

PositionMaster EDP300

Digital Positioner



Digital Positioner for the positioning of pneumatically controlled final control elements.

—
EDP300

Introduction

The PositionMaster EDP300 has an integral mount design, features a modular structure and offers an outstanding price-performance ratio. Fully automatic determination of the control parameters and adaptation to the positioner allow for considerable time savings as well as optimum control behavior. Due to its characteristics, the positioner is suited for even the most demanding operating conditions.

Additional Information

Additional documentation on PositionMaster EDP300 is available for download free of charge at www.abb.com/positioners. Alternatively simply scan this code:



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1 Safety

General information and instructions

These instructions are an important part of the product and must be retained for future reference.

Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator accordingly. The specialist personnel must have read and understood the manual and must comply with its instructions.

For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.


The content of these instructions is neither part of nor an amendment to any previous or existing agreement, promise or legal relationship.

Modifications and repairs to the product may only be performed if expressly permitted by these instructions.


Information and symbols on the product must be observed. These may not be removed and must be fully legible at all times. The operating company must strictly observe the applicable national regulations relating to the installation, function testing, repair and maintenance of electrical products.

Warnings


The warnings in these instructions are structured as follows:

 **DANGER**

The signal word '**DANGER**' indicates an imminent danger. Failure to observe this information will result in death or severe injury.

 **WARNING**

The signal word '**WARNING**' indicates an imminent danger. Failure to observe this information may result in death or severe injury.

 **CAUTION**

The signal word '**CAUTION**' indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

NOTICE

The signal word '**NOTICE**' indicates possible material damage.

Note

'**Note**' indicates useful or important information about the product.

Intended use

Positioning of pneumatically controlled actuators; designed for mounting on linear and rotary actuators.

The device is designed for use exclusively within the stated values on the name plate and in the data sheet.

- The maximum operating temperature must not be exceeded.
- The maximum ambient temperature must not be exceeded.
- The housing's rating must be observed during operation.

Improper use

The following are considered to be instances of especially improper use of the device:

- For use as a climbing aid, for example for mounting purposes.
- For use as a bracket for external loads, for example as a support for piping, etc.
- Material application, for example by painting over the housing, name plate or welding/soldering on parts.
- Material removal, for example by spot drilling the housing.

Cyber security disclaimer

This product is designed to be connected to and to communicate information and data via a network interface. It is operator's sole responsibility to provide and continuously ensure a secure connection between the product and your network or any other network (as the case may be).

Operator shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc.) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.

ABB and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

Software downloads

By visiting the web pages indicated below, you will find notifications about newly found software vulnerabilities and options to download the latest software. It is recommended that you visit this web pages regularly:

www.abb.com/cybersecurity

[ABB-Library – EDP300 – Software downloads](#)



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2 Use in potentially explosive atmospheres in accordance with ATEX and IECEx

Note

Further information on the Ex-Approval of devices can be found in the type examination certificates or the relevant certificates at www.abb.com/positioners.

Product identification

Depending on the type of explosion protection, an Ex name plate is attached next to the main name plate on the positioner. This indicates the level of explosion protection and the device's relevant Ex certificate.

Ex marking

ATEX	
Type Examination Test Certificate	ZELM 11 ATEX 0456 X
II 1G Ex ia IIC T6 or T4 Ga	
II 1D Ex iaD IIIC T55°C or T100°C Da	
Ta = -40°C to 40°C or 85°C	
II 3G Ex nA IIC T6 or T4 Gc	
II 2D Ex tb IIIC T55°C or T100°C Db	
Ta = 40°C to 40°C or 80°C	
IECEx	
Type Examination Test Certificate	IECEx ZLM 11.0001 X
Ex ia IIC T6 or T4 Ga	
Ex iaD IIIC T55 °C or T100°C Da	
Ta = -40 ° to 40 ° or 85 °C	
Ex nA IIC T6 or T4 Gc	
Ex tb IIIC T55 °C or T100°C Db	
Ta = -40 ° to 40 ° or 80 °C	
EAC TR-CU-012	
Certificate	EAC TR-CU-012
0Ex ia IIC T6/T4 Ga X	
Ex ia IIIC T55°C/T100°C Da X	
2Ex nA II T6/T4 Gc X	
Ex tb IIIC T55°C/T100°C Db X	

Mounting

The installation, commissioning, maintenance and repair of devices in potentially explosive atmospheres must only be carried out by appropriately trained personnel. Works may be carried out only by persons, whose training has included instructions on different types of protection and installation techniques, concerned rules and regulations as well as general principles of zoning. The person must possess the appropriate competences for the type of work to be conducted. When operating with combustible dusts, comply with EN 60079-31. The safety instructions for electrical apparatus in potentially explosive areas must be in accordance with Directive 2014/34/EU (ATEX) and IEC 60079-14 (Installation of electrical equipment in potentially explosive areas). Comply with the applicable regulations for the protection of employees to ensure safe operation.

Note

- Observe the device's applicable specifications and special conditions in accordance with the type examination certificate or other certificates!
- Any manipulation in the device by users is not permitted. Only the manufacturer or an explosion protection specialist may modify the device
 - The device may only be operated using instrument air that is free from oil, water and dust.

Cable gland

Limited temperature range of the M20 × 1.5 plastic cable gland for explosion protection variants. The permissible ambient temperature range of the cable gland is -20 to 80 °C (-4 to 176 °F). When using the cable gland, make sure that the ambient temperature is within this range. The cable gland must be installed in the housing with a tightening torque of 3.8 Nm. When installing the connection of the cable gland and cable, check for tightness to ensure that the required IP rating is met.

Operation with flammable gases

Observe the following points when operating a device with flammable gases:

- The device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the 'Intrinsic Safety' type of protection may be used for operation with natural gas. The pneumatic outputs must be vented in non-Ex areas.
- The maximum ambient temperature must not up-scale 60 °C (140 °F).
- During operation with flammable gases in type of protection 'Ex n', the device may only be operated with approved cable glands.
- During operation with flammable gases, the cover cap for the air outlets can be removed, and the air outlets can be tubed separately. Both pipes must not be joined in one pipe.
- Recurring charging processes in gas areas must be prevented.

Operation in areas with combustible dust

Observe the following points when operating a device with combustible dust:

- To prevent loss of type of protection, the housing must not be opened.
- Only use cable glands which are approved for the type of protection and correspond to IP rating \geq IP 6X.
- Danger due to propagating brush discharge must be avoided.

Operation in temperature class T6

During operation in temperature class T6, when the equipment is partially or fully depressurized, ensure that there is no possibility of a hazardous atmosphere getting into the pneumatic system or that any hazardous atmosphere is removed prior to compression by taking suitable action.

When commissioning in temperature class T6, flush the pneumatic system by applying 1.4 (+/- 0.1) bar until all traces of any explosive mixture have been removed, yet for at least 5 minutes. Ventilate and evacuate the EDP300 fully several times.

ATEX and IECEx temperature data

Type of protection Ex i, intrinsic safety

Temperature class	Ambient temperature	Surface temperature
T4	-40 to 85 °C (-40 to 185 °F)	100 °C (212 °F)
T6	-40 to 40 °C (-40 to 104 °F)	55° C (131 °F)

Type of protection Ex n - non-sparking

Temperature class	Ambient temperature	Surface temperature
T4	-40 to 80 °C (-40 to 176 °F)	100 °C (212 °F)
T6	-40 to 40 °C (-40 to 104 °F)	55° C (131 °F)

... 2 Use in potentially explosive atmospheres in accordance with ATEX and IECEx

ATEX und IECEx electrical data

Type of protection Ex i, intrinsic safety

Basic device

Signal circuit (AI)	
Terminals	+11 / -12
Temperature class T1 – T4	Temperature class T6
U _i = 30 V	U _i = 28 V
I _i = 320 mA	I _i = 320 mA
P _i = 1.1 W	P _i = 0.8 W
C _i = 6.5 nF without pressure option; 8.8 nF with pressure option	
L _i = negligibly small	

Digital input (DI)	
Terminals	+81 / -82
Temperature class T1 – T4	Temperature class T6
U _i = 30 V	U _i = 28 V
P _i = 500 mW	P _i = 400 mW
C _i = 4.2 nF	
L _i = negligibly small	

Digital output (DO)	
Terminals	+83 / -84
Temperature class T1 – T4	Temperature class T6
U _i = 30 V	U _i = 28 V
P _i = 500 mW	P _i = 400 mW
C _i = 4.2 nF	
L _i = negligibly small	

Option modules

Module for the emergency shutdown function	
Terminals	+85 / -86
Temperature class T1 – T6	
U _i = 30 V	
P _i = 1 W	
C _i = 5.3 nF	
L _i = negligibly small	

Module for analog feedback (AO)	
Terminals	+31 / -32
Temperature class T1 – T4	Temperature class T6
U _i = 30 V	U _i = 28 V
I _i = 320 mA	I _i = 320 mA
P _i = 1 W	P _i = 0.8 W
C _i = 11.3 nF	
L _i = 150 µH	

Module for universal input (UAI)	
Terminals	+21 / -22
Temperature class T1 – T4	Temperature class T6
U _i = 30 V	U _i = 28 V
I _i = 320 mA	I _i = 320 mA
P _i = 1 W	P _i = 0.8 W
C _i = 11.3 nF	
L _i = 150 µH	

Module for digital feedback (SW1 / SW2)	
Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Temperature class T1 – T4	Temperature class T6
Per output:	Per output:
U _i = 30 V	U _i = 28 V
P _i = 0.5 W	P _i = 0.4 W
I _i = 250 mA	
C _i = 2.2 nF per output	
L _i = negligibly small	

Limit switch (Limit 1 / Limit 2)	
Limit monitor with proximity switches	
Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Temperature class T1 – T4	Temperature class T6
In accordance with type examination certificate PTB 00 ATEX 2049X	

* No IECEx approval

Type of protection Ex n - non-sparking

Basic device

Signal circuit (AI)

Terminals	+11 / -12
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Digital input (DI)

Terminals	+81 / -82
Electrical values	$U_N \leq 30 \text{ V}$

Digital output (DO)

Terminals	+83 / -84
Electrical values	$U_N \leq 30 \text{ V}$

Option modules

Module for the emergency shutdown function

Terminals	+85 / -86
Electrical values	$U_N \leq 30 \text{ V}$

Module for analog feedback (AO)

Terminals	+31 / -32
Electrical values	$I_N \leq 22 \text{ mA}$; $U_N \leq 30 \text{ V}$

Module for universal input (UAI)

Terminals	+21 / -22
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Module for digital feedback (SW1 / SW2)

Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Electrical values	Per output: $U_N \leq 30 \text{ V}$

Limit switch (Limit 1 / Limit 2)

Limit monitor with proximity switches

Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Electrical values	Per output: $I_N \leq 25 \text{ mA}$; $U_N \leq 16 \text{ V}$

* No IECEx approval

3 Use in potentially explosive atmospheres in accordance with FM and CSA

Note

Further information on the Ex-Approval of devices can be found in the type examination certificates or the relevant certificates at www.abb.com/positioners.

Product identification

Depending on the type of explosion protection, an Ex name plate is attached next to the main name plate on the positioner.

This indicates the level of explosion protection and the device's relevant Ex certificate.

Ex marking

FM	
FM Approval	3043773
Control drawing	901305
IS, CL. I, Div. 1, Gr. A, B, C, D, T4 or T6	
IS, CL. II, Div. 1, Gr. E, F, G, T4 or T6	
IS, CL. III, Div. 1, T4 or T6	
Class I Zone 0, AEx ia IIC, T4 or T6	
NI, Cl. I, Div. 2, Gr. A, B, C, D, T4 or T6	
NI, Cl. II, Div. 2, Gr. E, F, G, T4 or T6	
NI, Cl. III, Div. 2, T4 or T6	
Class I Zone 2, IIC T4 or T6	
T4 Ta=(−40 to +85) °C; (−40 to +185) °F	
T6 Ta=(−40 to +40) °C; (−40 to +104) °F	
Type 4X	

CSA	
Certificate	2419437
Control drawing	901305
CL I, Div. 1, Gr. A, B, C, D, T4 or T6	
CL II, Div. 1, Gr. E, F, G, T4 or T6	
CL III, Div. 1	
Class I Zone 0, AEx ia IIC T4 or T6	
CL I, Div. 2, Gr. A, B, C, D, T4 or T6	
CL II, Div. 2, Gr. E, F, G, T4 or T6	
CL III, Div. 2, T4 or T6	
Class I Zone 2, AEx nA IIC, T4 or T6	
T4 Ta=(−40 to +85) °C; (−40 to +185) °F	
T6 Ta=(−40 to +40) °C; (−40 to +104) °F	
IP64	

Mounting

The installation, commissioning, maintenance and repair of devices in areas with explosion hazard must only be carried out by appropriately trained personnel.

The operator must strictly observe the applicable national regulations with regard to installation, function tests, repairs, and maintenance of electrical devices. (e. g. NEC, CEC).

Note

Observe the device's applicable specifications and special conditions in accordance with the relevant certificate.

- Any manipulation in the device by users is not permitted. Only the manufacturer or an explosion protection specialist may modify the device
- The device may only be operated using instrument air that is free from oil, water and dust.

Cable gland

Limited temperature range of the M20 × 1.5 plastic cable gland for explosion protection variants.

The permissible ambient temperature range of the cable gland is −20 to 80 °C (−4 to 176 °F). When using the cable gland, make sure that the ambient temperature is within this range. The cable gland must be installed in the housing with a tightening torque of 3.8 Nm. When installing the connection of the cable gland and cable, check for tightness to ensure that the required IP rating is met.

Operation with flammable gases

Observe the following points when operating a device with flammable gases:

- The device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the IS 'Intrinsic Safety' type of protection may be operated with natural gas. The pneumatic outputs must be vented in non-hazardous areas.
- During operation with flammable gases, the cover cap for the air outlets must be removed and the air outlets tubed separately. Both pipes must not be joined in one pipe.
- The maximum ambient temperature must not up-scale 60 °C (140 °F).

See also **Control Drawing 901305** on page 47.

Operation in areas with combustible dust

Observe the following points when operating a device with combustible dust:

- To prevent loss of type of protection, the housing must not be opened.
- Only use cable glands which are approved for the type of protection and correspond to IP rating \geq IP 6X.
- Danger due to propagating brush discharge must be avoided.

Operation in temperature class T6

During operation in temperature class T6, when the equipment is partially or fully depressurized, ensure that there is no possibility of an explosive atmosphere getting into the pneumatic system or that any explosive atmosphere is removed prior to compression by taking suitable action.

When commissioning in temperature class T6, flush the pneumatic system by applying 1.4 (± 0.1) bar until all traces of any explosive mixture have been removed, yet for at least 5 minutes. Ventilate and evacuate the EDP300 fully several times.

Temperature data

Note

Legibility of the display is guaranteed at an ambient temperature of -20 to 70 °C. At 20 °C and lower, legibility can become limited. Legibility can be compensated by adjusting contrast. Contrast adjustment can be made manually directly on the device.

The display can fail at temperatures below -20 °C. Moreover, functioning of the device is guaranteed up to -40 °C.

FM

Temperature class	Ambient temperature T_{amb}
T1 to T4	-40 °C to 85 °C
T6	-40 °C to 40 °C

CSA

Temperature class	Ambient temperature T_{amb}
T4	-40 °C to 85 °C
T6	-40 °C to 40 °C

... 3 Use in potentially explosive atmospheres in accordance with FM and CSA

Electrical data

Basic device

Signal circuit (AI)	
Terminals	+11 / -12
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1.1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 6.5 \text{ nF}$ without pressure option; 8.8 nF with pressure option	
$L_i =$ negligibly small	

Digital input (DI)	
Terminals	+81 / -82
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i =$ negligibly small	

Digital output (DO)	
Terminals	+83 / -84
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i =$ negligibly small	

Option modules

Module for the emergency shutdown function	
Terminals	+85 / -86
Temperature class T1 – T6	
$U_i = 30 \text{ V}$	
$P_i = 1 \text{ W}$	
$C_i = 5.3 \text{ nF}$	
$L_i =$ negligibly small	

Module for analog feedback (AO)	
Terminals	+31 / -32
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \mu\text{H}$	

Module for universal input (UAI)	
Terminals	+21 / -22
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \mu\text{H}$	

Module for digital feedback (SW1 / SW2)	
Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Temperature class T1 – T4	Temperature class T6
Per output:	Per output:
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 0.5 \text{ W}$	$P_i = 0.4 \text{ W}$
$I_i = 250 \text{ mA}$	
$C_i = 2.2 \text{ nF}$ per output	
$L_i =$ negligibly small	

Limit switch (Limit 1 / Limit 2)	
Limit monitor with proximity switches	
Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Temperature class T1 – T4	Temperature class T6
-25 to 85 °C	-25°C to 40°C

* No IECEx approval

4 Use in hazardous areas in accordance with EAC TR-CU-012

Mounting

Operation with flammable gases

Observe the following points when operating a device with flammable gases:

- The device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the 'Intrinsic Safety' type of protection may be used for operation with natural gas. The pneumatic outputs must be vented in non-Ex areas.
- The maximum ambient temperature must not up-scale 60 °C (140 °F).
- During operation with flammable gases in type of protection 'Ex n', the device may only be operated with approved cable glands.
- During operation with flammable gases, the cover cap for the air outlets can be removed, and the air outlets can be tubed separately. Both pipes must not be joined in one pipe.
- Recurring charging processes in gas areas must be prevented.

Operation in areas with combustible dust

Observe the following points when operating a device with combustible dust:

- To prevent loss of type of protection, the housing must not be opened.
- Only use cable glands which are approved for the type of protection and correspond to IP rating \geq IP 6X.
- Danger due to propagating brush discharge must be avoided.

Operation in temperature class T6

During operation in temperature class T6, when the equipment is partially or fully depressurized, ensure that there is no possibility of a hazardous atmosphere getting into the pneumatic system or that any hazardous atmosphere is removed prior to compression by taking suitable action.

When commissioning in temperature class T6, flush the pneumatic system by applying 1.4 (+/- 0.1) bar until all traces of any explosive mixture have been removed, yet for at least 5 minutes. Ventilate and evacuate the EDP300 fully several times.

Type of protection Ex i, intrinsic safety

Temperature class	Ambient temperature	Surface temperature
T4	-40 to 85 °C (-40 to 185 °F)	100 °C (212 °F)
T6	-40 to 40 °C (-40 to 104 °F)	55° C (131 °F)

Type of protection Ex n - non-sparking

Temperature class	Ambient temperature	Surface temperature
T4	-40 to 80 °C (-40 to 176 °F)	100 °C (212 °F)
T6	-40 to 40 °C (-40 to 104 °F)	55° C (131 °F)

... 4 Use in hazardous areas in accordance with EAC TR-CU-012

Electrical data EAC TR-CU-012

Type of protection Ex i, intrinsic safety

Basic device

Signal circuit (AI)	
Terminals	+11 / -12
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1.1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 6.5 \text{ nF}$ without pressure option; 8.8 nF with pressure option	
$L_i =$ negligibly small	

Temperature characteristic curves

Intrinsically safe circuit according to ATEX, IECEx and EAC / TR CU 012/2011

Device category 1: Use in Zone 0

Device category 2: Use in Zone 1

Device category 3: Use in Zone 2

Digital input (DI)

Terminals	+81 / -82
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i =$ negligibly small	

Digital output (DO)

Terminals	+83 / -84
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i =$ negligibly small	

Option modules

Module for the emergency shutdown function

Terminals	+85 / -86
Temperature class T1 – T6	
$U_i = 30 \text{ V}$	
$P_i = 1 \text{ W}$	
$C_i = 5.3 \text{ nF}$	
$L_i =$ negligibly small	

Module for analog feedback (AO)

Terminals	+31 / -32
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \mu\text{H}$	

Module for universal input (UAI)

Terminals	+21 / -22
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \mu\text{H}$	

Module for digital feedback (SW1 / SW2)

Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Temperature class T1 – T4	Temperature class T6
Per output:	Per output:
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 0.5 \text{ W}$	$P_i = 0.4 \text{ W}$
$I_i = 250 \text{ mA}$	
$C_i = 2.2 \text{ nF}$ per output	
$L_i =$ negligibly small	

Limit switch (Limit 1 / Limit 2)

Limit monitor with proximity switches

Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Temperature class T1 – T4	Temperature class T6

In accordance with type examination certificate PTB 00 ATEX 2049X

* No IECEx approval

Type of protection Ex n - non-sparking**Basic device****Signal circuit (AI)**

Terminals	+11 / -12
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Digital input (DI)

Terminals	+81 / -82
Electrical values	$U_N \leq 30 \text{ V}$

Digital output (DO)

Terminals	+83 / -84
Electrical values	$U_N \leq 30 \text{ V}$

Option modules**Module for the emergency shutdown function**

Terminals	+85 / -86
Electrical values	$U_N \leq 30 \text{ V}$

Module for analog feedback (AO)

Terminals	+31 / -32
Electrical values	$I_N \leq 22 \text{ mA}$; $U_N \leq 30 \text{ V}$

Module for universal input (UAI)

Terminals	+21 / -22
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Module for digital feedback (SW1 / SW2)

Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Electrical values	Per output: $U_N \leq 30 \text{ V}$

Limit switch (Limit 1 / Limit 2)**Limit monitor with proximity switches**

Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Electrical values	Per output: $I_N \leq 25 \text{ mA}$; $U_N \leq 16 \text{ V}$

* No IECEx approval

5 Product identification

Name plate

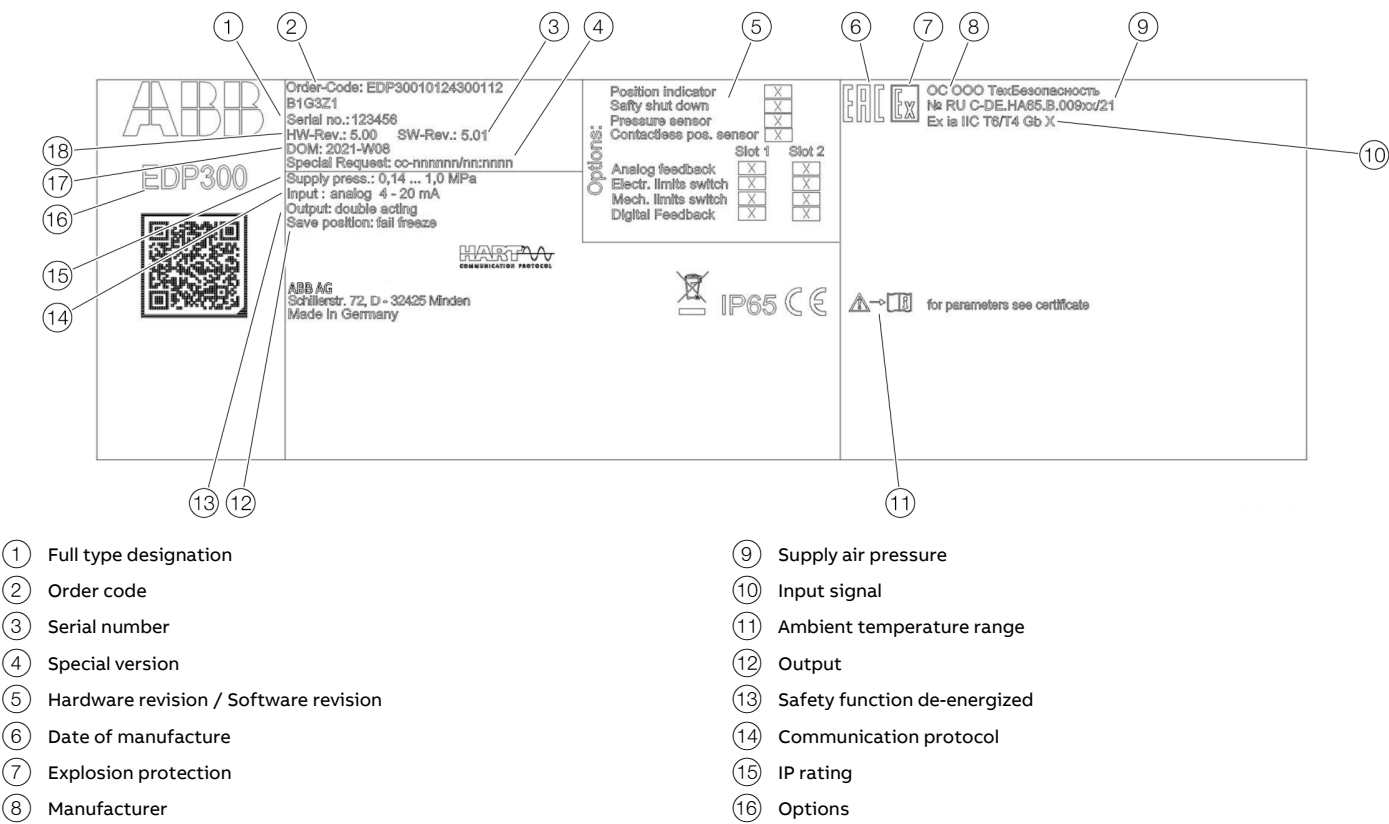


Figure 1: Name plate (example)

Note

The name plates displayed are examples. The device identification plates affixed to the device can differ from this representation.

6 Transport and storage

Inspection

Check the devices immediately after unpacking for possible damage that may have occurred from improper transport. Details of any damage that has occurred in transit must be recorded on the transport documents.

All claims for damages must be submitted to the shipper without delay and before installation.

Transporting the device

Observe the following instructions:

- Do not expose the device to humidity during transport. Pack the device accordingly.
- Pack the device so that it is protected against vibrations during transport, for example, by using air-cushioned packing.

Storing the device

- The device must be stored in dry and dust-free conditions.
- Observe the permissible storage and transportation temperatures.
- Protect uncovered metallic surfaces with a suited long-term corrosion inhibitor.
- Observe the relevant long-term storage temperatures.
- In principle, the devices may be stored for an unlimited period. However, the warranty conditions stipulated in the order confirmation of the supplier apply.

Ambient conditions

Transport and storage

Ambient temperature range	–40 to 85 °C (–40 to 185 °F)
Relative humidity	75% annual average

Returning devices

Use the original packaging or a secure transport container of an appropriate type if you need to return the device for repair or recalibration purposes.

Fill out the return form (see **Return form** on page 46) and include this with the device.

In accordance with the EU Directive governing hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for shipping purposes:

All devices delivered to ABB must be free from any hazardous materials (acids, alkalis, solvents, etc.).

Address for returns:

Please contact Customer Center Service acc. to page 5 for nearest service location.

7 Installation

Safety instructions

⚠ CAUTION

Risk of injury due to incorrect parameter values!

Incorrect parameter values can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.

- Before recommissioning a positioner that was previously in use at another location, always reset the device to its factory settings.
- Never start automatic adjustment before restoring the factory settings!

Note

Before assembly, check whether the positioner meets the control and safety requirements for the installation location (actuator or final control element).

Refer to the **Specification** in the data sheet.

Only qualified specialists who have been trained for these tasks are authorized to mount and adjust the unit, and to make the electrical connection.

When carrying out any work on the device, always observe the local accident prevention regulations and the regulations concerning the construction of technical installations.

External position sensors

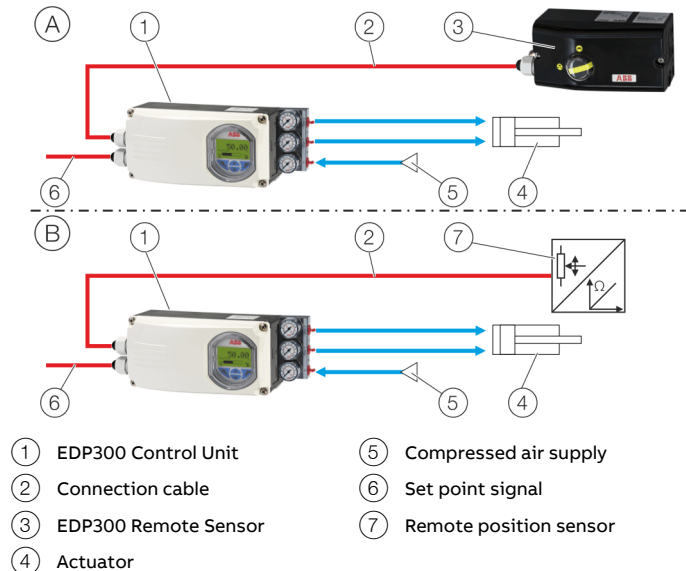


Figure 2: EDP300 with external position sensors

Note

If the device is being operated on a cylinder, for reasons associated with linearity you should run the Auto Adjust function for rotary actuators (see **Start automatic adjustment** on page 44).

Ⓐ EDP300 control unit with EDP300 remote sensor

In this version, the components are supplied in two housings, which together form one harmonized unit.

The following points should be observed during installation:

- Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- Housing 2 (EDP300 Remote Sensor) contains the position sensor and is mounted on the linear and rotary actuator. Mechanical mounting is described in **Mechanical mounting** on page 19.
- Electrical connection is carried out as described in **Connection to device - EDP300 Control Unit with EDP300 Remote Sensor** on page 32.

Note

To connect the EDP300 Remote Sensor, a cable with the following specifications needs to be used:

- 3-wire, cross-section 0.5 to 1.0 mm²
- shielded, with at least 85 % coverage
- Temperature range up to at least 100 °C (212 °F)

The cable glands must also be approved for a temperature range up to at least 100 °C (212 °F). The cable glands require a mounting for the shielding and strain relief for the cable in addition.

ABB optionally offers a cable gland and cable for the EDP300 Remote Version.

Ⓑ EDP300 Control Unit for remote position sensor

In this version the positioner is supplied without a position sensor.

The following points should be observed during installation:

- Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- The remote position sensor is mounted on the linear actuator or rotary actuator. Follow the operating instructions for the remote position sensor for mechanical mounting!
- Electrical connection is carried out as described in **Connection to device - EDP300 Control Unit for remote position sensor** on page 34.

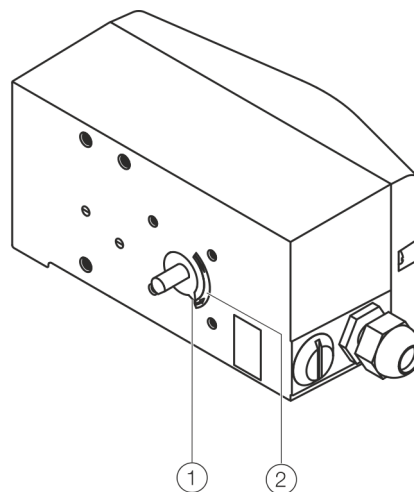
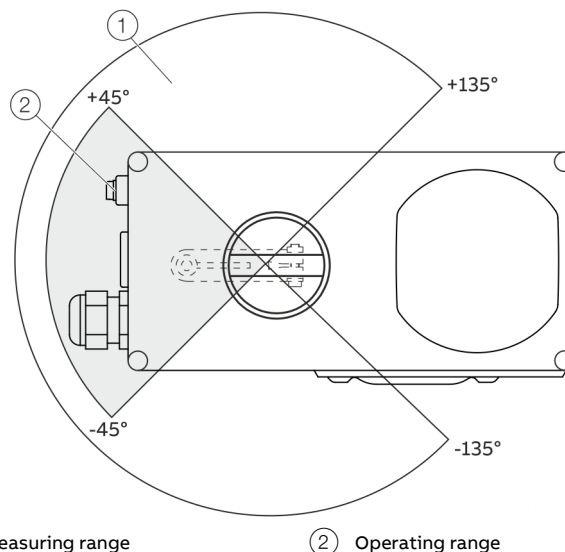
Mechanical mounting**General**

Figure 3: Operating range

Arrow ① on the device feedback shaft (position feedback point) must move between the arrow marks ②.



① Measuring range

② Operating range

Figure 4: Measuring and operating ranges of the positioner

... 7 Installation

... Mechanical mounting

Operating range for linear actuators:

The operating range for linear actuators is $\pm 45^\circ$ symmetrically to the longitudinal axis. The usable span within the operating range is at least 25° (recommended figure 40°). The usable span does not necessarily need to run symmetrically to the longitudinal axis.

Operating range of rotary actuators:

The usable span is 90° , which must be entirely within the measuring range, but does not necessarily need to run symmetrically to the longitudinal axis.

Note

During installation make sure that the actuator travel or rotation angle for position feedback is implemented correctly.

Mounting on linear actuators

For mounting on a linear actuator in accordance with DIN / IEC 534 (lateral mounting as per NAMUR), the following attachment kit is available:

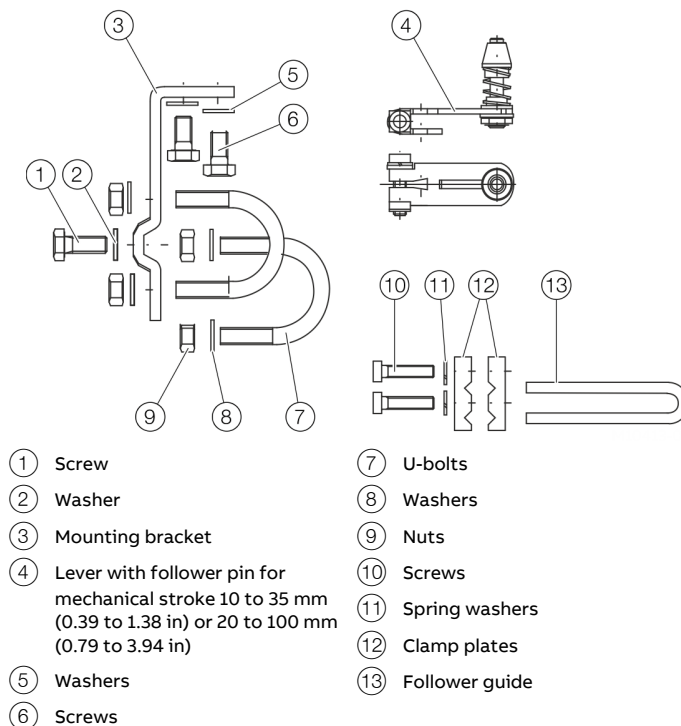


Figure 5: Components of attachment kit

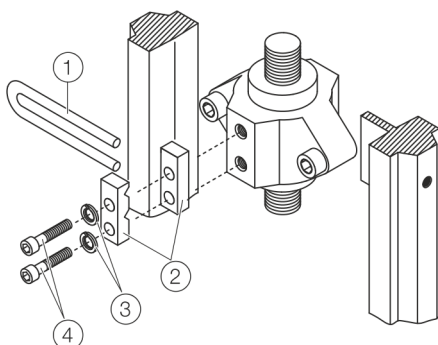


Figure 6: Attaching a follower guide to the actuator

1. Tighten the screws so that they are hand-tight.
2. Attach the follower guide (1) and clamp plates (2) with screws (4) and spring washers (3) to the actuator stem.

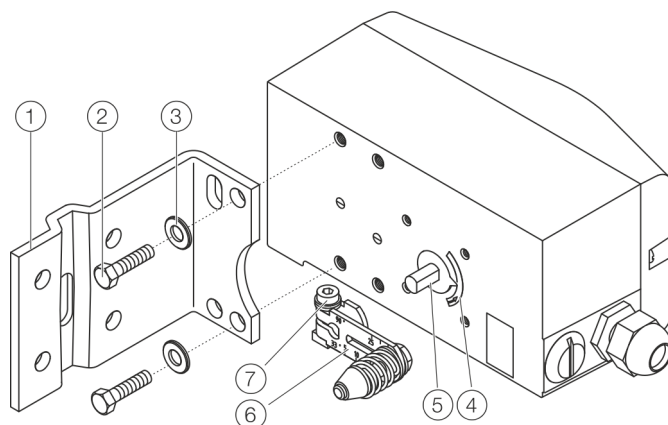


Figure 7: Mounting lever and bracket on the positioner

1. Attach the lever (6) to the feedback shaft (5) of the positioner (can only be mounted in one position due to the cut shape of the feedback shaft).
2. Using the arrow marks (4), check whether the lever moves within the operating range (between the arrows).
3. Hand-tighten the screw (7) on the lever.
4. Hold the prepared positioner (with the mount bracket (1) still loose) on the actuator so that the follower pin for the lever enters the follower guide to determine which tap holes on the positioner must be used for the mount bracket.
5. Secure the mount bracket (1) with screws (2) and washers (3) using the relevant tap holes on the positioner housing. Tighten the screws as evenly as possible to ensure subsequent linearity. Align the mount bracket in the oblong hole to ensure that the operating range is symmetrical (lever moves between the arrow marks (4)).

... 7 Installation

... Mechanical mounting

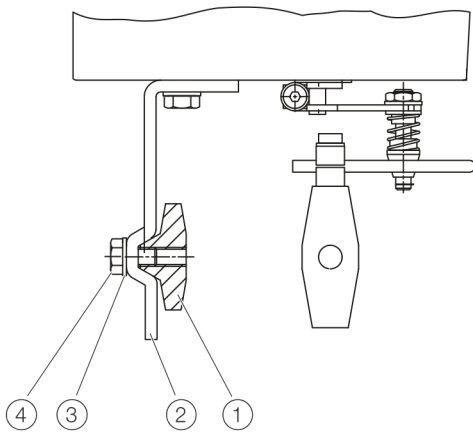


Figure 8: Mounting on a cast iron yoke

1. Attach the mount bracket ② with screw ④ and washer ③ to the cast iron yoke ①.

or

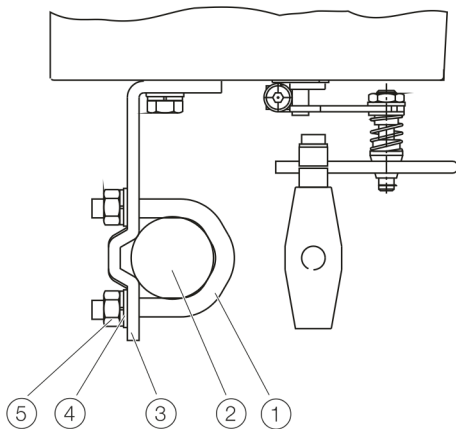


Figure 9: Mounting on a columnar yoke

1. Hold the mount bracket ③ in the proper position on the columnar yoke ②.
2. Insert the U-bolts ① from the inside of the columnar yoke ② through the holes of the mount bracket.
3. Add the washers ④ and nuts ⑤.
4. Tighten the nuts so that they are hand-tight.

Note

Adjust the height of the positioner on the cast iron yoke or columnar yoke until the lever is horizontal (based on a visual check) at half stroke of the valve.

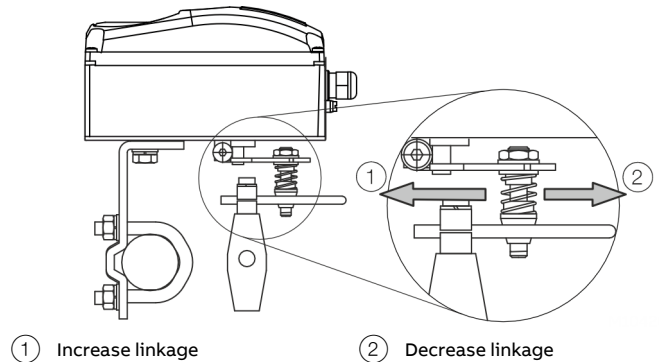


Figure 10: Positioner linkage

The scale on the lever indicates the link points for the various stroke ranges of the valve.

Move the bolt with the follower pin in the oblong hole of the lever to adjust the stroke range of the valve to the working range for the position sensor.

Moving the link point inwards increases the rotation angle of the position sensor. Moving the link point outwards reduces the rotation angle of the position sensor.

Adjust the actuator stroke to make use of as large an angle of rotation as possible (symmetrical around the center position) on the position sensor.

Recommended range for linear actuators:
-30° to 30°; minimum range: 25°

Note

After mounting, check whether the positioner is operating within the sensor range.

Position of actuator bolt

The actuator bolt for moving the potentiometer lever can be mounted permanently on the lever itself or on the valve stem. Depending on the mounting method, when the valve moves the actuator bolt performs either a circular or a linear movement with reference to the center of rotation of the potentiometer lever. Select the chosen bolt position in the HMI menu in order to ensure optimum linearization. The default setting is as follows:

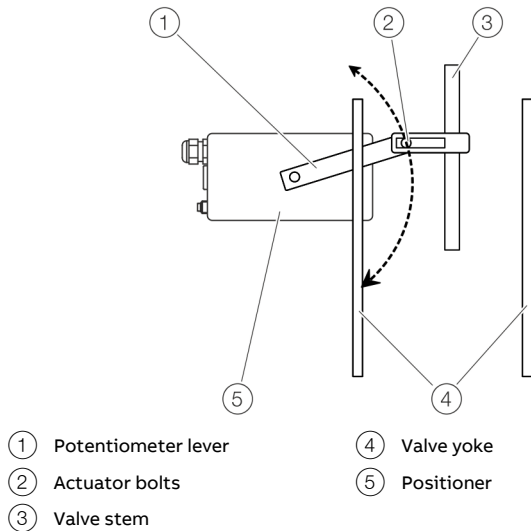


Figure 11: Actuator bolts on the lever (rear view)

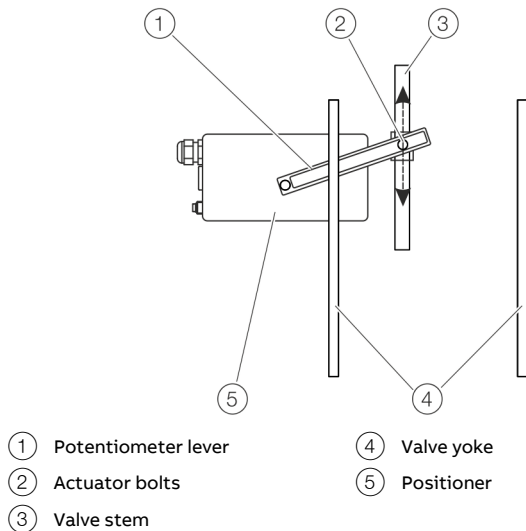


Figure 12: Actuator bolts on the valve (rear view)

Mounting on control valves

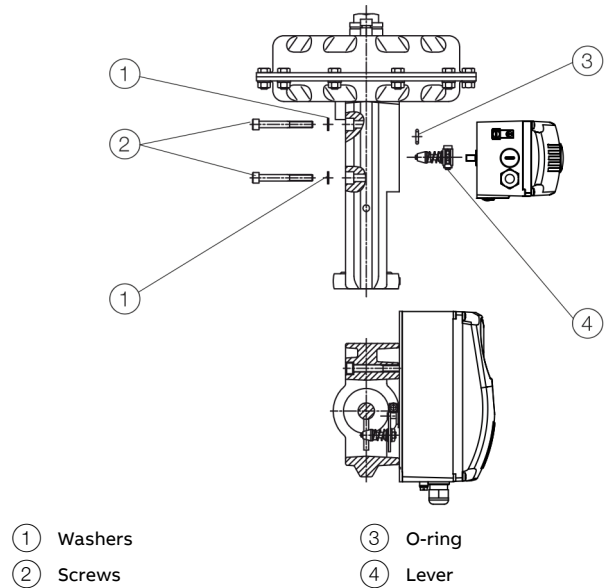


Figure 13: Integral mounting on control valves

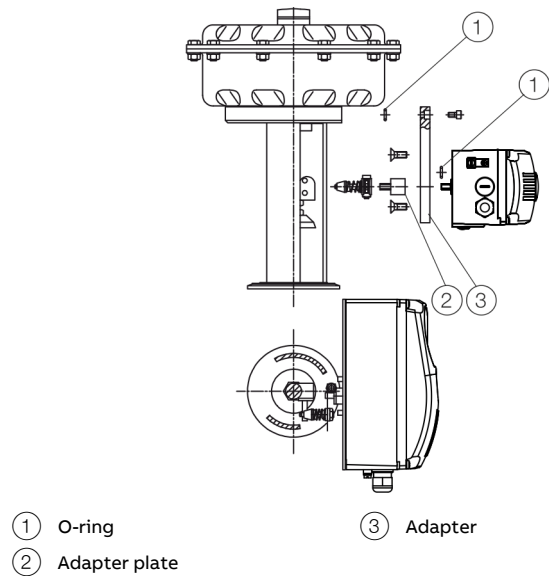


Figure 14: Integral mounting on control valves with adapter plate

... 7 Installation

... Mechanical mounting

Mounting on rotary actuator

For mounting on part-turn actuators in accordance with VDI / VDE 3845, the following attachment kit is available:

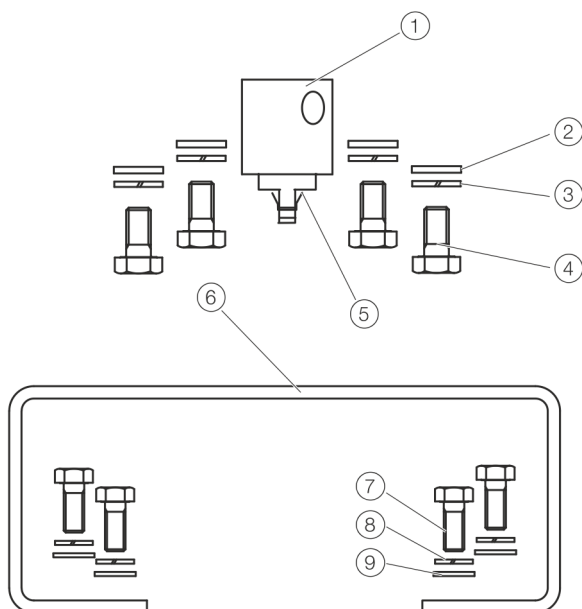


Figure 15: Components of attachment kit

- Adapter ① with spring ⑤
- four M6 screws each ④, spring washers ③ and washers ② to fasten the attachment bracket ⑥ to the positioner
- four M5 screws ⑦, Spring washers ⑧ and washers ⑨ to fasten the attachment bracket to the actuator

Required tools:

- Wrench, size 8 / 10
- Allen key, size 3

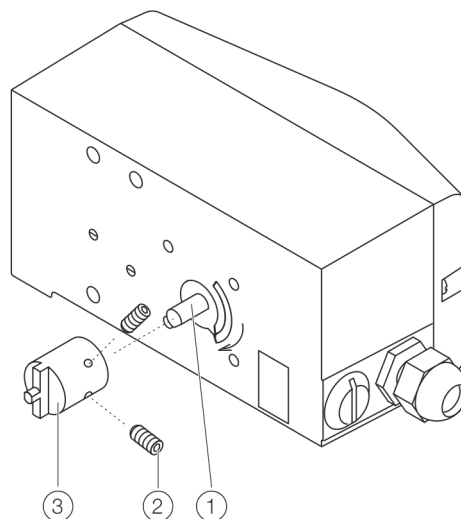
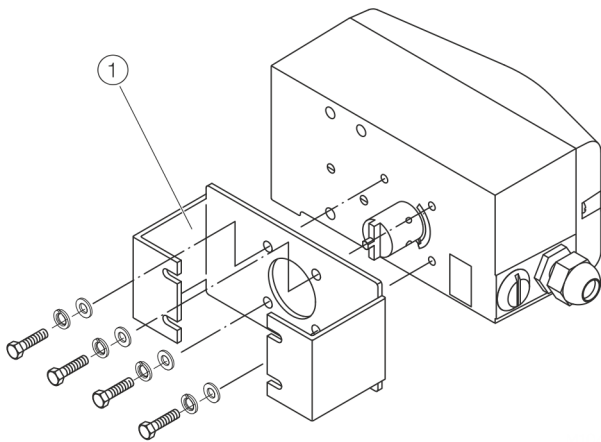


Figure 16: Mounting the adapter on the positioner

1. Determine the mounting position (parallel to actuator or at 90° angle)
2. Calculate the rotational direction of the actuator (right or left).
3. Move the part-turn actuator into the home position.
4. Pre-adjust feedback shaft.

To make sure that the positioner runs within the operating range (refer to **General** on page 19), the mounting position as well as the basic position and rotation direction of the actuator must be considered when determining the adapter position on axis ①. For this purpose, the feedback shaft can be adjusted manually so that the adapter ③ can be attached in the correct position.

5. Place the adapter in the proper position on the feedback shaft and fasten with threaded pins ②. One of the threaded pins must be locked in place on the flat side of the feedback shaft.



① Attachment bracket

Figure 17: Screwing the attachment bracket onto the positioner

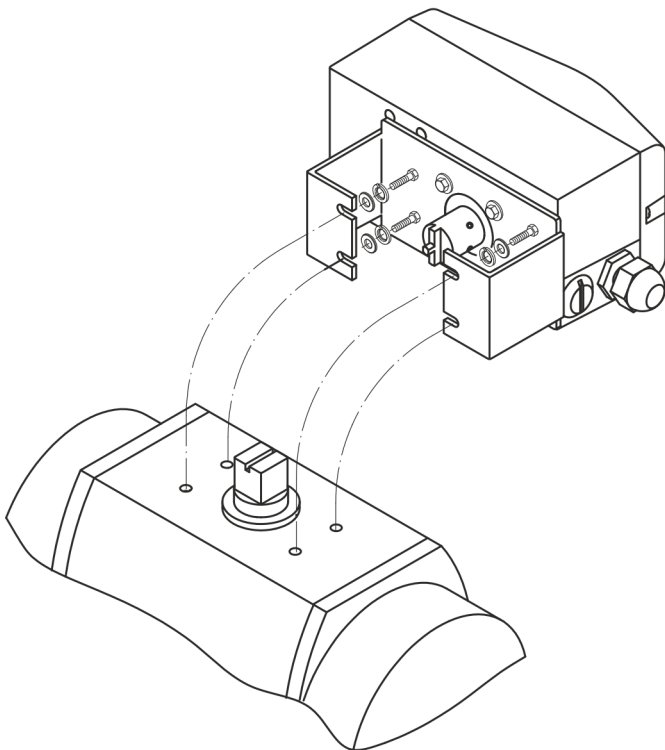


Figure 18: Screwing the positioner onto the actuator

Note

After mounting, check whether the operating range of the actuator matches the measuring range of the positioner, refer to **General** on page 19.

Electrical connections

Safety instructions

⚠ DANGER

Risk of explosion for devices with local communication interface (LCI)

A local communication interface (LCI) may not be operated in hazardous areas.

- Never use the local communication interface (LCI) on the main board in a hazardous area!

⚠ WARNING

Risk of injury due to live parts!

When the housing is open, contact protection is not provided and EMC protection is limited.

- Before opening the housing, switch off the power supply.

The electrical connection may only be established by authorized specialist personnel.

Notices on electrical connection in this instruction must be observed; otherwise, electric safety and the IP-rating may be adversely affected.

Safe isolation of electric circuits which are dangerous if touched is only guaranteed when the connected devices fulfill the requirements of EN 61140 (basic requirements for secure separation).

To ensure safe isolation, install supply lines so that they are separate from electrical circuits which are dangerous if touched, or implement additional isolation measures for them.

... 7 Installation

... Electrical connections

Positioner / EDP300 Control Unit Electrical Connection

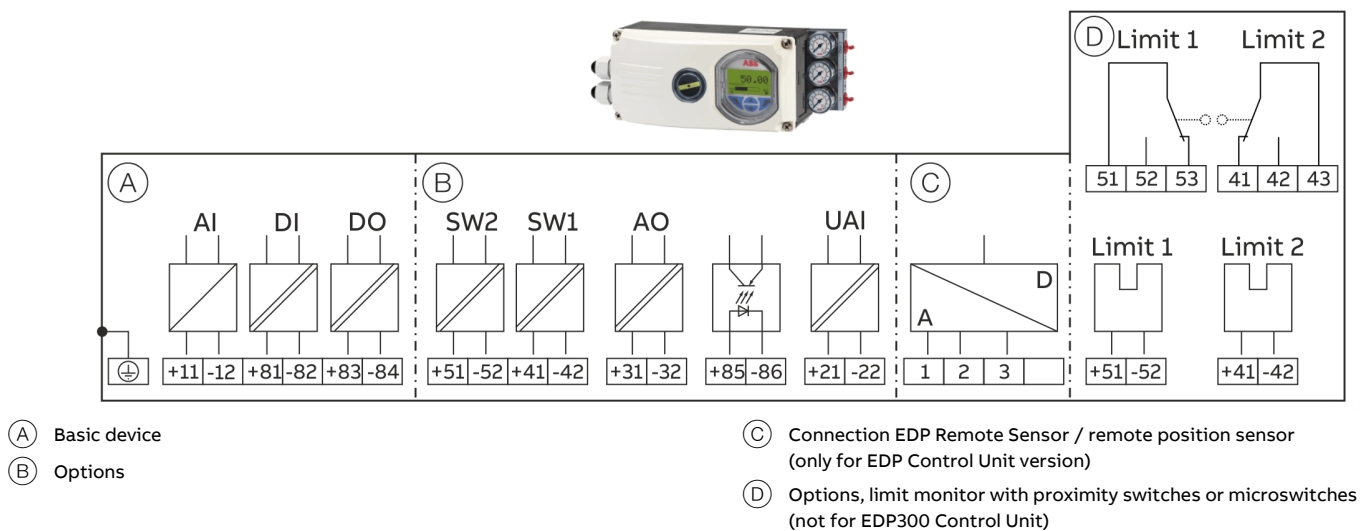


Figure 19: EDP300 Electrical Connection

Connections for inputs and outputs

Terminal	Function / comments
+11 / -12	Analog input AI or field bus connection
+81 / -82	Digital input DI
+83 / -84	Digital output DO2
+51 / -52	Limit alarm SW1 (Option module)
+41 / -42	Limit alarm SW2 (Option module)
+31 / -32	Analog feedback AO (Option module)
+85 / -86	Emergency shutdown module (Option module)
+21 / -22	Universal input UAI
1 / 2 / 3	EDP300 remote sensor (Only for options EDP300 Remote Sensor or EDP300 for remote position sensor)

Terminal	Function / comments
+51 / -52	Limit switch Limit 1 with proximity switch (optional)
+41 / -42	Limit switch Limit 2 with proximity switch (optional)
51 / 52 / 53	Limit switch Limit 1 with microswitch (optional)
41 / 42 / 43	Limit switch Limit 2 with microswitch (optional)

EDP300 Remote Sensor Electrical Connection

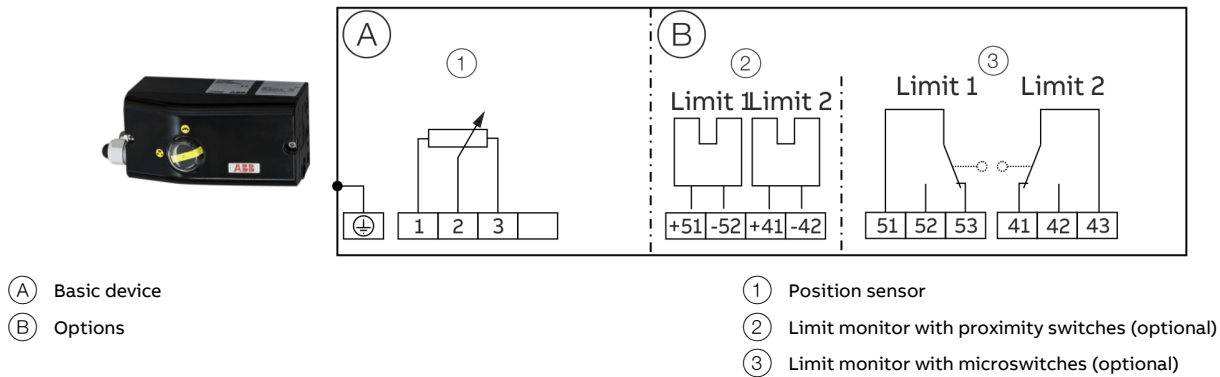


Figure 20: EDP300 Remote Sensor Electrical Connection

Connections for inputs and outputs

Terminal	Function / comments
1 / 2 / 3	EDP300 Control Unit
+51 / -52	Limit switch Limit 1 with proximity switch (optional)
+41 / -42	Limit switch Limit 2 with proximity switch (optional)
51 / 52 / 53	Limit switch Limit 1 with microswitch (optional)
41 / 42 / 43	Limit switch Limit 2 with microswitch (optional)

Electrical data for inputs and outputs

Note

When using the device in potentially explosive atmospheres, note the additional data in **Use** in potentially explosive atmospheres in accordance with ATEX and IECEx on page 6 and **Use** in potentially explosive atmospheres in accordance with FM and CSA on page 10!

... 7 Installation

... Electrical connections

Set point signal analog (two-wire technology)

Terminals	+11 / -12
Nominal operating range	4 to 20 mA
Limit values	Maximum: 50 mA (overload) Minimum: 3.6 mA
Starting at	≥ 3.8 mA
Load voltage	9.7 V at 20 mA
Impedance	485 Ω at 20 mA

Digital input DI

Terminals	+81 / -82
Supply voltage	24 V DC (12 to 30 V DC)
Input 'logical 0'	0 to 5 V DC
Input 'logical 1'	11 to 30 V DC
Input Current	Maximum 4 mA

Digital output DO

Terminals	+83 / -84
Supply voltage	5 to 30 V DC (Control circuit to DIN 19234/NAMUR)
Switching state logical	'0': current > 0.35 mA to < 1.2 mA '1': Current > 2,1 mA
Direction of action	standard logical '0' or logical '1' (configurable)

Option modules

Module for analog feedback AO*

Without any signal from the positioner (e.g. 'no power' or 'initializing') the module sets the output to > 20 mA (alarm level).

Terminals	+31 / -32
Signal range	4 to 20 mA (split ranges can be parameterized)
Supply voltage, two-wire technology	24 V DC (10 to 30 V DC)
Characteristic curve	rising or falling (configurable)
Deviation	< 1 %

Module for digital feedback SW1, SW2*

Two switches for binary position feedback (position adjustable within the range of 0 to 100 %, ranges cannot overlap)

Terminals	+41 / -42, +51 / -52
Supply voltage	5 to 11 V DC (Control circuit to DIN 19234/NAMUR)
Signal current	< 1,2 mA: Switching state logical '0' > 2,1 mA: Switching state logical '1'
Direction of action	standard logical '0' or logical '1' (configurable)

Module for universal input UAI*

Module for a 4 to 20 mA input for universal use.

The range can be scaled. It is used for advanced valve diagnostics. For example, an ultrasonic sensor can be connected to detect a faulty valve seat or a phonometer can be connected to detect cavitation.

The limit values for detecting up-scaling can be freely selected.

Terminals	+21 / -22
Nominal operating range	4 to 20 mA
Load voltage	8 V at 20 mA
Impedance	400 Ω at 20 mA

Module for the emergency shutdown function*

When the 24 V DC signal is interrupted, the I/P module executes the respective safety function, depending on the mechanical construction.

The positioner output 1 is depressurized, and the valve is moved to the safe position. In case of a double-acting actuator, output 2 is additionally pressurized.

The emergency shutdown module works independently of the mother board, i.e., all information from the final control element is available in the control system at any time.

Terminals	+85 / -86
Supply voltage	24 V DC (20 to 30 V DC) (electrically isolated from the input signal)
Safe position	Active at < 5 V DC

- * There are two slots for the option modules. Any combination of different option modules is possible. However, identical option modules cannot be combined.

Limit switch

The limit switch can either be equipped with proximity switches or with potential-free microswitches.

Limit switch Limit 1 / Limit 2 with proximity switches

Two proximity switches for independent position signaling.		
Terminals	+41 / -42, +51 / -52	
Supply voltage	5 to 11 V DC (Control circuit in accordance with DIN 19234/NAMUR)	
Output 'logical 0'	< 1.2 mA	
Output 'logical 1'	> 2.1 mA	
Switching point	Adjustable between 0 and 100 %	
Direction of action	Metal tag in proximity switch	Metal tag outside proximity switch
Type S12-SN (NC; log. 1)	< 1.2 mA	> 2.1 mA

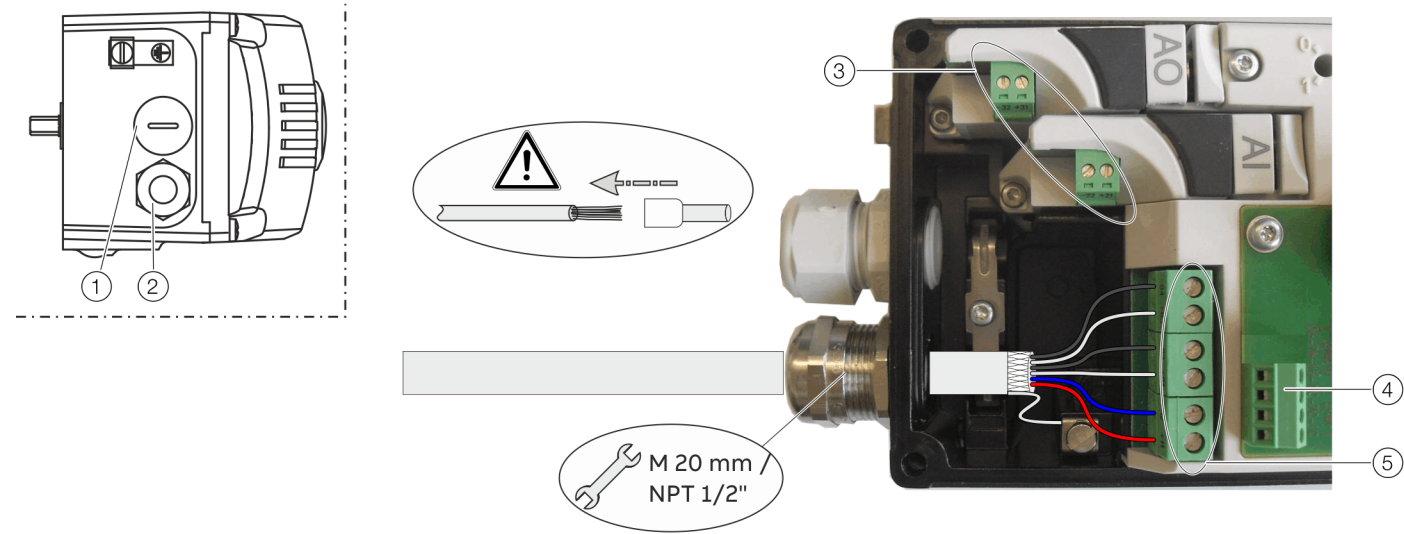
Limit switch Limit 1 / Limit 2 with 24 V - microswitches

Terminals	41 / 42 / 43, 51 / 52 / 53
Supply voltage	maximum 24 V AC/DC
Load rating	Maximum 2 A

... 7 Installation

... Electrical connections

Connection on the device



- 1

Blind plug
- 2

Cable gland
- 3

Terminals for options modules
- 4

Terminals attachment set for digital feedback
- 5

Terminals basic device

Figure 21: Connection on device (example)
2 tap holes ½- 14 NPT or M20 × 1.5 are provided on the left side of the housing for cable entry in the housing. One of the tap holes is fitted with a cable gland, while the other tap hole has a blind plug.

Note
The connecting terminals are delivered closed and must be unscrewed before inserting the wire.

1.

Strip the wires to approximately 6 mm (0.24 in).
2.

After stripping the cable end, fit the appropriate wire end sleeves and crimp
3.

Connect the wires to the connecting terminals in line with the connection diagram.
Tightening torque for the terminal screws:
0.5 to 0.6 Nm

Wire cross-sectional areas
Basic device

Electrical connections	
4 to 20 mA input	Screw terminals max. 2.5 mm² (AWG14)
Options	Screw terminals max. 1.0 mm² (AWG18)
Cross section	
Rigid / flexible wires	0.14 to 2.5 mm² (AWG26 to AWG14)
Flexible with wire end sleeve	0.25 to 2.5 mm² (AWG23 to AWG14)
Flexible with wire end sleeve no plastic sleeve	0.25 to 1.5 mm² (AWG23 to AWG17)
Flexible with wire end sleeve with plastic sleeve	0.14 to 0.75 mm² (AWG26 to AWG20)
Multi-wire connection capacity (two wire with the same cross-section)	
Rigid / flexible wires	0.14 to 0.75 mm² (AWG26 to AWG20)
Flexible with wire end sleeve no plastic sleeve	0.25 to 0.75 mm² (AWG23 to AWG20)
Flexible with wire end sleeve with plastic sleeve	0.5 to 1.5 mm² (AWG21 to AWG17)

Option modules

Cross section

Rigid / flexible wires	0.14 to 1.5 mm ² (AWG26 to AWG17)
Flexible with wire end sleeve no plastic sleeve	0.25 to 1.5 mm ² (AWG23 to AWG17)
Flexible with wire end sleeve with plastic sleeve	0.25 to 1.5 mm ² (AWG23 to AWG17)

Multi-wire connection capacity (two wire with the same cross-section)

Rigid / flexible wires	0.14 to 0.75 mm ² (AWG26 to AWG20)
Flexible with wire end sleeve no plastic sleeve	0.25 to 0.5 mm ² (AWG23 to AWG22)
Flexible with wire end sleeve with plastic sleeve	0.5 to 1 mm ² (AWG21 to AWG18)

Limit switch with proximity switches or 24 V microswitches

Rigid wire	0.14 to 1.5 mm ² (AWG26 to AWG17)
Flexible wire	0.14 to 1.0 mm ² (AWG26 to AWG18)
Flexible with wire end sleeve no plastic sleeve	0.25 to 0.5 mm ² (AWG23 to AWG22)
Flexible with wire end sleeve with plastic sleeve	0.25 to 0.5 mm ² (AWG23 to AWG22)

... 7 Installation

... Electrical connections

Connection to device - EDP300 Control Unit with EDP300 Remote Sensor

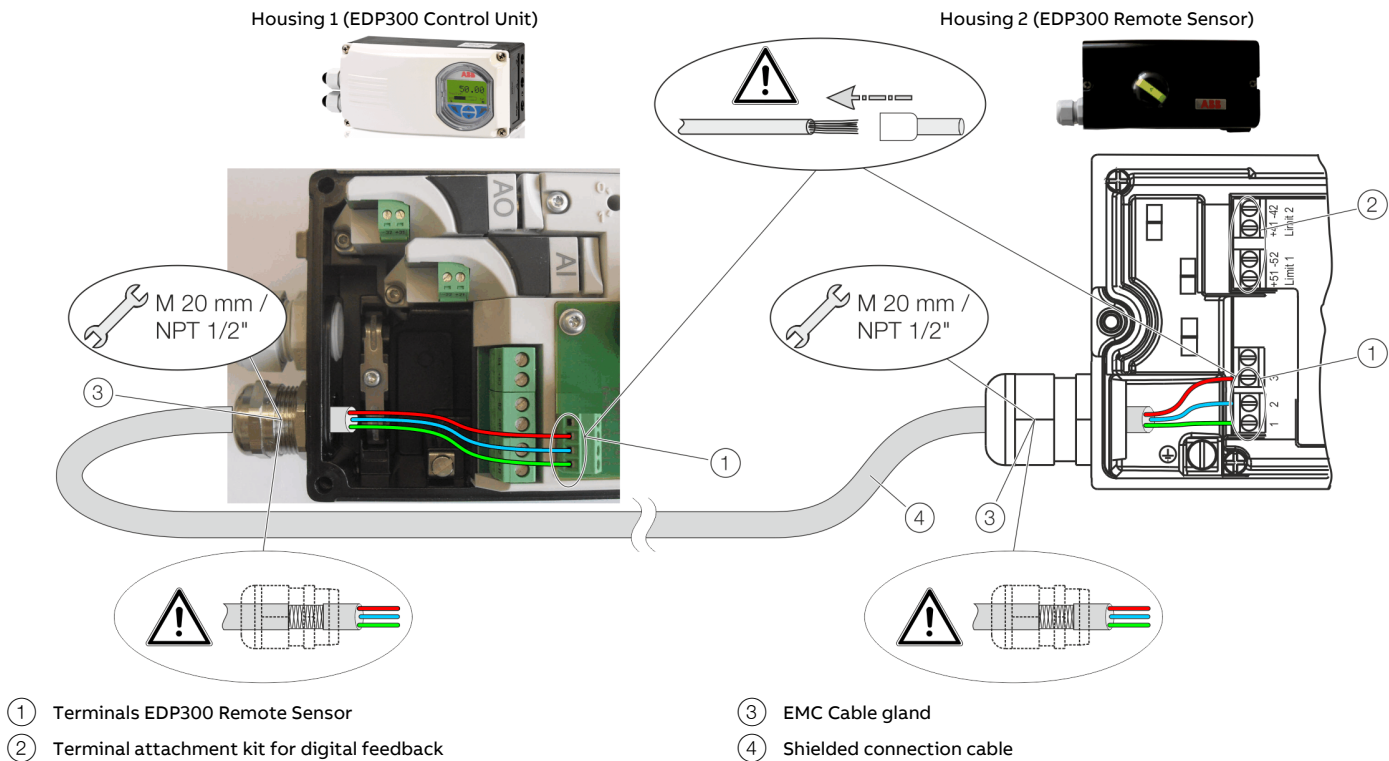


Figure 22: Connection EDP300 Control Unit with EDP300 Remote Sensor (example)

In the case of the 'EDP300 Control Unit with EDP300 Remote Sensor' design, the components are supplied in two housings, which together form one harmonized unit.

Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics along with the following optional modules (where applicable):

- Analog position feedback
- Digital position feedback
- Emergency shutdown module
- Universal input

Housing 2 (EDP300 Remote Sensor) contains the position sensor and is suitable for mounting on linear or rotary actuators.

If necessary, the following options can be installed if required:

- Optical position indicator
- Mechanical feedback contacts designed as proximity switches or microswitches.

The housings of the EDP300 Control Unit and the EDP300 Remote Sensor are available in stainless steel as an option.

Cable specification

To connect the EDP300 Remote Sensor, a cable with the following specifications needs to be used:

- 3-wire, cross-section 0.5 to 1.0 mm²
- Shielded, with at least 85 % coverage
- Temperature range up to at least 100 °C (212 °F)

The cable glands used must also be approved for a temperature range up to at least 100 °C (212 °F). The cable glands require a mounting for the shielding and strain relief for the cable in addition.

ABB offers suited cables and cable glands with DNV_GL certification for the EDP300 Remote Version.

Electrical connection

Connect the positioner (EDP300 Control Unit, housing 1) and remote position sensor (EDP300 Remote Sensor, housing 2), while following the instructions below:

- The EDP300 Remote Sensor and the EDP300 Control Unit are adjusted to each other. Ensure that only devices with the same serial number are connected.
- A shielded 3-wire cable with a maximum length of 10 m (33 ft) must be used for the connection.
- Route the cable into the terminal compartment through the EMC cable glands. Ensure that the shielding is secured correctly in the EMC cable glands.
- Connect the cables in accordance with the electrical connections and tighten the screws of the terminals so that they are hand-tight.
- Use wire end ferrules when connecting.
- The electrical connections of the EDP300 Control Unit and the optional modules are carried out as described in **Connection on the device** on page 39.
- If the EDP300 Control Unit is fastened so that it is non-conductive, the housing must be grounded (EDP300 Control Unit and EDP300 Remote Sensor housing with the same electric potential); otherwise control deviations could occur with regard to analog position feedback.
- In the EDP300 Remote Sensor in IP rating IP 66, pre-tighten the cover screws by applying approx. 50 Ncm (0.44 lbf-in) cross-wise and then tighten by applying 200 Ncm (1.77 lbf-in).
- The pneumatic outputs to the actuator must be connected using pneumatic lines with a minimum diameter of 6 mm.

... 7 Installation

... Electrical connections

Connection to device - EDP300 Control Unit for remote position sensor

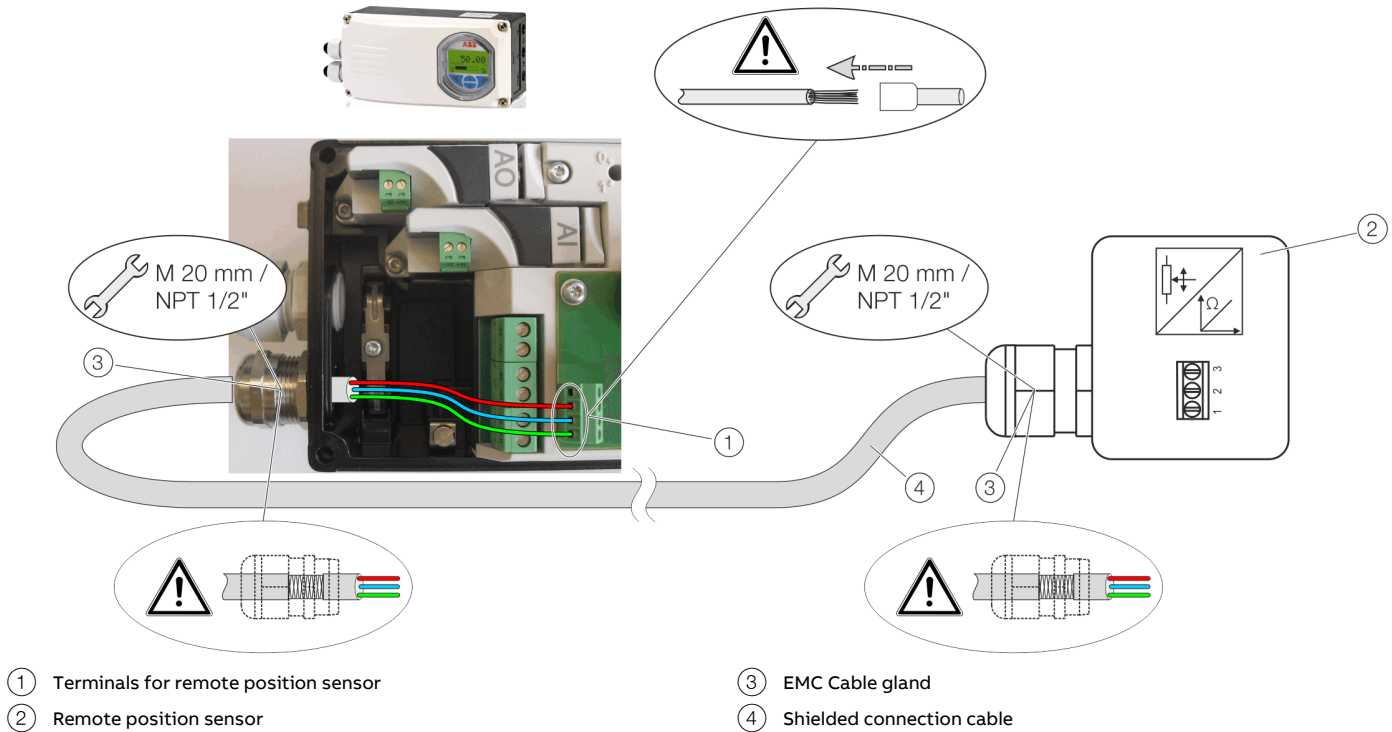


Figure 23: Connection of EDP300 Control Unit with remote position sensor (example)

With the EDP300 designed for remote position sensors, the positioner is supplied without a position sensor.

The EDP300 Control Unit contains the electronics and pneumatics along with the following options (where applicable):

- Analog position feedback
- Digital position feedback
- Emergency shutdown module
- Universal input

Any position sensor (4 to 80 kΩ) may be connected.

Cable specification

To connect the EDP300 Remote Sensor, a cable with the following specifications needs to be used:

- 3-wire, cross-section 0.5 to 1.0 mm²
- shielded, with at least 85 % coverage
- Temperature range up to at least 100 °C (212 °F)

The cable glands used must also be approved for a temperature range up to at least 100 °C (212 °F). The cable glands require a mounting for the shielding and strain relief for the cable in addition.

ABB offers suited cables and cable glands with DNV_GL certification for the EDP300 Remote Version.

Electrical connection

Connect the positioner (EDP300 Control Unit) and remote position sensor while observing the following instructions:

- A shielded 3-wire cable with a maximum length of 10 m (33 ft) must be used for the connection.
- Route the cable into the terminal compartment through the EMC cable glands. Ensure that the shielding is secured correctly in the EMC cable glands.
- Connect the cables in accordance with the electrical connections and tighten the screws of the terminals so that they are hand-tight.
- The electrical connections of the EDP300 Control Unit and the optional modules are carried out as described in **Connection on the device** on page 39.
- Use wire end ferrules when connecting.
- If the EDP300 Control Unit is fastened so that it is non-conductive, the housing must be grounded (EDP300 Control Unit and remote position sensor with the same electric potential); otherwise control deviations could occur with regard to analog position feedback.
- If the device is being operated on a cylinder, for reasons associated with linearity you should run automatic adjustment for the rotary actuator.
- The pneumatic outputs to the actuator must be connected using pneumatic lines with a minimum diameter of 6 mm.

Installing the option modules

Note

The supply voltage must be switched off before the option modules are installed.

1. Loosen the screws for the housing cover and remove it.
2. Position the option module so that the plug points to the right.
3. Using a small amount of pressure, guide the option module into the slot from the side and press it down firmly.
4. Secure the option module in the housing by tightening the screw so that it is hand-tight.
5. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.
6. If you are using the emergency shutdown module, the rotary switch on the main printed circuit board must be rotated into position 1 using a suitable flat-bladed screwdriver.
7. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

Note

A maximum of two option modules may be used at the same time. The module types must be different.

Note

If you are using the emergency shutdown module, the module must be supplied with 24 V DC at terminals +85 / -86. Otherwise, the positioner will not be able to function pneumatically (device in pneumatic safety position).

Note

Perform a functional check of the emergency shutdown module (option) at least every 2 years. For this purpose, the positioner must move the valve into the safety position when the 24 V DC signal (terminal +85 / -86) is interrupted.

Installing the mechanical position indication

1. Loosen the screws for the housing cover and remove it.
2. Attach the shaft extension to the shaft and secure it using the screw provided.
3. Attach the round position indication to the shaft extension and rotate it into the desired position.
4. Set the new housing cover (with round sight glass) and screw it on to the housing. Tighten the screws so that they are hand-tight.

... 7 Installation

... Installing the option modules

Installing the mechanical position feedback

1. Loosen the screws for the housing cover and remove it.
2. If one has been installed, remove the optical position indication and unscrew the shaft extension.
3. Move the printed circuit board for position feedback to the right underneath the two plastic clips and secure it using the screw provided.
4. If applicable, install the optical position indication.
5. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

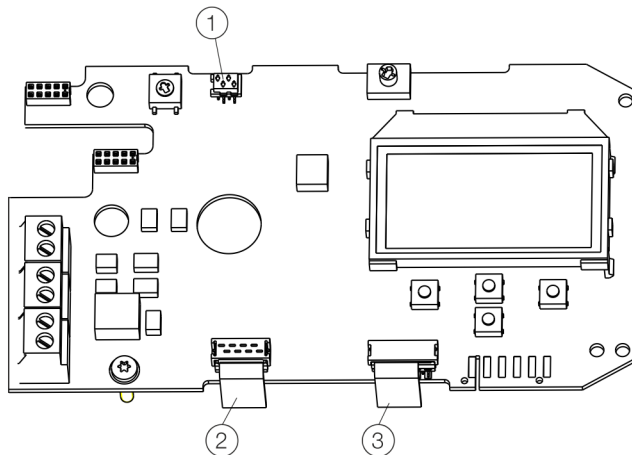
Installing the pressure option

⚠ CAUTION

Risk of injury

Risk of injuries due to flying components as well as significant noise emissions.

- Prior to disassembly, all connected compressed air lines must be depressurized.

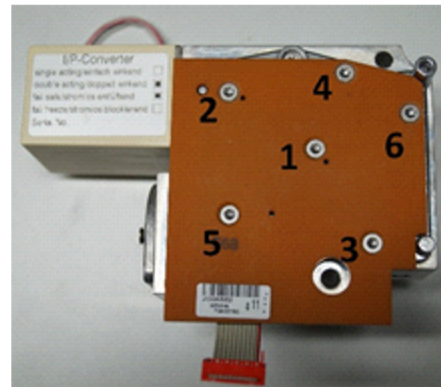


① I/P converter pneumatic system

② Position sensor

③ Pressure option

Figure 24: Printed circuit board



Note

- The supply voltage must be switched off before the pressure option is installed.
- The bonding wires for the pressure option must not be touched. Doing so will cause damage to the option module.
- Before using the device, a high-voltage test in accordance with IEC must be performed.

1. Loosen the screws for the housing cover and remove it.
2. Loosen all cable connections on the screw terminals.
3. If present, unscrew the option modules and remove them from the side.
4. If present, remove the mechanical position indication and screw off the shaft extension (as well as the mechanical alarm signaling unit if applicable).
5. Remove the screws for the plastic cover and remove the cover.
6. Remove both plug connectors from the printed circuit board.
7. Unscrew the fixing screws for the printed circuit board and carefully remove the printed circuit board.
8. Unscrew the screws on the upper side of the pneumatics and remove the cover plate.

9. Carefully attach the pressure option to the pneumatics and screw it in place so that the screws are hand-tight.
10. Install the printed circuit board.
11. Attach both plug connectors ①, ② to the printed circuit board (see **Figure 24**).
12. Attach the plug connectors for the pressure option ③ to the printed circuit board (see **Figure 24**).
13. Attach the plastic cap.
14. If necessary, install option modules and set the mechanical feedback.
15. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

Mounting instructions

The screws should be tightened in the sequence as shown numbered in the figure by applying a torque of 1 Nm.

Test instructions / function testing

After the pressure plate is mounted, supply from 4 to 20 mA to the positioner and look for the P / P1 / P2 pressure readings on the device display in the 'Signals Views' menu item. The device does not need to be supplied with compressed air for this purpose. Basically, all 3 pressure readings should be displayed at this point and in this case, everything is OK. Adjustment of the pressure readings is not required, since the plate has already been adjusted at the factory.

If the following display appears, an error has occurred. ('Plate is defective' → In this case, please contact ABB Automation GmbH - Service Instruments -):

P ---

P1 ---

P2 ---

If the pressure plate is not connected with the main circuit board (connector is not inserted), the 3 pressure readings P / P1 / P2 are not displayed in the menu.

EX Requirement

If we are dealing with Ex devices, the customer must have the modification checked by an Ex expert.

If this should not be possible, it is imperative that the modification be tested at the factory!

Contact partner: ABB Automation GmbH - Service Instruments -

Setting the option modules

Setting the mechanical position indication

1. Loosen the screws for the housing cover and remove it.
2. Rotate the position indicator on the shaft to the desired position.
3. Attach the housing cover and screw it onto the housing. Tighten the screws so that they are hand-tight.
4. Attach the symbol label to mark the minimum and maximum valve positions on the housing cover.

Note

The labels are located on the inside of the housing cover.

Setting the mechanical limit switch with proximity switches



- | | |
|----------------------------|----------------------------|
| ① Upper metal tag | ③ Proximity switch Limit 1 |
| ② Proximity switch Limit 2 | ④ Lower metal tag |

Figure 25: Limit switch with proximity switches

1. Loosen the screws for the housing cover and remove it.

CAUTION

Risk of injury!

The device includes slot sensors with sharp edges.

- Adjust the metal tags using a screwdriver only!

2. Set the upper and lower switching points for binary feedback as follows:
 - Select the 'Manual Adjustment' operating mode and move the final control element by hand into the lower switching position.
 - Using a screwdriver, adjust the metal tag of proximity switch 1 (lower contact) on the axis until contact is made, i. e., just before it is inserted in the proximity switch. The slot sensor enters proximity switch 1 when the feedback shaft is rotated clockwise (as viewed from the front).
 - Move the final control element by hand into the upper switching position.
 - Using a screwdriver, adjust the metal tag of proximity switch 2 (upper contact) on the axis until contact is made, i. e., just before it is inserted in the proximity switch. The slot sensor enters proximity switch 2 when the feedback shaft is rotated counter-clockwise (as viewed from the front).
3. Attach the housing cover and screw it onto the housing.
4. Tighten the screws so that they are hand-tight.

... 7 Installation

... Installing the option modules

Setting the mechanical limit switch with 24 V microswitches

1. Loosen the screws for the housing cover and remove it.
2. Select the 'Manual Adjustment' operating mode and move the final control element by hand into the desired switching position for contact 1.
3. Set maximum contact (①, lower washer).
Fasten the upper washer with the special adjustment retainer and rotate the lower washer manually.
4. Select the 'Manual Adjustment' operating mode and move the final control element by hand into the desired switching position for contact 2.
5. Set minimum contact (②, upper washer);
Fasten the lower washer with the special adjustment retainer and rotate the upper washer manually.
6. Connect the microswitch.
7. Attach the housing cover and screw it on to the housing.
8. Tighten the screws so that they are hand-tight.

Pneumatic connections

Note

The positioner must only be supplied with instrument air that is free of oil, water, and dust (in gas configuration with dried natural gas).

The purity and oil content must meet the requirements of Class 3 according to DIN/ISO 8573-1.

NOTICE

Damage to components!

Contamination on the air pipe and positioner can damage components.

- Dust, splinters, and any other particles of dirt must be blown-out before the pipe is connected.

NOTICE

Damage to components!

Pressure above 10 bar (145 psi) can damage the positioner or actuator.

- Provisions must be made, e.g. by using a pressure reducer, to make sure that the pressure does not rise above 10 bar (145 psi), even in the event of a fault.

Information on double acting actuators with spring-return mechanism

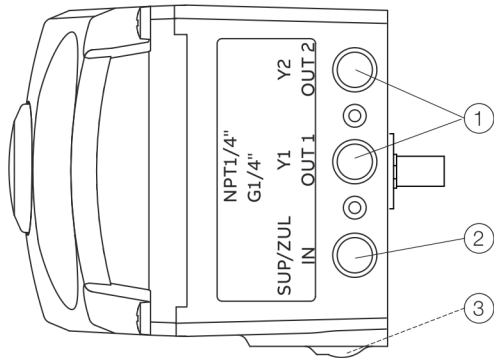
On double-acting actuators with spring-return mechanism, a pressure that significantly exceeds the supply air pressure value can be generated during operation by the springs in the chamber opposite the springs.

This may damage the positioner or adversely affect control of the actuator.

To eliminate the possibility of this occurring, it is recommended to install a pressure compensation valve between the springless chamber and the supply air for these types of applications. It enables the increased pressure to be transferred back to the air inlet line.

The opening pressure of the check valve should be < 250 mbar (< 3.6 psi).

Connection on the device



- ① Pneumatic outputs ③ Filter screw (on underside of housing)
- ② Supply air

Figure 26: Pneumatic connections

Marking	Pipe connection
SUP / ZUL IN	Supply air, pressure 1.4 to 10 bar (20 to 145 psi)
Y1 / OUT1	Output pressure to the actuator
Y2 / OUT2	Output pressure to the actuator (2 Connection with double acting actuator)

Join the pipe connections according to the designation, observing the following points:

- All pneumatic piping connections are located on the right-hand side of the positioner. G $\frac{1}{4}$ or $\frac{1}{4}$ 18 NPT tap holes are provided for the pneumatic connections. The positioner is labeled according to the tap holes available.
- We recommend that you use a pipe with dimensions of 12 × 1.75 mm. The supply air pressure required to apply the actuating force must be adjusted in line with the output pressure in the actuator.
- The operating range of the positioner is between 1.4 to 10 bar (20 to 145 psi).

Air supply

Instrument air*	
Purity	Maximum particle size: 5 μ m Maximum particle density: 5 mg/m ³
Oil content	Maximum concentration 1 mg/m ³
Pressure dew point	10 K below operating temperature
Supply pressure	Standard design: 1.4 to 10 bar (20 to 145 psi) Marine version: 1.5 to 8 bar (22 to 116 psi)
Air consumption**	< 0.03 kg/h / 0.015 scfm

* Free of oil, water and dust in accordance with DIN / ISO 8573-1. Pollution and oil content n accordance with Class 3

** Independent of supply pressure

Compressed air output	
Range	0 to 10 bar (0 to 145 psi)
Air capacity	Standard: 40 kg/h (31 Nm ³ /h / 20 scfm) Optional: 50 kg/h (40 Nm ³ /h / 23 scfm)
Output function	For single acting or double acting actuators Air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	End position 0 % = 0 to 45 % End position 100 % = 55 to 100 %

8 Commissioning

Safety instructions

Note

The electrical power supply and supply air pressure data indicated on the name plate must be complied with during commissioning.

Before switching on the device, make sure that your installation complies with the environmental conditions listed in the chapter “Technical Data” or on the data sheet.

If there is a chance that safe operation is no longer possible, take the device out of operation and secure it against unintended startup.

Checks prior to commissioning

Air pressure in the compressed air connecting line:

- 1.4 to 10 bar (20 to 145 psi)
- Marine version: 1.6 to 8 bar (23 to 116 psi)

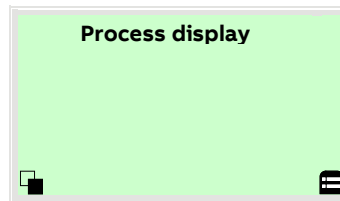
Current input active: 4 to 20 mA


Mechanical mounting checks

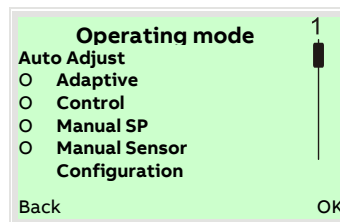
During commissioning, the mechanical mounting on the linear and rotary actuators is checked. For this purpose, the actuator is first moved into the end positions and Auto Adjust is then carried out.





With large actuators, it can occur that the time for automatic adjustment is significantly than in smaller actuators.

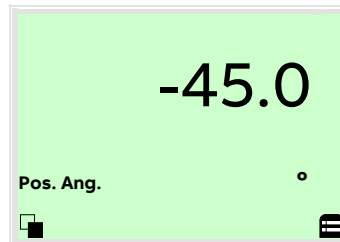
Moving to end positions after completion of automatic adjustment



1. Use  to switch to the Operating Mode menu.



2. Use  or  to select the 'Manual Sensor' operating mode.
3. Use  and  to move to the relevant end positions.

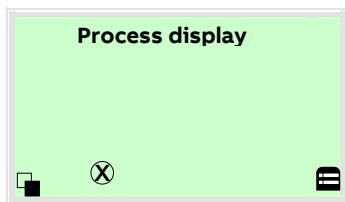




Check the end positions. The angle of rotation is displayed in degrees.

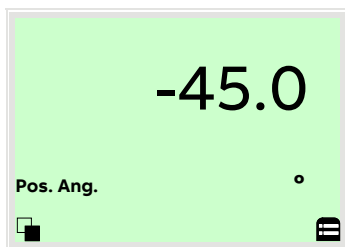
Recommended range:

- between -30 to 30° for linear actuator
- between -45 to 45° for rotary actuator

Moving to end positions with a new device



1. Use  and  to move to the relevant end positions.



Check the end positions. The angle of rotation is displayed in degrees.

Recommended range:

- between -30 and 30° for linear actuator
- between -45 and 45° for rotary actuator

Auto Adjust must then be performed.

See **Start automatic adjustment** on page 44.

9 Operation

Safety instructions

⚠ CAUTION

Risk of injury due to incorrect parameter values!

Incorrect parameter values can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.

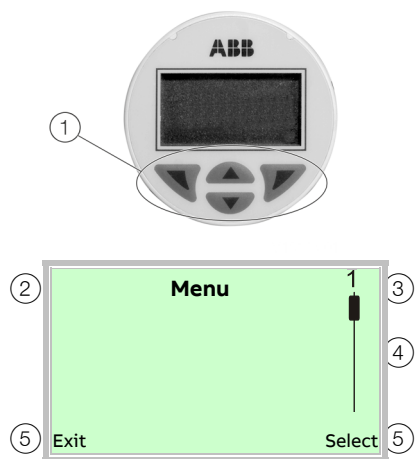
- Before recommissioning a positioner that was previously in use at another location, always reset the device to its factory settings.
- Never start automatic adjustment before restoring the factory settings!

If there is a chance that safe operation is no longer possible, take the device out of operation and secure it against unintended startup.

Parameterization of the device

The LCD display features operating buttons which enable the device to be operated with the housing cover open.

Menu navigation










- | | |
|---|--|
| ① Operating buttons for menu navigation | ④ Marking to indicate relative position within the menu |
| ② Indication of menu designation | ⑤ Indication of the current function assigned to the operating buttons  and  |
| ③ Indication of menu number | |


Figure 27: LCD indicator (example)

You can use the  or  operating buttons to browse through the menu or select a number or character within a parameter value.

Different functions can be assigned to the  and  operating buttons. The function that is currently assigned (⑤) is shown on the LCD display.

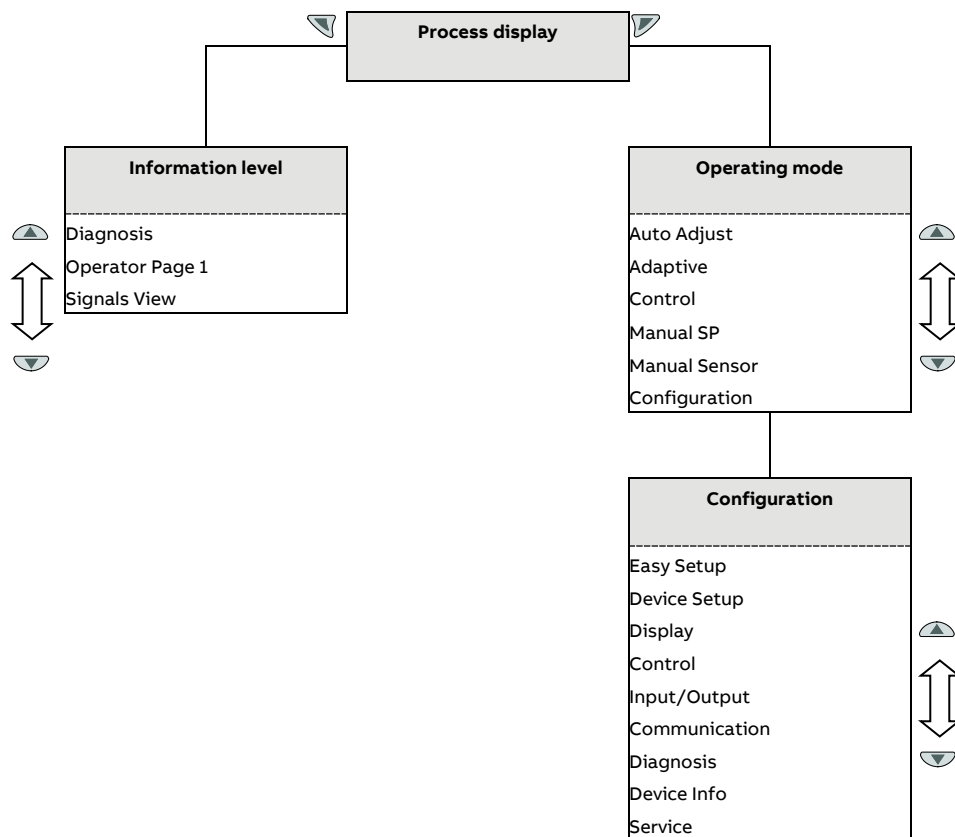
Operating button functions

	Meaning
Exit	Exit menu
Back	Go back one submenu
Cancel	Cancel parameter entry
Next	Select the next position for entering numerical and alphanumeric values

	Meaning
Select	Select submenu / parameter
Edit	Edit parameter
OK	Save parameter entered

Menu levels

There are three menu levels below the process display.



Process display

The process display shows the current process values.

Information level

The information level contains the parameters and information that are relevant for the operator. The device configuration cannot be changed on this level.

Operating modes menu

In the operating modes menu, the Auto Adjust function can be started for commissioning purposes. You can also change the operating modes and switch to the configuration level.

Configuration level

The configuration-, parameterization instruction contains all the parameters required for device commissioning and configuration. The device configuration can be changed on this level.

NOTICE

Property damage

During external configuration via a PC, the positioner no longer responds to the set point current. This may lead to process failures.

- Before any external parameterization, always move the actuator to the safety position and activate manual adjustment.

Note

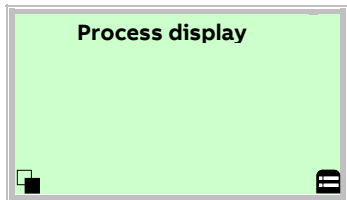
For detailed information on how to parameterize device, consult the associated operating instructions and/or configuration and parameterization instructions.


... 9 Operation

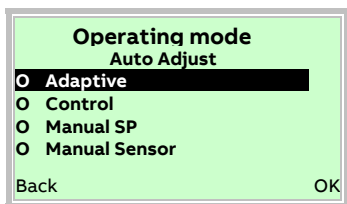
... Parameterization of the device




Start automatic adjustment

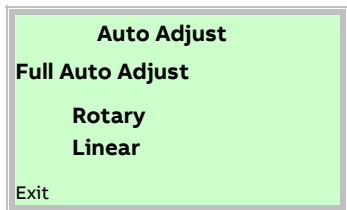
The Auto Adjust function of the device can be configured and started in the 'Operating mode' menu.





1. Use  to switch to the Operating Mode menu.



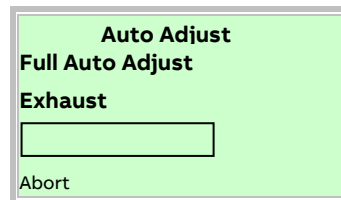
2. Use  or  to select the 'Adaptive' operating mode.
3. Confirm the selection with . Press and hold down the control button for at least 4 seconds (wait for the time to count down on the top left of the display).



4. Use  or  to select 'Actuator type'.
Select 'Rotary' for rotary actuators.
Select 'Linear' for linear actuators.

Note

The 'Autoadjust Mode' can be preset at the configuration level in '... / Easy Setup / Autoadjust Mode'.



The progress of the Auto Adjust function is shown in a bar graph. The function can be terminated with 'Abort' if necessary. Once Auto Adjust has been completed successfully, 'Auto Adjust Complete' is displayed. The device then switches to the process display automatically.

Note

Auto Adjust does not always result in optimum control conditions.

When Auto Adjust is started via shortcut keys, the position of the valve is determined automatically.

10 Maintenance

The positioner does not require any maintenance if it is used as intended under normal operating conditions.

Note

Manipulation by users shall immediately render the warranty for the device invalid.

To ensure fault-free operation, it is essential that the device is supplied with instrument air that is free of oil, water, and dust.

Note

Perform a functional check of the emergency shutdown module (option) at least every 2 years.

For this purpose, the positioner must move the valve into the safety position when the 24 V DC signal (terminal +85 / -86) is interrupted.

11 Recycling and disposal

Note



Products that are marked with the adjacent symbol may **not** be disposed of as unsorted municipal waste (domestic waste).

They should be disposed of through separate collection of electric and electronic devices.

This product and its packaging are manufactured from materials that can be recycled by specialist recycling companies.

Bear the following points in mind when disposing of them:

- As of 8/15/2018, this product will be under the open scope of the WEEE Directive 2012/19/EU and relevant national laws (for example, ElektroG - Electrical Equipment Act - in Germany).
- The product must be supplied to a specialist recycling company. Do not use municipal waste collection points. These may be used for privately used products only in accordance with WEEE Directive 2012/19/EU.
- If there is no possibility to dispose of the old equipment properly, our Service can take care of its pick-up and disposal for a fee.

12 Specification

Note

The device data sheet is available in the ABB download area at www.abb.com/positioners.

13 Additional documents

Note

All documentation, declarations of conformity, approvals, certificates and additional documentation are available in the ABB download area.

www.abb.com/positioners

14 Appendix

Return form

Statement on the contamination of devices and components

Repair and/or maintenance work will only be performed on devices and components if a statement form has been completed and submitted.

Otherwise, the device/component returned may be rejected. This statement form may only be completed and signed by authorized specialist personnel employed by the operator.

Customer details:

Company:

Address:

Contact person:

Telephone:

Fax:

Email:

Device details:

Type:

Serial no.:

Reason for the return/description of the defect:

Was this device used in conjunction with substances which pose a threat or risk to health?

☐ Yes ☐ No

If yes, which type of contamination (please place an X next to the applicable items):

☐ biological

☐ corrosive / irritating

☐ combustible (highly / extremely combustible)

☐ toxic

☐ explosive

☐ other toxic substances

☐ radioactive

Which substances have come into contact with the device?

1.

2.

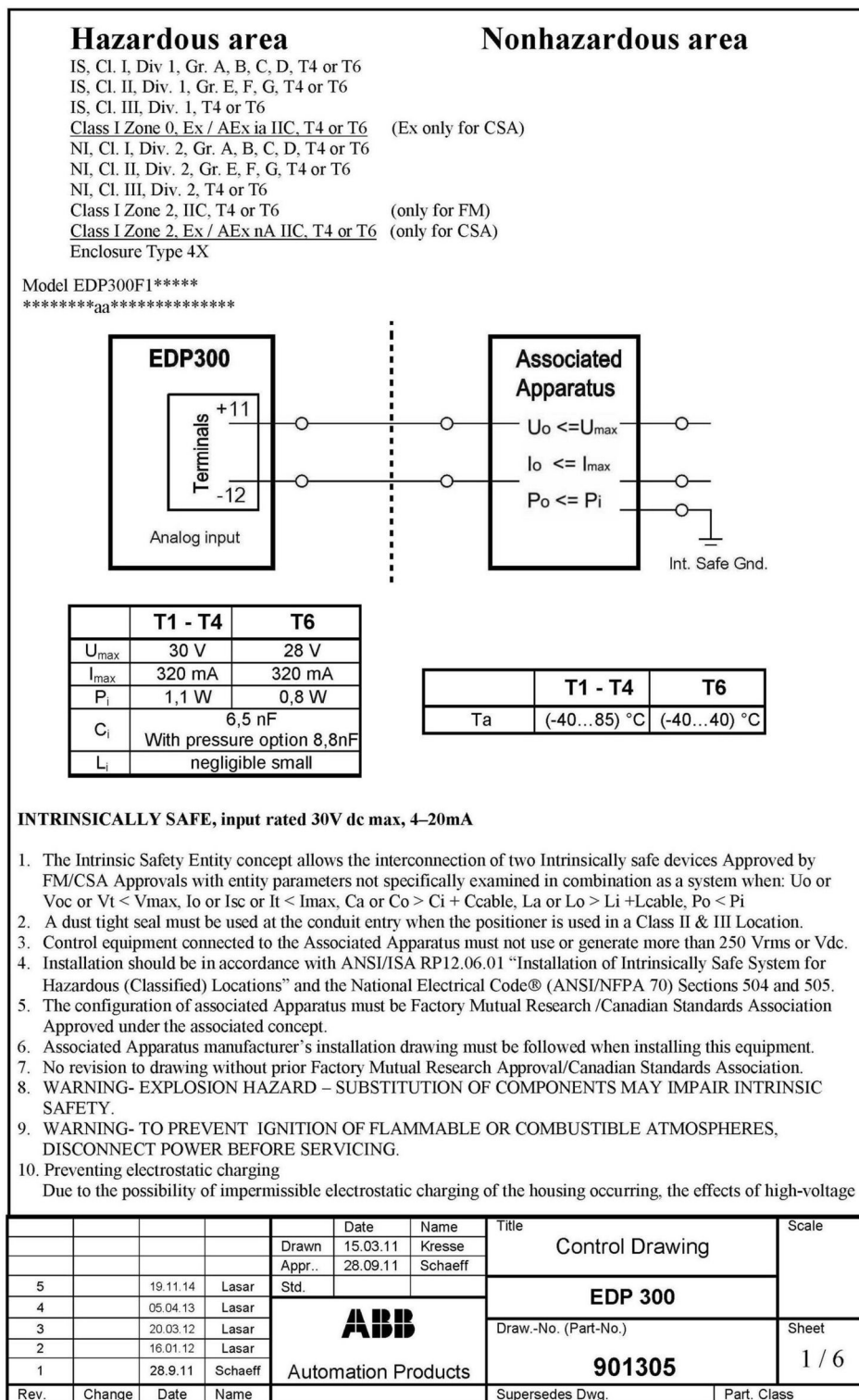
3.

We hereby state that the devices/components shipped have been cleaned and are free from any dangerous or poisonous substances.

Town/city, date

Signature and company stamp

Control Drawing 901305



... Control Drawing 901305

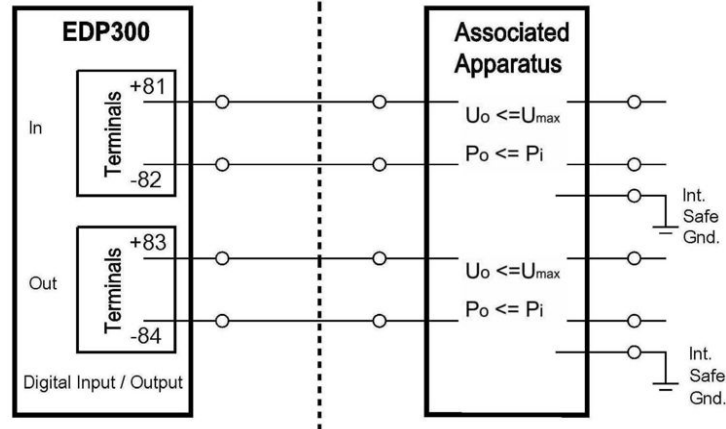
- sources on the equipment must be prevented. Electrostatic charging can also occur if the device is wiped with a dry cloth or if large amounts of dust flow around the device in dusty environments. To prevent charging of this type from occurring, the device may only be cleaned using a damp cloth. Dust flowing round the device should be prevented by installing a flow restrictor or partition.
11. If the PositionMaster EDP300 is used according to temperature class T6, before the pressure supply is fully switched on, the pneumatic unit shall be operated with a maximum pressure of 1,4 bar for so long until no more explosive mixture is present, but at least 5 minutes. During this operation the EDP300 is to be fully loaded and vented for several times.
 12. The usage of the PositionMaster with natural gas is only permitted in type of protection "Intrinsic Safe".
 13. If the PositionMaster is used with natural gas, the venting of the PositionMaster has to be routed safely to outside the hazardous area.
 14. If the PositionMaster uses natural gas instead of compressed air, the maximum ambient temperature is 60 °C.
 15. Limit switches are not permitted for use in this product.
 16. Max. pressure of the attached pressure supply is 174 psi (12 bar absolute).
 17. The customer must select an appropriate cable gland, complied the requirement of Type 4X (NEMA 250).

NON-INCENDIVE, CLASS I, DIVISION 2, GROUPS A, B, C, D; CLASS II DIVISION 2 GROUPS E, F, G;
CLASS III T4 or T6

Input rated 30V dc max, 4–20mA

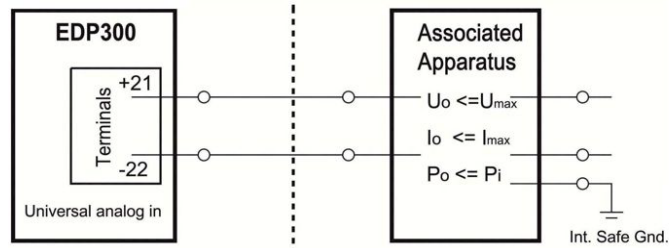
1. Nonincendive wiring concept: The Nonincendive wiring concept allows the interconnection of devices with Nonincendive wiring parameters: V_{max} , I_{max} , P_{max} see Table.
2. Nonincendive wiring parameters: U_o or V_{oc} or $V_t < V_{max}$, I_o or I_{sc} or $I_t < I_{max}$, C_a or $C_o > C_i + C_{cable}$, L_a or $L_o > L_i + L_{cable}$, $P_o < P_i$
3. The configuration of Associated Nonincendive Field Wiring Apparatus must be FM/CSA Approved under Nonincendive wiring concept.
2. Associated Nonincendive Field Wiring Apparatus manufacturer's installation drawing must be followed when installing this equipment.
3. WARNING- EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.
4. WARNING- EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.
5. Preventing electrostatic charging
Due to the possibility of impermissible electrostatic charging of the housing occurring, the effects of high-voltage sources on the equipment must be prevented. Electrostatic charging can also occur if the device is wiped with a dry cloth or if large amounts of dust flow around the device in dusty environments. To prevent charging of this type from occurring, the device may only be cleaned using a damp cloth. Dust flowing round the device should be prevented by installing a flow restrictor or partition.
6. If the PositionMaster EDP300 is used according to temperature class T6, before the pressure supply is fully switched on, the pneumatic unit shall be operated with a maximum pressure of 1,4 bar for so long until no more explosive mixture is present, but at least 5 minutes. During this operation the EDP300 is to be fully loaded and vented for several-times.
7. This product is not permitted for use with natural gas.
8. With optional Limit Switches (aa, see coding)
aa = F2, Proximity switches (Normally Closed) Type SJ2-SN
aa = F3, Proximity switches (Normally Open) Type SJ2-S1N
aa = blank, without Limit Switches
9. If ordering option F3 is used the lower ambient temperature is reduced to -25 °C.
10. Max. pressure of the attached pressure supply is 174 psi (12 bar absolute).
11. The customer must select an appropriate cable gland, complied the requirement of Type 4X (NEMA 250).

				Drawn	Date	Name	Control Drawing		Scale
				Appr..	15.03.11	Kresse			
					28.09.11	Schaeff			
5		19.11.14	Lasar	Std.			EDP 300		
4		05.04.13	Lasar				Draw.-No. (Part-No.) 901305		Sheet 2 / 6
3		20.03.12	Lasar						
2		16.01.12	Lasar						
1		28.9.11	Schaeff						
				Automation Products					
Rev.	Change	Date	Name				Supersedes Dwg.		Part. Class

Hazardous area**Nonhazardous area**

	T1 - T4	T6
U_{max}	30 V	28 V
P_i	0,5 W	0,4 W
C_i	4,2 nF	
L_i	negligible small	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

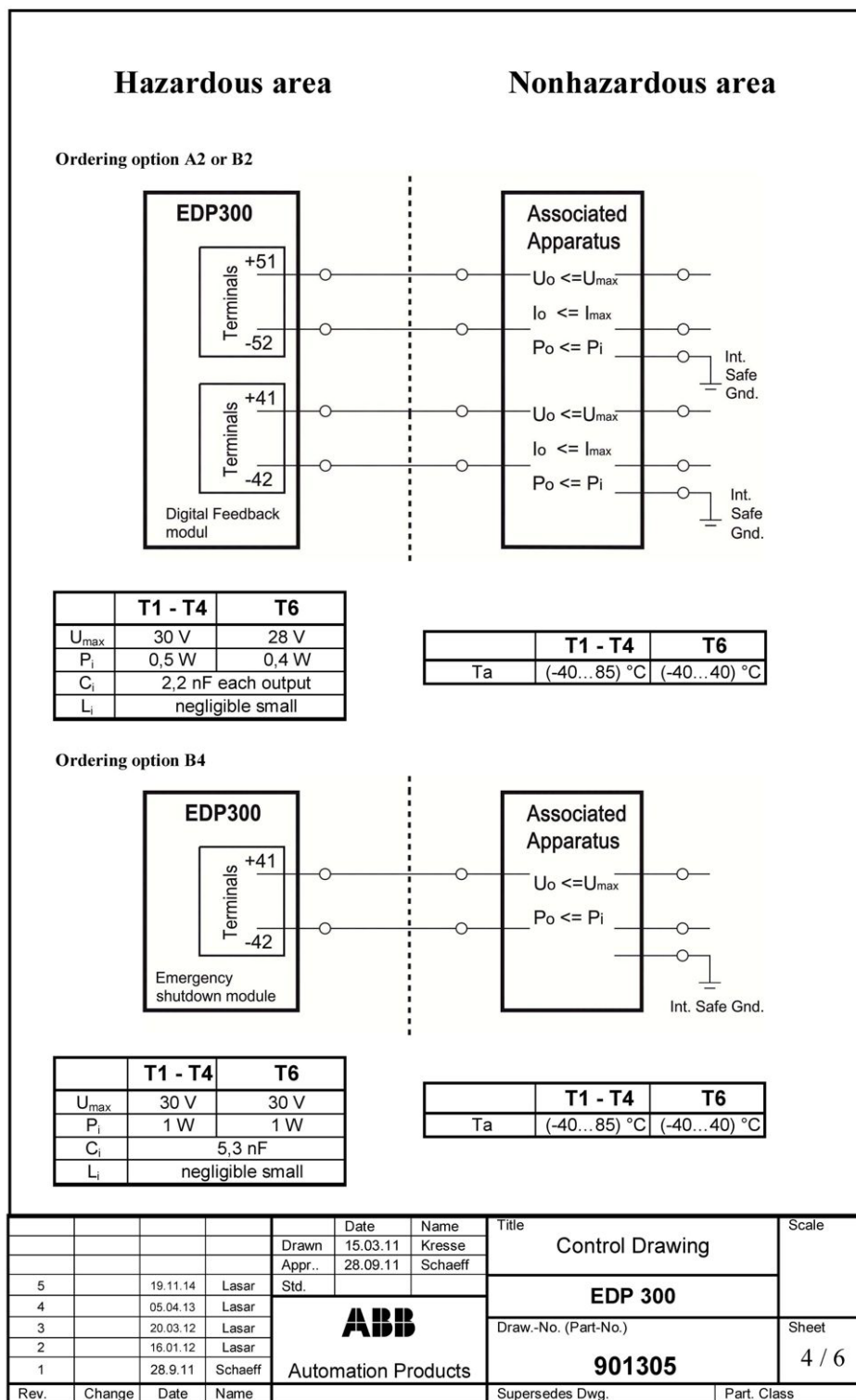
Ordering option A3 or B3

	T1 - T4	T6
U_{max}	30 V	28 V
I_{max}	320 mA	320 mA
P_i	1,0 W	0,8 W
C_i	11,3 nF	
L_i	150µH	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

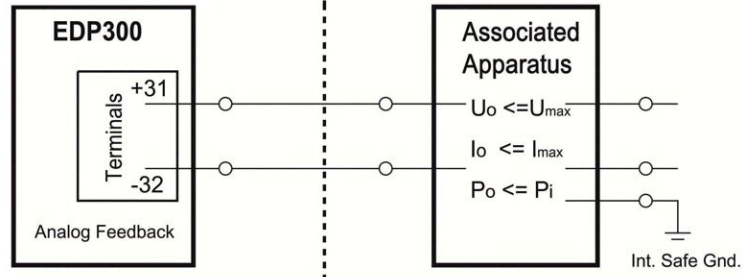
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				Appr..	28.09.11	Schaeff	
5		19.11.14	Lasar	Std.			
4		05.04.13	Lasar	 Automation Products		EDP 300	Sheet
3		20.03.12	Lasar			Draw.-No. (Part-No.)	
2		16.01.12	Lasar			901305	
1		28.9.11	Schaeff				3 / 6
Rev.	Change	Date	Name			Supersedes Dwg.	Part. Class

... Control Drawing 901305



Hazardous area**Nonhazardous area**

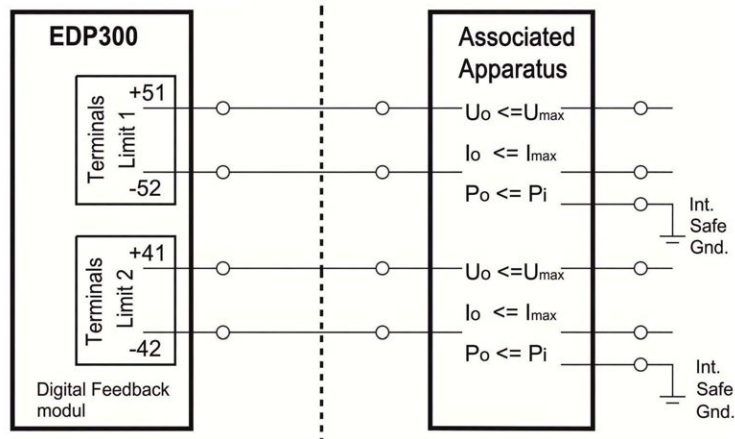
Ordering option A1 or B1



	T1 - T4	T6
U_{max}	30 V	28 V
I_{max}	320 mA	320 mA
P_i	1,0 W	0,8 W
C_i	11,3 nF	
L_i	150 μ H	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

Ordering option F2 or F3



T1 - T4	T6
Pepperl+Fuchs, Inc. "NAMUR" output proximity sensor Type (NO) SJ2-SN or (NC) SJ2-S1N See Control Drawing "NAMUR SENSORS – FM" No. 116-0165	

				Drawn	Date	Name	Control Drawing	Scale
				Appr..	15.03.11	Kresse		
					28.09.11	Schaeff		
5		19.11.14	Lasar	Std.			EDP 300	
4		05.04.13	Lasar	<div>ABB</div> <div>Automation Products</div>				
3		20.03.12	Lasar					
2		16.01.12	Lasar					
1		28.9.11	Schaeff					
Rev.	Change	Date	Name				Draw.-No. (Part-No.)	Sheet
							901305	5 / 6
Rev.	Change	Date	Name				Supersedes Dwg.	Part. Class

Control Drawing

EDP 300

Draw.-No. (Part-No.)

901305

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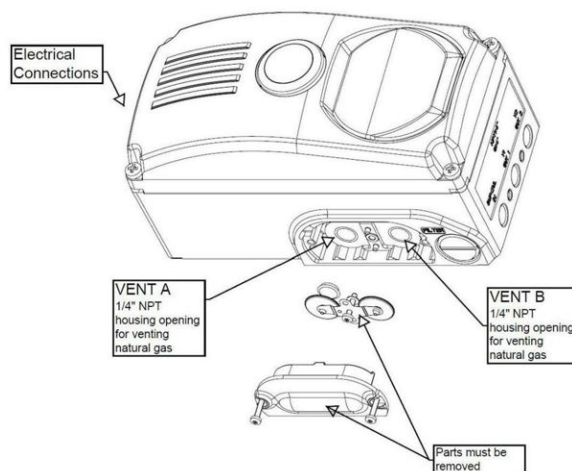
... 14 Appendix

... Control Drawing 901305

EDP300 Natural Gas Operation Ordering option P8

Notes:

1. The usage of the PositionMaster with natural gas is only permitted in type of protection "Intrinsic Safe".
2. If the PositionMaster is used with natural gas, the venting of the PositionMaster has to be routed safely to outside the hazardous area.
3. If the PositionMaster uses natural gas instead of compressed air, the maximum ambient temperature is 60 °C.
4. Only PositionMaster models with ordering option P8 may be operated with natural gas.
5. The natural gas operation can only be accomplished with clean, dry, non-sulphurous, additive-free natural gas.
6. Do not operate the PositionMaster with natural gas in closed or non-ventilated areas.
7. Natural gas continuously vent through the PositionMaster housing and must always be directed away from the PositionMaster to a safe discharge area outside the hazardous area, by piping or tubing connected to the PositionMaster vent ports.
8. Special care must be taken during maintenance activities at or near the positioner and actuator because of the presence of pressurized natural gas. Depressurize and vent actuators and devices connected to the pressurized natural gas supply carefully to a non-hazardous atmosphere, and wait several minutes for complete depressurization.



9. Vent tubing connection requirement, shown as VENT A & VENT B (above), is 1/4" NPT. The tubing size for Vent A & Vent B should match the supply tubing size.
10. The vent tubing system at VENT A must be designed and implemented to minimize the back pressure to less than 1 PSIG.

No revision to this document without prior FM/CSA authorization.

				Date	Name	Title	Scale
				Drawn	15.03.11	Kresse	Control Drawing
				Appr.	28.09.11	Schaeff	
5		19.11.14	Lasar	Std.			
4		05.04.13	Lasar				Sheet
3		20.03.12	Lasar				
2		16.01.12	Lasar				
1		28.9.11	Schaeff				6 / 6
Automation Products				Supersedes Dwg.			Part. Class

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Notes

Notes

ABB Measurement & Analytics

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www.abb.com/contacts

For more product information, visit:
www.abb.com/positioners

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