

ABB industrial drives

ACS800-204, regenerative IGBT supply units, 2.7 to 67 kW

With the inclusion of 2.7 to 67 kW units, the power range of ABB's regenerative IGBT supply units now extends from 2.7 to 3000 kW. Suitable for most industrial applications, the supply units are particularly effective for power generation applications like small wind turbines, hydropower, combined heat and power stations as well as bio gas and bio fuel plants.

These regenerative IGBT supply units are designed for cabinet assembly and can be used for feeding a common DC bus in single drive and multidrive configurations.



The regenerative IGBT supply unit consists of a supply module and an LCL filter. The filter suppresses the AC voltage distortion and current harmonics.

Optimized for cabinet assembly

The regenerative IGBT supply units are designed for fast, cost-effective installation and integration into cabinets. The units are ideal for use by system integrators, OEMs and panel builders.

The regenerative IGBT supply units are equipped with LCL filters and can be used in a variety of ways - as a common DC supply for several inverter modules or as a single inverter module.

Flexible and modular

The low power regenerative IGBT supply units are available in four frame sizes, ranging from 2.7 to 67 kW. The main contactor and charging components are available as a separate package, and a wide range of optional I/O extension and fieldbus adapter modules provides additional flexibility. The control concept, optional modules and all PC tools are common to the entire ACS800 product family, which means less engineering, training and assembly time.

Highlights

- High flexibility
- Modular, optimized design for cabinet assembly
- Extremely low harmonic content due to DTC control and LCL filtering
- Fully regenerative IGBT supply units in a compact package
- Hardware compatibility between the ACS800 multidrive supply and inverter modules

Applications

- Power generation
- Test benches
- Cranes and winches
- Winders
- Conveyors
- Escalators
- Presses
- Elevators

Options

- All common ACS800 product family options, for example:
 - Large variety of I/O extension and fieldbus adapter modules
 - PC tools
- Main contactor and charging components available as one complete package
- Pre-selected components for an easy cabinet installation: fuses, contactors, charging components, etc.
- Installation examples and pre-selected components for Rittal TS8 cabinet installation

Technical data, types, dimensions and weights

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type code	Frame size
$I_{\text{cont.max}}$	$I_{\text{cont.max}}$	I_{max}	S_N	$P_{\text{cont.max}}$	I_N	P_N	I_{hd}	P_{hd}			
A (AC)	A (DC)	A (DC)	kVA	kW (DC)	A (DC)	kW (DC)	A (DC)	kW (DC)	kW		
$U_N = 400 \text{ V}$ (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.											
5.3	6.4	9.3	3.8	3.8	6.2	3.7	4.7	2.7	0.3	ACS800-204-0003-3	R2i + RLCL-01-5
11.3	13.7	19.9	8.1	8.0	13.2	8.0	9.9	5.8	0.5	ACS800-204-0008-3	R2i + RLCL-02-5
27.7	33.6	48.7	20.0	19.8	32.3	20	24.3	14.3	0.8	ACS800-204-0021-3	R3i + RLCL-03-5
44.9	54.4	78.7	32.2	31.9	52.2	32	39.4	23.1	1.3	ACS800-204-0031-3	R4i + RLCL-11-5
84.0	101.9	147.4	60.3	59.7	97.8	60	73.7	43.3	2.2	ACS800-204-0061-3	R5i + RLCL-12-5
$U_N = 500 \text{ V}$ (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.											
5.1	6.1	8.9	4.4	4.4	5.9	4.3	4.4	3.1	0.3	ACS800-204-0004-5	R2i + RLCL-01-5
10.8	13.0	18.9	9.3	9.2	12.5	9.2	9.4	6.7	0.6	ACS800-204-0009-5	R2i + RLCL-02-5
27.7	33.6	48.4	24.0	23.8	32.2	23.8	24.2	17.1	0.9	ACS800-204-0021-5	R3i + RLCL-03-5
39.2	47.4	68.7	33.9	33.6	45.5	33.6	34.3	24.3	1.5	ACS800-204-0031-5	R4i + RLCL-11-5
78.3	94.7	137.9	67.8	67.1	91.0	67.1	69.0	48.8	2.4	ACS800-204-0061-5	R5i + RLCL-12-5

Nominal ratings:

$I_{\text{cont.max}}$: rated current available continuously without overload capacity at 40 °C
 I_{max} : maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature. Note! The maximum motor shaft power is 150% P_{hd} .
 S_N : nominal apparent power

Typical ratings:

No-overload use

$P_{\text{cont.max}}$: typical output power in no-overload use

Light-overload use

I_N : continuous current allowing 110% I_N for 1 minute every 5 minutes at 40 °C
 P_N : typical output power in light-overload use

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1 minute every 5 minutes at 40 °C
 P_{hd} : typical output power in heavy-duty use

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply at 40 °C ambient temperature. At lower temperatures the ratings are higher (except I_{max}).

Mains connection	
Voltage range	3-phase, $U_{\text{SIN}} = 380$ to 415 V , $\pm 10\%$ 3-phase, $U_{\text{SIN}} = 380$ to 500 V , $\pm 10\%$
Frequency	50 Hz ± 2 Hz or 60 Hz ± 2 Hz
Prospective short-circuit current (IEC 60439-1)	Maximum allowed prospective short-circuit current in the supply is 65 kA/1 sec. provided that the mains cable of the drive is protected using appropriate fuses.
Power factor	$\cos\phi_1 = 1$ (fundamental) $\cos\phi = 0.98$ (total)
Efficiency (at nominal power)	97%
Harmonic distortion	THD current $< 0.05 \times I_{\text{cont.max}}$ if supply network voltage is not distorted by other loads

Output connection	
Voltage	535 to 585 V DC for 400 V units 535 to 705 V DC for 500 V units
Switching frequency	3 kHz (average)

Environmental limits	
Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Operation	-15 to +50 °C, no frost allowed 40 to 50 °C at reduced output current (1% / 1 °C)
Cooling method	Dry clean air
Relative humidity	5 to 95%, no condensation allowed
Compliance	CE; pending: UL, CSA, C-Tick, GOST R
Degree of protection	IP00

EMC according to EN 61800-3 (2004)	
1 st environment, restricted distribution category C2 as option	
2 nd environment, unrestricted distribution category C3 as standard	

Frame size	Height mm	Width mm	Depth mm	Weight kg
IGBT supply module				
R2i	401	165	193	9
R3i	466	173	232	12
R4i	525	240	252	15
R5i	673	265	276	23
LCL filter for IGBT supply module				
RLCL-01-5	850	173	137	15
RLCL-02-5	850	173	137	15
RLCL-03-5	850	173	137	20
RLCL-11-5	920	265	169.5	40
RLCL-12-5	920	265	169.5	50

For more information please contact:

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