LOW VOLTAGE AC DRIVES

# ABB industrial drives
## ACS880, multidrives
## 1.5 to 6000 kW

ABB

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# Uncompromised productivity.
# ACS880 series.

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# ABB industrial drives
## ACS880, multidrives

# The all-compatible ACS880 series
## Uncompromized productivity

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.
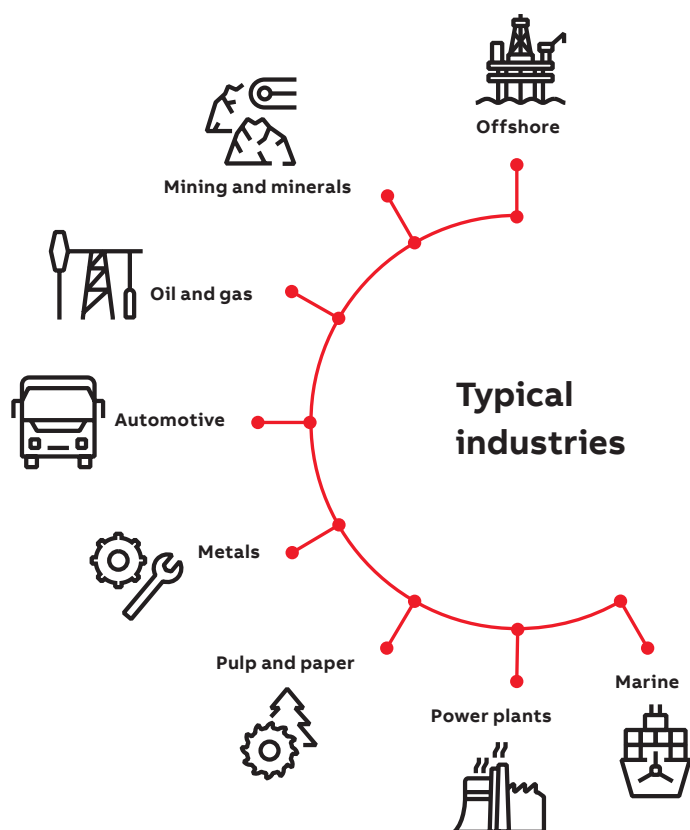
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## High quality

**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

Metals

Pulp and paper

Power plants

Marine

**Typical industries**

# Simplify your world
# without limiting your possibilities

Engineered-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.

**Easy to use**
- 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

**Engineered-to-order for simplified installation**
- All the essential features built-in
- Flexible product configurations engineered-to-order
- Wide selection of options and variants
- Compact design
- Enclosure classes for different environments
- Extensive selection of support material and tools for engineering

**See page 10**

**Fieldbus and Industrial Ethernet solutions**
- Communication with all major automation networks
- Remote monitoring
- Integration tools for various PLCs

**See page 12**

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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 13**
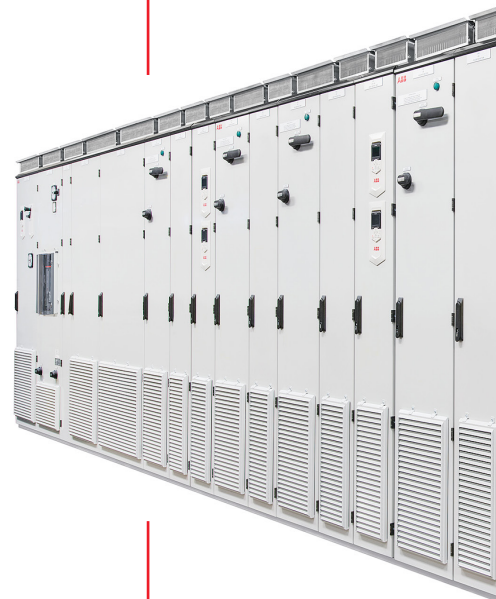
A single supply and DC bus arrangement with multiple inverters reduce line power, cabinet size and investment costs.

**Protect your people, machinery, and processes with integrated drive 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 14**

**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 15**
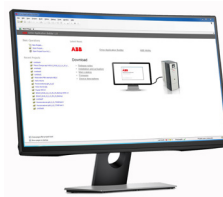
**Premium control and programmability**
- Direct torque control (DTC) for precise control
- Speed, torque and position control as well as synchronizing
- Adaptive programming as standard
- Drive-based PLC programmability (IEC 61131-3) for fully customized solutions

**See page 16**
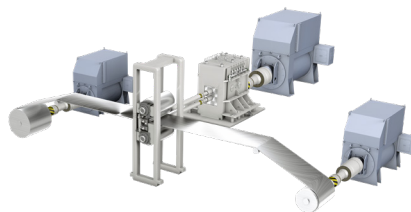
**Application- and industry specific solutions**
- Ready-made optimized solutions for various applications and industries

**See pages 18** - 19

# Easy to use

**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.

ABB has a wide range of user interface options, which are intuitive and easy to use and provide a superior experience compared to traditional tools.

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

**Simplicity at your fingertips as standard**
As the standard, the ACS880 drive has a control panel with built-in Bluetooth interface, which enables wireless connection with the ABB Drivetune mobile app and with the entry-level Drive Composer PC tool for startup, commissioning, maintenance, and remote support. Control panel has built-in USB port, which enables PC connection using the Drive Composer software for comprehensive commissioning and maintenance.

Drive Composer is designed for the daily operation of the ACS880 drives. It 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.

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# Engineered-to-order for simplified installation

**Compact tailor made design**
ACS880 Multidrives offer a wide selection of pre-defined options, which include the typical requirements of different industries.

Our ACS880 Multidrives are always engineered-to-order products. This ensures that the customer's and application's demands are taken as basis of our design and even complex requirements can be included to create a unique solution. Our dedicated team takes care of your needs to ensure the maximum performance, uptime and quality in daily processes.

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.
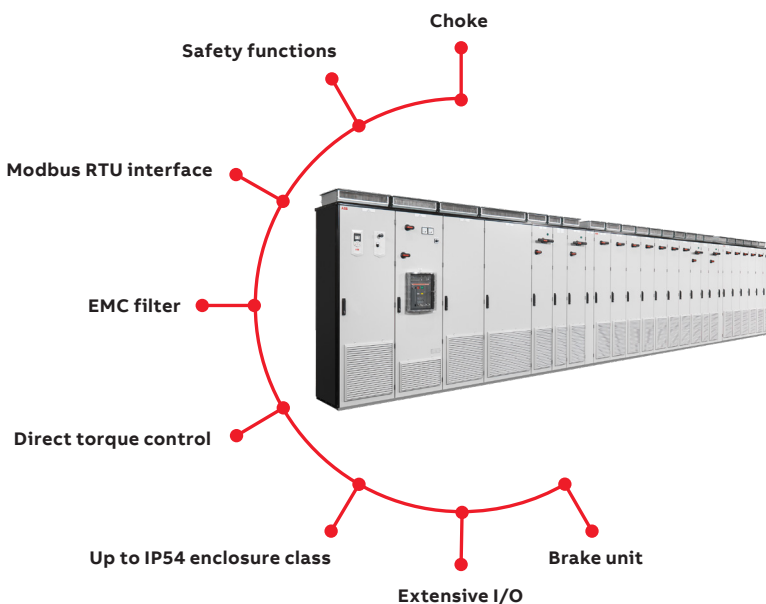
Multidrive design is extremely compact:
• High packing density with 16 inverter units up to frame size R2i can be installed into one cabinet
• Reliable diode bridge with high power density
• Highly efficient thermal handling as heat loss of each inverter unit is guided to the back of the cabinet. All 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.

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ACS880 Multidrives provide
flexibility to ensure that even the
larger drive can be be modified to
meet space requirements / to fit
to available space on installation
site. The modular structure of
ACS880 Multidrives enable that
drive line-up can be built and
installed into straight line, L- and
U-shape and back-to-back
layouts.
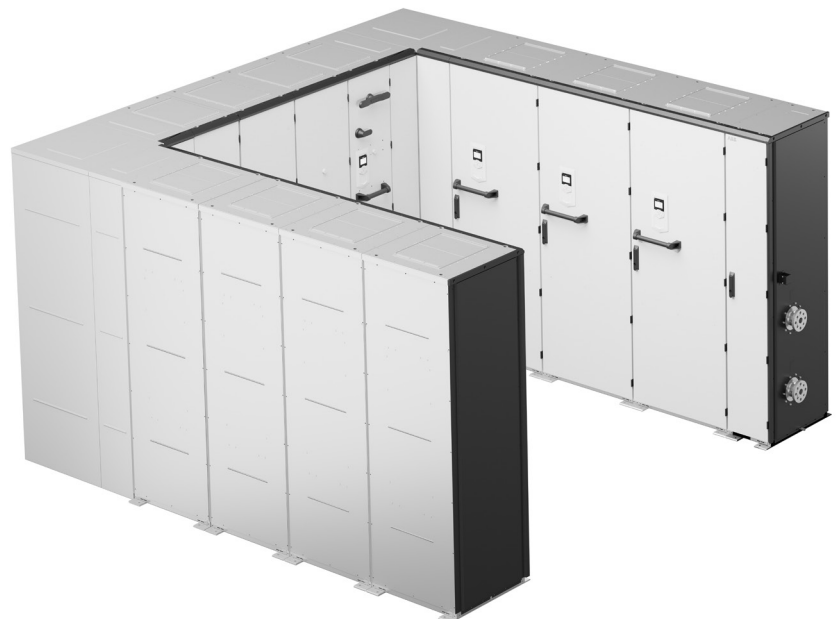
# Fieldbus and Industrial Ethernet solutions
Easy, secure, and reliable integration with all automation ecosystems

Smooth data communication is central to running critical infrastructure, transportation, and industrial networks of all kinds. ABB is a technology leader in digital automation communication networks. We provide device integration, wireless and wired products, and systems that help you to make the Industrial Internet of Things a reality. ACS880 drives support all major fieldbus protocols, giving you the flexibility, compatibility, and security. As the standard, the drives come with Modbus RTU fieldbus interface module and drive-to-drive communication link.

The drives support advanced communication features:
- Accurate torque and speed control over the PROFINET or PROFIBUS
- Increased control system availability with the PROFINET S2 redundancy
- PROFIsafe over PROFINET
- CIP Safety
- Support for multiple protocols simultaneously
- Shared Ethernet connection for automation communication and Drive Composer pro 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.

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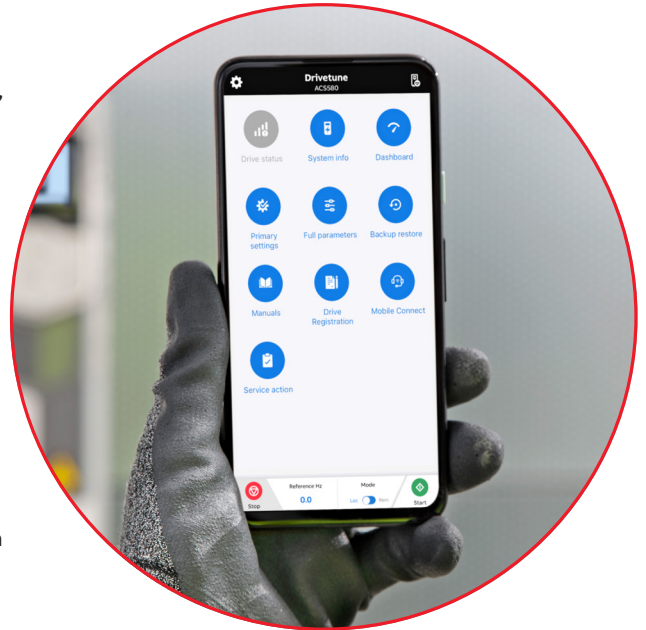
Better connectivity and user experience

# 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 76-77.

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# Protect your people, machinery, and processes with integrated drive 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)

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## 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), permanent magnet assisted SynRM (PMaSynRM) 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.
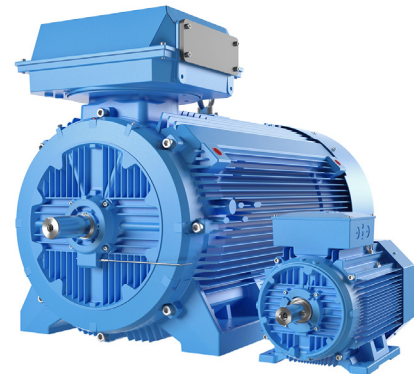
### Low harmonic content

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.
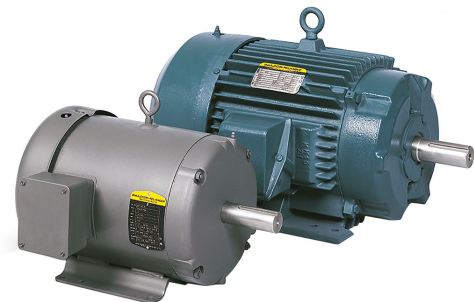
# Premium control and programmability

**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.

**Position control and synchronizing**
Position control allows to meet motion systems demands without the need of an external position controller. The ready-made motion functions can be easily configured by parameters.

For optimized solution for your application, the functions can be modified and extended by IEC 61131 programming using PLCopen motion blocks.

Additional features, such as built-in synchronized drive to drive link and possibility for encoderless positioning, make ACS880 position control ideal for any axis.

**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.
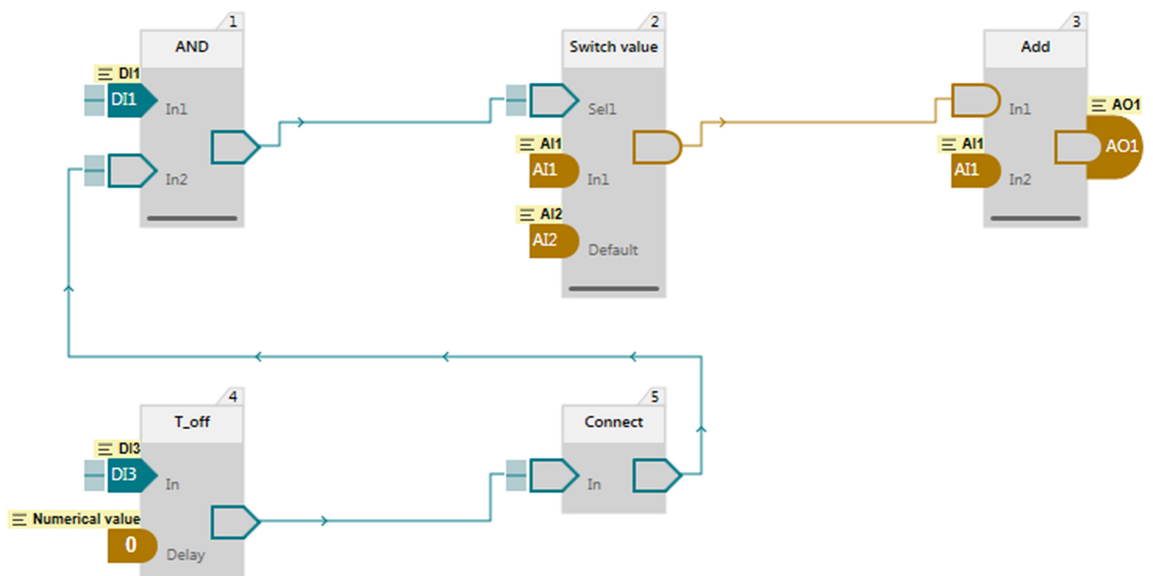
# Application- and industry-specific solutions

**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

**Optimal grid control, +N8053**
- Creation of an island AC grid
- Support the operation of a distributed power system

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

**LV synchronous machine, +N8052**
- Machine model based flux and torque control
- Machine saturation model
- Excitation current reference calculation
- Autophasing function

**Test bench, +N5300**
- Fast communication
- High torque accuracy and linearity
- Acceleration damping
- Minimized motor noise

**High speed test bench, +P967**
- High-speed test benches up to 25 000 rpm
- For air-cooled inverter units -107 (INU) R8i frames

**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 (+C20X)

**Hydrogen production**
- DC supply for electrolysis
- Optional DC/DC-converter for superior DC voltage

# Technical data

## Mains connection

| | |
|---|---|
| **Voltage and power range** | 3-phase, $U_{N3}$ 380 to 415 V, +10%/-10%<br>3-phase, $U_{N5}$ 380 to 500 V, +10%/-10%<br>3-phase, $U_{N7}$ 525 to 690 V, +10%/-10%<br>Inverter unit (INU) 1.5 to 6000 kW<br>Diode supply unit (DSU) 50 to 5500 kVA<br>IGBT supply unit (ISU) 300 to 6944 kVA<br>Regenerative rectifier unit (RRU) 400 to 6100 kVA |
| **Frequency** | 50/60 Hz ±5% |
| **Power factor** | IGBT supply unit (ISU):<br>- $\cos\varphi$ = 1 (fundamental)<br>- $\cos\varphi$ = 0.99 (total)<br>Diode supply unit (DSU) and regenerative rectifier unit (RRU):<br>- $\cos\varphi$ = 0.98 (fundamental)<br>- $\cos\varphi$ = 0.93 to 0.95 (total) |
| **Efficiency** (at nominal power) | 98% with DSU and RRU<br>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**<br>Open loop<br>Closed loop<br><br>Open loop<br>Closed loop | Torque step rise time:<br>- <5 ms with nominal torque<br>- <5 ms with nominal torque<br>Non-linearity:<br>- ± 4% with nominal torque<br>- ± 3% with nominal torque |
| **Speed control**<br>Open loop<br>Closed loop<br><br>Open loop<br>Closed loop | Static accuracy:<br>- 10% of motor slip<br>- 0.01% of nominal speed<br>Dynamic accuracy:<br>- 0.3 to 0.4% seconds with 100% torque step<br>- 0.1 to 0.2% seconds with 100% torque step |

## Product compliance

CE, UKCA
Low Voltage Directive 2014/35/EU according to EN 61800-5-1:2007+A1:2017+A11:2021
SGS statement according to IEC 61800-5-1
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 [8]
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]
UKEX Type Examination certificates for safe disconnection function and thermistor and PT100 protection functions, Ex II (2) GD 6)
Marine type approvals: ABS, BV, CCS, ClassNK, DNV GL, KR, LR, RINA
For product specific availability, see https://new.abb.com/drives/segments/marine/marine-type-approvals

### EMC according to EN 61800-3: 2004 + A1: 2012. See page 61.

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 58 - 59.

| | |
|---|---|
| For Safe Torque Off (STO) and safety functions modules | EN/IEC 61800-5-2, IEC 61508: SIL 3,<br>IEC 61511: SIL 3, EN/IEC 62061: SIL CL 3,<br>EN ISO 13849-1: PL e – TÜV Nord certified [5] |
| Safety over fieldbus | PROFIsafe over PROFINET, certified. |

## Environmental limits

| | |
|---|---|
| **Ambient temperature**<br>Transport<br>Storage<br>Operation area<br>(air-cooled)<br><br>(liquid-cooled) | <br>-40 to +70 °C<br>-40 to +70 °C<br>0 to +40 °C, no frost allowed<br>+40 to 50 °C with derating of 1%/1 °C<br>0 to +45 °C, no frost allowed<br>+45 to +55 °C with derating of 0.5%/1 °C |
| **Cooling method**<br>Air-cooled<br>Liquid-cooled | <br>Dry clean air<br>Direct liquid-cooling, coolant Antifrogen® L<br>Incoming coolant temperature to module (-x07LC):<br>- 0 to +40 °C as standard<br>- +40 to +45 °C with derating of 2%/1 °C<br>- +45 to +50 °C with derating of 2%/1 °C or 6%/1 °C [7]<br>Incoming coolant temperature to optional liquid-cooling unit (-1007LC) (fresh water or sea water):<br>- 0 to +36 °C as standard<br>- +36 to +46 °C with derating of 2%/1 °C |
| **Altitude**<br>0 to 1,000 m<br>1,000 to 4,000 m | <br>Without derating<br>With derating of 1% / 100 m [4] |
| **Relative humidity** | 5 to 95%, no condensation allowed |
| **Degree of protection**<br>Air-cooled<br><br>Liquid-cooled | <br>IP22 as standard (IP20 cabinet doors open)<br>IP42 or IP54 as option<br>IP42 as standard (IP20 cabinet doors open)<br>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<br>Units with marine construction:<br>- Max. 1 mm (peak value 2 to 13.2 Hz)<br>- 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.
[8] UL/CSA panel shop standards that ACS880 multidrives complies with, only allow ambient temperature of 0…40C.

# 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.
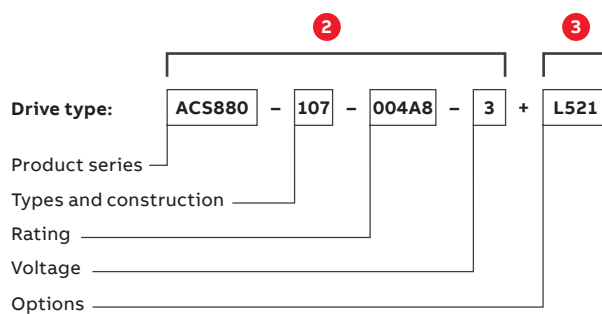


**Drive type:**

| ACS880 | – | 107 | – | 004A8 | – | 3 | + | L521 |

Product series
Types and construction
Rating
Voltage
Options

# ACS880 multidrives

D

—
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
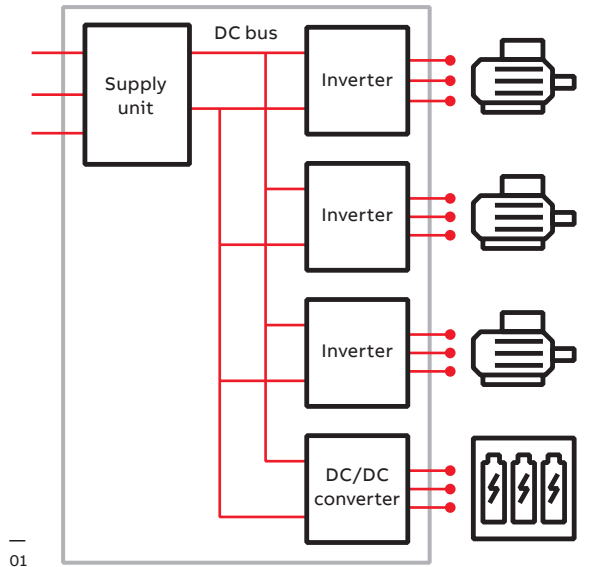
—
02
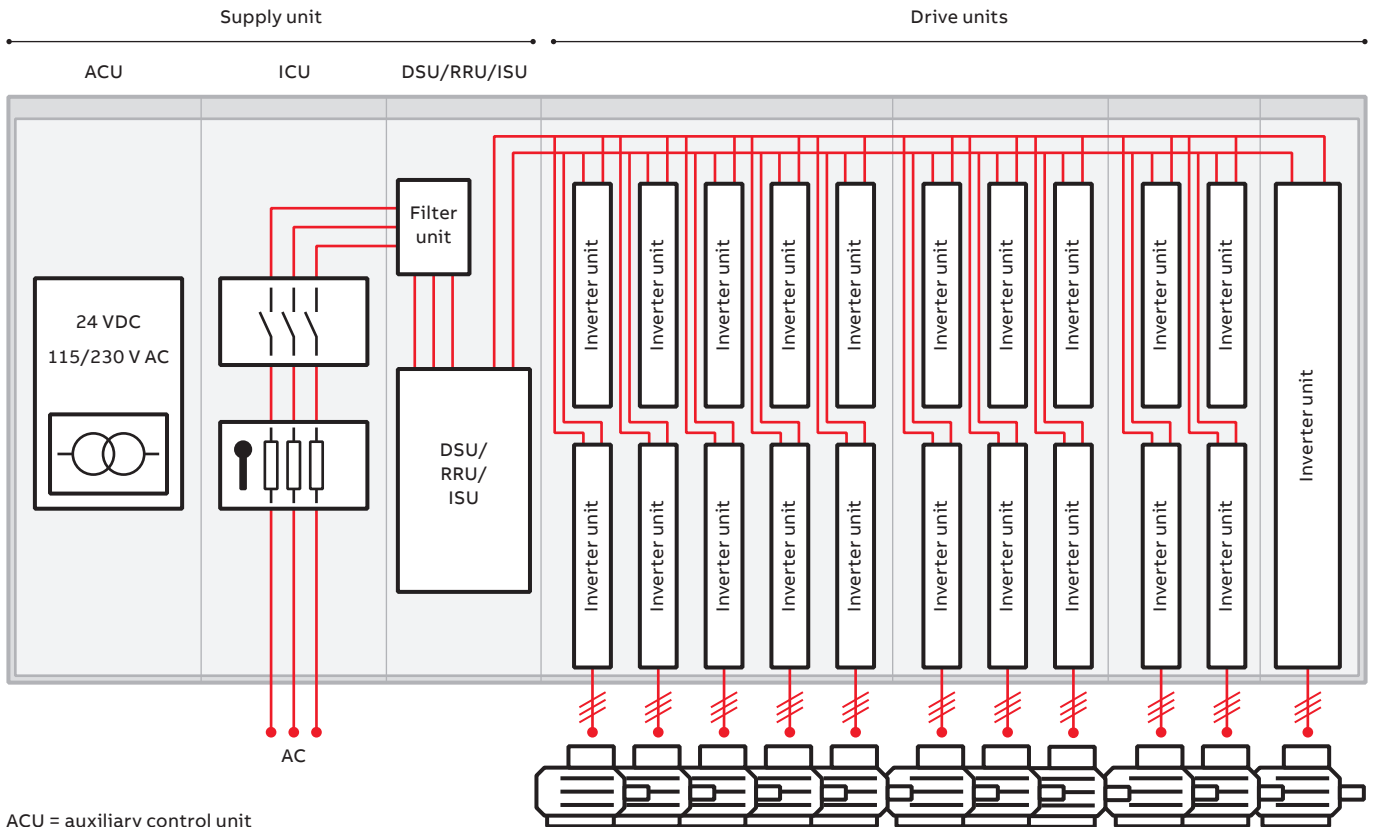


ACU = auxiliary control unit
ICU  = incoming unit
DSU = diode supply unit
RRU = regenerative rectifier unit
ISU  = IGBT supply unit

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

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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 | ACS880-307LC |
| 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 |

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



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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 79.

**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.

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## 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. Liquid cooling also enables heat recovery when process heat is needed, which can help to reduce $CO_2$ footprint.

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): 55 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 79.

### 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 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** | | | | | | | | | | | | | |
| ACS880-207-0420A-3 | R8i + BLCL-13-5 | 423 | 513 | 667 | 293 | 290 | 492 | 279 | 384 | 217 | 72 | 6.6 | 2200 |
| ACS880-207-0580A-3 | R8i + BLCL-13-5 | 576 | 698 | 908 | 399 | 395 | 670 | 379 | 522 | 296 | 72 | 9.3 | 2200 |
| ACS880-207-0810A-3 | R8i + BLCL-15-5 | 810 | 982 | 1277 | 561 | 556 | 943 | 553 | 735 | 416 | 72 | 13.3 | 2200 |
| ACS880-207-1130A-3 | 2×R8i + BLCL-24-5 | 1125 | 1364 | 1773 | 779 | 772 | 1309 | 741 | 1020 | 577 | 74 | 17.2 | 4100 |
| ACS880-207-1330A-3 | 2×R8i + BLCL-24-5 | 1332 | 1615 | 2100 | 923 | 914 | 1550 | 877 | 1208 | 683 | 74 | 19.5 | 4100 |
| ACS880-207-1580A-3 | 2×R8i + BLCL-25-5 | 1584 | 1921 | 2497 | 1097 | 1086 | 1844 | 1043 | 1437 | 813 | 74 | 26 | 4100 |
| ACS880-207-2350A-3 | 3×R8i + 2×BLCL-24-5 | 2349 | 2848 | 3703 | 1627 | 1611 | 2734 | 1547 | 2130 | 1205 | 76 | 40 | 6900 |
| ACS880-207-3110A-3 | 4×R8i + 2×BLCL-25-5 | 3105 | 3765 | 4894 | 2151 | 2130 | 3614 | 2045 | 2816 | 1593 | 76 | 52.1 | 8200 |
| ACS880-207-4620A-3 | 6×R8i + 3×BLCL-25-5 | 4617 | 5598 | 7278 | 3199 | 3167 | 5374 | 3040 | 4187 | 2369 | 78 | 78.1 | 12300 |
| **Regenerative rectifier units (RRU), ACS880-907** | | | | | | | | | | | | | |
| ACS880-907-0600A-3 | R8i + BL-15-5 | 600 | 727 | 955 | 416 | 393 | 698 | 377 | 544 | 294 | 72 | 8.4 | 2200 |
| ACS880-907-0900A-3 | R8i + BL-15-5 | 900 | 1091 | 1433 | 624 | 589 | 1048 | 566 | 816 | 441 | 72 | 12.9 | 2200 |
| ACS880-907-1180A-3 | 2×R8i + BL-25-5 | 1180 | 1431 | 1879 | 818 | 773 | 1374 | 742 | 1070 | 578 | 74 | 15.7 | 4100 |
| ACS880-907-1770A-3 | 2×R8i + BL-25-5 | 1770 | 2146 | 2818 | 1226 | 1159 | 2060 | 1113 | 1605 | 867 | 74 | 25.2 | 4100 |
| ACS880-907-2310A-3 | 4×R8i + 2×BL-25-5 | 2310 | 2801 | 3678 | 1600 | 1512 | 2689 | 1452 | 2095 | 1131 | 76 | 31.5 | 8200 |
| ACS880-907-3460A-3 | 4×R8i + 2×BL-25-5 | 3460 | 4195 | 5509 | 2397 | 2265 | 4027 | 2175 | 3138 | 1695 | 76 | 50.4 | 8200 |
| ACS880-907-5130A-3 | 6×R8i + 3×BL-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 | R8i | 440 | 580 | 250 | 422 | 250 | 329 | 200 | 72 | 4.7 | 1300 |
| ACS880-107-0590A-5 | R8i | 590 | 770 | 400 | 566 | 355 | 441 | 250 | 72 | 6.3 | 1300 |
| ACS880-107-0740A-5 | R8i | 740 | 970 | 500 | 710 | 450 | 554 | 355 | 72 | 8.1 | 1300 |
| ACS880-107-0810A-5 | 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 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** | | | | | | | | | | | | | |
| ACS880-207-0400A-5 | R8i + BLCL-13-5 | 396 | 480 | 624 | 343 | 340 | 461 | 326 | 359 | 254 | 72 | 6.7 | 2200 |
| ACS880-207-0530A-5 | R8i + BLCL-13-5 | 531 | 644 | 837 | 460 | 455 | 618 | 437 | 482 | 341 | 72 | 8.9 | 2200 |
| ACS880-207-0730A-5 | R8i + BLCL-15-5 | 729 | 884 | 1149 | 631 | 625 | 849 | 600 | 661 | 468 | 72 | 12.1 | 2200 |
| ACS880-207-1040A-5 | 2×R8i + BLCL-24-5 | 1035 | 1255 | 1631 | 896 | 887 | 1205 | 852 | 939 | 664 | 74 | 16.5 | 4100 |
| ACS880-207-1420A-5 | 2×R8i + BLCL-25-5 | 1422 | 1724 | 2241 | 1231 | 1219 | 1655 | 1170 | 1290 | 912 | 74 | 23.8 | 4100 |
| ACS880-207-2120A-5 | 3×R8i + 2×BLCL-24-5 | 2115 | 2564 | 3334 | 1832 | 1813 | 2462 | 1741 | 1918 | 1356 | 76 | 35 | 6900 |
| ACS880-207-2800A-5 | 4×R8i + 2×BLCL-25-5 | 2799 | 3394 | 4412 | 2424 | 2400 | 3258 | 2304 | 2539 | 1795 | 76 | 47.7 | 8200 |
| ACS880-207-4150A-5 | 6×R8i + 3×BLCL-25-5 | 4149 | 5031 | 6540 | 3593 | 3557 | 4829 | 3415 | 3763 | 2661 | 78 | 71.5 | 12300 |
| $U_N$ = 500 V (range 230 to 525 V) | | | | | | | | | | | | | |
| **Regenerative rectifier units (RRU), ACS880-907** | | | | | | | | | | | | | |
| ACS880-907-0600A-5 | R8i + BL-15-5 | 600 | 727 | 955 | 520 | 491 | 698 | 471 | 544 | 367 | 72 | 8.5 | 2200 |
| ACS880-907-0900A-5 | R8i + 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 | 8.7 | 2200 |
| ACS880-207-0370A-7 | R8i + BLCL-13-7 | 369 | 447 | 671 | 441 | 437 | 430 | 419 | 335 | 327 | 72 | 10.1 | 2200 |
| ACS880-207-0540A-7 | R8i + BLCL-15-7 | 540 | 655 | 982 | 645 | 639 | 629 | 613 | 490 | 478 | 72 | 14.6 | 2200 |
| ACS880-207-0720A-7 | 2×R8i + BLCL-24-7 | 720 | 873 | 1309 | 860 | 852 | 838 | 818 | 653 | 637 | 74 | 18.4 | 4100 |
| ACS880-207-1050A-7 | 2×R8i + BLCL-25-7 | 1053 | 1277 | 1915 | 1258 | 1246 | 1226 | 1196 | 955 | 932 | 74 | 27.9 | 4100 |
| ACS880-207-1570A-7 | 3×R8i + 2×BLCL-24-7 | 1566 | 1899 | 2848 | 1872 | 1853 | 1823 | 1779 | 1420 | 1386 | 76 | 39.6 | 6900 |
| ACS880-207-2070A-7 | 4×R8i + 2×BLCL-25-7 | 2070 | 2510 | 3765 | 2474 | 2449 | 2409 | 2351 | 1877 | 1832 | 76 | 55.9 | 8200 |
| ACS880-207-3080A-7 | 6×R8i + 3×BLCL-25-7 | 3078 | 3732 | 5598 | 3679 | 3642 | 3583 | 3496 | 2792 | 2724 | 78 | 83.8 | 12300 |
| ACS880-207-4100A-7 | 8×R8i + 4×BLCL-25-7 | 4104 | 4976 | 7464 | 4905 | 4856 | 4777 | 4661 | 3722 | 3632 | 79 | 111.7 | 16400 |
| ACS880-207-5130A-7 | 10×R8i + 5×BLCL-25-7 | 5130 | 6220 | 9330 | 6131 | 6070 | 5971 | 5827 | 4653 | 4540 | 79 | 139.7 | 20500 |
| **Regenerative rectifier units (RRU), ACS880-907** | | | | | | | | | | | | | |
| ACS880-907-0600A-7 | R8i + BL-15-7 | 600 | 727 | 1102 | 717 | 678 | 698 | 651 | 544 | 507 | 72 | 9.8 | 2200 |
| ACS880-907-0900A-7 | 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.

| Converter type | Frame size | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{dc\ input}$ 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) | |
| ACS880-1607-0600A-3 | R8i | 600 | 600 | 305 | 900 | 22 | 450 | 229 | 510 | 260 | 74 | 5.2 | 2200 | BDCL-14-5 |
| ACS880-1607-0900A-3 | R8i | 900 | 900 | 458 | 1350 | 33 | 675 | 343 | 765 | 389 | 74 | 8 | 2200 | BDCL-15-5 |
| ACS880-1607-1200A-3 | 2xR8i | 1200 | 1200 | 611 | 1800 | 11 | 899 | 458 | 1020 | 519 | 76 | 10.5 | 4400 | 2xBDCL-14-5 |
| ACS880-1607-1800A-3 | 2xR8i | 1800 | 1800 | 916 | 2700 | 16 | 1349 | 687 | 1529 | 779 | 76 | 10.5 | 4400 | 2xBDCL-15-5 |

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

| Converter type | Frame size | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{dc\ input}$ 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) | |
| ACS880-1607-0600A-5 | R8i | 600 | 600 | 382 | 900 | 27 | 450 | 286 | 510 | 324 | 74 | 6 | 2200 | BDCL-14-5 |
| ACS880-1607-0900A-5 | R8i | 900 | 900 | 573 | 1350 | 41 | 675 | 429 | 765 | 487 | 74 | 9.1 | 2200 | BDCL-15-5 |
| ACS880-1607-1200A-5 | 2xR8i | 1200 | 1200 | 764 | 1800 | 14 | 899 | 572 | 1020 | 649 | 76 | 12.1 | 4400 | 2xBDCL-14-5 |
| ACS880-1607-1800A-5 | 2xR8i | 1800 | 1800 | 1146 | 2700 | 20 | 1349 | 859 | 1529 | 973 | 76 | 18.8 | 4400 | 2xBDCL-15-5 |

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

| Converter type | Frame size | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{dc\ input}$ 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) | |
| ACS880-1607-0400A-7 | R8i | 400 | 400 | 351 | 600 | 38 | 300 | 263 | 340 | 298 | 74 | 6.4 | 2200 | BDCL-14-7 |
| ACS880-1607-0600A-7 | R8i | 600 | 600 | 527 | 900 | 56 | 450 | 395 | 510 | 448 | 74 | 10.6 | 2200 | BDCL-15-7 |
| ACS880-1607-0800A-7 | 2xR8i | 800 | 800 | 703 | 1200 | 19 | 600 | 527 | 680 | 597 | 76 | 12.8 | 4400 | 2xBDCL-14-7 |
| ACS880-1607-1200A-7 | 2xR8i | 1200 | 1200 | 1054 | 1800 | 28 | 899 | 790 | 1020 | 895 | 76 | 21.5 | 4400 | 2xBDCL-15-7 |

**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 |

Several DC/DC converters can be connected to achieve higher power ratings.

# Ratings, types and voltages
## Inverter units, liquid-cooled, ACS880-107LC, 500 V

| 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-0094A-5 | R7i | 94 | 150 | 55 | 90 | 55 | 70 | 45 | 63 | 1.0 | 13 |
| ACS880-107LC-0120A-5 | R7i | 115 | 180 | 75 | 110 | 75 | 86 | 55 | 63 | 1.2 | 13 |
| ACS880-107LC-0140A-5 | R7i | 140 | 210 | 90 | 134 | 90 | 105 | 55 | 63 | 1.5 | 13 |
| ACS880-107LC-0170A-5 | R7i | 170 | 260 | 110 | 163 | 110 | 127 | 75 | 63 | 1.7 | 13 |
| ACS880-107LC-0200A-5 | R7i | 200 | 300 | 132 | 192 | 132 | 150 | 90 | 63 | 2.0 | 13 |
| ACS880-107LC-0240A-5 | R7i | 240 | 360 | 160 | 230 | 160 | 180 | 110 | 63 | 2.5 | 13 |
| ACS880-107LC-0300A-5 | R7i | 302 | 460 | 200 | 290 | 200 | 226 | 132 | 63 | 3.3 | 13 |
| ACS880-107LC-0380A-5 | R7i | 380 | 570 | 250 | 365 | 200 | 284 | 160 | 63 | 4.7 | 13 |
| ACS880-107LC-0460A-5 | R7i | 461 | 700 | 315 | 443 | 315 | 345 | 200 | 63 | 6.15 | 13 |

$U_N$ = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (45 to 315 kW).

| 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, 500 V

$U_N$ = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (174 to 359 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 supply units (ISU), ACS880-107LC** | | | | | | | | | | | | | |
| ACS880-207LC-0270A-5 | R7i | 272 | 330 | 494 | 235 | 233 | 316 | 224 | 247 | 174 | 66 | 5.8 | 38 |
| ACS880-207LC-0340A-5 | R7i | 342 | 415 | 622 | 296 | 293 | 398 | 281 | 310 | 219 | 66 | 7.3 | 38 |
| ACS880-207LC-0410A-5 | R7i | 415 | 503 | 755 | 359 | 356 | 483 | 341 | 376 | 266 | 66 | 9.0 | 38 |

[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
## 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 (55 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-0062A-7 | R7i | 62 | 105 | 55 | 60 | 55 | 46 | 45 | 63 | 1.1 | 13 |
| ACS880-107LC-0082A-7 | R7i | 82 | 146 | 75 | 79 | 75 | 61 | 55 | 63 | 1.3 | 13 |
| ACS880-107LC-0100A-7 | R7i | 99 | 169 | 90 | 95 | 90 | 74 | 75 | 63 | 1.5 | 13 |
| ACS880-107LC-0130A-7 | R7i | 125 | 214 | 110 | 120 | 110 | 94 | 75 | 63 | 1.9 | 13 |
| ACS880-107LC-0140A-7 | R7i | 144 | 248 | 132 | 138 | 132 | 108 | 90 | 63 | 2.2 | 13 |
| ACS880-107LC-0190A-7 | R7i | 192 | 326 | 160 | 184 | 160 | 144 | 132 | 63 | 3.2 | 13 |
| ACS880-107LC-0220A-7 | R7i | 217 | 371 | 200 | 208 | 200 | 162 | 160 | 63 | 3.7 | 13 |
| ACS880-107LC-0290A-7 | R7i | 289 | 495 | 250 | 277 | 250 | 216 | 200 | 63 | 4.5 | 13 |
| ACS880-107LC-0340A-7 | R7i | 340 | 574 | 315 | 326 | 250 | 254 | 200 | 63 | 5.6 | 13 |
| ACS880-107LC-0389A-7 | R7i | 390 | 664 | 355 | 374 | 355 | 292 | 250 | 63 | 6.7 | 13 |
| 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 | 2×R8i | 1030 | 1550 | 1000 | 989 | 900 | 770 | 710 | 66 | 14 | 32 |
| ACS880-107LC-1170A-7 | 2×R8i | 1170 | 1760 | 1100 | 1123 | 1100 | 875 | 800 | 66 | 16 | 32 |
| ACS880-107LC-1310A-7 | 2×R8i | 1310 | 1970 | 1200 | 1258 | 1200 | 980 | 900 | 66 | 18.4 | 32 |
| ACS880-107LC-1470A-7 | 2×R8i | 1470 | 2210 | 1400 | 1411 | 1200 | 1100 | 1000 | 66 | 21.2 | 32 |
| ACS880-107LC-1660A-7 | 2×R8i | 1660 | 2490 | 1600 | 1594 | 1400 | 1242 | 1200 | 66 | 24.8 | 32 |
| ACS880-107LC-1940A-7 | 3×R8i | 1940 | 2910 | 1800 | 1862 | 1800 | 1451 | 1400 | 68 | 27.2 | 48 |
| ACS880-107LC-2180A-7 | 3×R8i | 2180 | 3270 | 2000 | 2093 | 2000 | 1631 | 1400 | 68 | 31.4 | 48 |
| ACS880-107LC-2470A-7 | 3×R8i | 2470 | 3710 | 2300 | 2371 | 2300 | 1848 | 1800 | 68 | 36.9 | 48 |
| ACS880-107LC-2880A-7 | 4×R8i | 2880 | 4320 | 2700 | 2765 | 2700 | 2154 | 2000 | 69 | 41.5 | 64 |
| ACS880-107LC-3260A-7 | 4×R8i | 3260 | 4890 | 3000 | 3130 | 3000 | 2438 | 2300 | 69 | 48.7 | 64 |
| ACS880-107LC-3580A-7 | 5×R8i | 3580 | 5370 | 3400 | 3437 | 3200 | 2678 | 2600 | 70 | 51.6 | 80 |
| ACS880-107LC-4050A-7 | 5×R8i | 4050 | 6080 | 3800 | 3888 | 3800 | 3029 | 2800 | 70 | 60.5 | 80 |
| ACS880-107LC-4840A-7 | 6×R8i | 4840 | 7260 | 4400 | 4646 | 4400 | 3620 | 3500 | 71 | 72.3 | 96 |
| ACS880-107LC-5650A-7 | 7×R8i | 5650 | 8480 | 5200 | 5424 | 5200 | 4226 | 4000 | 72 | 84.4 | 112 |
| ACS880-107LC-6460A-7 | 8×R8i | 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-0260A-7 | R7i | 260 | 315 | 473 | 311 | 308 | 303 | 295 | 236 | 230 | 66 | 7.8 | 36 |
| ACS880-207LC-0310A-7 | R7i | 306 | 371 | 557 | 366 | 362 | 356 | 348 | 278 | 271 | 66 | 9.2 | 36 |
| ACS880-207LC-0350A-7 | R7i | 351 | 426 | 638 | 419 | 415 | 409 | 399 | 318 | 311 | 66 | 10.9 | 36 |
| ACS880-207LC-0360A-7 | R8i | 360 | 436 | 655 | 430 | 426 | 419 | 409 | 327 | 319 | 66 | 9.1 | 52 |
| ACS880-207LC-0400A-7 | R8i | 400 | 485 | 727 | 478 | 473 | 466 | 454 | 363 | 354 | 66 | 10.1 | 52 |
| ACS880-207LC-0450A-7 | R8i | 450 | 546 | 818 | 538 | 532 | 524 | 511 | 408 | 398 | 66 | 11.4 | 52 |
| ACS880-207LC-0480A-7 | R8i | 480 | 582 | 873 | 574 | 568 | 559 | 545 | 435 | 425 | 66 | 12.3 | 52 |
| ACS880-207LC-0560A-7 | R8i | 560 | 679 | 1018 | 669 | 663 | 652 | 636 | 508 | 496 | 66 | 14.5 | 52 |
| ACS880-207LC-0620A-7 | R8i | 620 | 752 | 1128 | 741 | 734 | 722 | 704 | 562 | 549 | 66 | 16.1 | 52 |
| ACS880-207LC-0700A-7 | R8i | 700 | 849 | 1273 | 837 | 828 | 815 | 795 | 635 | 620 | 66 | 18.8 | 52 |
| ACS880-207LC-0770A-7 | R8i | 770 | 934 | 1400 | 920 | 911 | 896 | 875 | 698 | 681 | 66 | 21.4 | 52 |
| ACS880-207LC-0930A-7 | 2×R8i | 930 | 1128 | 1691 | 1111 | 1100 | 1083 | 1056 | 843 | 823 | 68 | 21.8 | 88 |
| ACS880-207LC-1090A-7 | 2×R8i | 1090 | 1322 | 1982 | 1303 | 1290 | 1269 | 1238 | 989 | 965 | 68 | 25.9 | 88 |
| ACS880-207LC-1180A-7 | 2×R8i | 1180 | 1431 | 2146 | 1410 | 1396 | 1374 | 1340 | 1070 | 1044 | 68 | 29.4 | 88 |
| ACS880-207LC-1360A-7 | 2×R8i | 1360 | 1649 | 2473 | 1625 | 1609 | 1583 | 1545 | 1233 | 1204 | 68 | 31.8 | 88 |
| ACS880-207LC-1500A-7 | 2×R8i | 1500 | 1819 | 2728 | 1793 | 1775 | 1746 | 1704 | 1360 | 1328 | 68 | 36 | 88 |
| ACS880-207LC-1800A-7 | 3×R8i | 1800 | 2182 | 3274 | 2151 | 2130 | 2095 | 2045 | 1633 | 1593 | 70 | 40.3 | 144 |
| ACS880-207LC-2020A-7 | 3×R8i | 2020 | 2449 | 3674 | 2414 | 2390 | 2351 | 2294 | 1832 | 1788 | 70 | 46.8 | 144 |
| ACS880-207LC-2220A-7 | 3×R8i | 2220 | 2692 | 4038 | 2653 | 2627 | 2584 | 2522 | 2013 | 1965 | 70 | 53 | 144 |
| ACS880-207LC-2670A-7 | 4×R8i | 2670 | 3237 | 4856 | 3191 | 3159 | 3108 | 3033 | 2422 | 2363 | 71 | 60.1 | 160 |
| ACS880-207LC-2930A-7 | 4×R8i | 2930 | 3553 | 5329 | 3502 | 3467 | 3411 | 3328 | 2657 | 2593 | 71 | 67.9 | 160 |
| ACS880-207LC-3320A-7 | 5×R8i | 3320 | 4025 | 6038 | 3968 | 3928 | 3864 | 3771 | 3011 | 2938 | 72 | 75.7 | 216 |
| ACS880-207LC-3840A-7 | 6×R8i | 3840 | 4656 | 6984 | 4589 | 4543 | 4470 | 4362 | 3483 | 3398 | 73 | 86 | 280 |
| ACS880-207LC-4360A-7 | 6×R8i | 4360 | 5286 | 7930 | 5211 | 5159 | 5075 | 4952 | 3954 | 3859 | 73 | 103.2 | 280 |
| ACS880-207LC-5240A-7 | 8×R8i | 5240 | 6353 | 9530 | 6262 | 6200 | 6099 | 5952 | 4752 | 4637 | 74 | 116.8 | 312 |
| ACS880-207LC-5810A-7 | 8×R8i | 5810 | 7045 | 10567 | 6944 | 6874 | 6763 | 6599 | 5269 | 5142 | 74 | 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
## Supply units, liquid-cooled, ACS880-307LC, 690 V

$U_N$ = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (366 to 5446 kVA).

| Supply module type | Frame size | Nominal ratings | | | | | Light overload use | | Heavy-duty use | | Noise level | Losses [1] | Coolant flow rate [2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_N$ 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 diode supply units (DSU), ACS880-304LC** | | | | | | | | | | | | | |
| **6-pulse diode** | | | | | | | | | | | | | |
| ACS880-307LC-0490A-7+A018 [1] | D8T | 490 | 600 | 900 | 585 | 559 | 576 | 537 | 449 | 418 | 65 | 3.0 | 14 |
| ACS880-307LC-0780A-7+A018 [1] | D8T | 780 | 955 | 1430 | 932 | 890 | 917 | 854 | 714 | 666 | 65 | 4.6 | 14 |
| ACS880-307LC-1060A-7+A018 [1] | D8T | 1060 | 1300 | 1950 | 1267 | 1211 | 1248 | 1163 | 972 | 906 | 65 | 6.2 | 14 |
| ACS880-307LC-1470A-7+A018 [1] | 2×D8T | 1470 | 1800 | 2700 | 1757 | 1677 | 1728 | 1610 | 1346 | 1255 | 65 | 8.7 | 28 |
| ACS880-307LC-2000A-7+A018 [1] | 2×D8T | 2000 | 2450 | 3675 | 2390 | 2283 | 2352 | 2192 | 1833 | 1708 | 65 | 11.7 | 28 |
| ACS880-307LC-3000A-7+A018 [1] | 3×D8T | 3000 | 3670 | 5505 | 3585 | 3420 | 3523 | 3283 | 2745 | 2558 | 67 | 17.5 | 42 |
| ACS880-307LC-4000A-7+A018 [1] | 4×D8T | 4000 | 4900 | 7350 | 4780 | 4566 | 4704 | 4383 | 3665 | 3415 | 67 | 23.4 | 56 |
| **12-pulse diode** | | | | | | | | | | | | | |
| ACS880-307LC-0920A-7+A004+A018 [2] | 2×D8T | 920 | 1130 | 1695 | 1100 | 1053 | 1085 | 1011 | 845 | 788 | 67 | 5.6 | 28 |
| ACS880-307LC-1470A-7+A004+A018 [2] | 2×D8T | 1470 | 1800 | 2700 | 1757 | 1677 | 1728 | 1610 | 1346 | 1255 | 67 | 8.7 | 28 |
| ACS880-307LC-2000A-7+A004+A018 [2] | 2×D8T | 2000 | 2450 | 3675 | 2390 | 2283 | 2352 | 2192 | 1833 | 1708 | 67 | 11.7 | 28 |
| ACS880-307LC-2940A-7+A004+A018 [2] | 4×D8T | 2940 | 3600 | 5400 | 3514 | 3355 | 3456 | 3220 | 2693 | 2509 | 68 | 18.0 | 56 |
| ACS880-307LC-4000A-7+A004+A018 [2] | 4×D8T | 4000 | 4900 | 7350 | 4780 | 4566 | 4704 | 4383 | 3665 | 3415 | 68 | 23.4 | 56 |

[1] +A018 is option code for half controlled diode bridge.
[2] +A004 is 12-pulse DSU.

| **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] Redundant, two pumps running at a time

**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

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

| Converter type | Frame size | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{dc\ input}$ 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) | |
| ACS880-1607LC-0150A-5 | R7iLC | 147 | 150 | 95 | 188 | 9 | 94 | 60 | 113 | 72 | 64 | 1.1 | 15 | BDCL-13LC-7 |
| ACS880-1607LC-0250A-5 | R7iLC | 244 | 250 | 159 | 313 | 9 | 156 | 99 | 189 | 120 | 64 | 1.6 | 15 | BDCL-13LC-7 |
| ACS880-1607LC-0350A-5 | R7iLC | 341 | 350 | 223 | 438 | 9 | 219 | 139 | 265 | 168 | 64 | 2.1 | 15 | BDCL-13LC-7 |
| ACS880-1607LC-0450A-5 | R7iLC | 439 | 450 | 286 | 563 | 9 | 281 | 179 | 340 | 216 | 64 | 2.8 | 15 | BDCL-13LC-7 |
| ACS880-1607LC-0550A-5 | R7iLC | 536 | 550 | 350 | 688 | 9 | 344 | 219 | 416 | 265 | 64 | 3.5 | 15 | BDCL-13LC-7 |
| ACS880-1607LC-0700A-5 | 2xR7iLC | 682 | 700 | 446 | 875 | 5 | 437 | 278 | 529 | 337 | 66 | 4.1 | 30 | 2xBDCL-13LC-7 |
| ACS880-1607LC-0900A-5 | 2xR7iLC | 876 | 900 | 572 | 1125 | 5 | 562 | 358 | 680 | 433 | 66 | 5.4 | 30 | 2xBDCL-13LC-7 |
| ACS880-1607LC-1100A-5 | 2xR7iLC | 1071 | 1100 | 700 | 1375 | 5 | 687 | 437 | 831 | 529 | 66 | 6.7 | 30 | 2xBDCL-13LC-7 |

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

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

| Converter type | Frame size | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{dc\ input}$ 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) | |
| ACS880-1607LC-0400A-7 | R8i | 391 | 400 | 351 | 500 | 38 | 250 | 219 | 302 | 266 | 64 | 4.2 | 36 | BDCL-14LC-7 |
| ACS880-1607LC-0500A-7 | R8i | 490 | 500 | 439 | 625 | 38 | 312 | 274 | 378 | 332 | 64 | 5.3 | 36 | BDCL-14LC-7 |
| ACS880-1607LC-0600A-7 | R8i | 590 | 600 | 527 | 750 | 56 | 375 | 329 | 453 | 398 | 64 | 6.2 | 36 | BDCL-15LC-7 |
| ACS880-1607LC-0700A-7 | R8i | 690 | 700 | 615 | 875 | 56 | 437 | 384 | 529 | 465 | 64 | 7.3 | 36 | BDCL-15LC-7 |
| ACS880-1607LC-0800A-7 | R8i | 790 | 800 | 703 | 1000 | 56 | 500 | 439 | 605 | 531 | 64 | 8.5 | 36 | BDCL-15LC-7 |
| ACS880-1607LC-0900A-7 | R8i | 880 | 900 | 790 | 1125 | 56 | 562 | 494 | 680 | 597 | 64 | 9.7 | 36 | BDCL-15LC-7 |
| ACS880-1607LC-1000A-7 | 2xR8i | 980 | 1000 | 878 | 1250 | 19 | 625 | 549 | 756 | 664 | 66 | 11.2 | 72 | 2xBDCL-14LC-7 |
| ACS880-1607LC-1200A-7 | 2xR8i | 1180 | 1200 | 1054 | 1500 | 28 | 750 | 658 | 907 | 797 | 66 | 13.6 | 72 | 2xBDCL-15LC-7 |
| ACS880-1607LC-1400A-7 | 2xR8i | 1370 | 1400 | 1230 | 1750 | 28 | 874 | 768 | 1058 | 929 | 66 | 16.3 | 72 | 2xBDCL-15LC-7 |
| ACS880-1607LC-1600A-7 | 2xR8i | 1570 | 1600 | 1405 | 2000 | 28 | 999 | 878 | 1209 | 1062 | 66 | 19 | 72 | 2xBDCL-15LC-7 |
| ACS880-1607LC-1800A-7 | 2xR8i | 1760 | 1800 | 1581 | 2250 | 28 | 1124 | 987 | 1360 | 1195 | 66 | 22 | 72 | 2xBDCL-15LC-7 |

Several DC/DC converters can be connected to achieve higher power ratings.
[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

[9] It is possible to connect multiple DC/DC converter units in parallel. Please see hardware manual (doc no 3AXD50000023644) for more detailed information.

[10] Please see hardware manual for further details.

| 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 [9]** | | | | | |
| R8i | | 2145 [8] | 800 | 636 | 650 |
| R8i | | 2145 [8] | 800 | 636 | 680 [10] |
| 2xR8i | | 2145 [8] | 1600 | 636 | 1300 |
| 2xR8i | | 2145 [8] | 1600 | 636 | 1360 [10] |

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

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# 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.** | | | | |
| R7i+BLCL-13LC-7 | 2002 | 1300 | 644 | 900 |
| 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)** | | | | |
| R7i | 2002 | 300 | 644 | 240 |
| 2×R7i [1] | 2002 | 400 | 644 | 310 |
| 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 |
| **ACS880-1607LC DC/DC converter** | | | | |
| R7i | 2002 | 300 | 644 | 240 |
| R8i | 2002 | 800 | 644 | 680/710 [2] |
| 2×R8i | 2002 | 1600 | 644 | 1425 |

[1] Two individual inverters in one cabinet.
[2] 680 kg for 0400A-7 and 0500A-7

# Standard interface and extensions for plug-in connectivity

—
01
Control unit ZCU

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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 49.

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, DC/DC converter, brake units 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
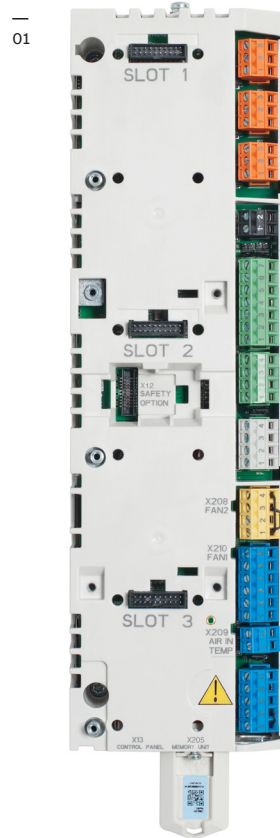


| Control connections | Description |
|---|---|
| 2 analog inputs (XAI) | Current input: -20 to 20 mA, $R_{in}$: 100 ohm<br>Voltage input: -10 to 10 V,<br>$R_{in}$ > 200 kohm<br>Resolution: 11 bit + sign bit |
| 2 analog outputs (XAO) | 0 to 20 mA, $R_{load}$ < 500 ohm<br>Frequency range: 0 to 300 Hz<br>Resolution: 11 bit + sign bit |
| 6 digital inputs (XDI) | Input type: NPN/PNP (DI1 to DI5), NPN (DI6)<br>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:<br>24 V logic levels:<br>"0" < 5 V, "1" > 15 V<br>$R_{in}$: 2.0 kohm<br>Filtering: 0.25 ms<br>As output:<br>Total output current from 24 V DC is limited to 200 mA<br>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 |

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02

| Relay outputs | | | **XRO1, XRO2, XRO3** |
|---|---|---|---|
| Ready<br>250 V AC/30 V DC<br>2 A | NO | 13 | |
| | COM | 12 | |
| | NC | 11 | |
| Running<br>250 V AC/30 V DC<br>2 A | NO | 23 | |
| | COM | 22 | |
| | NC | 21 | |
| Faulted (-1)<br>250 V AC/30 V DC<br>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.<br>0(4) to 20 mA, $R_{in}$ = 100 ohm | AI2- | 7 | |
| | AI2+ | 6 | |
| Speed reference<br>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,<br>$R_L$ < 500 ohm | AGND | 4 | |
| | AO2 | 3 | |
| Motor speed rpm 0 to 20 mA,<br>$R_L$ < 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** |

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# Drive Assistant Control panels



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01

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02

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03

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04

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05

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06

—
01
Bluetooth assistant
control panel, ACS-AP-W
—
02
Industrial assistant
control panel without
Bluetooth, ACS-AP-I
—
03
Drive Connectivity Panel
—
04
Control panel mounting
platform DPMP-01
—
05
Control panel mounting
platform DPMP-02
—
06
Control panel mounting
platform, DPMP-04

**Standard Bluetooth assistant control panel, ACS-AP-W and Industrial assistant control panel, ACS-AP-I**
Assistant control panel 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. There are two different assistant control panels – with (ACS-AP-W) or without (ACS-AP-I) Bluetooth. The panels can be mounted either on the drive or on the door of the enclosure and they are compatible with any ABB all-compatible drive.

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.

**Bluetooth control panel**
The control panel with built-in Bluetooth enables easy and secure wireless connection with the Drivetune mobile app. With the entry version of Drive Composer software tool, you can startup, commission, maintain, and get remote support of ACS880 drives.

**Drive Connectivity Panel**
Control panel variant with built-in Bluetooth and mobile radio. It offers easy remote condition

monitoring, plug, and play installation with secure and reliable wireless connection to the ABB Ability™ Digital Powertrain, the cloud-based condition monitoring portal for ABB Drives. Possible to connect with the Drivetune mobile app and Drive Composer Entry PC tool as well. Available with a renewable subscription to the ABB Ability™ Digital Powertrain.*)

**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). Supports daisy chaining of the control panel link.

**Control panel mounting platform, DPMP-02,** is for surface mounting and has IP65 / UL Type 12 protection class (IP20, when control panel not mounted).

**Control panel mounting platform, DPMP-04,** is a lockable door mounting platform for drive control panels in outdoor installations or harsh environments. It has a IP66 protection class, UV resistance and IK07 impact protection rating.

*) Please contact your local ABB office to check availability.

—
**Control panel options**
Bluetooth Assistant control panel ACS-AP-W is included as standard in the delivery.
ACS-AP-W (+J400) can be replaced by +J options below.

| Option code | Ordering code for loose item | Description | Type |
|---|---|---|---|
| +0J400 | – | No control panel | – |
| – | 3AXD0000025965 | Bluetooth Assistant control panel. Included as standard. | ACS-AP-W |
| +J425 | 3AUA0000088311 | Industrial assistant control panel without Bluetooth connection | ACS-AP-I |
| +J410 | 3AUA0000108878 | Control panel mounting platform, flush mounted, IP54 / UL Type 12 (does not include control panel) | DPMP-01 |
| +J413 | 3AXD50000009374 | Control panel mounting platform, surface mounted, IP65 / UL Type 12 (does not include control panel) | DPMP-02 |
| – | 3AXD50000217717 | Control panel mounting platform for outdoor and harsh environments, IP66, UV resistance, IK07 impact protection rating (does not include control panel) | DPMP-04 |

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

Stop

Loc/Rem

Start

?

# Communication and connectivity
## Fast and reliable communication

**The F-series fieldbus adapter modules** are flexible, plug-in adapters that provide fast and simple universal connectivity to all major controllers. Universal connectivity means ABB low voltage drives connect to automation controllers and communication networks, allowing users to choose the best network to meet their needs.

- Reduces mechanical and electrical cost
- Decrease in downtime
- Increase in productivity
- Diminished start-up costs
- Lower maintenance and diagnostic costs
- Quick access to networked drives with PC-based start-up and maintenance software tools
- Reductions in wiring costs compared to traditional I/O connections

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**Industrial automation plant – different network possibilities and their secure deployment**
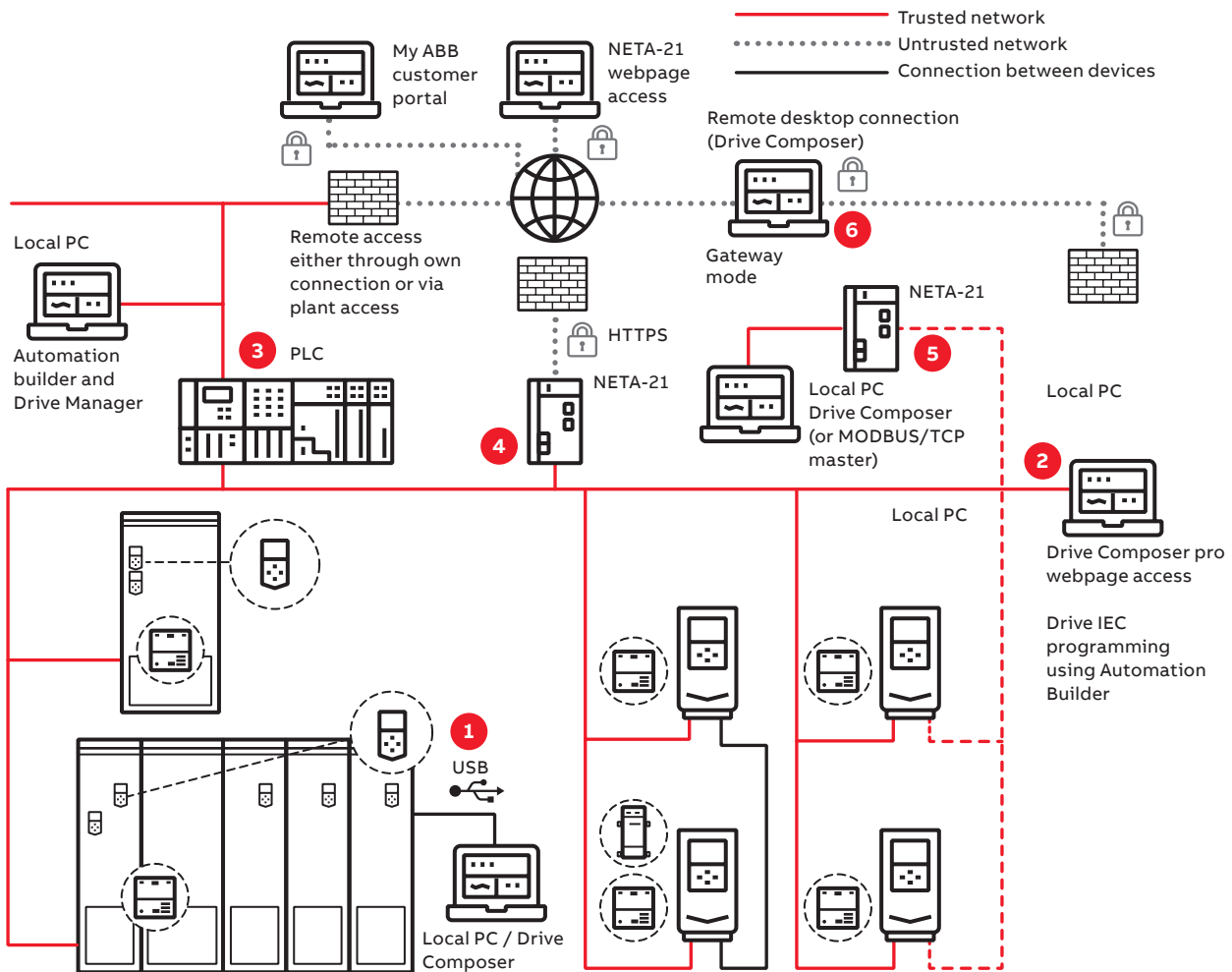


1. Local connections (point-to-point serial communication, e.g. USB) or
2. Shared (with control) upper-level physical fieldbus network (e.g., PROFINET) using Ethernet tool communication and/or
3. Communicating also through PLC system using Drive Manager device tool or
4. NETA-21 remote monitoring tool web interface or
5. NETA-21 acting as a gateway between or
6. Third-party remote desktop connection.

# Connectivity to automation systems

**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.

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**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 |
| +K491 | 3AXD50000049964 | Modbus/TCP | FMBT-21 |
| +K492 | 3AXD50000192779 | PROFINET IO | FPNO-21 [1] |
| +K490 | 3AXD50000192786 | EtherNet/IP | FEIP-21 |
| +Q986 | 3AXD50000112821 | PROFIsafe safety functions module | FSPS-21 |
| +Q989 | 3AXD50001021061 | CIP Safety functions module | FSCS-21 |

[1] For the PROFIsafe to work the PROFINET adapter module (FPNO-21) and the safety functions module FSO-12 (+Q973) or
FSO-21 (+Q972) are required. The FPNO-21 adapter module enables PROFINET system redundancy S2 allowing the drive
to establish connection with two control PLCs in a redundant manner.
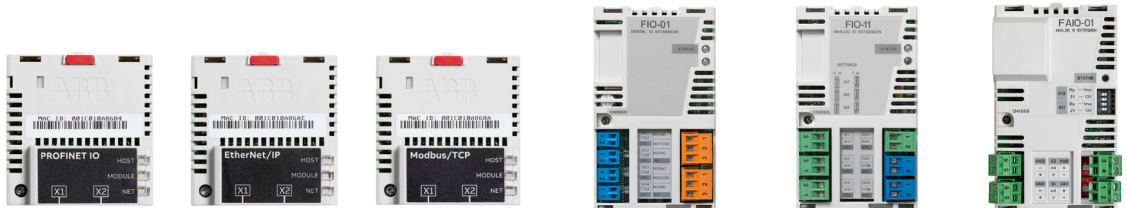


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**Input/output extension modules**
Standard input and output can be extended
by using optional analog and digital input/output
extension modules. The modules are easily
installed in the extension slots located on
the drive.

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 |

# PROFINET S2 system redundancy for ABB drives

System redundancy is a high-priority requirement in process industry and infrastructure installations where the system must be operational even during component breakdowns and malfunctioning. The interruption of a continuous production process could potentially lead to large financial losses or safety hazards. Thanks to the new PROFINET S2 system redundancy of ABB drives, the unwanted downtime can be minimized. This leads to better process control with improved productivity.

PROFINET system redundancy S2 is now available for ABB drives with the optional PROFINET interface module FPNO-21. It allows the drive to establish connection with two control PLCs in a redundant manner.

**Increased up-time**

**High productivity**

**Benefits of system redundancy**

**Protection & Security**

**Investment savings**

**Business continuity**

**PROFINET IO**
2 ports interface module. Certified according to Conformance Class B (CC-B)

**SNTP Time synchronization**

**For all-compatible drives portfolio**

**Ethernet tool network**
PROFINET IO at the same time with Drive Composer pro

**PROFINET Shared Device**
PROFIsafe support with FSO-12/-21 safety functions module

**PROFINET S2 system redundancy**

https://new.abb.com/drives/connectivity/fieldbus-connectivity/profinet/fpno-21

ABB drive     ABB drive

Drive Composer Pro

**PROFINET IO network**

**Synchronization**

PLC Primary     PLC Backup

# Feedback interface and DDCS communication options

**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.
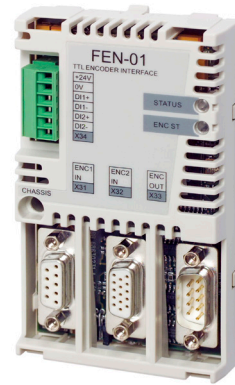
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**Feedback interface modules**

| 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 |

# ABB Ability™ Digital Powertrain
## Condition monitoring for drives

Accurate, real-time information about powertrain events. When you have the facts, you can make the right decisions.

**ABB Ability™ Digital Powertrain**
The ABB Ability™ Digital Powertrain enables you to remotely monitor the health and performance of entire powertrains including drives, motors and applications, such as pumps. The data collected from the connected equipment can be accessed and analyzed remotely, providing a better understanding of the health and energy efficiency of the entire process.

**ABB Ability™ Condition Monitoring for drives**
ABB Ability™ Condition Monitoring for drives is a key element of the Digital Powertrain. The services are designed to provide key information about drive events and changes in behavior to ensure your equipment is always available, reliable and well maintained.

The service can be tailored to fit your needs. Our standard package for condition monitoring for drives gives you industry leading monitoring capabilities – whether you want to view the drive status through ABB's Internet portal or integrate this data with your existing monitoring systems.

**The standard package includes the following services:**
• Condition Monitoring
• Alarm Management
• Asset Health
• Team Support
• Backup Management

**The standard package can be supplemented with optional services:**
• Offline Data Collection
• Expert Reports
• Remote Assistance
• Condition monitoring of your entire powertrain

**Solid fact-based decision making**
Get the facts, and the history, to help run your operations better and more safely.

**Always stay one step ahead of problems**
Recognize early signs of possible failures and assess the risks, before they turn into serious operational issues.

**Find the root cause of process issues**
Remotely access data from ABB drives built-in sensors to track the cause of problems. Get back to smooth operation quickly with data back-ups.

**Remotely analyze and optimize drives**
Get critical drive information anywhere anytime – even in difficult to access sites, or when a site visit is impossible.

# Remote monitoring options

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 control units.

The remote data helps you to base your decisions on solid facts and run your operations better and safer.

Remote monitoring helps you to recognize early signs of potential failures and react before a problem occurs. You can also remotely access the data from ABB drives to analyze and find the root cause of a problem.

With remote access you can analyze and optimize drive information anywhere, even in sites that are difficult to access, or when site visit is not possible.

—
**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 |

# Customers can configure powertrains and customize the digital service plan



| 1 Choose one or more assets you want to protect | 2 Install the connectivity device | 3 Activate access to the Condition Monitoring basic feature | 4 Pick optional features and customize | 5 Start monitoring | 6 Enjoy the customized service |

NETA-21

Smart Sensor

Remote Assistance

Backup Management

Alarm Management

Offline Data Collection

Asset Health

Condition-based Maintenance *)

*) Not available for all connectivity devices

# Commissioning, programming and customization tools

Your engineering efficiency is boosted with our commissioning and programming tools, giving you the optimal solution to perform virtualization, planning, commissioning and maintenance.

**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.
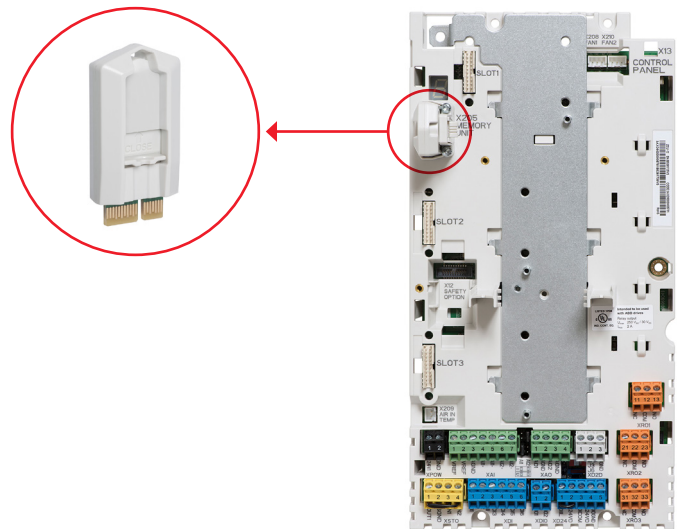
**Drive Composer**

The Drive Composer PC tool offers fast and harmonized setup, commissioning and  monitoring for all-compatible drives. The free version of the tool provides startup and maintenance capabilities and gathers all drive information, such as parameter loggers, faults, backups and lists, into a support diagnostics file. Drive Composer pro provides additional features such as custom parameter windows, graphical control diagrams of the drive's configuration, and improved monitoring and diagnostics.

| Drive Composer | Entry level (free) | Pro level |
|---|---|---|
| | Basic functionality | Entry-level features |
| | Parameter setting | Networked drives |
| | Point-to-point connection | Control diagrams |
| | Simple monitoring | Data logger(s) |
| | Supports adaptive programming | Graphical safety setup |
| | Adaptive programming in Demo mode | Adaptive (block) programming |
| | – | Multiple backup and restore |
| | – | Drive configuration by using virtual drive |

| Link/MRP codes | Description | Type designation |
|---|---|---|
| new.abb.com/ drives/software-tools/ drive-composer | Link to download free Drive Composer entry | – |
| 9AKK105408A3415 | Drive Composer entry PC tool (document) | – |
| 3AUA0000108087 | Drive Composer pro PC tool (single user license) | DCPT-01 |
| 3AUA0000145150 | Drive Composer pro PC tool (10 users license) | DCPT-01 |
| 3AUA0000145151 | Drive Composer pro PC tool (20 users license) | DCPT-01 |

## Drive Application Builder

Drive Application Builder can be used for creating customized solutions. It is a drive application programming tool based on IEC61131 standard and enables full PLC programmability in ACS880.



| Ordering code | Description | PC tool |
|---|---|---|
| 3AXD50000342389 | Standard version of the Drive Application Builder for IEC 61131-3 programming, DABS-STANDARD | Licenses for Drive Application Builder [1] |
| 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 | |
| +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)

## Adaptive programming

Adaptive programming software, embedded inside the drive, is especially handy when there is a need to distribute some of the machine's control logic to the drive. Adaptive programming brings energy savings when the drive is adjusted to control the application optimally. You can use our Drive Composer PC tool to set up the adaptive programming. Adaptive programming makes it possible to enhance the existing application control program to precisely fit users' application needs. The program is also handy for ensuring that the drive's electrical design is connected as it should be with working drive signals.

**Adaptive programming**
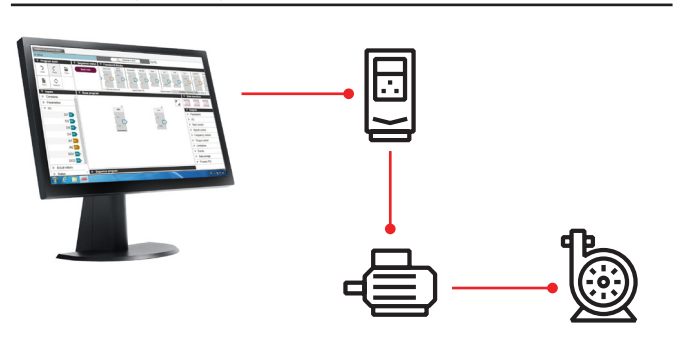
# Safety options

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FSO-12 safety
functions module

**Integrated safety**

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

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

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

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

**PROFIsafe safety functions module, FSPS-21,** with integrated PROFIsafe, and PROFINET IO connection supports STO and SS1-t safety functions. Since the functions are automatically configured, no additional safety settings are required in the drive.

**Safety functions modules, FSO-12 and FSO-21,** support a wide range of safety functions. Configuration of the functions is done with



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01

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.

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].

—
**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 Start-up (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. (Use only FSO-21 when HTL encoder is not needed. If HTL encoder is needed, both FSO-21 and FSE-31 must be used.) | | 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

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

**What is EMC?**

EMC stands for electromagnetic compatibility. It is the ability of electrical/electronic equipment to operate without problems in an electromagnetic environment.

Likewise, the equipment must not disturb or interfere with any other product or system in its locality. This is a legal requirement for all equipment taken into service within the European Economic Area (EEA).

**Installation environments**

A power drive system (PDS) can can be connected to either industrial or public power distribution networks. The environment class depends on the way the PDS is connected to power supply.

The **1st 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 **2nd environment** includes all establishments directly connected to public low voltage power supply networks.

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**Immunity and emission compatibility**



**Installation environments**



Commercial and domestic environment categories
**C1** and **C2**

Industrial environment categories
**C3** and **C4**
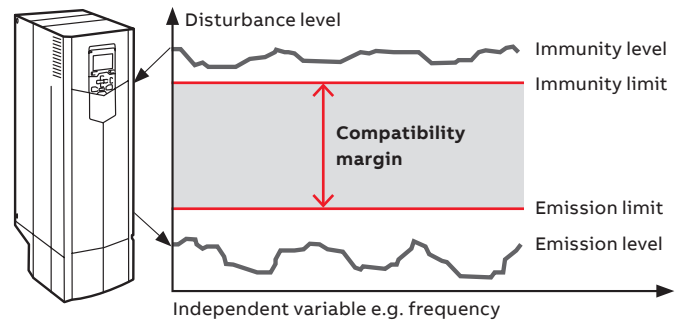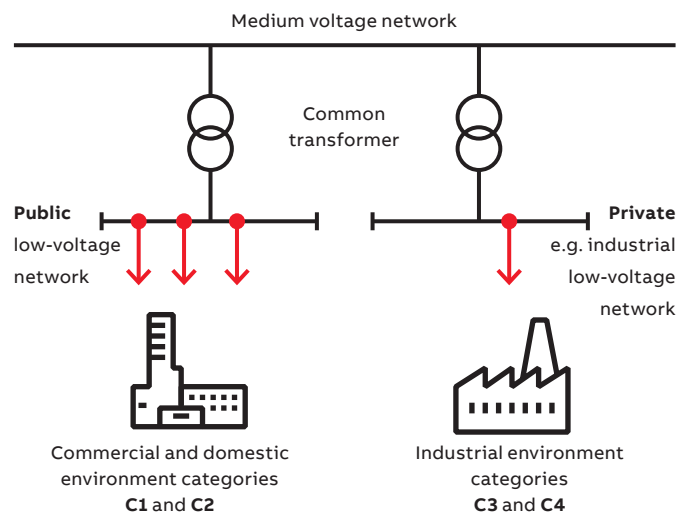
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**The product standard EN 61800-3 divides PDSs into four categories according to the intended use**

| | | | |
|---|---|---|---|
| **C1 – 1st environment** | **C2 – 1st environment** | **C3 – 2nd environment** | **C4 – 2nd environment** |
| • Household appliances | • Fixed household and public appliances | • Professional equipment | • Professional equipment |
| • Usually plug connectable to any wall outlet | • Need to be installed or operated by a professional | • Needs to be installed or operated by a professional | • Needs to be fixed installation and operated by a professional |
| • Anyone can connect these to the network | • Examples: elevators, rooftop fans, residential booster pumps, gates and barriers, supermarket freezers, etc. | • In some rare cases, may also be pluggable | • Examples: paper machines, rolling mills, etc. |
| • Examples: washing machines, TV sets, computers, microwave ovens, etc. | | • Examples: any equipment for industrial usage only, such as conveyors, mixers, etc. | |

**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 *) |
| ACS880-307LC | 690 | n×D8T | – | +E210 *) |

*) Radiated emission and immunity

# For potentially explosive atmosphere
## ATEX certified

**What is a potentially explosive atmosphere
and where can it be?**
Explosive atmospheres occur when flammable gases,
mist, vapors or dust are mixed with air, which creates
a risk of explosion. A potentially explosive area is defined
as a location where there is a risk of flammable mixes.
These atmospheres can be found throughout industries,
from **chemical, pharmaceutical** and **food**, to **power** and
**wood processing**. The electrical equipment that is installed
in such locations must be designed and tested to endure
these conditions and  guarantee a safe function.

**ATEX**
ATmosphères
EXplosibles

**What does ATEX mean?**
The term ATEX comes from the French words
"ATmosphères EXplosibles", and it is a combination
of two EU directives: the Worker Protection Directive
1999/92/EC and the Product Directive 2014/34/ EU.
**The ATEX Directives are designed to protect
employees, the public and the environment from
accidents owing to explosive atmospheres**.

ATEX provides similar guidelines to the IECEx System,
with a few exceptions, and with certification of protective
devices (e.g. drive-integrated safety functions).

**How to ensure safe operation?**
**With ABB's ATEX-certified offering and services,
safe operation can be ensured**.
Motors are directly connected to the machines in
the potentially explosive atmosphere, and certain issues
need to be considered when selecting a motor together
with a drive. Drives themselves are not to be used in
the potentially explosive atmosphere. These atmospheres
have a defined zone classification, and the zone defines
the minimum requirements (category) the motors
must comply with. The category defines the permitted
motor protection types.

**Potentially explosive atmosphere zones**
Within industries, all potentially explosive atmospheres
are required to have an area classification called Zones.
Globally, a Zone system is used to classify potentially
explosive areas. The Worker Protection Directive
1999/92/EC and the EU standards IEC 60079-10-x,
EN 60079-10-x define these zones. In all cases, the
owner of the site where the potentially explosive
atmosphere exists has the responsibility to define
the zones according to the requirements.

**Zone 2 (gas) / 22 (dust)**

**Zone 1 (gas) / 21 (dust)**

**Zone 0 (gas) / 20 (dust)**

Zones 2 (for gas) and 22 (for dust), where potentially explosive atmospheres can occur by accident, not during normal operation.

Zones 1 (for gas) and 21 (for dust), where there is an occasional occurrence of potentially explosive atmosphere.

Zones 0 (for gas) and 20 (for dust), where there is a continuous presence of explosive atmosphere.

## Tested packages

Motor and drive combinations are **tested and certified in ABB's test center**. By using an ABB motor together with an ABB drive as a package, you can enjoy the benefits of efficient, high-performance motors with optimal speed and control accuracy – without compromising on safety.

With the ABB ATEX certified motor and drive package the ATEX certified temperature protection modules are not obligatory, the tested combinations fulfill the IEC/ATEX standards and ensure safe performance.

- No additional testing and certification are needed
- No ATEX thermistor protection modules are needed
- Safe and cost effective solution for industries in potentially explosive atmospheres

## Safe temperature monitoring

For non-tested and certified motors and drives (e.g. for use with other manufacturer's motors), ATEX certified temperature protection is an integrated option.

The ACS880's ATEX-certified thermistor protection module, Ex II (2) GD, FPTC-02, can be integrated into the drive if the motor is operating in a potentially explosive environment. **The purpose of the safety function is to disconnect the motor from the power supply before the motor overheats and causes a risk of explosion in an ATEX environment.**

## Correct dimensioning
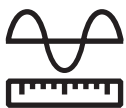
Correct dimensioning is important. **Correctly sized motors and drives reduce motor frame heating.** They also help to reduce energy use.

## Insulation and drive filters

ABB's offering for correct insulation and filters **protects the motor** from voltage phenomena, bearing currents and motor overheating. The insulation and filters must be selected according to voltage and frame size.

## Easy drive upgrades

With the drive upgrades below, the ATEX certification stays valid from the old to the new generation models. This means that there is no need for new ATEX certification during the upgrade. This saves you time and money.

| ATEX certification approved – old generation model | Comparable converter upgrade | ATEX certification stays valid – new generation model |
|---|---|---|
| ACS600, ACS800, ACS850 | → | ACS880 |

## Global service and support network

ABB's global network of certified service providers are trained and experienced to help you with motors and drives for applications in explosive atmospheres.

**The support network ensures that your ABB Declaration of Conformity is retained**.

**ABB's ATEX-certified thermistor protection module, Ex II (2) GD, FPTC-02**
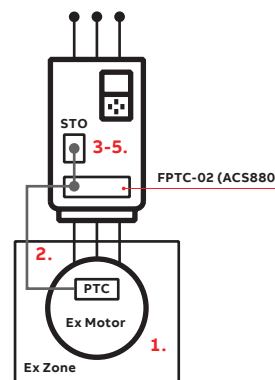
With option +L537 +Q971:

1. Motor temperature rises above the PTC sensor limit temperature.
2. The sensor resistance increases very sharply and indicates overheating to the ATEX-certified module, Ex II (2) GD.
3. The module switches the STO (Safe Torque Off) circuit off, which activates the STO function.
4. The STO function disables the control voltage in the power semiconductors of the drive output stage.
5. The drive is prevented from generating the required torque to rotate the motor.

▶ **The safe state is guaranteed**

**Note:**
The FPTC-02 module can be managed as a loose option and can also be retrofitted to the drive; in this case, to be compliant with regulations, the customer must ensure the following requirements:
- that the serial number of the drive/inverter module starts with 1, 4, 7, 8 or Y
- that the drive and option serial number is paired in a DIB (Drive Installed Base) portal
- that the included ATEX label for the SMT (Safe Motor Temperature) function is attached to the drive/inverter module to ensure the ATEX compliance of the safety circuit
- that the option module is installed in an option slot of the drive control unit and the applicable drive parameters are set
- that the PTC temperature sensors of the motor are connected to the PTC inputs of the option module

* For further information please contact local ABB

**ABB's ATEX-certified thermistor protection module**

| Option code | Ordering code | Description |
|---|---|---|
| +L537 +Q971 | 3AXD50000024924 | ATEX-certified thermistor protection module FPTC-02 , Ex II (2) GD |

# 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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01
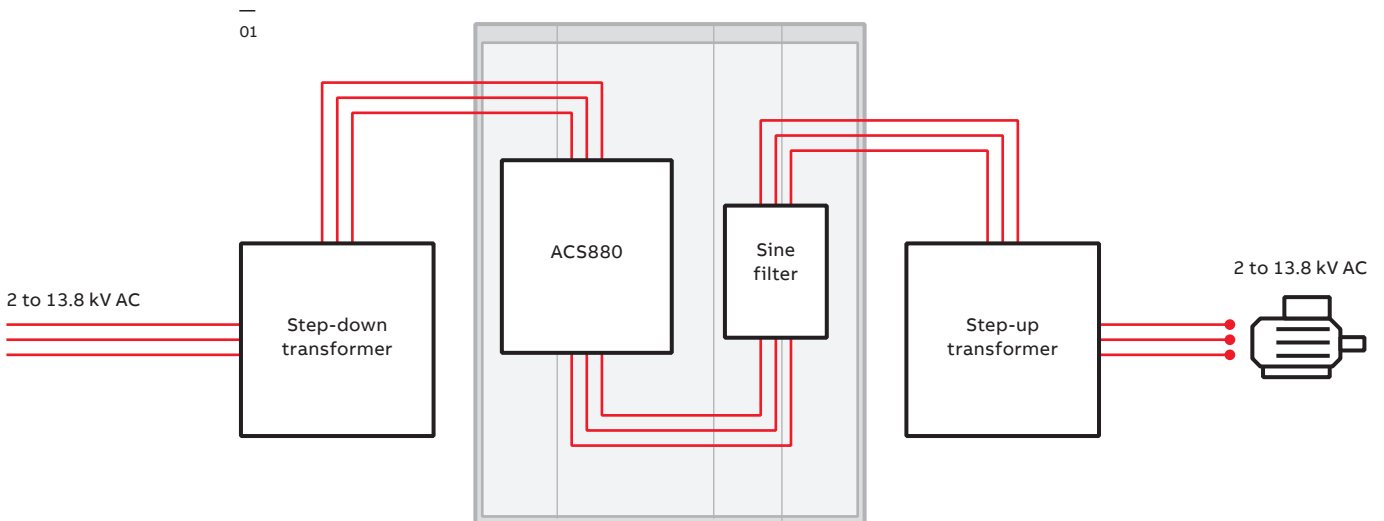


## Sine filters for liquid-cooled multidrives

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

**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) | | | | | | | | | | Height [2] | Width [1] [3] | Depth | Noise | Air flow | Brake unit type ACS880-607- | Brake chopper module type | Resistor type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nominal ratings | | | | | Duty cycle (1 min/5 min) | | Duty cycle (10 s/60 s) | | | | | | | | | | |
| $P_{br.max}$ (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. |

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# ACS880-607LC liquid cooled 3-phase dynamic brake units

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

| Resistor values | | Ratings $R_{min}$ | | | | | | | | Ratings $R_{max}$ | | | | | | | | Brake unit type ACS880-607LC- | Frame size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No-overload use | | | | Duty cycle (1 min/5 min) | | | | No-overload use | | | | Duty cycle (1 min/5 min) | | | | | |
| $R_{min}$ | $R_{max}$ | $I_{dc}$ DC | $I_{rms}$ DC | $P_{cont}$ | $I_{max}$ DC | $I_{dc}$ DC | $I_{rms} R_{min}$ DC | $P_{br.} R_{min}$ | | $I_{dc}$ DC | $I_{rms}$ DC | $P_{rcont}$ | $I_{max}$ DC | $I_{dc}$ DC | $I_{rms} R_{min}$ DC | $P_{br.} R_{min}$ | | | |
| (ohm) | (ohm) | (A) | (A) | (kW) | (A) | (A) | (A) | (kW) | | (A) | (A) | (kW) | (A) | (A) | (A) | (kW) | | | |
| 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 | 2xR8i |
| 2.0 | 2.4 | 2342 | 931 | 2600 | 1110 | 2997 | 1053 | 3330 | | 2342 | 850 | 2600 | 937 | 2498 | 878 | 2770 | | 2600-7 | 2xR8i |
| 2.0 | 2.4 | 3514 | 1396 | 3900 | 1665 | 4496 | 1580 | 4990 | | 3514 | 1275 | 3900 | 1405 | 3746 | 1316 | 4160 | | 3900-7 | 3xR8i |
| 2.0 | 2.4 | 4685 | 1862 | 5200 | 2220 | 5994 | 2106 | 6650 | | 4685 | 1700 | 5200 | 1874 | 4995 | 1755 | 5540 | | 5200-7 | 4xR8i |

# 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 |
| | 500 V < $U_N$ ≤ 600 V | 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 < $U_N$ ≤ 500 V | Enamelled wire with fiber glass taping | + N + CMF | + N + CMF | + N + CMF |
| | 500 < $U_N$ ≤ 690 V | Enamelled wire with fiber glass taping | + 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**

| Motor type | Nominal AC supply voltage | Motor insulation system | | | |
|---|---|---|---|---|---|
| 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 |
| | 420 V < $U_N$ ≤ 500 V | 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 |
| | 500 V < $U_N$ ≤ 600 V | 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 |
| | 600 V < $U_N$ ≤ 690 V | Reinforced: $\hat{U}_{LL}$ = 2000 V, 0.3 microsecond rise time [3] | – | + N or CMF | + N + CMF |

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

**The abbreviations used in the table are defined below**

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

# Du/dt filters

**External du/dt filter for ACS880-107**

| ACS880-107 | | | 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 |

**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.
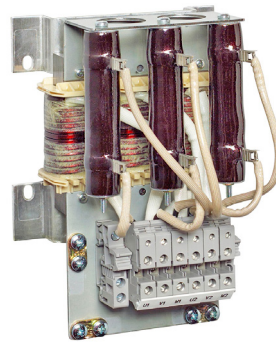


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NOCH0016-60

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.

# 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 between.



**Safety products**
ABB safety products are helping machine builders to create production-friendly and safe work environments for operators. We deliver machine safety solutions for single machines or entire production lines. Our long experience of helping customers making solutions for demanding environments has made us experts in combining production demands with safety demands for production-friendly solutions.

# Choose the right motor for your application

**High Dynamic Performance (HDP) motors
with ACS880 drives**
ABB's HDP motors are offered in frame sizes 80 to 400 up to megawatt-class, with water-cooled and high-speed variants available in selected frame sizes. ABB's HDP motors have a very high power density, which means that they provide more power to the machine applications than conventional machine motors. ABB's HDP motors are the optimal solution for high-torque machine applications such as extruders, cranes, test benches, etc.

ABB HDP motors are always used with a drive. To make full use of ABB's VSDs – including flexibility to optimize processes and control, reliability to reduce downtime, and efficiency to reduce energy use and carbon emissions – the motor's technology solution must be up to the challenge. ABB's HDP motors are designed to enable fast motion control and high maneuvering precision due to their low inertia and high overload capacity.

**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.

**Externally exited synchronous machines**
The ACS880 externally exited synchronous machine control is an option for ACS880 multidrive inverter unit offering in R8i based frames. The main difference between ACS880 externally exited synchronous machine control and other machine control modes is the rotor current, which in ACS880 externally exited synchronous machine control is supplied to rotor from excitation unit EXU through brushes.

Variable speed synchronous motors are often used in demanding applications where variable speed delivers clear benefits. Rolling mills, mine hoists, pumps, extruders, compressors and main propulsion system in ships are typical examples of variable speed applications. ACS880 inverter unit has ordering option (+N8052) for excitation unit which monitors and controls the excitation of the synchronous motor.

**IE5 Synchronous reluctance motors and
the ACS880: optimized energy efficiency**
Combining the ACS880's control technology with our Synchronous reluctance (SynRM) motors provides an IE5 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.
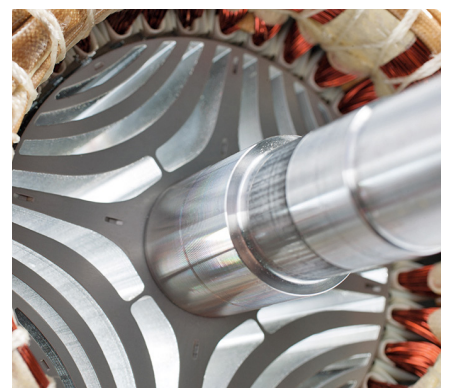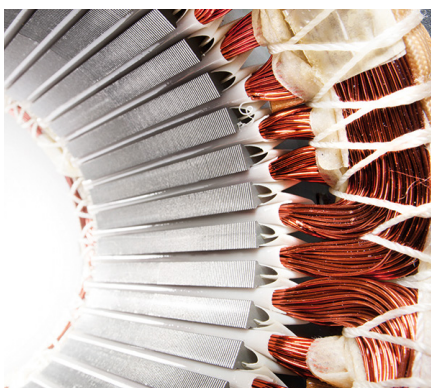
# Synchronous reluctance motors
## Ultimate efficiency and reliability to optimize your cost of ownership



**Traditional induction motor**



**IE5 SynRM motor**



**Losses IM vs SynRM**

- I²R Rotor
- Other
- I²R Stator

### Innovation inside
The idea is simple. Take a conventional, proven stator technology and an innovative rotor design. Then combine them with an ABB machinery drive loaded with software with versatile features. Finally, optimize the whole package for 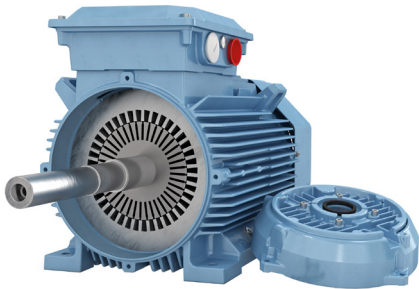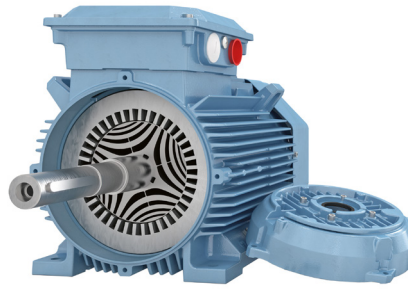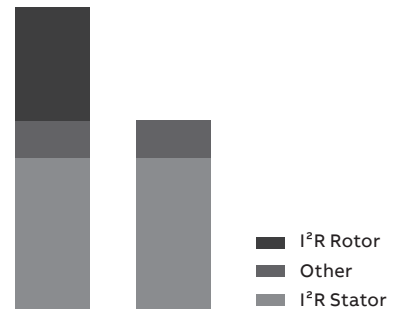applications such as compressors, conveyors, pumps, extruders, fans and many other variable and constant torque applications.

### Magnet-free design
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. And because there are no magnetic forces in the rotor, maintenance is as straightforward as with induction motors.

### Superior reliability to minimize the cost of not running
International Efficiency class IE5 Synchronous reluctance motors (SynRM) have very low winding temperatures, which increases the reliability and lifetime of the winding. More importantly, a cool synchronous reluctance rotor means significantly lower bearing temperatures – an important factor because bearing failures cause about 70 percent of unplanned motor outages.

### Perfect for retrofits
The SynRM package is a perfect solution for motor retrofits. The IE5 SynRM is the same size as an IE3 induction motor, eliminating the need for mechanical modifications. The increased efficiency will, on the other hand, reduce the payback time of the investment.

### Full motor control, down to zero speed
Many processes require accurate speed control. SynRM always runs at reference speed with practically no error, without an encoder. Even the best slip compensation systems in an induction motor inverter will never match the precision of SynRM. Sometimes your application may require you to run your motor at slow speeds. If you are using SynRM and your drive cannot provide the necessary torque, it may trip. ABB drives provide full control and torque down to zero speed, even without speed sensors.

### For all applications
This is important if you are planning on using the motor with applications other than quadratic torque applications like pumps and fans. Our drives provide full SynRM motor control for constant torque applications such as extruders, conveyors and wire drawing machines.

| SynRM technology | Benefit |
|---|---|
| Higher efficiency IE5 | Lowest energy consumption |
| No rare earth metals | Environmental sustainability |
| Magnet-free rotor | Easy service |
| Lower winding and bearing temperatures | Longer life time, extended service intervals |
| Better controllability | Accurate speed and torque control |
| Lower noise level | Better working and living environment |
| Same size with IE3 | Perfect for retrofits |

**Total cost of ownership** = Purchase + Cost of running + Cost of not running

# Our service expertise, your advantage

ABB Motion Services helps customers around the globe by maximizing uptime, extending product life cycle, and enhancing the performance and energy efficiency of electrical motion solutions. We enable innovation and success through digitalization by securely connecting and monitoring our customers' motors and drives, increasing operational uptime, and improving efficiency. We make the difference for our customers and partners every day by keeping their operations running profitably, safely and reliably.

With a service offering tailored to your needs, ABB Motion Services maximizes the uptime and extends the life cycle of your electrical motion solutions, while optimizing their performance and maximizing your energy efficiency gains throughout the entire lifetime of your applications. We help to keep your applications turning profitably, safely, and reliably.

Digitalization enables new smart and secured ways to prevent unexpected downtime while optimizing the operation and maintenance of your assets. We securely connect and monitor your motors, drives or your entire powertrain to our easy-to-use cloud service solutions. Connecting your applications also gives you access to our in-depth service domain expertise.

We quickly respond to your service needs. Together with our partners, local field service experts, and service workshop networks, we provide and install original spare parts to help resolve any issues and minimize the impact of unexpected disruptions.

Our tailored to your needs service offerings and digital solutions will enable you to unlock new possibilities. Not only are we your premier supplier of motion equipment, we are your trusted partner and advisor offering support throughout the entire life cycle of your assets. We ensure your operations run profitably, safely and reliably and continue to drive real world results, now and in the future. Our service teams work with you, delivering the expertise needed to keep your world turning while saving energy every day.

**ABB Motion OneCare**

The modular service agreement tailored to your needs

**Partnered solutions**

Bringing expertise and capabilities together to enhance your business performance

**Recovery services**

Fast intervention when something goes wrong

**Data and Advisory services**

Better decision making

**Planned services**

Protect your investment and avoid costly downtime

**Modernization and Performance improvement services**

Optimal performance and lifetime extensions

**ABB Motion Services**

**Reliability**

Maximizing uptime
Delivering service excellence

**Energy efficiency and Circularity**

Reducing carbon emissions and waste
Driving the tomorrow

**Digital and Innovation**

Delivering digital for success
Smart. Secure. Connected.

**Life cycle management**

Extending life cycle
Enhancing performance

# OUR EXPERTISE

# YOUR ADVANTAGE

# ABB Ability™ Mobile Connect for drives

**Easy access to remote support**
ABB Ability™ Mobile Connect for drives is a platform for remote drive support consisting of the Mobile Connect web portal and the Drivetune mobile app.

The platform allows ABB service partners to provide remote commissioning and troubleshooting support for personnel on-site without any complex connectivity infrastructure. Chats, sharing images and backups, viewing parameters online and sending support packages are all possible, making your technical support process quick and efficient.

All that is needed is the Bluetooth control panel and a mobile device.

The platform is available for ABB partners and OEMs under a renewable subscription-based agreement.

ABB Ability™ Mobile Connect for drives support portal

**Use the Drivetune mobile app to connect your drive to a mobile device**

Information transfer

**Tap Mobile Connect in the Drivetune mobile app to start your remote support session**

Information transfer

Drive
with Bluetooth panel

Mobile device
with Drivetune app

Expert help with Mobile Connect
for Drives license
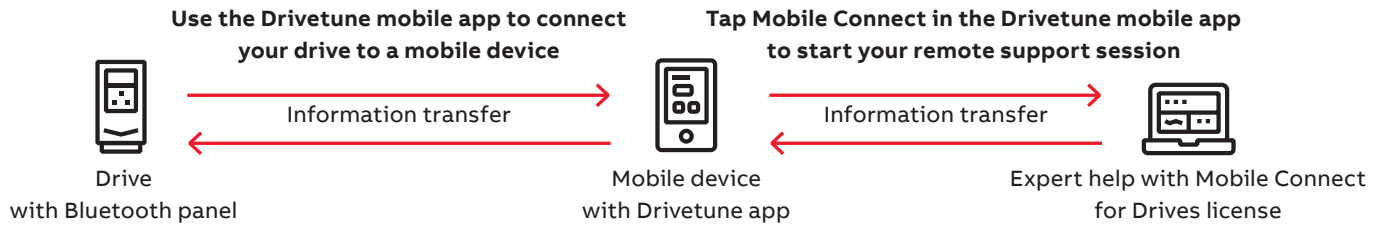
## Drivetune mobile app for managing drives via an intuitive interface

**Drivetune mobile app** is a powerful tool for performing basic drive startup and troubleshooting tasks. It is possible to connect with drives and access data available in the Internet at the same time. The wireless Bluetooth connectivity means that users won't need to enter hazardous or difficult-to-reach work areas to access information necessary to help them commission and tune the drive.

**Startup, commission and tune your drive and application with full parameter access**

**Optimize performance via drive troubleshooting features**

**Create and share backups and support packages**

**Keep track of drives installed base**

Download Drivetune mobile app

Drivetune
**ABB**

Google play

Available on the
App Store

# Summary of features and options

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**ACS880 air-cooled multidrivess**

| | Option 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 |
|---|---|---|---|---|---|---|---|---|
| **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) | □ |
| **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) |
| **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) | □ |
| R1i - R5i in an own compartment | +C204 | □ | – | – | – | – | – | – |

● Standard
□ Selectable option, with plus code
■ Selectable option, external, no plus code

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**ACS880 air-cooled multidrives**

| | Option 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 |
|---|---|---|---|---|---|---|---|---|
| **Software** | | | | | | | | |
| Primary control program | | ● | – | – | – | – | – | – |
| Drive application programming based on IEC 61131-3 using Drive Application Builder (available for primary control program) | +N8010 | □[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 | □ | – | – | – | – | – | – |
| High speed test bench [25] | +P967 | □ | – | – | – | – | – | – |
| Application control program for override control | +N5450 | □ | – | – | – | – | – | – |
| Application control program for ESP pumps | +N5600 | □ | – | – | – | – | – | – |
| Application control program for position control | +N5700 | □[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, UKCA | | ● | ● | ● | ● | ● | ● | ● |
| UL, cUL | | □ | □ | □ | □ | □ | □ | □ |
| CSA | | □ | □ | □ | □ | □ | □ | □ |
| EAC/GOST R [15] | | ● | ● | ● | ● | ● | ● | ● |
| RoHS | | ● | ● | ● | ● | ● | ● | ● |
| RCM | | ● | ● | ● | ● | ● | ● | ● |
| Marine type approvals [16] | +C132 | □[17] | □ | – | □ | – | □ | □ |
| 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

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**ACS880 air-cooled multidrives**

| | Option 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 |
|---|---|---|---|---|---|---|---|---|
| **Safety functions** [23] | | | | | | | | |
| Safe Torque Off (STO) | | ● | – | – | – | – | – | – |
| Safety functions module, FSO-12, without encoder, configurable functions:<br>- Safe Stop 1 (SS1-t, SS1-r)<br>- Safely-Limited Speed (SLS)<br>- Safe Brake Control (SBC)<br>- Safe Maximum Speed (SMS)<br>- Safe Stop Emergency (SSE)<br>- Prevention Of Unexpected Start-up (POUS)<br>- Safe Torque Off (STO) | +Q973 | □ | – | – | – | – | – | – |
| Safety functions module, FSO-21, with encoder support, configurable functions:<br>- Safe Stop 1 (SS1-t, SS1-r)<br>- Safely-Limited Speed (SLS)<br>- Safe Brake Control (SBC)<br>- Safe Maximum Speed (SMS)<br>- Safe Stop Emergency (SSE)<br>- Prevention Of Unexpected Start-up (POUS)<br>- Safe Direction (SDI), requires<br>  encoder feedback, FSE-31<br>- Safe Speed Monitoring (SSM)<br>- 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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**ACS880 air-cooled multidrives**

| | Option 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 |
|---|---|---|---|---|---|---|---|---|
| **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 pcs analog outputs, programmable | | ● | ● | ● | ● | ● | ● [2] | ● |
| 6 pcs digital inputs, programmable, galvanically isolated – can be divided into two groups | | ● | ● | ● | ● | ● | ● [2] | ● |
| 2 pcs digital inputs/outputs | | ● | ● | ● | ● | ● | ● [2] | ● |
| 1 pcs digital input interlock | | ● | ● | ● | ● | ● | ● [2] | ● |
| 3 pcs relay outputs | | ● | ● | ● | ● | ● | ● [2] | ● |
| Drive-to-drive link/Built-in Modbus | | ● | – | – | – | – | – | – |
| Assistant control panel/PC tool connection | | ● | ● | ● | ● | ● | ● [2] | ● |
| Possibility for external power supply for control unit | | □ | □ | □ | □ | □ | □ [2] | □ |
| 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] | | □ | □ | □ | □ | □ | □ [2] | □ |
| Built-in adapters for several communication protocols: for more details see section "Communication protocol adapters" [19] | | □ | □ | □ | □ | □ | □ [2] | □ |

● Standard
□ Selectable option, with plus code
■ Selectable option, external, no plus code

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**ACS880 liquid-cooled multidrives**

| | Option code | ACS880 -107LC INU R7i, nxR8i | ACS880 -207LC ISU R7i, nxR8i | ACS880 -307LC DSU nxD8T | ACS880 -607LC brake unit | ACS880 -1607LC DC/DC nxR8i |
|---|---|---|---|---|---|---|
| **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) | | ● | ● | ● | ● | ● |
| IP54 (UL type 12) | | □ | □ | □ | □ | □ |
| **Motor control** | | | | | | |
| DTC motor control | | ● | – | – | – | – |
| **Control panel** | | | | | | |
| Intuitive control panel | | □ | □ | □ | □ [2] | □ |
| **EMC filters** | | | | | | |
| EMC 1st environment, restricted distribution, C2, grounded network (TN) | +E202 | – | □ | □ | – | – |
| EMC 2nd environment, C3, grounded (TN) and ungrounded network (IT) | +E210 | □ [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 | ● | ● | – | ● | ● |
| Du/dt filters | +E205 | ● | ● | – | ● | ● |
| **Braking (see braking unit table)** | | | | | | |
| **Incoming unit apparatus** | | | | | | |
| Disconnector | | – | – | – | – | – |
| Air circuit breaker | +F255 | – | ● [26] | ● | – | – |
| Line contactor | +F250 | – | – | – | – | – |
| Earthing switch | +F259 | – | □ | □ | – | – |
| **Inverter units** | | | | | | |
| DC switch | +F286 | □ | □ | – | □ [14] | □ |
| R1i - R5i in an own compartment | +C204 | – | – | – | – | – |

● Standard
□ Selectable option, with plus code
■ Selectable option, external, no plus code

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**ACS880 liquid-cooled multidrives**

| | Option code | ACS880 -107LC INU R7i, nxR8i | ACS880 -207LC ISU R7i, nxR8 | ACS880 -307LC DSU nxD8T | ACS880 -607LC brake unit | ACS880 -1607LC DC/DC R7i, nxR8i |
|---|---|---|---|---|---|---|
| **Software** | | | | | | |
| Primary control program | | ● | – | – | – | – |
| Drive application programming based on IEC 61131-3 using Drive Application Builder (available for primary control program) | +N8010 | □ 3) | □3) | – | – | – |
| Application control program for winder | +N5000 | □27) | – | – | – | – |
| Application control program for crane | +N5050 | □28) | – | – | – | – |
| Application control program for winch | +N5100 | □27) | – | – | – | – |
| Application control program for centrifuge/decanter | +N5150) | □27 | – | – | – | – |
| Application control program for PCP pump | +N5200 | □27) | – | – | – | – |
| Application control program for test bench | +N5300 28) | □28) | – | – | – | – |
| Application control program for override control | +N5450 | □27) | □ | □ | – | – |
| Application control program for ESP pumps | +N5600 | □27) | – | – | – | – |
| Application control program for position control | +N5700 | □ 24) | – | – | – | – |
| Support for asynchronous motor | | ●27) | – | – | – | – |
| Support for permanent magnet motor | | ●27) | – | – | – | – |
| Support for Synchronous reluctance motor (SynRM) | +N7502 | □ | – | – | – | – |
| Application control program for LV synchronous machine | +N8052 | □27) | – | – | – | – |
| Optimal grid control of IGBT supply control program (grid converter) | +N8053 | – | □27) | – | – | – |
| High speed license. Allows high speed operation above 598 Hz output frequency. | +N8200 | □ | – | – | – | – |
| **Approvals** | | | | | | |
| CE, UKCA | | ● | ● | ● | ● | ● |
| UL, cUL | | □ | □ | □ | □ | – |
| CSA | | □ | □ | □ | □ | – |
| EAC/GOST R 15) | | ● | ● | ● | ● | ● |
| RoHS | | ● | ● | ● | ● | ● |
| RCM | | ● | ● | ● | ● | ● |
| Marine type approvals 16) | +C132 | □ | □ | □ 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

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**ACS880 liquid-cooled multidrives**

| | Option code | ACS880 -107LC INU R7i, nxR8i | ACS880 -207LC ISU R7i, nxR8 | ACS880 -307LC DSU nxD8T | ACS880 -607LC brake unit | ACS880 -1607LC DC/DC R7i, nxR8i |
|---|---|---|---|---|---|---|
| **Safety functions** [23] | | | | | | |
| Safe Torque Off (STO) | | ● | – | – | – | – |
| Safety functions module, FSO-12, without encoder, configurable functions:<br>- Safe Stop 1 (SS1-t, SS1-r)<br>- Safely-Limited Speed (SLS)<br>- Safe Brake Control (SBC)<br>- Safe Maximum Speed (SMS)<br>- Safe Stop Emergency (SSE)<br>- Prevention Of Unexpected Start-up (POUS)<br>- Safe Torque Off (STO) | +Q973 | □ | – | – | – | – |
| Safety functions module, FSO-21, with encoder support, configurable functions:<br>- Safe Stop 1 (SS1-t, SS1-r)<br>- Safely-Limited Speed (SLS)<br>- Safe Brake Control (SBC)<br>- Safe Maximum Speed (SMS)<br>- Safe Stop Emergency (SSE)<br>- Prevention Of Unexpected Start-up (POUS)<br>- Safe Direction (SDI), requires encoder feedback, FSE-31<br>- Safe Speed Monitoring (SSM)<br>- 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 | – | □ [28] | □ [28] | – | – |
| PROFIsafe over PROFINET with safety functions module (FSO-21) and FPNO-21 | +Q982 +Q972 +K492 | □ | – | – | – | – |
| CIP Safety functions module, FSCS-21 | +Q989 | | | | | |
| 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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**ACS880 liquid-cooled multidrives**

| | Option code | ACS880 -107LC INU R7i, nxR8i | ACS880 -207LC ISU R7i, nxR8 | ACS880 -307LC DSU nxD8T | ACS880 -607LC brake unit | ACS880 -1607LC DC/DC nxR8i |
|---|---|---|---|---|---|---|
| **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 pcs analog outputs, programmable | | ● | ● | ● | ●[2] | ● |
| 6 pcs digital inputs, programmable, galvanically isolated – can be divided into two groups | | ● | ● | ● | ●[2] | ● |
| 2 pcs digital inputs/outputs | | ● | ● | ● | ●[2] | ● |
| 1 pcs digital input interlock | | ● | ● | ● | ●[2] | ● |
| 3 pcs relay outputs | | ● | ● | ● | ●[2] | ● |
| Drive-to-drive link/Built-in Modbus | | ● | – | – | – | – |
| Assistant control panel/PC tool connection | | ● | ● | ● | ●[2] | ● |
| Possibility for external power supply for control unit | | □ | □ | □ | □[2] | □ |
| 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] | | □ | □ | □ | □[2] | □ |
| Built-in adapters for several communication protocols: for more details see section "Communication protocol adapters" [19] | | □ | □ | □ | □[2] | □ |

● 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.
[25] Available for R8i
[26] For ISU: 500 V, 690 V R7iLC with disconnector and contactor, 690 V nxR8iLC with air-circuit breaker.
[27] Not supported by R7i
[28] Not supported by 500 V R7i

**ABB**

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

**new.abb.com/drives/ACS880**
**new.abb.com/drives**
**new.abb.com/drives/drivespartners**
**new.abb.com/motors-generators**

Video playlist:
ACS880 how-to videos