplied).
 F) Additional external resistor for undervoltage supplied at 480/525V AC.

Caption

- = Diagram figure number
 * = See the note indicated by the letter
 J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
 K87 = Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
 R = Resistor (see note F)
 S4/1-4 = Auxiliary early contacts operated by the circuit breaker mounted crank handle (see note C)
 S87/1 = Contact for electrical signaling of pre-alarm of the residual current release type RC Sel, RC B or RC Sel 200
 S87/2 = Contact for electrical signaling of alarm of the residual current release type RC Sel, RC B or RC Sel 200
 S87/3 = Contact for electrical signaling of circuit breaker open due to tripping of the residual current release type RC Sel, RC Inst, RC B or RC Sel 200
 SO = Pushbutton or contact for opening the circuit breaker
 V1 = Circuit breaker applications
 V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
 XB.. = Three-way connector for the plug-in version circuit breaker auxiliary circuits
 XC.. = Six-way connector for the plug-in version circuit breaker auxiliary contacts
 XV = Terminal boxes of the circuit breaker applications
 YU = Undervoltage release (see note B)

Wiring diagrams of the accessories

Motor operator



1SDC210059D0201

Description of figures

Fig. 21 = Direct control motor operator (MOD) (only for XT1 and XT3 fixed or plug-in circuit breakers) (see note I).

Fig. 22 = Motor operator with stored energy (MOE) (only for circuit breakers XT2 and XT4).

Fig. 23 = A contact for electrical signaling of stored energy motor operator that can be operated remotely.

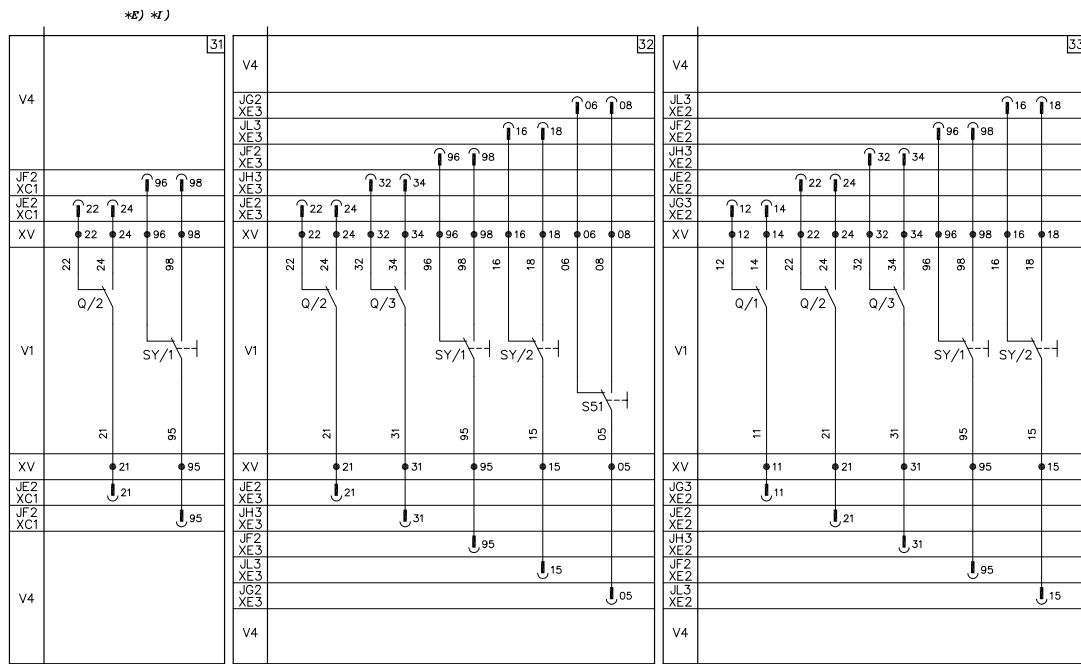
Notes

F) Additional external resistor for MOD and MOE supplied at 480/525V AC.

Caption

- = Diagram figure number
- * = See the note indicated by the letter
- A17 = Actuator unit type MOE for the stored energy motor operator
- H2 = Signaling lamp for stored energy motor operator blocked
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; extraction of the connectors takes place at the same time as that of the circuit breaker
- M = Motor with excitation in series for opening and closing the circuit breaker (fig. 21)
- M = Motor for opening the circuit breaker and spring charging for closing the circuit breaker (fig. 22)
- M1 = Three-phase asynchronous motor
- R1 = Resistor (see note F)
- S1 = Contact controlled by the cam of the motor operator
- S2 = Contact controlled by the key lock of the motor operator with direct action
- S3/1-2 = Contacts controlled by the Auto/Manual selector and key lock of the stored energy motor operator
- S4 = Contact controlled by the cam of the motor operator with direct action
- S6/1-2 = Contacts controlled by the Auto/Manual selector of the motor operator with direct action
- SC = Pushbutton or contact for closing the circuit breaker
- SO = Pushbutton or contact for opening the circuit breaker
- V2 = Motor operator applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XV = Terminal boxes of the circuit breaker applications
- YC = Shunt closing release of the stored energy motor operator

Signaling contacts



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Description of figures

- Fig. 31 = One changeover contact for electrical signaling of circuit breaker open or closed and one changeover contact for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V) (see notes E and I).
- Fig. 32 = Two changeover contacts for electrical signaling of circuit breaker open or closed, two changeover contacts for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) and one changeover contact for electrical signaling of circuit breaker open due to tripping of the thermomagnetic or electronic trip unit (only for voltages up to 250V).
- Fig. 33 = Three changeover contacts for electrical signaling of circuit breaker open or closed and two changeover contacts for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).

Notes

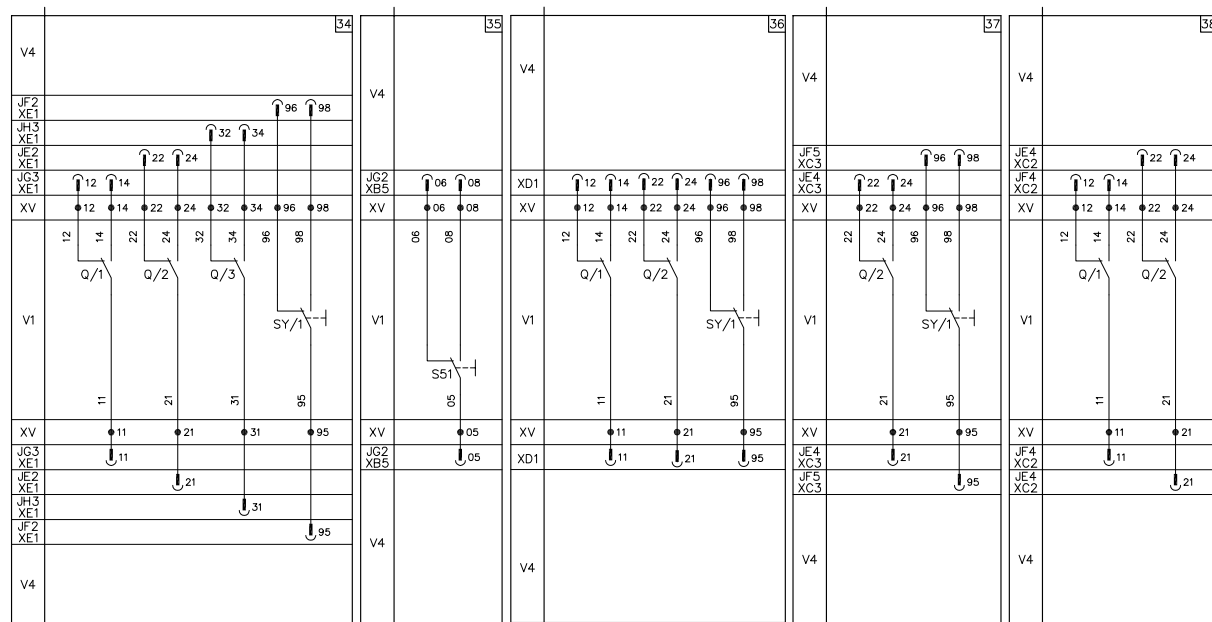
- E) The 24V auxiliary power supply unit of fig. 48 must be installed in the circuit breaker seats marked SY/1 and Q/2. Therefore, should you want to install the unit in fig. 48 and the contacts in fig. 31 at the same time, the contacts of fig. 31 must be installed in the adjacent slots; that is, contact SY/1 in the slot marked SY/2 and contact Q/2 in the slot marked Q/1.
- I) If the MOD (application in figure 21) and the auxiliary contacts 1Q+1SY (in figure 31) must be installed simultaneously, contact Q/2 must be installed in the slot marked as Q/1

Captions

- = Diagram figure number
- * = See the note indicated by the letter
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
- Q/0..3 = Circuit breaker auxiliary contacts
- S51 = Contact for electrical signaling of circuit breaker open due to tripping of the thermomagnetic or electronic trip unit
- SY/1..2 = Contacts for electrical signaling of circuit breaker open due to tripping of the thermomagnetic trip units, YO, YO1, YO2, YU (tripped position)
- V1 = Circuit breaker applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- XC.. = Six-way connector for the plug-in version circuit breaker auxiliary contacts
- XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XE.. = Fifteen-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XV = Terminal boxes of the circuit breaker applications

Wiring diagrams of the accessories

Signaling contacts



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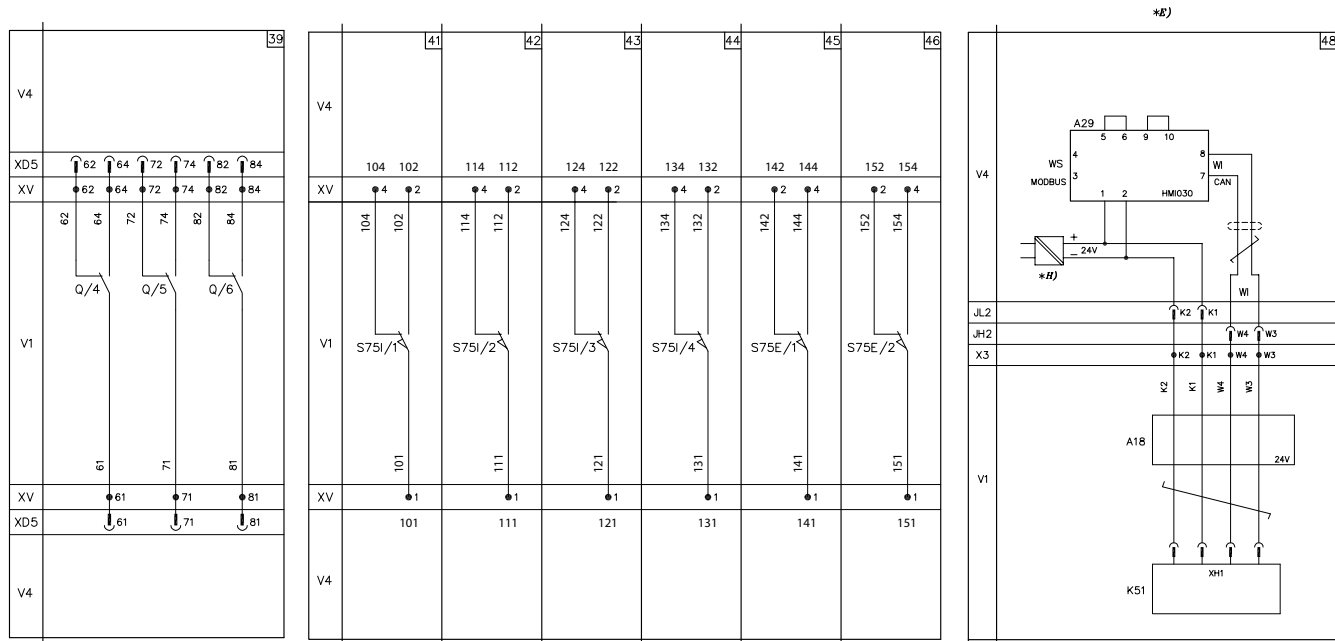
Description of figures

- Fig. 34 = Three changeover contacts for electrical signaling of circuit breaker open and one changeover contact for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).
- Fig. 35 = One changeover contact for electrical signaling of circuit breaker open due to tripping of the thermomagnetic electronic trip unit (only for voltages up to 250V).
- Fig. 36 = Two changeover contacts for electrical signaling of circuit breaker open or closed and one changeover contact for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).
- Fig. 37 = One changeover contact for electrical signaling of circuit breaker open or closed and one changeover contact for electrical signaling of circuit breaker open due to tripping of the magnetic, thermomagnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltage up to 400V).
- Fig. 38 = Two changeover contacts for electrical signaling of circuit breaker open or closed (only for voltage up to 400V).

Captions

- = Diagram figure number
- * = See the note indicated by the letter
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
- Q/0..3 = Circuit breaker auxiliary contacts
- S51 = Contact for electrical signaling of circuit breaker open due to tripping of the thermomagnetic or electronic trip unit
- SY/1 = Contacts for electrical signaling of circuit breaker open due to tripping of the thermomagnetic trip units, YO, YO1, YO2, YU (tripped position)
- V1 = Circuit breaker applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- XB.. = Three-way connector for the plug-in version circuit breaker auxiliary circuits
- XC.. = Six-way connector for the plug-in version circuit breaker auxiliary contacts
- XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XE.. = Fifteen-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XV = Terminal boxes of the circuit breaker applications

Signaling contacts



Description of figures

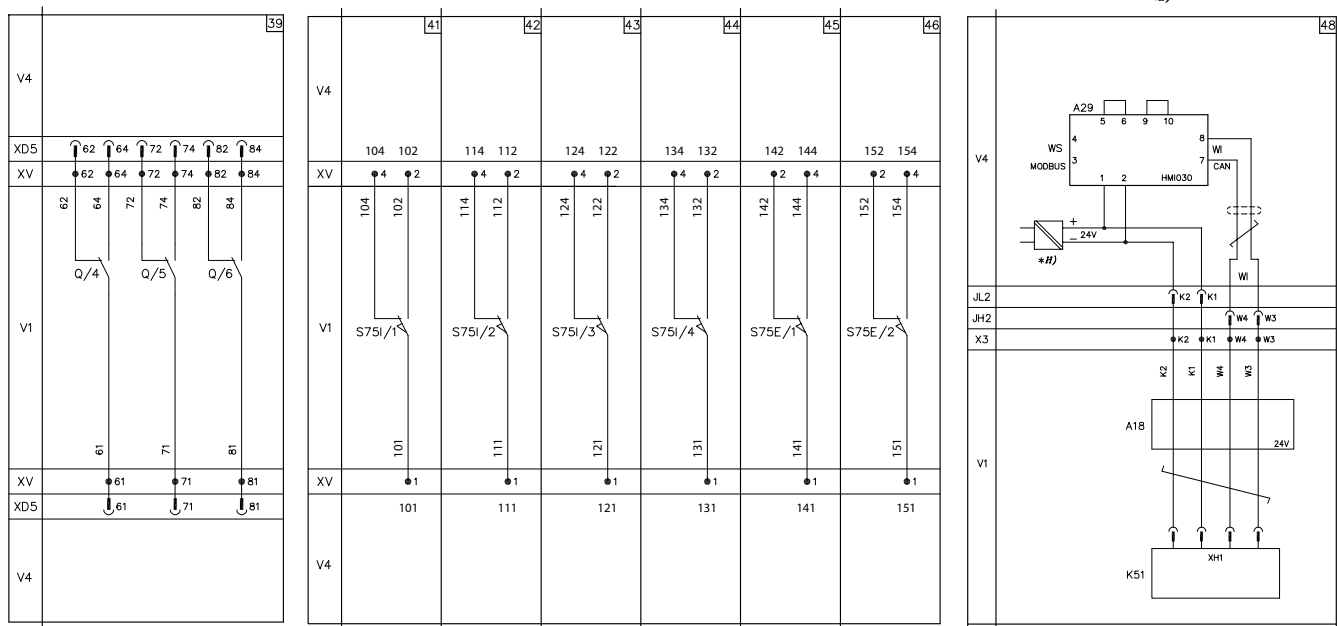
- Fig. 39 = Three supplementary changeover contacts for electrical signaling of circuit breaker open or closed (only for fixed or plug-in version circuit breakers).
- Fig. 41 = First changeover position contact of the circuit breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit breakers).
- Fig. 42 = Second changeover position contact of the circuit breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit breakers).
- Fig. 43 = Third changeover position contact of the circuit breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit breakers).
- Fig. 44 = Fourth changeover position contact of the circuit breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit breakers).
- Fig. 45 = First changeover position contact of the circuit breaker, for electrical signaling of isolated (only for withdrawable version circuit breakers).
- Fig. 46 = Second changeover position contact of the circuit breaker, for electrical signaling of isolated (only for withdrawable version circuit breakers).
- Fig. 48 = Auxiliary circuits of the 24V auxiliary power supply unit and of the HMI030 type interface unit (see note E).

Notes

- E) The 24V auxiliary power supply unit of fig. 48 must be installed in the circuit breaker seats marked SY/1 and Q/2. Therefore, should you want to install the unit in fig. 48 and the contacts in fig. 31 at the same time, the contacts of fig. 31 must be installed in the adjacent slots; that is, contact SY/1 in the slot marked SY/2 and contact Q/2 in the slot marked Q/1.
- H) Having requested a U_{aux} insulated from earth, "galvanically separated converters" must be used in compliance with IEC 60950 (UL 1950) or equivalent standards that ensure a common mode current or leakage current (see IEC 478/1, CEI 22/3) no greater than 3.5 mA, IEC 60364-41 and CEI 64-8.

Wiring diagrams of the accessories

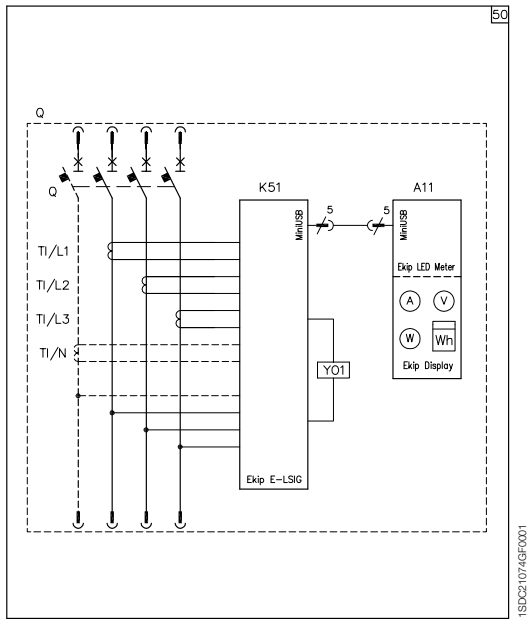
Signaling contacts



Captions

- = Diagram figure number
- * = See the note indicated by the letter
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
- K51 = Electronic trip unit:
 - of overcurrent type Ekip LS/I, Ekip N-LS/I, Ekip LSI, Ekip LSIg
 - of motor protection type Ekip I, Ekip M-I, Ekip M-LIU, Ekip M-LRIU
 - of generator protection type Ekip G-LSI
- Q/0..7 = Circuit breaker auxiliary contacts
- S75I/1..4 = Contacts for electrical signaling of circuit breaker in connected position (only provided with plug-in or withdrawable version circuit breakers)
- S75E/1-2 = Contacts for electrical signaling of circuit breaker in racked-out position (only provided with withdrawable version circuit breakers)
- V1 = Circuit breaker applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- WI = Serial interface with the trip unit accessories
- X3 = Connector of the circuit for the 24V auxiliary power supply unit
- XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XV = Terminal boxes of the circuit breaker applications
- A18 = 24V auxiliary power supply unit (see note E)
- XH1 = Electronic trip unit contacts

Electronic trip unit Ekip E-LSIG connected with Ekip Display or Ekip LED Meter



Description of figures

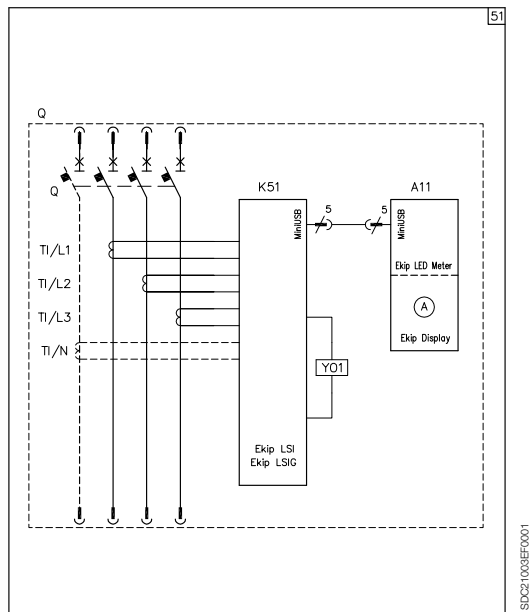
Fig. 50 = Auxiliary circuits of the Ekip E-LSIG microprocessor-based release connected to the Ekip Display (display) or Ekip LED Meter (current display) display unit.

Captions

- = Reference number of diagram figure
- A11 = Display unit type Ekip Display (display) or Ekip LED Meter (current display)
- K51 = Microprocessor-based release:
 - overcurrent release type Ekip I, Ekip LS/I, Ekip N-LS/I, Ekip LSI, Ekip LSIG, Ekip E-LSIG
 - motor protection release type Ekip M-LIU
- Q = Main switch
- TI/L1 = Current transformer located on phase L1
- TI/L2 = Current transformer located on phase L2
- TI/L3 = Current transformer located on phase L3
- TI/N = Current transformer located on neutral
- Y01 = Opening solenoid of microprocessor-based overcurrent release

Wiring diagrams of the accessories

Electronic trip unit Ekip LSI, Ekip LSIG, Ekip LED Meter



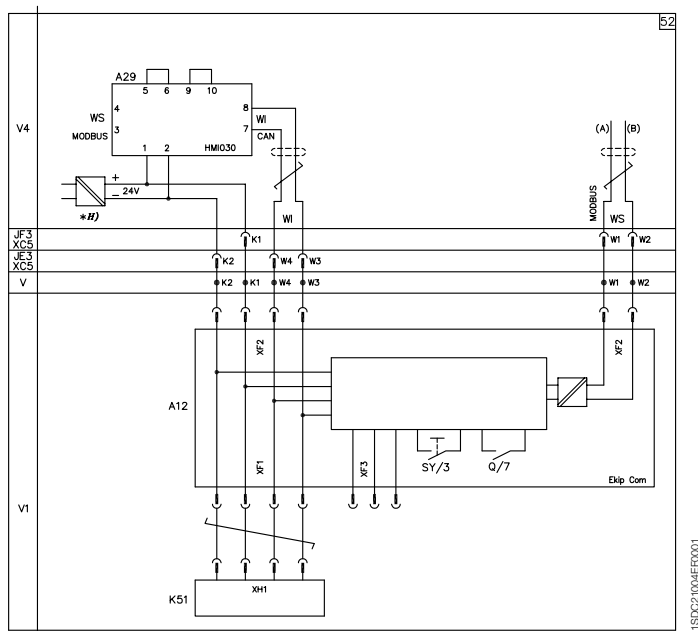
Description of figures

Fig. 51 = Auxiliary circuits of the electronic trip unit type Ekip LSI, Ekip LSIG or Ekip MLRIU connected to display unit type Ekip Display (display) or Ekip LED Meter (current display).

Caption

- = Diagram figure number
- A11 = Display unit type Ekip Display (display) or Ekip LED Meter (current display)
- K51 = Microprocessor-based release:
 - overcurrent release type Ekip I, Ekip LS/I, Ekip N-LS/I, Ekip LSI, Ekip LSIG, Ekip E-LSIG
 - motor protection release type Ekip M-LIU
- Q = Main circuit breaker
- TI/L1 = Current transformer placed on phase L1
- TI/L2 = Current transformer placed on phase L2
- TI/L3 = Current transformer placed on phase L3
- TI/N = Current transformer placed on the neutral
- YO1 = Opening solenoid of the microprocessor-based overcurrent release

Auxiliary circuit of Ekip-Com and HMI030



Description of figures

Fig. 52 = Auxiliary circuits of the Ekip Com type interface unit and of the HMI030 type interface unit (see note E).

Notes

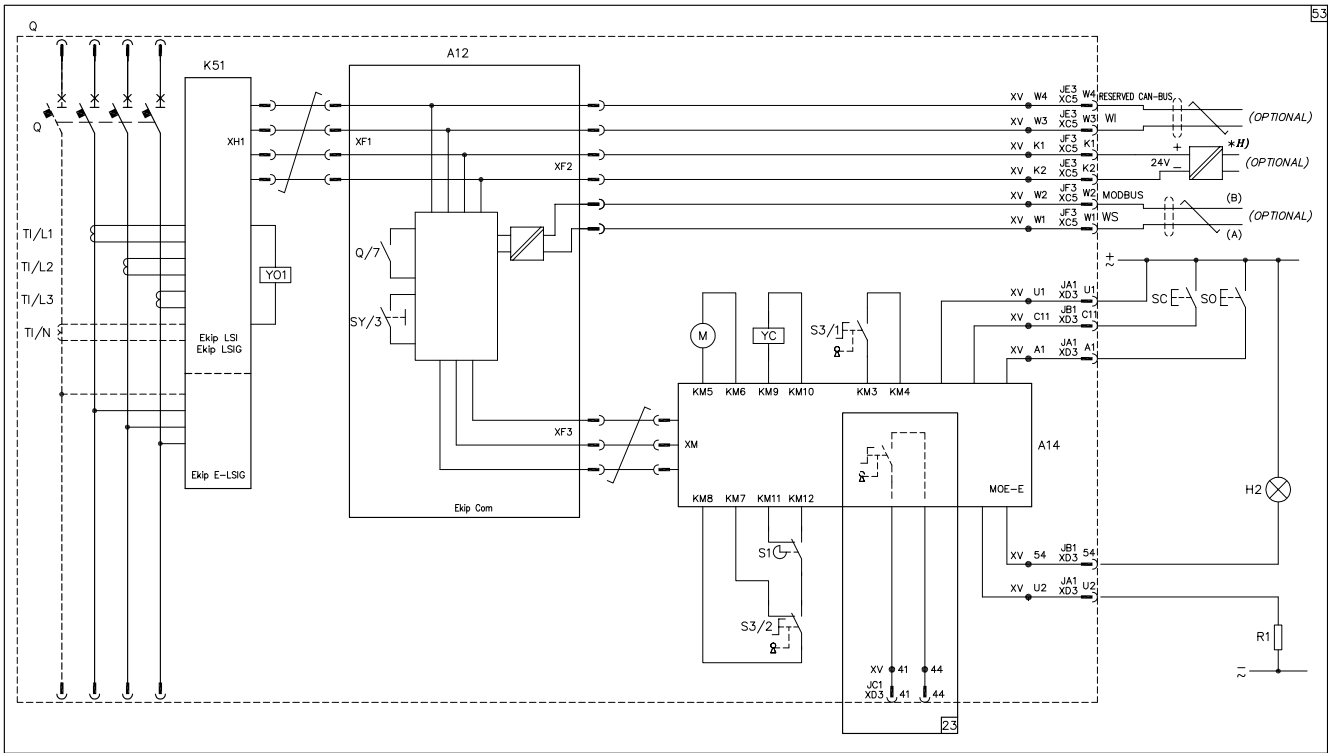
- H) Having requested a Uaux insulated from earth, “galvanically separated converters” must be used in compliance with IEC 60950 (UL 1950) or equivalent standards that ensure a common mode current or leakage current (see IEC 478/1, CEI 22/3) no greater than 3.5 mA, IEC 60364-41 and CEI 64-8.

Captions

- = Diagram figure number
- A12 = Interface unit type Ekip Com (with MODBUS serial communication)
- A13 = Signaling unit type LD030 DO
- K51 = Electronic trip unit:
 - of overcurrent type Ekip LSI, Ekip LSIG
- Q = Main circuit breaker
- Q/0...7 = Circuit breaker auxiliary contacts
- SY/1...3 = Contacts for electrical signaling of circuit breaker open due to tripping of the thermomagnetic trip units, YO, YO1, YO2, YU (tripped position)
- TI/L1 = Current transformer placed on phase L1
- TI/L2 = Current transformer placed on phase L2
- TI/L3 = Current transformer placed on phase L3
- TI/N = Current transformer placed on the neutral
- WI = Serial interface with the trip unit accessories
- WS = Serial interface with the control system (MODBUS EIA RS485 interface)
- XF = Connector of the Interface unit type Ekip Com
- XG-XH = Electronic trip unit connectors
- XV = Terminal boxes of the circuit breaker applications
- YO1 = Opening solenoid of the microprocessor-based overcurrent release

Wiring diagrams of the accessories

Electronic trip unit Ekip LSI, Ekip LSiG connected to interface unit Ekip Com and with actuator unit type MOE-E for the stored energy motor operator



Description of figures

- Fig. 23 = One contact for electrical signaling of stored energy motor operator that can be operated remotely.
Fig. 53 = Auxiliary circuits of the electronic trip unit type Ekip LSI, Ekip LSI^G or Ekip M-LRIU connected to interface unit type Ekip Com and with actuator unit type MOE-E for the stored energy motor operator.

Notes

- H) Having requested a ground-insulated Uaux, "galvanically separated converters" must be used in compliance with IEC 60950 (UL 1950) or equivalent standards that ensure a common mode current or leakage current (see IEC 478/1, CEI 22/3) no greater than 3.5 mA, IEC 60364-41 and CEI 64-8.

Captions

- = Diagram figure number
A12 = Interface unit type Ekip Com (with MODBUS serial communication)
A14 = Actuator unit type MOE-E for the stored energy motor operator
H2 = Signaling lamp for blocked stored energy motor operator
J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
K51 = Electronic trip unit:
– of overcurrent type Ekip LSI, Ekip LSI^G
M = Motor with excitation in series for opening and closing the circuit breaker (fig. 21)
Q = Main circuit breaker
Q/0..7 = Circuit breaker auxiliary contacts
R1 = Resistor (see note H)
S1 = Contact controlled by the cam of the motor operator
S3/1-2 = Contacts controlled by the Auto/Manual selector and key lock of the stored energy motor operator
SC = Pushbutton or contact for closing the circuit breaker
SO = Pushbutton or contact for opening the circuit breaker
SY/1..3 = Contacts for electrical signaling of circuit breaker open due to tripping of the thermomagnetic trip units, YO, YO1, YO2, YU (tripped position)
TI = Toroidal current transformer
TI/L1 = Current transformer placed on phase L1
TI/L2 = Current transformer placed on phase L2
TI/L3 = Current transformer placed on phase L3
TI/N = Current transformer placed on the neutral
WI = Serial interface with the trip unit accessories
WS = Serial interface with the control system (MODBUS EIA RS485 interface)
XC.. = Six-way connector for the plug-in version circuit breaker auxiliary contacts
XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
XF = Connector of the Interface unit type Ekip Com
XG-XH = Electronic trip unit connectors
XV = Terminal boxes of the circuit breaker applications
YC = Shunt closing release of the stored energy motor operator
YO1 = Opening solenoid of the microprocessor-based overcurrent release

Resetting instructions

Instructions for resetting the circuit breaker following release tripping

Selecting the type of circuit breaker resetting depends on design requirements and on service conditions.

Resetting can take place following tripping of the following releases:

- overcurrent;
- undervoltage;
- shunt opening.

The following three possibilities are suggested (see diagrams below):

1. Only manual resetting

To be wired (by the customer): contact SO1, contact SY/1 and the auxiliary relay KO (only for MOD).

Opening is prevented until the circuit breaker is in the tripped position.

To reset the circuit breaker it is necessary to activate the special lever on the front of the motor until the circuit breaker goes into the open position.

2. Electrical resetting making the operator responsible

To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).

Opening is allowed by means of contact S02, an operation entrusted to the person in charge of the control station provided that information has been received by same that enables tripping due to a short-circuit to be ruled out or if the causes of the short circuit have been eliminated/remedied.

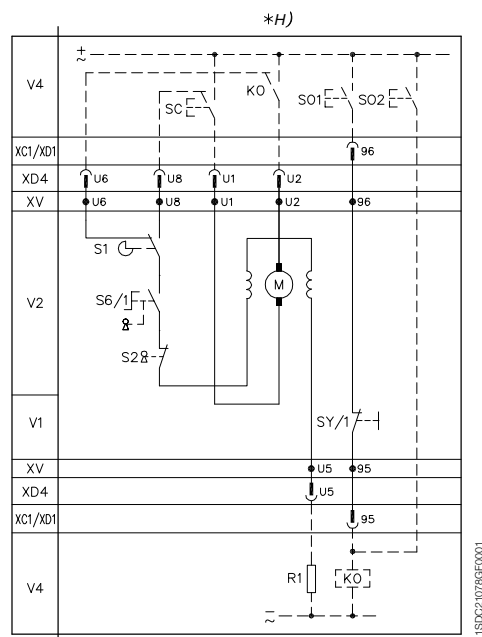
3. Electrical resetting always allowed

To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).

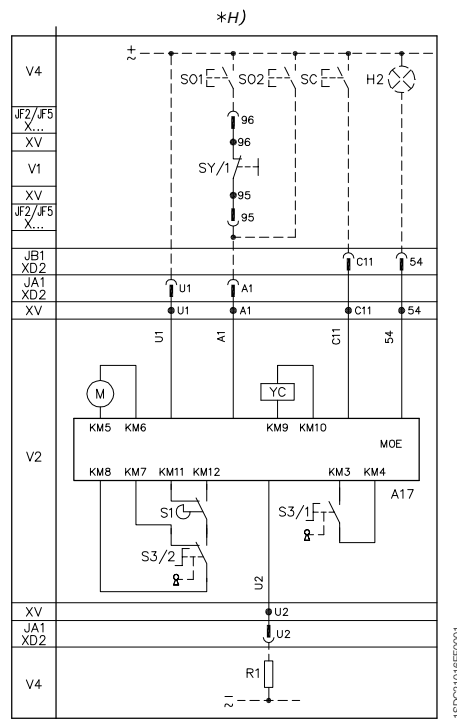
Opening is always allowed by means of contact S02.

NB: If the magnetic, thermomagnetic or electronic trip unit is present, it is necessary to find the causes which led to the circuit breaker being in the tripped position so as to prevent reclosing under short-circuit conditions. In all cases, manual resetting is always allowed.

MOD



MOE or MOE-E



Notes

- H) Having requested a ground-insulated Uax, "galvanically separated converters" must be used, in compliance with IEC 60950 (UL 1950) or equivalent standards that ensure a common mode current or leakage current (see IEC 478/1, CEI 22/3) no greater than 3.5 mA, IEC 60364-41 and CEI 64-8.

Captions

- A17 = Actuator unit type MOE for the stored energy motor operator
- H2 = Signaling lamp for blocked stored energy motor operator
- J.. = Connectors for the auxiliary contacts of the withdrawable version circuit breaker; connectors and circuit breaker are extracted simultaneously
- KO = Auxiliary opening relay
- M = Motor with excitation in series for opening and closing the circuit breaker (fig. 21)
- M = Motor for opening the circuit breaker and spring charging for closing the circuit breaker (fig. 22)
- R1 = Resistor (see note H)
- S1 = Contact controlled by the cam of the motor operator
- S2 = Contact controlled by the key lock of the motor operator with direct action
- S3/1-2 = Contacts controlled by the Auto/Manual selector and key lock of the stored energy motor operator
- S6/1-2 = Contacts controlled by the Auto/Manual selector of the motor operator with direct action
- SC = Pushbutton or contact for closing the circuit breaker
- S01,S02 = Pushbuttons or contacts for opening the circuit breaker (see "Instructions for resetting the circuit breaker following release tripping")
- SY/1..3 = Contacts for electrical signaling of circuit breaker open due to tripping of the thermomagnetic trip units, YO, YO1, YO2, YU (tripped position)
- V1 = Circuit breaker applications
- V2 = Motor operator applications
- V4 = Indicative apparatus and connections for control and signaling, outside the circuit breaker
- XB.. = Three-way connector for the plug-in version circuit breaker auxiliary circuits
- XC.. = Six-way connector for the plug-in version circuit breaker auxiliary contacts
- XD.. = Nine-way connector for the auxiliary circuits of the plug-in version circuit breaker
- XV = Terminal boxes of the circuit breaker applications
- YC = Shunt closing release of the stored energy motor operator

Examples of ordering 7/2

Ordering codes for XT1	
Circuit breakers	7/4
Accessories	7/6

Ordering codes for XT2	
Circuit breakers	7/13
Accessories	7/16

Ordering codes for XT3	
Circuit breakers	7/26
Accessories	7/28

Ordering codes for XT4	
Circuit breakers	7/35
Accessories	7/44

Ordering codes

Examples of ordering

Example 1: Terminals for fixed or fixed part of plug-in/ withdrawable circuit breaker

To fit the circuit breaker with terminals other than those supplied on the basic circuit breaker, the whole kit (6 or 8 pcs) or half-kits (3 or 4 pcs) can be requested. In the case of a mixed solution, the first code indicates the terminals to be mounted in the top part of the circuit breaker; the second code indicates the terminals to be mounted in the lower part. However, when only one half-kit is requested, it must be specified if it is to be mounted at the top or bottom.

XT1N 125A 3p fixed with EF top and FCCu bottom terminals

	1SDA...R1
XT1N 125 TMF 3p F F UL/CSA	074648
KIT EF XT1 3pcs	066865
KIT FC Cu XT1 14-1/0 AWG	075869

XT2S 100A 3p withdrawable with ES top and MC bottom terminals

	1SDA...R1
XT2S 100 TMA 3p F F UL/CSA	074772
Kit W FP EF (fixed part of withdrawable assembly with EF terminals)	068200
W MP KIT (kit for conversion from fixed to moving part of withdrawable assembly)	066284
ADP adapter for fixed part (2 pieces)	066307
KIT ES XT2 3pcs	066893
KIT MC CuAl 6x14-2 AWG XT2 3pcs UL/CSA	075901

Example 2: Electrical accessories for plug-in circuit breaker

With the plug-in version circuit breakers, disconnection of the auxiliary circuits can be made by means of two types of connectors:

- socket-plug adapters to be fixed at the back of the panel for XT1, XT2, XT3, XT4
- socket-plug adapters placed in the fixed part of the plug-in base and on the rear of the circuit breaker for XT2 and XT4.

XT2N 125A 3p plug-in with SOR, AUX 1 Q + 1 SY, connector on the panel

	1SDA...R1
XT2N 125 TMA 3p FF UL/CSA	074746
Kit P FP EF (fixed part of plug-in assembly with EF terminals)	068187
P MP KIT (kit for conversion from fixed to moving part of a plug-in assembly)	066278
SOR-C 220...240V AC / 220...250V DC	075806
AUX-C 1 Q + 1 SY 250V	066431
Socket -plug connector with 9 PINS	066411

XT2N 125A 3p plug-in with SOR, AUX 1 Q + 1 SY, connector on rear of circuit breaker

	1SDA...R1
XT2N 125 TMA 3p FF UL/CSA	074746
Kit P FP EF (fixed part of plug-in assembly with EF terminals)	068187
P MP KIT (kit for conversion from fixed to moving part of a plug-in assembly)	066278
SOR-C 220...240V AC / 220...250V DC	075806
AUX-C 1 Form C / Q + 1 BA / SY 250V	066431
Socket-plug connector of moving part - 12 PINS	066413
Socket-plug connector of fixed part - 12 PINS	066414

Example 3: Electrical accessories for withdrawable version circuit breakers

With withdrawable circuit breakers, accessories specifically for this version must be ordered. Electrical accessories specified for the withdrawable version are fitted with both the connector for the fixed part, to be installed in the side of the fixed part, and with the connector for the moving part.

XT2S 100A 3p withdrawable with SOR, AUX 1 Q + 1 SY, RHE

	1SDA...R1
XT2S 100 TMA 3p F F UL/CSA	074772
Kit W FP EF (fixed part of withdrawable assembly with EF terminals)	068200
W MP KIT (kit for conversion from fixed to moving part of withdrawable assembly)	066284
AUX-C 1 Q + 1 SY 250V (withdrawable)	066432
SOR-C 220...240V AC / 220...250V DC (withdrawable)	075813
RHE normal extended handle (withdrawable)	066482

Example 4: Connector for the 4th pole of a withdrawable circuit breaker

If an SOR or UVR needs to be inserted into a withdrawable circuit breaker's fourth pole slot, a corresponding connector must be ordered.

XT2N 50A 4p withdrawable with SOR (4p) and UVR (3p)

	1SDA...R1
XT2N 50 TMF 4p F F UL/CSA	074753
Kit W FP EF (fixed part of 4p withdrawable assembly with EF terminals)	068202
W MP KIT (kit for conversion from fixed to moving part of 4p withdrawable assembly)	066285
SOR-C 24-30V AC/DC (withdrawable)	075810
UVR-C 24-30V AC/DC (withdrawable)	075830
Connector 4th pole SOR	066415

Example 5: Rear mechanical interlock

The rear interlock is made up of the (horizontal) MIR-H or (vertical) MIR-V chassis unit and the MIR-P plates. In order to receive the circuit breakers mounted directly onto the interlock plate, it is necessary to specify:

- the sales code of the frame;
- the sales codes of the plates associated with the circuit breakers/fixed parts which are to be interlocked.

Horizontal mechanical interlock XT1-XT1 in fixed version		
		1SDA...R1
Pos. 1	XT1N 80 TMF 3p F F UL/CSA	074644
	Chassis MIR-H	066637
	Plate XT1 F	066639
Pos. 2	XT1N 80 TMF 3p F F UL/CSA	074644
	Plate XT1 F	066639

Ordering codes for XT1 UL/CSA Circuit breakers

XT1 125A TMF - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1				
Type	In	I _a	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)		
TMF	15	500		074634	074664	074694		
	20	500		074635	074665	074695		
	25	500		074636	074666	074696		
	30	500		074637	074667	074697		
	35	500		074638	074668	074698		
	40	500		074639	074669	074699		
	45	500		074640	074670	074700		
	50	500		074641	074671	074701		
	60	600		074642	074672	074702		
	70	700		074643	074673	074703		
	80	800		074644	074674	074704		
	90	900		074645	074675	074705		
	100	1000		074646	074676	074706		
	110	1100		074647	074677	074707		
	125	1250		074648	074678	074708		

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XT1 125A TMF - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1				
Type	In	I _a	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)		
TMF	15	500		074649	074679	074709		
	20	500		074650	074680	074710		
	25	500		074651	074681	074711		
	30	500		074652	074682	074712		
	35	500		074653	074683	074713		
	40	500		074654	074684	074714		
	45	500		074655	074685	074715		
	50	500		074656	074686	074716		
	60	600		074657	074687	074717		
	70	700		074658	074688	074718		
	80	800		074659	074689	074719		
	90	900		074660	074690	074720		
	100	1000		074661	074691	074721		
	110	1100		074662	074692	074722		
	125	1250		074663	074693	074723		

XT1 125A MCP-MA - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Magnetic trip unit			Icu	1SDA.....R1				
Type	In	I _a	(480 V)	H				
MA	3	9...33		074724				
	7	21...77		074725				
	15	45...165		074726				
	30	90...330		074727				
	50	150...550		074728				
	70	210...770		074729				
	80	240...880		074730				
	100	300...1100		074731				
	125	375...1375		074732				

XT1 125A Molded Case Switch - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

No Trip Unit			Icu	1SDA.....R1			
Type	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	
D	125	1250		075610	075612	075614	

XT1 125A Molded Case Switch - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

No Trip Unit			Icu	1SDA.....R1			
Type	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	
D	125	1250		075611	075613	075615	

XT1 125A Extra code for 100% rated circuit breaker - UL/CSA

			1SDA.....R1				
Type				3 poles	4 poles		
XT1				076603	080698		

Ordering codes for XT1 UL/CSA Accessories



Fixed part of plug-in

Fixed parts, conversion kits and accessories for fixed parts

Fixed part of plug-in (P)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit P FP EF ⁽¹⁾	068183	068185		
Kit P FP HR/VR ⁽²⁾	068184	068186		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Terminals for the fixed parts

Type	1SDA.....R1			
	3 poles	4 poles		
EF - Front extended terminals	066260	066261		
R - Rear terminals HR/VR	066268	066269		
PS - Rear phase separators 90mm/3.54in	068953	068954		

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Conversion kit

Conversion kit of the circuit breaker from fixed into moving part of plug-in ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
P MP kit	066276	066277		

⁽¹⁾ UL Listed



Fixed part adapter

Adapter for mounting the terminals of the fixed circuit breaker on the fixed part ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
ADP adapter for fixed part (2 pieces)	066305	066306		

⁽¹⁾ UL Listed

Note: when using ADP with ES/MC terminals, also order "Kit F Front Terminals" - see page 7/12

Service releases



SOR uncabled



SOR cabled



UVR uncabled



UVR cabled



Time delay device for undervoltage release

Shunt opening release - SOR ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Uncabled version				
SOR 12V DC	066313			
SOR 24-30V AC/DC	066314			
SOR 48-60V AC/DC	066315			
SOR 110...127V AC / 110...125V DC	066316			
SOR 220...240V AC / 220...250V DC	066317			
SOR 380-440V AC	066318			
SOR 480-525V AC	066319			
Cabled version				
SOR-C 12V DC	066321			
SOR 24-30V AC/DC	066322			
SOR-C 48-60V AC/DC	066323			
SOR-C 110...127V AC / 110...125V DC	066324			
SOR-C 220...240V AC / 220...250V DC	066325			
SOR-C 380-440V AC	066326			
SOR-C 480-525V AC	066327			

⁽¹⁾ UL Listed

Undervoltage release - UVR ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Uncabled version				
UVR 24-30V AC/DC	066389			
UVR 48V AC/DC	060964			
UVR 60V AC/DC	066390			
UVR 110...127V AC / 110...125V DC	066391			
UVR 220...240V AC / 220...250V DC	066392			
UVR 380-440V AC	066393			
UVR 480-525V AC	066394			
Cabled version				
UVR-C 24-30V AC/DC	066396			
UVR-C 48V AC/DC	060965			
UVR-C 60V AC/DC	066397			
UVR-C 110...127V AC / 110...125V DC	066398			
UVR-C 220...240V AC / 220...250V DC	066399			
UVR-C 380-440V AC	066400			
UVR-C 480-525V AC	066401			

⁽¹⁾ UL Listed

Delay device for undervoltage release - UVD

Type	1SDA.....R1			
	Global code			
UVD 24...30V AC/DC	051357			
UVD 48...60V AC/DC	051358			
UVD 110...125V AC/DC	051360			
UVD 220...250V AC/DC	051361			

Ordering codes for XT1 UL/CSA

Accessories



Socket plug connector

Connectors

Socket plug connector on the panel

Type	1SDA.....R1			
	Global code			
Socket-plug connector with 3 PINS	066409			
Socket-plug connector with 6 PINS	066410			
Socket-plug connector with 9 PINS	066411			
Socket-plug connector with 15 PINS	066412			

Electrical signals

Auxiliary contacts -AUX- ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Uncabled version				
AUX 250V	066422			
AUX 24V DC	066423			
Cabled version				
AUX-C 3 Q 250V Left	066426			
AUX-C 1 Q +1 SY 250V	066431			
AUX-C 2 Q +1 SY 250V	066433			
AUX-C 1 Q +1 SY 24V DC	066446			

⁽¹⁾ UL Listed



AUX uncabled



AUX cabled



AUP - Auxiliary position contacts

Auxiliary position contacts -AUP- ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Cabled version				
AUP-I – Four racked-in contacts 250V for plug-in circuit breaker	066450			
AUP-I – Four racked-in contacts 24V DC for plug-in circuit breaker	066451			

⁽¹⁾ UL Listed



AUE - Early auxiliary contacts

Early auxiliary contacts -AUE- ⁽¹⁾

Type	1SDA.....R1			
	Global code			
AUE – Two contacts in the rotary handle RHx (Closed)	066454			
AUE – Two contacts in the rotary handle RHx (Open)	067118			

⁽¹⁾ UL Listed



Motor operator

Motor operators

Motor operator with direct action -MOD- ⁽¹⁾

Type	1SDA.....R1			
	Global code			
MOD 24V DC	066457			
MOD 48...60V DC	066458			
MOD 110...125V AC/DC	066459			
MOD 220...250V AC/DC	066460			
MOD 380...440V AC	066461			
MOD 480...525V AC	066462			

⁽¹⁾ UL Listed

Rotary handle operating mechanisms

Rotary handle operating mechanism ⁽¹⁾

Type	1SDA.....R1			
	Global code			
RHD normal direct handle	066475			
RHD emergency direct handle	066477			
RHE normal extended handle	066479			
RHE emergency extended handle	066481			
RHE standard returned with padlock ⁽¹⁾	080261			
RHE-EM emergency returned with padlock ⁽¹⁾	080314			
RHS-L normal left side handle	066579			
RHS-L emergency left side handle	066580			
RHS-R normal right side handle	066581			
RHS-R emergency right side handle	066582			

Extended handle spare parts

RHS-B base for extended handle adjustable with Padlock ⁽¹⁾	080317			
RHE_B base for extended handle	066483			
RHE_S shaft of 500mm	066576			
RHE_H normal extended handle	066577			
RHE_H emergency extended handle	066578			
LH normal large handle	066583			
LH emergency large handle	066585			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability



Direct rotary handle



Extended rotary handle



IP54

IP54 protection for transmitted rotary handle

Type	1SDA.....R1			
	Global code			
IP54 protection for transmitted handle -RHE-	066587			

Flange handle

Flange handle ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Flange handle + mechanism + 4 ft cable ⁽¹⁾	080330			
Flange handle + mechanism + 6 ft cable ⁽¹⁾	080331			
Flange handle + mechanism + 8 ft cable ⁽¹⁾	080332			
Flange handle + mechanism + 10 ft cable ⁽¹⁾	080333			
Flange handle only ⁽¹⁾	080346			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

Ordering codes for XT1 UL/CSA Accessories

Locks



Fixed padlock



Key lock on the circuit breaker



Key lock on the handle



Key lock on the motor



Interlock

Padlock on the circuit breaker⁽¹⁾

Type	1SDA.....R1			
Global code				
PLL removable lock with padlocks in open position	066588			
PLL fixed lock with padlocks in open position	066589			
PLL fixed lock with padlocks in open/closed position	066591			

⁽¹⁾ UL Listed

Key lock on the circuit breaker⁽¹⁾

Type	1SDA.....R1			
Global code				
KLC Ronis key lock open, different keys, removable in open position	066593			
KLC Ronis key lock open, same Type A keys, removable in open position	066594			
KLC Ronis key lock open, same Type B keys, removable in open position	066595			
KLC Ronis key lock open, same Type C keys, removable in open position	066596			
KLC Ronis key lock open, same Type D keys, removable in open position	066597			
KLC Ronis key lock open/closed, different keys, removable in both positions	066598			

⁽¹⁾ UL Listed

Key lock on the rotary handle⁽¹⁾

Type	1SDA.....R1			
Global code				
RHL Ronis key lock open, different keys, RHx	066617			
RHL Ronis key lock open, same Type A keys, RHx	066618			
RHL Ronis key lock open, same Type B keys, RHx	066619			
RHL Ronis key lock open, same Type C keys, RHx	066620			
RHL Ronis key lock open, same Type D keys, RHx	066621			
RHL Ronis key lock open/closed, different keys, RHx	066622			

⁽¹⁾ UL Listed

Key lock on the motor

Type	1SDA.....R1			
Global code				
MOL-D Ronis key lock open, different keys	066623			
MOL-S Ronis key lock open, same Type A keys	066624			
MOL-S Ronis key lock open, same Type B keys	066625			
MOL-S Ronis key lock open, same Type C keys	066626			
MOL-S Ronis key lock open, same Type D keys	066627			

Mechanical interlock⁽¹⁾

Type	1SDA.....R1			
Global code				
Chassis MIR-H	066637			
Chassis MIR-V	066638			
Plate XT1 F	066639			
Plate XT1 P	066640			
Plate XT2 F	066641			
Plate XT2 P/W	066642			
Plate XT3 F	066643			
Plate XT3 P	066644			
Plate XT4 F	066645			
Plate XT4 P/W	066646			

⁽¹⁾ UL Listed

Sealable lock of thermal setting

Type	1SDA.....R1			
Global code				
Lock on thermal setting for TMA trip unit	066651			



RC Inst / RC Sel

Residual current devices

Residual current devices

Type	1SDA.....R1			
	3 poles	4 poles		
RC Sel Low 200mm	-	067121		
RC Inst	067122	067124		
RC Sel	067123	067125		

Panel type residual current relay

Type	1SDA.....R1			
	Global code			
A 115-230V AC	065979			
RCQ020/A 415V AC	065980			
Toroid closed Ø 60mm	037394			
Toroid closed Ø 110mm	037395			
Toroid closed Ø 185mm	050543			

Installation

Bracket for mounting onto DIN rail

Type	1SDA.....R1			
	3 poles	4 poles		
KIT DIN50022	066652	066419		
KIT DIN50022 XT1 + RC Low 200mm		067134		
KIT DIN50022 XT1 + RC Sel/RC Inst	067135	067135		



DIN guide

Terminals, terminal covers and phase barriers

Insulating terminal covers ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
LTC low terminal covers	066655	066656		
HTC high terminal covers	066664	066665		

⁽¹⁾ UL Listed



Terminal covers

Sealable screws for terminal covers

Type	1SDA.....R1			
	2 pcs			
Kit with two sealable screws	066672			



Sealable screw

Phase barriers ⁽¹⁾

Type	1SDA.....R1			
	4 pcs	6 pcs		
PB height 25mm/0.98in	075913	075919		
PB height 100mm/3.94in	075916	075922		
PB height 200mm/7.87in	075918	075924		

⁽¹⁾ UL Listed



Phase separators

Ordering codes for XT1 UL/CSA Accessories



EF terminal



FCCu terminal

Terminals

Type	1SDA.....R1			
	3 pcs	4 pcs	6 pcs	8 pcs
F front terminal ⁽¹⁾	066849	066850	066851	066852
F front terminal for MCP ⁽¹⁾	076601		076602	
EF extended front terminals ⁽¹⁾	066865	066866	066867	066868
ES extended spread front terminals ⁽¹⁾	066889	066890	066891	066892
FC Cu terminal for Cu cables 14-1/0 AWG, 1x2.5...70mm ² for MCCB ⁽¹⁾	075869	075870	075871	075872
FC Cu terminal for Cu cables 14-1/0 AWG, 1x1.5...70mm ² for MCCB/MCP ⁽¹⁾	075873	075874	075875	075876
MC Cu multi-cable terminal 6x14-2 AWG, 6x2.5...35mm ² ⁽¹⁾	075897	075898	075899	075900
R rear Adjustable terminal	066937	066938	066939	066940
R-RC rear terminals for Residual Current		066953		
FB flexible bars terminal	066957	066958	066959	066960

⁽¹⁾ UL Listed

Automatic transfer devices

ATS021 - ATS022 Automatic transfer devices

Type	1SDA.....R1			
	Global code			
ATS021	065523			
ATS022	065524			



ATS021

Spare parts

Type	1SDA.....R1			
	Global code			
SA RC Sel - Opening solenoid of the residual current device	066990			
AUX-C - Loose cabled auxiliary contact 250V AC ⁽¹⁾ ⁽²⁾	066994			
AUX-C - Loose cabled auxiliary contact 24V DC ⁽¹⁾ ⁽²⁾	066996			
AUX-C - Loose cabled auxiliary contact 250V AC 600V ⁽²⁾	080321			
AUX-C - Loose cabled auxiliary contact 24V DC 600V ⁽²⁾	080323			

⁽¹⁾ unnumbered cables

⁽²⁾ UL Listed

Flanges for the compartment door

Type	1SDA.....R1			
	3 poles	4 poles		
Small "optional" flange for circuit breaker	068657	068657		
Large "standard" flange for circuit breaker	068639	068640		
Flange for MOD	068648	068648		
Flange for direct handle RHD	068651	068651		
Flange for residual current RC Sel/RC Sel	068653	068654		



Flange

Ordering codes for XT2 UL/CSA

Circuit breakers

XT2 125A TMF/TMA - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1					
Type	In	I ₃	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
TMF	15	400		074733	074761	074789	074817	074845	
	20	400		074734	074762	074790	074818	074846	
	25	400		074735	074763	074791	074819	074847	
	30	400		074736	074764	074792	074820	074848	
	35	400		074737	074765	074793	074821	074849	
	40	400		074738	074766	074794	074822	074850	
	50	500		074739	074767	074795	074823	074851	
	60	600		074740	074768	074796	074824	074852	
	70	700		074741	074769	074797	074825	074853	
TMA	56...80	400...800		074742	074770	074798	074826	074854	
	63...90	450...900		074743	074771	074799	074827	074855	
	70...100	500...1000		074744	074772	074800	074828	074856	
	77...110	550...1100		074745	074773	074801	074829	074857	
	87.5...125	625...1250		074746	074774	074802	074830	074858	

XT2 125A TMF/TMA - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1					
Type	In	I ₃	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
TMF	15	400		074747	074775	074803	074831	074859	
	20	400		074748	074776	074804	074832	074860	
	25	400		074749	074777	074805	074833	074861	
	30	400		074750	074778	074806	074834	074862	
	35	400		074751	074779	074807	074835	074863	
	40	400		074752	074780	074808	074836	074864	
	50	500		074753	074781	074809	074837	074865	
	60	600		074754	074782	074810	074838	074866	
	70	700		074755	074783	074811	074839	074867	
TMA	56...80	400...800		074756	074784	074812	074840	074868	
	63...90	450...900		074757	074785	074813	074841	074869	
	70...100	500...1000		074758	074786	074814	074842	074870	
	77...110	550...1100		074759	074787	074815	074843	074871	
	87.5...125	625...1250		074760	074788	074816	074844	074872	

XT2 125A MCP (MA) - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Magnetic trip unit			Icu	1SDA.....R1					
Type	In	I ₃	(480 V)	H					
MA	3	12...33		074882					
	7	28...77		074883					
	15	45...165		074884					
	30	90...330		074885					
	50	150...550		074886					
	70	210...770		074887					
	80	240...880		074888					
	100	300...1100		074889					
	125	375...1375		074890					

Ordering codes for XT2 UL/CSA Circuit breakers

XT2 125A Ekip - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1					
Type	In	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
XT2 - Ekip LS/I	10		074900	074910	074920	074930	074940	
	25		074901	074911	074921	074931	074941	
	60		074902	074912	074922	074932	074942	
	100		074903	074913	074923	074933	074943	
	125		074904	074914	074924	074934	074944	
Ekip LSI	10		074950	074960	074970	074980	074990	
	25		074951	074961	074971	074981	074991	
	60		074952	074962	074972	074982	074992	
	100		074953	074963	074973	074983	074993	
	125		074954	074964	074974	074984	074994	
Ekip LSIG	10		075000	075010	075020	075030	075040	
	25		075001	075011	075021	075031	075041	
	60		075002	075012	075022	075032	075042	
	100		075003	075013	075023	075033	075043	
	125		075004	075014	075024	075034	075044	
Ekip I	10		075050	075060	075070	075080	075090	
	25		075051	075061	075071	075081	075091	
	60		075052	075062	075072	075082	075092	
	100		075053	075063	075073	075083	075093	
	125		075054	075064	075074	075084	075094	
M-LIU	25				075103			
	60				075104			
	100				075105			

XT2 125A Ekip - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1					
Type	In	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
Ekip LS/I	10		074905	074915	074925	074935	074945	
	25		074906	074916	074926	074936	074946	
	60		074907	074917	074927	074937	074947	
	100		074908	074918	074928	074938	074948	
	125		074909	074919	074929	074939	074949	
Ekip LSI	10		074955	074965	074975	074985	074995	
	25		074956	074966	074976	074986	074996	
	60		074957	074967	074977	074987	074997	
	100		074958	074968	074978	074988	074998	
	125		074959	074969	074979	074989	074999	
Ekip LSIG	10		075005	075015	075025	075035	075045	
	25		075006	075016	075026	075036	075046	
	60		075007	075017	075027	075037	075047	
	100		075008	075018	075028	075038	075048	
	125		075009	075019	075029	075039	075049	
Ekip I	10		075055	075065	075075	075085	075095	
	25		075056	075066	075076	075086	075096	
	60		075057	075067	075077	075087	075097	
	100		075058	075068	075078	075088	075098	
	125		075059	075069	075079	075089	075099	

XT2 125A Molded case switch - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

No Trip Unit			Icu	1SDA.....R1			
Type	In	Mag. Override	(480 V)	N (25 kA)	H (65 kA)	L (100 kA)	V (150 kA)
D	125	1250		076617	076619	076621	076623

XT2 125A Molded case switch - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

No Trip Unit			Icu	1SDA.....R1			
Type	In	Mag. Override	(480 V)	N (25 kA)	H (65 kA)	L (100 kA)	V (150 kA)
D	125	1250		076618	076620	076622	076624

XT2 125A Extra code for 100% rated circuit breaker - UL/CSA

Type	1SDA.....R1					
	3 poles	4 poles				
XT2	076604	080699				

XT2 125A Breaking part - UL/CSA

Type	1SDA.....R1				
	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)
XT2 125A Breaking Part - 3p	075630	075631	075632	075633	075634
XT2 125A Breaking Part - 4p	075635	075636	075637	075638	075639

XT2 125A Loose trip unit - UL/CSA

Thermomagnetic trip units			1SDA.....R1			
Type	In	I _Δ	3 poles	4 poles		
TMF	50	500	075650	075658		
	60	600	075651	075659		
	70	700	075652	075661		
TMA	56...80	400...800	075653	075662		
	63...90	450...900	075654	075663		
	70...100	500...1000	075655	075664		
	77...110	550...1100	075656	075665		
	87.5...125	625...1250	075657	075666		

XT2 125A Loose trip unit - UL/CSA

Ekip electronic trip units			1SDA.....R1			
Type	In		3 poles	4 poles		
Ekip LS/I	60		075672	075675		
	100		075673	075676		
	125		075674	075677		
Ekip LSI	60		075678	075681		
	100		075679	075682		
	125		075680	075683		
Ekip LSIG	60		075684	075687		
	100		075685	075688		
	125		075686	075689		
Ekip I	60		075690	075693		
	100		075691	075694		
	125		075692	075695		

Ordering codes for XT2 UL/CSA Accessories



Fixed part of plug-in



Fixed part of withdrawable

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Conversion kit of the circuit breaker
from fixed into moving part of plug-in



Conversion kit for turning a fixed
circuit breaker into the moving part
of a withdrawable circuit breaker

Fixed parts, conversion kits and accessories for fixed parts

Fixed part of plug-in (P)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit P FP EF ⁽¹⁾	068187	068190		
Kit P FP HR/VR ⁽²⁾	068189	068191		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Fixed part of withdrawable (W)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit W FP EF ⁽¹⁾	068200	068202		
Kit W FP HR/VR ⁽²⁾	068201	068203		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Terminals for the fixed parts

Type	1SDA.....R1			
	3 poles	4 poles		
EF - Front extended terminals	066262	066263		
R - Rear terminals HR/VR	066270	066271		
PS - Rear phase separators 90mm/3.54in	068953	068954		

Conversion kit of the circuit breaker from fixed into moving part of plug-in ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
P MP kit	066278	066279		

⁽¹⁾ UL Listed

Conversion kit of the circuit breaker from fixed into moving part of withdrawable ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
W MP kit	066284	066285		

⁽¹⁾ UL Listed

Conversion kit of the fixed part from plug-in to withdrawable ⁽¹⁾

Type	1SDA.....R1			
	Global code			
FP P>W kit	066288			

⁽¹⁾ UL Listed



Key lock/padlock for fixed part



Ronis key lock/padlock for fixed part

Conversion kit of RC Sel from fixed to plug-in

Type	1SDA.....R1			
	4 poles			
P MP RC Sel 4p kit	066290			

Conversion kit of RC Sel from plug-in to withdrawable

Type	1SDA.....R1			
	4 poles			
W MP RC Sel kit	066292			

Key lock for fixed part of withdrawable

Type	1SDA.....R1			
	Global code			
KL-D key lock FP, different keys	066293			
KL-S key lock FP, same keys N.20005	066294			

Ronis key lock for fixed part of withdrawable

Type	1SDA.....R1			
	Global code			
KL-D Ronis FP key lock, different keys	066298			
KL-S Ronis FP key lock, same Type A keys	066300			

Adapter for mounting the terminals of the fixed circuit breaker on the fixed part ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
ADP adapter for fixed part (2 pieces)	066307	066308		

Note: when using ADP with ES/MC terminals, also order "Kit F Front Terminals" - see page 7/24
⁽¹⁾ UL Listed

Ordering codes for XT2 UL/CSA Accessories



SOR uncabled



SOR cabled



SOR for withdrawable



UVR uncabled



UVR cabled



UVR for withdrawable



Time delay device for
undervoltage release

Service releases

Shunt opening release - SOR ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
SOR 12V DC	066313			
SOR 24-30V AC/DC	066314			
SOR 48-60V AC/DC	066315			
SOR 110...127V AC / 110...125V DC	066316			
SOR 220...240V AC / 220...250V DC	066317			
SOR 380-440V AC	066318			
SOR 480-525V AC	066319			
Cabled version				
SOR-C 12V DC	066321	066328		
SOR-C 24-30V AC/DC	066322	066329		
SOR-C 48-60V AC/DC	066323	066330		
SOR-C 110...127V AC / 110...125V DC	066324	066331		
SOR-C 220...240V AC / 220...250V DC	066325	066332		
SOR-C 380-440V AC	066326	066333		
SOR-C 480-525V AC	066327	066334		

⁽¹⁾ UL Listed

Undervoltage release -UVR ⁽¹⁾

Type	1SDA.....			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
UVR 24-30V AC/DC	066389			
UVR 48V AC/DC	069064			
UVR 60V AC/DC	066390			
UVR 110...127V AC / 110...125V DC	066391			
UVR 220...240V AC / 220...250V DC	066392			
UVR 380-440V AC	066393			
UVR 480-525V AC	066394			
Cabled version				
UVR-C 24-30V AC/DC	066396	066403		
UVR-C 48V AC/DC	069065	069066		
UVR-C 60V AC/DC	066397	066404		
UVR-C 110...127V AC / 110...125V DC	066398	066405		
UVR-C 220...240V AC / 220...250V DC	066399	066406		
UVR-C 380-440V AC	066400	066407		
UVR-C 480-525V AC	066401	066408		

⁽¹⁾ UL Listed

Delay device for undervoltage release - UVD

Type	1SDA.....R1			
	Global code			
UVD 24...30V AC/DC	051357			
UVD 48...60V AC/DC	051358			
UVD 110...125V AC/DC	051360			
UVD 220...250V AC/DC	051361			

Connectors

Fourth pole connectors for withdrawable

Type	1SDA.....R1			
	Global code			
Connector 4 th pole SOR	066415			
Connector 4 th pole UVR	066418			



Socket-plug panel connector

Socket plug connector on the panel

Type	1SDA.....R1			
	Global code			
Socket -plug connector with 3 PINS	066409			
Socket -plug connector with 6 PINS	066410			
Socket -plug connector with 9 PINS	066411			
Socket -plug connector with 15 PINS	066412			



Fixed part socket-plug connector

Fixed part socket-plug connector

Type	1SDA.....R1			
	Global code			
Socket-plug connector of moving part - 12 PINS	066413			
Socket-plug connector of fixed part - 12 PINS	066414			

Electrical signals

Auxiliary contacts -AUX- ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
AUX 250V	066422			
AUX 24V DC	066423			
AUX-S51 250V	066424			
AUX-S51 24V DC	066425			
Cabled version				
AUX-C 3 Q 250V Left	066427			
AUX-C 1 Q + 1 SY 250V	066431	066432		
AUX-C 2 Q + 1 SY 250V	066433			
AUX-C 3 Q + 1 SY 250V	066434	066435		
AUX-C 3 Q + 2 SY 250V	066436	066437		
AUX-C 2 Q + 2 SY + 1 S51 250V	066438	066439		
AUX-S51-C 250V	066429	066430		
AUX-C 1 Q + 1 SY 24V DC	066446	066447		
AUX-C 3 Q + 1 SY 24V DC	066448	066449		
AUX-S51-C 24V DC	067116	067117		
AUX-C 1 Q + 1 SY 400V AC	066444	066445		
AUX-C 2 Q 400V AC	066440	066443		

⁽¹⁾ UL Listed



AUX uncabled



AUX cabled



AUX for withdrawable

Ordering codes for XT2 UL/CSA Accessories



AUP - Auxiliary position contacts

Auxiliary position contacts -AUP-⁽¹⁾

Type	1SDA.....R1			
	Global code			
Cabled version				
AUP-I – Four racked-in contacts 250V for plug-in circuit breaker	066450			
AUP-I – Four racked-in contacts 24V DC for plug-in circuit breaker	066451			
AUP-R – Two racked-out contacts 250V for withdrawable circuit breaker	066452			
AUP-R – Two racked-out contacts 24V DC for withdrawable circuit breaker	066453			

⁽¹⁾ UL Listed



AUE - Early auxiliary contacts

Early auxiliary contacts -AUE-⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
AUE – Two contacts in the rotary handle RHx (Closed)	066454	066455		
AUE – Two contacts in the rotary handle RHx (Open)	067118	067119		

⁽¹⁾ UL Listed

Motor Operators



MOE - Motor operator

Stored energy motor operator -MOE-⁽¹⁾

Type	1SDA.....R1			
	Global code			
MOE 24V DC	066463			
MOE 48...60V DC	066464			
MOE 110...125V AC/DC	066465			
MOE 220...250V AC/DC	066466			
MOE 380...440V AC	066467			
MOE 480...525V AC	066468			

⁽¹⁾ UL Listed

Electronic stored energy motor operator -MOE-E-

Type	1SDA.....R1			
	Global code			
MOE-E 24V DC	066469			
MOE-E 48...60V DC	066470			
MOE-E 110...125V AC/DC	066471			
MOE-E 220...250V AC/DC	066472			
MOE-E 380...440V AC	066473			
MOE-E 480...525V AC	066474			

Rotary handle operating mechanisms



Direct handle



Extended handle



IP54

Rotary handle operating mechanisms ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
RHD normal direct handle	069053	066476		
RHD emergency direct handle	069054	066478		
RHE normal extended handle	069055	066480		
RHE emergency extended handle	069056	066482		
RHE standard returned with Padlock ⁽¹⁾	080260	080262		
RHE-EM emergency returned with Padlock ⁽¹⁾	080263	080315		
RHS-L normal left side handle	069058			
RHS-L emergency left side handle	069059			
RHS-R normal right side handle	069060			
RHS-R emergency right side handle	069061			
extended handle spare parts				
RHE_B base for extended handle adjustable with padlock ⁽¹⁾	080316	080318		
RHE_B base for extended handle	069057	066484		
RHE_S shaft of 500mm	066576	066576		
RHE_H normal extended handle	066577	066577		
RHE_H emergency extended handle	066578	066578		
LH normal large handle	066583	066583		
LH emergency large handle	066585	066585		

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

IP54 protection for transmitted rotary handle

Type	1SDA.....R1			
	Global code			
IP54 protection for transmitted handle -RHE-	066587			

Flange handle ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Flange handle + mechanism + 4 ft Cable ⁽¹⁾	080334			
Flange handle + mechanism + 6 ft Cable ⁽¹⁾	080335			
Flange handle + mechanism + 8 ft Cable ⁽¹⁾	080336			
Flange handle + mechanism + 10 ft Cable ⁽¹⁾	080337			
Flange handle Only ⁽¹⁾	080346			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

Locks

Padlock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
	Global code			
PLL fixed lock with padlocks in open position	066590			
PLL fixed lock with padlocks in open/closed position	066592			

⁽¹⁾ UL Listed

Key lock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
	Global code			
KLC Ronis key lock open, different keys, removable in open position	066599			
KLC Ronis key lock open, same Type A keys, removable in open position	066600			
KLC Ronis key lock open, same Type B keys, removable in open position	066601			
KLC Ronis key lock open, same Type C keys, removable in open position	066602			
KLC Ronis key lock open, same Type D keys, removable in open position	066603			
KLC Ronis key lock open/closed, different keys, removable in both positions	066604			

⁽¹⁾ UL Listed



Fixed padlock



Key lock on the circuit breaker

Ordering codes for XT2 UL/CSA Accessories



Key lock on the handle

Key lock on the rotary handle / key lock on the front for locks ⁽¹⁾

Type	1SDA.....R1			
	Global code			
RHL Ronis key lock open, different keys, RHx/FLD	066617			
RHL Ronis key lock open, same Type A keys, RHx/FLD	066618			
RHL Ronis key lock open, same Type B keys, RHx/FLD	066619			
RHL Ronis key lock open, same Type C keys, RHx/FLD	066620			
RHL Ronis key lock open, same Type D keys, RHx/FLD	066621			
RHL Ronis key lock open/closed, different keys, RHx	066622			
RHL Ronis key lock open/closed, different keys, FLD	069182			

⁽¹⁾ UL Listed



Key lock on the motor

Key lock on the motor

Type	1SDA.....R1			
	Global code			
MOL-D Ronis key lock open, different keys	066629			
MOL-S Ronis key lock open, same Type A keys	066630			
MOL-S Ronis key lock open, same Type B keys	066631			
MOL-S Ronis key lock open, same Type C keys	066632			
MOL-S Ronis key lock open, same Type D keys	066633			
MOL-M Key lock against manual operation	066634			



Front for operating lever mechanism

Front for operating lever mechanism ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
FLD front for operating lever mechanism	066635	066636		

⁽¹⁾ UL Listed



Interlock

Mechanical interlock ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Chassis MIR-H	066637			
Chassis MIR-V	066638			
Plate XT1 F	066639			
Plate XT1 P	066640			
Plate XT2 F	066641			
Plate XT2 P/W	066642			
Plate XT4 F	066645			
Plate XT4 P/W	066646			

⁽¹⁾ UL Listed



RC Sel

Residual current devices

Residual current devices

Type	1SDA.....R1			
	4 poles			
Sel	067126			

Panel type residual current relay

Type	1SDA.....R1			
	Global code			
RCQ020/A 115-230V AC	065979			
RCQ020/A 415V AC	065980			
Toroid closed Ø 60mm	037394			
Toroid closed Ø 110mm	037395			
Toroid closed Ø 185mm	050543			

Installation

Mounting bracket for DIN rail

Type	1SDA.....R1			
	3 poles	4 poles		
Kit DIN50022 UL ⁽¹⁾	080704	080325		

⁽¹⁾ UL Listed



DIN guide

Terminals, terminal covers and phase barriers

Insulating terminal covers ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
LTC low terminal covers	066657	066659		
HTC high terminal covers	066666	066667		

⁽¹⁾ UL Listed



Terminal cover

Sealable screws for terminal covers

Type	1SDA.....R1			
	2 pcs			
Kit with two sealable screws	066672			



Sealable screw

Phase barriers ⁽¹⁾

Type	1SDA.....R1			
	4 pcs	6 pcs		
PB Height 25mm/0.98in	075914	075920		
PB Height 100mm/3.94in	075915	075921		
PB Height 200mm/7.87in	075917	075923		

⁽¹⁾ UL Listed



Phase separators

Ordering codes for XT2 UL/CSA Accessories



EF terminal



FCCu terminal

Terminals

Type	1SDA.....R1			
	3 pcs	4 pcs	6 pcs	8 pcs
F front terminals ⁽¹⁾	066853	066854	066855	066856
EF extended front terminals ⁽¹⁾	066869	066870	066871	066872
ES extended spread front terminals ⁽¹⁾	066893	066894	066895	066896
FC CuAl terminals for Cu cables 14-1/0 AWG, 1x2.5...50mm ² ^{(1) (2)}	-	-	-	-
FC Cu terminals for Cu cables 14-1/0 AWG, 1x2.5...95mm ² ⁽¹⁾	075881	075882	075883	075884
MC Cu multi-cable terminals 6x14-2 AWG, 6x2.5...35mm ² ⁽¹⁾	075901	075902	075903	075904
R rear adjustable terminal	066941	066942	066943	066944
FB flexible bars terminals	066961	066962	066963	066964

⁽¹⁾ UL Listed

⁽²⁾ Up to 110A with Al cables

Accessories for electronic trip units

General electronic trip unit accessories

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Ekip Display	068659	068659		
Ekip LED Meter	068660	068660		
Ekip Com	068661	068662		
HMI030 interface on front of panel	063143	063143		



Ekip Display



Ekip LED Meter

Current sensor for external neutral

Type	1SDA.....R1			
	Global code			
CT external neutral of 10A	067211			
CT external neutral of 25A	067212			
CT external neutral of 63A	069142			
CT external neutral of 100A	069143			
CT external neutral of 160A	069144			

Connection kits

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Kit of 24V DC auxiliary voltage for electronic trip units	066980	066981		
Kit for external neutral connection ⁽¹⁾	066984	066985		

Test and configuration units

Type	1SDA.....R1			
	Global code			
Ekip TT - Trip test unit	066988			
Ekip T&P - Programming and test unit	066989			



Ekip T&P unit

Automatic transfer devices



ATS021

ATS021 - ATS022 automatic transfer devices

Type	1SDA.....R1			
	Global code			
ATS021	065523			
ATS022	065524			

Spare parts

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
SA RC Sel - Opening solenoid of the residual current device	066991	066993		
AUX-C - Loose cabled auxiliary contact 250V AC ⁽¹⁾	066994 ⁽²⁾	066995		
AUX-C - Loose cabled auxiliary contact 24V DC ⁽¹⁾	066996 ⁽²⁾	066997		
AUX-C - Loose cabled auxiliary contact 250V AC 600V ⁽²⁾	080321	080322		
AUX-C - Loose cabled auxiliary contact 24V DC 600V ⁽²⁾	080323	080324		

⁽¹⁾ unnumbered cables

⁽²⁾ UL Listed

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Fixed/Moving part connector for withdrawable

Connectors for fixed part/moving part of withdrawable circuit breakers

Type	1SDA.....R1			
	Global code			
1 connector for with 2 pins for SOR/UVR up to 400V	067213			
1 connector with 3 pins for AUX up to 400V	067214			



Flange

Flanges for the compartment door

Type	1SDA.....R1			
	3 poles - Fixed/Plug-in	4 poles - Fixed/Plug-in	3 poles - Withdrawable	4 poles - Withdrawable
Small "optional" flange for circuit breaker	068657	068657		
Large "standard" flange for circuit breaker	068641	068642		
Flange for MOE/MOE-E/FLD	068649	068649	068650	068650
Flange for direct handle RHD	068651	068651	068652	068652
Flange for residual current RC Sel		066647		066648

Ordering codes for XT3 UL/CSA Circuit breakers

XT3 225A TMF - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu (480 V)	1SDA.....R1				
Type	In	I ₃		N (25 kA)	S (35 kA)			
TMF	60	600		075109	075129			
	70	700		075110	075130			
	80	800		075111	075131			
	90	900		075112	075132			
	100	1000		075113	075133			
	110	1100		080071	080073			
	125	1250		075114	075134			
	150	1500		075115	075135			
	175	1750		075116	075136			
	200	2000		075117	075137			
	225	2250		075118	075138			

XT3 225A TMF - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu (480 V)	1SDA.....R1				
Type	In	I ₃		N (25 kA)	S (35 kA)			
TMF	60	600		075119	075139			
	70	700		075120	075140			
	80	800		075121	075141			
	90	900		075122	075142			
	100	1000		075123	075143			
	110	1100		080072	080074			
	125	1250		075124	075144			
	150	1500		075125	075145			
	175	1750		075126	075146			
	200	2000		075127	075147			
	225	2250		075128	075148			

XT3 225A MCP (MA) - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Magnetic trip unit			Icu (480 V)	1SDA.....R1				
Type	In	I ₃		S (35 kA)				
MA	100	600...1200		075149				
	110	660...1320		076600				
	125	750...1500		075150				
	150	900...1800		075151				
	200	1200...2400		075152				

XT3 225A Molded case switch - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

No trip unit			Icu	1SDA.....R1				
Type	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)			
XT3 - D	225	2250		075616	075618			

XT3 225A Molded case switch - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

No trip unit			Icu	1SDA.....R1				
Type	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)			
XT3 - D	225	2250		075617	075619			

XT3 225A Extra code for 100% rated circuit breaker - UL/CSA

				1SDA.....R1				
Type				3 poles	4 poles			
XT3				076605	080700			

Ordering codes for XT3 UL/CSA Accessories



Fixed part of plug-in

Fixed parts, conversion kits and accessories for fixed parts

Fixed part of plug-in (P)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit P FP EF ⁽¹⁾	068192	068194		
Kit P FP HR/VR ⁽²⁾	068193	068195		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Terminals for the fixed parts

Type	1SDA.....R1			
	3 poles	4 poles		
EF - Front extended terminals	066264	066265		
R - Rear terminals HR/VR	066272	066273		
PS - Rear phase separators 90mm/3.54in	068953	068954		

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Conversion kit for turning a fixed circuit breaker into the moving part of a plug-in circuit breaker

Conversion kit of the circuit breaker from fixed into moving part of plug-in ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
P MP kit	066280	066281		

⁽¹⁾ UL Listed



Fixed part adapter

Adapter for mounting the terminals of the fixed circuit breaker on the fixed part

Type	1SDA.....R1			
	3 poles	4 poles		
ADP adapter for fixed part (2 pieces)	066309	066310		

Note: when using ADP with ES/MC terminals, also order "Kit F Front Terminals" - see page 7/34

Service releases



PS-SOR uncabled



PS-SOR cabled



UVR uncabled



UVR cabled



Time delay device for undervoltage release

Shunt opening release - SOR ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Uncabled version				
SOR 12V DC	066313			
SOR 24-30V AC/DC	066314			
SOR 48-60V AC/DC	066315			
SOR 110...127V AC / 110...125V DC	066316			
SOR 220...240V AC / 220...250V DC	066317			
SOR 380-440V AC	066318			
SOR 480-525V AC	066319			
Cabled version				
SOR-C 12V DC	066321			
SOR-C 24-30V AC/DC	066322			
SOR-C 48-60V AC/DC	066323			
SOR-C 110...127V AC / 110...125V DC	066324			
SOR-C 220...240V AC / 220...250V DC	066325			
SOR-C 380-440V AC	066326			
SOR-C 480-525V AC	066327			

⁽¹⁾ UL Listed

Undervoltage release - UVR ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Uncabled version				
UVR 24-30V AC/DC	066389			
UVR 48V AC/DC	060964			
UVR 60V AC/DC	066390			
UVR 110...127V AC / 110...125V DC	066391			
UVR 220...240V AC / 220...250V DC	066392			
UVR 380-440V AC	066393			
UVR 480-525V AC	066394			
Cabled version				
UVR-C 24-30V AC/DC	066396			
UVR-C 48V AC/DC	060965			
UVR-C 60V AC/DC	066397			
UVR-C 110...127V AC / 110...125V DC	066398			
UVR-C 220...240V AC / 220...250V DC	066399			
UVR-C 380-440V AC	066400			
UVR-C 480-525V AC	066401			

⁽¹⁾ UL Listed

Delay device for undervoltage release - UVD

Type	1SDA.....R1			
	Global code			
UVD 24...30V AC/DC	051357			
UVD 48...60V AC/DC	051358			
UVD 110...125V AC/DC	051360			
UVD 220...250V AC/DC	051361			

Ordering codes for XT3 UL/CSA Accessories



Socket-plug panel connector

Connectors

Socket plug connector on the panel

Type	1SDA.....R1			
	Global code			
Socket-plug connector with 3 PINS	066409			
Socket-plug connector with 6 PINS	066410			
Socket-plug connector with 9 PINS	066411			
Socket-plug connector with 15 PINS	066412			

Electrical signals

Auxiliary contacts -AUX-(⁽¹⁾)

Type	1SDA.....R1			
	Global code			
Uncabled version				
AUX 250V	066422			
AUX 24V DC	066423			
Cabled version				
AUX-C 3 Q 250V Left	066428			
AUX-C 1 Q + 1 SY 250V	066431			
AUX-C 2 Q + 1 SY 250V	066433			
AUX-C 3 Q + 1 SY 250V	066434			
AUX-C 1 Q + 1 SY 24V DC	066446			
AUX-C 3 Q + 1 SY 24V DC	066448			

(⁽¹⁾) UL Listed



AUX uncabled



AUX cabled



AUP - Auxiliary position contacts

Auxiliary position contacts -AUP-(⁽¹⁾)

Type	1SDA.....R1			
	Global code			
Cabled version				
AUP-I – Four racked-in contacts 250V for plug-in circuit breaker	066450			
AUP-I – Four racked-in contacts 24V DC for plug-in circuit breaker	066451			

(⁽¹⁾) UL Listed

Early auxiliary contacts -AUE-(⁽¹⁾)

Type	1SDA.....R1			
	Global code			
AUE – Two contacts in the rotary handle RHx (Closed)	066454			
AUE – Two contacts in the rotary handle RHx (Open)	067118			

(⁽¹⁾) UL Listed



AUE - Early auxiliary contacts



Motor operator

Motor operators

Motor operator with direct action -MOD ⁽¹⁾

Type	1SDA.....R1			
	Global code			
MOD 24V DC	066457			
MOD 48...60V DC	066458			
MOD 110...125V AC/DC	066459			
MOD 220...250V AC/DC	066460			
MOD 380...440V AC	066461			
MOD 480...525V AC	066462			

⁽¹⁾ UL Listed

Rotary handle operating mechanisms

Rotary handle operating mechanisms ⁽¹⁾

Type	1SDA.....R1			
	Global code			
RHD normal direct handle	066475			
RHD emergency direct handle	066477			
RHE normal extended handle	066479			
RHE emergency extended handle	066481			
RHE standard returned with padlock ⁽¹⁾	080261			
RHE-EM emergency returned with padlock ⁽¹⁾	080314			
RHS-L normal left side handle	066579			
RHS-L emergency left side handle	066580			
RHS-R normal right side handle	066581			
RHS-R emergency right side handle	066582			
Extended handle spare parts				
RHE _B base for extended handle adjustable with padlock ⁽¹⁾	080317			
RHE _B base for extended handle	066483			
RHE _S shaft of 500mm	066576			
RHE _H normal extended handle	066577			
RHE _H emergency extended handle	066578			
LH normal large handle	066583			
LH emergency large handle	066585			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability



Direct rotary handle



Extended rotary handle



IP54

IP54 protection for transmitted rotary handle

Type	1SDA.....R1			
	Global code			
IP54 protection for transmitted handle -RHE	066587			

Flange handle ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Flange handle + mechanism + 4 ft cable ⁽¹⁾	080338			
Flange handle + mechanism + 6 ft cable ⁽¹⁾	080339			
Flange handle + mechanism + 8 ft cable ⁽¹⁾	080340			
Flange handle + mechanism + 10 ft cable ⁽¹⁾	080341			
Flange handle only ⁽¹⁾	080346			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

Ordering codes for XT3 UL/CSA Accessories



Fixed padlock



Key lock on the circuit breaker



Key lock on the handle



Key lock on the motor



Interlock

Locks

Padlock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
Global code				
PLL removable lock with padlocks in open position	066588			
PLL fixed lock with padlocks in open position	066589			
PLL fixed lock with padlocks in open/closed position	066591			

⁽¹⁾ UL Listed

Key lock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
Global code				
KLC Ronis key lock open, different keys, removable in open position	066605			
KLC Ronis key lock open, same Type A keys, removable in open position	066606			
KLC Ronis key lock open, same Type B keys, removable in open position	066607			
KLC Ronis key lock open, same Type C keys, removable in open position	066608			
KLC Ronis key lock open, same Type D keys, removable in open position	066609			
KLC Ronis key lock open/closed, different keys, removable in both positions	066610			

⁽¹⁾ UL Listed

Key lock on the rotary handle ⁽¹⁾

Type	1SDA.....R1			
Global code				
RHL Ronis key lock open, different keys, RHx	066617			
RHL Ronis key lock open, same Type A keys, RHx	066618			
RHL Ronis key lock open, same Type B keys, RHx	066619			
RHL Ronis key lock open, same Type C keys, RHx	066620			
RHL Ronis key lock open, same Type D keys, RHx	066621			
RHL Ronis key lock open/closed, different keys, RHx	066622			

⁽¹⁾ UL Listed

Key lock on the motor

Type	1SDA.....R1			
Global code				
MOL-D Ronis key lock open, different keys	066623			
MOL-S Ronis key lock open, same Type A keys	066624			
MOL-S Ronis key lock open, same Type B keys	066625			
MOL-S Ronis key lock open, same Type C keys	066626			
MOL-S Ronis key lock open, same Type D keys	066627			

Mechanical interlock ⁽¹⁾

Type	1SDA.....R1			
Global code				
Chassis MIR-H	066637			
Chassis MIR-V	066638			
Plate XT1 F	066639			
Plate XT1 P	066640			
Plate XT3 F	066643			
Plate XT3 P	066644			

⁽¹⁾ UL Listed

Sealable lock of thermal setting

Type	1SDA.....R1			
Global code				
Lock on thermal setting for TMA trip unit	066651			



RC Inst / RC Sel

Residual current devices

Residual current devices

Type	1SDA.....R1			
	3 poles	4 poles		
RC inst	067127	067129		
RC Sel	067128	067130		
RC B Type		067132		

Panel-type residual current relay

Type	1SDA.....R1			
	Global code			
RCQ020/A 115-230V AC	065979			
RCQ020/A 415V AC	065980			
Toroid closed Ø 60mm	037394			
Toroid closed Ø 110mm	037395			
Toroid closed Ø 185mm	050543			

Installation

Mounting bracket for DIN rail

Type	1SDA.....R1			
	3 poles	4 poles		
DIN50022 kit	066420	066421		
DIN50022XT3+RC Inst / RC Sel	067139	067139		



DIN guide

Terminals, terminal covers and phase barriers

Insulating terminal covers ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
LTC low terminal covers	066660	066661		
HTC high terminal covers	066668	066669		

⁽¹⁾ UL Listed



Terminal covers

Sealable screws for terminal covers

Type	1SDA.....R1			
	2 pcs			
Kit with two sealable screws	066672			



Sealable screw

Phase barriers ⁽¹⁾

Type	1SDA.....R1			
	4 pcs	6 pcs		
PB height 25mm/0.98in	075913	075919		
PB height 100mm/3.94in	075916	075922		
PB height 200mm/7.87in	075918	075924		

⁽¹⁾ UL Listed



Phase separators

Ordering codes for XT3 UL/CSA Accessories



EF terminal



FCCuAl terminal

Terminals

Type	1SDA.....R1			
	3 pcs	4 pcs	6 pcs	8 pcs
F front terminals ⁽¹⁾	066857	066858	066859	066860
EF extended front terminals ⁽¹⁾	066873	066874	066875	066876
ES extended spread front terminals ⁽¹⁾	066897	066898	066899	066900
FC CuAl terminals AuxV for CuAl cables 14-1/0 AWG, 1x2,5...50mm ² 100A ⁽¹⁾				
FC CuAl terminals for CuAl cables 14-1/0 AWG, 1x2,5...50mm ² 100A ⁽¹⁾	075849	075850	075851	075852
FC CuAl terminals AuxV for CuAl cables 4-300 AWG, 1x25...150mm ² 225A ⁽¹⁾				
FC CuAl terminals for CuAl cables 4-300 AWG, 1x25...150mm ² 225A ⁽¹⁾	075853	075854	075855	075856
FC Cu terminals for Cu cables 10-250 AWG, 1x6...185mm ² ⁽¹⁾	075885	075886	075887	075888
MC Cu multi-cable terminals 6x12-2 AWG, 6x2,5...35mm ² ⁽¹⁾	075905	075906	075907	075908
R rear adjustable terminal	066945	066946	066947	066948
R-RC real terminals for residual current		066954		
FB flexible bars terminals	066965	066966	066967	066968

⁽¹⁾ UL Listed

Automatic transfer devices

ATS021 - ATS022 automatic transfer devices

Type	1SDA.....R1			
	Global code			
ATS021	065523			
ATS022	065524			



ATS021

Spare parts

Type	1SDA.....R1			
	Global code			
SA RC Sel/RC Inst/RC/RC B Type - Opening solenoid of the residual current device	066992			
SA RC B Type - Opening solenoid of the residual current device	067208			
AUX-C - Loose cabled auxiliary contact 250V AC ⁽¹⁾ ⁽²⁾	066994			
AUX-C - Loose cabled auxiliary contact 24V DC ⁽¹⁾ ⁽²⁾	066996			
AUX-C - Loose cabled auxiliary contact 250V AC 600V ⁽²⁾	080321			
AUX-C - Loose cabled auxiliary contact 24V DC 600V ⁽²⁾	080323			

⁽¹⁾ unnumbered cables

⁽²⁾ UL Listed

Flanges for the compartment door

Type	1SDA.....R1			
	3 poles	4 poles		
Small "optional" flange for circuit breaker	068657	068657		
Large "standard" flange for circuit breaker	068644	068645		
Flange for MOD	068648	068648		
Flange for direct handle RHD	068651	068651		
Flange for residual current RC Sel / RC Sel	068655	068656		



Flange

Ordering codes for XT4 UL/CSA

Circuit breakers

XT4 250A TMF/TMA - Fixed (F) - 2 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1				
Size	I _n	I _Δ	(480 V)	N (25 kA)				
TMF	25	400		080117				
	30	400		080128				
	35	400		080129				
	40	400		080130				
	50	500		080131				
	60	600		080132				
	70	700		080133				
	80	800		080134				
	90	900		080136				
	100	1000		080101				
	110	1100		080103				
	125	1250		080105				
	150	1500		080107				
	175	1750		080109				
	200	2000		080111				
	225	2250		080113				
	250	2500		080115				

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XT4 250A TMF/TMA - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1					
Size	I _n	I _Δ	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
TMF	25	400		075153	075188	075223	075257	075291	
	30	400		075154	075189	075224	075258	075292	
	35	400		075155	075190	075225	075259	075293	
	40	400		075156	075191	075226	075260	075294	
	50	500		075157	075192	075227	075261	075295	
	60	600		075158	075193	075228	075262	075296	
	70	700		075159	075194	075229	075263	075297	
	80	800		080135	080148	080085	080097	080160	
	90	900		080137	080149	080086	080098	080161	
	100	1000		080102	080140	080077	080089	080152	
	110	110		080104	080141	080078	080090	080153	
	125	1250		080106	080142	080079	080091	080154	
	150	1500		080108	080143	080080	080092	080155	
	175	1750		080110	080144	080081	080093	080156	
	200	2000		080112	080145	080082	080094	080157	
	225	2250		080114	080146	080083	080095	080158	
	250	2500		080116	080147	080084	080096	080159	
TMA	56...80	400...800		075160	075195	075230	075264	075298	
	63...90	450...900		075161	075196	075231	075265	075299	
	70...100	500...1000		075162	075197	075232	075266	075300	
	77...110	550...1100		075163	075198	075233	075267	075301	
	87.5...125	625...1250		075164	075199	075234	075268	075302	
	105...150	750...1500		075165	075200	075235	075269	075303	
	122.5...175	875...1750		075166	075201	075236	075270	075304	
	140...200	1000...2000		075167	075202	075237	075271	075305	
	157.5...225	1125...2250		075168	075203	075238	075272	075306	
	175...250	1250...2500		075169	075204	075239	075273	075307	

Ordering codes for XT4 UL/CSA Circuit breakers

XT4 150A TMF/TMA - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1
Size	I _n	I _Δ	(480 V)	X (200 kA)
TMF	25	400		
	30	400		
	35	400		
	40	400		
	50	500		
	60	600		
	70	700		
	80	800		
	90	900		
	100	1000		
	110	110		
	125	1250		
	150	1500		
TMA	56...80	400...800		
	63...90	450...900		
	70...100	500...1000		
	77...110	550...1100		
	87.5...125	625...1250		
	105...150	750...1500		

XT4 250A TMF/TMA - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1					
Size	I _n	I _Δ	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
TMF	25	400		075170	075205	075240	075274	075308	
	30	400		075171	075206	075241	075275	075309	
	35	400		075173	075208	075242	075276	075310	
	40	400		075174	075209	075243	075277	075311	
	50	500		075175	075210	075244	075278	075312	
	60	600		075176	075211	075245	075279	075313	
	70	700		075177	075212	075246	075280	075314	
TMA	56...80	400...800		075178	075213	075247	075281	075315	
	63...90	450...900		075179	075214	075248	075282	075316	
	70...100	500...1000		075180	075215	075249	075283	075317	
	77...110	550...1100		075181	075216	075250	075284	075318	
	87.5...125	625...1250		075182	075217	075251	075285	075319	
	105...150	750...1500		075183	075218	075252	075286	075320	
	122.5...175	875...1750		075184	075219	075253	075284	075321	
	140...200	1000...2000		075185	075220	075254	075288	075322	
	157.5...225	1125...2250		075186	075221	075255	075289	075323	
	175...250	1250...2500		075187	075222	075256	075290	075324	

XT4 150A TMF/TMA - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Thermomagnetic trip unit			Icu	1SDA.....R1
Size	I _n	I _Δ	(480 V)	X (200 kA)
TMF	25	400		
	30	400		
	35	400		
	40	400		
	50	500		
	60	600		
	70	700		
TMA	56...80	400...800		
	63...90	450...900		
	70...100	500...1000		
	77...110	550...1100		
	87.5...125	625...1250		
	105...150	750...1500		

XT4 250A MCP (MA) - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Magnetic trip unit			Icu	1SDA.....R1				
Size	I _n	I _Δ	(480 V)	H				
MA	25	75...275		075336				
	50	150...550		075337				
	80	400...800		075338				
	100	500...7000		075339				
	110	550...1100		075340				
	125	625...1250		075341				
	150	750...1500		075342				
	175	875...1750		075343				
	200	1000...2000		075344				
	225	1125...2250		075345				
	250	1250...2500		075346				

Ordering codes for XT4 UL/CSA Circuit breakers

XT4 250A Ekip - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1					
Size	In	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
Ekip LS/I	40		075358	075370	075394	075382	075406	
	60		075359	075371	075395	075383	075407	
	100		075360	075372	075396	075384	075408	
	150		075361	075373	075397	075385	075409	
	225		075362	075374	075398	075386	075410	
	250		075363	075375	075399	075387	075411	
Ekip LSI	40		075418	075430	075442	075454	075466	
	60		075419	075431	075443	075455	075467	
	100		075420	075432	075444	075456	075468	
	150		075421	075433	075445	075457	075469	
	225		075422	075434	075446	075458	075470	
	250		075423	075435	075447	075459	075471	
Ekip LSIg	40		075478	075490	075502	075514	075526	
	60		075479	075491	075503	075515	075527	
	100		075480	075492	075504	075516	075528	
	150		075481	075493	075505	075517	075529	
	225		075482	075494	075506	075518	075530	
	250		075483	075495	075507	075519	075531	
Ekip E-LSIG	40		080218	080230	080242	080254	080273	
	60		080220	080232	080244	080256	080275	
	100		080222	080234	080246	080265	080277	
	150		080224	080236	080248	080267	080279	
	225		080226	080238	080250	080269	080281	
	250		080228	080240	080252	080271	080283	
Ekip I	40		075538	075550	075562	075574	075586	
	60		075539	075551	075563	075575	075587	
	100		075540	075552	075564	075576	075588	
	150		075541	075553	075565	075577	075589	
	225		075542	075554	075566	075578	075590	
	250		075543	075555	075567	075579	075591	
Ekip M-LIU	40				075602			
	60				075603			
	100				075604			
	150				075605			

XT4 150A Ekip - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1
Size	In	(480 V)	X (200 kA)
Ekip LS/I	40		075358
	60		075359
	100		075360
	150		075361
Ekip LSI	40		075418
	60		075419
	100		075420
	150		075421
Ekip LSIG	40		075478
	60		075479
	100		075480
	150		075481
Ekip E-LSIG	40		080218
	60		080220
	100		080222
	150		080224
Ekip I	40		075538
	60		075539
	100		075540
	150		075541

Ordering codes for XT4 UL/CSA

Circuit breakers

XT4 250A Ekip - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1					
Size	In	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)	X (200 kA)
Ekip LS/I	40		075364	075376	075400	075388	075412	
	60		075365	075377	075401	075389	075413	
	100		075366	075378	075402	075390	075414	
	150		075367	075379	075403	075391	075415	
	225		075368	075380	075404	075392	075416	
	250		075369	075381	075405	075393	075417	
Ekip LSI	40		075424	075436	075448	075460	075472	
	60		075425	075437	075449	075461	075473	
	100		075426	075438	075450	075462	075474	
	150		075427	075439	075451	075463	075475	
	225		075428	075440	075452	075464	075476	
	250		075429	075441	075453	075465	075477	
Ekip LSIG	40		075484	075496	075508	075520	075532	
	60		075485	075497	075509	075521	075533	
	100		075486	075498	075510	075522	075534	
	150		075487	075499	075511	075523	075535	
	225		075488	075500	075512	075524	075536	
	250		075489	075501	075513	075525	075537	
Ekip E-LSIG	40		080219	080231	080243	080255	080274	
	60		080221	080233	080245	080264	080276	
	100		080223	080235	080247	080266	080278	
	150		080225	080237	080249	080268	080280	
	225		080227	080239	080251	080270	080282	
	250		080229	080241	080253	080272	080284	
Ekip I	40		075544	075556	075568	075580	075592	
	60		075545	075557	075569	075581	075593	
	100		075546	075558	075570	075582	075594	
	150		075547	075559	075571	075583	075595	
	225		075548	075560	075572	075584	075596	
	250		075549	075561	075573	075585	075597	

XT4 250A Molded case switch - Fixed (F) - 3 poles - Front terminals (F) - UL/CSA

No trip unit			Icu	1SDA.....R1				
Size	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)
XT4 - D	250	2500		075620	075622	075624	075626	075628

XT4 250A Molded case switch - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

No trip unit			Icu	1SDA.....R1				
Size	In	Mag. Override	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)
XT4 - D	250	2500		075621	075623	075625	075627	075629

XT4 150A Ekip - Fixed (F) - 4 poles - Front terminals (F) - UL/CSA

Ekip electronic trip units		Icu	1SDA.....R1
Size	In	(480 V)	X (200 kA)
Ekip LS/I	40		
	60		
	100		
	150		
Ekip LSI	40		
	60		
	100		
	150		
Ekip LSIG	40		
	60		
	100		
	150		
Ekip E-LSIG	40		
	60		
	100		
	150		
Ekip I	40		
	60		
	100		
	150		

XT4 250A Extra code for 100% rated circuit breaker - UL/CSA

		1SDA.....R1			
Size		3 poles	4 poles		
XT4 ⁽¹⁾		076606	080701		
XT4X		080702	080703		

⁽¹⁾ not usable for XT4X

Ordering codes for XT4 UL/CSA

Circuit breakers

XT4 250A Breaking part - UL/CSA

No trip unit	Icu	1SDA.....R1				
Type	(480 V)	N (25 kA)	S (35 kA)	H (65 kA)	L (100 kA)	V (150 kA)
XT4 250A breaking part - 3p		075640	075641	075642	075643	075644
XT4 250A breaking part - 4p		075645	075646	075647	075648	075649

XT4 250A Loose trip unit - UL/CSA

Thermomagnetic trip unit			1SDA.....R1				
Size	I _n	I ₃	2 poles	3 poles	4 poles		
TMF	25	400		075698	075715		
	30	400		075699	075716		
	35	400		075700	075717		
	40	400		075701	075718		
	50	500		075702	075719		
	60	600		075703	075720		
	70	700		075704	075721		
	80	800		080301			
	90	900		080302			
	100	1000		080293			
	110	110		080294			
	125	1250		080295			
	150	1500		080296			
	175	1750		080297			
	200	2000		080298			
	225	2250		080299			
	250	2500		080300			
TMA	56...80	400...800		075705	075722		
	63...90	450...900		075706	075723		
	70...100	500...1000		075707	075724		
	77...110	550...1100		075708	075725		
	87.5...125	625...1250		075709	075726		
	105...150	750...1500		075710	075727		
	122.5...175	875...1750		075711	075728		
	140...200	1000...2000		075712	075729		
	157.5...225	1125...2250		075713	075730		
	175...250	1250...2500		075714	075731		

XT4 250A Loose trip unit - UL/CSA

Ekip electronic trip units		1SDA.....R1					
Size	In	3 poles		4 poles			
Ekip LS/I	40	075743		075749			
	60	075744		075750			
	100	075745		075751			
	150	075746		075752			
	225	075747		075753			
	250	075748		075754			
Ekip LSI	40	075755		075761			
	60	075756		075762			
	100	075757		075763			
	150	075758		075764			
	225	075759		075765			
	250	075760		075766			
Ekip LSIG	40	075767		075773			
	60	075768		075774			
	100	075769		075775			
	150	075770		075776			
	225	075771		075777			
	250	075772		075778			
Ekip E-LSIG	40	080305		080306			
	60	080307		080307			
	100	080309		080310			
	150	080311		080312			
	225	080313		080257			
	250	080258		080259			
Ekip I	40	075779		075785			
	60	075780		075786			
	100	075781		075787			
	150	075782		075788			
	225	075783		075789			
	250	075784		075790			

Ordering codes for XT4 UL/CSA Accessories



Fixed part of plug-in



Fixed part of withdrawable



Conversion kit for turning a fixed circuit breaker into the moving part of a plug-in circuit breaker



Conversion kit for turning a fixed circuit breaker into the moving part of a withdrawable circuit breaker

Fixed parts, conversion kits and accessories for fixed parts

Fixed part of plug-in (P)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit P FP EF ⁽¹⁾	068196R1	068198R1		
Kit P FP HR/VR ⁽²⁾	068197R1	068199R1		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Fixed part of withdrawable (W)

Type	1SDA.....R1			
	3 poles	4 poles		
Kit P FP EF ⁽¹⁾	068204	068206		
Kit P FP HR/VR ⁽²⁾	068205	068207		

⁽¹⁾ UL Listed

⁽²⁾ The terminals are factory-mounted in the horizontal position (HR)

Terminals for the fixed parts

Type	1SDA.....R1			
	3 poles	4 poles		
EF - Front extended terminals	066266	066267		
R - Rear terminals HR/VR	066272	066273		
PS - Rear phase separators 90mm/3.54in	068953	068954		

Conversion kit of the circuit breaker from fixed into moving part of plug-in ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
P MP kit	066282	066283		

⁽¹⁾ UL Listed

Conversion kit of the circuit breaker from fixed into moving part of withdrawable ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
W MP kit	066286	066287		

⁽¹⁾ UL Listed

Conversion Kit of the fixed part from plug-in to withdrawable ⁽¹⁾

Type	1SDA.....R1			
	Global code			
FP P>W kit	066289			

⁽¹⁾ UL Listed

Conversion kit of RC from fixed to plug-in

Type	1SDA.....R1			
	4 poles			
P MP RC Sol XT2 4p kit	066291			

Conversion Kit of RC Sel from plug-in to withdrawable

Type	1SDA.....R1			
	4 poles			
W MP RC Sel kit	067115			

Key lock for fixed part of withdrawable

Type	1SDA.....R1			
	Global code			
KL-D Key lock FP, different keys	066293			
KL-S Key lock FP, same keys N.20005	066294			



Key lock/padlock for fixed part



Ronis key lock/padlock for fixed part

Ronis key lock for fixed part of withdrawable

Type	1SDA.....R1			
	Global code			
KL-D Ronis FP key lock, different keys	066298			
KL-S Ronis FP key lock, same Type A keys	066300			

Adapter for mounting the terminals of the fixed circuit breaker on the fixed part ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
ADP adapter for fixed part (2 pieces)	066311	066312		

⁽¹⁾ UL Listed

Note: when using ADP with ES/MC terminals, also order "Kit F Front Terminals" - see page 7/49



Fixed part adapter

Ordering codes for XT4 UL/CSA Accessories



SOR uncabled



SOR cabled



SOR for withdrawable



UVR uncabled



UVR cabled



SOR for withdrawable



Time delay device for
undervoltage release

Service releases

Shunt opening release - SOR ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
SOR 12V DC	066313			
SOR 24-30V AC/DC	066314			
SOR 48-60V AC/DC	066315			
SOR 110...127V AC / 110...125V DC	066316			
SOR 220...240V AC / 220...250V DC	066317			
SOR 380-440V AC	066318			
SOR 480-525V AC	066319			
Cabled version				
SOR-C 12V DC	066321	066328		
SOR-C 24-30V AC/DC	066322	066329		
SOR-C 48-60V AC/DC	066323	066330		
SOR-C 110...127V AC / 110...125V DC	066324	066331		
SOR-C 220...240V AC / 220...250V DC	066325	066332		
SOR-C 380-440V AC	066326	066333		
SOR-C 480-525V AC	066327	066334		

⁽¹⁾ UL Listed

Undervoltage release - UVR ⁽¹⁾

Type	1SDA.....			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
UVR 24-30V AC/DC	066389			
UVR 48V AC/DC	069064			
UVR 60V AC/DC	066390			
UVR 110...127V AC / 110...125V DC	066391			
UVR 220...240V AC / 220...250V DC	066392			
UVR 380-440V AC	066393			
UVR 480-525V AC	066394			
Cabled version				
UVR-C 24-30V AC/DC	066396	066403		
UVR-C 48V AC/DC	069065	069066		
UVR-C 60V AC/DC	066397	066404		
UVR-C 110...127V AC / 110...125V DC	066398	066405		
UVR-C 220...240V AC / 220...250V DC	066399	066406		
UVR-C 380-440V AC	066400	066407		
UVR-C 480-525V AC	066401	066408		

⁽¹⁾ UL Listed

Delay device for undervoltage release - UVD

Type	1SDA.....R1			
	Global code			
UVD 24...30V AC/DC	051357			
UVD 48...60V AC/DC	051358			
UVD 110...125V AC/DC	051360			
UVD 220...250V AC/DC	051361			

Connectors

Fourth pole connectors for withdrawable

Type	1SDA.....R1			
	Global code			
Connector 4 th pole SOR	066415			
Connector 4 th pole UVR	066418			

Socket-plug connector on the panel

Type	1SDA.....R1			
	Global code			
Socket-plug connector with 3 PINS	066409			
Socket-plug connector with 6 PINS	066410			
Socket-plug connector with 9 PINS	066411			
Socket-plug connector with 15 PINS	066412			



Socket-plug connector of fixed part

Fixed part socket-plug connector

Type	1SDA.....R1			
	Global code			
Socket-plug connector of moving part - 12 PINS	066413			
Socket-plug connector of fixed part - 12 PINS	066414			

Electrical signals

Auxiliary contacts -AUX- ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Uncabled version				
AUX 250V	066422			
AUX 24V DC	066423			
AUX-S51 250V	066424			
AUX-S51 24V DC	066425			
Cabled version				
AUX-C 3 Q 250V left	066427			
AUX-C 1 Q + 1 SY 250V	066431	066432		
AUX-C 2 Q + 1 SY 250V	066433			
AUX-C 3 Q + 1 SY 250V	066434	066435		
AUX-C 3 Q + 2 SY 250V	066436	066437		
AUX-C 2 Q + 2 SY + 1 S51 250V	066438	066439		
AUX-S51-C 250V	066429	066430		
AUX-C 1 Q + 1 SY 24V DC	066446	066447		
AUX-C 3 Q + 1 SY 24V DC	066448	066449		
AUX-S51-C 24V DC	067116	067117		
AUX-C 1 Q + 1 SY 400V AC	066444	066445		
AUX-C 2 Q 400V AC	066440	066443		

⁽¹⁾ UL Listed



AUX uncabled



AUX cabled



AUX for withdrawable

Ordering codes for XT4 UL/CSA Accessories



AUP - Auxiliary position contacts

Auxiliary position contacts -AUP-(⁽¹⁾)

Type	1SDA.....R1			
	Global code			
Cabled version				
AUP-I - Four racked-in contacts 250V for plug-in circuit breaker	066450			
AUP-I - Four racked-in contacts 24V DC for plug-in circuit breaker	066451			
AUP-R - Two racked-out contacts 250V for withdrawable circuit breaker	066452			
AUP-R - Two racked-out contacts 24V DC for withdrawable circuit breaker	066453			

(⁽¹⁾) UL Listed



AUE - Early auxiliary contacts

Early auxiliary contacts -AUE-(⁽¹⁾)

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
AUE - Two contacts in the rotary handle RHx (Closed)	066454	066455		
AUE - Two contacts in the rotary handle RHx (Open)	067118	067119		

(⁽¹⁾) UL Listed

Motor operators



MOE - Motor operator

Stored energy motor operator -MOE-(⁽¹⁾)

Type	1SDA.....R1			
	Global code			
MOE 24V DC	066463			
MOE 48...60V DC	066464			
MOE 110...125V AC/DC	066465			
MOE 220...250V AC/DC	066466			
MOE 380...440V AC	066467			
MOE 480...525V AC	066468			

(⁽¹⁾) UL Listed

Electronic stored energy motor operator -MOE-E-

Type	1SDA.....R1			
	Global code			
MOE-E 24V DC	066469			
MOE-E 48...60V DC	066470			
MOE-E 110...125V AC/DC	066471			
MOE-E 220...250V AC/DC	066472			
MOE-E 380...440V AC	066473			
MOE-E 480...525V AC	066474			

Rotary handle operating mechanisms



Direct rotary handle



Extended rotary handle



IP54

Rotary handle operating mechanisms ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
RHD normal direct handle	069053	066476		
RHD emergency direct handle	069054	066478		
RHE normal extended handle	069055	066480		
RHE emergency extended handle	069056	066482		
RHE standard returned with padlock ⁽¹⁾	080260	080262		
RHE-EM emergency returned with padlock ⁽¹⁾	080263	080315		
RHS-L normal left side handle	069058			
RHS-L emergency left side handle	069059			
RHS-R normal right side handle	069060			
RHS-R emergency right side handle	069061			
Extended handle spare parts				
RHE_B base for extended handle adjustable with padlock ⁽¹⁾	080316	080318		
RHE_B base for extended handle	069057	066484		
RHE_S shaft of 500mm	066576	066576		
RHE_H normal extended handle	066577	066577		
RHE_H emergency extended handle	066578	066578		
LH normal large handle	066583	066583		
LH emergency large handle	066585	066585		

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

IP54 Protection for transmitted rotary handle

Type	1SDA.....R1			
	Global code			
IP54 protection for transmitted handle -RHE	066587			

Flange handle ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Flange handle + mechanism + 4 ft cable ⁽¹⁾	080342			
Flange handle + mechanism + 6 ft cable ⁽¹⁾	080343			
Flange handle + mechanism + 8 ft cable ⁽¹⁾	080344			
Flange handle + mechanism + 10 ft cable ⁽¹⁾	080345			
Flange handle Only ⁽¹⁾	080346			

⁽¹⁾ UL Listed

⁽¹⁾ Ask ABB for availability

Locks

Padlock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
	Global code			
PLL Fixed lock with padlocks in open position	066590			
PLL Fixed lock with padlocks in open/closed position	066592			

⁽¹⁾ UL Listed



Fixed padlock

Ordering codes for XT4 UL/CSA

Accessories



Key lock on the circuit breaker

Key lock on the circuit breaker ⁽¹⁾

Type	1SDA.....R1			
	Global code			
KLC Ronis key lock open, different keys, removable in open position	066599			
KLC Ronis key lock open, same Type A keys, removable in open position	066600			
KLC Ronis key lock open, same Type B keys, removable in open position	066601			
KLC Ronis key lock open, same Type C keys, removable in open position	066602			
KLC Ronis key lock open, same Type D keys, removable in open position	066603			
KLC Ronis key lock open/closed, different keys, removable in both positions	066604			

⁽¹⁾ UL Listed



Key lock on the handle

Key lock on the rotary handle / key lock on the front for locks ⁽¹⁾

Type	1SDA.....R1			
	Global code			
RHL Ronis key lock open, different keys, RHx/FLD	066617			
RHL Ronis key lock open, same - Type A keys, RHx/FLD	066618			
RHL Ronis key lock open, same - Type B keys, RHx/FLD	066619			
RHL Ronis key lock open, same - Type C keys, RHx/FLD	066620			
RHL Ronis key lock open, same - Type D keys, RHx/FLD	066621			
RHL Ronis key lock open/closed, different keys, RHx	066622			
RHL Ronis key lock open/closed, different keys, FLD	069182			

⁽¹⁾ UL Listed



Key lock on the motor

Key lock on the motor

Type	1SDA.....R1			
	Global code			
MOL-D Ronis key lock open, different keys	066629			
MOL-S Ronis key lock open, same Type A keys	066630			
MOL-S Ronis key lock open, same Type B keys	066631			
MOL-S Ronis key lock open, same Type C keys	066632			
MOL-S Ronis key lock open, same Type D keys	066633			
MOL-M Key lock against manual operation	066634			



Front for operating lever mechanism

Front for operating lever mechanism ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
FLD Front for operating lever mechanism	066635	066636		

⁽¹⁾ UL Listed



Interlock

Mechanical interlock ⁽¹⁾

Type	1SDA.....R1			
	Global code			
Chassis MIR-H	066637			
Chassis MIR-V	066638			
Plate XT1 F	066639			
Plate XT1 P	066640			
Plate XT2 F	066641			
Plate XT2 P/W	066642			
Plate XT4 F	066645			
Plate XT4 P/W	066646			

⁽¹⁾ UL Listed



RC Sel

Residual current devices

Residual current devices

Type	1SDA.....R1			
	4 poles			
Sel	067131			

Panel type residual current relay

Type	1SDA.....R1			
	Global code			
RCQ020/A 115-230V AC	065979			
RCQ020/A 415V AC	065980			
Toroid closed Ø 60mm	037394			
Toroid closed Ø 110mm	037395			
Toroid closed Ø 185mm	050543			

Installation

Mounting bracket for DIN rail

Type	1SDA.....R1			
	3 poles	4 poles		
Kit DIN50022 UL ⁽¹⁾	080326	080327		

⁽¹⁾ UL Listed



DIN guide

Terminals, terminal covers and phase barriers

Insulating terminal covers ⁽¹⁾

Type	1SDA.....R1			
	3 poles	4 poles		
LTC low terminal covers	066662	066663		
HTC high terminal covers	066670	066671		

⁽¹⁾ UL Listed



Terminal covers

Sealable screws for terminal covers

Type	1SDA.....R1			
	2 pcs			
Kit with two sealable screws	066672			



Sealable screw

Ordering codes for XT4 UL/CSA Accessories



Phase separators



EF terminal



FCCuAl terminal

Phase barriers ⁽¹⁾

Type	1SDA.....R1			
	4 pcs	6 pcs		
PB height 25mm/0.98in	075914	075920		
PB height 100mm/3.94in	075915	075921		
PB height 200mm/7.87in	075917	075923		

⁽¹⁾ UL Listed

Terminals for XT4X up to 150A

Type	1SDA.....R1			
	3 pcs	4 pcs	6 pcs	8 pcs
F front terminals ⁽¹⁾	066861	066862	066863	066864
EF extended front terminals ⁽¹⁾	066877	066878	066879	066880
ES extended spread front terminals ⁽¹⁾	066901	066902	066903	066904
FC CuAl terminals for CuAl cables 14-1/0 AWG, 1x2,5...50mm ² ⁽¹⁾				
FC CuAl terminals for CuAl cables AuxV 14-1/0 AWG, 1x2,5...50mm ² ⁽¹⁾				
MC Cu multi-cable terminals 6x12-2 AWG, 6x2,5...35mm ² ⁽¹⁾	075909	075910	075911	075912
R rear adjustable terminal	066949	066950	066951	066952

⁽¹⁾ UL Listed

Terminals for XT4

Type	1SDA.....R1			
	3 pcs	4 pcs	6 pcs	8 pcs
F front terminals ⁽¹⁾	066861	066862	066863	066864
EF extended front terminals ⁽¹⁾	066877	066878	066879	066880
ES extended spread front terminals ⁽¹⁾	066901	066902	066903	066904
FC CuAl terminals for CuAl cables 14-1/0 AWG, 1x2,5...50mm ² 100A ⁽¹⁾	075857	075858	075859	075860
FC CuAl terminals for CuAl cables AuxV 14-1/0 AWG, 1x2,5...50mm ² 100A ⁽¹⁾				
FC CuAl terminals for CuAl cables 4-300 AWG, 1x25...150mm ² 225A ⁽¹⁾	075861	075862	075863	075864
FC CuAl terminals for CuAl cables AuxV 10-250 AWG, 1x25...150mm ² 225A ⁽¹⁾				
FC CuAl terminals for CuAl cables 250-350 AWG, 120...185mm ² 250A ⁽¹⁾	075865	075866	075867	075868
FC Cu terminals for Cu cables 10-250 AWG, 1x6...185mm ² ⁽¹⁾	075893	075894	075895	075896
MC Cu multi-cable terminals 6x12-2 AWG, 6x2,5...35mm ² ⁽¹⁾	075909	075910	075911	075912
R rear adjustable terminal	066949	066950	066951	066952
FB flexible bars terminals	066969	066970	066971	066972

⁽¹⁾ UL Listed



Ekip Display



Ekip LED Meter

Accessories for electronic trip units

General electronic trip unit accessories

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Ekip Display	068659	068659		
Ekip LED Meter	068660	068660		
Ekip Com	068661	068662		
HMI030 Interface on front of panel	063143	063143		
PR212/CI contactor control unit	050708	050708		

Current sensor for external neutral

Type	1SDA.....R1			
	Global code			
CT external neutral of 40A	066975			
CT external neutral of 63A	066976			
CT external neutral of 100A	066977			
CT external neutral of 160A	066978			
CT external neutral of 250A	066979			

Connection kits ⁽¹⁾

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
Kit of 24V DC auxiliary voltage for electronic trip units	066980	066981		
Kit for external neutral connection(1)	066984	066985		

⁽¹⁾ UL Listed



Ekip T&P unit

Test and configurator units

Type	1SDA.....R1			
	Global code			
Ekip TT - Trip test unit	066988			
Ekip T&P - Programming and test unit	066989			

Automatic transfer devices

ATS021 - ATS022 Automatic transfer devices

Type	1SDA.....R1			
	Global code			
ATS021	065523			
ATS022	065524			



ATS021

Ordering codes for XT4 UL/CSA Accessories

Spare parts

Type	1SDA.....R1			
	Fixed/Plug-in	Withdrawable		
SA RC Sel - Opening solenoid of the residual current device	067209	067210		
AUX-C - Loose cabled auxiliary contact 250V AC ⁽¹⁾	066994 ⁽²⁾	066995		
AUX-C - Loose cabled auxiliary contact 24V DC ⁽¹⁾	066996 ⁽²⁾	066997		
AUX-C - Loose cabled auxiliary contact 250V 600V ⁽²⁾	080321	080322		
AUX-C - Loose cabled auxiliary contact 24V DC F/P 600V ⁽²⁾	080323	080324		

⁽¹⁾ unnumbered cables

⁽²⁾ UL Listed



Fixed/Moving part connector
for withdrawable

Connectors for fixed part/moving part of withdrawable circuit breakers

Type	1SDA.....R1			
	Global code			
1 connector for with 2 pins for SOR/UVR up to 400V	067213			
1 connector with 3 pins for AUX up to 400V	067214			



Flange

Flanges for the compartment door

Type	1SDA.....R1			
	3 poles - Fixed/Plug-in	4 poles - Fixed/Plug-in	3 poles - Withdrawable	4 poles - Withdrawable
Small "optional" flange for circuit breaker	068657	068657		
Large "standard" flange for circuit breaker	068646	068647		
Flange for MOD	068649	068649	068650	068650
Flange for direct handle RHD	068651	068651	068652	068652
Flange for residual current RC Sel		066649		066450

Contact us

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The data and illustrations are not binding. We reserve the right to make changes in the course of technical development of the product.

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