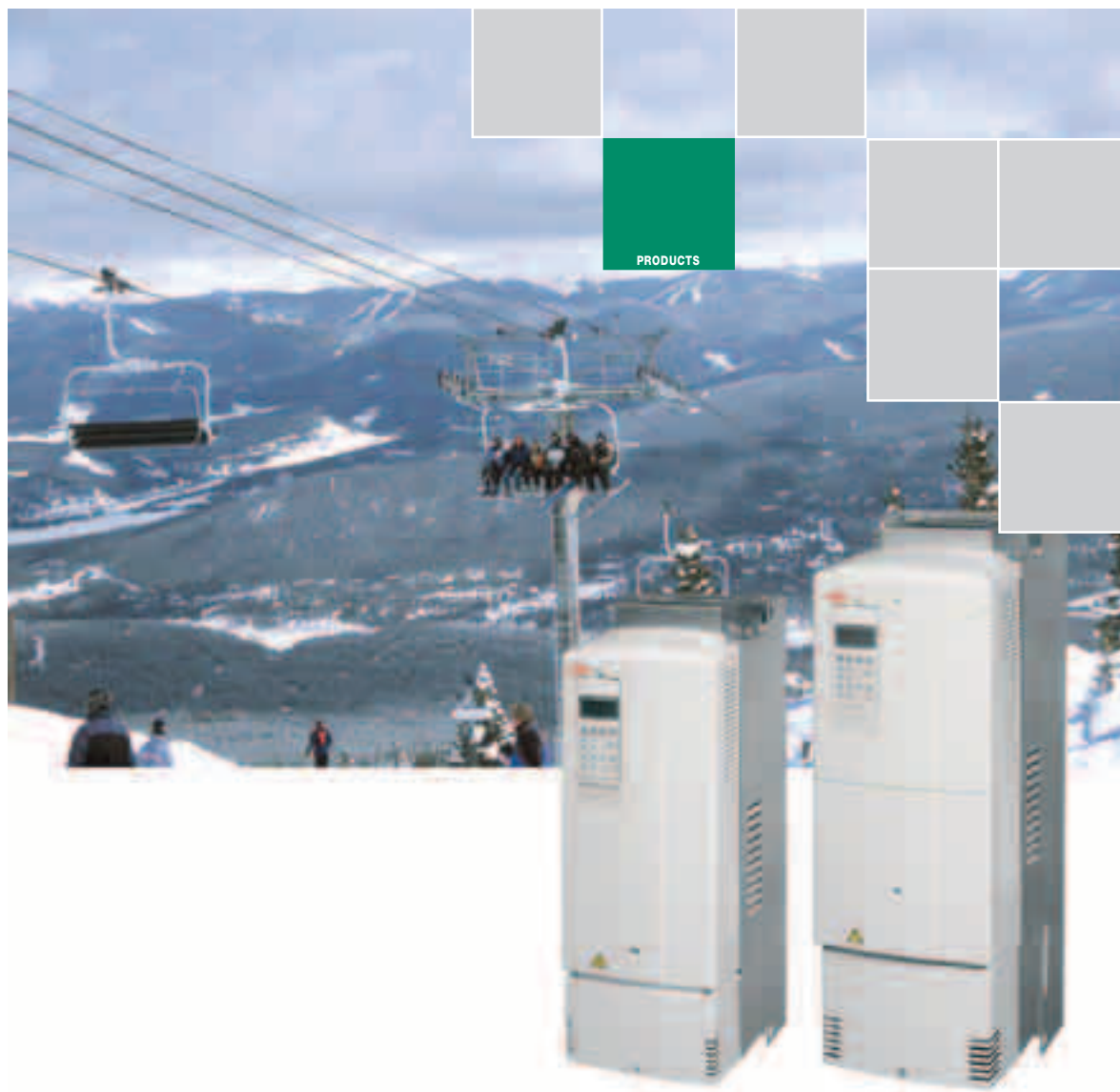


ABB industrial drives

Stand-alone single drives, regenerative drives

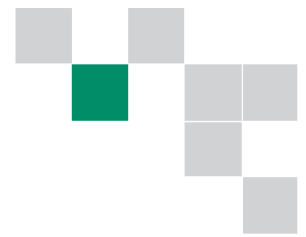
ACS800-11, 7.5 - 110 kW / ACS800-U11, 10 - 125 hp

Technical catalogue



ACS800 wall-mounted regenerative drive

ACS800-11, up to 110 kW / ACS800-U11, up to 125 hp



ACS800-11 - XXXX - X

Wall-mounted regenerative drive

The ACS800-11 is a wall-mounted stand-alone drive equipped with active supply unit. It offers a full performance regenerative drive in one compact package. Thanks to the exceptionally low line harmonic content, the ACS800-11 can be used as a low harmonic drive solution without multi-pulse transformers or external filtering equipment. The drive has extensive selection of inbuilt features and options. The power ratings start from 7.5 kW and go up to 110 kW. It is available with IP 21 protection class.

Complete regenerative drive

The ACS800-11 offers you a complete regenerative drive in a single, compact wall-mounted package. All the functions of a regenerative drive, such as active supply unit, LCL line filter and charging circuitry, are integrated inside the drive. All this makes it possible to save installation time and space on the site, and also prevents installation mistakes as the drive is tested at the factory as a complete package.

Energy savings

The regenerative drive offers significant energy savings compared with other braking methods such as mechanical and resistor braking, as energy is fed back to the network. No external brake resistor is needed, which translates into simplified installation and no wasted heat.

Harmonics eliminated

Drive users and utilities are concerned about the harmful effects of line harmonics and low power factor as demand for stringent power quality increases. The line harmonic content of the ACS800-11 is exceptionally low due to the controlled IGBT supply unit and inbuilt LCL line filtering. This makes the drive a compact and simple alternative to 12, 18 and 24-pulse rectifier drives as well as to external power quality filtering equipment. It offers a low harmonic solution that is incorporated in the drive. Another benefit of the regenerative drive is its capability to operate at unity power factor at any operation point.

Standard hardware features

- Wall-mounting
- IP 21 protection class
- Low harmonic LCL line filter inside
- Active supply unit inside
- Long lifetime cooling fan and capacitors
- Extensive, programmable I/O with galvanically isolated inputs
- Three I/O and fieldbus extension slots inside
- Alphanumeric, multilingual control panel with start-up assistant feature
- Large power terminals allowing the use of a wide range of cable sizes

Options for ACS800-11

Inbuilt options:

- EMC filter for 1st environment, restricted distribution according to EN 61800-3
- EMC filter for 2nd environment, unrestricted distribution according to EN 61800-3
- Analog and digital I/O extension modules
- Fieldbus modules
- Pulse encoder interface module

External options:

- Output filters
- Ethernet module

Ratings and dimensions



| Nominal ratings | | No-overload use | | Light-overload use | | | Heavy-duty use | | | Noise level | Heat dissipation | Air flow | Type code | Frame size |
|--|----------------|----------------------|----------------------|--------------------|-------------|-------------|------------------|----------------|----------------|-------------|------------------|-------------------|------------------|------------|
| $I_{cont.max}$ A | I_{max} A | $P_{cont.max}$ kW | $P_{cont.max}$ hp | I_N A | P_N kW | P_N hp | I_{hd} A | P_{hd} kW | P_{hd} hp | dBA | W | m ³ /H | | |
| U_N = 230 V (Ranges 208-240 V). The power ratings are valid at nominal voltage 230 V. | | | | | | | | | | | | | | |
| 34 | 52 | 7.5 | 10 | 32.3 | 7.5 | 10 | 26 | 5.5 | 7.5 | 70 | 505 | 350 | ACS800-11-0011-2 | R5 |
| 47 | 68 | 11 | 15 | 44.7 | 11 | 15 | 38 | 7.5 | 10 | 70 | 694 | 350 | ACS800-11-0016-2 | R5 |
| 59 | 90 | 15 | 20 | 56.1 | 15 | 20 | 45 | 11 | 10 | 70 | 910 | 350 | ACS800-11-0020-2 | R5 |
| 75 | 118 | 22 | 25 | 69 | 18.5 | 25 | 59 | 15 | 15 | 70 | 1099 | 350 | ACS800-11-0025-2 | R5 |
| 88 | 144 | 22 | 30 | 83 | 22 | 30 | 72 | 18.5 | 20 | 70 | 1315 | 350 | ACS800-11-0030-2 | R5 |
| 120 | 168 | 37 | 40 | 114 | 30 | 40 | 84 | 22 | 25 | 73 | 1585 | 405 | ACS800-11-0040-2 | R6 |
| 150 | 234 | 45 | 50 | 143 | 45 | 50 | 117 | 30 | 30 | 73 | 2125 | 405 | ACS800-11-0050-2 | R6 |
| 169 | 264 | 45 | 60 | 157 | 45 | 60 | 132 | 37 | 40 | 73 | 2530 | 405 | ACS800-11-0060-2 | R6 |
| U_N = 400 V (Ranges 380-415 V). The power ratings are valid at nominal voltage 400 V. | | | | | | | | | | | | | | |
| 34 | 52 | 15 | - | 32.3 | 15 | - | 26 | 11 | - | 70 | 550 | 350 | ACS800-11-0016-3 | R5 |
| 38 | 61 | 18.5 | - | 36.1 | 18.5 | - | 34 | 15 | - | 70 | 655 | 350 | ACS800-11-0020-3 | R5 |
| 47 | 68 | 22 | - | 44.7 | 22 | - | 38 | 18.5 | - | 70 | 760 | 350 | ACS800-11-0025-3 | R5 |
| 59 | 90 | 30 | - | 56.1 | 30 | - | 45 | 22 | - | 70 | 1000 | 350 | ACS800-11-0030-3 | R5 |
| 72 | 118 | 37 | - | 69 | 37 | - | 59 | 30 | - | 70 | 1210 | 350 | ACS800-11-0040-3 | R5 |
| 86 | 144 | 45 | - | 83 | 45 | - | 65 | 30 | - | 70 | 1450 | 350 | ACS800-11-0050-3 | R5 |
| 120 | 168 | 55 | - | 114 | 55 | - | 84 | 45 | - | 73 | 1750 | 405 | ACS800-11-0060-3 | R6 |
| 150 | 234 | 75 | - | 143 | 75 | - | 117 | 55 | - | 73 | 2350 | 405 | ACS800-11-0070-3 | R6 |
| 165 | 264 | 90 | - | 157 | 75 | - | 132 | 75 | - | 73 | 2800 | 405 | ACS800-11-0100-3 | R6 |
| U_N = 500 V (Ranges 380-500 V). The power ratings are valid at nominal voltage 500 V. | | | | | | | | | | | | | | |
| 31 | 52 | 18.5 | 20 | 29 | 18.5 | 20 | 25 | 15 | 15 | 70 | 655 | 350 | ACS800-11-0020-5 | R5 |
| 36 | 61 | 22 | 25 | 34 | 22 | 25 | 30 | 18.5 | 20 | 70 | 760 | 350 | ACS800-11-0025-5 | R5 |
| 47 | 68 | 30 | 30 | 45 | 30 | 30 | 37 | 22 | 25 | 70 | 1000 | 350 | ACS800-11-0030-5 | R5 |
| 58 | 90 | 37 | 40 | 55 | 37 | 40 | 47 | 30 | 30 | 70 | 1210 | 350 | ACS800-11-0040-5 | R5 |
| 70 | 118 | 45 | 50 | 67 | 45 | 50 | 57 | 37 | 40 | 70 | 1450 | 350 | ACS800-11-0050-5 | R5 |
| 82 | 144 | 55 | 60 | 78 | 45 | 60 | 62 ¹⁾ | 37 | 50 | 70 | 1750 | 350 | ACS800-11-0060-5 | R5 |
| 120 | 168 | 75 | 75 | 114 | 75 | 75 | 96 | 55 | 75 | 73 | 2350 | 405 | ACS800-11-0070-5 | R6 |
| 139 | 234 | 90 | 100 | 132 | 90 | 100 | 114 | 75 | 75 | 73 | 2800 | 405 | ACS800-11-0100-5 | R6 |
| 156 | 264 | 110 | 125 | 148 ²⁾ | 90 | 125 | 125 | 75 | 100 | 73 | 3400 | 405 | ACS800-11-0120-5 | R6 |

Enclosure

Degree of Protection:

IP 21 (Standard)

Paint color:

NCS 1502-Y (RAL 90021/PMS 420C)

| Frame size | IP 21 | | | |
|------------|-------|-------|----------|-----------|
| | H1 mm | W1 mm | Depth mm | Weight kg |
| R5 | 816 | 265 | 389 | 62/65 |
| R6 | 970 | 300 | 440 | 100 |

Note:

¹⁾ 65 A is allowed at 460 V.

²⁾ 156 A is allowed at 460 V.

These ratings apply at 40°C degrees ambient temperature.
At higher temperatures (up to 50°C) the derating is 1% / 1°C

Nominal Ratings:

$I_{cont.max}$: rated current available continuously without overloadability at 40°C.

I_{max} : maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature.

Note: max. motor shaft power is 150% P_{hd} .

Overload use:

I_N : continuous base current allowing 110% overload for 1 minute/5 minutes

I_{hd} : continuous base current allowing 150% overload for 1 minute/5 minutes

The current ratings are the same regardless of the supply voltage within one voltage range (exceptions: notes 1 and 2 above)



Technical specifications

ACS800-11 - XXXX - X



441 024
Printed matter
HANSAPRINT/SAL05_00118/2005

Mains connection

| | |
|--------------------------------|---|
| Voltage and power range | $U_{2IN} = 208...240\text{ V} \pm 10\%$ |
| | $U_{3IN} = 380...415\text{ V} \pm 10\%$ |
| | $U_{5IN} = 380...500\text{ V} \pm 10\%$ |
| Frequency | 48 to 63 Hz |
| Power factor | $\cos\varphi_1 = 1$ (fundamental) |
| | $\cos\varphi = 0.99$ (total) |

Efficiency at nominal power

| | |
|-----------|-----|
| ACS800-11 | 97% |
|-----------|-----|

Motor connection

| | | |
|--------------------------------|--|---------------------------------------|
| 3-Phase output voltage: | $0...U_{2IN}/U_{3IN}/U_{5IN}$ | |
| Frequency control: | $0...300\text{ Hz}$ | |
| | $0...120\text{ Hz}$ with du/dt filters | |
| Field weakening point: | $8...300\text{ Hz}$ | |
| Motor control software: | ABB's Direct Torque Control (DTC) | |
| Torque control: | <u>Torque step rise time:</u> | |
| | Open loop | <5 ms with nominal torque |
| | Closed loop | <5 ms with nominal torque |
| | <u>Non-linearity:</u> | |
| | Open loop | $\pm 4\%$ with nominal torque |
| | Closed loop | $\pm 1\%$ with nominal torque |
| Speed control: | <u>Static accuracy:</u> | |
| | Open loop | 10% of motor slip |
| | Closed loop | 0.01% of nominal speed |
| | <u>Dynamic accuracy:</u> | |
| | Open loop | 0.3...0.4% sec. with 100% torque step |
| | Closed loop | 0.1...0.2% sec. with 100% torque step |

Environmental limits

| | |
|--|--|
| Ambient temperature | |
| Transport | -40...+70°C |
| Storage | -40...+70°C |
| Operation | -15...+50°C, no frost allowed 40...50°C at reduced output current (derating from 40 to 55°C 1% / 1 degree) |
| Cooling method: | Dry clean air |
| Relative humidity | 5 to 95%, no condensation allowed |
| Protection class | IP 21 |
| Paint colour | NCS 1502-Y (RAL 90021, PMS 420 C No conductive dust allowed) |
| Contamination levels | No conductive dust allowed |
| Storage | IEC60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles) |
| Transportation | IEC60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles) |
| Operation | IEC60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without airinlet filters) |
| Vibration | IEC60068-2-6, 10...58 Hz 0.075 mm displacement amplitude 58...150 Hz 10m/s ² (1 g) |
| C = chemically active substances S = mechanically active substances | |

Product compliance

| |
|--|
| CE |
| Low Voltage Directive 73/23/EEC with amendment 93/68/EEC |
| Machinery Directive 98/37/EEC |
| EMC Directive 89/336/EEC with amendment 93/68/EEC |
| Quality assurance system ISO 9001 and Environmental system ISO 14001 |
| CE, cUL 508A or 508C and CSA C22.2 NO.14-95, C-Tick, GOST R |

EMC (according to EN 61800-3)

| |
|---|
| 1 st environment, restricted distribution, as option |
| 2 nd environment, unrestricted distribution, as option |



ABB Oy
Drives
P. O. Box 184
FI - 00381 Helsinki, Finland
Telephone +358 10 22 11
Telefax +358 10 22 23166
Internet <http://www.abb.com/motors&drives>