
LOW VOLTAGE AC DRIVES

ABB industrial drives

ACS880, multidrives

1.5 to 6500 hp (1.5 to 6000 kW)





**Reliability, performance and safety.
ACS880 series.**

ABB industrial drives

ACS880, multidrives

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The all-compatible ACS880 series

Reliability and flexibility

The ACS880 is an all-compatible ABB industrial drive, offered in a range of wall-mounted drives, drive modules and cabinet-built drives.

ABB's all-compatible drives are designed to provide customers across industries and applications with unprecedented levels of compatibility and flexibility. Our cabinet-built ACS880 multidrives are customized to meet the particular needs of specific industries, such as metals, pulp and paper, oil and gas, mining, harbors, offshore, marine, automotive and power plants. They can control a wide range of applications, including paper machines, winders, rolling mills, processing lines, roller tables, cranes, test benches and drilling.

High quality

Reliability and consistent high quality

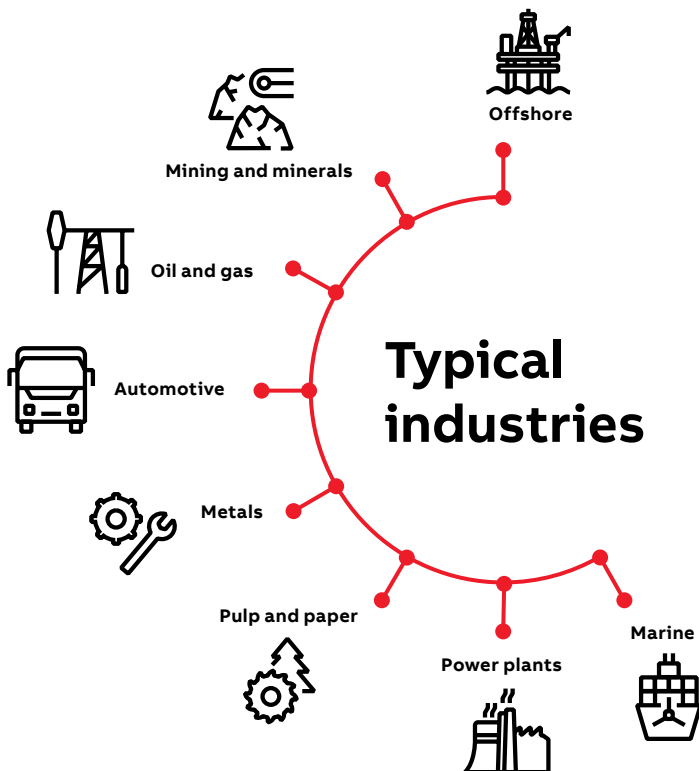
ACS880 drives are designed for customers who value high quality and robustness in their applications. They have features such as coated boards, making the ACS880 suitable for harsh conditions. Additionally, every ACS880 drive is factory-tested at full load to ensure maximum reliability. The tests include performance and all protective functions.

High performance, safety and configurability

The ACS880 offers the highest level of performance. The drives are equipped with ABB's signature Direct Torque Control (DTC), which provides precise speed and torque control for all applications and supports virtually any type of motor.

Extensive ACS880 offering includes wall-mounted drives, drive modules and cabinet-built drives, as well as low harmonic and regenerative variants.

The ACS880 has all the essential features built-in reducing the time required for engineering, installation and commissioning. A wide range of options are also available to optimize the drive for different requirements, including certified, integrated safety features.





ABB

Simplify your world without limiting your possibilities

Built-to-order to meet customers' needs, the ACS880 multidrives can meet technical challenges through a wide selection of options that are all mountable within the cabinet.

Up to IP54

Built to order for simplified installation

- All the essential features built-in
- Flexible product configurations
- Wide selection of options and variants
- Compact design
- Enclosure classes for different environments
- Extensive selection of support material and tools for engineering.

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Comprehensive connectivity

- Communication with all major automation networks
- Remote monitoring
- Integration tools for various PLCs

See page 10

Nine-year maintenance interval

Minimized downtime

- Robust, long lifetime design for maximum reliability
- Coated circuit boards for harsh conditions
- Removable memory unit
- Each drive factory-tested at full load
- Nine-year maintenance interval
- Worldwide service and support
- Advanced features for analyzing and resolving issues

See page 11



A single supply and DC bus arrangement with multiple inverters reduce line power, cabinet size and investment costs.



Smarter solutions with drive-based functional safety

- Safe torque off built-in as standard
- Optional safety modules for extended safety functions
- Encoderless safe speed detection
- Highest level of machinery safety, SIL 3 / PL e
- TÜV certified

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Global compatibility with various demands

- Global product approvals, e.g. CE, UL, cUL, CSA, marine certifications, ATEX
- Support for various motor types
- Low harmonic content
- Possibility for regeneration

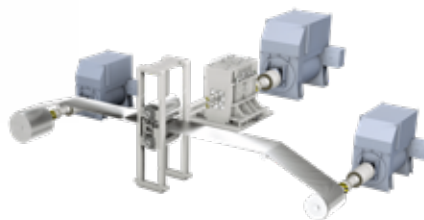
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Premium control and programmability

- Direct torque control (DTC) for precise control
- Extensive parameter-based programming
- Adaptive programming as standard.
- Drive-based PLC programmability (IEC 61131-3) for fully customized solutions

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Application- and industry specific solutions

- Ready-made optimized solutions for various applications and industries

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All-compatible user interface

All-compatible user interface saves commissioning and learning time

The ACS880 is part of ABB's all-compatible drives portfolio. Other drives in this portfolio are the ACS380, ACS480 and ACS580.

These drives share the same easy-to-use PC tools and multilingual control panels. To further enhance the user experience, they also have the same parameter structure, which saves time on commissioning and learning.

The drives also share the same communication options, simplifying the use of drives and spare parts handling.

Simplicity at your fingertips as standard

The control panel's assistants help you to set up the drive quickly and effectively. The intuitive, high-contrast, high-resolution display offers easy navigation in multiple languages.

The PC tool for commissioning and configuration provides extensive drive monitoring capabilities and quick access to drive settings, as well as features like a graphical interface for configuring safety functions, visual control diagrams, and direct links to user manuals.



Built to order for simplified installation

Compact design with built-in features

Built to order, the multidrives meet technical challenges through a wide selection of options that are mountable within the cabinet.

All ACS880 drives have a choke for harmonic filtering, a Modbus RTU fieldbus interface, and safe torque off functionality as standard. Other built-in features, standard or optional, include EMC filters, brake options, low harmonic and regenerative functionality and various I/O extensions, communication protocol adapters, and functional safety modules. To further simplify the installation, ACS880 multidrives have fast connectors for motor cables.

Multidrive design is extremely compact:

- High packing density with 16 inverter units up to frame size R2i can be installed into one cabinet
- Reliable diode bridge with high power density
- Highly efficient thermal handling as heat loss of each inverter unit is guided to the back of the cabinet. All cabinets are their own compartments.

Enclosures for different environments

ACS880 offering includes complete and compact solutions for dusty and wet environments with up to IP54 enclosure class.

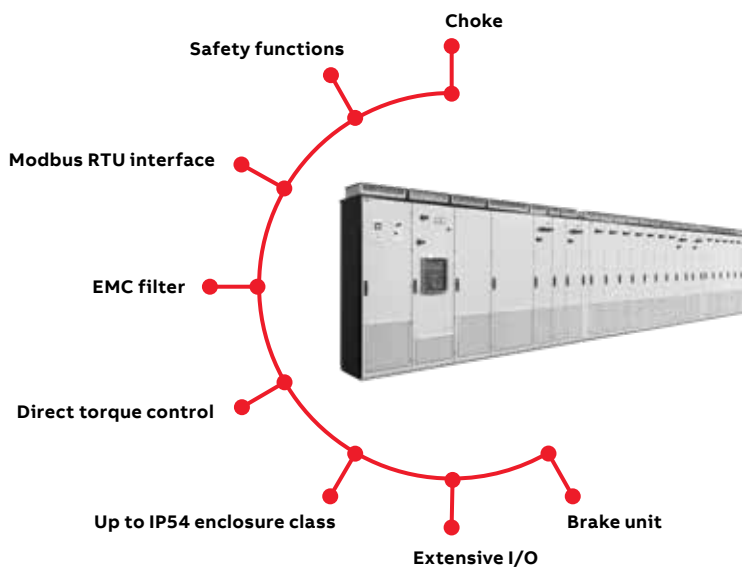
All essential features built-in

Engineering support

ABB provides an extensive selection of support material and tools to help in engineering, such as:

- Dimensioning tools, e.g. DriveSize
- Safety circuit design tools
- Configuration tool
- Electrical drawings
- Application guides
- User manuals

These tools and support from our experts ensure that the drive system can be set up easily and reliably.



DriveSize dimensioning tool for selecting the optimal drive

DriveSize is designed to help select the optimal drive, motor and transformer for the application. Based on data supplied by the user, the tool calculates and suggests which drive and motors to use.

DriveSize is a free software and can be used either online or downloaded for PC from <https://new.abb.com/drives/software-tools/drivesize>.

Comprehensive connectivity

Communication with all major automation networks

ACS880 drives come with Modbus RTU fieldbus interface and drive-to-drive communication link as standard.

Plug-in connectivity adapters enable communication with all major industrial automation networks.

The drives support advanced communication features:

- Redundant communication
- Functional safety over fieldbus
- Support for multiple protocols simultaneously
- Shared Ethernet connection for automation communication and Drive Composer PC tool – all communication via the same cable.

To minimize connectivity-related risks, cybersecurity is a built-in, integral part of the ACS880.

To simplify ACS880's connectivity to automation systems, ABB offers support tools for seamless integration with PLCs from ABB and several other manufacturers.

Remote monitoring

With a built-in web server and standalone data logger, the NETA-21 remote monitoring tool enables secure worldwide access to your drives.

Drive data can also be collected via a 3G mobile connection with the RMDE reliability monitoring device.



—
Better connectivity and user experience

Minimized downtime

Robust, long life time design

The ACS880 is designed to last for a long time, even in harsh conditions. The benefits include a nine-year maintenance interval and good tolerance for vibrations and contamination.

Several design features make the ACS880 a safe choice:

- Coated circuit boards
- Minimized air flow through the control board section
- Designed for ambient temperatures up to 50 °C
- Advanced protections – e.g. faster and more accurate IGBT protection using a thermal model

Each ACS880 drive unit is tested in the factory at full load to ensure maximum reliability. Continuous quality improvements are made based on the results of accelerated lifetime tests.

Removable memory unit

The memory unit stores the drive software and settings, including motor data. This unit can be switched from one drive to another, allowing simple and rapid drive replacement without any special equipment, software loading, parameter settings, or other adjustments in the drive or automation system. It also eliminates the risk of software incompatibility. The new drive is ready to run as soon as the memory unit is plugged in.

Nine-year maintenance interval



Advanced features for analyzing and resolving issues

The ACS880 has timers and counters that can be configured to remind you when the drive or process equipment needs maintenance. Accurate and reliable diagnostic information is available for warning and fault messages. Help texts give detailed information about the warning or fault. Data loggers store critical values before and during an event, such as a fault. The real-time clock allows you to see the exact times of events.

For faster remote support, all relevant drive data and changed parameters can be saved in a single file package that you can easily create with the PC tool or by creating a QR code with the control panel.

Global support

For true global coverage, ABB offers worldwide support via its extensive pre- and after-sales network, structured to make sure that you have the experts you need close by, locally and globally. See pages 66-69.

Smarter solutions with drive-based functional safety

Maximized safety and conformity

The safe torque off (STO) safety function comes integrated into ACS880 drives. Optional safety functions modules provide an easy way to extend safety functions. These plug-in modules are installed and cabled inside the drive, enabling safety functions and diagnostics in one compact and reliable module. The safety functions are certified by TÜV Nord and comply with the highest performance requirements in machinery safety – SIL 3 / PL e^{*)}.

Increased productivity by doing things smarter

Safety functions help to minimize unnecessary downtime by keeping the application in control at all times. Safely-limited speed (SLS), for example, keeps the process running at a safe speed instead of stopping it.

Flexibility and ease of use

The safety functionality can be scaled to your needs. From STO wired to an emergency stop push button, to a complete safety system with PROFIsafe and a safety PLC, e.g. the AC500-S.

Configuring the safety functions module is easy thanks to the graphical user interface of the Drive Composer pro PC tool.

Available safety functionality

The following safety functions are supported:

- Safe Torque Off (STO)
- Safe Stop 1 (SS1-t and SS1-r)
- Safe Stop Emergency (SSE)
- Safe Brake Control (SBC)
- Safely-Limited Speed (SLS)
- Safe Maximum Speed (SMS)
- Prevention Of Unexpected Startup (POUS)
- Safe Direction (SDI)
- Safe Speed Monitor (SSM)
- Safe Motor Temperature (SMT)

Integrated safety simplifies configuration

Safety for explosive atmospheres

ACS880 and ABB Ex motors have been certified as a package providing a safe, proven solution for explosive atmospheres. ACS880 safety options for ATEX environments:

- ATEX-approved thermistor protection module
- ATEX-approved safe torque off

TÜV-certified safety design tool

The FSDT-01 functional safety design tool can be used to design complete safety circuits. With this tool it is possible to define required safety integrity (SIL) / performance level (PL) for safety functions, verify achieved safety level and generate design reports.

^{*)} SIL 2 / PL c for SMT, Safe Motor Temperature.



Global compatibility with various demands

Global product approvals and support

The ACS880 is a global product and has all the major global approvals, such as CE, UL, cUL, EAC, RCM and TÜV. Industry-specific approval, like different kinds of marine approval, ATEX and SEMI F47 are available either as standard or as an option.



Support for different motor types

The ACS880 provides reliable control for various motors, such as squirrel cage, high-torque or permanent magnet, synchronous reluctance (SynRM) and high-speed motors and synchronous machines with external excitation. Practically any encoder type is supported.

Regardless of the motor type, drive commissioning is easy, with no need for laborious manual tuning.

Low harmonic content

All ACS880 drives have a choke for harmonic reduction. If lower harmonic content is needed, an IGBT supply unit can be used. It produces exceptionally low harmonic content and meets the requirements of harmonics recommendations like IEEE519, IEC61000-3-12 and G5/4.



Regeneration of energy

The ACS880 offers a number of solutions for applications where electrical braking is needed. As standard, ACS880 drives have a flux braking feature that provides greater deceleration by increasing the motor flux. If this is not sufficient, optional brake unit can be used together with a brake resistor.

Multidrive's common DC bus configuration also allows the braking energy from one load to be utilized by other loads.

The most advanced solution is to use an IGBT supply unit for regeneration. It allows full, continuous braking, providing the possibility for remarkable energy savings.



Premium control and programmability

Direct torque control (DTC)

ABB's state of the art motor control technology provides precise speed and torque control, with or without an encoder, even close to zero speed. DTC provides reliable starts and rapid reactions to load or network changes, and ensures smooth and continuous operation. DTC provides optimal control, even with sine filters.

The energy optimizer feature maximizes motor efficiency by ensuring maximum torque per ampere, reducing the power drawn from the supply.

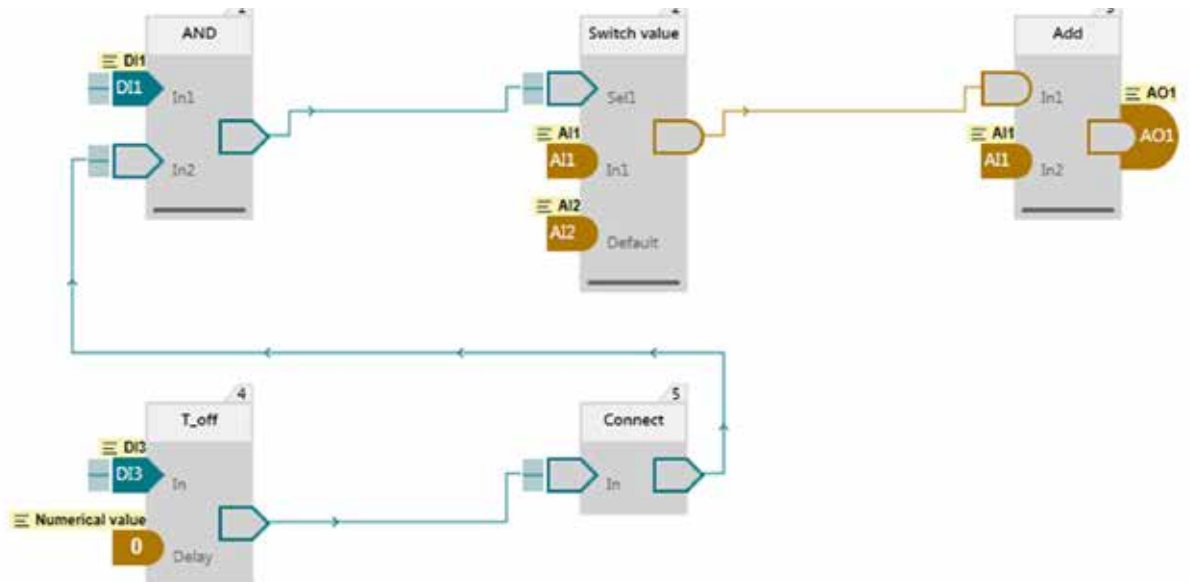
Drive programming

To meet your specific application needs, you can customize your ACS880 with an extensive range of user-definable software settings (parameters) and adaptive programming.

This makes fine-tuning the ready-made application control program functionalities easy. For further customization, drive application programming based on IEC 61131 standard is available for full PLC programmability. IEC programming uses the same programming environment as ABB PLCs. It is also easy to integrate the ACS880 with other components, such as PLCs and HMIs.

Adaptive programming is an easy to use dynamic programming which allows flexible adjustments to the ACS880 software.

IEC programming based on IEC 61131 standard for full scale PLC programmability is available as an option.





Application- and industry-specific solutions

Cranes (EOT cranes), +N5050

- Mechanical brake control
- Slow down and end limit logic
- Antisway
- Hoist speed optimization
- Shaft synchro

Winches, +N5100

- Mooring
- Anchor control
- Accurate open loop speed & torque control
- Winch interface for multiple control stands

Winders, +N5000

- Roll diameter calculation
- Tension control
- Dancer and load cell control
- Inertia and friction compensation

Artificial oil lifting, PCP +N5200

- Backspin control
- Automatic pump speed control
- Induction and PM motor control
- Protections for pump mechanics



By working closely with customers over many years, ABB has developed application control programs and software features for specific applications and industries. This results in programs and features that include lessons learned from many customers, and that are designed to give you the flexibility to adapt the programs to your specific needs.

Advantages:

- Enhanced application usability
- Lower energy consumption
- Increased safety
- Reduced need for PLCs
- Protected machinery
- Optimized application productivity
- Optimized time usage and lower operational costs



Test bench, +N5300

- Fast communication
- High torque accuracy and linearity
- Acceleration damping
- Minimized motor noise

Chemical industry

- Direct torque control with sine filters
- Nine-year service interval
- Functionality that conforms with NAMUR requirements

Explosive atmospheres

- Type approval with ABB Ex motors
- ATEX-approved safe torque off, STO (+Q971) and thermistor protection module (+L537)

Marine

- Type approval from various key classification bodies (+C132)
- Optimal grid control for shore-to-ship and hotel load applications
- Product certification process

How to select a drive

The right drive is extremely easy to select. The following instructions show you how to order the right drive for your application.

Start by identifying your supply voltage and select the related rating table. Or use ABB's DriveSize dimensioning tool.

Select your inverter type from the rating table based on the load current, or, if it is unknown, select the drive based on your motor's power and current ratings.

Ratings, types and voltages
Inverter units, air-cooled, ACS880-107, 400 V

U_N 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V L-S (±800 W).

Drive type	Frame size	Nominal ratings			Light overload use			Heavy-duty use			Motor level	Heat dissipation	Air flow
		P _N (kW)	I _N (A)	I _{150%} (A)	P _{150%} (kW)	I _{150%} (A)	P _{150%} (kW)	I _{150%} (A)	P _{150%} (kW)				
ACS880-01-004A2-3	801	4.8	7	11.5	4.5	1.5	4	1.5	47	0.07	24		
ACS880-01-004A2-3	801	6	8.8	2.2	5.5	2.2	5	1.5	47	0.08	24		
ACS880-01-004A2-3	801	10	13.5	3	7.5	3	6	2.2	47	0.09	24		
ACS880-01-004A2-3	801	15	18.5	4	11	4	8	3	39	0.11	48		
ACS880-01-004A2-3	801	22	28	5.5	17	5.5	11	4	39	0.14	48		
ACS880-01-004A2-3	801	30	38	7.5	23	7.5	14	5.5	39	0.17	48		
ACS880-01-004A2-3	801	44	53	11	33	11	19	7.5	43	0.2	142		
ACS880-01-004A2-3	801	60	82	15	45	15	26	10	43	0.24	142		
ACS880-01-004A2-3	801	80	110	20	60	20	35	13	43	0.28	200		
ACS880-01-004A2-3	801	110	150	27	81	27	47	18	43	0.34	200		
ACS880-01-004A2-3	801	150	200	37	110	37	65	25	43	0.42	200		
ACS880-01-004A2-3	801	200	280	50	150	50	88	33	43	0.52	200		
ACS880-01-004A2-3	801	280	380	67	200	67	118	45	43	0.64	200		
ACS880-01-004A2-3	801	380	500	90	270	90	155	60	43	0.78	200		
ACS880-01-004A2-3	801	500	660	120	360	120	205	80	43	0.94	200		
ACS880-01-004A2-3	801	660	880	160	480	160	275	105	43	1.12	200		
ACS880-01-004A2-3	801	880	1150	210	630	210	365	140	43	1.34	200		
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ACS880-01-004A2-3	801	1500	2000	370	1080	370	635	245	43	1.88	200		
ACS880-01-004A2-3	801	2000	2800	500	1400	500	845	330	43	2.24	200		
ACS880-01-004A2-3	801	2800	3800	660	1850	660	1125	440	43	2.68	200		
ACS880-01-004A2-3	801	3800	5000	870	2450	870	1485	585	43	3.16	200		
ACS880-01-004A2-3	801	5000	6600	1150	3200	1150	1955	770	43	3.68	200		
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ACS880-01-004A2-3	801	11500	15000	2600	7400	2600	4555	1800	43	5.72	200		
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ACS880-01-004A2-3	801	28000	38000	5900	17000	5900	10455	4050	43	8.56	200		
ACS880-01-004A2-3	801	38000	50000	7800	22500	7800	13855	5350	43	9.72	200		
ACS880-01-004A2-3	801	50000	66000	10300	29500	10300	18255	7050	43	11.04	200		
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ACS880-01-004A2-3	801	115000	150000	23500	66000	23500	40155	15800	43	15.96	200		
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ACS880-01-004A2-3	801	280000	380000	54000	150000	54000	91855	36800	43	22.48	200		
ACS880-01-004A2-3	801	380000	500000	71000	195000	71000	119855	48800	43	25.12	200		
ACS880-01-004A2-3	801	500000	660000	93000	255000	93000	156855	64800	43	28.08	200		
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ACS880-01-004A2-3	801	880000	1150000	158000	430000	158000	271855	114800	43	34.96	200		
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ACS880-01-004A2-3	801	2800000	3800000	465000	1290000	465000	795855	355800	43	52.48	200		
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ACS880-01-004A2-3	801	6600000	8800000	1060000	2950000	1060000	1735855	835800	43	68.48	200		
ACS880-01-004A2-3	801	8800000	11500000	1390000	3850000	1390000	2255855	1105800	43	74.32	200		
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ACS880-01-004A2-3	801	20000000	28000000	3150000	8750000	3150000	4935855	2555800	43	93.52	200		
ACS880-01-004A2-3	801	28000000	38000000	4100000	11550000	4100000	6385855	3355800	43	100.48	200		
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ACS880-01-004A2-3	801	50000000	66000000	7050000	19500000	7050000	10885855	5855800	43	115.12	200		
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ACS880-01-004A2-3	801	115000000	150000000	16150000	43000000	16150000	23585855	13455800	43	139.12	200		
ACS880-01-004A2-3	801	150000000	200000000	21250000	56500000	21250000	30085855	17655800	43	147.68	200		
ACS880-01-004A2-3	801	200000000	280000000	28000000	74500000	28000000	39085855	23455800	43	156.48	200		
ACS880-01-004A2-3	801	280000000	380000000	36500000	99000000	36500000	50585855	30855800	43	165.52	200		
ACS880-01-004A2-3	801	380000000	500000000	48000000	130000000	48000000	65585855	40855800	43	174.88	200		
ACS880-01-004A2-3	801	500000000	660000000	63000000	170000000	63000000	85085855	53855800	43	184.48	200		
ACS880-01-004A2-3	801	660000000	880000000	82500000	220000000	82500000	109085855	71855800	43	194.32	200		
ACS880-01-004A2-3	801	880000000	1150000000	108500000	285000000	108500000	141085855	95855800	43	204.48	200		
ACS880-01-004A2-3	801	1150000000	1500000000	142500000	375000000	142500000	182085855	127855800	43	214.88	200		
ACS880-01-004A2-3	801	1500000000	2000000000	187500000	495000000	187500000	232085855	168855800	43	225.52	200		
ACS880-01-004A2-3	801	2000000000	2800000000	247500000	655000000	247500000	300085855	224855800	43	236.48	200		
ACS880-01-004A2-3	801	2800000000	3800000000	322500000	865000000	322500000	390085855	296855800	43	247.68	200		
ACS880-01-004A2-3	801	3800000000	5000000000	415000000	1125000000	415000000	500085855	396855800	43	259.12	200		
ACS880-01-004A2-3	801	5000000000	6600000000	535000000	1440000000	535000000	645085855	516855800	43	270.88	200		
ACS880-01-004A2-3	801	6600000000	8800000000	700000000	1860000000	700000000	845085855	686855800	43	282.88	200		
ACS880-01-004A2-3	801	8800000000	11500000000	910000000	2400000000	910000000	1095085855	916855800	43	295.12	200		
ACS880-01-004A2-3	801	11500000000	15000000000	1185000000	3150000000	1185000000	1415085855	1176855800	43	307.68	200		
ACS880-01-004A2-3	801	15000000000	20000000000	1555000000	4150000000	1555000000	1835085855	1556855800	43	320.48	200		
ACS880-01-004A2-3	801	20000000000	28000000000	2025000000	5450000000	2025000000	2355085855	2036855800	43	333.52	200		
ACS880-01-004A2-3	801	28000000000	38000000000	2645000000	7200000000	2645000000	30050						

Technical data

Mains connection	
Voltage and power range	3-phase, U_{NS} 380 to 500 V, +10%/-10% 3-phase, U_{NT} 525 to 690 V, +10%/-10% Inverter unit (INU) 1.5 to 7500 hp (1.5 to 6000 kW) Diode supply unit (DSU) 50 to 5500 kVA IGBT supply unit (ISU) 300 to 6944 kVA Regenerative rectifier unit (RRU) 400 to 6100 kVA
Frequency	50/60 Hz \pm 5%
Power factor	IGBT supply unit (ISU): - $\cos\phi = 1$ (fundamental) - $\cos\phi = 0.99$ (total) Diode supply unit (DSU) and regenerative rectifier unit (RRU): - $\cos\phi = 0.98$ (fundamental) - $\cos\phi = 0.93$ to 0.95 (total)
Efficiency (at nominal power)	98% with DSU and RRU 97.5% with ISU
Motor connection	
Voltage	3-phase output voltage 0 to $U_{N3} / U_{NS} / U_{NT}$
Frequency	0 to \pm 598 Hz ^{1) 3)}
Motor control	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 - \pm 4% with nominal torque Closed loop - \pm 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% seconds with 100% torque step Closed loop - 0.1 to 0.2% seconds with 100% torque step
Product compliance	
CE Low Voltage Directive 2014/35/EU according to EN 61800-5-1:2007 Machinery Directive 2006/42/EC EMC Directive 2014/30/EU ATEX Directive 2014/34/EU, EN 50495 Quality assurance system ISO 9001 and Environmental system ISO 14001 RoHS 2011/65/EU and Delegated Directive (EU) 2015/836 cULus listed according to UL 508A and CSA C22.2 No. 14, CSA certified according to CSA C22.2 No. 14 RCM, EAC ²⁾ TÜV Nord certification for functional safety ⁵⁾ ATEX-certified safe disconnection function and thermistor & PT100 protection functions, Ex II (2) GD ⁶⁾ Marine type approvals, see http://new.abb.com/drives/segments/marine/marine-type-approvals	
EMC according to EN 61800-3: 2004 + A1: 2012. See page 53.	
1 st environment, restricted distribution category C2, as option 1000 A and up to 500 V 2 nd environment, unrestricted distribution category C3, as option	
Built-in functional safety. See pages 50 - 51.	
For safe torque off (STO) and safety functions modules Safety over fieldbus	EN/IEC 61800-5-2, IEC 61508: SIL 3, IEC 61511: SIL 3, EN/IEC 62061: SIL CL 3, EN ISO 13849-1: PL e – TÜV Nord certified ⁵⁾ PROFIsafe over PROFINET, certified.

Environmental limits	
Ambient temperature	
Transport	
Storage	-40 to +160 °F (-40 to +70 °C)
Operation area (air-cooled)	-40 to +160 °F (-40 to +70 °C) 32 to 104 °F (0 to +40 °C), no frost allowed
(liquid-cooled)	104 to 122 °F (40 to 50 °C) with derating of 1%/1 °C 32 to 113 °F (0 to +45 °C), no frost allowed 113 to 131 °F (45 to +55 °C) with derating of 0.5%/1 °C
Cooling method	
Air-cooled	Dry clean air
Liquid-cooled	Direct liquid-cooling, coolant Antifrogen® L Incoming coolant temperature to module (-x07LC): - 0 to +40 °C as standard - +40 to +45 °C with derating of 2%/1 °C - +45 to +50 °C with derating of 2%/1 °C or 6%/1 °C ⁷⁾ Incoming coolant temperature to optional liquid-cooling unit (-1007LC) (fresh water or sea water): - 0 to +36 °C as standard - +36 to +46 °C with derating of 2%/1 °C
Altitude	
0 to 3,300 ft (0 to 1,000 m)	Without derating
3,300 to 13,100 ft (1,000 to 4,000 m)	With derating of 1% / 100 m ⁴⁾
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	
Air-cooled	UL Type 1 / IP22 as standard (IP20 cabinet doors open)
Liquid-cooled	UL Type 1 filtered / IP42 or UL Type 12 / IP54 as option UL Type 1 filtered / IP42 as standard (IP20 cabinet doors open) UL Type 12 / IP54 as option
Paint color	RAL 9017, RAL 7035
Pollution degree	PD 2
No conductive dust allowed	
Contamination levels	
Storage	IEC 60721-3-1:1997, Class 1C2 (chemical gases), Class 1S2 (solid particles) ^{*)}
Operation	IEC 60721-3-3:2002, Class 3C2 (chemical gases), Class 3S2 (solid particles) ^{*)}
Transportation	IEC 60721-3-2:1997, Class 2C2 (chemical gases), Class 2S2 (solid particles) ^{*)}
Vibration	IEC 60068-2-6, 10 to 57 Hz 0.075 mm displacement amplitude 57 to 150 Hz 1 g Units with marine construction: - Max. 1 mm (peak value 2 to 13.2 Hz) - Max. 0.7 g (13.2 to 100 Hz) sinusoidal

*) C = Chemically active substances

*) S = Mechanically active substances

¹⁾ Operation above 120 Hz might require type specific derating, please contact your local ABB office

²⁾ EAC has replaced GOST R

³⁾ For higher operational output frequencies please contact your local ABB office

⁴⁾ Derating reduced by lower than 40 °C ambient temperature

⁵⁾ For available certificates, see

<http://new.abb.com/drives/functional-safety>

⁶⁾ Thermistor protection function (+L537+Q971)

PTC/PT100 thermal motor protection (+L513/L514+Q971)

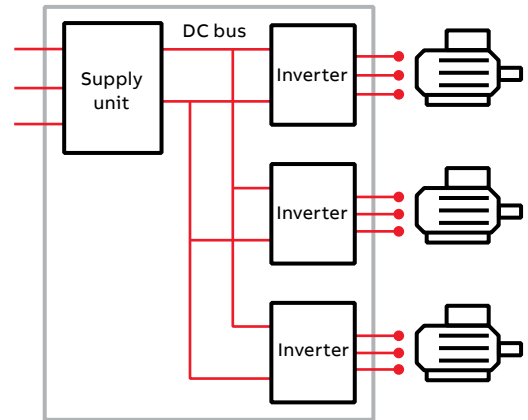
⁷⁾ See product specific hardware manual for detailed derating rules.

ACS880 multidrives

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01 Multidrive configuration with supply unit, DC bus and multiple inverters

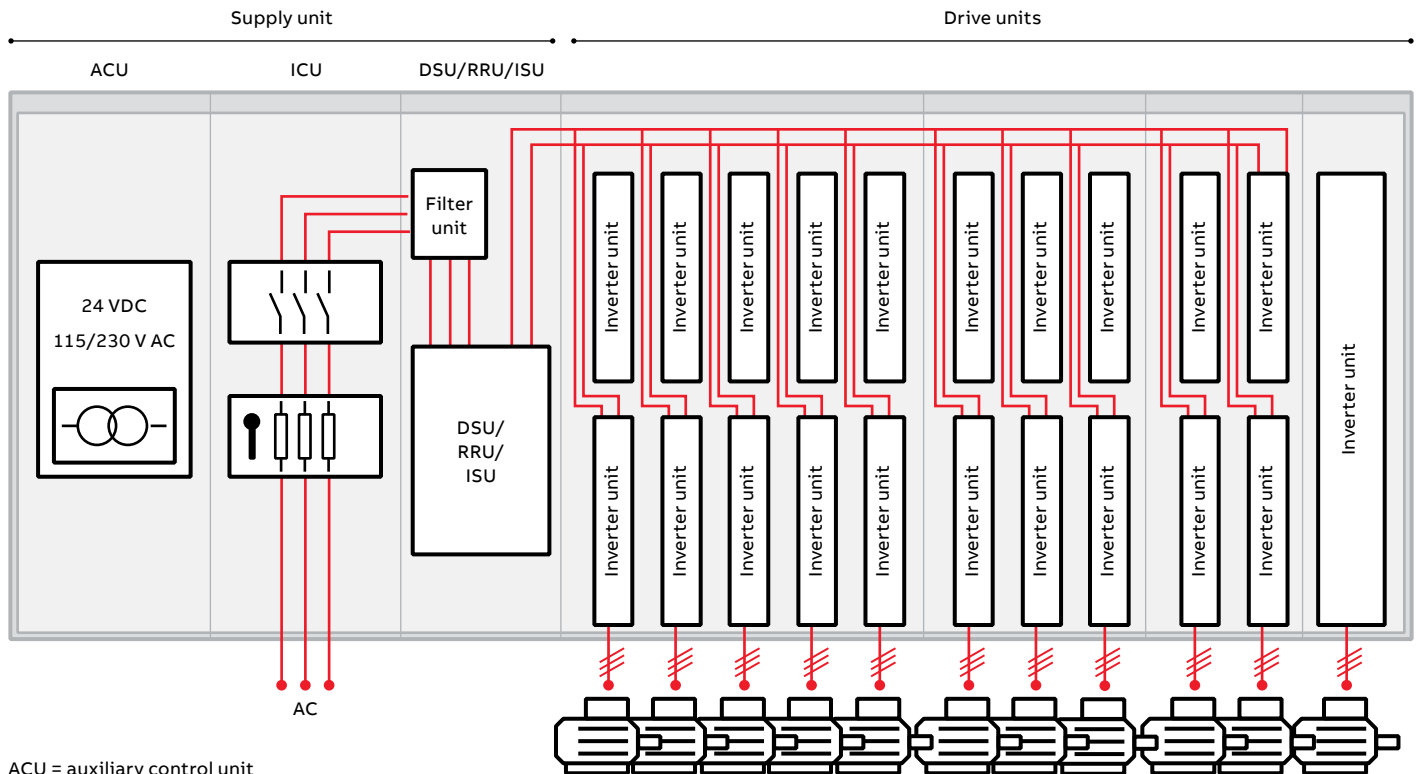
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02 Multidrives are constructed for controlling multiple motors. The most important units are: drive units (known as inverter units (INU)) and supply units (DSU/RRU/ISU).

The multidrives principle is based on a common DC bus arrangement, enabling single power entry and common braking resources for several drives. There are several possibilities on the supply side starting from a simple diode supply unit up to highly sophisticated active IGBT supply units.



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01

—
02



ACU = auxiliary control unit
ICU = incoming unit
DSU = diode supply unit
RRU = regenerative rectifier unit
ISU = IGBT supply unit

03 ACS880-104
inverters modules,
frame sizes R1i to R8i



03

Multidrives can be used wherever several motors form part of a single process. With a compact module design and high power density, the single supply and DC bus arrangement with multiple inverters provides many advantages:

- Savings in cabling, installation and maintenance costs
- Reduced component count and footprint, as well as increased reliability
- Energy and cost savings. As the energy circulates over the common DC bus, all energy is not taken from the supply network. Energy circulation can also be used for motor-to-motor braking without the need for a braking chopper or regenerative supply unit.
- Reduced line power and currents allowing the supply unit to have smaller dimensions.
- The common supply of the multidrives enables the implementation of overall safety and control functions.

In multimotor applications, for example in a paper machine, the individual inverter modules provide fast communication of torque and speed signals between the inverters for controlling the tension in the paper web. Also in cases where the shafts of the individual motors are not tightly coupled, for example in sugar centrifuges, each inverter module can be programmed with a speed profile in order to minimize overall energy consumption. These two examples merely demonstrate the range of applications where multidrives offer substantial benefits over other types of drive constructions. High power units D7T, D8T, R6i, R7i and nxR8i have speed controlled cooling fans as a standard.

ACS880 multidrives

Inverter units (INU)

Inverter units are DC supplied and have built-in capacitors for smoothing the DC voltage. The electrical connection to the common DC bus is fuse protected. An individual inverter unit can be disconnected from the DC bus, either by a fuse disconnecter or by a DC switch.

Diode supply unit (DSU)

A diode supply unit is used in non-regenerative drive systems to convert three-phase AC voltage to DC voltage. Two types of diode supply units are available: an uncontrolled 6-pulse diode supply unit (D6D to D8D) and a half-controlled 6/12-pulse diode supply unit with thyristor charging (D7T and D8T). The DXT modules can be connected parallel and are able to charge the inverters without external components.

IGBT supply unit (ISU)

IGBT supply units are used in regenerative drives to convert three-phase AC voltage to DC voltage. The ISU consists of R8i and LCL filter modules. It can operate in both motoring and generating modes. The DC voltage is constant and the line current is sinusoidal. The control also provides a near unity power factor. The supply unit can also boost DC voltages e.g. when line voltage is low. Harmonic content remains extremely low due to DTC control and LCL line filtering. ISU is very tolerable to network voltage variations.

Regenerative rectifier unit (RRU)

This supply unit is used in regenerative drive systems to convert three-phase AC voltage to DC voltage. The RRU is made of $n \times R8i$ and L filter modules. During motoring the input current flows through the diodes to the DC bus and the supply unit works as a diode bridge. In regeneration the current flows from the DC bus through the IGBTs to the supply network. The IGBTs are switched to conduct only once during each network voltage cycle. This reduces switching losses and enables high input and output powers of the R8i module. Unlike with a thyristor bridge, the IGBTs can be switched off at any time which improves reliability. Operation of RRU is also reliable during supply network voltage variations.

Brake unit

Brake unit is used for resistor braking. It handles the energy generated by decelerating motors for example in emergency stopping. Whenever the voltage in the common DC bus exceeds a certain limit, a braking chopper connects the bus to a braking resistor. Offering includes 1-phase brake unit and 3-phase dynamic brake unit (DBU) which utilizes R8i modules.

DC/DC converter (DDC)

DC/DC converter transfers energy from a common DC bus of a multidrive into an external energy storage. From there it can transfer the energy back to the DC bus when needed. Energy storages can be batteries or super capacitors. Applications for energy storage and reuse are found in a range of industries, such as marine (heave and peak load compensation), process industry (electrical braking or DC bus voltage stabilization) and automotive (charging systems). Customer benefits include reduced costs (less fuel consumption, less or smaller generators in ships), improved ship performance and safety in critical situations. The converter unit consists of R8i and DCL filter modules.

AC 800M control unit (optional)

The multidrive concept also includes the control unit for the AC 800M process controller and S800 I/O system. The control unit is equipped with communication interfaces, power supplies and the front devices necessary for the automation equipment.

Unit	Unit type	Type code	
		Air-cooled	Liquid-cooled
INU	Inverter unit	ACS880-107	ACS880-107LC
DSU	Diode supply unit	ACS880-307	–
ISU	IGBT supply unit	ACS880-207	ACS880-207LC
RRU	Regenerative rectifier unit	ACS880-907	–
DBU	Brake unit	ACS880-607	ACS880-607LC
DDC	DC/DC converter	ACS880-1607	ACS880-1607LC

—
01 Multidrive
configuration with
supply unit, DC bus and
multiple inverters



—
01

ACS880 air-cooled multidrives

- Power ratings:
 - Inverter units (INU): 1.5 to 7500 hp (1.5 to 5600 kW)
 - Diode supply units (DSU): 50 to 5500 kVA
 - IGBT supply units (ISU): 300 to 6100 kVA
- Regenerative rectifier units (RRU):
 - 416 to 6100 kVA
- Brake units:
 - 1-phase P_{cont} 54 to 714 kW
 - 3-phase $P_{cont,max}$ 500 to 6500 kW
- DC/DC converters (DDC):
 - 305 to 1146 kW
- Voltage range:
 - 380 to 690 V
- Enclosure classes:
 - UL Type 1 / IP22 as standard
 - UL Type 1 filtered / IP42 and UL Type 12 / IP54 as option

Multidrives have an extensive selection of built-in features and options. See page 70.

Highlights

- Compact design for easy cabinet assembly and maintenance
- High packing density, for example 16 units of frame size R2i inverters can be installed into a one meter wide cabinet
- Diode bridge that is highly reliable with high power density
- Fast connectors for motor cables in the bottom part of the cabinet making installation easy
- Degree of protection UL Type 1, 1F, 12 (IP22, IP42 and IP54) for different environments
- Device panel for optional switches and pilot light
- Cabinet light and heater option
- Highly efficient thermal handling as heat loss of each inverter unit is guided to the back of the cabinet. All cabinets are their own compartments.
- Long lifetime capacitors and high efficiency cooling fan with speed or on-off control

ACS880 liquid-cooled multidrives

The compact and robust ACS880 liquid-cooled drives with direct liquid cooling are an ultimate solution for various applications where space savings, silent operation or durability in harsh environments is a must.

Advanced liquid-cooling and compact design

Liquid-cooling offers easy heat transfer without air filtering problems. Since the coolant takes care of 98% of the heat losses, no additional filtered air-cooling is needed. This increases the total efficiency of the drive installation.

The liquid-cooled drives have high power density making their design extremely compact. The small footprint enables significant space and weight reduction.

Optimal for harsh environmental conditions

Optimal solution for different environments

The possibility to have totally enclosed cabinet structure makes the ACS880 liquid-cooled drive perfect for harsh environmental conditions.

The offering fulfills marine and offshore requirements. The drive has marine type approvals from various key classification bodies.

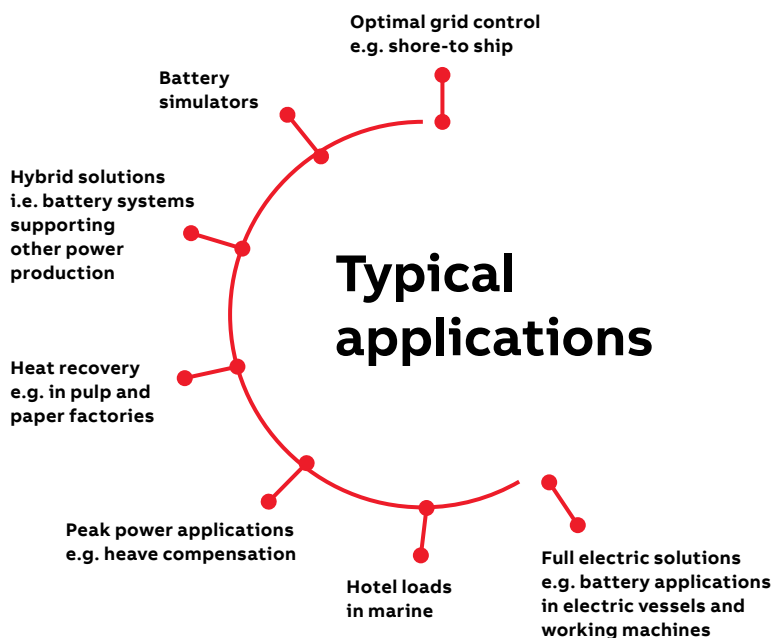
As the direct liquid cooling enables silent operation, liquid-cooled drives are suitable for applications where noise levels are an important environmental factor.

Simple and cost-efficient installation

The high-efficient liquid cooling removes the need for air-conditioning in the installation rooms, bringing the installation and operation costs down. As there is no need for additional air conditioning devices or air ducts, the installation is significantly simplified.

The used coolant type is Antifrogen® L, by Clariant International Ltd, cooling liquid with glycol and inhibitor. It is a ready-made, commercially available mix, which enables easy commissioning and prevents the risk of errors in coolant selection.

Robust, reliable and compact



—
01 Liquid-cooled
multidrive configuration



—
01

ACS880 liquid-cooled multidrives

- Power ratings:
 - Inverter units (INU): 300 to 6500 hp (250 to 6000 kW)
 - IGBT supply units (ISU): 430 to 6944 kVA
- Brake units:
 - P_{cont} 54 to 714 kW
- DC/DC converters (DDC):
 - 351 to 1581 kW
- Voltage range:
 - 690 V
- Enclosure classes:
 - UL Type 1 filtered / IP42 as standard
 - UL Type 12 / IP54 as option
- Liquid-cooling unit:
 - 70 to 195 kW cooling power with single and redundant pump versions
 - Built-in cabinet heater
 - Heat exchanger for industrial cooling water
 - Various external pipe connection solutions and sea water heat exchanger available as engineered variants

Multidrives have an extensive selection of built-in features and options. See page 70.

Highlights

- Advanced liquid-cooling which reduces the need for air-cooling in installation rooms
- High power density with compact design
- Optimized design for cabinet assembly
- Silent operation
- Suitable for harsh environments
- Marine approvals from various key classification bodies

Ratings, types and voltages

Inverter units, air-cooled, ACS880-107, 500 V

Inverter unit										
U _N = 500 V (range 380 to 500 V). The horse power ratings are valid at nominal voltage 480 V (kW at 500 V).										
Drive type	Frame size	Light duty use			Heavy duty use			Noise level [db(A)]	Heat dissipation [BTU]	Air flow [cfm]
		I _{Ld} [A]	P _{Ld} [HP]	P _{Ld} [kW]	I _{Hd} [A]	P _{Hd} [HP]	P _{Hd} [kW]			
Inverter units (INU), ACS880-107										
ACS880-107-003A6-5	R1i	3.4	2	1.5	3	1.5	1.5	47	205	14
ACS880-107-004A8-5	R1i	4.5	3	2.2	4	2	1.5	47	239	14
ACS880-107-006A0-5	R1i	5.5	3	3	5	3	2.2	47	273	14
ACS880-107-008A0-5	R1i	7.6	5	4	6	3	3	47	307	14
ACS880-107-0011A-5	R2i	9.7	7.5	5.5	9	5	4	39	444	28
ACS880-107-0014A-5	R2i	13	10	7.5	11	7.5	5.5	39	512	28
ACS880-107-0018A-5	R2i	16.8	10	11	14	10	7.5	39	614	28
ACS880-107-0025A-5	R3i	23	15	15	19	10	11	63	785	84
ACS880-107-0030A-5	R3i	28	20	18.5	24	15	15	63	955	84
ACS880-107-0035A-5	R3i	32	25	22	29	20	18.5	63	1092	84
ACS880-107-0050A-5	R3i	46	30	30	44	30	22	71	1638	118
ACS880-107-0061A-5	R4i	57	40	37	52	40	30	70	1877	171
ACS880-107-0078A-5	R4i	74	50	45	69	50	45	70	2218	171
ACS880-107-0094A-5	R4i	90	60	55	75	50	45	70	2730	171
ACS880-107-0110A-5	R6i	108	75	75	85	60	55	71	3412	383
ACS880-107-0140A-5	R6i	131	100	90	102	75	55	71	4095	383
ACS880-107-0170A-5	R6i	158	125	110	123	100	75	71	5118	383
ACS880-107-0200A-5	R6i	189	150	132	147	100	90	71	6142	383
ACS880-107-0240A-5	R6i	230	200	160	180	150	110	71	6824	383
ACS880-107-0300A-5	R7i	290	250	200	226	150	132	72	9213	553
ACS880-107-0340A-5	R7i	326	250	200	254	200	160	72	10919	553
ACS880-107-0440A-5	R8i	422	350	250	329	250	200	72	16037	765
ACS880-107-0590A-5	R8i	566	400	355	441	350	250	72	21496	765
ACS880-107-0740A-5	R8i	710	600	450	554	400	355	72	27638	765
ACS880-107-0810A-5	R8i	778	600	500	606	450	400	72	31733	765
ACS880-107-1150A-5	2xR8i	1104	900	710	860	700	560	74	40946	1530
ACS880-107-1450A-5	2xR8i	1392	1200	900	1085	900	710	74	54594	1530
ACS880-107-1580A-5	2xR8i	1517	1250	1000	1182	1000	800	74	61419	1530
ACS880-107-2150A-5	3xR8i	2064	1750	1400	1608	1250	1100	76	81891	2295
ACS880-107-2350A-5	3xR8i	2256	2000	1500	1758	1500	1200	76	92128	2295
ACS880-107-3110A-5	4xR8i	2986	2500	2000	2326	2000	1600	76	122837	3061
ACS880-107-3860A-5	5xR8i	3706	3000	2400	2887	2500	2000	77	150134	3826
ACS880-107-4610A-5	6xR8i	4426	3500	2800	3448	3000	2400	78	180844	4591

Light-overload use

I _{Ld}	Continuous current allowing 110% I _{Ld} for 1 minute every 5 minutes up to 40 °C.
P _{Ld}	Typical motor power in light-overload use.

Heavy-duty use

I _{Hd}	Continuous current allowing 150% I _{Hd} for 1 minute every 5 minutes up to 40 °C.
P _{Hd}	Typical motor power in heavy-duty use.

The ratings apply up to 40 °C ambient temperature. At higher temperatures (up to 50 °C) the derating is 1%/1 °C. The current ratings are the same regardless of the supply voltage within one voltage range. Dimensioning has to be checked by DriveSize.

Ratings, types and voltages

Supply units, air-cooled, ACS880-x07, 500 V

Supply unit													
U _N = 500 V (range 380 to 500 V).													
Drive type	Frame size	Nominal ratings					Light duty use		Heavy duty use		Noise level	Heat dissipation	Air flow
		I _N AC [A]	I _N DC [A]	I _{max} DC [A]	S _N [kVA]	P _N DC [kW]	I _{Ld} DC [A]	P _{Ld} DC [kW]	I _{Hd} DC [A]	P _{Hd} DC [kW]			
IGBT supply units (ISU), ACS880-207													
ACS880-207-0400A-5	R8i + BLCL-13-5	396	480	624	343	340	461	326	359	254	72	31392	1295
ACS880-207-0530A-5	R8i + BLCL-13-5	531	644	837	460	455	618	437	482	341	72	39240	1295
ACS880-207-0730A-5	R8i + BLCL-15-5	729	884	1149	631	625	849	600	661	468	72	56983	1295
ACS880-207-1040A-5	2xR8i + BLCL-24-5	1035	1255	1631	896	887	1205	852	939	664	74	70973	2413
ACS880-207-1420A-5	2xR8i + BLCL-25-5	1422	1724	2241	1231	1219	1655	1170	1290	912	74	100317	2413
ACS880-207-2120A-5	3xR8i + 2xBLCL-24-5	2115	2564	3334	1832	1813	2462	1741	1918	1356	76	149793	4061
ACS880-207-2800A-5	4xR8i + 2xBLCL-25-5	2799	3394	4412	2424	2400	3258	2304	2539	1795	76	199610	4826
ACS880-207-4150A-5	6xR8i + 3xBLCL-25-5	4149	5031	6540	3593	3557	4829	3415	3763	2661	78	298904	7240
U _N = 500 V (range 230 to 525 V).													
Regenerative rectifier units (RRU), ACS880-907													
ACS880-907-0600A-5	1xR8i + BL-15-5	600	727	955	520	491	698	471	544	367	72	29003	1295
ACS880-907-0900A-5	1xR8i + BL-15-5	900	1091	1433	779	737	1047	707	816	551	72	44358	1295
ACS880-907-1180A-5	2xR8i + BL-25-5	1180	1431	1879	1022	966	1374	927	1070	722	74	54935	2413
ACS880-907-1770A-5	2xR8i + BL-25-5	1770	2146	2818	1533	1449	2060	1391	1605	1084	74	87351	2413
ACS880-907-2310A-5	4xR8i + 2xBL-25-5	2310	2801	3678	2001	1891	2689	1815	2095	1414	76	109871	4826
ACS880-907-3460A-5	4xR8i + 2xBL-25-5	3460	4195	5509	2996	2832	4027	2719	3138	2118	76	174360	4826
ACS880-907-5130A-5	6xR8i + 3xBL-25-5	5130	6220	8168	4443	4199	5971	4031	4653	3141	78	261711	7240
Diode supply units (DSU), ACS880-307													
6-pulse diode ^{1),2)}													
ACS880-307-0080A-5+A003	D6D	80	98	137	69	66	94	63	78	53	62	2730	218
ACS880-307-0170A-5+A003	D6D	173	212	297	150	143	203	137	170	114	62	4436	218
ACS880-307-0330A-5+A003	D7D	327	400	561	283	270	384	260	320	216	62	6824	424
ACS880-307-0490A-5+A003	D7D	490	600	840	424	405	576	389	480	324	62	10236	424
ACS880-307-0650A-5+A003	D8D	653	800	1120	566	540	768	518	640	432	65	15355	530
ACS880-307-0980A-5+A003	D8D	980	1200	1680	849	810	1152	778	960	648	65	20473	530
ACS880-307-0650A-5+A018	D8T	653	800	1120	566	540	768	518	598	404	72	15696	765
ACS880-307-0980A-5+A018	D8T	980	1200	1680	849	810	1152	778	898	606	72	22520	765
ACS880-307-1210A-5+A018	2xD8T	1215	1488	2083	1052	1004	1428	964	1113	751	74	31392	1530
ACS880-307-1820A-5+A018	2xD8T	1823	2232	3125	1579	1507	2143	1446	1670	1127	74	45382	1530
ACS880-307-2730A-5+A018	3xD8T	2734	3348	4687	2368	2260	3214	2170	2504	1690	76	67902	2295
ACS880-307-3640A-5+A018	4xD8T	3645	4464	6250	3157	3013	4285	2893	3339	2254	76	90763	3061
ACS880-307-4560A-5+A018	5xD8T	4557	5580	7812	3946	3767	5357	3616	4174	2817	77	113624	3826
ACS880-307-5470A-5+A018	6xD8T	5468	6696	9374	4735	4520	6428	4339	5009	3381	78	136486	4591
12-pulse diode ^{2),3)}													
ACS880-307-0910A-5+A004+A018	2xD7T	912	1116	1562	790	781	1071	750	835	584	74	28662	1059
ACS880-307-1210A-5+A004+A018	2xD8T	1215	1488	2083	1052	1042	1428	1000	1113	779	74	31392	1530
ACS880-307-1820A-5+A004+A018	2xD8T	1823	2232	3125	1579	1562	2143	1500	1670	1169	74	45382	1530
ACS880-307-2430A-5+A004+A018	4xD8T	2430	2976	4166	2104	2083	2857	2000	2226	1558	76	62783	3061
ACS880-307-3640A-5+A004+A018	4xD8T	3645	4464	6250	3157	3125	4285	3000	3339	2337	76	90763	3061
ACS880-307-5470A-5+A004+A018	6xD8T	5468	6696	9374	4735	4687	6428	4500	5009	3506	78	136486	4591

1) +A003 6-pulse, uncontrolled diode bridge

2) +A018 6-pulse, half controlled diode bridge

3) +A004 12-pulse DSU

Ratings, types and voltages

Inverter units, air-cooled, ACS880-107, 690 V

Inverter unit (INU)										
$U_N = 690$ V (range 525 to 690 V). The horse power ratings are valid at nominal voltage 575 V (kW rated at 690 V).										
Drive type	Frame size	Light duty use			Heavy duty use			Noise level [db(A)]	Heat dissipation [BTU]	Air flow [cfm]
		I_{Ld} [A]	P_{Ld} [HP]	P_{Ld} [kW]	I_{Hd} [A]	P_{Hd} [HP]	P_{Hd} [kW]			
Inverter units [INU], ACS880-107										
ACS880-107-007A3-7	R5i	6.9	7.5	5.5	5.6	5	4	62	751	165
ACS880-107-009A8-7	R5i	9.3	10	7.5	7.3	7.5	5.5	62	955	165
ACS880-107-014A2-7	R5i	13.5	15	11	9.8	10	7.5	62	1365	165
ACS880-107-0018A-7	R5i	17.1	15	15	14.2	15	11	62	1672	165
ACS880-107-0022A-7	R5i	20.9	20	18.5	18	20	15	62	1979	165
ACS880-107-0027A-7	R5i	25.7	25	22	22	20	18.5	62	2252	165
ACS880-107-0035A-7	R5i	33.3	30	30	27	25	22	62	2934	165
ACS880-107-0042A-7	R5i	39.9	40	37	35	30	30	62	3412	165
ACS880-107-0052A-7	R5i	49.4	50	45	42	40	37	62	3822	165
ACS880-107-0062A-7	R6i	60	60	55	46	50	45	71	2730	383
ACS880-107-0082A-7	R6i	79	75	75	61	60	55	71	3753	383
ACS880-107-0100A-7	R6i	95	100	90	74	75	75	71	4436	383
ACS880-107-0130A-7	R6i	120	125	110	94	125	75	71	5118	383
ACS880-107-0140A-7	R6i	138	150	132	108	150	90	71	6142	383
ACS880-107-0190A-7	R6i	184	200	160	144	150	132	71	8530	383
ACS880-107-0220A-7	R7i	208	200	200	162	150	160	72	9554	553
ACS880-107-0270A-7	R7i	259	250	250	202	200	200	72	11260	553
ACS880-107-0340A-7	R8i	326	350	250	254	250	200	72	17743	765
ACS880-107-0410A-7	R8i	394	400	355	307	300	250	72	20814	765
ACS880-107-0530A-7	R8i	509	500	450	396	400	355	72	26956	765
ACS880-107-0600A-7	R8i	576	600	560	449	450	400	72	30709	765
ACS880-107-0800A-7	2xR8i	768	800	710	598	600	560	74	40946	1530
ACS880-107-1030A-7	2xR8i	989	1000	900	770	800	710	74	51182	1530
ACS880-107-1170A-7	2xR8i	1123	1250	1000	875	900	800	74	61419	1530
ACS880-107-1540A-7	3xR8i	1478	1500	1400	1152	1250	1100	76	78479	2295
ACS880-107-1740A-7	3xR8i	1670	1750	1600	1302	1400	1200	76	88716	2295
ACS880-107-2300A-7	4xR8i	2208	2250	2000	1720	1750	1600	76	119425	3061
ACS880-107-2860A-7	5xR8i	2746	2900	2400	2139	2250	2000	77	146722	3826
ACS880-107-3420A-7	6xR8i	3283	3500	3200	2558	2750	2400	78	177431	4591
ACS880-107-3990A-7	7xR8i	3830	4000	3600	2985	3250	2800	78	204728	5356
ACS880-107-4560A-7	8xR8i	4378	4750	4000	3411	3600	3200	79	235438	6121
ACS880-107-5130A-7	9xR8i	4925	5300	4800	3837	4000	3600	79	266247	6886
ACS880-107-5700A-7	10xR8i	5472	5900	5200	4264	4600	4000	79	293444	7651

Light-overload use

I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes up to 40 °C.
P_{Ld}	Typical motor power in light-overload use.

Heavy-duty use

I_{Hd}	Continuous current allowing 150% I_{Hd} for 1 minute every 5 minutes up to 40 °C.
P_{Hd}	Typical motor power in heavy-duty use.

The ratings apply up to 40 °C ambient temperature. At higher temperatures (up to 50 °C) the derating is 1%/1 °C. The current ratings are the same regardless of the supply voltage within one voltage range. Dimensioning has to be checked by DriveSize.

Ratings, types and voltages

Supply units, air-cooled, ACS880-x07, 690 V

Supply unit

$U_N = 690 \text{ V}$ (range 525 to 690 V).

Drive type	Frame size	Nominal ratings					Light duty use		Heavy duty use		Noise level	Heat dissipation	Air flow
		I_N AC [A]	I_N DC [A]	I_{max} DC [A]	S_N [KVA]	P_N DC [kW]	I_{Ld} DC [A]	P_{Ld} DC [kW]	I_{Hd} DC [A]	P_{Hd} DC [kW]			
IGBT supply units (ISU), ACS880-207													
ACS880-207-0310A-7	R8i + BLCL-13-7	306	371	557	366	362	356	348	278	271	72	40263	1295
ACS880-207-0370A-7	R8i + BLCL-13-7	369	447	671	441	437	430	419	335	327	72	46064	1295
ACS880-207-0540A-7	R8i + BLCL-15-7	540	655	982	645	639	629	613	490	478	72	60054	1295
ACS880-207-0720A-7	2xR8i + BLCL-24-7	720	873	1309	860	852	838	818	653	637	74	79162	2413
ACS880-207-1050A-7	2xR8i + BLCL-25-7	1053	1277	1915	1258	1246	1226	1196	955	932	74	108165	2413
ACS880-207-1570A-7	3xR8i + 2xBLCL-25-7	1566	1899	2848	1872	1853	1823	1779	1420	1386	76	169242	4061
ACS880-207-2070A-7	4xR8i + 2xBLCL-25-7	2070	2510	3765	2474	2449	2409	2351	1877	1832	76	214965	4826
ACS880-207-3080A-7	6xR8i + 3xBLCL-25-7	3078	3732	5598	3679	3642	3583	3496	2792	2724	78	322106	7240
ACS880-207-4100A-7	8xR8i + 4xBLCL-25-7	4104	4976	7464	4905	4856	4777	4661	3722	3632	79	427541	9653
ACS880-207-5130A-7	10xR8i + 5xBLCL-25-7	5130	6220	9330	6131	6070	5971	5827	4653	4540	79	530388	12066
Regenerative rectifier units (RRU), ACS880-907													
ACS880-907-0600A-7	1xR8i + BL-15-7	600	727	1102	717	678	698	651	544	507	72	33439	1295
ACS880-907-0900A-7	1xR8i + BL-15-7	900	1091	1653	1076	1016	1048	976	816	760	72	48794	1295
ACS880-907-1180A-7	2xR8i + BL-25-7	1180	1431	2168	1410	1333	1374	1279	1070	997	74	63125	2413
ACS880-907-1770A-7	2xR8i + BL-25-7	1770	2146	3252	2115	1999	2060	1919	1605	1495	74	95881	2413
ACS880-907-2310A-7	4xR8i + 2xBL-25-7	2310	2801	4244	2761	2609	2689	2505	2095	1952	76	126590	4826
ACS880-907-3460A-7	4xR8i + 2xBL-25-7	3460	4195	6356	4135	3908	4027	3752	3138	2923	76	191762	4826
ACS880-907-5130A-7	6xR8i + 3xBL-25-7	5130	6220	9424	6131	5794	5971	5562	4653	4334	78	287644	7240
Diode supply units (DSU), ACS880-307													
6-pulse diode¹⁾													
ACS880-307-0570A-7+A018	D8T	572	700	980	684	652	672	626	524	488	72	15355	765
ACS880-307-0820A-7+A018	D8T	817	1000	1400	976	932	960	894	748	697	72	19790	765
ACS880-307-1060A-7+A018	2xD8T	1064	1302	1823	1272	1213	1250	1164	974	907	74	30709	1530
ACS880-307-1520A-7+A018	2xD8T	1519	1860	2604	1815	1733	1786	1663	1391	1296	74	43334	1530
ACS880-307-2280A-7+A018	3xD8T	2279	2790	3906	2724	2599	2678	2495	2087	1944	76	65172	2295
ACS880-307-3040A-7+A018	4xD8T	3038	3720	5208	3631	3465	3571	3327	2783	2592	76	87010	3061
ACS880-307-3800A-7+A018	5xD8T	3797	4650	6510	4538	4331	4464	4158	3478	3240	77	109189	3826
ACS880-307-4560A-7+A018	6xD8T	4557	5580	7812	5446	5198	5357	4990	4174	3888	78	131026	4591
12-pulse diode^{1),2)}													
ACS880-307-0760A-7+A004+A018	2xD7T	760	930	1302	908	898	893	862	696	672	74	26273	1059
ACS880-307-1060A-7+A004+A018	2xD8T	1064	1302	1823	1272	1258	1250	1207	974	941	74	30709	1530
ACS880-307-1520A-7+A004+A018	2xD8T	1519	1860	2604	1815	1797	1786	1725	1391	1344	74	43334	1530
ACS880-307-2130A-7+A004+A018	4xD8T	2127	2604	3646	2542	2515	2500	2415	1948	1882	76	61760	3061
ACS880-307-3040A-7+A004+A018	4xD8T	3038	3720	5208	3631	3594	3571	3450	2783	2688	76	87010	3061
ACS880-307-4560A-7+A004+A018	6xD8T	4557	5580	7812	5446	5390	5357	5175	4174	4032	78	131026	4591

¹⁾ +A018 6-pulse, half controlled diode bridge

²⁾ +A004 12-pulse DSU

Ratings, types and voltages

DC/DC converter, air-cooled, ACS880-1607

$U_N = 500\text{ V}$ (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.

Converter type	Frame size	Filter type	No overload use					Short time use (10 s/60 s)		Heavy duty use (1 min/5 min)		Noise level [db(A)]	Heat dissipation [BTU]	Air flow [cfm]
			$I_{dc\text{ input}}$ DC [A]	$I_{rms\text{ output}}$ DC [A]	$P_{contmax}$ [kW]	$I_{max\text{ output}}$ DC [A]	I_{p2p} [A]	$I_{short\text{ time}}$ [A]	$P_{short\text{ time}}$ [kW]	I_{Hd} [A]	P_{Hd} [kW]			
ACS880-1607-0600A-5	R8i	BDCL-14-5	600	600	382	900	27	450	286	510	324	74	20473	1295
ACS880-1607-0900A-5	R8i	BDCL-15-5	900	900	573	1350	41	675	429	765	487	74	31050	1295
ACS880-1607-1200A-5	2xR8i	2xBDCL-14-5	1200	1200	764	1800	14	899	572	1020	649	76	41287	2590
ACS880-1607-1800A-5	2xR8i	2xBDCL-15-5	1800	1800	1146	2700	20	1349	859	1529	973	76	64148	2590

$U_N = 690\text{ V}$ (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.

Converter type	Frame size	Filter type	No overload use					Short time use (10 s/60 s)		Heavy duty use (1 min/5 min)		Noise level [db(A)]	Heat dissipation [BTU]	Air flow [cfm]
			$I_{dc\text{ input}}$ DC [A]	$I_{rms\text{ output}}$ DC [A]	$P_{contmax}$ [kW]	$I_{max\text{ output}}$ DC [A]	I_{p2p} [A]	$I_{short\text{ time}}$ [A]	$P_{short\text{ time}}$ [kW]	I_{Hd} [A]	P_{Hd} [kW]			
ACS880-1607-0400A-7	R8i	BDCL-14-7	400	400	351	600	38	300	263	340	298	74	21838	1295
ACS880-1607-0600A-7	R8i	BDCL-15-7	600	600	527	900	56	450	395	510	448	74	36169	1295
ACS880-1607-0800A-7	2xR8i	2xBDCL-14-7	800	800	703	1200	19	600	527	680	597	76	43675	2590
ACS880-1607-1200A-7	2xR8i	2xBDCL-15-7	1200	1200	1054	1800	28	899	790	1020	895	76	73361	2590

No overload use

$I_{dc\text{ input}}$	Maximum continuous input DC current from DC bus
$I_{rms\text{ output}}$	Maximum continuous output current to/from energy storage
$P_{contmax}$	Maximum continuous output power to/from energy storage
$I_{max\text{ output}}$	Maximum instantaneous output current to/from energy storage
I_{p2p}	Maximum output ripple current to/from energy storage

Short time / heavy overload cycle

$I_{short\text{ time}}$	Continuous output current allowing I_{max} (DC) for 10 seconds every 60 seconds
$P_{short\text{ time}}$	Continuous output power allowing I_{max} (DC) for 10 seconds every 60 seconds
I_{Hd}	Continuous output current allowing overload of 150% I_{hd} for 1 minute every 5 minutes
P_{Hd}	Continuous output power allowing 150% I_{hd} for 1 minute every 5 minutes

Ratings, types and voltages

Inverter units, liquid-cooled, ACS880-107LC, 690 V

Inverter unit, liquid-cooled										
$U_N = 690$ V (range 525 to 690 V). The horse power ratings are valid at nominal voltage 575 V (kW rated at 690 V).										
Inverter module type	Frame size	Light duty use			Heavy duty use			Noise level ¹⁾	Losses ²⁾	Coolant flow rate
		I_{Ld} [A]	P_{Ld} [HP]	P_{Ld} [kW]	I_{Hd} [A]	P_{Hd} [HP]	P_{Hd} [kW]			
Liquid-cooled inverter units (INU), ACS880-107LC										
ACS880-107LC-0390A-7	R8i	374	400	355	292	300	250	63	17402	4.2
ACS880-107LC-0430A-7	R8i	413	400	355	322	350	250	63	19108	4.2
ACS880-107LC-0480A-7	R8i	461	500	400	359	350	315	63	21838	4.2
ACS880-107LC-0530A-7	R8i	509	500	450	396	400	355	63	24567	4.2
ACS880-107LC-0600A-7	R8i	576	600	560	449	450	400	63	27980	4.2
ACS880-107LC-0670A-7	R8i	643	700	630	501	500	450	63	32074	4.2
ACS880-107LC-0750A-7	R8i	720	750	710	561	600	500	63	36851	4.2
ACS880-107LC-0850A-7	R8i	816	800	800	636	600	560	63	43334	4.2
ACS880-107LC-1030A-7	2xR8i	989	1000	900	770	800	710	66	47770	8.5
ACS880-107LC-1170A-7	2xR8i	1123	1200	1100	875	900	800	66	54594	8.5
ACS880-107LC-1310A-7	2xR8i	1258	1300	1200	980	1000	900	66	62783	8.5
ACS880-107LC-1470A-7	2xR8i	1411	1500	1200	1100	1100	1000	66	72337	8.5
ACS880-107LC-1660A-7	2xR8i	1594	1700	1400	1242	1300	1200	66	84621	8.5
ACS880-107LC-1940A-7	3xR8i	1862	2000	1800	1451	1500	1400	68	92810	12.7
ACS880-107LC-2180A-7	3xR8i	2093	2200	2000	1631	1750	1400	68	107141	12.7
ACS880-107LC-2470A-7	3xR8i	2371	2500	2300	1848	2000	1800	68	125908	12.7
ACS880-107LC-2880A-7	4xR8i	2765	2900	2700	2154	2300	2000	69	141604	16.9
ACS880-107LC-3260A-7	4xR8i	3130	3300	3000	2438	2600	2300	69	166171	16.9
ACS880-107LC-3580A-7	5xR8i	3437	3700	3400	2678	2800	2600	70	176067	21.1
ACS880-107LC-4050A-7	5xR8i	3888	4000	3800	3029	3250	2800	70	206435	21.1
ACS880-107LC-4840A-7	6xR8i	4646	5000	4400	3620	3900	3500	71	246698	25.4
ACS880-107LC-5650A-7	7xR8i	5424	5800	5200	4226	4500	4000	72	287985	30.0
ACS880-107LC-6460A-7	8xR8i	6202	6500	6000	4832	5200	4700	72	329272	33.8
Light-overload use										
I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes.									
P_{Ld}	Typical motor power in light-overload use.									
Heavy-duty use										
I_{Hd}	Continuous current allowing 150% I_{Hd} for 1 minute every 5 minutes									
P_{Hd}	Typical motor power in heavy-duty use.									
Losses										
P_{loss}	Power loss conducted to coolant and emitted to air									

The ratings apply at an ambient air temperature up to 45 °C and a coolant temperature of 40 °C.

Ratings, types and voltages

Supply units, liquid-cooled, ACS880-207LC, 690 V

Supply unit, liquid-cooled

$U_N = 690$ V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.

Supply module type	Frame size	Nominal ratings					Light overload use		Heavy-duty use		Noise level ¹⁾	Losses ²⁾	Coolant flow rate ³⁾
		I_N	I_N	I_{max}	S_N	P_N	I_{Ld}	P_{Ld}	I_{Hd}	P_{Hd}	[db(A)]	P_{loss}	
		[A]	[A]	[A]	[KVA]	[kW]	[A]	[kW]	[A]	[kW]		[BTU]	[GPM]
Liquid-cooled IGBT supply units (ISU), ACS880-204LC													
ACS880-207LC-0360A-7	R8i	360	436	655	430	426	419	409	327	319	58	31050	14
ACS880-207LC-0400A-7	R8i	400	485	727	478	473	466	454	363	354	58	34463	14
ACS880-207LC-0450A-7	R8i	450	546	818	538	532	524	511	408	398	58	38898	14
ACS880-207LC-0480A-7	R8i	480	582	873	574	568	559	545	435	425	58	41969	14
ACS880-207LC-0560A-7	R8i	560	679	1018	669	663	652	636	508	496	58	49476	14
ACS880-207LC-0620A-7	R8i	620	752	1128	741	734	722	704	562	549	58	54935	14
ACS880-207LC-0700A-7	R8i	700	849	1273	837	828	815	795	635	620	58	64148	14
ACS880-207LC-0770A-7	R8i	770	934	1400	920	911	896	875	698	681	58	73020	14
ACS880-207LC-0930A-7	2xR8i	930	1128	1691	1111	1100	1083	1056	843	823	59	74385	23
ACS880-207LC-1090A-7	2xR8i	1090	1322	1982	1303	1290	1269	1238	989	965	59	88374	23
ACS880-207LC-1180A-7	2xR8i	1180	1431	2146	1410	1396	1374	1340	1070	1044	59	100317	23
ACS880-207LC-1360A-7	2xR8i	1360	1649	2473	1625	1609	1583	1545	1233	1204	59	108506	23
ACS880-207LC-1500A-7	2xR8i	1500	1819	2728	1793	1775	1746	1704	1360	1328	59	122837	23
ACS880-207LC-1800A-7	3xR8i	1800	2182	3274	2151	2130	2095	2045	1633	1593	61	137509	38
ACS880-207LC-2020A-7	3xR8i	2020	2449	3674	2414	2390	2351	2294	1832	1788	61	159688	38
ACS880-207LC-2220A-7	3xR8i	2220	2692	4038	2653	2627	2584	2522	2013	1965	61	180844	38
ACS880-207LC-2670A-7	4xR8i	2670	3237	4856	3191	3159	3108	3033	2422	2363	61	205070	42
ACS880-207LC-2930A-7	4xR8i	2930	3553	5329	3502	3467	3411	3328	2657	2593	61	231684	42
ACS880-207LC-3320A-7	5xR8i	3320	4025	6038	3968	3928	3864	3771	3011	2938	62	258299	57
ACS880-207LC-3840A-7	6xR8i	3840	4656	6984	4589	4543	4470	4362	3483	3398	63	293444	70
ACS880-207LC-4360A-7	6xR8i	4360	5286	7930	5211	5159	5075	4952	3954	3859	63	352133	74
ACS880-207LC-5240A-7	8xR8i	5240	6353	9530	6262	6200	6099	5952	4752	4637	64	398538	78
ACS880-207LC-5810A-7	8xR8i	5810	7045	10567	6944	6874	6763	6599	5269	5142	64	456203	82

Ratings, types and voltages

Liquid cooling unit, ACS880-1007LC

Range 380 to 690 V											
Liquid cooling unit type	Nominal ratings			Noise level [db(A)]	Losses				Internal flow ¹⁾ [GPM]	External flow ²⁾ [GPM]	
	P _{max} [BTU(kw)]	Internal coolant volume [G(l)]	External coolant volume [G(l)]		P _{loss total} [BTU]	P _{loss coolant} [BTU]	P _{loss air} [BTU]	P _{drop} [PSI]			
		[G(l)]	[G(l)]								
ACS880-1007LC-0070 ³⁾	238850(70)	4.5(17)	0.8(3)	55	1365	1024	341	22	21	32	
ACS880-1007LC-0195+C140 ³⁾ /C141 ⁴⁾	665368(195)	8.2(31) 9.2(35)	2.1(8)	55	4436	3412	1024	22	71	124	
ACS880-1007LC-0195+C213 ⁵⁾	665368(195)	9.2(35)	2.1(8)	57	7165	6142	1024	22	82	124	
									110		

¹⁾120 kPa, Antifrogen® L 25%, 40 °C, 50/60 Hz

²⁾36 °C water

³⁾Single pump

⁴⁾Redundant, one pump running at a time

⁵⁾Two pumps running

Nominal ratings

P _{max}	Maximum nominal cooling power
Internal flow	Nominal coolant flow rate from the liquid cooling unit to the drive modules
External flow	Nominal coolant flow rate to the liquid cooling unit from an external cooling circuit

Losses

P _{loss total}	Power loss conducted to coolant and emitted to air
P _{loss coolant}	Power loss conducted to coolant
P _{loss air}	Power loss emitted to air (ambient room)
P _{drop}	Pressure loss in external cooling unit

Ratings, types and voltages

DC/DC converter, liquid-cooled, ACS880-1607LC

$U_N = 690 \text{ V}$ (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.

Converter type	Frame size	Filter type	No overload use					Short time overload cycle (10 s/60 s)		Heavy overload cycle (1 min/5 min)		Noise level [db(A)]	Losses [BTU]	Coolant flow rate ¹⁾ [GPM]
			$I_{\text{dc input DC}}$ [A]	$I_{\text{rms output DC}}$ [A]	P_{contmax} [kW]	$I_{\text{max output DC}}$ [A]	I_{p2p} [A]	$I_{\text{short time}}$ [A]	$P_{\text{short time}}$ [kW]	I_{Hd} [A]	P_{Hd} [kW]			
ACS880-1607LC-0400A-7	R8i	BDCL-14LC-7	391	400	351	500	38	250	219	302	266	TBD	14331	9.5
ACS880-1607LC-0500A-7	R8i	BDCL-14LC-7	490	500	439	625	38	312	274	378	332	TBD	18084	9.5
ACS880-1607LC-0600A-7	R8i	BDCL-15LC-7	590	600	527	750	56	375	329	453	398	TBD	21155	9.5
ACS880-1607LC-0700A-7	R8i	BDCL-15LC-7	690	700	615	875	56	437	384	529	465	TBD	24909	9.5
ACS880-1607LC-0800A-7	R8i	BDCL-15LC-7	790	800	703	1000	56	500	439	605	531	TBD	29003	9.5
ACS880-1607LC-0900A-7	R8i	BDCL-15LC-7	880	900	790	1125	56	562	494	680	597	TBD	33098	9.5
ACS880-1607LC-1000A-7	2xR8i	2xBDCL-14LC-7	980	1000	878	1250	19	625	549	756	664	TBD	38216	19
ACS880-1607LC-1200A-7	2xR8i	2xBDCL-15LC-7	1180	1200	1054	1500	28	750	658	907	797	TBD	46405	19
ACS880-1607LC-1400A-7	2xR8i	2xBDCL-15LC-7	1370	1400	1230	1750	28	874	768	1058	929	TBD	55618	19
ACS880-1607LC-1600A-7	2xR8i	2xBDCL-15LC-7	1570	1600	1405	2000	28	999	878	1209	1062	TBD	64831	19
ACS880-1607LC-1800A-7	2xR8i	2xBDCL-15LC-7	1760	1800	1581	2250	28	1124	987	1360	1195	TBD	75067	19

Ratings

No overload use

$I_{\text{dc input}}$	Maximum continuous input DC current from DC bus
$I_{\text{rms output}}$	Maximum continuous output current to/from energy storage
P_{contmax}	Maximum continuous output power to/from energy storage
$I_{\text{max output}}$	Maximum instantaneous output current to/from energy storage
I_{p2p}	Maximum output ripple current to/from energy storage

Short time / heavy overload cycle

$I_{\text{short time}}$	Continuous output current allowing I_{max} (DC) for 10 seconds every 60 seconds
$P_{\text{short time}}$	Continuous output power allowing I_{max} (DC) for 10 seconds every 60 seconds
I_{Hd}	Continuous output current allowing overload of 150% I_{hd} for 1 minute every 5 minutes
P_{Hd}	Continuous output power allowing 150% I_{hd} for 1 minute every 5 minutes

Losses

P_{loss}	Power loss conducted to coolant and emitted to air
-------------------	--



PT-001
-1201

PT-200
-1200

PI-203

PA-102

EXTERNAL SUPPLY
COOLING PUMPS

INTERNAL

Dimensions

ACS880 air-cooled multidrives

Frame size		Height [in]	Width [in]	Depth [in]	Weight [lb]
ACS880-207 IGBT supply unit (ISU). Dimensions include ACU, ICU, ISU and filter					
R8i + BLCL-13-5	Limited scope ¹⁾	84.4	39.4	25.0	1786
	Standard scope ¹⁾	84.4	63.0	25.0	2866
R8i + BLCL-15-5	Limited scope ¹⁾	84.4	39.4	25.0	1896
	Standard scope ¹⁾	84.4	63.0	25.0	2866
2xR8i + BLCL-24-5		84.4	70.9	25.0	3527
2xR8i + BLCL-25-5		84.4	78.7	25.0	3792
3xR8i + 2xBLCL-24-5		84.4	102.4	25.0	5313
4xR8i + 2xBLCL-25-5		84.4	110.2	25.0	6217
6xR8i + 3xBLCL-25-5		84.4	157.5	25.0	8730
R8i + BLCL-13-7		84.4	63.0	25.0	2866
R8i + BLCL-15-7		84.4	63.0	25.0	2866
2xR8i + BLCL-24-7		84.4	70.9	25.0	3527
2xR8i + BLCL-25-7		84.4	70.9	25.0	3527
3xR8i + 2xBLCL-25-7		84.4	102.4	25.0	4872
4xR8i + 2xBLCL-25-7		84.4	110.2	25.0	6217
6xR8i + 3xBLCL-25-7		84.4	141.7	25.0	8201
8xR8i + 4xBLCL-25-7		84.4	200.8	25.0	10714
10xR8i + 5xBLCL-25-7		84.4	232.3	25.0	12699
ACS880-907 regenerative rectifier unit (RRU). Dimensions include ACU, ICU, RRU and filter.					
1xR8i + BL-15-5		84.4	63.0	25.0	2811
2xR8i + BL-25-5		84.4	78.7	25.0	3560
4xR8i + 2xBL-25-5	2310A-5	84.4	110.2	25.0	5754
	3460A-5	84.4	126.0	25.0	6283
6xR8i + 3xBL-25-5		84.4	157.5	25.0	8036
1xR8i + BL-15-7		84.4	63.0	25.0	2811
2xR8i + BL-25-7		84.4	78.7	25.0	3560
4xR8i + 2xBL-25-7	2310A-7	84.4	110.2	25.0	5754
	3460A-7	84.4	126.0	25.0	6283
6xR8i + 3xBL-25-7		84.4	157.5	25.0	8036

¹⁾ In addition to standard ACS880 multidrive offering, limited scope offering is available with special configuration for 500 V, R1i to R7i inverters.

²⁾ 91.1 in for UL Type 12 (IP54) and 80.7 in for IPxxR. An additional 0.4 in required for marine supports.

³⁾ Width and weight depend on the amount of inverter units. With option own compartment (+C204) 15.7 in for max. 3 inverters.

⁴⁾ Top exit with backpack for R1i to R7i, additional depth is 5.1 in.

⁵⁾ Width and weight depend on the amount of inverter units. With option own compartment (+C204) 19.7 in for max. 2 R5i inverters.

⁶⁾ 11.8 in is required for drive control unit (DCU). One DCU can be used for two drive units.

⁷⁾ Top exit with backpack for n×R8i, additional depth is 7.5 in.

⁸⁾ 91.1 in for UL Type 12 (IP54), and 80.7 in for IPxxR

Frame size		Height [in]	Width [in]	Depth [in]	Weight [lb]
ACS880-307 diode supply unit (ISU). Dimensions include ACU, ICU, and DSU.					
6-pulse diode					
D6D		84.4	15.7	25.0	661
D7D		84.4	15.7	25.0	772
D8D		84.4	27.6	25.0	1213
D8T		84.4	55.1	25.0	1874
2XD8T	1060A-7	84.4	55.1	25.0	2491
	1210A-5,	84.4	63.0	25.0	2491
	1820A-5,				
	1520A-7				
3XD8T		84.4	78.7	25.0	3439
4XDIT	690V	84.4	94.5	25.0	4277
	500V	84.4	110.2	25.0	4718
5XD8T		84.4	118.1	25.0	5335
6XD8T		84.4	126.0	25.0	5952
12-pulse diode					
2xD7T		84.4	70.9	25.0	1984
2xD8T		84.4	70.9	25.0	2601
4xD8T	2430A-5,	84.4	94.5	25.0	4057
	2130A-7				
	3650A-5,	84.4	118.1	25.0	4497
3040A-7					
6xD8T		84.4	133.9	25.0	6393
ACS880-107 inverter unit (INU)					
R1i		84.4 ²⁾	15.7...39.4 ³⁾	25.0 ⁴⁾	529...1080 ³⁾
R2i		84.4 ²⁾	15.7...39.4 ³⁾	25.0 ⁴⁾	529...1080 ³⁾
R3i		84.4 ²⁾	15.7...39.4 ³⁾	25.0 ⁴⁾	529...1080 ³⁾
R4i		84.4 ²⁾	15.7...39.4 ³⁾	25.0 ⁴⁾	529...1080 ³⁾
R5i		84.4 ²⁾	11.8...19.7 ⁵⁾	25.0	441...705 ⁵⁾
R6i		84.4 ²⁾	15.7	25.0 ⁴⁾	551
R7i		84.4 ²⁾	15.7	25.0 ⁴⁾	551
R8i		84.4 ²⁾	15.7 ⁶⁾	25.0 ⁷⁾	705
2xR8i		84.4 ²⁾	23.6 ⁶⁾	25.0 ⁷⁾	1124
3xR8i		84.4 ²⁾	31.4 ⁶⁾	25.0 ⁷⁾	1455
4xR8i		84.4 ²⁾	47.2 ⁶⁾	25.0 ⁷⁾	2249
5xR8i		84.4 ²⁾	55.1 ⁶⁾	25.0 ⁷⁾	2579
6xR8i		84.4 ²⁾	63.0 ⁶⁾	25.0 ⁷⁾	2910
7xR8i		84.4 ²⁾	78.7 ⁶⁾	25.0 ⁷⁾	3704
8xR8i		84.4 ²⁾	86.6 ⁶⁾	25.0 ⁷⁾	4034
9xR8i		84.4 ²⁾	94.5 ⁶⁾	25.0 ⁷⁾	4365
10xR8i		84.4 ²⁾	110.2 ⁶⁾	25.0 ⁷⁾	5159
ACS880-1607 DC/DC converter					
R8i		84.4 ⁸⁾	31.5	25.0	1433
R8i		84.4 ⁸⁾	31.5	25.0	1499
2xR8i		84.4 ⁸⁾	63.0	25.0	2866
2xR8i		84.4 ⁸⁾	63.0	25.0	2998
3xR8i		84.4 ⁸⁾	94.5	25.0	4497
4xR8i		84.4 ⁸⁾	126.0	25.0	5997
5xR8i		84.4 ⁸⁾	157.5	25.0	7496



Dimensions

ACS880 liquid-cooled multidrives

Frame size	Height [in]	Width [in]	Depth [in]	Weight [lb]
ACS880-207LC IGBT supply unit (ISU). Dimensions include ACU, ICU, ISU and filter				
R8i + BLCL-15LC-7	78.8	74.8	25.4	1984
2xR8i + BLCL-24LC-7	78.8	82.7	25.4	2271
2xR8i + BLCL-25LC-7	78.8	86.6	25.4	2601
3xR8i + 2xBLCL-24LC-7	78.8	106.3	25.4	3968
4xR8i + 2xBLCL-25LC-7	78.8	126.0	25.4	5203
5xR8i + 3xBLCL-24LC-7	78.8	141.7	25.4	6239
6xR8i + 4xBLCL-24LC-7	78.8	189.0	25.4	7937
8xR8i + 4xBLCL-25LC-7	78.8	228.3	25.4	10406
ACS880-107LC inverter unit (INU)				
R8i	78.8	11.8	25.4	661
2xR8i	78.8	19.7	25.4	948
3xR8i	78.8	27.6	25.4	1323
4xR8i	78.8	39.4	25.4	1896
5xR8i	78.8	47.2	25.4	2271
6xR8i	78.8	55.1	25.4	2646
7xR8i	78.8	66.9	25.4	3219
8xR8i	78.8	74.8	25.4	3792
ACS880-1607LC DC/DC converter				
R8i	78.8	31.5	25.4	1499/1565 ¹⁾
2xR8i	78.8	63.0	25.4	3142

¹⁾ 1499 lb for 0400A-7 and 0500A-7

Frame size	Height [in]	Width [in]	Depth [in]	Weight [lb]
ACS880-1007LC, liquid cooling unit				
ACS880-1007LC-0070	78.8	13.0	25.4	441
ACS880-1007LC-0195+C140	78.8	24.8/26.0 ²⁾	25.4	683
ACS880-1007LC-0195+C141	78.8	24.8/26.0 ²⁾	25.4	807
ACS880-1007LC-0195+C213	78.8	24.8/26.0 ²⁾	25.4	822

²⁾ For stand-alone liquid cooling unit.



Standard interface and extensions for plug-in connectivity

— 01 Control unit ZCU

— 02 Example of a typical multidrives input/output connection diagram. Variations may be possible. For further information, please see the ACS880 user manual.

ACS880 multidrives offer a wide range of standard interfaces including extensive selection of I/O connections, Safe Torque Off (STO) and a galvanically isolated RS485 link that can be configured as either Modbus RTU or high speed drive-to-drive link.

In addition, the drive control unit (ZCU/BCU) has three option slots that can be used for extensions, including communication protocol adapters, input/output extension modules, feedback modules, and a safety functions module. For I/O extensions, see page 46.

Control unit ZCU for inverters (R1i to R7i) and diode supply unit (D6D to D8D) comes with three option slots for extension option modules.




Control unit BCU for inverters (nxR8i), IGBT supply unit, regenerative rectifier unit and diode supply unit (frame nxDXT). Comes with integrated branching unit, and three option slots with an additional slot for DDCS communication option.

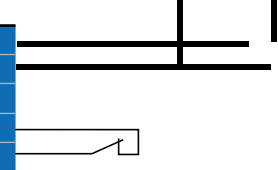
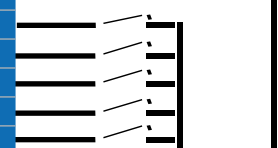
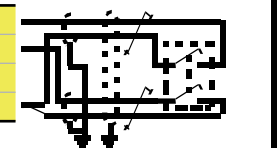
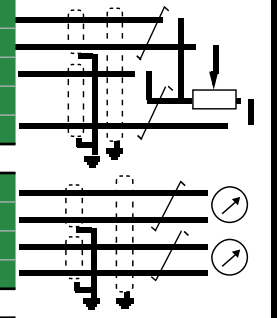
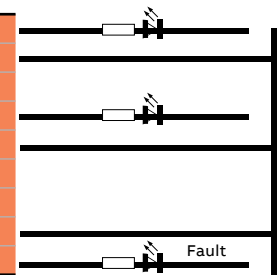
— 01



Control connections	Description
2 analog inputs (XAI)	Current input: -20 to 20 mA, R_{in} : 100 ohm Voltage input: -10 to 10 V, R_{in} : > 200 kohm Resolution: 11 bit + sign bit
2 analog outputs (XAO)	0 to 20 mA, R_{load} < 500 ohm Frequency range: 0 to 300 Hz Resolution: 11 bit + sign bit
6 digital inputs (XDI)	Input type: NPN/PNP (DI1 to DI5), NPN (DI6) DI6 (XDI:6) can alternatively be used as an input for a PTC thermistor.
Digital input interlock (DIIL)	Input type: NPN/PNP
2 digital inputs/outputs (XDIO)	As input: 24 V logic levels: "0" < 5 V, "1" > 15 V R_{in} : 2.0 kohm Filtering: 0.25 ms As output: Total output current from 24 V DC is limited to 200 mA Can be set as pulse train input and output
3 relay outputs (XRO1, XRO2, XRO3)	250 V AC/30 V DC, 2 A
Safe torque off (XSTO)	For the drive to start, both connections must be closed, only to be used in inverter units
Drive-to-drive link (XD2D)	Physical layer: EIA-485
Built-in Modbus	EIA-485
Assistant control panel/PC tool connection	Connector: RJ-45

—
02

Relay outputs		XRO1, XRO2, XRO3	
Ready		NO	13
250 V AC/30 V DC		COM	12
2 A		NC	11
Running		NO	23
250 V AC/30 V DC		COM	22
2 A		NC	21
Faulted (-1)		NO	33
250 V AC/30 V DC		COM	32
2 A		NC	31
External power input		XPOW	
24 V DC, 2 A	GND		2
		+24VI	1
Reference voltage and analog inputs		J1, J2, XAI	
AI1/AI2 current/voltage selection	AI1:U	AI2:U	
	AI1:I	AI2:I	
By default not in use.	AI2-		7
0(4) to 20 mA, $R_{in} = 100 \text{ ohm}$	AI2+		6
Speed reference	AI1-		5
0(2) to 10 V, $R_{in} > 200 \text{ kohm}$	AI1+		4
Ground	AGND		3
-10 V DC, $R_L 1 \text{ to } 10 \text{ kohm}$	-VREF		2
10 V DC, $R_L 1 \text{ to } 10 \text{ kohm}$	+VREF		1
Analog outputs		XAO	
Motor current 0 to 20 mA, $R_L < 500 \text{ ohm}$	AGND		4
	AO2		3
Motor speed rpm 0 to 20 mA, $R_L < 500 \text{ ohm}$	AGND		2
	AO1		1
Drive-to-drive link		J3, XD2D	
Drive-to-drive link termination	ON <input type="checkbox"/> OFF		
	Shield		4
Drive-to-drive link or built-in Modbus	BGND		3
	A		2
	B		1
Safe torque off		XSTO	
Safe torque off. Both circuits must be closed for the drive to start.	IN2		4
	IN1		3
	SGND		2
	OUT		1
Digital inputs		XDI	
By default not in use	DI6		6
Constant speed 1 select (1=on)	DI5		5
Acceleration and deceleration select	DI4		4
Reset	DI3		3
Forward (0)/Reverse (1)	DI2		2
Stop (0)/Start (1)	DI1		1
Digital input/outputs		XDIO	
Output: Running	DIO2		2
Output: Ready	DIO1		1
Ground selection			
Auxiliary voltage output, digital input interlock		XD24	
Digital input/output ground	DIOGND		5
+24 V DC 200 mA	+24VD		4
Digital input ground	DICOM		3
+24 V DC 200 mA	+24VD		2
Digital interlock	DIIL		1
Safety functions module connection		X12	
Control panel/PC connection		X13	
Memory unit connection		X205	



Control panel options

—
01 Bluetooth assistant control panel, ACS-AP-W
—
02 Control panel mounting platform DPMP-01

Bluetooth assistant control panel, ACS-AP-W, with clear multilingual graphical display can be used for parameter setting and back-up, drive monitoring and operation, fault tracing and as a USB link for a PC tool. The panel can be used with all drives belonging to ABB's all-compatible product portfolio.

Control panel helps you to set up the essential settings quickly and get the drive into action. Also diagnostics is easy due to event history, clear text messages and real-time stamps.



01

The Bluetooth connection enables the use of mobile apps like Drivetune. This app is available for free on the Google Play and the Apple App store. Drivetune features include: commissioning, troubleshooting, monitoring and controlling the drive remotely. Drivetune also has full parameter access and backup and restore functionality.

Control panel mounting platform, DPMP-01, is for flush mountings and has IP54/UL Type 12 protection class (IP20, when control panel is not mounted). It supports daisy chaining of the control panel link.



02

Control panel options

Option code	Ordering code for loose item	Description	Type
+0J400	–	No control panel	–
As standard	ACS-AP-W	Bluetooth Assistant control panel	ACS-AP-W
–	DPMP-01	Control panel mounting platform, flush mounted, IP54 / UL Type 12 (does not include control panel)	DPMP-01



Stop

Loc/Rem

Start



?

Select

Local ACS880 1400.0 Rpm
Save money
Save energy
Save nerves
Save all
Exit

Connectivity to automation systems

01 ACS880 is compatible with many communication protocols

02 Input/output extension modules

Communication protocol adapters

ACS880 industrial drives are compatible with a wide range of communication protocols. The drive comes with a Modbus RTU fieldbus interface as standard.

The ACS880 supports two different communication connections simultaneously and offers the possibility for redundant communication. PROFIsafe (functional safety over PROFINET) is also supported.

Communication protocol adapters

Option code	Ordering code for loose item	Communication protocol	Adapter
+K451	FDNA-01-KIT	DeviceNet™	FDNA-01
+K454	FPBA-01-KIT	PROFIBUS DP, DPV0/DPV1	FPBA-01
+K457	FCAN-01-KIT	CANopen®	FCAN-01
+K458	FSCA-01-KIT	Modbus RTU	FSCA-01
+K462	FCNA-01-KIT	ControlNet	FCNA-01
+K469	FECA-02-KIT	EtherCAT®	FECA-01
+K470	FEPL-02-KIT	POWERLINK	FEPL-02
+K475	FENA-21-KIT	Two port EtherNet/IP™, Modbus TCP, PROFINET IO, PROFIsafe ¹⁾	FENA-21
+K491	FMBT-21-KIT	Modbus/TCP	FMBT-21
+K492	FPNO-21-KIT	PROFINET IO	FPNO-21
+K490	FEIP-21-KIT	EtherNet/IP	FEIP-21

¹⁾ For the PROFIsafe to work the PROFINET fieldbus adapter module (FENA-21) and the safety functions module FSO-12 (+Q973) or FSO-21 (+Q972) are required.



01



02

Input/output extension modules

Standard input and output can be extended by using optional analog and digital input/output extension modules. The modules are easily installed in the extension slots located on the drive.

If there are not enough I/O extension slots in the drive, the FEA-03 module can increase the number of slots. The FEA-03 has two option slots for digital I/O extensions and speed feedback interface modules. The connection to the control unit is via an optical fiber link, and the adapter can be mounted on a DIN rail (35 × 7.5 mm).

Analog and digital input/output extension modules

Option code	Ordering code for loose item	Description	I/O module
+L501	FIO-01	4×DI/O, 2×RO	FIO-01
+L500	FIO-11	3×AI (mA/V), 1×AO (mA), 2×DI/O	FIO-11
+L515	FEA-03	2×F-type option extension slots	FEA-03
+L525	FAIO-01	2×AI (mA/V), 2×AO (mA)	FAIO-01
+L526	FDIO-01	3×DI (up to 250 V DC or 230 V AC), 2×RO	FDIO-01

Feedback interface and DDCS communication options

03 FEN-01 TTL encoder interface module

04 FDCO-01 DDCS communication module

Speed feedback interfaces for precise process control

ACS880 drives can be connected to various feedback devices, such as HTL pulse encoders, TTL pulse encoders, absolute encoders and resolvers. The optional feedback module is installed in the option slot on the drive. It is possible to use two feedback modules at the same time, either of the same type or different types^{*)}.

^{*)} Excluding FSE-31.

03



Feedback interface modules

Option code	Ordering code for loose item	Description	Feedback module
+L517	FEN-01	2 inputs (TTL pulse encoder), 1 output	FEN-01
+L518	FEN-11	2 inputs (SinCos absolute, TTL pulse encoder), 1 output	FEN-11
+L516	FEN-21	2 inputs (Resolver, TTL pulse encoder), 1 output	FEN-21
+L502	FEN-31	1 input (HTL pulse encoder), 1 output	FEN-31
+L521	FSE-31	Pulse encoder interface for functional safety (for more details see section "Safety options")	FSE-31

DDCS communication option modules

The FDCO-0X optical DDCS communication options are add-on modules on the ACS880 industrial drives control unit. The modules include connectors for two fiber optic DDCS channels. The FDCO-0X modules make it possible to perform master-follower and AC800 M communication. Alternative way for drive to drive communication is to use the standard RS485 connection.

04



Optical communication modules

Option code	Ordering code for loose item	Description	Module
+L503	FDCO-01	Optical DDCS (10 Mbd /10 Mbd)	FDCO-01
+L508	FDCO-02	Optical DDCS (5 Mbd/10 Mbd)	FDCO-02
+L509	-	Optical DDCS (10 Mbd /10 Mbd/10 Mbd/10 Mbd)	RDCO-04

Remote monitoring options

01 Remote monitoring tool NETA-21

02 RMDE reliability monitoring device

Remote monitoring access worldwide

The NETA-21 remote monitoring tool gives easy access to the drive via the Internet or a local Ethernet network. NETA-21 comes with a built-in web server. Compatible with standard web browsers, it ensures easy access to a web-based user interface. Through the web interface, the user can configure drive parameters, and monitor drive log data, load levels, runtime, energy consumption, I/O data, and the bearing temperatures of the motor connected to the drive. One NETA-21 supports up to 10 ABB single drives.



01

RMDE reliability monitoring device

The RMDE reliability monitoring device collects drive performance and event data so that it can be stored remotely and utilized for service, maintenance and troubleshooting. RMDE consists of the NETA-21 remote monitoring tool, a modem, and environmental sensors that enable collection of measured ambient temperature and humidity values. The device comes in a compact IP54 enclosure, making it suitable even for harsh environments.

Remote monitoring option

Ordering code	Description	Type
NETA-21-KIT	2 x panel bus interface max. 10 drives 2 x Ethernet interface SD memory card USB port for WLAN/3G	NETA-21



02

RMDE reliability monitoring device

Ordering code	Description	Type
RMDE-01-1-1 Configurable product	RMDE reliability monitoring device	RMDE-01

PC tool options

—
03 Drive Composer
PC tool

—
04 Automation Builder
PC tool

PC tools

The Drive Composer Pro PC tool offers fast and harmonized setup, commissioning and monitoring for ABB's all-compatible drives. The tool provides startup and maintenance capabilities, and includes support for adaptive programming. It also gathers all drive information, such as parameter loggers, faults, backups and event lists, into a support diagnostics file.

In addition Drive Composer Pro provides various other features, such as

- Graphical reference and control chain diagrams
- Possibility to connect to several drives simultaneously over Ethernet
- Graphical interface for configuring functional safety features.

Automation Builder can be used as an alternative configuration tool to Drive Composer. It is a common tool for several ABB automation products, such as drives, PLCs, HMIs and robots.

For customized solutions, drive application programming based on IEC61131 standard is available for full PLC programmability with the **Drive Application Builder** tool.



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03



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04

PC tools

Ordering code	Description	PC tool
DCPT-01-KIT	PC tool for setup, commissioning and monitoring of drives	Drive Composer Pro
3AXD50000342389	Standard version of the Drive Application Builder for IEC 61131-3 programming, DABS-STANDARD	Licenses for Drive Application Builder ¹⁾
3AXD50000342402	Premium version of the Drive Application Builder for IEC 61131-3 programming, DABP-PREMIUM	
3AXD50000343027	Software development productivity add-ons for Drive Application Builder, version control and static analysis extensions for improve software engineering productivity, single workstation, DABX-PRODUCTIVITY-ADD-ONS	
1SAS010000R0102	Automation Builder 2.x Standard (2). Integrated engineering for PLC, drives, motion, SCADA and panels.	Automation Builder
1SAS010002R0102	Automation Builder 2.x Premium (5). Integrated Engineering and features for engineering productivity and collaboration.	
+N8010	License key for drive application programming based on IEC 61131-3 using Drive Application Builder	IEC programming

¹⁾ For IEC programming license key is needed for the ACS880 drive (+N8010)

Safety options

—
01 FSO-12 safety functions module

Integrated safety

Integrated safety reduces the need for external safety components, simplifying configuration and reducing installation space. The safety functionality is a built-in feature of the ACS880, with safe torque off (STO) as standard. The STO function corresponds to an uncontrolled stop in accordance with stop category 0 of EN 60204-1. Additional safety functions can be commissioned with the optional and compact safety functions module. ACS880 drives offer functional safety with or without encoder. The drive's functional safety is designed in accordance with EN/IEC 61800-5-2 and complies with the requirements of the European Union Machinery Directive (2006/42/EC).

Safety functions are designed to the multidrives on project specific requirements.

The safety functions are certified by TÜV Nord and comply with the highest performance requirements (SIL 3 / PL e) in machinery safety.¹⁾

The safety functions module can also be ordered separately and installed afterwards to the drive.

Safety functions modules, FSO-12 and FSO-21, support a wide range of safety functions. Configuration of the functions is done with the Drive Composer Pro PC tool, which provides an easy-to-use graphical user interface. Larger safety systems can be built using PROFIsafe over PROFINET connection between a safety PLC (such as AC500-S) and the ACS880 drive. The connection is achieved by adding a PROFINET adapter, FPNO-21, to the drive.

Safety function modules

Option code	Description	Safety module
+Q979 +Q973/ +Q972	Emergency Stop, configurable stop cat. 0 or 1; with STO, with safety functions module ²⁾	FSO-12/-21
+Q966 +Q973/+Q972	Safely-limited speed (SLS) with safety functions module (without encoder) ²⁾	FSO-12/-21
+Q965 + Q972 +L521	Safely-limited speed (SLS) with FSO-21 and with encoder FSE-31 ²⁾	FSO-21 and FSE-31
+Q950 +Q973/ +Q972	Prevention of unexpected startup (POUS) with safety functions module ²⁾	FSO-12/-21
+Q982 +Q972 +K492	PROFIsafe safety communication to be used together with FSO-21: forces to select a functional safety module and PROFINET adapter, FPNO-21	FSO-21 and FPNO-21
+L536	Thermistor protection module FPTC-01 ¹⁾	FPTC-01
+L537 +Q971	ATEX-certified thermistor protection module FPTC-02, Ex II (2) GD ¹⁾	FPTC-02

¹⁾ Thermistor modules comply with SIL 2 / PL c.

²⁾ Safety data and safety levels can be calculated for engineered solutions for multidrives cabinets as option. Safety level depends on configuration.



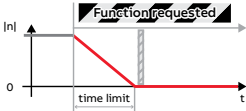
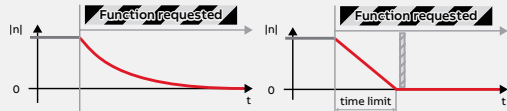
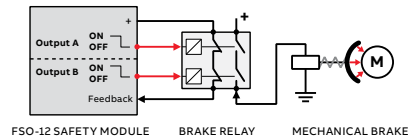
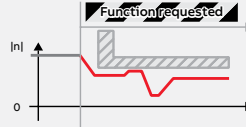

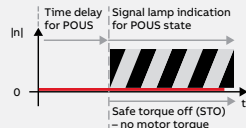
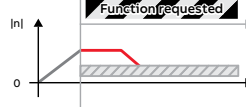
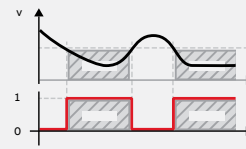

Supported safety functions:

- Encoderless: SS1-t, SS1-r, SLS, SBC, SMS, SSE, POUS, STO
- With encoder (requires FSO-21 + FSE-31): SDI, SSM, SS1-t, SS1-r, SLS, SBC, SMS, SSE, POUS, STO

Pulse encoder interface module, FSE-31, provides safe encoder data to the safety functions module, and can simultaneously be used as a feedback device for the drive. FSE-31 requires an FSO-21 safety functions module and supports HTL encoders.

Thermistor protection modules, FPTC-01 and FPTC-02

Safe Temperature Monitoring (STM) can be achieved by using FPTC thermistor protection modules¹⁾.

Safety function	Description	Supported functions		
		FSO-12 without encoder	FSO-21 + FSE-31 + HTL encoder	
Safe stop 1 SS1-t SS1-r	Brings the machine to a stop using a monitored deceleration ramp. It is typically used in applications where the machinery motion needs to be brought to a stop (stop category 1) in a controlled way before switching over to the no-torque (STO) state	x (SS1-t) (SS1-r)	x (SS1-t) (SS1-r)	
Safe stop emergency SSE	Can be configured to, upon request, either activate STO instantly (category 0 stop), or first initiate motor deceleration and then, once the motor has stopped, activate the STO (category 1 stop).	x	x	
Safe brake control SBC	Provides a safe output for controlling the motor's external (mechanical) brakes, together with STO.	x	x	
Safely-limited speed SLS	Ensures that the specified speed limit of the motor is not exceeded. This allows machine interaction to be performed at slow speed without stopping the drive. The safety function module comes with four individual SLS settings for speed monitoring.	x	x	
Safe maximum speed SMS	Monitors that the speed of the motor does not exceed the configured maximum speed limit.	x	x	
Prevention of unexpected start-up POUS	Ensures that the machine remains stopped when people are in the danger area.	x	x	
Safe direction SDI	Ensures that rotation is allowed only in the selected direction (available only with FSO-21 and FSE-31).		x	
Safe speed monitor SSM	Provides a safe output signal to indicate whether the motor speed is between user-defined limits (available only with FSO-21).		x	
Safe torque off STO	Brings the drive safely to a no-torque state, i.e. switches off the drive output to the motor, motor speed then coasts to a stop. ACS880 has safe torque off as standard.	x	x	

EMC – electromagnetic compatibility

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01 Immunity and
emission compatibility

Each ACS880 model can be equipped with a built-in filter to reduce high-frequency emissions.

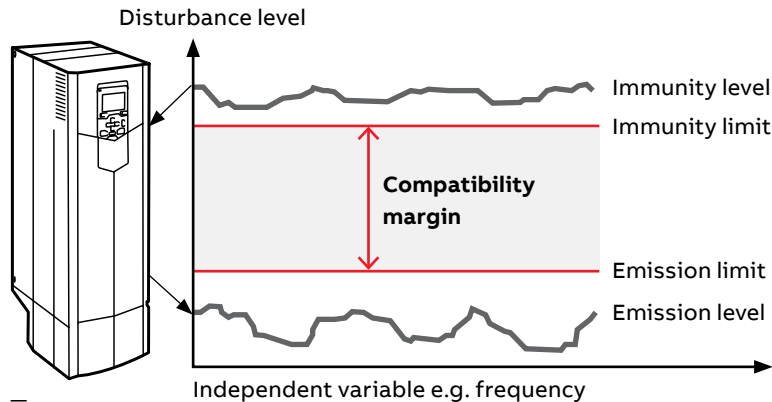
EMC standards

The EMC product standard (EN 61800-3) covers the specific EMC requirements for drives (tested with motor and motor cable) within the EU. EMC standards such as EN 55011 or EN 61000-6-3/4 are applicable to industrial and domestic equipment and systems, including the components inside the drive. Supply units compliant with EN 61800-3 are also compliant with comparable categories in EN 55011 and EN 61000-6-3/4, but not necessarily vice versa. EN 55011 and EN 61000-6-3/4 do not specify cable length or require a motor to be connected as a load. The emission limits are comparable to EMC standards according to the table on the next page.

Domestic environments versus public low voltage networks

The first environment includes domestic premises. It also includes establishments directly connected without an intermediate transformer to a low voltage power supply network that supplies buildings used for domestic purposes.

The second environment includes all establishments other than those directly connected to a low voltage power supply network that supplies buildings used for domestic purposes.



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01

EMC standards				
EMC according to EN 61800-3:2004 + A1:2012 product standard	EN 61800-3 product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN 61000-6-4, generic emission standard for industrial environments	EN 61000-6-3, generic emission standard for residential, commercial and light-industrial environment
1 st environment, unrestricted distribution	Category C1	Group 1. Class B	Not applicable	Applicable
1 st environment, restricted distribution	Category C2	Group 1. Class A	Applicable	Not applicable
2 nd environment, unrestricted distribution	Category C3	Group 2. Class A	Not applicable	Not applicable
2 nd environment, restricted distribution	Category C4	Not applicable	Not applicable	Not applicable

Selecting an EMC filter

Drive type	Voltage (V)	Frame sizes	1st environment, restricted distribution, C2, grounded network (TN) up to 1000 A	2nd environment, C3, grounded network (TN) and ungrounded network (IT)	Option code
ACS880-307	380 to 500	D6D to D8D			–
	380 to 500	1xD8T			+E202
	380 to 500	D×T up to 980 A			+E202
ACS880-207	380 to 500	R8i			+E202
	380 to 690	n×R8i			–
ACS880-907	380 to 690	n×R8i			–
ACS880-207LC	690	n×R8i			–

*) Radiated emission and immunity

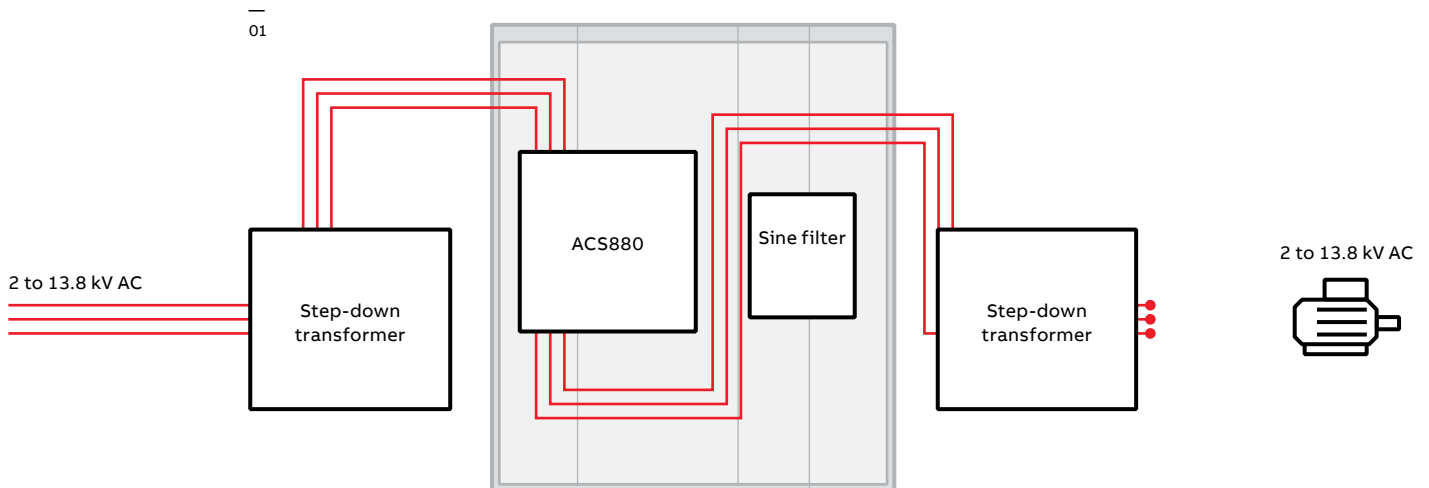
Sine filters

—
01 For step-up applications, e.g. where medium voltage motor needs to be driven

Together with a sine filter, ACS880 drives offer smooth motor operation. The sine filter suppresses the high-frequency components of the motors output voltage, creating almost a sinusoidal voltage wave form for the motor. The filter offers an optimized LC design that takes into account the switching frequency, voltage drop and filtering characteristics.

The ACS880 inverter and sine filter solution can be used together with a variety of requirements for products and components:

- For motors without adequate insulation for the role
- Where the total motor cable length is long as a result of a number of parallel motors
- For step-up applications, e.g. where a medium voltage motor needs to be driven
- For submersible pumps with long motor cables, e.g. in the oil industry
- When the motor noise needs to be reduced
- When there are industry-specific requirements for peak voltage level and voltage rise time



Sine filters for liquid-cooled multidrives

Sine filters are available as engineered options for liquid-cooled multidrives.

Sine filters for air-cooled multidrives

Inverter type	Frame size	Filter type	I_N [A]	P_N [kW]	Filter height [in]	Filter width [in]	Filter depth [in]	Filter weight [lb]	Noise level [dB(A)]
$U_N = 500$ V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.									
ACS880-107-0440A-5	R8i	NSIN-0485-6	440	250	84.4	15.7	25.0	772	80
ACS880-107-0590A-5	R8i	NSIN-0900-6	590	400	84.4	39.4	25.0	1213	80
ACS880-107-0740A-5	R8i	NSIN-0900-6	740	500	84.4	39.4	25.0	1213	80
ACS880-107-0810A-5	R8i	NSIN-1380-6	810	560	84.4	39.4	25.0	1653	81
ACS880-107-1150A-5	2xR8i	NSIN-1380-6	1150	800	84.4	39.4	25.0	1653	81
ACS880-107-1450A-5	2xR8i	2xNSIN-0900-6	1450	1000	84.4	78.7	25.0	2425	82
ACS880-107-1580A-5	2xR8i	2xNSIN-1380-6	1580	1100	84.4	78.7	25.0	3307	82
ACS880-107-2150A-5	3xR8i	2xNSIN-1380-6	2150	1500	84.4	78.7	25.0	3307	82
ACS880-107-2350A-5	3xR8i	3xNSIN-1380-6	2350	1600	84.4	118.1	25.0	4960	83
ACS880-107-3110A-5	4xR8i	3xNSIN-1380-6	3110	2000	84.4	118.1	25.0	4960	83
ACS880-107-3860A-5	5xR8i	4xNSIN-1380-6	3860	2400	84.4	157.5	25.0	6614	84
ACS880-107-4610A-5	6xR8i	5xNSIN-1380-6	4610	3200	84.4	196.9	25.0	8267	85
$U_N = 500$ V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.									
ACS880-107-0340A-7	R8i	NSIN-0485-6	340	315	84.4	15.7	25.0	772	80
ACS880-107-0410A-7	R8i	NSIN-0485-6	410	400	84.4	15.7	25.0	772	80
ACS880-107-0530A-7	R8i	NSIN-0900-6	530	500	84.4	39.4	25.0	1213	80
ACS880-107-0600A-7	R8i	NSIN-0900-6	600	560	84.4	39.4	25.0	1213	80
ACS880-107-0800A-7	2xR8i	NSIN-0900-6	800	800	84.4	39.4	25.0	1213	80
ACS880-107-1030A-7	2xR8i	NSIN-1380-6	1030	1000	84.4	39.4	25.0	1653	81
ACS880-107-1170A-7	2xR8i	NSIN-1380-6	1170	1100	84.4	39.4	25.0	1653	81
ACS880-107-1540A-7	3xR8i	2xNSIN-1380-6	1540	1400	84.4	78.7	25.0	3307	82
ACS880-107-1740A-7	3xR8i	2xNSIN-1380-6	1740	1600	84.4	78.7	25.0	3307	82
ACS880-107-2300A-7	4xR8i	2xNSIN-1380-6	2300	2000	84.4	78.7	25.0	3307	82
ACS880-107-2860A-7	5xR8i	3xNSIN-1380-6	2860	2800	84.4	118.1	25.0	4960	83
ACS880-107-3420A-7	6xR8i	3xNSIN-1380-6	3420	3200	84.4	118.1	25.0	4960	83
ACS880-107-3990A-7	7xR8i	4xNSIN-1380-6	3990	3600	84.4	157.5	25.0	6614	84
ACS880-107-4560A-7	8xR8i	4xNSIN-1380-6	4560	4400	84.4	157.5	25.0	6614	84
ACS880-107-5130A-7	9xR8i	5xNSIN-1380-6	5130	4800	84.4	196.9	25.0	8267	85
ACS880-107-5700A-7	10xR8i	6xNSIN-1380-6	5700	5600	84.4	236.2	25.0	9921	86
Nominal ratings									
I_N	Rated current of the drive-filter combination available continuously without overload up to 40 °C.								
P_N	Typical motor power								

Brake options

01 NBRA659 brake unit

Brake unit

The brake unit is a cabinet-built option. It handles the energy generated by a decelerating motor. The brake chopper connects the brake resistor to the intermediate DC circuit whenever the voltage in the circuit exceeds the limit defined by the control program. Energy consumption by the resistor losses lowers the voltage until the resistor can be disconnected.

Brake resistor for 1-phase brake units

The brake resistors are separately available for ACS880 multidrive cabinets as an option. Resistors other than the standard option resistors may be used, provided that the specified resistance value is not decreased and that the heat dissipation capacity of the resistor is sufficient for the drive application.

Dynamic braking unit

A brake chopper for application where high continuous braking power is needed. The power range is 500 to 6500 kW.



01

ACS880-607, 1-phase brake units

U _N = 500 V (range 380 to 500V)																		
Brake unit type	Brake chopper module type	Brake resistor type	Nominal ratings					Duty cycle (1min/5min)		Duty cycle (10s/60s)		Height ²⁾ [in]	Width ³⁾ [in]	Depth [in]	Noise level [db(A)]	Air flow [cfm]		
			P _{brmax} [kW]	R [ohm]	I _{max} [A]	I _{rms} [A]	P _{cont} [kW]	P _{br} [kW]	I _{rms} [A]	P _{br} [kW]	I _{rms} [A]							
Brake chopper without brake resistor																		
0400-5	NBRA659	-	403	1.43	571	136	109	317	391	403	498	83.9	15.7	25.4	64	388		
0800-5	2xNBRA659	-	806	0.72	1142	272	218	634	782	806	996	83.9	31.5	25.4	67	777		
1200-5	3xNBRA659	-	1208	0.48	1713	408	327	951	1173	1209	1494	83.9	47.2	25.4	68	1165		
1600-5	4xNBRA659	-	1611	0.36	2284	544	436	1268	1564	1612	1992	83.9	63.0	25.4	69	1554		
2000-5	5xNBRA659	-	2014	0.29	2855	680	545	1585	1955	2015	2490	83.9	78.7	25.4	70	1942		
2400-5	6xNBRA659	-	2417	0.24	3426	816	654	1902	2346	2418	2988	83.9	94.5	25.4	71	2331		
Brake chopper with the resistor																		
0400-5+D151 ¹⁾	NBRA659	2xSAFUR125F500	403	1.35	605	67	54	167	206	287	355	83.9	47.2	25.4	66	1471		
0800-5+D151 ¹⁾	2xNBRA659	2x(2xSAFUR200F500)	806	0.68	1210	134	108	333	412	575	710	83.9	94.5	25.4	69	2943		
1200-5+D151 ¹⁾	3xNBRA659	3x(2xSAFUR200F500)	1208	0.45	1815	201	162	500	618	862	1065	83.9	141.7	25.4	70	4414		
1600-5+D151 ¹⁾	4xNBRA659	4x(2xSAFUR200F500)	1611	0.34	2420	268	216	667	824	1150	1420	83.9	189 ¹⁾	25.4	71	5886		
2000-5+D151 ¹⁾	5xNBRA659	5x(2xSAFUR200F500)	2014	0.27	3025	335	270	833	1030	1437	1775	83.9	236.2 ¹⁾	25.4	72	7357		
2400-5+D151 ¹⁾	6xNBRA659	6x(2xSAFUR200F500)	2417	0.23	3630	402	324	1000	1236	1724	2130	83.9	283.5 ¹⁾	25.4	73	8829		

$U_N = 690 \text{ V}$ (range 525 to 690 V)

Brake unit type	Brake chopper module type	Brake resistor type	Nominal ratings					Duty cycle (1min/5min)		Duty cycle (10s/60s)		Height ²⁾ [in]	Width ³⁾ [in]	Depth [in]	Noise level [db(A)]	Air flow [cfm]
			$P_{br,max}$ [kW]	R [ohm]	I_{max} [A]	I_{rms} [A]	P_{cont} [kW]	P_{br} [kW]	I_{rms} [A]	P_{br} [kW]	I_{rms} [A]					
Brake chopper without brake resistor																
0400-7	NBRA669	-	404	2.72	414	107	119	298	267	404	361	83.9	15.7	25.4	64	388
0800-7	2×NBRA669	-	807	1.36	828	214	238	596	534	808	722	83.9	31.5	25.4	67	388
1200-7	3×NBRA669	-	1211	0.91	1242	321	357	894	801	1212	1083	83.9	47.2	25.4	68	777
1600-7	4×NBRA669	-	1615	0.68	1656	428	476	1192	1068	1616	1444	83.9	63.0	25.4	69	1165
2000-7	5×NBRA669	-	2019	0.54	2070	535	595	1490	1335	2020	1805	83.9	78.7	25.4	70	1554
2400-7	6×NBRA669	-	2422	0.45	2484	642	714	1788	1602	2424	2166	83.9	94.5	25.4	71	1942
Brake chopper with the resistor																
0400-5+D151 ¹⁾	NBRA669	2×SAFUR200F500	404	1.35	835	97	54	167	149	287	257	355	83.9	47.2	25.4	1471
0800-5+D151 ¹⁾	2×NBRA669	2×(2×SAFUR200F500)	807	0.68	1670	194	108	333	298	575	514	710	83.9	94.5	25.4	2943
1200-5+D151 ¹⁾	3×NBRA669	3×(2×SAFUR200F500)	1211	0.45	2505	291	162	500	447	862	771	1065	83.9	141.7	25.4	4414
1600-5+D151 ¹⁾	4×NBRA669	4×(2×SAFUR200F500)	1615	0.34	3340	388	216	667	596	1150	1028	1420	83.9	189 ¹⁾	25.4	5886
2000-5+D151 ¹⁾	5×NBRA669	5×(2×SAFUR200F500)	2019	0.27	4175	485	270	833	745	1437	1285	1775	83.9	236.2 ¹⁾	25.4	7357
2400-5+D151 ¹⁾	6×NBRA669	6×(2×SAFUR200F500)	2422	0.23	5010	582	324	1000	894	1724	1542	2130	83.9	283.5 ¹⁾	25.4	8829

Ratings

$P_{br,max}$	Maximum braking power of the NBRA-6xx chopper and SAFUR resistor combination.
R	Recommended braking resistor resistance. Also nominal resistance of corresponding SAFUR resistor. Dedicated resistor for each brake chopper.
I_{max}	Maximum peak current per chopper during braking. Current is achieved with minimum resistor resistance.
I_{rms}	Corresponding rms current per chopper during load cycle.

Heat loss of brake chopper is 1% of braking power. Heat loss of section with brake resistors is the same as braking power.

¹⁾ Additional 7.9 in junction section needed.

²⁾ Additional 0.4 in is required for marine supports.

³⁾ Total width of the line-up is the sum of widths of the sections plus an additional 1.2 in for the end plates.

^{*} D151 = braking resistor, degree of protection IP22 and IP42 only

ACS880-607, 3-phase dynamic brake units

$U_N = 500\text{ V}$ (range 380 to 500V)

Brake unit type ACS880-607-	Frame size	Resistor values		Ratings R_{min} No-overload use						Ratings R_{max} No-overload use								
		R_{min}	R_{max}	I_{dc}	I_{rms}	$P_{cont,max}$	I_{max}	I_{dc}	I_{rms}	P_{br}	R_{min}	I_{dc}	I_{rms}	$P_{cont,max}$	I_{max}	I_{dc}	I_{rms}	P_{br}
		[ohm]	[ohm]	[A]	[A]	[kW]	[A]	[A]	[A]	[kW]	[A]	[A]	[kW]	[A]	[A]	[A]	[A]	[kW]
0630-5	R8i	2.2	2.6	781	310	630	370	999	351	800	781	284	630	312	835	293	670	
0940-5	R8i	1.4	1.7	1171	465	940	555	1499	527	1210	1171	430	940	468	1277	449	1030	
1260-5	2xR8i	2.2	2.6	1562	621	1260	740	1998	702	1610	1562	568	1260	625	1671	587	1340	
1880-5	2xR8i	1.4	1.7	2342	931	1880	1110	2997	1053	2410	2342	860	1880	937	2555	898	2060	
2830-5	3xR8i	1.4	1.7	3514	1396	2830	1665	4496	1580	3620	3514	1289	2830	1405	3832	1347	3080	
3770-5	4xR8i	1.4	1.7	4685	1862	3770	2220	5994	2106	4820	4685	1719	3770	1874	5110	1795	4110	
4710-5	5xR8i	1.4	1.7	5856	2327	4710	2775	7493	2633	6030	5856	2149	4710	2342	6387	2244	5140	

$U_N = 690\text{ V}$ (range 525 to 690 V)

Brake unit type ACS880-607-	Frame size	Resistor values		Ratings R_{min} No-overload use						Ratings R_{max} No-overload use								
		R_{min}	R_{max}	I_{dc}	I_{rms}	$P_{cont,max}$	I_{max}	I_{dc}	I_{rms}	P_{br}	R_{min}	I_{dc}	I_{rms}	$P_{cont,max}$	I_{max}	I_{dc}	I_{rms}	P_{br}
		[ohm]	[ohm]	[A]	[A]	[kW]	[A]	[A]	[A]	[kW]	[A]	[A]	[kW]	[A]	[A]	[A]	[A]	[kW]
0870-7	R8i	3.0	3.6	781	310	870	370	999	351	1110	781	283	870	312	833	293	920	
1300-7	R8i	2.0	2.4	1171	465	1300	555	1499	527	1660	1171	425	1300	468	1249	439	1390	
1730-7	2xR8i	2.0	3.6	1562	621	1730	740	1998	702	2220	1562	567	1730	625	1665	585	1850	
2600-7	2xR8i	2.0	2.4	2342	931	2600	1110	2997	1053	3330	2342	850	2600	937	2498	878	2770	
3900-7	3xR8i	2.0	2.4	3514	1396	3900	1665	4496	1580	4990	3514	1275	3900	1405	3746	1316	4160	
5200-7	4xR8i	2.0	2.4	4685	1862	5200	2220	5994	2106	6650	4685	1700	5200	1874	4995	1755	5540	
6500-7	5xR8i	2.0	2.4	5856	2327	6500	2775	7493	2633	8320	5856	2125	6500	2342	6244	2194	6930	

Dimensions

Frame size	Height ¹⁾ [in]	Width bottom exit [in]	Width top exit [in]	Depth [in]	Noise level ²⁾ [db(A)]	Air flow [cfm]
R8i	84.4	19.7	27.6	25.0	72	765
2xR8i	84.4	39.4	55.1	25.0	74	1530
3xR8i	84.4	59.1	82.7	25.0	76	2295
4xR8i	84.4	78.7	110.2	25.0	76	3061
5xR8i	84.4	98.4	137.8	25.0	77	3826

¹⁾ UL Type 1 and 12 (IP21, IP42 and IP54) adds an additional 6.7 in to the height of each R8i cabinet.

²⁾ Average noise level with controlled cooling fan.

Note: 15.7 in free space needed above cabinet.

Resistor

R_{min}	Minimum allowed resistance value of the brake resistor for one phase of the brake module.
R_{max}	Resistance value of the brake resistor for one phase of the brake module corresponding to the maximum achieved continuous braking power.
Note:	Connect one resistor per brake module phase. For example, a brake unit of frame size 2xR8i including two brake modules □ 2x3 resistors are needed.

Typical ratings for no-overload use

I_{dc}	Total input DC current of brake unit.
I_{rms}	Total rms DC output phase current of brake unit.
I_{max}	Peak brake current (DC) per chopper module phase.
$P_{cont,max}$	Maximum continuous braking power per brake unit.

Cyclic load (1 min/5 min)

I_{dc}	Total input DC current of brake unit during a period of 1 minute with braking power P_{br} .
I_{rms}	Total rms DC current per brake unit phase during a period of 1 minute with braking power P_{br} .
P_{br}	Short term braking power

ACS880-607LC liquid cooled 1-phase brake units

$U_N = 690$ V (range 525 to 690 V)

Brake unit type	Brake chopper module	Brake resistor type	Nominal ratings				Duty cycle (1min/5min)		Duty cycle (10s/60s)		Height [in]	Width [in]	Depth [in]	Losses ³⁾ [BTU]	Coolant flow rate ¹⁾ [GPM]	Air flow ²⁾ [cfm]	
			P_{brmax} [kW]	R_{tot} [ohm]	I_{max} [A]	I_{rms} [A]	P_{brcont} [kW]	P_{br} [kW]	I_{rms} [A]	P_{br} [kW]							I_{rms} [A]
Brake chopper without brake resistor																	
0400-7	NBRW-669C	-	404	-	414	107	119	298	267	404	361	78.8	15.7	25.4	6824	0.4	-
0800-7	2xNBRW-669C	-	807	-	828	214	238	596	534	808	722	78.8	31.5	25.4	13649	0.8	-
1200-7	3xNBRW-669C	-	1211	-	1242	321	357	894	801	1212	1083	78.8	47.2	25.4	20473	1.3	-
1600-7	4xNBRW-669C	-	1615	-	1656	428	476	1192	1068	1616	1444	78.8	63.0	25.4	27297	1.7	-
2000-7	5xNBRW-669C	-	2019	-	2070	535	595	1490	1335	2020	1805	78.8	78.7	25.4	34121	2.1	-
2400-7	6xNBRW-669C	-	2422	-	2484	642	714	1788	1602	2424	2166	78.8	94.5	25.4	40946	2.5	-
Brake chopper with brake resistor																	
0400-7	NBRW-669C	2xSAFUR200F500	404	1.35	835	97	54	167	149	287	257	78.8	47.2	25.4	0.4	1083	
0800-7	2xNBRW-669C	2x(2xSAFUR200F500)	807	0.68	1670	194	108	333	298	575	514	78.8	94.5	25.4	0.8	2554	
1200-7	3xNBRW-669C	3x(2xSAFUR200F500)	1211	0.45	2505	291	162	500	447	862	771	78.8	141.7	25.4	1.3	3637	
1600-7	4xNBRW-669C	4x(2xSAFUR200F500)	1615	0.34	3340	388	216	667	596	1150	1028	78.8	189 ⁴⁾	25.4	1.7	4720	
2000-7	5xNBRW-669C	5x(2xSAFUR200F500)	2019	0.27	4175	485	270	833	745	1437	1285	78.8	236.2 ⁴⁾	25.4	2.1	5803	
2400-7	6xNBRW-669C	6x(2xSAFUR200F500)	2422	0.23	5010	582	324	1000	894	1724	1542	78.8	283.5 ⁴⁾	25.4	2.5	6886	

¹⁾ Coolant flow rate is for the brake chopper module only.

²⁾ Air flow is for the brake resistor only, which is air-cooled.

³⁾ Power loss conducted to coolant and emitted to air.

⁴⁾ Additional 11.8 in junction section needed.

Ratings

Nominal ratings

P_{brmax}	Maximum short-term (1 minute every 10 minutes) braking power.
R_{tot}	Total brake resistor resistance of the whole brake unit.
I_{max}	Maximum peak current of the whole brake unit.
I_{rms}	Corresponding rms current per chopper during load cycle.
P_{brcont}	Maximum continuous power rating.

Cyclic load (1 min/5 min)

P_{br}	Maximum braking power, allowed for 1 minute every 5 minutes.
I_{rms}	Total rms current during a period of 1 minute with braking power P_{br} .

Cyclic load (10s/60s)

P_{br}	Total rms current during a period of 10 seconds with braking power P_{br} .
I_{rms}	Maximum braking power, allowed for 10 seconds every 60 seconds

Losses

P_{loss}	Power loss conducted to coolant and emitted to air.
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Du/dt filters

Du/dt filtering suppresses inverter output voltage spikes and rapid voltage changes that stress motor insulation. Additionally, du/dt filtering reduces capacitive leakage currents and high-frequency emissions from the motor cable, as well as high-frequency losses and bearing currents in the motor. The need for du/dt filtering depends on the motor insulation. For information on the construction of the motor insulation, consult the manufacturer.

If the motor does not meet the following requirements, the lifetime of the motor might decrease. Insulated N-end (non-driven end) bearings and/or common mode filters are also required for motor bearing currents with motors bigger than 100 kW. For more information, please see the ACS880 hardware manuals.

Please see below for information about how to select a filter according to the motor.

Filter selection table for ACS880

Motor type	Nominal AC supply voltage	Requirements for			
		Motor insulation system	ABB du/dt and common mode filters, insulated N-end motor bearings		
			$P_N < 100 \text{ kW}$ and frame size $< \text{IEC 315}$	$100 \text{ kW} \leq P_N < 350 \text{ kW}$ or $\text{IEC 315} \leq \text{frame size} < \text{IEC 400}$	$P_N \geq 350 \text{ kW}$ or frame size $\geq \text{IEC 400}$
			$P_N < 134 \text{ hp}$ and frame size $< \text{NEMA 500}$	$134 \text{ hp} \leq P_N < 469 \text{ hp}$ or $\text{NEMA 500} \leq \text{frame size} \leq \text{NEMA 580}$	$P_N \geq 469 \text{ hp}$ or frame size $\geq \text{NEMA 580}$
ABB motors					
Random-wound M2__, M3__ and M4__	$U_N \leq 500 \text{ V}$	Standard	–	+ N	+ N + CMF
	$500 \text{ V} < U_N \leq 600 \text{ V}$	Standard	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
		Reinforced	–	+ N	+ N + CMF
	$600 \text{ V} < U_N \leq 690 \text{ V}$ (cable length $\leq 150 \text{ m}$)	Reinforced	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
$600 \text{ V} < U_N \leq 690 \text{ V}$ (cable length $> 150 \text{ m}$)	Reinforced	–	+ N	+ N + CMF	
Form-wound HX__ and AM__	$380 \text{ V} < U_N \leq 690 \text{ V}$	Standard	n/a	+ N + CMF	$P_N < 500 \text{ kW}$: + N + CMF $P_N \geq 500 \text{ kW}$: + du/dt + N + CMF
Old ¹⁾ form-wound HX__ and modular	$380 \text{ V} < U_N \leq 690 \text{ V}$	Check with the motor manufacturer	+ du/dt with voltages over 500 V + N + CMF	+ du/dt with voltages over 500 V + N + CMF	+ du/dt with voltages over 500 V + N + CMF
Random-wound HX__ and AM__ ²⁾	$0 \text{ V} < U_N \leq 500 \text{ V}$	Enameled wire with fiber glass taping	+ N + CMF	+ N + CMF	+ N + CMF
	$500 \text{ V} < U_N \leq 690 \text{ V}$		+ du/dt + N + CMF	+ du/dt + N + CMF	+ du/dt + N + CMF
HPD	Consult the motor manufacturer.				

¹⁾ Manufactured before 1.1.1998.

²⁾ For motors manufactured before 1.1.1998, check for additional instructions with the motor manufacturer.

Non-ABB motors

Random-wound and form-wound	$U_N \leq 420 \text{ V}$	Standard: $\hat{U}_{LL} = 1300 \text{ V}$	–	+ N or CMF	+ N + CMF
	$420 \text{ V} < U_N \leq 500 \text{ V}$	Standard: $\hat{U}_{LL} = 1300 \text{ V}$	+ du/dt	+ du/dt + N or + du/dt + CMF	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL} = 1600 \text{ V}$, 0.2 microsecond rise time	–	+ N or CMF	+ N + CMF
	$500 \text{ V} < U_N \leq 600 \text{ V}$	Reinforced: $\hat{U}_{LL} = 1600 \text{ V}$	+ du/dt	+ du/dt + N or + du/dt + CMF	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL} = 1800 \text{ V}$	–	+ N or CMF	+ N + CMF
	$600 \text{ V} < U_N \leq 690 \text{ V}$	Reinforced: $\hat{U}_{LL} = 1800 \text{ V}$	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL} = 2000 \text{ V}$, 0.3 microsecond rise time ³⁾	–	+ N or CMF	+ N + CMF

³⁾ If the intermediate DC circuit voltage of the drive is increased from the nominal level due to long term resistor braking cycles, check with the motor manufacturer if additional output filters are needed in the applied drive operation range.

The abbreviations used in the table are defined below

Abbr.	Definition
U_N	Nominal AC line voltage.
\hat{U}_{LL}	Peak line-to-line voltage at motor terminals which the motor insulation must withstand.
P_N	Motor nominal power.
du/dt	du/dt filter at the output of the drive. Available from ABB as an optional add-on kit.
CMF	Common mode filter. Depending on the drive type, CMF is available from ABB as a factory-installed option (+208) or as an optional add-on kit.
N	N-end bearing: insulated motor non-drive end bearing.
n/a	Motors of this power range are not available as standard units. Consult the motor manufacturer.

Du/dt filters

External du/dt filter for ACS880-107						
ACS880-107						
	500 V	690 V	NOCH0016-60	NOCH0030-60	NOCH0070-60	BOCH-0350A-7
003A6-5	007A3-7		x			
004A8-5	009A8-7		x			
006A0-5	014A2-7		x			
008A0-5			x			
0011A-5			x			
0014A-5			x			
0018A-5			x			
0025A-5	0018A-7			x		
	0022A-7			x		
0035A-5	0027A-7			x		
	0035A-7				x	
0050A-5	0042A-7				x	
0061A-5	0052A-7				x	
0078A-5					x	
0094A-5					x	
0110A-5	0062A-7					x
0140A-5	0082A-7					x
0170A-5	0100A-7					x
0200A-5	0130A-7					x
0240A-5	0140A-7					x
0300A-5	0190A-7					x
0340A-5	0220A-7					x
	0270A-7					x

All parallel connected ACS880-104 modules in frame size nxR8i and all 690 V ACS880-104/107LC modules in frame size 1xR8i and nxR8i have du/dt filters built-in as standard (+E205).

Built-in du/dt filters are available as option (+E205) for ACS880-104 modules in frame size 1xR8i ranging from 380 to 500 V. The built-in du/dt filters in R8i modules do not impact the module dimensions.

Dimensions and weights of the du/dt filters				
du/dt filter	Height [in]	Width [in]	Depth [in]	Weight [lb]
BOCH-0350A-7 ²⁾	12.2	13.7	10.1	35
NOCH0016-60	7.7	5.5	4.5	5
NOCH0016-62/65	12.7	7.8	6.1	13
NOCH0030-60	8.5	6.5	5.1	10
NOCH0030-62/65	13.7	9.8	6.8	20
NOCH0070-60	10.3	7.1	5.9	21
NOCH0070-62/65	17.0	11.0	8.0	35
NOCH0120-60 ¹⁾	7.9	6.1	4.2	15
NOCH0120-62/65	30.1	12.1	10.1	99
FOCH0260-70	15.0	13.4	10.0	104
FOCH0260-72	35.4	12.4	15.1	161
FOCH0320-50	26.1	12.6	11.5	143
FOCH0320-52	43.0	15.6	16.3	220
FOCH0610-70	26.1	12.6	11.5	143
FOCH0875-70	26.1	12.6	11.5	143

¹⁾ 3 filters included, dimensions apply to one filter.

²⁾ Values are for three single-phase filters.



NOCH0016-60

ACS880 drives are compatible with the wide ABB product offering



Programmable Logic Controllers PLCs

The AC500, AC500-eCo, AC500-S and AC500-XC scalable PLC ranges provide solutions for small, medium and high-end applications. Our AC500 PLC platform offers different performance levels and is the ideal choice for high availability, extreme environments, condition monitoring, motion control or safety solutions.



AC motors

ABB's low voltage AC motors are designed to save energy, reduce operating costs and minimize unscheduled downtime. General performance motors ensure convenience, while process performance motors provide a broad set of motors for the process industries and heavy-duty applications.



Control panels

CP600-eCo, CP600 and CP600-Pro control panels offer a wide range of features and functionalities for maximum operability. ABB control panels are distinguished by their robustness and easy usability, providing all the relevant information from production plants and machines at one single touch.



All-compatible drives portfolio

The all-compatible drives share the same architecture; software platform, tools, user interfaces and options. Yet, there is an optimal drive from the smallest water pump to the biggest cement kiln, and everything in the between.



Automation Builder Engineering suite

ABB Automation Builder is the software for machine builders and system integrators wanting to automate their machines and systems in a unified and efficient way. Automation Builder connects the engineering tools for PLC, safety, control panels, SCADA, drives, motion and robots.



Jokab safety products

ABB Jokab Safety offers an extensive range of innovative products and solutions for machine safety systems. It is represented in standardization organizations for machine safety and works daily with the practical application of safety requirements in combination with production requirements.

Choose the right motor for your application

Induction motors and the ACS880: a reliable combination

Induction motors are used throughout industry in applications that demand robust and high enclosure motor and drive solutions. ACS880 drives fit perfectly together with this type of motor by providing comprehensive functionality, yet simple operation. The drives are ideal for environments that require a high degree of protection and small footprint. ACS880 drives come with DTC as standard, ensuring high-speed accuracy. Our motors and drives provide the perfect foundation for energy efficiency, while delivering capabilities such as exceeding the nominal motor speed when maximum power is needed.

Our low voltage motors for explosive atmospheres and low voltage industrial drives have been tested and certified to verify that, when correctly dimensioned, they are safe to use in explosive atmospheres. ABB drives can also be used with non-ABB Ex motors with ATEX-certified thermistor protection. If this protection is not used, the motor and drive combination must be either type-tested or combined-tested for potentially explosive atmospheres by the customer, motor manufacturer or a third party. It is also important to verify that the motor can be used with ABB variable speed drives.

Permanent magnet motors and the ACS880: smooth operation

Permanent magnet technology is used for improved motor characteristics in terms of energy efficiency and compactness. This technology is particularly well-suited for low-speed control applications, as in some cases it eliminates the need to use gearboxes. The actual characteristics of different permanent magnet motors can vary considerably. Even without speed or rotor position sensors, ACS880 drives with DTC can control most types of permanent magnet motors.

IE4 synchronous reluctance motors and the ACS880: optimized energy efficiency

Combining the ACS880's control technology with our synchronous reluctance (SynRM) motors provides an IE4 motor and drive package that ensures high energy efficiency, reduces motor temperatures and provides a significant reduction in motor noise. Lower temperature results in better motor reliability and longer motor life.

ABB has tested our SynRM motor and drive packages and produced manufacturer's statements providing verified system (drive and motor) efficiency.





Traditional IE2 induction motor



IE4 synchronous reluctance motor SynRM

Losses

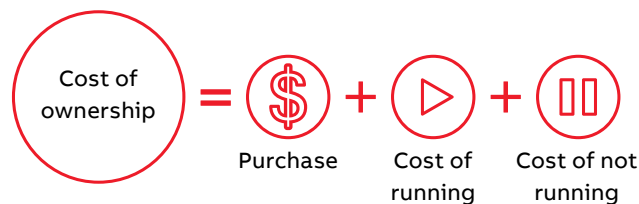
Induction motor	I^2R Stator	Other	I^2R Rotor	100%
SynRM	I^2R Stator	Other		60%

The idea is simple. Take a conventional, proven stator technology and a totally new, innovative rotor design. Then combine them with a drive loaded with new, application-specific software. Finally, optimize the whole package for applications such as pumps, fans, compressors, extruders, conveyors and mixers.

Synchronous reluctance technology combines the performance of a permanent magnet motor with the simplicity and service-friendliness of an induction motor. The new rotor has neither

magnets nor windings and suffers virtually no power losses. Because the footprints are identical, it is easy to replace an induction motor with a SynRM motor.

IE4 synchronous reluctance motors have very low winding temperatures, which increases the reliability and life of the winding. More importantly, the cooler synchronous reluctance rotor means significantly lower bearing temperatures – an important factor, because bearing failures cause about 70% of unplanned motor outages.

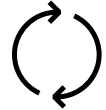


Keep your process running

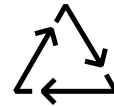
From spare parts and technical support to cloud-based remote monitoring solutions, ABB offers the most extensive service offering to fit your needs. The global ABB service units complemented by external authorized value providers form a service network on your doorstep. Maximize performance, uptime and efficiency throughout the life cycle of your assets.

We can help you more by knowing where you are, register your drive at www.abb.com/driverreg.

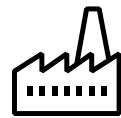
Option code	Description
+P904	Extension of warranty to 24 months from commissioning or 30 months from delivery
+P909	Extension of warranty to 36 months from commissioning or 42 months from delivery
+P948	Customized extension of warranty from 24 to 120 months from delivery



Replacements
Fast and efficient replacement services to minimize production downtime.



End-of-life services
Responsible dismantling, recycling and reusing of products, according to local laws and industrial standards.



Maintenance
Systematic and organized maintenance and support over the life cycle of your assets.



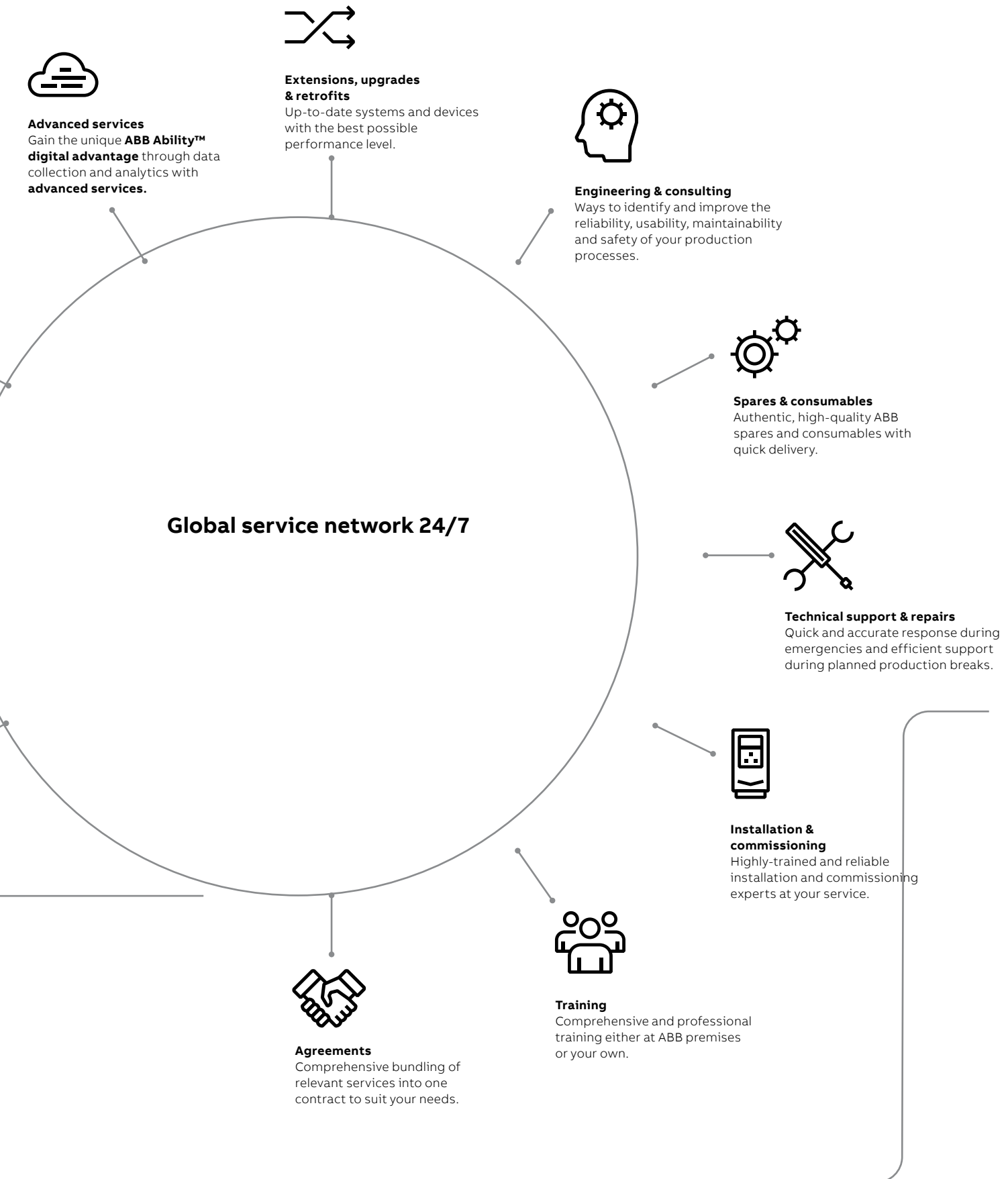


ABB Ability™ Digital Powertrain

Intelligent powertrain

The powertrain is equipped with sensors and cloud connectivity and can comprise motors, drives, mechanical components including bearings, couplings and gearboxes – and also pumps. You can choose yourself what assets you want to monitor.

Turning data into valuable information

Data gathered from drives' inbuilt sensors and loggers together with that collected from ABB Ability™ Smart Sensors fitted to motors, bearings and pumps, can be aggregated, stored and further accessed via the cloud. The ability to gather and analyze this data can reveal information on the status and condition of your equipment, so that you can schedule service activities more effectively.

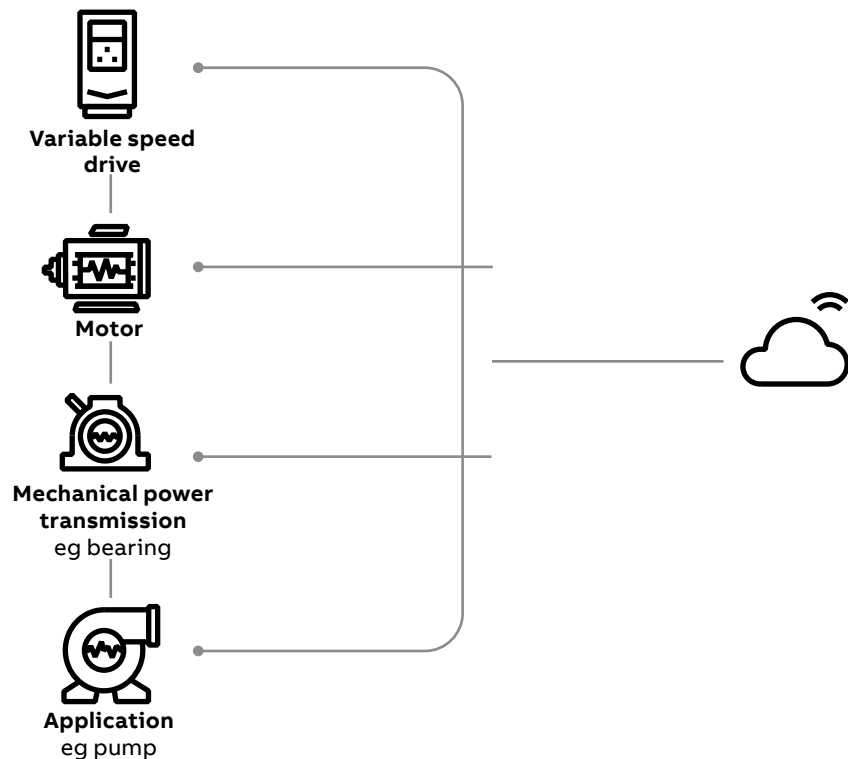


ABB Ability™ Condition Monitoring service for powertrains optimizes the performance and efficiency of rotating equipment. It enables full transparency on key parameters for drives, motors, mounted bearings and pumps, and can also be used in applications such as compressors, conveyors, mixers and extruder main shafts.

3 Accessing data for analytics

You have access to a monitoring portal to view key operational parameters of individual assets as one unified system. Detailed dashboards give full transparency so that you can take actions that lead to less downtime, extended equipment lifetime, lower costs, safer operations and increased profitability.

4 Gain a digital advantage

Ensuring that the right person has the right information to at the right time brings: Appropriate response to production challenges, minimizing operating costs and wastage of products. Greater insight into various aspects of your process, thereby improving quality and reducing variations, errors and waste

- Lower risk of production downtime and change of the maintenance from reactive to predictive



Summary of features and options

Ordering code	ACS880 -107 INU R1i to nxR8i	ACS880 -207 ISU nxR8i	ACS880 -307 DSU D6D to D8D 6-pulse	ACS880 -307 DSU D7T and nxD8T 6 or 12-pulse	ACS880 -907 RRU nxR8i	ACS880 -607 brake unit nxR8i	ACS880 -1607 DC/DC nxR8i	ACS880 -107LC INU nxR8i	ACS880 -207LC ISU nxR8i	ACS880 -1607LC DC/DC nxR8i	ACS880 -607LC brake unit
Mounting											
Free-standing		●	●	●	●	●	●	●	●	●	●
Cabling											
Supply bottom entry		-	●	●	●	●	-	-	-	●	-
Supply top entry		-	□	□	□	□	-	-	-	□	-
Inverter bottom exit		●	-	-	-	-	●	●	●	-	●
Inverter top exit		□	-	-	-	-	□	□	□	-	□
Degree of protection											
IP22 (UL type 1)		●	●	●	●	●	●	●	-	-	-
IP42 (UL type 1)		□	□	□	□	□	□ ¹⁾	□ ¹⁾	●	●	●
IP54 (UL type 12)		□	□	□	□	□	□ ¹⁾	□ ¹⁾	□	□	□
Motor control											
DTC motor control		●	-	-	-	-	-	-	●	-	-
Control panel											
Intuitive control panel		□	□	□	□	□	□ ²⁾	□	□	□	□ ²⁾
EMC filters											
EMC 1st environment, restricted distribution, C2, grounded network (TN)	+E202	-	□	-	□ ⁴⁾	□	-	-	-	□	-
EMC 2nd environment, C3, grounded (TN) and ungrounded network (IT)	+E210	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾	□ ⁵⁾
Line filter											
AC or DC choke		-	-	●	●	-	-	-	-	-	-
Advanced line harmonic filter LCL		-	●	-	-	-	-	-	-	●	-
Advanced line harmonic filter L		-	-	-	-	●	-	-	-	-	-
Output filter											
Common mode filter	+E208	● ⁶⁾	● ⁶⁾	-	-	● ⁶⁾	-	-	●	●	-
Du/dt filters	+E205	● ⁷⁾	●	-	-	●	-	-	●	●	-
Braking (see braking unit table)											
Incoming unit apparatus											
Disconnecter		-	● ⁸⁾	●	● ⁹⁾	● ¹⁰⁾	-	-	-	-	-
Air circuit breaker	+F255	-	● ¹¹⁾	●	● ⁹⁾	● ¹²⁾	-	-	-	●	-
Line contactor	+F250	-	● ⁸⁾	□	-	● ¹⁰⁾	-	-	-	-	-
Earthing switch	+F259	-	□	□	□	□	-	-	-	□	-
Inverter units											
DC switch	+F286	□ ¹³⁾	-	-	-	-	□ ¹⁴⁾	□	□	□	□ ¹⁴⁾
R1i - R5i in an own compartment	+C204	□	-	-	-	-	-	-	-	-	-

● Standard

□ Selectable option, with plus code

■ Selectable option, external, no plus code

Ordering code	ACS880-107 INU R11 to nxR8i	ACS880-207 ISU nxR8i	ACS880-307 DSU D6D to D8D 6-pulse	ACS880-307 DSU D7T and nxD8T 6 or 12-pulse	ACS880-907 RRU nxR8i	ACS880-607 brake unit nxR8i	ACS880-1607 DC/DC nxR8i	ACS880-107LC INU nxR8i	ACS880-207LC ISU nxR8i	ACS880-1607LC DC/DC nxR8i	ACS880-607LC brake unit	
Software												
Primary control program	●	-	-	-	-	-	-	-	●	-	-	-
Drive application programming based on IEC 61131-3 using Drive Application Builder (available for primary control program)	+N8010	□ ³⁾	□ ³⁾	-	-	-	-	-	□ ³⁾	□ ³⁾	-	-
Application control program for winder	+N5000	□	-	-	-	-	-	-	□	-	-	-
Application control program for crane	+N5050	□	-	-	-	-	-	-	□	-	-	-
Application control program for winch	+N5100	□	-	-	-	-	-	-	□	-	-	-
Application control program for centrifuge/decanter	+N5150	□	-	-	-	-	-	-	□	-	-	-
Application control program for PCP pump	+N5200	□	-	-	-	-	-	-	□	-	-	-
Application control program for test bench	+N5300	□	-	-	-	-	-	-	□	-	-	-
Application control program for override control	+N5450	□	-	-	-	-	-	-	□	-	-	-
Application control program for ESP pumps	+N5600	□	-	-	-	-	-	-	□	-	-	-
Application control program for position control	+N5700	□ ²⁴⁾	-	-	-	-	-	-	□ ²⁴⁾	-	-	-
Support for asynchronous motor	●	-	-	-	-	-	-	-	●	-	-	-
Support for permanent magnet motor	●	-	-	-	-	-	-	-	●	-	-	-
Support for synchronous reluctance motor (SynRM)	+N7502	□	-	-	-	-	-	-	□	-	-	-
Application control program for LV synchronous machine	+N8052	□	-	-	-	-	-	-	□	-	-	-
Optimal grid control of IGBT supply control program (grid converter)	+N8053	-	□	-	-	-	-	-	-	□	-	-
High speed license. Allows high speed operation above 598 Hz output frequency.	+N8200	□	-	-	-	-	-	-	□	-	-	-
Approvals												
CE	●	●	●	●	●	●	●	●	●	●	●	●
UL, cUL	□	□	□	□	□	□	□	□	□	□ ³⁾	-	-
CSA	□	□	□	□	□	□	□	□	□	□ ³⁾	-	-
EAC/GOST R ¹⁵⁾	●	●	●	●	●	●	●	●	●	●	●	●
RoHS	●	●	●	●	●	●	●	●	●	●	●	●
RCM	●	●	●	●	●	●	●	●	●	●	●	●
Marine type approvals ¹⁶⁾	+C132	□ ¹⁷⁾	□	-	□	-	□	□	□	□ ³⁾	□ ³⁾	□
TÜV nord certificate for STO	●	-	-	-	-	-	-	-	●	-	-	-
TÜV nord certificate for FSO-12	+Q973	□	-	-	-	-	-	-	□	-	-	-
TÜV nord certificate for FSO-21	+Q972	□	-	-	-	-	-	-	□	-	-	-
TÜV nord certificate for FSE-31	+L521	□	-	-	-	-	-	-	□	-	-	-
Eurofins ATEX protective device certificate	+Q971 +L513/ +L514 or +Q971 +L537	□	-	-	-	-	-	-	□	-	-	-
SEMI F47	●	●	●	●	●	●	●	●	●	●	●	●

● Standard

□ Selectable option, with plus code

■ Selectable option, external, no plus code

Ordering code	ACS880 -107 INU R1i to nxR8i	ACS880 -207 ISU nxR8i	ACS880 -307 DSU D6D to D8D 6-pulse	ACS880 -307 DSU D7T and nxD8T 6 or 12-pulse	ACS880 -907 RRU nxR8i	ACS880 -607 brake unit nxR8i	ACS880 -1607 DC/DC nxR8i	ACS880 -107LC INU nxR8i	ACS880 -207LC ISU nxR8i	ACS880 -1607LC DC/DC nxR8i	ACS880 -607LC brake unit	
Safety functions ²³⁾												
Safe torque off (STO)		●	-	-	-	-	-	-	●	-	-	-
Safety functions module, FSO-12, without encoder, configurable functions:												
- Safe stop 1 (SS1-t, SS1-r)												
- Safely-limited speed (SLS)												
- Safe brake control (SBC)												
- Safe maximum speed (SMS)	+Q973	□	-	-	-	-	-	-	□	-	-	-
- Safe stop emergency (SSE)												
- Prevention of unexpected start-up (POUS)												
- Safe torque off (STO)												
Safety functions module, FSO-21, with encoder support, configurable functions:												
- Safe Stop 1 (SS1-t, SS1-r)												
- Safely-Limited Speed (SLS)												
- Safe Brake Control (SBC)												
- Safe Maximum Speed (SMS)												
- Safe Stop Emergency (SSE)	+Q972	□	-	-	-	-	-	-	□	-	-	-
- Prevention Of Unexpected Start-up (POUS)												
- Safe Direction (SDI), requires encoder feedback, FSE-31												
- Safe Speed Monitoring (SSM)												
- Safe Torque Off (STO)												
Pulse encoder interface module, FSE-31	+L521	□	-	-	-	-	-	-	□	-	-	-
Prevention of unexpected start-up with safety relay(s)	+Q957	□	-	-	-	-	-	-	□	-	-	-
Prevention of unexpected start-up with STO and safety functions module (FSO-12/-21)	+Q950 +Q973/ +Q972	□	-	-	-	-	-	-	□	-	-	-
Emergency stop, category 0 with opening the main contactor/breaker, with safety relay	+Q951	-	□	□	□	□	-	-	-	□	-	-
Emergency stop, category 1 with opening the main contactor/breaker, with safety relay	+Q952	-	□	□	□	□	-	-	-	□	-	-
Emergency stop, category 0 with STO, with safety relay	+Q963	-	□	□	□	□	-	-	-	□	-	-
Emergency stop, category 1 with STO, with safety relay	+Q964	-	□	□	□	□	-	-	-	□	-	-
Emergency stop, configurable category 0 or 1 with STO and safety functions module (FSO-12/-21)	+Q979 +Q973/ +Q972	-	□	□	□	□	-	-	-	□	-	-
PROFIsafe over PROFINET with safety functions module (FSO-21) and FPNO-21	+Q982 +Q972 +K492	□	-	-	-	-	-	-	□	-	-	-
Safely-limited speed (SLS) without encoder with FSO-12/-21 (encoderless)	+Q966 +Q973 +Q972	□	-	-	-	-	-	-	□	-	-	-
Safely-limited speed (SLS) with FSO-21 and encoder FSE-31	+Q965 +Q972 +L521	□	-	-	-	-	-	-	□	-	-	-
ATEX thermal motor protection for PTC/PT100, EX II (2) GD	+Q971 +L513/ +L514	□	-	-	-	-	-	-	□	-	-	-
FPTC-01 thermistor protection module	+L536	□	-	-	-	-	-	-	□	-	-	-
ATEX certified thermistor protection module, FPTC-02, EX II (2) GD	+L537 +Q971	□	-	-	-	-	-	-	□	-	-	-

● Standard

□ Selectable option, with plus code

■ Selectable option, external, no plus code

Ordering code	ACS880 -107 INU R1i to nxR8i	ACS880 -207 ISU nxR8i	ACS880 -307 DSU D6D to D8D 6-pulse	ACS880 -307 DSU D7T and nxD8T 6 or 12-pulse	ACS880 -907 RRU nxR8i	ACS880 -607 brake unit nxR8i	ACS880 -1607 DC/DC nxR8i	ACS880 -107LC INU nxR8i	ACS880 -207LC ISU nxR8i	ACS880 -1607LC DC/DC nxR8i	ACS880 -607LC brake unit
Earth fault protection											
Earth fault monitoring, earthed mains	●	●	–	–	●	–	–	●	●	–	–
Earth fault monitoring, unearthed mains +Q954	–	□	□	□	□	–	–	–	□	–	–
Control connections (I/O) and communications											
2 pcs analog inputs, programmable, galvanically isolated	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
2 pcs analog outputs, programmable	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
6 pcs digital inputs, programmable, galvanically isolated – can be divided into two groups	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
2 pcs digital inputs/outputs	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
1 pcs digital input interlock	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
3 pcs relay outputs programmable	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
Drive-to-drive link/Built-in Modbus	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
Assistant control panel/PC tool connection	●	●	●	●	●	● ²⁾	●	●	●	●	● ²⁾
Possibility for external power supply for control unit	□	□	□	□	□	□	□	□	□	□	□
Built-in I/O extension and speed feedback modules: for more details see sections: "Input/output extension modules", "Speed feedback interfaces for precise process control" and "DDCS communication option modules" ¹⁸⁾	□	□	□	□	□	□	□	□	□	□	□
Built-in adapters for several communication protocols: for more details see section "Communication protocol adapters" ¹⁹⁾	□	□	□	□	□	□	□	□	□	□	□

- Standard
 - Selectable option, with plus code
 - Selectable option, external, no plus code
 - Not available
- ¹⁾ Not available for resistor D151
²⁾ Not available for 1-phase brake unit
³⁾ Pending
⁴⁾ Available only as 6-pulse D8T
⁵⁾ Conducted emission and immunity are fulfilled with standard filtering. Radiated emission and immunity are as option (cabinet construction).
⁶⁾ Standard for frame sizes R6i to 10xR8i
⁷⁾ Optional in frame sizes R1i to R8i and 500 V
⁸⁾ For ISU: 500 V disconnector and contactor up to 2xR8i, 690 V disconnector and contactor up to 3xR8i. For bigger ISU frames: air-circuit breaker.
⁹⁾ For DSU 6-pulse, 500 V: disconnector up to 3xD8T, air-circuit breaker ≥ 4xD8T. For DSU 6-pulse, 690 V: disconnector up to 4xD8T, air-circuit breaker ≥ 5xD8T. For DSU 12-pulse: All 12-pulse DSUs have disconnector as standard, air-circuit breaker is offered as an option.
¹⁰⁾ For RRU: Disconnector and contactor up to 2xR8i, air-circuit breaker ≥ 4xR8i.
¹¹⁾ For ISU: 500 V air circuit breaker ≥ 3xR8i, 690 V air-circuit breaker ≥ 4xR8i
¹²⁾ For RRU: air circuit breaker >4xR8i
¹³⁾ R1i to R4i for cabinet, individual for R6i to nxR8i. Common for cabinet for R1i to R5i, individual for R6i to nxR8i.
¹⁴⁾ DC switch for 3-phase dynamic brake unit only
¹⁵⁾ EAC has replaced GOST R
¹⁶⁾ ACS880 marine type approval and type approved drives are listed at <https://new.abb.com/drives/segments/marine/marine-type-approvals>.
¹⁷⁾ Marine type approval only available for frames R5i-nxR8i
¹⁸⁾ Three option slots are available for I/O extension, speed feedback, fieldbus and functional safety options. The slot number for I/O and encoder options can be extended with FEA-03 option.
¹⁹⁾ Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.
²³⁾ Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options. FSO-xx can also be mounted on a DIN rail by using a separate installation kit. DIN rail mounting does not consume the drive's option slots.
²⁴⁾ Please check availability from your local ABB.

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

abb.com/ACS880

abb.com/drives

abb.com/drivespartners

abb.com/motors&generators

Video playlist:

ACS880 how-to videos

