ABB

ABB industrial drives
ACS880, multidrives
1.5 to 6000 kW

Reliability, performance and safety.
ACS880 series.

ABB industrial drives
ACS880, multidrives

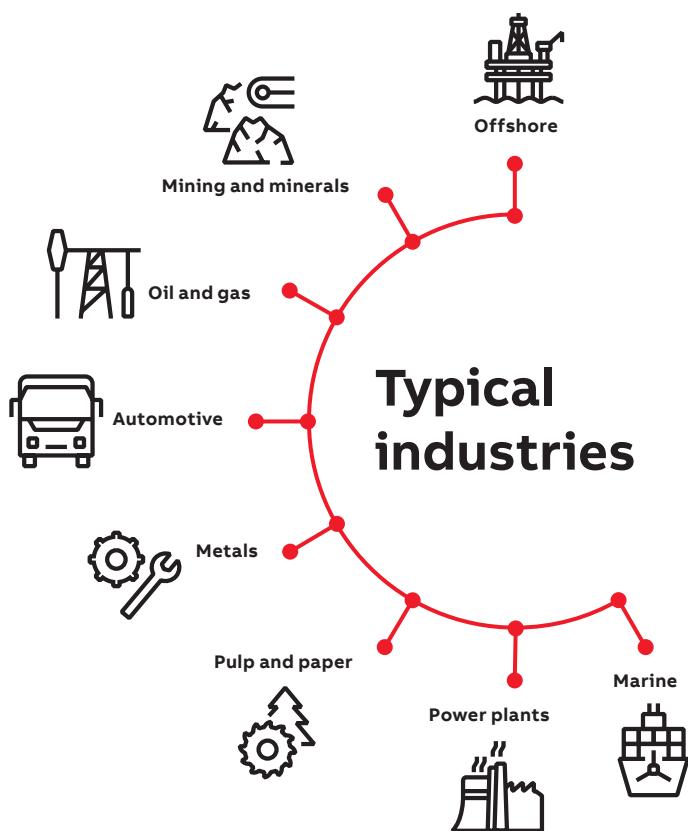**ACS880 DRIVE SERIES**
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—
The all-compatible ACS880 series
Reliability and flexibility

The AC880 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, harbours, 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.

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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.

Offshore

Mining and minerals

Oil and gas

Automotive

Typical industries

Metals

Pulp and paper

Power plants

Marine

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.

All-compatible user-interface
- All-compatible drives share the same easy-to-use user interface.
- Multilingual control panel with clear display
- Graphical PC tools for engineering, commissioning and maintenance
See page 08

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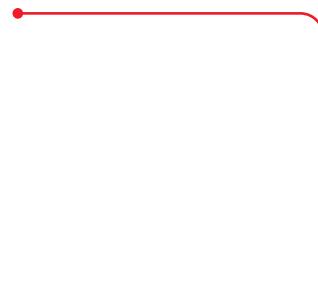
Up to IP54

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.
See page 09

Comprehensive connectivity
- Communication with all major automation networks
- Remote monitoring
- Integration tools for various PLCs
See page 10

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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

See page 12

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

See page 13

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

See page 14

Application- and industry specific solutions
- Ready-made optimized solutions for various applications and industries

See pages 16 - 17

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.

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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.

Choke
Safety functions
Modbus RTU interface
EMC filter
Direct torque control
Up to IP54 enclosure class
Extensive I/O
Brake unit
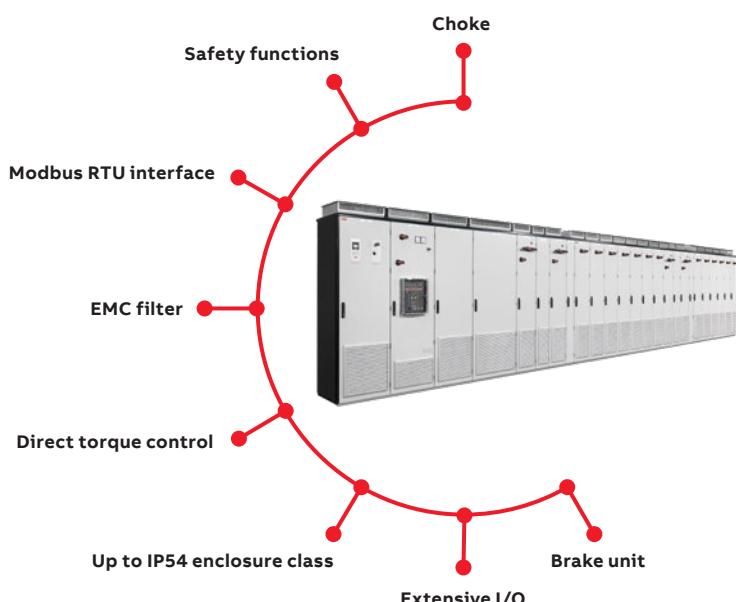
DriveSize dimensioning tool for selecting the optimal drive
DriveSize is designed to help select the optimal drive, motor and transformer for the application. Based on data supplied by the user, the tool calculates and suggests which drive and motors to use.

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.

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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.

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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 exitation. 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.
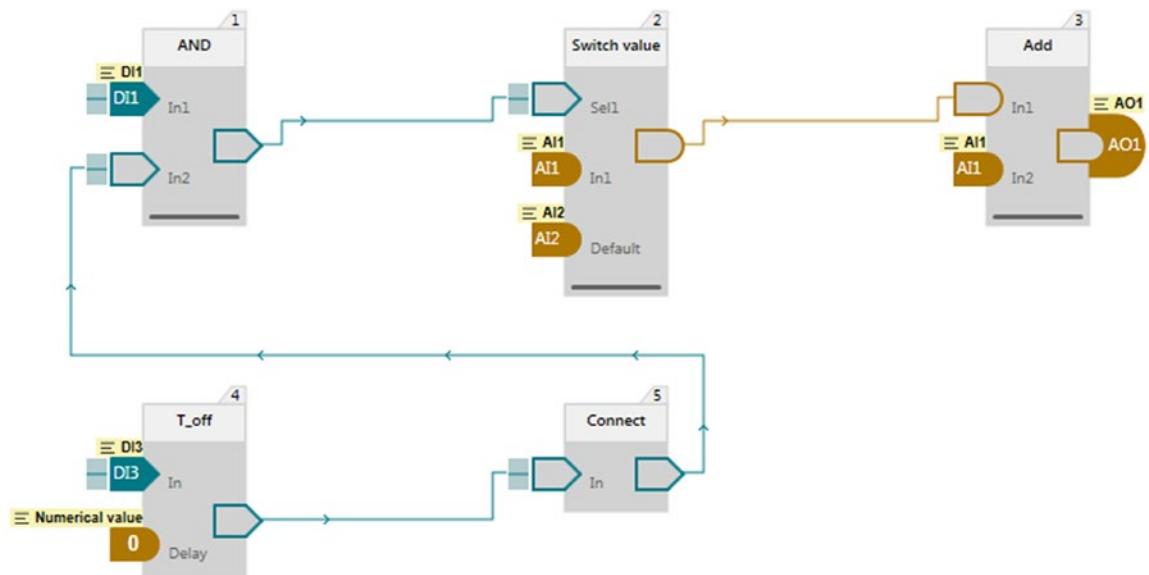
Application- and industry-specific solutions

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 flexibly 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

B

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.

Choose your options and add the option codes to the drive's order code. Remember to use a "+" mark before each option code.

| Drive type: | ACS880 | – | 107 | – | 004A8 | – | 3 | + | L521 |

Product series
Types and construction
Rating
Voltage
Options

Technical data

Mains connection

Voltage and power range	3-phase, U_{N3} 380 to 415 V, +10%/-10% 3-phase, U_{N5} 380 to 500 V, +10%/-10% 3-phase, U_{N7} 525 to 690 V, +10%/-10% Inverter unit (INU) 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 ±5%
Power factor	IGBT supply unit (ISU): - cosφ = 1 (fundamental) - cosφ = 0.99 (total) Diode supply unit (DSU) and regenerative rectifier unit (RRU): - cosφ = 0.98 (fundamental) - cosφ = 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_{N5} / U_{N7}
Frequency	0 to ±598 Hz [1] [3]
Motor control	Direct torque control (DTC)
Torque control Open loop Closed loop Open loop Closed loop	Torque step rise time: - <5 ms with nominal torque - <5 ms with nominal torque Non-linearity: - ± 4% with nominal torque - ± 3% with nominal torque
Speed control Open loop Closed loop Open loop Closed loop	Static accuracy: - 10% of motor slip - 0.01% of nominal speed Dynamic accuracy: - 0.3 to 0.4% seconds with 100% torque step - 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.

1st environment, restricted distribution category C2, as option 1000 A and up to 500 V
2nd environment, unrestricted distribution category C3, as option

Built-in functional safety. See pages 50 - 51.

For safe torque off (STO) and safety functions modules	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]
Safety over fieldbus	PROFIsafe over PROFINET, certified.

Environmental limits

Ambient temperature Transport Storage Operation area (air-cooled) (liquid-cooled)	-40 to +70 °C -40 to +70 °C 0 to +40 °C, no frost allowed +40 to 50 °C with derating of 1% /1 °C 0 to +45 °C, no frost allowed +45 to +55 °C with derating of 0.5%/1 °C
Cooling method Air-cooled Liquid-cooled	Dry clean air 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 1,000 m 1,000 to 4,000 m	 Without derating With derating of 1% / 100 m [4]
Relative humidity	5 to 95%, no condensation allowed
Degree of protection Air-cooled Liquid-cooled	 IP22 as standard (IP20 cabinet doors open) IP42 or IP54 as option IP42 as standard (IP20 cabinet doors open) IP54 as option
Paint color	RAL 9017, RAL 7035
Pollution degree	**PD 2**
Contamination levels	No conductive dust allowed
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

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

—
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

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02
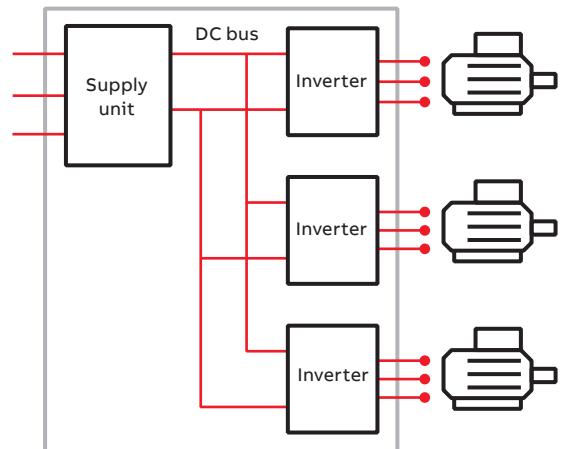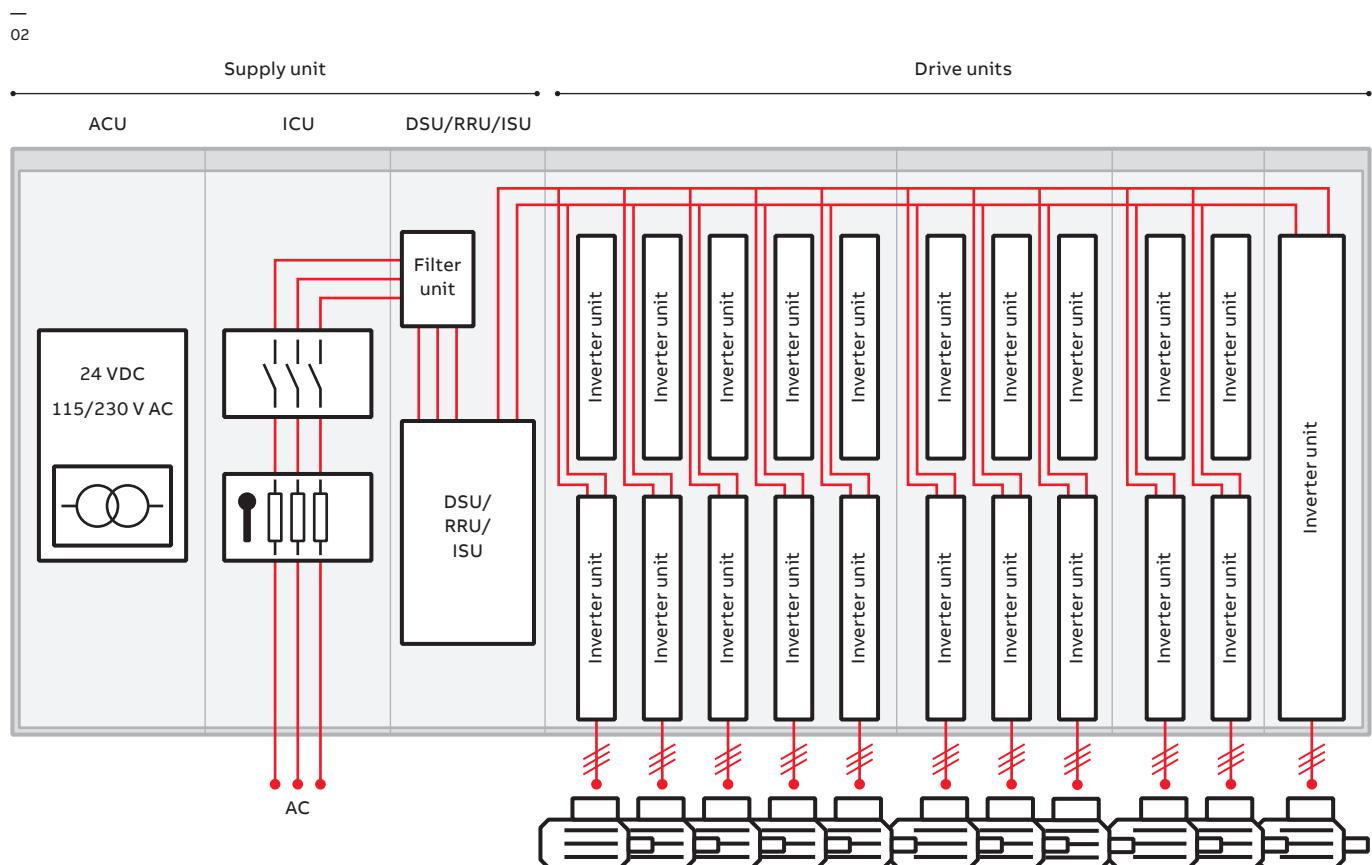
ACU = auxiliary control unit
ICU = incoming unit
DSU = diode supply unit
RRU = regenerative rectifier unit
ISU = IGBT supply unit

—
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 disconnector 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×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 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:
  - IP22 (as standard), IP42 and IP54

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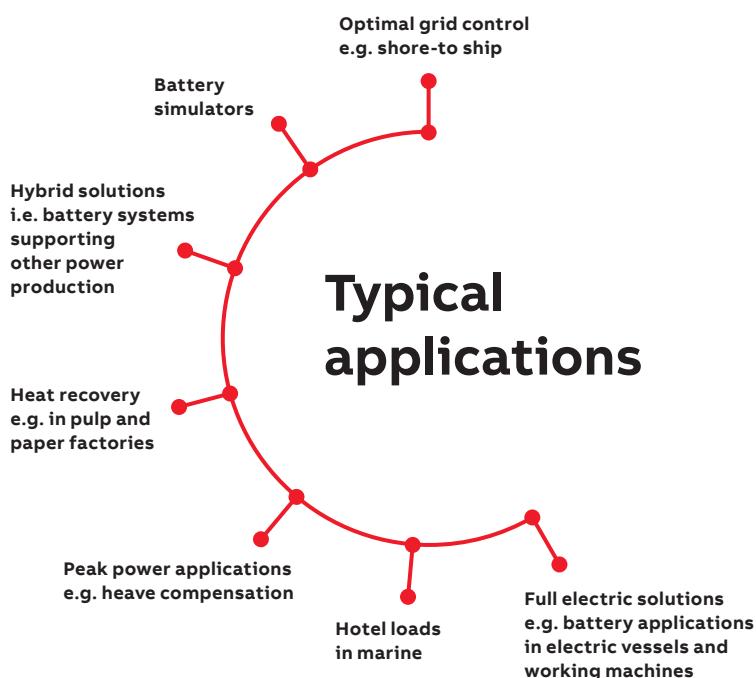
Optimal solution for different environments
The possibility to have totally enclosed cabinet structure makes the ACS880 liquid-cooled drive perfect for harsh environmental conditions.

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.

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Robust, reliable and compact

Optimal grid control
e.g. shore-to ship

Battery simulators

Hybrid solutions i.e. battery systems supporting other power production

Heat recovery e.g. in pulp and paper factories

Typical applications

Peak power applications e.g. heave compensation

Hotel loads in marine

Full electric solutions e.g. battery applications in electric vessels and working machines

01 Liquid-cooled
multidrive configuration

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01

ACS880 liquid-cooled multidrives

- Power ratings:
  - Inverter units (INU): 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:
  - IP42 (as standard) and IP54

- 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, 400 V

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (1.5 to 2800 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N AC (A)	I_{MAX} AC (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)
Inverter units (INU), ACS880-107											
ACS880-107-004A8-3	R1i	4.8	7	1.5	4.5	1.5	4	1.5	47	0.07	24
ACS880-107-006A0-3	R1i	6	8.8	2.2	5.5	2.2	5	1.5	47	0.08	24
ACS880-107-008A0-3	R1i	8	10.5	3	7.6	3	6	2.2	47	0.09	24
ACS880-107-0011A-3	R2i	10.5	13.5	4	9.7	4	9	3	39	0.11	48
ACS880-107-0014A-3	R2i	14	16.5	5.5	13	5.5	11	4	39	0.14	48
ACS880-107-0018A-3	R2i	18	21	7.5	16.8	7.5	14	5.5	39	0.17	48
ACS880-107-0025A-3	R3i	25	33	11	23	11	19	7.5	63	0.2	142
ACS880-107-0035A-3	R3i	35	44	15	32	15	29	11	63	0.3	142
ACS880-107-0044A-3	R3i	44	53	18.5	41	18.5	35	15	71	0.35	200
ACS880-107-0050A-3	R3i	50	66	22	46	22	44	22	71	0.41	200
ACS880-107-0061A-3	R4i	61	78	30	57	30	52	22	70	0.5	290
ACS880-107-0078A-3	R4i	78	100	37	74	37	69	30	70	0.6	290
ACS880-107-0094A-3	R4i	94	124	45	90	45	75	37	70	0.74	290
ACS880-107-0100A-3	R4i	104	125	55	100	55	78	37	70	0.75	290
ACS880-107-0140A-3	R6i	141	183	75	135	75	105	55	71	1.1	650
ACS880-107-0170A-3	R6i	169	220	90	162	90	126	55	71	1.4	650
ACS880-107-0210A-3	R6i	206	268	110	198	110	154	75	71	1.8	650
ACS880-107-0250A-3	R6i	246	320	132	236	132	184	90	71	2	650
ACS880-107-0300A-3	R7i	300	390	160	288	160	224	110	72	2.5	940
ACS880-107-0350A-3	R7i	350	455	200	336	160	262	132	72	3.1	940
ACS880-107-0470A-3	R8i	470	620	250	451	250	352	160	72	4.8	1300
ACS880-107-0640A-3	R8i	640	840	355	614	315	479	250	72	6.7	1300
ACS880-107-0760A-3	R8i	760	990	400	730	400	568	315	72	8	1300
ACS880-107-0900A-3	R8i	900	1080	500	864	450	673	355	72	10	1300
ACS880-107-1250A-3	2×R8i	1250	1630	710	1200	630	935	500	74	13	2600
ACS880-107-1480A-3	2×R8i	1480	1930	800	1421	800	1107	630	74	16	2600
ACS880-107-1760A-3	2×R8i	1760	2120	1000	1690	900	1316	710	74	20	2600
ACS880-107-2210A-3	3×R8i	2210	2880	1200	2122	1200	1653	900	76	23	3900
ACS880-107-2610A-3	3×R8i	2610	3140	1400	2506	1400	1952	1000	76	30	3900
ACS880-107-3450A-3	4×R8i	3450	4140	1800	3312	1800	2581	1400	76	40	5200
ACS880-107-4290A-3	5×R8i	4290	5150	2400	4118	2000	3209	1800	77	50	6500
ACS880-107-5130A-3	6×R8i	5130	6160	2800	4925	2400	3837	2000	78	60	7800

Nominal ratings

I_N	Rated current available continuously without overloadability at 40 °C.
S_N	Nominal apparent power.
P_N	Typical motor power in no-overload use.

Maximum output current

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

Light-overload use

I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes at 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 at 40 °C.
P_{Hd}	Typical motor power in heavy-duty use.

The ratings apply at 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, 400 V

U_N = 400 V (range 380 to 415 V)

Drive type	Frame size	Nominal ratings				No overload use	Light overload 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)	(dB(A))	(kW)	(m³/h)
IGBT supply units (ISU), ACS880-207													
ACS880-207-0420A-3	R8i+BLCL-13-5	423	513	667	293	290	492	279	384	217	72	9.2	2200
ACS880-207-0580A-3	R8i+BLCL-13-5	576	698	908	399	395	670	379	522	296	72	12	2200
ACS880-207-0810A-3	R8i+BLCL-15-5	810	982	1277	561	556	943	553	735	416	72	17.4	2200
ACS880-207-1130A-3	2×R8i+BLCL-24-5	1125	1364	1773	779	772	1309	741	1020	577	74	21.5	4100
ACS880-207-1330A-3	2×R8i+BLCL-24-5	1332	1615	2100	923	914	1550	877	1208	683	74	23.9	4100
ACS880-207-1580A-3	2×R8i+BLCL-25-5	1584	1921	2497	1097	1086	1844	1043	1437	813	74	31.7	4100
ACS880-207-2350A-3	3×R8i+2×BLCL-24-5	2349	2848	3703	1627	1611	2734	1547	2130	1205	76	47.1	6900
ACS880-207-3110A-3	4×R8i+2×BLCL-25-5	3105	3765	4894	2151	2130	3614	2045	2816	1593	76	63.1	8200
ACS880-207-4620A-3	6×R8i+3×BLCL-25-5	4617	5598	7278	3199	3167	5374	3040	4187	2369	78	94.5	12300
Regenerative rectifier units (RRU), ACS880-907													
ACS880-907-0600A-3	1xR8i + BL-15-5	600	727	955	416	393	698	377	544	294	72	8.4	2200
ACS880-907-0900A-3	1xR8i + BL-15-5	900	1091	1433	624	589	1048	566	816	441	72	12.9	2200
ACS880-907-1180A-3	2xR8i + BL-25-5	1180	1431	1879	818	773	1374	742	1070	578	74	15.7	4100
ACS880-907-1770A-3	2xR8i + BL-25-5	1770	2146	2818	1226	1159	2060	1113	1605	867	74	25.2	4100
ACS880-907-2310A-3	4xR8i + 2xBL-25-5	2310	2801	3678	1600	1512	2689	1452	2095	1131	76	31.5	8200
ACS880-907-3460A-3	4xR8i + 2xBL-25-5	3460	4195	5509	2397	2265	4027	2175	3138	1695	76	50.4	8200
ACS880-907-5130A-3	6xR8i + 3xBL-25-5	5130	6220	8168	3554	3359	5971	3225	4653	2512	78	75.6	12300
Diode supply units (DSU), ACS880-307													
6-pulse diode													
ACS880-307-0080A-3+A003	D6D [1]	80	98	137	55	53	94	51	78	42	62	1.4	720
ACS880-307-0170A-3+A003	D6D [1]	173	212	297	120	114	203	110	170	92	62	2	720
ACS880-307-0330A-3+A003	D7D [1]	327	400	561	227	216	384	208	320	173	62	3	1070
ACS880-307-0490A-3+A003	D7D [1]	490	600	840	339	324	576	311	480	259	62	4.1	1070
ACS880-307-0650A-3+A003	D8D [1]	653	800	1120	452	432	768	415	640	345	65	5.8	1430
ACS880-307-0980A-3+A003	D8D [1]	980	1200	1680	679	648	1152	622	960	519	65	7.6	1430
ACS880-307-0650A-3+A018	D8T [2]	653	800	1120	452	432	768	415	598	323	72	4.6	1300
ACS880-307-0980A-3+A018	D8T [2]	980	1200	1680	679	648	1152	622	898	485	72	6.6	1300
ACS880-307-1210A-3+A018	2×D8T [2]	1215	1488	2083	842	804	1428	771	1113	601	74	9.2	2600
ACS880-307-1820A-3+A018	2×D8T [2]	1823	2232	3125	1263	1205	2143	1157	1670	902	74	13.3	2600
ACS880-307-2730A-3+A018	3×D8T [2]	2734	3348	4687	1894	1808	3214	1736	2504	1352	76	19.9	3900
ACS880-307-3640A-3+A018	4×D8T [2]	3645	4464	6250	2525	2411	4285	2314	3339	1803	76	26.6	5200
ACS880-307-4560A-3+A018	5×D8T [2]	4557	5580	7812	3157	3013	5357	2893	4174	2254	77	33.3	6500
ACS880-307-5470A-3+A018	6×D8T [2]	5468	6696	9374	3788	3616	6428	3471	5009	2705	78	40	7800
12-pulse diode													
ACS880-307-0910A-3+A004+A018	2×D7T [3]	912	1116	1562	632	625	1071	600	835	467	74	8.4	1800
ACS880-307-1210A-3+A004+A018	2×D8T [3]	1215	1488	2083	842	833	1428	800	1113	623	74	9.2	2600
ACS880-307-1820A-3+A004+A018	2×D8T [3]	1823	2232	3125	1263	1250	2143	1200	1670	935	74	13.3	2600
ACS880-307-2430A-3+A004+A018	4×D8T [3]	2430	2976	4166	1684	1667	2857	1600	2226	1247	76	18.4	5200
ACS880-307-3640A-3+A004+A018	4×D8T [3]	3645	4464	6250	2525	2500	4285	2400	3339	1870	76	26.6	5200
ACS880-307-5470A-3+A004+A018	6×D8T [3]	5468	6696	9374	3788	3750	6428	3600	5009	2805	78	40	7800

[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, 500 V

Inverter unit (INU), ACS880-107

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (1.5 to 3200 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N AC (A)	I_{MAX} AC (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)
ACS880-107-003A6-5	R1i	3.6	5.3	1.5	3.4	1.5	3	1.5	47	0.06	24
ACS880-107-004A8-5	R1i	4.8	7	2.2	4.5	2.2	4	1.5	47	0.07	24
ACS880-107-006A0-5	R1i	6	8.8	3	5.5	3	5	2.2	47	0.08	24
ACS880-107-008A0-5	R1i	8	10.5	4	7.6	4	6	3	47	0.09	24
ACS880-107-0011A-5	R2i	10.5	13.5	5.5	9.7	5.5	9	4	39	0.13	48
ACS880-107-0014A-5	R2i	14	16.5	7.5	13	7.5	11	5.5	39	0.15	48
ACS880-107-0018A-5	R2i	18	21	11	16.8	11	14	7.5	39	0.18	48
ACS880-107-0025A-5	R3i	25	33	15	23	15	19	11	63	0.23	142
ACS880-107-0030A-5	R3i	30	36	18.5	28	18.5	24	15	63	0.28	142
ACS880-107-0035A-5	R3i	35	44	22	32	22	29	18.5	63	0.32	142
ACS880-107-0050A-5	R3i	50	66	30	46	30	44	22	71	0.48	200
ACS880-107-0061A-5	R4i	61	78	37	57	37	52	30	70	0.55	290
ACS880-107-0078A-5	R4i	78	100	45	74	45	69	45	70	0.65	290
ACS880-107-0094A-5	R4i	94	124	55	90	55	75	45	70	0.8	290
ACS880-107-0110A-5	R6i	113	147	75	108	75	85	55	71	1	650
ACS880-107-0140A-5	R6i	136	177	90	131	90	102	55	71	1.2	650
ACS880-107-0170A-5	R6i	165	215	110	158	110	123	75	71	1.5	650
ACS880-107-0200A-5	R6i	197	256	132	189	132	147	90	71	1.8	650
ACS880-107-0240A-5	R6i	240	312	160	230	160	180	110	71	2	650
ACS880-107-0300A-5	R7i	302	393	200	290	200	226	132	72	2.7	940
ACS880-107-0340A-5	R7i	340	442	250	326	200	254	160	72	3.2	940
ACS880-107-0440A-5	1×R8i	440	580	250	422	250	329	200	72	4.7	1300
ACS880-107-0590A-5	1×R8i	590	770	400	566	355	441	250	72	6.3	1300
ACS880-107-0740A-5	1×R8i	740	970	500	710	450	554	355	72	8.1	1300
ACS880-107-0810A-5	1×R8i	810	1060	560	778	500	606	400	72	9.3	1300
ACS880-107-1150A-5	2×R8i	1150	1500	800	1104	710	860	560	74	12	2600
ACS880-107-1450A-5	2×R8i	1450	1890	1000	1392	900	1085	710	74	16	2600
ACS880-107-1580A-5	2×R8i	1580	2060	1100	1517	1000	1182	800	74	18	2600
ACS880-107-2150A-5	3×R8i	2150	2800	1500	2064	1400	1608	1100	76	24	3900
ACS880-107-2350A-5	3×R8i	2350	3060	1600	2256	1500	1758	1200	76	27	3900
ACS880-107-3110A-5	4×R8i	3110	4050	2000	2986	2000	2326	1600	76	36	5200
ACS880-107-3860A-5	5×R8i	3860	5020	2400	3706	2400	2887	2000	77	44	6500
ACS880-107-4610A-5	6×R8i	4610	6000	3200	4426	2800	3448	2400	78	53	7800

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
S_N	Nominal apparent power.
P_N	Typical motor power in no-overload use.
Maximum output current	
I_{max}	Maximum output current. Available for 10 seconds at start, then as long as allowed by drive temperature.
Light-overload use	
I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes at 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 at 40 °C.
P_{Hd}	Typical motor power in heavy-duty use.

The ratings apply at 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				No overload use	Light overload 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)	(dB(A))	(kW)	(m³/h)
IGBT supply units (ISU), ACS880-207													
ACS880-207-0400A-5	R8i+BLCL-13-5	396	480	624	343	340	461	326	359	254	72	9.2	2200
ACS880-207-0530A-5	R8i+BLCL-13-5	531	644	837	460	455	618	437	482	341	72	11.5	2200
ACS880-207-0730A-5	R8i+BLCL-15-5	729	884	1149	631	625	849	600	661	468	72	16.7	2200
ACS880-207-1040A-5	2×R8i+BLCL-24-5	1035	1255	1631	896	887	1205	852	939	664	74	20.7	4100
ACS880-207-1420A-5	2×R8i+BLCL-25-5	1422	1724	2241	1231	1219	1655	1170	1290	912	74	29.3	4100
ACS880-207-2120A-5	3×R8i+2×BLCL-24-5	2115	2564	3334	1832	1813	2462	1741	1918	1356	76	43.8	6900
ACS880-207-2800A-5	4×R8i+2×BLCL-25-5	2799	3394	4412	2424	2400	3258	2304	2539	1795	76	58.4	8200
ACS880-207-4150A-5	6×R8i+3×BLCL-25-5	4149	5031	6540	3593	3557	4829	3415	3763	2661	78	87.4	12300
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	8.5	2200
ACS880-907-0900A-5	1xR8i + BL-15-5	900	1091	1433	779	737	1047	707	816	551	72	13	2200
ACS880-907-1180A-5	2xR8i + BL-25-5	1180	1431	1879	1022	966	1374	927	1 070	722	74	16.1	4100
ACS880-907-1770A-5	2xR8i + BL-25-5	1770	2146	2818	1533	1449	2060	1391	1 605	1084	74	25.6	4100
ACS880-907-2310A-5	4xR8i + 2xBL-25-5	2310	2801	3678	2001	1891	2689	1815	2 095	1414	76	32.2	8200
ACS880-907-3460A-5	4xR8i + 2xBL-25-5	3460	4195	5509	2996	2832	4027	2719	3 138	2118	76	51.1	8200
ACS880-907-5130A-5	6xR8i + 3xBL-25-5	5130	6220	8168	4443	4199	5971	4031	4 653	3141	78	76.7	12300
Diode supply units (DSU), ACS880-307													
6-pulse diode													
ACS880-307-0080A-5+A003	D6D [1]	80	98	137	69	66	94	63	78	53	62	1.4	720
ACS880-307-0170A-5+A003	D6D [1]	173	212	297	150	143	203	137	170	114	62	2	720
ACS880-307-0330A-5+A003	D7D [1]	327	400	561	283	270	384	260	320	216	62	3	1070
ACS880-307-0490A-5+A003	D7D [1]	490	600	840	424	405	576	389	480	324	62	4.1	1070
ACS880-307-0650A-5+A003	D8D [1]	653	800	1120	566	540	768	518	640	432	65	5.8	1430
ACS880-307-0980A-5+A003	D8D [1]	980	1200	1680	849	810	1152	778	960	648	65	7.6	1430
ACS880-307-0650A-5+A018	D8T [2]	653	800	1120	566	540	768	518	598	404	72	4.6	1300
ACS880-307-0980A-5+A018	D8T [2]	980	1200	1680	849	810	1152	778	898	606	72	6.6	1300
ACS880-307-1210A-5+A018	2×D8T [2]	1215	1488	2083	1052	1004	1428	964	1113	751	74	9.2	2600
ACS880-307-1820A-5+A018	2×D8T [2]	1823	2232	3125	1579	1507	2143	1446	1670	1127	74	13.3	2600
ACS880-307-2730A-5+A018	3×D8T [2]	2734	3348	4687	2368	2260	3214	2170	2504	1690	76	19.9	3900
ACS880-307-3640A-5+A018	4×D8T [2]	3645	4464	6250	3157	3013	4285	2893	3339	2254	76	26.6	5200
ACS880-307-4560A-5+A018	5×D8T [2]	4557	5580	7812	3946	3767	5357	3616	4174	2817	77	33.3	6500
ACS880-307-5470A-5+A018	6×D8T [2]	5468	6696	9374	4735	4520	6428	4339	5009	3381	78	40	7800
12-pulse diode													
ACS880-307-0910A-5+A004+A018	2×D7T [3]	912	1116	1562	790	781	1071	750	835	584	74	8.4	1800
ACS880-307-1210A-5+A004+A018	2×D8T [3]	1215	1488	2083	1052	1042	1428	1000	1113	779	74	9.2	2600
ACS880-307-1820A-5+A004+A018	2×D8T [3]	1823	2232	3125	1579	1562	2143	1500	1670	1169	74	13.3	2600
ACS880-307-2430A-5+A004+A018	4×D8T [3]	2430	2976	4166	2104	2083	2857	2000	2226	1558	76	18.4	5200
ACS880-307-3640A-5+A004+A018	4×D8T [3]	3645	4464	6250	3157	3125	4285	3000	3339	2337	76	26.6	5200
ACS880-307-5470A-5+A004+A018	6×D8T [3]	5468	6696	9374	4735	4687	6428	4500	5009	3506	78	40	7800

[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), ACS880-107

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (4 to 5600 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N AC (A)	I_{max} AC (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)
ACS880-107-007A3-7	R5i	7.3	9.5	5.5	6.9	5.5	5.6	4	62	0.22	280
ACS880-107-009A8-7	R5i	9.8	12.7	7.5	9.3	7.5	7.3	5.5	62	0.28	280
ACS880-107-014A2-7	R5i	14.2	18.5	11	13.5	11	9.8	7.5	62	0.4	280
ACS880-107-0018A-7	R5i	18	23.4	15	17.1	15	14.2	11	62	0.49	280
ACS880-107-0022A-7	R5i	22	29	18.5	20.9	18.5	18	15	62	0.58	280
ACS880-107-0027A-7	R5i	27	35	22	25.7	22	22	18.5	62	0.66	280
ACS880-107-0035A-7	R5i	35	46	30	33.3	30	27	22	62	0.86	280
ACS880-107-0042A-7	R5i	42	55	37	39.9	37	35	30	62	1	280
ACS880-107-0052A-7	R5i	52	68	45	49.4	45	42	37	62	1.12	280
ACS880-107-0062A-7	R6i	62	81	55	60	55	46	45	71	0.8	650
ACS880-107-0082A-7	R6i	82	107	75	79	75	61	55	71	1.1	650
ACS880-107-0100A-7	R6i	99	129	90	95	90	74	75	71	1.3	650
ACS880-107-0130A-7	R6i	125	163	110	120	110	94	75	71	1.5	650
ACS880-107-0140A-7	R6i	144	187	132	138	132	108	90	71	1.8	650
ACS880-107-0190A-7	R6i	192	250	160	184	160	144	132	71	2.5	650
ACS880-107-0220A-7	R7i	217	282	200	208	200	162	160	72	2.8	940
ACS880-107-0270A-7	R7i	270	351	250	259	250	202	200	72	3.3	940
ACS880-107-0340A-7	R8i	340	510	315	326	250	254	200	72	5.2	1300
ACS880-107-0410A-7	R8i	410	620	400	394	355	307	250	72	6.1	1300
ACS880-107-0530A-7	R8i	530	800	500	509	450	396	355	72	7.9	1300
ACS880-107-0600A-7	R8i	600	900	560	576	560	449	400	72	9	1300
ACS880-107-0800A-7	2×R8i	800	1200	800	768	710	598	560	74	12	2600
ACS880-107-1030A-7	2×R8i	1030	1550	1000	989	900	770	710	74	15	2600
ACS880-107-1170A-7	2×R8i	1170	1760	1100	1123	1000	875	800	74	18	2600
ACS880-107-1540A-7	3×R8i	1540	2310	1400	1478	1400	1152	1100	76	23	3900
ACS880-107-1740A-7	3×R8i	1740	2610	1600	1670	1600	1302	1200	76	26	3900
ACS880-107-2300A-7	4×R8i	2300	3450	2000	2208	2000	1720	1600	76	35	5200
ACS880-107-2860A-7	5×R8i	2860	4290	2800	2746	2400	2139	2000	77	43	6500
ACS880-107-3420A-7	6×R8i	3420	5130	3200	3283	3200	2558	2400	78	52	7800
ACS880-107-3990A-7	7×R8i	3990	5990	3600	3830	3600	2985	2800	78	60	9100
ACS880-107-4560A-7	8×R8i	4560	6840	4400	4378	4000	3411	3200	79	69	10400
ACS880-107-5130A-7	9×R8i	5130	7700	4800	4925	4800	3837	3600	79	78	11700
ACS880-107-5700A-7	10×R8i	5700	8550	5600	5472	5200	4264	4000	79	86	13000

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
S_N	Nominal apparent power.
P_N	Typical motor power in no-overload use.
Maximum output current	
I_{max}	Maximum output current. Available for 10 seconds at start, then as long as allowed by drive temperature.
Light-overload use	
I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes at 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 at 40 °C.
P_{Hd}	Typical motor power in heavy-duty use.

The ratings apply at 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 V (range 525 to 690 V)

Drive type	Frame size	Nominal ratings				No overload use	Light overload use		Heavy-duty use		Noise level	Heat dissi-pation	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)	(dB(A))	(kW)	(m³/h)
IGBT supply units (ISU), ACS880-207													
ACS880-207-0310A-7	R8i+BLCL-13-7	306	371	557	366	362	356	348	278	271	72	11.7	2200
ACS880-207-0370A-7	R8i+BLCL-13-7	369	447	671	441	437	430	419	335	327	72	13.4	2200
ACS880-207-0540A-7	R8i+BLCL-15-7	540	655	982	645	639	629	613	490	478	72	17.6	2200
ACS880-207-0720A-7	2×R8i+BLCL-24-7	720	873	1309	860	852	838	818	653	637	74	23	4100
ACS880-207-1050A-7	2×R8i+BLCL-25-7	1053	1277	1915	1258	1246	1226	1196	955	932	74	31.5	4100
ACS880-207-1570A-7	3×R8i+2×BLCL-24-7	1566	1899	2848	1872	1853	1823	1779	1420	1386	76	49.4	6900
ACS880-207-2070A-7	4×R8i+2×BLCL-25-7	2070	2510	3765	2474	2449	2409	2351	1877	1832	76	62.7	8200
ACS880-207-3080A-7	6×R8i+3×BLCL-25-7	3078	3732	5598	3679	3642	3583	3496	2792	2724	78	94	12300
ACS880-207-4100A-7	8×R8i+4×BLCL-25-7	4104	4976	7464	4905	4856	4777	4661	3722	3632	79	125.3	16400
ACS880-207-5130A-7	10×R8i+5×BLCL-25-7	5130	6220	9330	6131	6070	5971	5827	4653	4540	79	155.5	20500
Regenerative rectifier units (RRU), ACS880-907													
ACS880-907-0600A-7	1×R8i + BL-15-7	600	727	1102	717	678	698	651	544	507	72	9.8	2200
ACS880-907-0900A-7	1×R8i + BL-15-7	900	1 091	1653	1076	1016	1 048	976	816	760	72	14.3	2200
ACS880-907-1180A-7	2×R8i + BL-25-7	1180	1 431	2168	1410	1333	1 374	1 279	1 070	997	74	18.5	4100
ACS880-907-1770A-7	2×R8i + BL-25-7	1770	2 146	3252	2115	1999	2 060	1 919	1 605	1495	74	28.1	4100
ACS880-907-2310A-7	4×R8i + 2×BL-25-7	2310	2 801	4244	2761	2609	2 689	2 505	2 095	1952	76	37.1	8200
ACS880-907-3460A-7	4×R8i + 2×BL-25-7	3460	4 195	6356	4135	3908	4 027	3 752	3 138	2923	76	56.2	8200
ACS880-907-5130A-7	6×R8i + 3×BL-25-7	5130	6 220	9424	6131	5794	5 971	5 562	4 653	4334	78	84.3	12300
Diode supply units (DSU), ACS880-307													
6-pulse diode													
ACS880-307-0570A-7+A018	D8T [1]	572	700	980	684	652	672	626	524	488	72	4.5	1300
ACS880-307-0820A-7+A018	D8T [1]	817	1000	1400	976	932	960	894	748	697	72	5.8	1300
ACS880-307-1060A-7+A018	2×D8T [1]	1064	1302	1823	1272	1213	1250	1164	974	907	74	9	2600
ACS880-307-1520A-7+A018	2×D8T [1]	1519	1860	2604	1815	1733	1786	1663	1391	1296	74	12.7	2600
ACS880-307-2280A-7+A018	3×D8T [1]	2279	2790	3906	2724	2599	2678	2495	2087	1944	76	19.1	3900
ACS880-307-3040A-7+A018	4×D8T [1]	3038	3720	5208	3631	3465	3571	3327	2783	2592	76	25.5	5200
ACS880-307-3800A-7+A018	5×D8T [1]	3797	4650	6510	4538	4331	4464	4158	3478	3240	77	32	6500
ACS880-307-4560A-7+A018	6×D8T [1]	4557	5580	7812	5446	5198	5357	4990	4174	3888	78	38.4	7800
12-pulse diode													
ACS880-307-0760A-7+A004+A018	2×D7T [2]	760	930	1302	908	898	893	862	696	672	74	7.7	1800
ACS880-307-1060A-7+A004+A018	2×D8T [2]	1064	1302	1823	1272	1258	1250	1207	974	941	74	9	2600
ACS880-307-1520A-7+A004+A018	2×D8T [2]	1519	1860	2604	1815	1797	1786	1725	1391	1344	74	12.7	2600
ACS880-307-2130A-7+A004+A018	4×D8T [2]	2127	2604	3646	2542	2515	2500	2415	1948	1882	76	18.1	5200
ACS880-307-3040A-7+A004+A018	4×D8T [2]	3038	3720	5208	3631	3594	3571	3450	2783	2688	76	25.5	5200
ACS880-307-4560A-7+A004+A018	6×D8T [2]	4557	5580	7812	5446	5390	5357	5175	4174	4032	78	38.4	7800

[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 = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.

No-overload use					Short time overload cycle (10 s/60 s)		Heavy overload cycle (1 min/5 min)		Noise level	Heat dissipation	Air flow	Filter type	Converter type	Frame size
$I_{dc\ input}$ DC (A)	$I_{rms\ output}$ DC (A)	$P_{contmax}$ (kW)	$I_{max\ output}$ DC (A)	I_{p2p} (A)	$I_{short\ time}$ (A)	$P_{short\ time}$ (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)			
600	600	305	900	22	450	229	510	260	74	5.2	2200	BDCL-14-5	ACS880-1607-0600A-3	R8i
900	900	458	1350	33	675	343	765	389	74	8	2200	BDCL-15-5	ACS880-1607-0900A-3	R8i
1200	1200	611	1800	44	899	458	1020	519	76	10.5	4400	2xBDCL-14-5	ACS880-1607-1200A-3	2xR8i
1800	1800	916	2700	65	1349	687	1529	779	76	10.5	4400	2xBDCL-15-5	ACS880-1607-1800A-3	2xR8i

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.

No-overload use					Short time overload cycle (10 s/60 s)		Heavy overload cycle (1 min/5 min)		Noise level	Heat dissipation	Air flow	Filter type	Converter type	Frame size
$I_{dc\ input}$ DC (A)	$I_{rms\ output}$ DC (A)	$P_{contmax}$ (kW)	$I_{max\ output}$ DC (A)	I_{p2p} (A)	$I_{short\ time}$ (A)	$P_{short\ time}$ (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)			
600	600	382	900	27	450	286	510	324	74	6	2200	BDCL-14-5	ACS880-1607-0600A-5	R8i
900	900	573	1350	41	675	429	765	487	74	9.1	2200	BDCL-15-5	ACS880-1607-0900A-5	R8i
1200	1200	764	1800	55	899	572	1020	649	76	12.1	4400	2xBDCL-14-5	ACS880-1607-1200A-5	2xR8i
1800	1800	1146	2700	82	1349	859	1529	973	76	18.8	4400	2xBDCL-15-5	ACS880-1607-1800A-5	2xR8i

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

No-overload use					Short time overload cycle (10 s/60 s)		Heavy overload cycle (1 min/5 min)		Noise level	Heat dissipation	Air flow	Filter type	Converter type	Frame size
$I_{dc\ input}$ DC (A)	$I_{rms\ output}$ DC (A)	$P_{contmax}$ (kW)	$I_{max\ output}$ DC (A)	I_{p2p} (A)	$I_{short\ time}$ (A)	$P_{short\ time}$ (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(kW)	(m³/h)			
400	400	351	600	38	300	263	340	298	74	6.4	2200	BDCL-14-7	ACS880-1607-0400A-7	R8i
600	600	527	900	56	450	395	510	448	74	10.6	2200	BDCL-15-7	ACS880-1607-0600A-7	R8i
800	800	703	1200	75	600	527	680	597	76	12.8	4400	2xBDCL-14-7	ACS880-1607-0800A-7	2xR8i
1200	1200	1054	1800	113	899	790	1020	895	76	21.5	4400	2xBDCL-15-7	ACS880-1607-1200A-7	2xR8i

No overload use

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

Short time / heavy overload cycle

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

Ratings, types and voltages
Inverter units, liquid-cooled, ACS880-107LC, 690 V

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (250 to 6000 kW).

Inverter module type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level [1]	Losses	Coolant flow rate
		I_N (A)	I_{max} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	P_{loss} (kW)	(l/min)
Liquid-cooled inverter units (INU), ACS880-107LC											
ACS880-107LC-0390A-7	R8i	390	590	355	374	355	292	250	63	5,1	16
ACS880-107LC-0430A-7	R8i	430	650	400	413	355	322	250	63	5.6	16
ACS880-107LC-0480A-7	R8i	480	720	450	461	400	359	315	63	6.4	16
ACS880-107LC-0530A-7	R8i	530	800	500	509	450	396	355	63	7.2	16
ACS880-107LC-0600A-7	R8i	600	900	560	576	560	449	400	63	8.2	16
ACS880-107LC-0670A-7	R8i	670	1010	630	643	630	501	450	63	9.4	16
ACS880-107LC-0750A-7	R8i	750	1130	710	720	710	561	500	63	10.8	16
ACS880-107LC-0850A-7	R8i	850	1280	800	816	800	636	560	63	12.7	16
ACS880-107LC-1030A-7	2xR8i	1030	1550	1000	989	900	770	710	66	14	32
ACS880-107LC-1170A-7	2xR8i	1170	1760	1100	1123	1100	875	800	66	16	32
ACS880-107LC-1310A-7	2xR8i	1310	1970	1200	1258	1200	980	900	66	18.4	32
ACS880-107LC-1470A-7	2xR8i	1470	2210	1400	1411	1200	1100	1000	66	21.2	32
ACS880-107LC-1660A-7	2xR8i	1660	2490	1600	1594	1400	1242	1200	66	24.8	32
ACS880-107LC-1940A-7	3xR8i	1940	2910	1800	1862	1800	1451	1400	68	27.2	48
ACS880-107LC-2180A-7	3xR8i	2180	3270	2000	2093	2000	1631	1400	68	31.4	48
ACS880-107LC-2470A-7	3xR8i	2470	3710	2300	2371	2300	1848	1800	68	36.9	48
ACS880-107LC-2880A-7	4xR8i	2880	4320	2700	2765	2700	2154	2000	69	41.5	64
ACS880-107LC-3260A-7	4xR8i	3260	4890	3000	3130	3000	2438	2300	69	48.7	64
ACS880-107LC-3580A-7	5xR8i	3580	5370	3400	3437	3200	2678	2600	70	51.6	80
ACS880-107LC-4050A-7	5xR8i	4050	6080	3800	3888	3800	3029	2800	70	60.5	80
ACS880-107LC-4840A-7	6xR8i	4840	7260	4400	4646	4400	3620	3500	71	72.3	96
ACS880-107LC-5650A-7	7xR8i	5650	8480	5200	5424	5200	4226	4000	72	84.4	112
ACS880-107LC-6460A-7	8xR8i	6460	9690	6000	6202	6000	4832	4700	72	96.5	128

Nominal ratings	
I_N	Rated current available continuously without overloadability
P_N	Typical motor power in no-overload use
S_N	Nominal apparent (AC) power
Maximum output current	
I_{max}	Maximum output current. Available for 10 seconds at start, then as long as allowed by module temperature.
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 of 45 °C and a coolant temperature of 40 °C.

Ratings, types and voltages
Supply units, liquid-cooled, ACS880-207LC, 690 V

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (430 to 6944 kVA).

Supply module type	Frame size	Nominal ratings					Light overload use		Heavy-duty use		Noise level [1]	Losses [2]	Coolant flow rate [3]
		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)	(dB(A))	P_{loss} (kW)	(l/min)
Liquid-cooled IGBT supply units (ISU), ACS880-207LC													
ACS880-207LC-0360A-7	R8i	360	436	655	430	426	419	409	327	319	58	9.1	52
ACS880-207LC-0400A-7	R8i	400	485	727	478	473	466	454	363	354	58	10.1	52
ACS880-207LC-0450A-7	R8i	450	546	818	538	532	524	511	408	398	58	11.4	52
ACS880-207LC-0480A-7	R8i	480	582	873	574	568	559	545	435	425	58	12.3	52
ACS880-207LC-0560A-7	R8i	560	679	1018	669	663	652	636	508	496	58	14.5	52
ACS880-207LC-0620A-7	R8i	620	752	1128	741	734	722	704	562	549	58	16.1	52
ACS880-207LC-0700A-7	R8i	700	849	1273	837	828	815	795	635	620	58	18.8	52
ACS880-207LC-0770A-7	R8i	770	934	1400	920	911	896	875	698	681	58	21.4	52
ACS880-207LC-0930A-7	2xR8i	930	1128	1691	1111	1100	1083	1056	843	823	59	21.8	88
ACS880-207LC-1090A-7	2xR8i	1090	1322	1982	1303	1290	1269	1238	989	965	59	25.9	88
ACS880-207LC-1180A-7	2xR8i	1180	1431	2146	1410	1396	1374	1340	1070	1044	59	29.4	88
ACS880-207LC-1360A-7	2xR8i	1360	1649	2473	1625	1609	1583	1545	1233	1204	59	31.8	88
ACS880-207LC-1500A-7	2xR8i	1500	1819	2728	1793	1775	1746	1704	1360	1328	59	36	88
ACS880-207LC-1800A-7	3xR8i	1800	2182	3274	2151	2130	2095	2045	1633	1593	61	40.3	144
ACS880-207LC-2020A-7	3xR8i	2020	2449	3674	2414	2390	2351	2294	1832	1788	61	46.8	144
ACS880-207LC-2220A-7	3xR8i	2220	2692	4038	2653	2627	2584	2522	2013	1965	61	53	144
ACS880-207LC-2670A-7	4xR8i	2670	3237	4856	3191	3159	3108	3033	2422	2363	61	60.1	160
ACS880-207LC-2930A-7	4xR8i	2930	3553	5329	3502	3467	3411	3328	2657	2593	61	67.9	160
ACS880-207LC-3320A-7	5xR8i	3320	4025	6038	3968	3928	3864	3771	3011	2938	62	75.7	216
ACS880-207LC-3840A-7	6xR8i	3840	4656	6984	4589	4543	4470	4362	3483	3398	63	86	264
ACS880-207LC-4360A-7	6xR8i	4360	5286	7930	5211	5159	5075	4952	3954	3859	63	103.2	280
ACS880-207LC-5240A-7	8xR8i	5240	6353	9530	6262	6200	6099	5952	4752	4637	64	116.8	296
ACS880-207LC-5810A-7	8xR8i	5810	7045	10567	6944	6874	6763	6599	5269	5142	64	133.7	312

[1] Noise level in a typical cabinet installation.
[2] Losses for the whole supply unit (ACU + ICU + ISU + filter). In totally enclosed cabinet 98% of losses are conducted to coolant, 2% to ambient air.
[3] Coolant flow rate for the whole supply unit (ACU + ICU + ISU + filter).

Nominal ratings	
I_N	Rated current available continuously without overloadability
P_N	Typical motor power in no-overload use
S_N	Nominal apparent (AC) power
Maximum output current	
I_{max}	Maximum output current. Available for 10 seconds at start, then as long as allowed by module temperature.
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 of 45 °C and a coolant temperature of 40 °C.

Ratings, types and voltages
Liquid cooling unit,
ACS880-1007LC

Range 380 to 690 V

Liquid-cooling unit type	Nominal ratings			Noise level	Losses				Internal flow [1]	External flow [2]
	P_{max} (kW)	Internal coolant volume (l)	External coolant volume (l)	(dB(A))	$P_{loss\ total}$ (kW)	$P_{loss\ coolant}$ (kW)	$P_{loss\ air}$ (kW)	P_{drop} (kPa)	(l/min)	(l/min)
ACS880-1007LC-0070 [3]	70	17	3	55	0.4	0.3	0.1	150	81/107	120
ACS880-1007LC-0195+C140 [3]/C141 [4]	195	31/35	8	55	1.3	1.0	0.3	150	270/355	467
ACS880-1007LC-0195+C213 [5]	195	35	8	57	2.1	1.8	0.3	150	310/415	467

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

No overload use					Short time overload cycle (10 s/60 s)		Heavy overload cycle (1 min/5 min)		Noise level	Losses	Coolant flow rate [1]	Filter type	Converter type	Frame size
$I_{dc\,input}$ DC (A)	$I_{rms\,output}$ DC (A)	$P_{contmax}$ (kW)	$I_{max\,output}$ DC (A)	I_{p2p} (A)	$I_{short\,time}$ (A)	$P_{short\,time}$ (kW)	I_{Hd} (A)	P_{Hd} (kW)	dB(A)	P_{loss} (kW)	(l/min)			
391	400	351	500	38	250	219	302	266	TBD	4.2	36	BDCL-14LC-7	ACS880-1607LC-0400A-7	R8i
490	500	439	625	38	312	274	378	332	TBD	5.3	36	BDCL-14LC-7	ACS880-1607LC-0500A-7	R8i
590	600	527	750	56	375	329	453	398	TBD	6.2	36	BDCL-15LC-7	ACS880-1607LC-0600A-7	R8i
690	700	615	875	56	437	384	529	465	TBD	7.3	36	BDCL-15LC-7	ACS880-1607LC-0700A-7	R8i
790	800	703	1000	56	500	439	605	531	TBD	8.5	36	BDCL-15LC-7	ACS880-1607LC-0800A-7	R8i
880	900	790	1125	56	562	494	680	597	TBD	9.7	36	BDCL-15LC-7	ACS880-1607LC-0900A-7	R8i
980	1000	878	1250	19	625	549	756	664	TBD	11.2	72	2xBDCL-14LC-7	ACS880-1607LC-1000A-7	2xR8i
1180	1200	1054	1500	28	750	658	907	797	TBD	13.6	72	2xBDCL-15LC-7	ACS880-1607LC-1200A-7	2xR8i
1370	1400	1230	1750	28	874	768	1058	929	TBD	16.3	72	2xBDCL-15LC-7	ACS880-1607LC-1400A-7	2xR8i
1570	1600	1405	2000	28	999	878	1209	1062	TBD	19	72	2xBDCL-15LC-7	ACS880-1607LC-1600A-7	2xR8i
1760	1800	1581	2250	28	1124	987	1360	1195	TBD	22	72	2xBDCL-15LC-7	ACS880-1607LC-1800A-7	2xR8i

[1] Coolant flow rate for the whole converter unit (DC/DC converter module and filter)

Ratings

No overload use	
$I_{dc\,input}$	Maximum continuous input DC current from DC bus
$I_{rms\,output}$	Maximum continuous output current to/from energy storage
$P_{contmax}$	Maximum continuous output power to/from energy storage
$I_{max\,output}$	Maximum instantaneous output current to/from energy storage
I_{p2p}	Maximum output ripple current to/from energy storage
Short time / heavy overload cycle	
$I_{short\,time}$	Continuous output current allowing 10 s of I_{max} (DC) every 60 seconds
$P_{short\,time}$	Continuous output power allowing 10 s of I_{max} (DC) every 60 seconds
I_{Hd}	Continuous output current allowing overload of 150% I_{hd} for 1 min every 5 min
P_{Hd}	Continuous output power allowing 150% I_{hd} for 1 min every 5 min
Losses	
P_{loss}	Power loss conducted to coolant and emitted to air
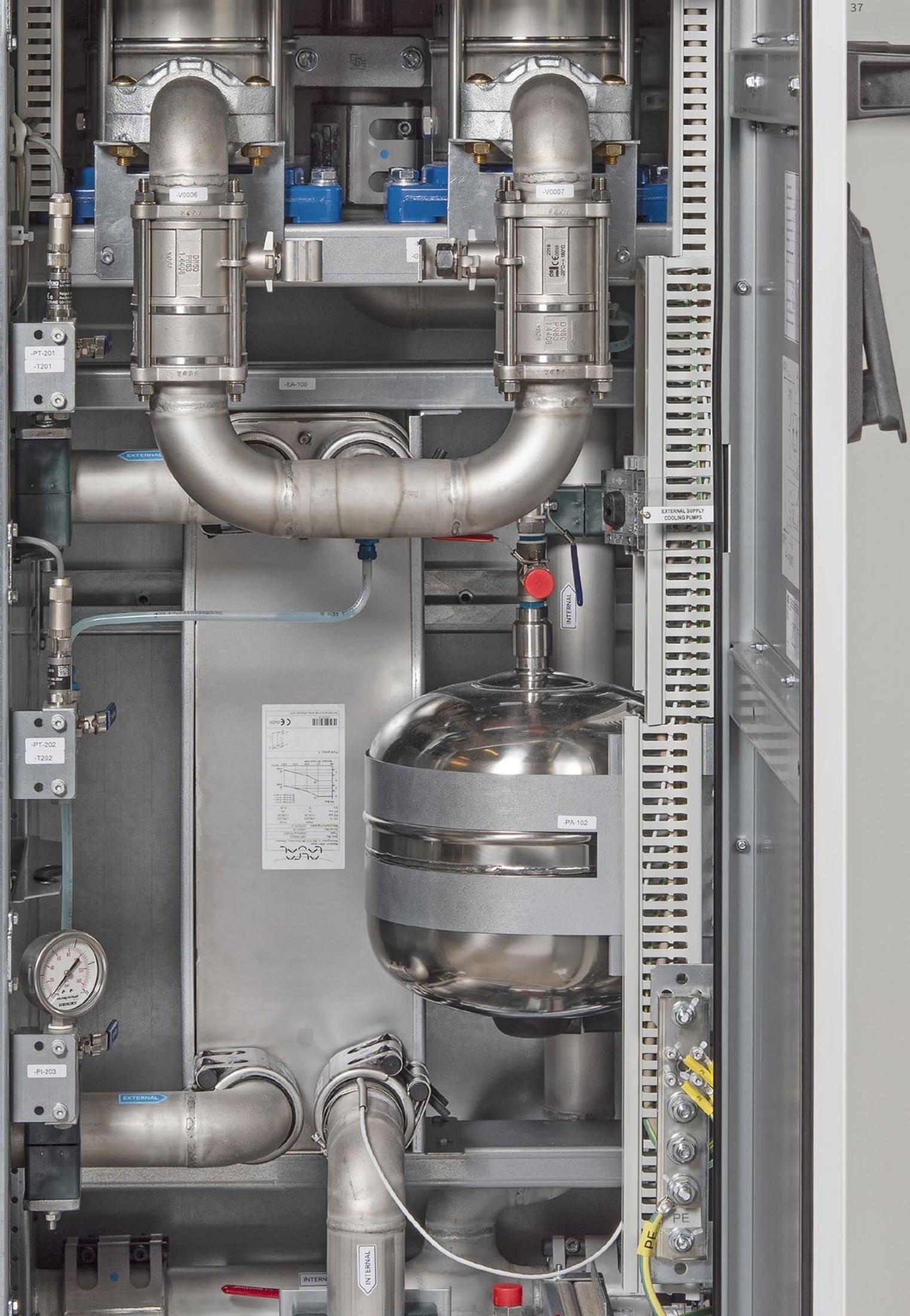
Dimensions
ACS880 air-cooled multidrives

Frame size		Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
ACS880-207 IGBT supply unit (ISU). **Dimensions include ACU, ICU, ISU and filter.**					
R8i+BLCL-13-5	Limited scope [1]	2145	1000	636	810
	Standard scope [1]	2145	1600	636	1300
R8i+BLCL-15-5	Limited scope [1]	2145	1000	636	860
	Standard scope [1]	2145	1600	636	1300
2×R8i+BLCL-24-5	1040A-5	2145	1800	636	1600
	1130A-3, 1330A-3	2145	2000	636	1720
2×R8i+BLCL-25-5		2145	2000	636	1720
3×R8i+2xBLCL-24-5		2145	2600	636	2410
4×R8i+2xBLCL-25-5		2145	2800	636	2820
6×R8i+3xBLCL-25-5		2145	4000	636	3960
R8i+BLCL-13-7		2145	1600	636	1300
R8i+BLCL-15-7		2145	1600	636	1300
2×R8i+BLCL-24-7		2145	1800	636	1600
2×R8i+BLCL-25-7		2145	1800	636	1600
3×R8i+2×BLCL-25-7		2145	2600	636	2210
4×R8i+2xBLCL-25-7		2145	2800	636	2820
6×R8i+3xBLCL-25-7		2145	3600	636	3720
8×R8i+4xBLCL-25-7		2145	5100	636	4860
10×R8i+5xBLCL-25-7		2145	5900	636	5760
ACS880-907 regenerative rectifier unit (RRU). **Dimensions include ACU, ICU, RRU and filter.**					
1×R8i+BL-15-5		2145	1600	636	1275
2×R8i+BL-25-5		2145	2000	636	1615
4×R8i+2xBL-25-5	2310A-3/5	2145	2800	636	2610
	3460A-3/5	2145	3200	636	2850
6×R8i+3xBL-25-5		2145	4000	636	3645
1×R8i+BL-15-7		2145	1600	636	1275
2×R8i+BL-25-7		2145	2000	636	1615
4×R8i+2xBL-25-7	2310A-7	2145	2800	636	2610
	3460A-7	2145	3200	636	2850
6×R8i+3xBL-25-7		2145	4000	636	3645

[1] In addition to standard ACS880 multidrive offering, limited scope offering is available with special configuration for 400 V and 500 V, R1i to R7i inverters.

[2] 2315 mm for IP54 and 2051 mm for IPxxR. An additional 10 mm required for marine supports.

[3] Width and weight depend on the amount of inverter units. With option own compartment (+C204) 400 mm for max. 3 inverters.

[4] Top exit with backpack for R1i to R7i, additional depth is 130 mm.

[5] Width and weight depend on the amount of inverter units. With option own compartment (+C204) 500 mm for max. 2 R5i inverters.

[6] 300 mm 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 190 mm.

[8] 2315 mm for IP54, and 2051 mm for IPXXR

Frame size		Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
ACS880-307 diode supply unit (DSU). **Dimensions include ACU, ICU and DSU.**					
6-pulse diode					
D6D		2145	400	636	300
D7D		2145	400	636	350
D8D		2145	700	636	550
D8T		2145	1400	636	850
2×D8T	1060A-7	2145	1400	636	1130
	1210A-3/5, 1820A-3/5, 1520A-7	2145	1600	636	1130
3×D8T		2145	2000	636	1560
4×D8T	690 V drives	2145	2400	636	1940
	400/500 V drives	2145	2800	636	2140
5×D8T		2145	3000	636	2420
6×D8T		2145	3200	636	2700
12-pulse diode					
2×D7T		2145	1800	636	900
2×D8T		2145	1800	636	1180
4×D8T	2430A-3/5, 2130A-7	2145	2400	636	1840
	3640A-3, 3650A-5 3040A-7	2145	3000	636	2040
6×D8T		2145	3400	636	2900
ACS880-107 inverter unit (INU)					
R1i		2145 [2]	400 to 1000 [3]	636 [4]	240 to 490 [3]
R2i		2145 [2]	400 to 1000 [3]	636 [4]	240 to 490 [3]
R3i		2145 [2]	400 to 1000 [3]	636 [4]	240 to 490 [3]
R4i		2145 [2]	400 to 1000 [3]	636 [4]	240 to 490 [3]
R5i		2145 [2]	300 to 500 [5]	636	200 to 320 [5]
R6i		2145 [2]	400	636 [4]	250
R7i		2145 [2]	400	636 [4]	250
R8i		2145 [2]	400 [6]	636 [7]	320
2×R8i		2145 [2]	600 [6]	636 [7]	510
3×R8i		2145 [2]	800 [6]	636 [7]	660
4×R8i		2145 [2]	1200 [6]	636 [7]	1020
5×R8i		2145 [2]	1400 [6]	636 [7]	1170
6×R8i		2145 [2]	1600 [6]	636 [7]	1320
7×R8i		2145 [2]	2000 [6]	636 [7]	1680
8×R8i		2145 [2]	2200 [6]	636 [7]	1830
9×R8i		2145 [2]	2400 [6]	636 [7]	1980
10×R8i		2145 [2]	2800 [6]	636 [7]	2340
ACS880-1607 DC/DC converter					
R8i		2145 [8]	800	636	650
R8i		2145 [8]	800	636	680
2xR8i		2145 [8]	1600	636	1300
2xR8i		2145 [8]	1600	636	1360
3xR8i		2145 [8]	2400	636	2040
4xR8i		2145 [8]	3200	636	2720
5xR8i		2145 [8]	4000	636	3400

ACU   ICU   DSU/   DSU/   INU   INU   INU   INU
              RRU/   RRU/
              ISU   ISU

H

H

W

D

W

Dimensions
ACS880 liquid-cooled multidrives

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
ACS880-207LC IGBT supply unit (ISU). **Dimensions include ACU, ICU, ISU and filter.**				
R8i+BLCL-15LC-7	2002	1900	644	900
2×R8i+BLCL-24LC-7	2002	2100	644	1030
2×R8i+BLCL-25LC-7	2002	2200	644	1180
3×R8i+2×BLCL-24LC-7	2002	2700	644	1800
4×R8i+2×BLCL-25LC-7	2002	3200	644	2360
5×R8i+3×BLCL-24LC-7	2002	3600	644	2830
6×R8i+4×BLCL-24LC-7	2002	4800	644	3600
8×R8i+4×BLCL-25LC-7	2002	5800	644	4720

Unit type	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
ACS880-1007LC, liquid-cooling unit				
ACS880-1007LC-0070	2002	330 (330) [2]	644	200
ACS880-1007LC-0195+C140	2002	630 (660) [2]	644	310
ACS880-1007LC-0195+C141	2002	630 (660) [2]	644	366
ACS880-1007LC-0195+C213	2002	630 (660) [2]	644	373

[2] For stand-alone liquid cooling unit.

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
ACS880-107LC inverter unit (INU)				
R8i	2002	300	644	300
2×R8i	2002	500	644	430
3×R8i	2002	700	644	600
4×R8i	2002	1000	644	860
5×R8i	2002	1200	644	1030
6×R8i	2002	1400	644	1200
7×R8i	2002	1700	644	1460
8×R8i	2002	1900	644	1720
ACS880-1607 DC/DC converter				
R8i	2002	800	644	680/710 [1]
2×R8i	2002	1600	644	1425

[1] 680 kg for 0400A-7 and 0500A-7

Standard interface and extensions for plug-in connectivity

—
01 Control unit ZCU

—
02 Example of
a typical multidrives
input/output
connection diagram.
Variations maybe
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 is used for inverters (nxR8i), IGBT supply unit, regenerative rectifier unit and diode supply unit (frame nxDXT). BCU comes with integrated branching unit, and three option slots with an additional slot for DDCS communication option.

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01
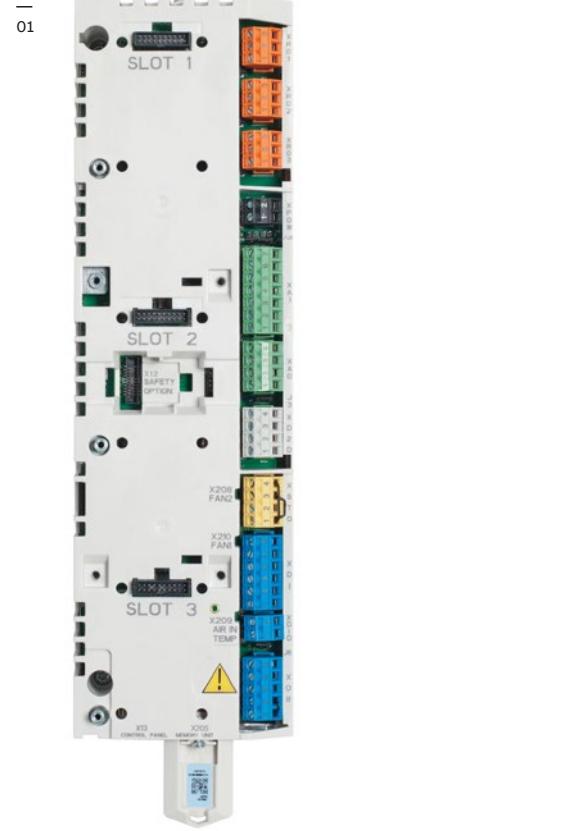
Control connections	Description
2 analog inputs (XAI)	Current input: -20 to 20 mA, R_{in}: 100 ohm Voltage input: -10 to 10 V, R_{in} > 200 kohm Resolution: 11 bit + sign bit
2 analog outputs (XAO)	0 to 20 mA, R_{load} < 500 ohm Frequency range: 0 to 300 Hz Resolution: 11 bit + sign bit
6 digital inputs (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 250 V AC/30 V DC 2 A	NO	13	
	COM	12	
	NC	11	
Running 250 V AC/30 V DC 2 A	NO	23	
	COM	22	
	NC	21	
Faulted (-1) 250 V AC/30 V DC 2 A	NO	33	
	COM	32	
	NC	31	Fault
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. 0(4) to 20 mA, R_{in} = 100 ohm	AI2-	7	
	AI2+	6	
Speed reference 0(2) to 10 V, R_{in} > 200 kohm	AI1-	5	
	AI1+	4	
Ground	AGND	3	
-10 V DC, R_L 1 to 10 kohm	-VREF	2	
10 V DC, R_L 1 to 10 kohm	+VREF	1	
Analog outputs		**XAO**	
Motor current 0 to 20 mA, R_L < 500 ohm	AGND	4	
	AO2	3	
Motor speed rpm 0 to 20 mA, R_L < 500 ohm	AGND	2	
	AO1	1	
Drive-to-drive link		**J3, XD2D**	
Drive-to-drive link termination	ON • ▭ OFF		
Drive-to-drive link or built-in Modbus	Shield	4	
	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.

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.

—
01

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02

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Control panel options

Option code	Ordering code for loose item	Description	Type
+0J400	–	No control panel	–
As standard	3AXD50000025965	Bluetooth Assistant control panel	ACS-AP-W
–	3AUA0000108878	Control panel mounting platform, flush mounted, IP54 / UL Type 12 (does not include control panel)	DPMP-01

Local ↻ ACS880 1400.0 Rpm

Save money
Save energy
Save nerves

Exit **Save all**

Select

Stop

Loc/Rem

?

Start

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	68469341	DeviceNet™	FDNA-01
+K454	68469325	PROFIBUS DP. DPV0/DPV1	FPBA-01
+K457	68469376	CANopen®	FCAN-01
+K458	3AUA0000031336	Modbus RTU	FSCA-01
+K462	3AUA0000094512	ControlNet	FCNA-01
+K469	3AUA0000072069	EtherCAT®	FECA-01
+K470	3AXD5000019239	POWERLINK	FEPL-02
+K475	3AUA0000089109	Two port EtherNet/IP™, Modbus TCP, PROFINET IO, PROFIsafe [1]	FENA-21
+K491	3AXD50000049964	Modbus/TCP	FMBT-21
+K492	3AXD50000192779	PROFINET IO	FPNO-21
+K490	3AXD50000192786	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.

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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	68805368	4×DI/O, 2×RO	FIO-01
+L500	68805384	3×AI (mA/V), 1×AO (mA), 2×DI/O	FIO-11
+L515	3AUA0000108669	2×F-type option extension slots	FEA-03
+L525	3AUA0000141436	2×AI (mA/V), 2×AO (mA)	FAIO-01
+L526	3AUA0000141438	3×DI (up to 250 V DC or 230 V AC), 2×RO	FDIO-01

Feedback interface and DDCS communication options

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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.

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Feedback interface modules

Option code	Ordering code for loose item	Description	Feedback module
+L517	68805422	2 inputs (TTL pulse encoder), 1 output	FEN-01
+L518	68805830	2 inputs (SinCos absolute, TTL pulse encoder), 1 output	FEN-11
+L516	68805848	2 inputs (Resolver, TTL pulse encoder), 1 output	FEN-21
+L502	68978955	1 input (HTL pulse encoder), 1 output	FEN-31
+L521	3AXD50000023272	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.

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Optical communication modules

Option code	Ordering code for loose item	Description	Module
+L503	3AUA0000107392	Optical DDCS (10 Mbd /10 Mbd)	FDCO-01
+L508	3AUA0000107393	Optical DDCS (5 Mbd/10 Mbd)	FDCO-02
+L509	–	Optical DDCS (10 Mbd /10 Mbd/10 Mbd/10 Mbd)	RDCO-04

Remote monitoring options

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.

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Remote monitoring option

Ordering code	Description	Type
3AUA0000094517	2 x panel bus interface max. 10 drives 2 x Ethernet interface SD memory card USB port for WLAN/3G	NETA-21

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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.

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RMDE reliability monitoring device

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

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PC tool options

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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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PC tools

Ordering code	Description	PC tool
3AUA0000108087	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

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.

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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 modules [1].

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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.

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	
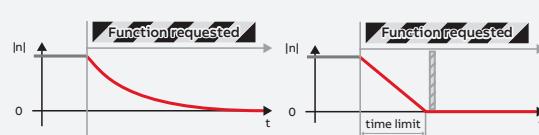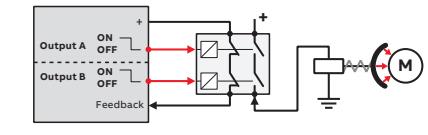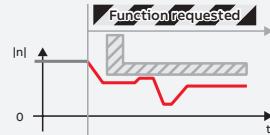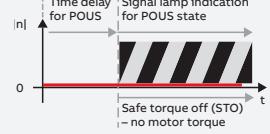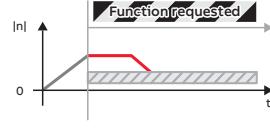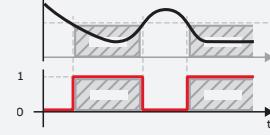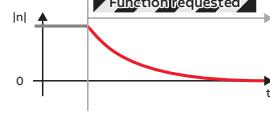
EMC – electromagnetic compatibility

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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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EMC standards
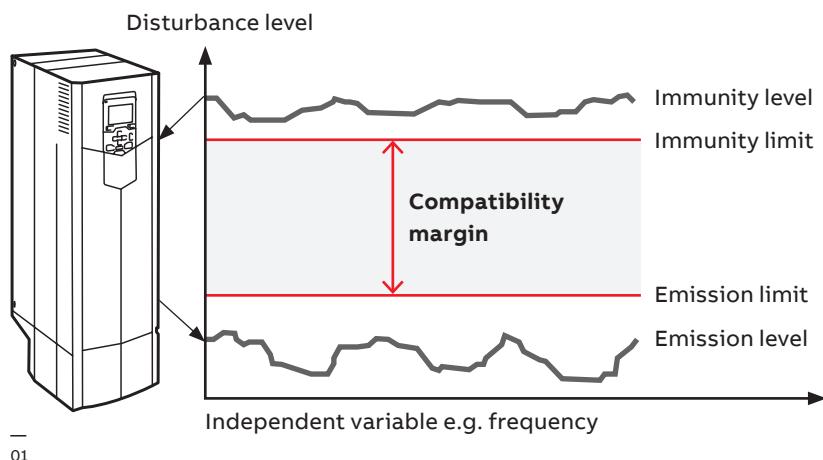
EMC according to EN 61800-3:2004 + A1:2012 product standard	EN 61800-3 product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN 61000-6-4, generic emission standard for industrial environments	EN 61000-6-3, generic emission standard for residential, commercial and light-industrial environment
1st environment, unrestricted distribution	Category C1	Group 1. Class B	Not applicable	Applicable
1st environment, restricted distribution	Category C2	Group 1. Class A	Applicable	Not applicable
2nd environment, unrestricted distribution	Category C3	Group 2. Class A	Not applicable	Not applicable
2nd 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 Option code	2nd environment, C3, grounded network (TN) and ungrounded network (IT) Option code
ACS880-307	380 to 500	D6D to D8D	–	+E210 *)
	380 to 500	1×D8T	+E202	+E210 *)
	380 to 500	D×T up to 980 A	+E202	+E210 *)
ACS880-207	380 to 500	R8i	+E202	+E210 *)
	380 to 690	n×R8i	–	+E210 *)
ACS880-907	380 to 690	n×R8i	–	+E210 *)
ACS880-207LC	690	n×R8i	–	+E210 *)

*) 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

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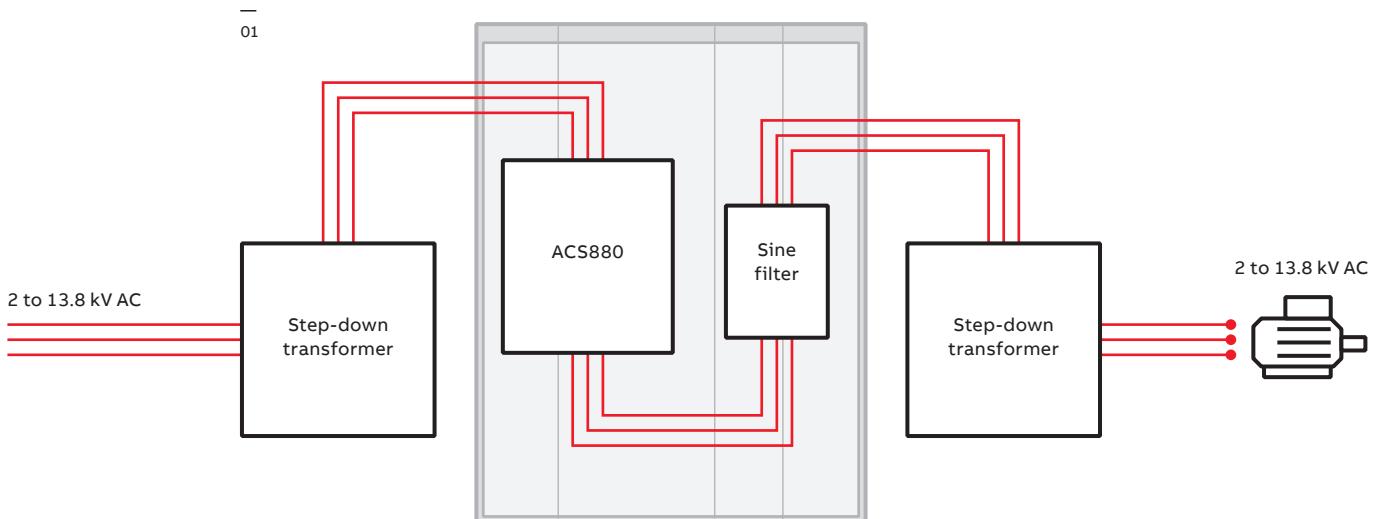
Sine filters for liquid-cooled multidrives

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

Sine filters for air-cooled multidrives

I_N (A)	P_N (kW)	Noise level (dB)	Inverter type	Filter type	Filter height (mm)	Filter width (mm)	Filter depth (mm)	Filter weight (kg)	Frame size
U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.									
470	250	80	ACS880-107-0470A-3	NSIN-0900-6	2145	1000	636	550	R8i
640	355	80	ACS880-107-0640A-3	NSIN-0900-6	2145	1000	636	550	R8i
760	400	80	ACS880-107-0760A-3	NSIN-0900-6	2145	1000	636	550	R8i
900	500	81	ACS880-107-0900A-3	NSIN-1380-6	2145	1000	636	750	R8i
1250	630	82	ACS880-107-1250A-3	2×NSIN-0900-6	2145	1000	636	1100	2×R8i
1480	800	82	ACS880-107-1480A-3	2×NSIN-0900-6	2145	2000	636	1100	2×R8i
1760	1000	82	ACS880-107-1760A-3	2×NSIN-1380-6	2145	2000	636	1500	2×R8i
2210	1200	82	ACS880-107-2210A-3	2×NSIN-1380-6	2145	2000	636	1500	3×R8i
2610	1400	83	ACS880-107-2610A-3	3×NSIN-1380-6	2145	3000	636	2250	3×R8i
3450	1800	83	ACS880-107-3450A-3	3×NSIN-1380-6	2145	3000	636	2250	4×R8i
4290	2400	84	ACS880-107-4290A-3	4×NSIN-1380-6	2145	4000	636	3000	5×R8i
5130	2800	85	ACS880-107-5130A-3	5×NSIN-1380-6	2145	5000	636	3750	6×R8i
U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.									
440	250	80	ACS880-107-0440A-5	NSIN-0485-6	2145	400	636	350	R8i
590	400	80	ACS880-107-0590A-5	NSIN-0900-6	2145	1000	636	550	R8i
740	500	80	ACS880-107-0740A-5	NSIN-0900-6	2145	1000	636	550	R8i
810	560	81	ACS880-107-0810A-5	NSIN-1380-6	2145	1000	636	750	R8i
1150	800	81	ACS880-107-1150A-5	NSIN-1380-6	2145	1000	636	750	2×R8i
1450	1000	82	ACS880-107-1450A-5	2×NSIN-0900-6	2145	2000	636	1100	2×R8i
1580	1100	82	ACS880-107-1580A-5	2×NSIN-1380-6	2145	2000	636	1500	2×R8i
2150	1500	82	ACS880-107-2150A-5	2×NSIN-1380-6	2145	2000	636	1500	3×R8i
2350	1600	83	ACS880-107-2350A-5	3×NSIN-1380-6	2145	3000	636	2250	3×R8i
3110	2000	83	ACS880-107-3110A-5	3×NSIN-1380-6	2145	3000	636	2250	4×R8i
3860	2400	84	ACS880-107-3860A-5	4×NSIN-1380-6	2145	4000	636	3000	5×R8i
4610	3200	85	ACS880-107-4610A-5	5×NSIN-1380-6	2145	5000	636	3750	6×R8i
U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.									
340	315	80	ACS880-107-0340A-7	NSIN-0485-6	2145	400	636	350	R8i
410	400	80	ACS880-107-0410A-7	NSIN-0485-6	2145	400	636	350	R8i
530	500	80	ACS880-107-0530A-7	NSIN-0900-6	2145	1000	636	550	R8i
600	560	80	ACS880-107-0600A-7	NSIN-0900-6	2145	1000	636	550	R8i
800	800	80	ACS880-107-0800A-7	NSIN-0900-6	2145	1000	636	550	2×R8i
1030	1000	81	ACS880-107-1030A-7	NSIN-1380-6	2145	1000	636	750	2×R8i
1170	1100	81	ACS880-107-1170A-7	NSIN-1380-6	2145	1000	636	750	2×R8i
1540	1400	82	ACS880-107-1540A-7	2×NSIN-1380-6	2145	2000	636	1500	3×R8i
1740	1600	82	ACS880-107-1740A-7	2×NSIN-1380-6	2145	2000	636	1500	3×R8i
2300	2000	82	ACS880-107-2300A-7	2×NSIN-1380-6	2145	2000	636	1500	4×R8i
2860	2800	83	ACS880-107-2860A-7	3×NSIN-1380-6	2145	3000	636	2250	5×R8i
3420	3200	83	ACS880-107-3420A-7	3×NSIN-1380-6	2145	3000	636	2250	6×R8i
3990	3600	84	ACS880-107-3990A-7	4×NSIN-1380-6	2145	4000	636	3000	7×R8i
4560	4400	84	ACS880-107-4560A-7	4×NSIN-1380-6	2145	4000	636	3000	8×R8i
5130	4800	85	ACS880-107-5130A-7	5×NSIN-1380-6	2145	5000	636	3750	9×R8i
5700	5600	86	ACS880-107-5700A-7	6×NSIN-1380-6	2145	6000	636	4500	10×R8i

Nominal ratings

I_N	Rated current of the drive-filter combination available continuously without overload at 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.

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ACS880-607, 1-phase brake units

U_N = 400 V (range 380 to 415 V)															
Nominal ratings					Duty cycle (1 min/5 min)		Duty cycle (10 s/60 s)		Height [2]	Width [1] [3]	Depth	Noise	Air flow	Brake unit type ACS880-607-	Brake chopper module type	Resistor type
$P_{br.max}$ (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	$P_{cont.}$ (kW)	$P_{br.}$ (kW)	I_{rms} (A)	$P_{br.}$ (kW)	I_{rms} (A)	(mm)	(mm)	(mm)	(dB(A))	(m³/h)			
Brake unit without brake resistor																
353	1.20	545	149	96	303	468	353	545	2130	400	644	64	660	0320-3	NBRA659	–
706	0.60	1090	298	192	606	936	706	1090	2130	800	644	67	1320	0640-3	2×NBRA659	–
1058	0.40	1635	447	288	909	1404	1059	1635	2130	1200	644	68	1980	0960-3	3×NBRA659	–
1411	0.30	2180	596	384	1212	1872	1412	2180	2130	1600	644	69	2640	1280-3	4×NBRA659	–
1764	0.24	2725	745	480	1515	2340	1765	2725	2130	2000	644	70	3300	1600-3	5×NBRA659	–
2117	0.20	3270	894	576	1818	2808	2118	3270	2130	2400	644	71	3960	1920-3	6×NBRA659	–
Brake unit with brake resistor																
353	1.20	545	84	54	167	257	287	444	2130	1200	644	66	2500	0320-3+D151 *)	NBRA659	2×SAFUR180F460
706	0.60	1090	168	108	333	514	575	888	2130	2400	644	69	5000	0640-3+D151 *)	2×NBRA659	2×(2×SAFUR180F460)
1058	0.40	1635	252	162	500	771	862	1332	2130	3600	644	70	7500	0960-3+D151 *)	3×NBRA659	3×(2×SAFUR180F460)
1411	0.30	2180	336	216	667	1028	1150	1776	2130	4800 [1]	644	71	10000	1280-3+D151 *)	4×NBRA659	4×(2×SAFUR180F460)
1764	0.24	2725	420	270	833	1285	1437	2220	2130	6000 [1]	644	72	12500	1600-3+D151 *)	5×NBRA659	5×(2×SAFUR180F460)
2117	0.20	3270	504	324	1000	1542	1724	2664	2130	7200 [1]	644	73	15000	1920-3+D151 *)	6×NBRA659	6×(2×SAFUR180F460)

U_N = 500 V (range 380 to 500 V)

Nominal ratings					Duty cycle (1 min/5 min)		Duty cycle (10 s/60 s)		Height [2]	Width [1][3]	Depth	Noise	Air flow	Brake unit type ACS880-607-	Brake chopper module type	Resistor type
$P_{br.max}$ (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	$P_{cont.}$ (kW)	$P_{br.}$ (kW)	I_{rms} (A)	$P_{br.}$ (kW)	I_{rms} (A)	(mm)	(mm)	(mm)	(dB(A))	(m³/h)			
Brake unit without brake resistor																
403	1.43	571	136	109	317	391	403	498	2130	400	644	64	660	0400-5	NBRA659	–
806	0.72	1142	272	218	634	782	806	996	2130	800	644	67	1320	0800-5	2×NBRA659	–
1208	0.48	1713	408	327	951	1173	1209	1494	2130	1200	644	68	1980	1200-5	3×NBRA659	–
1611	0.36	2284	544	436	1268	1564	1612	1992	2130	1600	644	69	2640	1600-5	4×NBRA659	–
2014	0.29	2855	680	545	1585	1955	2015	2490	2130	2000	644	70	3300	2000-5	5×NBRA659	–
2417	0.24	3426	816	654	1902	2346	2418	2988	2130	2400	644	71	3960	2400-5	6×NBRA659	–
Brake unit with brake resistor																
403	1.35	605	67	54	167	206	287	355	2130	1200	644	66	2500	0400-5+D151 *)	NBRA659	2×SAFUR200F500
806	0.68	1210	134	108	333	412	575	710	2130	2400	644	69	5000	0800-5+D151 *)	2×NBRA659	2×(2×SAFUR200F500)
1208	0.45	1815	201	162	500	618	862	1065	2130	3600	644	70	7500	1200-5+D151 *)	3×NBRA659	3×(2×SAFUR200F500)
1611	0.34	2420	268	216	667	824	1150	1420	2130	4800 [1]	644	71	10000	1600-5+D151 *)	4×NBRA659	4×(2×SAFUR200F500)
2014	0.27	3025	335	270	833	1030	1437	1775	2130	6000 [1]	644	72	12500	2000-5+D151 *)	5×NBRA659	5×(2×SAFUR200F500)
2417	0.23	3630	402	324	1000	1236	1724	2130	2130	7200 [1]	644	73	15000	2400-5+D151 *)	6×NBRA659	6×(2×SAFUR200F500)

U_N = 690 V (range 525 to 690 V)

Nominal ratings					Duty cycle (1 min/5 min)		Duty cycle (10 s/60 s)		Height [2]	Width [1][3]	Depth	Noise	Air flow	Brake unit type ACS880-607-	Brake chopper module type	Resistor type
$P_{br.max}$ (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	$P_{cont.}$ (kW)	$P_{br.}$ (kW)	I_{rms} (A)	$P_{br.}$ (kW)	I_{rms} (A)	(mm)	(mm)	(mm)	(dB(A))	(m³/h)			
Brake unit without brake resistor																
404	2.72	414	107	119	298	267	404	361	2130	400	644	64	660	0400-7	NBRA669	–
807	1.36	828	214	238	596	534	808	722	2130	800	644	67	660	0800-7	2×NBRA669	–
1211	0.91	1242	321	357	894	801	1212	1083	2130	1200	644	68	1320	1200-7	3×NBRA669	–
1615	0.68	1656	428	476	1192	1068	1616	1444	2130	1600	644	69	1980	1600-7	4×NBRA669	–
2019	0.54	2070	535	595	1490	1335	2020	1805	2130	2000	644	70	2640	2000-7	5×NBRA669	–
2422	0.45	2484	642	714	1788	1602	2424	2166	2130	2400	644	71	3300	2400-7	6×NBRA669	–
Brake unit with brake resistor																
404	1.35	835	97	54	167	149	287	257	2130	1200	644	66	2500	0400-7+D151 *)	NBRA669	2×SAFUR200F500
807	0.68	1670	194	108	333	298	575	514	2130	2400	644	69	5000	0800-7+D151 *)	2×NBRA669	2×(2×SAFUR200F500)
1211	0.45	2505	291	162	500	447	862	771	2130	3600	644	70	7500	1200-7+D151 *)	3×NBRA669	3×(2×SAFUR200F500)
1615	0.34	3340	388	216	667	596	1150	1028	2130	4800 [1]	644	71	10000	1600-7+D151 *)	4×NBRA669	4×(2×SAFUR200F500)
2019	0.27	4175	485	270	833	745	1437	1285	2130	6000 [1]	644	72	12500	2000-7+D151 *)	5×NBRA669	5×(2×SAFUR200F500)
2422	0.23	5010	582	324	1000	894	1724	1542	2130	7200 [1]	644	73	15000	2400-7+D151 *)	6×NBRA669	6×(2×SAFUR200F500)

Ratings

E_r	Energy pulse that the resistor assembly will withstand with the 400 seconds duty cycle. This energy will heat the resistor element from 40 °C to the maximum allowable temperature.
$P_{br.max}$	Maximum braking power of the NBRA-6xx chopper and SAFUR resistor combination.
Note:	The braking energy transmitted to the resistor during any period shorter than 400 seconds may not exceed E_r. Thus, the standard resistor withstands continuous braking of $P_{br.\,max}$ typically 20 to 40 seconds (t = $E_r / P_{br,max}$) during the total cycle time of 400 s.
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 200 mm junction section needed.
[2] 2130 mm + additional 10 mm is required for marine supports.
[3] Total width of the line-up is the sum of widths of the sections + 30 mm for the end plates.
*) D151 = braking resistor, degree of protection IP22 and IP42 only

ACS880-607, 3-phase dynamic brake units

U_N = 400 V (range 380 to 415 V)

Resistor values		Ratings R_{min}							Ratings R_{max}							Brake unit type ACS880-607-	Frame size
		No-overload use				Cycle load (1 min/5 min)			No-overload use				Cycle load (1 min/5 min)				
R_{min}	R_{max}	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{min}$ DC	$P_{br.}\,R_{min}$ DC	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{max}$ DC	$P_{br.}\,R_{max}$ DC		
(ohm)	(ohm)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)		
1.7	2.1	781	310	500	370	999	351	640	781	282	500	312	827	291	530	0500-3	R8i
1.2	1.4	1171	465	750	555	1499	527	960	1171	424	750	468	1241	436	800	0750-3	R8i
1.7	2.1	1562	621	1000	740	1998	702	1290	1562	565	1000	625	1655	581	1060	1000-3	2×R8i
1.2	1.4	2342	931	1510	1110	2997	1053	1930	2342	847	1510	937	2482	872	1600	1510-3	2×R8i
1.2	1.4	3514	1396	2260	1665	4496	1580	2890	3514	1271	2260	1405	3723	1308	2400	2260-3	3×R8i
1.2	1.4	4685	1862	3010	2220	5994	2106	3860	4685	1694	3010	1874	4964	1744	3190	3010-3	4×R8i
1.2	1.4	5856	2327	3770	2775	7493	2633	4820	5856	2118	3770	2342	6205	2180	3990	3770-3	5×R8i

U_N = 500 V (range 380 to 500 V)

Resistor values		Ratings R_{min}							Ratings R_{max}							Brake unit type ACS880-607-	Frame size
		No-overload use				Cycle load (1 min/5 min)			No-overload use				Cycle load (1 min/5 min)				
R_{min}	R_{max}	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{min}$ DC	$P_{br.}\,R_{min}$ DC	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{max}$ DC	$P_{br.}\,R_{max}$ DC		
(ohm)	(ohm)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)		
2.2	2.6	781	310	630	370	999	351	800	781	284	630	312	835	293	670	0630-5	R8i
1.4	1.7	1171	465	940	555	1499	527	1210	1171	430	940	468	1277	449	1030	0940-5	R8i
2.2	2.6	1562	621	1260	740	1998	702	1610	1562	568	1260	625	1671	587	1340	1260-5	2×R8i
1.4	1.7	2342	931	1880	1110	2997	1053	2410	2342	860	1880	937	2555	898	2060	1880-5	2×R8i
1.4	1.7	3514	1396	2830	1665	4496	1580	3620	3514	1289	2830	1405	3832	1347	3080	2830-5	3×R8i
1.4	1.7	4685	1862	3770	2220	5994	2106	4820	4685	1719	3770	1874	5110	1795	4110	3770-5	4×R8i
1.4	1.7	5856	2327	4710	2775	7493	2633	6030	5856	2149	4710	2342	6387	2244	5140	4710-5	5×R8i

U_N = 690 V (range 525 to 690 V)

Resistor values		Ratings R_{min}							Ratings R_{max}							Brake unit type ACS880-607-	Frame size
		No-overload use				Cycle load (1 min/5 min)			No-overload use				Cycle load (1 min/5 min)				
R_{min}	R_{max}	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{min}$ DC	$P_{br.}\,R_{min}$ DC	I_{dc} DC	I_{rms} DC	$P_{cont.max}$	I_{max} DC	I_{dc} DC	$I_{rms}\,R_{max}$ DC	$P_{br.}\,R_{max}$ DC		
(ohm)	(ohm)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)	(A)	(A)	(kW)	(A)	(A)	(A)	(A)		
3.0	3.6	781	310	870	370	999	351	1110	781	283	870	312	833	293	920	0870-7	R8i
2.0	2.4	1171	465	1300	555	1499	527	1660	1171	425	1300	468	1249	439	1390	1300-7	R8i
3.0	3.6	1562	621	1730	740	1998	702	2220	1562	567	1730	625	1665	585	1850	1730-7	2×R8i
2.0	2.4	2342	931	2600	1110	2997	1053	3330	2342	850	2600	937	2498	878	2770	2600-7	2×R8i
2.0	2.4	3514	1396	3900	1665	4496	1580	4990	3514	1275	3900	1405	3746	1316	4160	3900-7	3×R8i
2.0	2.4	4685	1862	5200	2220	5994	2106	6650	4685	1700	5200	1874	4995	1755	5540	5200-7	4×R8i
2.0	2.4	5856	2327	6500	2775	7493	2633	8320	5856	2125	6500	2342	6244	2194	6930	6500-7	5×R8i

Dimensions

Frame size	Height [1] (mm)	Width bottom exit (mm)	Width top exit (mm)	Depth (mm)	Noise level [2] (dB(A))	Air flow (m³/h)
R8i	2145	500	700	636	72	1300
2×R8i	2145	1000	1400	636	74	2600
3×R8i	2145	1500	2100	636	76	3900
4×R8i	2145	2000	2800	636	76	5200
5×R8i	2145	2500	3500	636	77	6500

[1] IP21 and IP42. IP54 additional 170 mm to the height of each R8i cabinet.
[2] Average noise level with controlled cooling fan.
Note: 400 mm 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 2×R8i including two brake modules → 2×3 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)

Nominal ratings					Duty cycle (1min/5min)		Duty cycle (10s/60s)		Losses [3]	Coolant flow rate [1]	Air flow [2]	Height	Width [1]	Depth	Brake chopper module type	Brake resistor type	Type ACS880-607LC-
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)	P_{loss} (kW)	(l/min)	(m³/h)	(mm)	(mm)	(mm)			
Brake chopper without brake resistor																	
404	–	414	107	119	298	267	404	361	2.0	1.6	–	2002	400	644	NBRW-669C	–	0400-7
807	–	828	214	238	596	534	808	722	4.0	3.2	–	2002	800	644	2×NBRW-669C	–	0800-7
1211	–	1242	321	357	894	801	1212	1083	6.0	4.8	–	2002	1200	644	3×NBRW-669C	–	1200-7
1615	–	1656	428	476	1192	1068	1616	1444	8.0	6.4	–	2002	1600	644	4×NBRW-669C	–	1600-7
2019	–	2070	535	595	1490	1335	2020	1805	10.0	8.0	–	2002	2000	644	5×NBRW-669C	–	2000-7
2422	–	2484	642	714	1788	1602	2424	2166	12.0	9.6	–	2002	2400	644	6×NBRW-669C	–	2400-7

U_N = 690 V (range 525 to 690 V)

Nominal ratings					Duty cycle (1min/5min)		Duty cycle (10s/60s)		Coolant flow rate [1]	Air flow [2]	Height	Width [1]	Depth	Brake chopper module type	Brake resistor type	Type ACS880-607LC-
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)	(l/min)	(m³/h)	(mm)	(mm)	(mm)			
Brake chopper with the resistor																
404	1.35	835	97	54	167	149	287	257	1.6	1840	2002	1200	644	NBRW-669C	2×SAFUR200F500	0400-7
807	0.68	1670	194	108	333	298	575	514	3.2	4340	2002	2400	644	2×NBRW-669C	2×(2×SAFUR200F500)	0800-7
1211	0.45	2505	291	162	500	447	862	771	4.8	6180	2002	3600	644	3×NBRW-669C	3×(2×SAFUR200F500)	1200-7
1615	0.34	3340	388	216	667	596	1150	1028	6.4	8020	2002	4800 [4]	644	4×NBRW-669C	4×(2×SAFUR200F500)	1600-7
2019	0.27	4175	485	270	833	745	1437	1285	8.0	9860	2002	6000 [4]	644	5×NBRW-669C	5×(2×SAFUR200F500)	2000-7
2422	0.23	5010	582	324	1000	894	1724	1542	9.6	11700	2002	7200 [4]	644	6×NBRW-669C	6×(2×SAFUR200F500)	2400-7

[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 300 mm junction section needed.

Ratings

Nominal ratings	
P_{brmax}	Maximum short-term (1 min every 10 mins) 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 (1 min/5 min)	
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.

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	Motor insulation system	Requirements for ABB du/dt and common mode filters, insulated N-end motor bearings		
			P_N < 100 kW and frame size < IEC 315 P_N < 134 hp and frame size < NEMA 500	100 kW ≤ P_N < 350 kW or IEC 315 ≤ frame size < IEC 400 134 hp ≤ P_N < 469 hp or NEMA 500 ≤ frame size ≤ NEMA 580	P_N ≥ 350 kW or frame size ≥ IEC 400 P_N ≥ 469 hp or frame size ≥ NEMA 580
ABB motors					
Random-wound M2__, M3__ and M4__	U_N ≤ 500 V	Standard	–	+ N	+ N + CMF
	500 V < U_N ≤ 600 V	Standard	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
		Reinforced	–	+ N	+ N + CMF
	600 V < U_N ≤ 690 V (cable length ≤ 150 m)	Reinforced	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
	600 V < U_N ≤ 690 V (cable length > 150 m)	Reinforced	–	+ N	+ N + CMF
Form-wound HX__ and AM__	380 < U_N ≤ 690 V	Standard	n/a	+ N + CMF	P_N < 500 kW: + N + CMF P_N ≥ 500 kW: + du/dt + N + CMF
Old [1] form-wound HX__ and modular	380 < U_N ≤ 690 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 V < U_N ≤ 500 V	Enamelled wire with fiber glass taping	+ N + CMF	+ N + CMF	+ N + CMF
	500 V < U_N ≤ 690 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 ≤ 420 V	Standard: $\hat{U}_{LL}$ = 1300 V	–	+ N or CMF	+ N + CMF
	420 V < U_N ≤ 500 V	Standard: $\hat{U}_{LL}$ = 1300 V	+ du/dt	+ du/dt + N or + du/dt + CMF	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL}$ = 1600 V, 0.2 microsecond rise time	–	+ N or CMF	+ N + CMF
	500 V < U_N ≤ 600 V	Reinforced: $\hat{U}_{LL}$ = 1600 V	+ du/dt	+ du/dt + N or + du/dt + CMF	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL}$ = 1800 V	–	+ N or CMF	+ N + CMF
	600 V < U_N ≤ 690 V	Reinforced: $\hat{U}_{LL}$ = 1800 V	+ du/dt	+ du/dt + N	+ du/dt + N + CMF
		Reinforced: $\hat{U}_{LL}$ = 2000 V, 0.3 microsecond rise time [3]	–	+ N or CMF	+ N + CMF

[1] 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			NOCH0016-60	NOCH0030-60	NOCH0070-60	BOCH-0350A-7
400 V	500 V	690 V				
004A8-3	003A6-5	007A3-7	×			
006A0-3	004A8-5	009A8-7	×			
008A0-3	006A0-5	014A2-7	×			
0011A-3	008A0-5		×			
0014A-3	0011A-5		×			
0018A-3	0014A-5		×			
	0018A-5		×			
0025A-3	0025A-5	0018A-7		x		
0030A-5		0022A-7		x		
0035A-3	0035A-5	0027A-7		x		
0044A-3		0035A-7			x	
0050A-3	0050A-5	0042A-7			x	
0061A-3	0061A-5	0052A-7			x	
0078A-3	0078A-5				x	
0094A-3	0094A-5				x	
0100A-3					x	
0140A-3	0110A-5	0062A-7				x
0170A-3	0140A-5	0082A-7				x
0210A-3	0170A-5	0100A-7				x
0250A-3	0200A-5	0130A-7				x
0300A-3	0240A-5	0140A-7				x
0350A-3	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 (mm)	Width (mm)	Depth (mm)	Weight (kg)
BOCH-0350A-7 [2]	310	347	256	16
NOCH0016-60	195	140	115	2.4
NOCH0016-62/65	323	199	154	6
NOCH0030-60	215	165	130	4.7
NOCH0030-62/65	348	249	172	9
NOCH0070-60	261	180	150	9.5
NOCH0070-62/65	433	279	202	15.5
NOCH0120-60 [1]	200	154	106	7
NOCH0120-62/65	765	308	256	45
FOCH0260-70	382	340	254	47
FOCH0260-72	900	314	384	73
FOCH0320-50	662	319	293	65
FOCH0320-52	1092	396	413	100
FOCH0610-70	662	319	293	65
FOCH0875-70	662	319	293	65

[1] 3 filters included, dimensions apply to one filter.
[2] Values are for three single-phase filters.

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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.

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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.
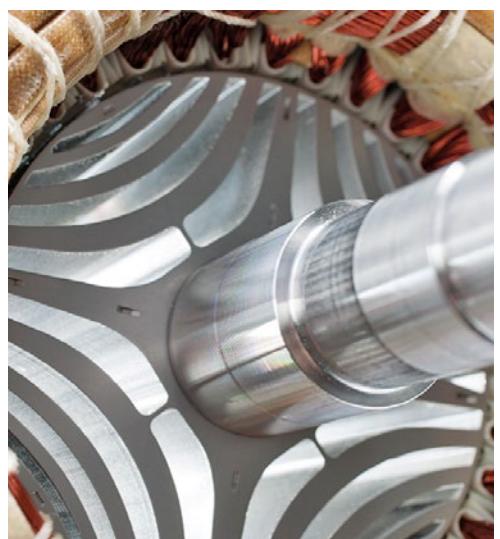
Traditional IE2 induction motor

IE4 synchronous reluctance motor SynRM

—
Losses

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

SynRM	I^2R Stator	Other	60%
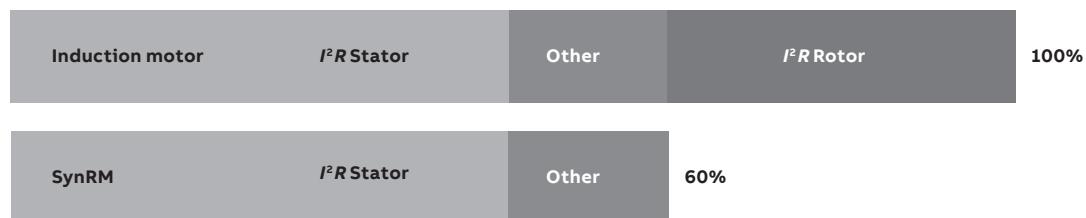
The idea is simple. Take a conventional, proven stator technology and a totally new, innovative rotor design. Then combine them with a drive loaded with new, application-specific software. Finally, optimize the whole package for applications such as pumps, fans, compressors, extruders, conveyors and 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.

Cost of ownership = $ Purchase + ▷ Cost of running + ❚❚ Cost of not running

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/drivereg.

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
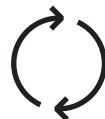
Replacements
Fast and efficient replacement services to minimize production downtime.

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.

Extensions, upgrades & retrofits
Up-to-date systems and devices with the best possible performance level.

Advanced services
Gain the unique **ABB Ability™ digital advantage** through data collection and analytics with **advanced services.**

Engineering & consulting
Ways to identify and improve the reliability, usability, maintainability and safety of your production processes.

Spares & consumables
Authentic, high-quality ABB spares and consumables with quick delivery.

Global service network 24/7

Technical support & repairs
Quick and accurate response during emergencies and efficient support during planned production breaks.

Installation & commissioning
Highly-trained and reliable installation and commissioning experts at your service.

Training
Comprehensive and professional training either at ABB premises or your own.

Agreements
Comprehensive bundling of relevant services into one contract to suit your needs.

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.

Variable speed drive

Motor

Mechanical power transmission
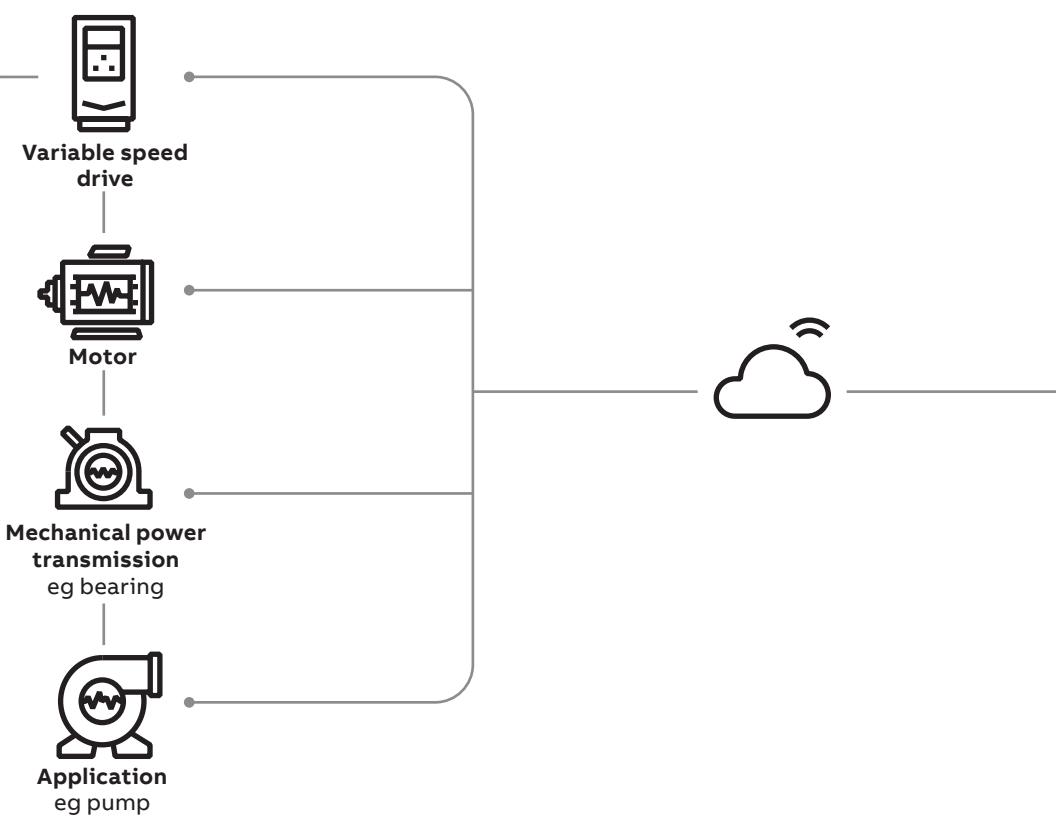eg bearing

Application
eg pump

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.

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.

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]	□ [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												
Disconnector		–	● [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 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
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) - Safe stop emergency (SSE) - Prevention of unexpected start-up (POUS) - Safe torque off (STO)	+Q973	□	–	–	–	–	–	–	□	–	–	–
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) - Prevention of unexpected start-up (POUS) - Safe direction (SDI), requires encoder feedback, FSE-31 - Safe speed monitoring (SSM) - Safe torque off (STO)	+Q972	□	–	–	–	–	–	–	□	–	–	–
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

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	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 10×R8i
[7] Optional in frame sizes R1i to R8i and 400/500 V
[8] For ISU: 400 to 500 V disconnector and contactor up to 2×R8i, 690 V disconnector and contactor up to 3×R8i.
For bigger ISU frames: air-circuit breaker.
[9] For DSU 6-pulse, 400/500 V: disconnector up to 3×D8T, air-circuit breaker ≥ 4×D8T.
For DSU 6-pulse, 690 V: disconnector up to 4×D8T, air-circuit breaker ≥ 5×D8T.
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 ≥ 4×R8i.
[11] For ISU: 400 to 500 V air circuit breaker ≥ 3×R8i, 690 V air-circuit breaker ≥ 4×R8i
[12] For RRU: air circuit breaker >4xR8i
[13] R1i to R4i for cabinet, individual for R6i to n×R8i. Common for cabinet for R1i to R5i, individual for R6i to n×R8i.
[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.

Notes

Additional information

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

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