ABB industrial drives
ACS800, regenerative drives, 5.5 to 5200 kW

Complete regenerative drives
The ACS800 regenerative drives are equipped with an active supply unit. It allows full power flow both in motoring and generating modes at a voltage range from 208 to 690 V (ACS800-17LC: 380 to 690 V). This complete regenerative solution includes everything that is needed, including the line filter, in one compact package.

Wall-mounted regenerative drive ACS800-11, 5.5 to 110 kW
With the wall-mounted ACS800-11 the user gets everything in a single and complete IP21 package. All important features and options such as LCL filter and EMC filter are built inside the drive.

Cabinet-built regenerative drive ACS800-17, 45 to 2500 kW
The ACS800-17 is a cabinet-built solution for drive applications where regenerative operation is required. It covers a wide power range and, like other cabinet-built drives, it has a wide range of built-in features and options. It is available with IP21, IP22, IP42, IP54, IP54R protection classes and module package.

Liquid-cooled regenerative drive ACS800-17LC, 75 to 5200 kW
The ACS800-17LC is a cabinet-built drive that is equipped with both liquid cooling and regenerative capabilities. Liquid cooling eliminates the need for air cooling in equipment rooms and delivers effective heat transfer for high overall efficiency. Direct liquid cooling also allows to make the drive extremely compact and silent. This drive can be provided with DNV, LR and ABS marine certifications and comes in IP42 as standard, with optional IP54.

High performance
The ACS800 regenerative drives are especially suitable for demanding industrial applications. Transition between motoring and generating is fast due to the DTC control method.

The active supply unit is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal. The active supply unit combined with DTC control can even compensate for fast variations in line voltage. There is no risk of fuse blow or component damage due to voltage drops in the network.

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 supply network. No external brake resistor is needed, which translates into simplified installation and no wasted heat.

Technical data

Mains connection	
Voltage and power range	3-phase, U_{2IN} = 208 to 240 V, ± 10% 3-phase, U_{3IN} = 380 to 415 V, ± 10% 3-phase, U_{5IN} = 380 to 500 V, ± 10% 3-phase, U_{7IN} = 525 to 690 V, ± 10% (600 V UL, CSA)
Frequency	48 to 63 Hz
Power factor	$\cos\varphi_1$ = 1 (fundamental) $\cos\varphi_1$= 0.99 (total)
THDI (total harmonic distortion of current)	< 5%
Efficiency (at nominal power)	97%
Motors connection	
Frequency	0 to ± 300 Hz 0 to ± 120 Hz with external du/dt filters
Field weakening point	8 to 300 Hz
Motor control software	ABB's direct torque control (DTC)
Torque control	Torque step rise time:
Open loop	<5 ms with nominal torque
Closed loop	<5 ms with nominal torque
	Non-linearity:
Open loop	± 4% with nominal torque
Closed loop	± 3% with nominal torque
Speed control	Static accuracy:
Open loop	10% of motor slip
Closed loop	0.01% of nominal speed
	Dynamic accuracy:
Open loop	0.3 to 0.4%sec. with 100% torque step
Closed loop	0.1 to 0.2%sec. with 100% torque step
Environmental limits	
Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Operation	0 to +50 °C, no frost allowed 40 to 50 °C at reduced output current (1%/1 °C)
ACS800-17LC	0 to 45 °C, no frost allowed 45 to 55 °C at reduced output current (0.5%/1 °C)
Cooling method	
Air-cooled	Dry clean air
Liquid-cooled	Direct liquid-cooling Inlet water temperature with liquid cooling-unit (optional): +45 °C max. customer circuit, fresh water or sea water +38 °C to +45 °C at reduced output current 1%/1 °C Inlet water temperature without liquid-cooling unit: +48 °C max converter circuit, fresh water +42 to +48 °C at reduced output current 1%/1 °C
Altitude	
0 to 1000 m	without derating
1000 to 4000 m	with derating ~ (1%/100 m) (690 V units 1000 to 2000 m with derating)
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	
ACS800-11/-17	IP21
As option for ACS800-17	IP22, IP22R, IP42, IP42R, IP54 and IP54R
ACS800-17LC	IP42
As option	IP54

Paint colour	ACS800-11: NCS 1502-Y ACS800-17/-17LC: RAL 7035
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without air inlet filters)
Vibration	IEC 60068-2-6, 10 to 58 Hz 0.075 mm displacement amplitude 58 to150 Hz 10m/s^2 (1 g)
Vibration marine classification	2 to 13.2 Hz: ± 1.0 mm amplitude (peak) 13.2 to 100 Hz: 0.7g acceleration

C = chemically active substances
S = mechanically active substances

Product compliance

CE
Low Voltage Directive 2006/95/EC
Machinery Directive 2006/42/EC
EMC Directive 2006/108/EC
Quality assurance system ISO 9001 and
Environmental system ISO 14001
ACS800-11/-17: UL, cUL 508A or 508C and CSA
C22.2 NO.14-95, C-Tick, GOST R
ACS800-17LC: UL, CSA
Marine type approvals for ACS800-17LC: ABS, DNV, Lloyd´s Register

EMC according to EN 61800-3

2nd environment, unrestricted distribution category C3 as option
1st environment, restricted distribution category C2 as option up to 1000 A input current

For more information please contact your local ABB representative or visit:

www.abb.com/drives
www.abb.com/drivespartners

3AFE68443105 REV D EN 5.6.2013 #16816

Power and productivity for a better world™