LOW VOLTAGE AC DRIVES

ABB industrial drives

ACS880, single drives
0.55 to 6000 kW

Uncompromised productivity. ACS880 series.

ABB industrial drives
ACS880 single drives

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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 ACS880 single drives are standalone drives. They are customized to meet the particular needs of specific industries, such as oil and gas, mining, metals, chemicals, cement, power plants, material handling, pulp and paper, sawmills, marine, water and wastewater, food and beverage, and automotive. They can control a wide range of applications, including cranes, extruders, winches, winders, conveyors, mixers, compressors, centrifuges, test benches, elevators, extruders, pumps and fans.

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 and high enclosure classes, 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.

Bluetooth
Local
ACS880
1400.0 Rpm
Motor speed
Rpm
1400.0
Motor current
A
28.8
Flow rate
m³/s
10.9
Options
07:38
Menu
?
Stop
Loc/Rem
Start
ABB

Simplify your world without limiting your possibilities

The ACS880 industrial drive is equipped with built-in features that simplify ordering and delivery, and reduce commissioning costs, since everything is provided in a single, compact and ready-to-use package.

Easy to use
- All-compatible ACS880 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

Simple to select and install
- All the essential features built-in for simple drive selection, installation and use
- Flexible product configurations
- Enclosure classes for different environments, up to IP55
- Possibility for flange mounting

See page 09

Virtual commissioning
- Virtual design and test environment for drive applications

See page 10

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

See page 11

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

See page 12

Nine-year maintenance interval

Minimized downtime
- Robust, long lifetime design for maximum reliability
- Coated circuit boards for harsh conditions
- Removable memory unit for fast drive replacement
- 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

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 14

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 15

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

See page 16

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.

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

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

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

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

The ACS880, part of the all-compatible drives portfolio

Simple to select and install

Built-in features simplify ordering and installation
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 choppers, low harmonic or regenerative functionality and various I/O extensions, communication protocol adapters, and functional safety modules.

All essential features built-in

The built-in features make drive configuration simple – the number of external components is minimized and there is no need for extra enclosures. This cuts the engineering time, and reduces commissioning costs and the risk of errors. Built-in features simplify ordering and make installation fast and easy. As result, the whole drive system is more compact.

Different installation solutions
ACS880 offering has optimized variants for cabinet-building, wall-mounting and modules for cabinet assembly.

ACS880 offering also includes complete and compact solutions for dusty and wet environments with up to IP55 enclosure class.

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

- Dimensioning tools, e.g. DriveSize
- E-learnings
- Safety circuit design tools
- EPLAN P8 macros
- A selection tool for choosing external components, e.g. fuses and circuit breakers
- Dimensional and electrical drawings
- Application guides
- Drive installation and configuration videos

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

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

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

Virtual commissioning

Virtual engineering and commissioning allow machine builders and system integrators to develop and simulate entire industrial processing lines and machines, including ABB drives, without actually running the hardware. This gives valuable benefits in the phases of designing, commissioning and operating machines.

Design safely and efficiently
Engineers can start configuring and programming drives well before receiving them from ABB production line, since the same software tools like Drive Composer pro can be used with virtual and real drives. Virtualization can also cover the kinematical and physical behavior of the machine and the overriding automation. Virtual drives can also be used with the ABB Robot Studio tool and ABB Automation Builder programming tools to build more complete virtual machines and processing lines.

After deploying the virtual machine in use on-site, any future improvements can be virtually tested before implementing them in the process. This all supports safety and quality in the engineering process.

- Find and solve potential problems earlier
- Save time and money due to faster drive commissioning
- Assist the dimensioning and energy optimization of electromechanical drive systems

Benefits
Throughout the value chain from sales, marketing, and training to field engineering and product development, virtual commissioning makes drive applications more easily understood and helps to:

- Design, test and learn drive applications virtually with the same software tools as for the actual hardware
- Train users and engineers with application simulation
- Tune up drive parameters easily off-site before going into more demanding on-site testing

Save time, reduce risk, and increase engineering productivity

Smarter solutions with drive-based functional safety

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

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

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

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

Available safety functionality
The following safety functions are supported:
- Safe torque off (STO)
- Safe stop 1 (SS1-t and SS1-r)
- Safe stop emergency (SSE)
- Safe brake control (SBC)
- Safely-limited speed (SLS)
- Safe maximum speed (SMS)
- Prevention of unexpected startup (POUS)
- Safe direction (SDI)
- Safe speed monitor (SSM)
- Safe motor temperature (SMT)

Integrated safety simplifies configuration

Safety for explosive atmospheres
ACS880 and ABB Ex motors have been certified as a package providing a safe, proven solution for explosive atmospheres. ACS880 safety options for ATEX environments:
- ATEX-approved thermistor protection module
- ATEX-approved safe torque off

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

*) SIL 2 / PL c for SMT (Safe motor temperature)

Comprehensive connectivity

Communication with all major automation networks
ACS880 drives come with Modbus RTU fieldbus interface and drive-to-drive communication link as standard.

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

The drives support advanced communication features:
- Redundant communication
- PROFIsafe
- Functional safety over fieldbus
- 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.

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

—

Better connectivity and user experience

Mobile connectivity
The drive has a Bluetooth panel enabling easy connection to mobile devices.

ABB offers several smartphone applications, like Drivetune and Drivebase, to ease and enhance the use of ABB drives. These tools provide a user-friendly and easy-to-use approach for commissioning, servicing and using ABB drives.

Drive mobile apps
- Full access to parameters
- Backup and restore functionality
- Access to drive data and service history
- Possibility to share configuration files via e-mail or Bluetooth
- Easy support package creation for faster remote support

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 airflow through the control board section
- High IP class variants
- Designed for ambient temperatures up to 55 °C
- Advanced protections – e.g. faster and more accurate IGBT protection using a thermal model

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

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

Nine-year maintenance interval

Advanced features for analyzing and resolving issues
The ACS880 has timers and counters that can be configured to remind you when the drive or process equipment needs maintenance.

Accurate and reliable diagnostic information is available for warning and fault messages. Help texts give detailed information about the warning or fault. Data loggers store critical values before and during an event, such as a fault. The real-time clock allows you to see the exact times of events.

For faster remote support, all relevant drive data and changed parameters can be saved in a single file package that you can easily create with the Drive Composer 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 82-85.

Global compatibility with various demands

Global product approvals
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 servo-type permanent magnet, synchronous reluctance (SynRM), submersible and high-speed motors. 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 ultra-low harmonic variant is available. 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, the internal brake chopper can be used together with a brake resistor.

The most advanced solution is the ACS880 regenerative drive variant, which allows, continuous braking, providing the possibility for remarkable energy savings.

ACS880 also supports common DC bus configurations, where the braking energy from one load can be utilized by other loads.

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

Tower cranes, +N5650
- Slew control
- Mechanical brake control
- Mobile access via Bluetooth

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, ESP, +N5600
- Submersible motor control (induction and PM motors)
- Motor temperature minimization
- Backspin speed observer
- Rocking start
- Flow calculation

Artificial oil lifting, PCP +N5200
- Backspin control
- Automatic pump speed control
- Induction and PM motor control
- Protections for pump mechanics

Artificial oil lifting, rod pump +N5250
- Optimization of the pump speed
- Protections for pump mechanics
- Pump and well identification run

Tunnel ventilation (override control), +N5450
- Override of protections in an emergency situation
- Built-in PID control
- Energy optimizer for maximum motor efficiency

By working closely with customers over many years, ABB has developed application control programs and specific 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

Position control, +N5700
- Ready-made motion control functions
- IEC 61131 programming with PLCopen motion blocks
- Synchronized drive to drive link

Textile (spinning), +N5500
- Wobbulation function
- Manual / auto off function
- Production history

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

Centrifuge, decanter, +N5150
- Accurate speed and torque control, even without an encoder
- Speed difference control of scroll drives for decanters

Cooling tower, +N5350
- Support for slow, high-torque cooling tower motors
- Trickle current to keep the motor warm and dry, preventing condensation
- Anti-windmill function

Chemical industry
- Direct torque control with sine filters
- Nine-year maintenance 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)
- Product certification process
- 440 V variant

B

How to select a drive

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

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

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

RATINGS, TYPES AND VOLTAGES: WALL-MOUNTED DRIVES, ACS880-01 21

Ratings, types and voltages
Wall-mounted drives, ACS880-01

U_N = 230 V (range 208 to 240 V). The power ratings are valid at nominal voltage 230 V (0.55 to 75 kW).

Drive type	Frame size	Nominal ratings			Light overload use			Heavy-duty use			Noise level	Heat dissipation	Air flow
		I_N (A)	$I_{max\ rms}$ (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	P_{hd} (kW)	I_{Hd} (A)	P_{Hd} (kW)	P_{hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-01-06A6-2	R1	6.6	6.3	0.75	4.4	0.75	3.7	0.55	50			73	44
ACS880-01-06A6-J	R1	6.6	7.8	1.1	6.3	1.1	4.6	0.75	50			94	44
ACS880-01-07A5-J	R1	7.5	11.2	1.5	7.1	1.5	6.6	1.1	50			122	44
ACS880-01-10A6-J	R1	10.6	12.8	2.2	10.1	2.2	7.5	1.5	50			172	44
ACS880-01-15A8-J	R2	16.8	18.0	4.0	16.0	4.0	15.6	2.2	59			232	88
ACS880-01-24A3-J	R2	24.3	28.6	5.5	23.1	5.5	16.8	4	59			337	88
ACS880-01-031A-J	R3	31.0	41	7.5	29.3	7.5	24.3	5.5	60			457	134
ACS880-01-046A-J	R4	46	64	11	44	11	38	7.5	64			550	134
ACS880-01-061A-J	R4	61	76	15	58	15	45	11	64			630	280
ACS880-01-075A-J	R5	75	104	18.5	71	18.5	61	15	64			680	280
ACS880-01-087A-J	R5	87	122	22	83	22	72	18.5	64			730	280
ACS880-01-115A-J	R6	115	148	30	109	30	87	22	68			840	435
ACS880-01-145A-J	R6	145	178	37	138	37	105	30	68			940	435
ACS880-01-170A-J	R7	170	247	45	162	45	145	37	67			1260	450
ACS880-01-206A-J	R7	206	287	55	196	55	169	45	67			1500	450
ACS880-01-274A-J	R8+	274	362	75	260	75	213	55	68			2100	550

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (0.55 to 250 kW).

Drive type	Frame size	Nominal ratings			Light overload use			Heavy-duty use			Noise level	Heat dissipation	Air flow
		I_N (A)	$I_{max\ rms}$ (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	P_{hd} (kW)	I_{Hd} (A)	P_{Hd} (kW)	P_{hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-01-02A4-3	R1	2.4	3.1	0.75	2.3	0.75	1.8	0.55	50			30	44
ACS880-01-03A3-3	R1	3.3	4.1	1.1	3.1	1.1	2.4	0.75	50			40	44
ACS880-01-04A0-3	R1	4.0	5.6	1.5	3.8	1.5	3.3	1.1	50			52	44
ACS880-01-05A6-3	R1	5.6	6.8	2.2	5.3	2.2	4.0	1.5	50			72	44
ACS880-01-07A2-3	R1	8.0	9.5	3	7.6	3	5.6	2.2	50			94	44
ACS880-01-09A4-3	R1	10	12.2	4	9.5	4	8.0	3	50			122	44
ACS880-01-12A6-3	R1	12.9	16	5.5	12	5.5	10	4	50			172	44
ACS880-01-017A-3	R2	17	21	7.5	16	7.5	12.6	5.5	59			232	88
ACS880-01-025A-3	R2	25	29	11	24	11	17	7.5	59			337	88
ACS880-01-032A-3	R3	32	42	15	30	15	25	11	60			457	134
ACS880-01-038A-3	R3	38	54	18.5	36	18.5	32	15	60			562	134
ACS880-01-045A-3	R4	45	64	22	43	22	38	18.5	64			667	134
ACS880-01-061A-3	R4	61	76	30	58	30	45	22	64			907	280
ACS880-01-072A-3	R5	72	104	37	68	37	61	30	64			1117	280
ACS880-01-087A-3	R5	87	122	45	83	45	72	37	64			1120	280
ACS880-01-105A-3	R6	105	148	55	100	55	87	45	68			1295	435
ACS880-01-145A-3	R6	145	178	75	138	75	105	55	68			1440	435
ACS880-01-169A-3	R7	169	247	90	161	90	145	75	67			1940	450
ACS880-01-206A-3	R7	206	287	110	196	110	169	90	67			2310	450
ACS880-01-246A-3	R8	246	350	132	234	132	206	110	68			3300	550
ACS880-01-293A-3	R8+	293	418	160	278	160	246+	132	68			3900	550
ACS880-01-363A-3	R9+	363	498	200	345	200	293	160	70			4800	1150
ACS880-01-430A-3	R9+	430	545	250	400	200	363+	200	70			6000	1150

RATINGS, TYPES AND VOLTAGES: CABINET-BUILT DRIVES, ACS880-07 27

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (45 to 2800 kW).

Drive type	Frame size	Nominal ratings			Light overload use			Heavy-duty use			Noise level	Heat dissipation	Air flow
		I_N (A)	$I_{max\ rms}$ (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	P_{hd} (kW)	I_{Hd} (A)	P_{Hd} (kW)	P_{hd} (kW)	(dB(A))	(W)	(m³/h)
6-pulse diode													
ACS880-07-04A1-7	R6	61	104	55		58	55	49	45		67	1795	1750
ACS880-07-06A4-7	R6	84	124	75		80	75	61	55		67	1940	1750
ACS880-07-09A8-7	R7	98	168	90		93	90	84	75		67	2440	1750
ACS880-07-01A8-7	R7	119	198	110		113	110	98	90		67	2810	1750
ACS880-07-01A7-7	R8	142	250	132		135	132	119	110		65	3800	1750
ACS880-07-01A9-7	R8	174	274	160		165	160	142	132		65	4400	1750
ACS880-07-02I0A-7	R9	210	384	200		200	200	174	160		68	4700	1150
ACS880-07-02I7A-7	R9	271	411	250		257	250	210	200		68	5300	1150
ACS880-07-03I3A-7	R10	330	480	315		320	315	255	250		72	4903	2950
ACS880-07-03I7A-7	R10	370	520	355		360	355	325	315		72	6152	2950
ACS880-07-04I3A-7	R10	430	520	400		420	400	360+	355		72	6909	2950
ACS880-07-04I5A-7	R11	470	655	450		455	450	415	400		72	8622	2950
ACS880-07-05I2A-7	R11	522	655	500		505	500	455	450		72	9264	2950
ACS880-07-05I9A-7	R11	590	800	560		571	560	505	500		71	10362	2950
ACS880-07-06I0A-7	R11	610	820	630		630	630	571+	560		71	11078	3170
ACS880-07-07I2A-7	R11	721	820	710		705	630	571+	560		71	11078	3170
ACS880-07-08I0A-7	D8T+2×R8	800	1200	800		768	710	598	560		73	16000	4290
ACS880-07-09I0A-7	D8T+2×R8	900	1350	900		864	800	673	630		74	20000	4290
ACS880-07-11I6A-7	2×D8T+2×R8	1160	1740	1100		1114	1100	868	800		74	26000	5720
ACS880-07-14I0A-7	2×D8T+2×R8	1410	2175	1400		1392	1250	1085	1000		75	32000	7150
ACS880-07-16I5A-7	2×D8T+3×R8	1650	2475	1600		1584	1500	1234	1200		75	36500	7150
ACS880-07-19I0A-7	3×D8T+4×R8	1950	2925	1900		1872	1800	1459	1400		76	44000	10010
ACS880-07-23I0A-7	3×D8T+4×R8	2300	3450	2200		2208	2000	1720	1600		76	52000	10010
ACS880-07-26I0A-7	4×D8T+5×R8	2600	3900	2500		2496	2400	1945	1900		78	58000	12870
ACS880-07-28I0A-7	4×D8T+5×R8	2860	4290	2800		2746	2600	2139	2000		78	65000	12870
12-pulse diode													
ACS880-07-08I0A-7+A004	2×D7T+2×R8	800	1200	800		768	710	598	560		73	16000	5720
ACS880-07-09I0A-7+A004	2×D8T+2×R8	910	1415	900		912	800	711	630		74	20000	5720
ACS880-07-11I6A-7+A004	2×D8T+2×R8	1160	1740	1100		1114	1100	868	800		74	26000	5720
ACS880-07-14I0A-7+A004	2×D8T+3×R8	1410	2175	1400		1392	1250	1085	1000		75	32000	7150
ACS880-07-16I5A-7+A004	2×D8T+3×R8	1650	2475	1600		1584	1500	1234	1200		75	36500	7150
ACS880-07-19I0A-7+A004	4×D8T+4×R8	1950	2925	1900		1872	1800	1459	1400		77	44000	11440
ACS880-07-23I0A-7+A004	4×D8T+4×R8	2300	3450	2200		2208	2000	1720	1600		77	52000	11440
ACS880-07-26I0A-7+A004	4×D8T+5×R8	2600	3900	2500		2496	2400	1945	1900		78	58000	12870
ACS880-07-28I0A-7+A004	4×D8T+5×R8	2860	4290	2800		2746	2600	2139	2000		78	65000	12870

+ = 166% overload

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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.
Operation above 150 m: might require type specific derating.

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

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Control panel options

— 01 Bluetooth assistant control panel, ACS-AP-W

— 02 Industrial assistant control panel without Bluetooth, ACS-AP-I

— 03 Control panel mounting platform, DPMP-01

— 04 Control panel mounting platform, DPMP-02

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.

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

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

— 01 — 02 — 03 — 04

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
+J400	–	No control panel	–
–	3AXD50000025945	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	3AXD50000039374	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

Drive type: ACS880 – xx – 02A4 – 3 + L501

- Product series
- Types and construction
- Rating
- Voltage
- Options

Technical data

Mains connection	
Voltage and power range	3-phase, U_{N2} 208 to 240 V, +10%/-15% (-01) 3-phase, U_{N3} 380 to 415 V, +10%/-15% (-01, -11, -31), ±10% (-07,-17-37) 3-phase, U_{N5} 380 to 500 V, +10%/-15% (-01, -11, -31), ±10% (-07,-17-37) 3-phase, U_{N7} 525 to 690 V, +10%/-15% (-01), ±10% (-07,-17,-37, -07CLC, -17/37LC) 0.55 to 250 kW (-01) 2.2 to 110 kW (-11, -31) 45 to 2800 kW (-07) 45 to 3200 kW (-17, -37) 250 to 6000 kW (-07CLC, -17/37LC)
Frequency	50/60 Hz ±5%
Power factor	
ACS880-01, -07, -07CLC	cosφ = 0.98 (fundamental) cosφ = 0.93 to 0.95 (total)
ACS880-11, -31, -17, -37, -17/37LC	cosφ = 1 (fundamental)
Efficiency (at nominal power)	ACS880-01, -07, -07CLC, -17/37LC: 98% ACS880-11, -31, -17, -37: 97%

Motor connection	
Voltage	3-phase output voltage 0 to U_{N2} / U_{N3} / U_{N5} / U_{N7}
Frequency	0 to ±598 Hz [1) 2)]
Motor control	Direct torque control (DTC)
Torque control	Torque step rise time:
Open loop	<5 ms with nominal torque
Closed loop	<5 ms with nominal torque
	Non-linearity:
Open loop	± 4% with nominal torque
Closed loop	± 3% with nominal torque
Speed control	Static accuracy:
Open loop	10% of motor nominal slip
Closed loop	0.01% of nominal speed
	Dynamic accuracy:
Open loop	0.3 to 0.4% seconds with 100% torque step
Closed loop	0.1 to 0.2% seconds with 100% torque step

Product compliance

CE
Low Voltage Directive 2014/35/EU according to EN 61800-5-1:2007
Machinery Directive 2006/42/EC
EMC Directive 2014/30/EU
ATEX Directive 2014/34/EU, EN 50495
Quality assurance system ISO 9001 and
Environmental system ISO 14001
RoHS 2011/65/EU and Delegated Directive (EU) 2015/836
RCM, EAC [4)]
TÜV Nord certification for functional safety [3)]
ATEX-certified safe disconnection function and thermistor and PT100 protection functions, Ex II (2) GD [2) 7)]
Marine type approvals for -01: ABS, Bureau veritas, CCS, DNV GL, KR, Lloyd's, NK, RINA, RMRS. For other drives, see https://new.abb.com/drives/segments/marine/marine-type-approvals
UL, CSA:
-01: cULus listed according to UL 508C and CSA C22.2 No. 274, CSA certified according to CSA C22.2 No. 274.
-11, -31: cULus listed according to UL 61800-5-1 and CSA C22.2 No. 274
-07, -17, -37: cULus listed according to UL 508A and CSA C22.2 No. 14, CSA certified according to CSA C22.2 No. 14.
-07CLC, -17/37LC: UL and CSA pending.

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

Category C3 and C2 with internal option or as standard.

Environmental limits	
Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Operation area (air-cooled)	-15 to +40 °C as standard (-01, -11, -31) 0 to +40 °C as standard (-07, -17, -37) +40 to +55 °C with derating of 1%/1 °C (-01, -11, -31) +40 to +50 °C with derating of 1%/1 °C (-07,-17,-37)
(liquid-cooled)	0 to +45 °C as standard (-07CLC, -17/37LC) +45 to 55 °C with derating of 0.5%/1 °C (-07CLC, -17/37LC)
Cooling method	
Air-cooled	Dry clean air
Liquid-cooled -07CLC, -17/37LC	Direct liquid-cooling, Antifrogen® L
Without liquid-cooling unit	Incoming coolant temperature 0 to +40 °C as standard +40 to +45 °C with derating of 2%/1 °C +45 to +50 °C with derating of 2%/1 °C or 6%/1 °C [5)]
With liquid-cooling unit	Incoming coolant temperature 0 to +36 °C as standard +36 to +46 °C with derating of 2%/1 °C
Altitude	
0 to 1,000 m	Without derating
1,000 to 4,000 m	With derating of 1% / 100 m [6)]
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	
IP20	Option (-01, -11, -31)
IP21	Standard (-01, -11, -31)
IP22	Standard (-07, -17, -37)
IP42	Standard (-07CLC, -17/37LC). Option (-07, -17, -37)
IP54	Option (-07, -17, -37, -07CLC, -17/37LC)
IP55	Option (-01, -11, -31)
Paint color	RAL 9017/9002 (-01, -11, -31), RAL 9017/7035 (-07, -17, -37, -07CLC, -17/37LC)
Pollution degree	PD 2
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1:1997, IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles) [*)]
Operation	IEC 60721-3-3:2002, IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles) [*)]
Transportation	IEC 60721-3-2:1997, IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles) [*)]

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, IEC 61511: SIL 3,EN/IEC 62061: SIL CL 3, EN ISO 13849-1: PL e - TÜV Nord certified
Safety over fieldbus	PROFIsafe over PROFINET, certified

*) C = Chemically active substances. S = Mechanically active substances.
1) Operation above 120 Hz might require type-specific derating. For higher output frequencies, please contact your local ABB office. Output filters may limit the output frequency. See product specific hardware manual for details.
2) Safe disconnection function (+Q971), Thermistor protection function (+L537+Q971) PTC/PT100 thermal motor protection for -07/17/37/17LC/37LC (+L513/L514+Q971)
3) For available certificates, see http://new.abb.com/drives/functional-safety
4) EAC directives: TR CU 020/2011 (EMC directive); TR CU 004/2011 (low voltage directive) EAC has replaced GOST R
5) See product specific hardware manual for detailed derating rules
6) Derating reduced by lower than 40 °C ambient temperature
7) Not applicable for -07CLC

Wall-mounted single drives
ACS880-01

—
01
ACS880-01
frame size R1, IP21
—
02
ACS880-01
frame size R5, IP55

—
01

—
02

Compact package for simple installation
The ACS880-01 comes in one compact package for easy installation and commissioning.
The drive supports wall-mounting as standard and cabinet mounting as an option. The drive offering includes enclosure classes up to IP55, making it suitable for most environments and installations.

ACS880-01 drives have all the essential features built-in. These features include as standard a choke for harmonic filtering as well as options like a brake chopper, EMC filter and communication protocol adapter, functional safety and I/O extension modules. The extensive range of options also includes external output filters and brake resistors.

The ACS880-01 is also available with marine type approval from various key classification bodies.

Wall-mounted ACS880-01 drives
- Power ratings: 0.55 to 250 kW
- Enclosure classes: IP20 for cabinet mounting, IP21 (as standard) for wall-mounting and IP55 for dusty and wet environments

Main options:
- C2 and C3 EMC filters, see page 61
- Brake chopper (as standard in frames R1 to R4), see page 68
- Brake resistor, see page 68
- Marine type approval from various key classification bodies
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Functional safety modules, see page 58
- Remote monitoring tool, see page 56
- Application specific software, see page 16
- Du/dt filters, see page 76
- Sine filters, see page 62
- Flange (push through) mounting

The drives have an extensive selection of built-in features and options. See page 86.

Highlights
- Wide power range supporting wall-mounting, 0.55 to 250 kW
- Enclosure classes up to IP55
- Compact, single package with all the essential features built-in
- Easy installation for different environments
- Robust and reliable design
- Optional marine type approved version

Ratings, types and voltages
Wall-mounted drives, ACS880-01

D

U_N = 230 V (range 208 to 240 V). The power ratings are valid at nominal voltage 230 V (0.55 to 75 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-01-04A6-2	R1	4.6	6.3	0.75	4.4	0.75	3.7	0.55	50	73	44
ACS880-01-06A6-2	R1	6.6	7.8	1.1	6.3	1.1	4.6	0.75	50	94	44
ACS880-01-07A5-2	R1	7.5	11.2	1.5	7.1	1.5	6.6	1.1	50	122	44
ACS880-01-10A6-2	R1	10.6	12.8	2.2	10.1	2.2	7.5	1.5	50	172	44
ACS880-01-16A8-2	R2	16.8	18.0	4.0	16.0	4.0	10.6	2.2	59	232	88
ACS880-01-24A3-2	R2	24.3	28.6	5.5	23.1	5.5	16.8	4	59	337	88
ACS880-01-031A-2	R3	31.0	41	7.5	29.3	7.5	24.3	5.5	60	457	134
ACS880-01-046A-2	R4	46	64	11	44	11	38	7.5	64	500	134
ACS880-01-061A-2	R4	61	76	15	58	15	45	11	64	630	280
ACS880-01-075A-2	R5	75	104	18.5	71	18.5	61	15	64	680	280
ACS880-01-087A-2	R5	87	122	22	83	22	72	18.5	64	730	280
ACS880-01-115A-2	R6	115	148	30	109	30	87	22	68	840	435
ACS880-01-145A-2	R6	145	178	37	138	37	105	30	68	940	435
ACS880-01-170A-2	R7	170	247	45	162	45	145	37	67	1260	450
ACS880-01-206A-2	R7	206	287	55	196	55	169	45	67	1500	450
ACS880-01-274A-2	R8 [3]	274	362	75	260	75	213	55	68	2100	550

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (0.55 to 250 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-01-02A4-3	R1	2.4	3.1	0.75	2.3	0.75	1.8	0.55	50	30	44
ACS880-01-03A3-3	R1	3.3	4.1	1.1	3.1	1.1	2.4	0.75	50	40	44
ACS880-01-04A0-3	R1	4.0	5.6	1.5	3.8	1.5	3.3	1.1	50	52	44
ACS880-01-05A6-3	R1	5.6	6.8	2.2	5.3	2.2	4.0	1.5	50	73	44
ACS880-01-07A2-3	R1	8.0	9.5	3	7.6	3	5.6	2.2	50	94	44
ACS880-01-09A4-3	R1	10	12.2	4	9.5	4	8.0	3	50	122	44
ACS880-01-12A6-3	R1	12.9	16	5.5	12	5.5	10	4	50	172	44
ACS880-01-017A-3	R2	17	21	7.5	16	7.5	12.6	5,5	59	232	88
ACS880-01-025A-3	R2	25	29	11	24	11	17	7.5	59	337	88
ACS880-01-032A-3	R3	32	42	15	30	15	25	11	60	457	134
ACS880-01-038A-3	R3	38	54	18.5	36	18.5	32	15	60	562	134
ACS880-01-045A-3	R4	45	64	22	43	22	38	18.5	64	667	134
ACS880-01-061A-3	R4	61	76	30	58	30	45	22	64	907	280
ACS880-01-072A-3	R5	72	104	37	68	37	61	30	64	1117	280
ACS880-01-087A-3	R5	87	122	45	83	45	72	37	64	1120	280
ACS880-01-105A-3	R6	105	148	55	100	55	87	45	68	1295	435
ACS880-01-145A-3	R6	145	178	75	138	75	105	55	68	1440	435
ACS880-01-169A-3	R7	169	247	90	161	90	145	75	67	1940	450
ACS880-01-206A-3	R7	206	287	110	196	110	169	90	67	2310	450
ACS880-01-246A-3	R8	246	350	132	234	132	206	110	68	3300	550
ACS880-01-293A-3	R8 [3]	293	418	160	278	160	246 [1]	132	68	3900	550
ACS880-01-363A-3	R9 [6]	363	498	200	345	200	293	160	70	4800	1150
ACS880-01-430A-3	R9 [5]	430	545	250	400	200	363 [2]	200	70	6000	1150

D

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (0.55 to 250 kW).											
Drive type	**Frame size**	**Nominal ratings**			**Light overload use**		**Heavy-duty use**		**Noise level**	**Heat dissipation**	**Air flow**
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m^3/h)
ACS880-01-02A1-5	R1	2.1	3.1	0.75	2.0	0.75	1.7	0.55	50	30	44
ACS880-01-03A0-5	R1	3.0	4.1	1.1	2.8	1.1	2.1	0.75	50	40	44
ACS880-01-03A4-5	R1	3.4	5.6	1.5	3.2	1.5	3.0	1.1	50	52	44
ACS880-01-04A8-5	R1	4.8	6.8	2.2	4.6	2.2	3.4	1.5	50	73	44
ACS880-01-05A2-5	R1	5.2	9.5	3	4.9	3	4.8	2.2	50	94	44
ACS880-01-07A6-5	R1	7.6	12.2	4	7.2	4	5.2	3	50	122	44
ACS880-01-11A0-5	R1	11	16	5.5	10.4	5.5	7.6	4	50	172	44
ACS880-01-014A-5	R2	14	21	7.5	13	7.5	11	5.5	59	232	88
ACS880-01-021A-5	R2	21	29	11	19	11	14	7.5	59	337	88
ACS880-01-027A-5	R3	27	42	15	26	15	21	11	60	457	134
ACS880-01-034A-5	R3	34	54	18.5	32	18.5	27	15	60	562	134
ACS880-01-040A-5	R4	40	64	22	38	22	34	19	64	667	134
ACS880-01-052A-5	R4	52	76	30	49	30	40	22	64	907	280
ACS880-01-065A-5	R5	65	104	37	62	37	52	30	64	1117	280
ACS880-01-077A-5	R5	77	122	45	73	45	65	37	64	1120	280
ACS880-01-096A-5	R6	96	148	55	91	55	77	45	68	1295	435
ACS880-01-124A-5	R6	124	178	75	118	75	96	55	68	1440	435
ACS880-01-156A-5	R7	156	247	90	148	90	124	75	67	1940	450
ACS880-01-180A-5	R7	180	287	110	171	110	156	90	67	2310	450
ACS880-01-240A-5	R8 [4)]	240	350	132	228	132	180	110	68	3300	550
ACS880-01-260A-5	R8 [3)]	260	418	160	247	160	240 [1)]	132	68	3900	550
ACS880-01-361A-5	R9 [6)]	361	542	200	343	200	302	200	70	4800	1150
ACS880-01-414A-5	R9 [5)]	414	542	250	393	250	361 [2)]	200	70	6000	1150

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (4 to 250 kW).											
Drive type	**Frame size**	**Nominal ratings**			**Light overload use**		**Heavy-duty use**		**Noise level**	**Heat dissipation**	**Air flow**
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m^3/h)
ACS880-01-07A4-7	R3	7.4	12.2	5.5	7.0	5.5	5.6	4	60	114	134
ACS880-01-09A9-7	R3	9.9	18	7.5	9.4	7.5	7.4	5.5	60	143	134
ACS880-01-14A3-7	R3	14.3	22	11	13.6	11	9.9	7.5	60	207	134
ACS880-01-019A-7	R3	19	28.9	15	18.1	15	14.3	11	60	274	134
ACS880-01-023A-7	R3	23	38	18.5	21.9	18.5	19	15	60	329	134
ACS880-01-027A-7	R3	27	46	22	25.7	22	23	18.5	60	405	134
ACS880-01-035A-7	R5	35	64	30	33	30	26	22	64	864	280
ACS880-01-042A-7	R5	42	70	37	40	37	35	30	64	998	280
ACS880-01-049A-7	R5	49	71	45	47	45	42	37	64	1120	280
ACS880-01-061A-7	R6	61	104	55	58	55	49	45	68	1295	435
ACS880-01-084A-7	R6	84	124	75	80	75	61	55	68	1440	435
ACS880-01-098A-7	R7	98	168	90	93	90	84	75	67	1940	450
ACS880-01-119A-7	R7	119	198	110	113	110	98	90	67	2310	450
ACS880-01-142A-7	R8	142	250	132	135	132	119	110	68	3300	550
ACS880-01-174A-7	R8 [3)]	174	274	160	165	160	142	132	68	3900	550
ACS880-01-210A-7	R9 [7)]	210	384	200	200	200	174	160	70	4200	1150
ACS880-01-271A-7	R9 [5)]	271	411	250	257	250	210	200	70	4800	1150

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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 55 °C) the derating is 1%/1 °C.

[1] 130% overload
[2] 125% overload
[3] For drives with enclosure class IP55 the ratings apply at 40 °C ambient temperature .
At higher temperature the derating is from 40 to 45 °C 1%/1 °C and 45 to 55 °C 2.5%/1 °C.
[4] For drives with enclosure class IP55 the ratings apply at 40 °C ambient temperature.
At higher temperature the derating is from 40 to 50 °C 1%/1 °C and 50 to 55 °C 2.5%/1 °C.
[5] For drives with enclosure class IP55 the maximum ambient temperature is 35 °C
[6] For drives with enclosure class IP55 the ratings apply at 40 °C ambient temperature.
At higher temperatures the derating is from 40 to 45 °C.
1%/1 °C and 45 to 50 °C 2.5%/1 °C and 50 to 55 °C 5%/1 °C.
[7] For drives with IP55 enclosure class the ratings apply at 40 °C ambient temperature.
At higher temperatures the derating is from 40 to 45 °C 3.5%/1 °C.
Note: Maximum ambient temperature is 45 °C.
[8] 135% overload

Cabinet-built single drives
ACS880-07

—
01
ACS880-07
frame size R6 to R8, IP22
—
02
ACS880-07
frame size R9, IP22

—
01

—
02

Our cabinet-built single drives are built to order, meeting your needs regardless of the technical challenges. The drive configuration includes a rectifier, DC link, inverter, fuses, line choke and a main switch, all built into a compact cabinet for easy assembly and commissioning.

The ACS880-07 offers a wide variety of standardized configurations for different application requirements, from line contactors, to preventing unexpected motor starts. If the application requires more, ABB's Order-Based Engineering services can add special features to the standard product, such as an additional cabinet for customer-specific devices.

Drives up to frame size R11 are based on a compact single module including rectifier and inverter. Larger drives consist of separate rectifier and inverter modules, providing redundancy with parallel connected units. If one module needs to be disconnected, the drive can continue running at reduced power.

The robust design and enclosures up to IP54 make the ACS880-07 suitable for even very harsh environments.

Cabinet-built ACS880-07 drives
- Power ratings: 45 to 2800 kW
- Enclosure classes IP22 (as standard), IP42 and IP54 for different environments, with option for air intake through the bottom of the cabinet and channeled air outlet on the top of the cabinet

Main options:
- Cabling solutions for bottom and top entry and exit
- Functional safety modules, see page 58
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Brake option inside the module or cabinet, see page 68
- C2 and C3 EMC filters, see page 61
- Du/dt and common mode filter options for motor protection, see page 76
- Marine construction option
- Cabinet light and heater option

The drives have an extensive selection of built-in features and options. See page 86.

Highlights
- Compact package for easy assembly and commissioning
- Available as an engineered, customer-specific solution
- All essential features built-in
- Robust design verified by various standards

Ratings, types and voltages
Cabinet-built drives, ACS880-07

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (45 to 1400 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
6-pulse diode											
ACS880-07-0105A-3	R6	105	148	55	100	55	87	45	67	1795	1750
ACS880-07-0145A-3	R6	145	178	75	138	75	105	55	67	1940	1750
ACS880-07-0169A-3	R7	169	247	90	161	90	145	75	67	2440	1750
ACS880-07-0206A-3	R7	206	287	110	196	110	169	90	67	2810	1750
ACS880-07-0246A-3	R8	246	350	132	234	132	206	110	65	3800	1750
ACS880-07-0293A-3	R8	293	418	160	278	160	246 [1]	132	65	4400	1750
ACS880-07-0363A-3	R9	363	498	200	345	200	293	160	68	5300	1150
ACS880-07-0430A-3	R9	430	545	250	400	200	363 [2]	200	68	6500	1150
ACS880-07-0505A-3	R10	505	560	250	485	250	361	200	72	6102	2950
ACS880-07-0585A-3	R10	585	730	315	575	315	429	250	72	6909	2950
ACS880-07-0650A-3	R10	650	730	355	634	355	477	250	72	8622	2950
ACS880-07-0725A-3	R11	725	1020	400	715	400	566	315	72	9264	2950
ACS880-07-0820A-3	R11	820	1020	450	810	450	625	355	72	10362	2950
ACS880-07-0880A-3	R11	880	1100	500	865	500	725 [3]	400	71	11078	3170
ACS880-07-1140A-3	D8T+2×R8i	1140	1490	630	1072	560	787	450	73	18000	4290
ACS880-07-1250A-3	2×D8T+2×R8i	1250	1630	710	1200	630	935	500	74	21000	5720
ACS880-07-1480A-3	2×D8T+2×R8i	1480	1930	800	1421	800	1107	630	74	25000	5720
ACS880-07-1760A-3	2×D8T+2×R8i	1760	2120	1000	1690	900	1316	710	74	29000	5720
ACS880-07-2210A-3	3×D8T+3×R8i	2210	2880	1200	2122	1200	1653	900	76	37000	8580
ACS880-07-2610A-3	3×D8T+3×R8i	2610	3140	1400	2506	1400	1952	1000	76	44000	8580
12-pulse diode											
ACS880-07-0990A-3+A004	2×D7T+2×R8i	990	1290	560	950	500	741	400	73	15000	5720
ACS880-07-1140A-3+A004	2×D8T+2×R8i	1140	1490	630	1094	560	853	450	74	19000	5720
ACS880-07-1250A-3+A004	2×D8T+2×R8i	1250	1630	710	1200	630	935	500	74	21000	5720
ACS880-07-1480A-3+A004	2×D8T+2×R8i	1480	1930	800	1421	800	1107	630	74	25000	5720
ACS880-07-1760A-3+A004	2×D8T+2×R8i	1760	2120	1000	1690	900	1316	710	74	29000	5720
ACS880-07-2210A-3+A004	4×D8T+3×R8i	2210	2880	1200	2122	1200	1653	900	76	35000	10010
ACS880-07-2610A-3+A004	4×D8T+3×R8i	2610	3140	1400	2506	1400	1952	1000	76	44000	10010

[1] = 130% overload
[2] = 125% overload
[3] = 140% overload

E

E

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (45 to 1400 kW).											
Drive type	**Frame size**	**Nominal ratings**			**Light overload use**		**Heavy-duty use**		**Noise level**	**Heat dissipation**	**Air flow**
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m^3/h)
6-pulse diode											
ACS880-07-0096A-5	R6	96	148	55	91	55	77	45	67	1795	1750
ACS880-07-0124A-5	R6	124	178	75	118	75	96	55	67	1940	1750
ACS880-07-0156A-5	R7	156	247	90	148	90	124	75	67	2440	1750
ACS880-07-0180A-5	R7	180	287	110	171	110	156	90	67	2810	1750
ACS880-07-0240A-5	R8	240	350	132	228	132	180	110	65	3800	1750
ACS880-07-0260A-5	R8	260	418	160	247	160	240 [1)]	132	65	4400	1750
ACS880-07-0361A-5	R9	361	542	200	343	200	302	200	68	5300	1150
ACS880-07-0414A-5	R9	414	542	250	393	250	361 [2)]	200	68	6500	1150
ACS880-07-0460A-5	R10	460	560	315	450	315	330	200	72	4903	2950
ACS880-07-0503A-5	R10	503	560	355	483	315	361	250	72	6102	2950
ACS880-07-0583A-5	R10	583	730	400	573	400	414	250	72	6909	2950
ACS880-07-0635A-5	R10	635	730	450	623	450	477	315	72	8622	2950
ACS880-07-0715A-5	R11	715	850	500	705	500	566	400	72	9264	2950
ACS880-07-0820A-5	R11	820	1020	560	807	560	625	450	71	10362	2950
ACS880-07-0880A-5	R11	880	1100	630	857	560	697	500	71	11078	2950
ACS880-07-1070A-5	D8T+2×R8i	1070	1400	710	1027	710	800	560	73	18000	4290
ACS880-07-1320A-5	2×D8T+2×R8i	1320	1720	900	1267	900	987	710	74	22000	5720
ACS880-07-1450A-5	2xD8T+2xR8i	1450	1890	1000	1392	900	1085	710	74	25800	5720
ACS880-07-1580A-5	2×D8T+2×R8i	1580	2060	1100	1517	1000	1182	800	74	27000	5720
ACS880-07-1800A-5	2×D8T+3×R8i	1800	2340	1250	1728	1200	1346	900	75	32000	7150
ACS880-07-1980A-5	2×D8T+3×R8i	1980	2580	1400	1901	1300	1481	1000	75	36000	7150
12-pulse diode											
ACS880-07-0990A-5+A004	2×D7T+2×R8i	990	1290	710	950	630	741	500	73	16000	5720
ACS880-07-1320A-5+A004	2×D8T+2×R8i	1320	1720	900	1267	900	987	710	74	22000	5720
ACS880-07-1450A-5+A004	2×D8T+2×R8i	1450	1890	1000	1392	900	1085	710	74	25000	5720
ACS880-07-1580A-5+A004	2×D8T+2×R8i	1580	2060	1100	1517	1000	1182	800	74	27000	5720
ACS880-07-1800A-5+A004	2×D8T+3×R8i	1800	2340	1250	1728	1200	1346	900	75	32000	7150
ACS880-07-1980A-5+A004	2×D8T+3×R8i	1980	2580	1400	1901	1300	1481	1000	75	36000	7150

[1)] =130% overload
[2)] = 125% overload

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (45 to 2800 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
6-pulse diode											
ACS880-07-0061A-7	R6	61	104	55	58	55	49	45	67	1795	1750
ACS880-07-0084A-7	R6	84	124	75	80	75	61	55	67	1940	1750
ACS880-07-0098A-7	R7	98	168	90	93	90	84	75	67	2440	1750
ACS880-07-0119A-7	R7	119	198	110	113	110	98	90	67	2810	1750
ACS880-07-0142A-7	R8	142	250	132	135	132	119	110	65	3800	1750
ACS880-07-0174A-7	R8	174	274	160	165	160	142	132	65	4400	1750
ACS880-07-0210A-7	R9	210	384	200	200	200	174	160	68	4700	1150
ACS880-07-0271A-7	R9	271	411	250	257	250	210	200	68	5300	1150
ACS880-07-0330A-7	R10	330	480	315	320	315	255	250	72	5640	2950
ACS880-07-0370A-7	R10	370	520	355	360	355	325	315	72	6371	2950
ACS880-07-0430A-7	R10	430	520	400	420	400	360 [4)]	355	72	7570	2950
ACS880-07-0470A-7	R11	470	655	450	455	450	415	400	72	6611	2950
ACS880-07-0522A-7	R11	522	655	500	505	500	455	450	72	7388	2950
ACS880-07-0590A-7	R11	590	800	560	571	560	505	500	71	8971	2950
ACS880-07-0650A-7	R11	650	820	630	630	630	571 [4)]	560	71	9980	3170
ACS880-07-0721A-7	R11	721	820	710	705	630	571 [4)]	560	71	11177	3170
ACS880-07-0800A-7	D8T+2×R8i	800	1200	800	768	710	598	560	73	16000	4290
ACS880-07-0900A-7	D8T+2×R8i	900	1350	900	864	800	673	630	74	20000	4290
ACS880-07-1160A-7	2×D8T+2×R8i	1160	1740	1100	1114	1100	868	800	74	26000	5720
ACS880-07-1450A-7	2×D8T+3×R8i	1450	2180	1400	1392	1250	1085	1000	75	32000	7150
ACS880-07-1650A-7	2×D8T+3×R8i	1650	2480	1600	1584	1500	1234	1200	75	36500	7150
ACS880-07-1950A-7	3×D8T+4×R8i	1950	2930	1900	1872	1800	1459	1400	76	44000	10010
ACS880-07-2300A-7	3×D8T+4×R8i	2300	3450	2200	2208	2000	1720	1600	76	52000	10010
ACS880-07-2600A-7	4×D8T+5×R8i	2600	3900	2500	2496	2400	1945	1900	78	58000	12870
ACS880-07-2860A-7	4×D8T+5×R8i	2860	4290	2800	2746	2600	2139	2000	78	65000	12870
12-pulse diode											
ACS880-07-0800A-7+A004	2×D7T+2×R8i	800	1200	800	768	710	598	560	73	16000	5720
ACS880-07-0950A-7+A004	2×D8T+2×R8i	950	1430	900	912	800	711	630	74	20000	5720
ACS880-07-1160A-7+A004	2×D8T+2×R8i	1160	1740	1100	1114	1100	868	800	74	26000	5720
ACS880-07-1450A-7+A004	2×D8T+3×R8i	1450	2180	1400	1392	1250	1085	1000	75	32000	7150
ACS880-07-1650A-7+A004	2×D8T+3×R8i	1650	2480	1600	1584	1500	1234	1200	75	36500	7150
ACS880-07-1950A-7+A004	4×D8T+4×R8i	1950	2930	1900	1872	1800	1459	1400	77	44000	11440
ACS880-07-2300A-7+A004	4×D8T+4×R8i	2300	3450	2200	2208	2000	1720	1600	77	52000	11440
ACS880-07-2600A-7+A004	4×D8T+5×R8i	2600	3900	2500	2496	2400	1945	1900	78	58000	12870
ACS880-07-2860A-7+A004	4×D8T+5×R8i	2860	4290	2800	2746	2600	2139	2000	78	65000	12870

[4)] = 144% overload

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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.
Operation above 150 Hz might require type specific derating.

E

Regenerative drives
ACS880-11 and ACS880-17

—
01 Speed and power curves in cyclic operation

Energy savings
The ACS880-11/17 is a compact and complete regenerative drive solution with everything you need for regenerative operation in cyclic or continuous braking applications. With regenerative functionality, the braking energy of the motor is returned to the drive and distributed to the supply network so that it can be utilized by other equipment. Compared to mechanical or resistor braking, where braking energy is wasted as heat, regenerative drive operation offers significant savings in energy consumption and cooling.

The drive reaches a unity power factor. This high power factor indicates that electrical energy is used to its full potential.

—
Possibility to regenerate 100% of power continuously

Minimized downtime
Regenerative drive offers immunity to network disturbances. The drive will not interrupt the process or affect its quality in unstable supply network conditions. Drive's active supply unit is able to boost output voltage, enabling full motor voltage even when the supply voltage is below nominal. The drive can even compensate for rapid variations in supply voltage, ensuring reliable operation during network fluctuations. Voltage boost capability can also be utilized to overcome a voltage drop caused by long supply or motor cables or output filters.

Optimized cost and space
Everything needed for regenerative operation, such as an active supply unit and low harmonic line filter are integrated into the drive, and no external braking devices are needed.

Advantages:
- Quick, easy drive installation
- Small installation footprint
- No need to add cooling to handle the heat generated by mechanical or resistor braking
- Simplified wiring
- Less spare parts needed

The "all inside" design helps to cut engineering and assembly time, as well as to reduce equipment costs and the risk of errors.

The drive's voltage boost capability can be an advantage in motor dimensioning. With a higher motor voltage, the same power is achieved with less current, which may allow a smaller motor to be used.

The drive offers a possibility for network power factor correction to compensate for low power factors of equipment connected to the same network. It reduces the need for additional power factor correction equipment, such as filters and large capacitor banks. It can also help to avoid penalty charges from electrical utilities for poor power factors.

Maximized motor performance and efficiency
The drive is able to provide full motor voltage in all conditions. Regeneration can occur for as long as necessary and as often as needed.

The drive features direct torque control (DTC) as standard, making it suitable also for very demanding applications. DTC provides precise speed and torque control for maximum motor performance and motor efficiency.

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01

Low harmonic content
The drive produces exceptionally low harmonic content and exceeds the requirements of even the most stringent harmonic recommendations, like IEEE 519, IEC 61000-3-2, IEC 61000-3-12 and G5/4. Compared to conventional drives, the harmonic content is up to 97% lower. The total harmonic current distortion is typically <3% in nominal situation and undistorted network.

For more information, visit https://new.abb.com/drives/regenerativedrives.

F

Wall-mounted regenerative drives, ACS880-11
- Power ratings: 2.2 to 110 kW
- Enclosure classes: IP20 for cabinet mounting, IP21 (as standard) for wall-mounting and IP55 for dusty and wet environments

Main options:
- Flange (push through) mounting
- C2 and C3 EMC filters, see page 61
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Functional safety modules, see page 58
- Remote monitoring tool, see page 56
- Application specific software, see page 16
- Du/dt filters, see page 76
- Sine filters, see page 62

Cabinet-built regenerative drives, ACS880-17
- Power ratings: 45 to 3200 kW
- Enclosure classes: IP22 (as standard), IP42 and IP54 for different environments, with option for air intake through bottom of the cabinet and channeled air outlet on the top of the cabinet

Main options:
- EMC filters, see page 61 (as standard for nxR8i)
- Cabling solutions for bottom and top entry and exit
- Functional safety modules, see page 58
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Du/dt and common mode filter options for motor protection, see page 76
- Marine construction option
- Cabinet light and heater option

The drives have an extensive selection of built-in features and options. See page 86.

Highlights
- Everything for regenerative operation in one compact package. Designed for easy installation
- Possibility to regenerate 100% of the power continuously
- The total harmonic current distortion is typically <3% in nominal situation and undistorted network
- Clear energy savings compared to other braking methods
- Reduced cost of ownership
- Unity power factor. Possibility also for network power factor correction
- Stable output voltage in all load conditions, even with fluctuating supply voltage

Ratings, types and voltages

Wall-mounted regenerative drives, ACS880-11

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (3 to 110 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-11-09A4-3	R3	10	13.6	4	9.5	4	8	3	57	226	361
ACS880-11-12A6-3	R3	12.9	17	5.5	12	5.5	10	4	57	329	361
ACS880-11-017A-3	R3	17	21.9	7.5	16	7.5	12.9	5.4	57	395	361
ACS880-11-025A-3	R3	25	28.8	11	24	11	17	7.5	57	579	361
ACS880-11-032A-3	R6	32	42.5	15	30	15	25	11	71	625	550
ACS880-11-038A-3	R6	38	54.4	18.5	36	18.5	32	15	71	751	550
ACS880-11-045A-3	R6	45	64.6	22	43	22	38	18.5	71	912	550
ACS880-11-061A-3	R6	61	76.5	30	58	30	45	22	71	1088	550
ACS880-11-072A-3	R6	72	103.7	37	68	37	61	30	71	1502	550
ACS880-11-087A-3	R6	87	122.4	45	83	45	72	37	71	1904	550
ACS880-11-105A-3	R8	105	148	55	100	55	87	45	68	1877	700
ACS880-11-145A-3	R8	145	178	75	138	75	105	55	68	2963	700
ACS880-11-169A-3	R8	169	247	90	161	90	145	75	68	3168	700
ACS880-11-206A-3	R8	206	287	110	196	110	169	90	68	3990	805

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (2.2 to 110 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-11-07A6-5	R3	7.6	9.5	4	7.2	4	5.2	2.2	57	219	361
ACS880-11-11A0-5	R3	11	13.8	5.5	10.4	5.5	7.6	4	57	278	361
ACS880-11-014A-5	R3	14	18.7	7.5	13	7.5	11	5.5	57	321	361
ACS880-11-021A-5	R3	21	26.3	11	19	11	14	7.5	57	473	361
ACS880-11-027A-5	R6	27	35.7	15	26	15	21	11	71	625	550
ACS880-11-034A-5	R6	34	45.9	18.5	32	18.5	27	15	71	711	550
ACS880-11-040A-5	R6	40	57.8	22	38	22	34	18.5	71	807	550
ACS880-11-052A-5	R6	52	68	30	49	30	40	22	71	960	550
ACS880-11-065A-5	R6	65	88.4	37	62	37	52	30	71	1223	550
ACS880-11-077A-5	R6	77	110.5	45	73	45	65	37	71	1560	550
ACS880-11-101A-5	R8	101	148	55	91	55	77	45	68	1995	700
ACS880-11-124A-5	R8	124	178	75	118	75	96	55	68	2800	700
ACS880-11-156A-5	R8	156	247	90	148	90	124	75	68	3168	700
ACS880-11-180A-5	R8	180	287	110	171	110	156	90	68	3872	805

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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 55 °C) the derating is 1%/1 °C.

F

Ratings, types and voltages

Cabinet-built regenerative drives, ACS880-17

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (45 to 1400 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-17-0105A-3	R8	105	148	55	100	55	87	45	70	2200	700
ACS880-17-0145A-3	R8	145	178	75	138	75	105	55	70	3300	700
ACS880-17-0169A-3	R8	169	247	90	161	90	145	75	70	3570	700
ACS880-17-0206A-3	R8	206	287	110	196	110	169	90	70	4440	805
ACS880-17-0293A-3	R11	293	418	160	278	160	246	132	77	6900	2100
ACS880-17-0363A-3	R11	363	498	200	345	200	293	160	77	8500	2100
ACS880-17-0442A-3	R11	442	621	250	420	250	363	200	77	10500	2100
ACS880-17-0505A-3	R11	505	631	250	480	250	363	200	77	10600	2100
ACS880-17-0585A-3	R11	585	751	315	556	315	442	250	77	13200	2100
ACS880-17-0650A-3	R11	650	859	355	618	355	505	250	77	14800	2100
ACS880-17-0450A-3	1xR8i+1xR8i	450	590	250	432	200	337	160	75	11000	3760
ACS880-17-0620A-3	1xR8i+1xR8i	620	810	355	595	315	464	250	75	16000	3760
ACS880-17-0870A-3	1xR8i+1xR8i	870	1050	500	835	450	651	355	75	23000	3760
ACS880-17-1110A-3	2×R8i+2xR8i	1110	1450	630	1066	560	830	450	77	27000	7220
ACS880-17-1210A-3	2×R8i+2xR8i	1210	1580	710	1162	630	905	500	77	29000	7220
ACS880-17-1430A-3	2×R8i+2xR8i	1430	1860	800	1373	710	1070	560	77	34000	7220
ACS880-17-1700A-3	2×R8i+2xR8i	1700	2040	1000	1632	900	1272	710	77	45000	7220
ACS880-17-2060A-3	3×R8i+3xR8i	2060	2680	1200	1978	1100	1541	800	78	56000	11580
ACS880-17-2530A-3	3×R8i+3xR8i	2530	3040	1400	2429	1200	1892	1000	78	68000	11580

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (45 to 1600 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-17-0101A-5	R8	101	148	55	91	55	77	45	70	2300	700
ACS880-17-0124A-5	R8	124	178	75	118	75	96	55	70	3100	700
ACS880-17-0156A-5	R8	156	247	90	148	90	124	75	70	3500	700
ACS880-17-0180A-5	R8	180	287	110	171	110	156	90	70	4300	805
ACS880-17-0260A-5	R11	260	418	160	247	160	240	132	77	6900	2100
ACS880-17-0361A-5	R11	361	542	200	343	200	260	160	77	8500	2100
ACS880-17-0414A-5	R11	414	614	250	393	250	361	200	77	10500	2100
ACS880-17-0460A-5	R11	460	660	315	450	315	414	250	77	13100	2100
ACS880-17-0503A-5	R11	503	725	355	492	355	460	315	77	14800	2100
ACS880-17-0420A-5	1xR8i+1xR8i	420	550	250	403	250	314	200	75	11000	3760
ACS880-17-0570A-5	1xR8i+1xR8i	570	750	400	547	355	426	250	75	15000	3760
ACS880-17-0780A-5	1xR8i+1xR8i	780	1020	560	749	500	583	400	75	21000	3760
ACS880-17-1010A-5	2×R8i+2xR8i	1010	1320	710	970	630	755	500	77	27000	7220
ACS880-17-1110A-5	2×R8i+2xR8i	1110	1450	800	1066	710	830	560	77	28000	7220
ACS880-17-1530A-5	2×R8i+2xR8i	1530	1990	1100	1469	1000	1144	800	77	41000	7220
ACS880-17-1980A-5	3×R8i+3xR8i	1980	2580	1400	1901	1300	1481	1000	78	51000	11580
ACS880-17-2270A-5	3×R8i+3xR8i	2270	2960	1600	2179	1500	1698	1200	78	60000	11580

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (132 to 3200 kW).											
Drive type	**Frame size**	**Nominal ratings**			**Light overload use**		**Heavy-duty use**		**Noise level**	**Heat dissipation**	**Air flow**
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m^3/h)
ACS880-17-0174A-7	R11	174	274	160	165	160	142	132	77	6900	2100
ACS880-17-0210A-7	R11	210	384	200	200	200	174	160	77	8500	2100
ACS880-17-0271A-7	R11	271	411	250	257	250	210	200	77	10500	2100
ACS880-17-0330A-7	R11	330	480	315	320	315	271	250	77	13000	2100
ACS880-17-0370A-7	R11	370	520	355	360	355	330	315	77	14700	2100
ACS880-17-0430A-7	R11	430	520	400	420	400	370	355	77	16500	2100
ACS880-17-0320A-7	1xR8i+1xR8i	320	480	315	307	250	239	200	75	13000	3760
ACS880-17-0390A-7	1xR8i+1xR8i	390	590	355	374	355	292	250	75	16000	3760
ACS880-17-0580A-7	1xR8i+1xR8i	580	870	560	557	500	434	400	75	23000	3760
ACS880-17-0660A-7	2×R8i+2xR8i	660	990	630	634	560	494	450	77	26000	7220
ACS880-17-0770A-7	2×R8i+2xR8i	770	1160	710	739	710	576	560	77	29000	7220
ACS880-17-0950A-7	2×R8i+2xR8i	950	1430	900	912	800	711	710	77	38000	7220
ACS880-17-1130A-7	2×R8i+2xR8i	1130	1700	1100	1085	1000	845	800	77	44000	7220
ACS880-17-1450A-7	3×R8i+3xR8i	1450	2180	1400	1392	1300	1085	1000	78	54000	11580
ACS880-17-1680A-7	3×R8i+3xR8i	1680	2520	1600	1613	1500	1257	1200	78	64000	11580
ACS880-17-1950A-7	4×R8i+4xR8i	1950	2930	1900	1872	1800	1459	1400	79	80000	14440
ACS880-17-2230A-7	4×R8i+4xR8i	2230	3350	2200	2141	2000	1668	1600	79	88000	14440
ACS880-17-2770A-7	6×R8i+5xR8i	2770	4160	2700	2659	2600	2072	2000	79	113000	18800
ACS880-17-3310A-7	6×R8i+6xR8i	3310	4970	3200	3178	3000	2476	2400	79	132000	21660

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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. Operation above 150 Hz might require type-specific derating.

F

Ultra-low harmonic drives
ACS880-31 and ACS880-37

Harmonic distortions can disturb or even damage sensitive equipment connected in the same environment. Harmonics also cause additional losses in the network.

Clean supply network
Our ultra-low harmonic drive produces exceptionally low harmonic content and exceeds the requirements of harmonic recommendations like IEEE 519 and G5/4. Compared to a conventional drive, the harmonic content is reduced by up to 97%. The total harmonic current distortion is typically <3% in nominal situation and undistorted network.

Keeps the network clean

Minimized downtime
ABB's ultra-low harmonic drive offers immunity to network disturbances. The drive will not interrupt the process or affect its quality in unstable supply network conditions. Drives' active supply unit is able to boost the output voltage to enable full motor voltage even when the supply voltage is below nominal. This ensures reliable operation in weak networks. This voltage boost capability can also be utilized to overcome voltage drops caused by long supply or motor cables.

The possibility to stabilize the output voltage of the drive is an advantage compared to alternative low harmonic solutions where voltage cannot be boosted.

Optimized cost and space
The compact drive has harmonics mitigation built-in. This includes an active supply unit and integrated low harmonic line filter.

The "all Inside" design means there is no need for external filters, multi-pulse arrangements or special transformers. The simple installation offers significant savings in space, time and cost.

As the risk of overheating is lower with lower harmonic currents, there is no need to over-dimension equipment, such as transformers and cables.

The drive's voltage boost capability can be an advantage in motor dimensioning. With a higher motor voltage, the same power is achieved with less current, which improves motor efficiency and may allow a smaller motor to be used.

Maximized motor performance and efficiency
The drive is able to provide full motor voltage even if the supply voltage fluctuates. It features direct torque control (DTC) as standard, making it suitable also for very demanding applications. DTC provides precise speed and torque control for maximum motor performance and motor efficiency.

Reduces the total cost of ownership

Efficient energy utilization
Ultra-low harmonic drives achieve a unity power factor. This high power factor indicates that electrical energy is used efficiently.

The drive offers the possibility for network power factor correction to compensate for low power factors of equipment connected to the same network. It can help to avoid penalty charges set by electrical utilities for poor power factors.

Lower harmonics and full motor voltage at all times means reduced system losses and better overall system efficiency.

For more information, visit http://new.abb.com/drives/harmonics.

Wall-mounted ultra-low harmonic drives, ACS880-31

- Power ratings: 2.2 to 110 kW
- Enclosure classes: IP20 for cabinet mounting, IP21 (as standard) for wall-mounting and IP55 for dusty and wet environments

Main options:

- Flange mounting
- C2 and C3 EMC filters, see page 61
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Functional safety modules, see page 58
- Remote monitoring tool, see page 56
- Application-specific software, see page 16
- Du/dt filters, see page 76
- Sine filters, see page 62

Cabinet-built ultra-low harmonic drives, ACS880-37

- Power ratings: 45 to 3200 kW
- Enclosure classes: IP22 (as standard), IP42 and IP54 for different environments, with option for air intake through bottom of the cabinet and channeled air outlet on the top of the cabinet

Main options:

- EMC filters, see page 61 (as standard for nxR8i)
- Cabling solutions for bottom and top entry and exit
- Functional safety modules, see page 58
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Speed feedback interfaces, see page 55
- Du/dt and common mode filter options for motor protection, see page 76
- Marine construction option
- Cabinet light and heater option

The drives have an extensive selection of built-in features and options. See page 86.

Highlights

- The total harmonic current distortion is typically <3% in nominal situation and undistorted network. Low harmonic content also at partial loads
- “All inside” design: no need for external filters, multi-pulse arrangements or special transformers
- Simple and cost-effective installation
- Unity power factor. Possibility for network power factor correction
- Small installation footprint
- Output voltage stabilization secures operation in weak networks

Local
ACS880
1400.0 Rpm
Save money
Save energy
Save nerves
Save all
Exit
Select
Stop
Loc/Rem
?
Start

Ratings, types and voltages

Wall-mounted ultra-low harmonic drives, ACS880-31

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (3 to 110 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-31-09A4-3	R3	10	13.6	4	9.5	4	8	3	57	226	361
ACS880-31-12A6-3	R3	12.9	17	5.5	12	5.5	10	4	57	329	361
ACS880-31-017A-3	R3	17	21.9	7.5	16	7.5	12.9	5.4	57	395	361
ACS880-31-025A-3	R3	25	28.8	11	24	11	17	7,5	57	579	361
ACS880-31-032A-3	R6	32	42.5	15	30	15	25	11	71	625	550
ACS880-31-038A-3	R6	38	54.4	18.5	36	18.5	32	15	71	751	550
ACS880-31-045A-3	R6	45	64.6	22	43	22	38	18.5	71	912	550
ACS880-31-061A-3	R6	61	76.5	30	58	30	45	22	71	1088	550
ACS880-31-072A-3	R6	72	103.7	37	68	37	61	30	71	1502	550
ACS880-31-087A-3	R6	87	122.4	45	83	45	72	37	71	1904	550
ACS880-31-105A-3	R8	105	148	55	100	55	87	45	68	1877	700
ACS880-31-145A-3	R8	145	178.3	75	138	75	105	55	68	2963	700
ACS880-31-169A-3	R8	169	246.5	90	161	90	145	75	68	3168	700
ACS880-31-206A-3	R8	206	287.3	110	196	110	169	90	68	3990	805

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (2.2 to 110 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-31-07A6-5	R3	7.6	9.5	4	7.2	4	5.2	2.2	57	219	361
ACS880-31-11A0-5	R3	11	13.8	5.5	10.4	5.5	7.6	4	57	278	361
ACS880-31-014A-5	R3	14	18.7	7.5	13	7.5	11	5.5	57	321	361
ACS880-31-021A-5	R3	21	26.3	11	19	11	14	7.5	57	473	361
ACS880-31-027A-5	R6	27	35.7	15	26	15	21	11	71	625	550
ACS880-31-034A-5	R6	34	45.9	18.5	32	18.5	27	15	71	711	550
ACS880-31-040A-5	R6	40	57.8	22	38	22	34	18.5	71	807	550
ACS880-31-052A-5	R6	52	68	30	49	30	40	22	71	960	550
ACS880-31-065A-5	R6	65	88.4	37	62	37	52	30	71	1223	550
ACS880-31-077A-5	R6	77	110.5	45	73	45	65	37	71	1560	550
ACS880-31-101A-5	R8	101	148	55	91	55	77	45	68	1995	700
ACS880-31-124A-5	R8	124	178	75	118	75	96	55	68	2800	700
ACS880-31-156A-5	R8	156	247	90	148	90	124	75	68	3168	700
ACS880-31-180A-5	R8	180	287	110	171	110	156	90	68	3872	805

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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 55 °C) the derating is 1%/1 °C.

Ratings, types and voltages

Cabinet-built ultra-low harmonic drives, ACS880-37

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V (45 to 1400 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-37-0105A-3	R8	105	148	55	100	55	87	45	70	2200	700
ACS880-37-0145A-3	R8	145	178	75	138	75	105	55	70	3300	700
ACS880-37-0169A-3	R8	169	247	90	161	90	145	75	70	3570	700
ACS880-37-0206A-3	R8	206	287	110	196	110	169	90	70	4440	805
ACS880-37-0293A-3	R11	293	418	160	278	160	246	132	77	6900	2100
ACS880-37-0363A-3	R11	363	498	200	345	200	293	160	77	8500	2100
ACS880-37-0442A-3	R11	442	621	250	420	250	363	200	77	10500	2100
ACS880-37-0505A-3	R11	505	631	250	480	250	363	200	77	10600	2100
ACS880-37-0585A-3	R11	585	751	315	556	315	442	250	77	13200	2100
ACS880-37-0650A-3	R11	650	859	355	618	355	505	250	77	14800	2100
ACS880-37-0450A-3	1xR8i+1xR8i	450	590	250	432	200	337	160	75	11000	3760
ACS880-37-0620A-3	1xR8i+1xR8i	620	810	355	595	315	464	250	75	16000	3760
ACS880-37-0870A-3	1xR8i+1xR8i	870	1050	500	835	450	651	355	75	23000	3760
ACS880-37-1110A-3	2×R8i+2xR8i	1110	1450	630	1066	560	830	450	77	27000	7220
ACS880-37-1210A-3	2×R8i+2xR8i	1210	1580	710	1162	630	905	500	77	29000	7220
ACS880-37-1430A-3	2×R8i+2xR8i	1430	1860	800	1373	710	1070	560	77	34000	7220
ACS880-37-1700A-3	2×R8i+2xR8i	1700	2040	1000	1632	900	1272	710	77	45000	7220
ACS880-37-2060A-3	3×R8i+3xR8i	2060	2680	1200	1978	1100	1541	800	78	56000	11580
ACS880-37-2530A-3	3×R8i+3xR8i	2530	3040	1400	2429	1200	1892	1000	78	68000	11580

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V (45 to 1600 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-37-0101A-5	R8	101	148	55	91	55	77	45	70	2300	700
ACS880-37-0124A-5	R8	124	178	75	118	75	96	55	70	3100	700
ACS880-37-0156A-5	R8	156	247	90	148	90	124	75	70	3500	700
ACS880-37-0180A-5	R8	180	287	110	171	110	156	90	70	4300	805
ACS880-37-0260A-5	R11	260	418	160	247	160	240	132	77	6900	2100
ACS880-37-0361A-5	R11	361	542	200	343	200	260	160	77	8500	2100
ACS880-37-0414A-5	R11	414	614	250	393	250	361	200	77	10500	2100
ACS880-37-0460A-5	R11	460	660	315	450	315	414	250	77	13100	2100
ACS880-37-0503A-5	R11	503	725	355	492	355	460	315	77	14800	2100
ACS880-37-0420A-5	1xR8i+1xR8i	420	550	250	403	250	314	200	75	11000	3760
ACS880-37-0570A-5	1xR8i+1xR8i	570	750	400	547	355	426	250	75	15000	3760
ACS880-37-0780A-5	1xR8i+1xR8i	780	1020	560	749	500	583	400	75	21000	3760
ACS880-37-1010A-5	2×R8i+2xR8i	1010	1320	710	970	630	755	500	77	27000	7220
ACS880-37-1110A-5	2×R8i+2xR8i	1110	1450	800	1066	710	830	560	77	28000	7220
ACS880-37-1530A-5	2×R8i+2xR8i	1530	1990	1100	1469	1000	1144	800	77	41000	7220
ACS880-37-1980A-5	3×R8i+3xR8i	1980	2580	1400	1901	1300	1481	1000	78	51000	11580
ACS880-37-2270A-5	3×R8i+3xR8i	2270	2960	1600	2179	1500	1698	1200	78	60000	11580

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V (132 to 3200 kW).

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	(dB(A))	(W)	(m³/h)
ACS880-37-0174A-7	R11	174	274	160	165	160	142	132	77	6900	2100
ACS880-37-0210A-7	R11	210	384	200	200	200	174	160	77	8500	2100
ACS880-37-0271A-7	R11	271	411	250	257	250	210	200	77	10500	2100
ACS880-37-0330A-7	R11	330	480	315	320	315	271	250	77	13000	2100
ACS880-37-0370A-7	R11	370	520	355	360	355	330	315	77	14700	2100
ACS880-37-0430A-7	R11	430	520	400	420	400	370	355	77	16500	2100
ACS880-37-0320A-7	1xR8i+1xR8i	320	480	315	307	250	239	200	75	13000	3760
ACS880-37-0390A-7	1xR8i+1xR8i	390	590	355	374	355	292	250	75	16000	3760
ACS880-37-0580A-7	1xR8i+1xR8i	580	870	560	557	500	434	400	75	23000	3760
ACS880-37-0660A-7	2×R8i+2xR8i	660	990	630	634	560	494	450	77	26000	7220
ACS880-37-0770A-7	2×R8i+2xR8i	770	1160	710	739	710	576	560	77	29000	7220
ACS880-37-0950A-7	2×R8i+2xR8i	950	1430	900	912	800	711	710	77	38000	7220
ACS880-37-1130A-7	2×R8i+2xR8i	1130	1700	1100	1085	1000	845	800	77	44000	7220
ACS880-37-1450A-7	3×R8i+3xR8i	1450	2180	1400	1392	1300	1085	1000	78	54000	11580
ACS880-37-1680A-7	3×R8i+3xR8i	1680	2520	1600	1613	1500	1257	1200	78	64000	11580
ACS880-37-1950A-7	4×R8i+4xR8i	1950	2930	1900	1872	1800	1459	1400	79	80000	14440
ACS880-37-2230A-7	4×R8i+4xR8i	2230	3350	2200	2141	2000	1668	1600	79	88000	14440
ACS880-37-2770A-7	6×R8i+5xR8i	2770	4160	2700	2659	2600	2072	2000	79	113000	18800
ACS880-37-3310A-7	6×R8i+6xR8i	3310	4970	3200	3178	3000	2476	2400	79	132000	21660

Nominal ratings	
I_N	Rated current available continuously without overloadability at 40 °C.
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. Operation above 150 Hz might require type-specific derating.
[1)] Values to be confirmed upon full sales release of the product. Please contact ABB for further information.

G

Liquid-cooled drives
ACS880-07LC, ACS880-07CLC, ACS880-17LC, ACS880-37LC

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

The Single drives with diode supply unit consists of extremely compact diode supply and inverter units with parallel connected modules. The small footprint enables significant space and weight reduction.

Addition single drives with diode supply units the extensive ACS880 liquid-cooled offering includes low harmonic and regenerative variants.

Built-in redundancy through parallel connected modules enables higher drive availability and greater process uptime. If one of the modules is not operating or is being maintained, the drive will continue to operate at partial load.

Advanced liquid cooling and optimal design
Direct 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.

For harsh environmental conditions

Robust solution for different environments
Totally enclosed cabinet structure makes the ACS880 liquid-cooled drives perfect for harsh environmental conditions.

The offering fulfills marine and offshore requirements and the drives have marine type approvals from various key classification bodies.

As the direct liquid cooling enables silent operation, the ACS880 liquid-cooled drives are suitable for applications where noise levels are an important environmental factor.

Robust, reliable and compact

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

The used coolant type is Antifrogen® L, by Clariant International Ltd, cooling liquid with glycol and inhibitor. It is a ready-made, commercially available mix, which enables easy commissioning and maximized process uptime.

Liquid-cooled ACS880-07LC and ACS880-07CLC drives
- Power ratings: 250 to 6000 kW
- Enclosure classes: IP42 (as standard) and IP54

Main options:
- Optional liquid cooling unit (LCU) for single, redundant and tandem pump versions
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54
- Emergency stop category 0 with opening main contactor/breaker
- Earth fault monitoring, unearthed mains (IT)

ACS880-07LC:
- Designed for industrial use
- 6- or 12-pulse solution
- Internal charging circuit for the drive

ACS880-07CLC:
- Extremely compact design focused on marine use
- 6-, 12- or 24-pulse solution

Liquid-cooled regenerative ACS880-17LC and ultra-low-harmonic ACS880-37LC drives
- Power ratings: 250 to 6000 kW
- Enclosure classes: IP42 (as standard) and IP54

Main options:
- Optional liquid cooling unit (LCU) for single, redundant and tandem pump versions
- Cabling solutions for bottom and top entry and exit
- I/O extension modules, see page 54
- Communication protocol adapters, see page 54

For more information on regenerative functionality see page 28 and on harmonics see page 34.

The drives have an extensive selection of built-in features and options. See page 86.

Highlights
- Advanced liquid cooling which reduces the need for air cooling in installation rooms
- High power density with compact and robust design
- Commercially available coolant mix, Antifrogen L
- Redundancy through parallel connected modules prevents unwanted process interruptions
- Low harmonic and regenerative variants
- Silent operation
- Suitable for harsh environments
- Marine approvals from various key classification bodies.

Ratings, types and voltages

Liquid-cooled drives, ACS880-07LC

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

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Coolant heat dissipation	Coolant volume	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)	(l/min)
Liquid-cooled diode supply units (DSU), ACS880-304LC												
6-pulse diode												
ACS880-07LC-0390A-7	1xD8T + 1xR8i	390	585	355	374	355	292	250	67	10	15	52
ACS880-07LC-0430A-7	1xD8T + 1xR8i	430	645	400	413	355	322	250	67	11	15	52
ACS880-07LC-0480A-7	1xD8T + 1xR8i	480	720	450	461	400	359	315	67	12	15	52
ACS880-07LC-0530A-7	1xD8T + 1xR8i	530	795	500	509	450	396	355	67	13	15	52
ACS880-07LC-0600A-7	1xD8T + 1xR8i	600	900	560	576	560	449	400	67	14	15	52
ACS880-07LC-0670A-7	1xD8T + 1xR8i	670	1005	630	643	630	501	450	67	16	15	52
ACS880-07LC-0750A-7	1xD8T + 1xR8i	750	1125	710	720	710	561	500	67	18	15	52
ACS880-07LC-0850A-7	1xD8T + 1xR8i	850	1275	800	816	800	636	560	67	20	15	52
ACS880-07LC-1030A-7	1xD8T + 2xR8i	1030	1545	1000	989	900	770	710	69	23	18	68
ACS880-07LC-1170A-7	1xD8T + 2xR8i	1170	1755	1100	1123	1100	875	800	69	27	18	68
ACS880-07LC-1310A-7	2xD8T + 2xR8i	1310	1965	1200	1258	1200	980	900	69	30	19	82
ACS880-07LC-1470A-7	2xD8T + 2xR8i	1470	2205	1400	1411	1200	1100	1000	69	34	19	82
ACS880-07LC-1660A-7	2xD8T + 2xR8i	1660	2490	1600	1594	1400	1242	1200	69	39	19	82
ACS880-07LC-1940A-7	2xD8T + 3xR8i	1940	2910	1800	1862	1800	1451	1400	71	43	22	98
ACS880-07LC-2180A-7	2xD8T + 3xR8i	2180	3270	2000	2093	2000	1631	1400	71	49	22	98
ACS880-07LC-2470A-7	3xD8T + 3xR8i	2470	3705	2300	2371	2300	1848	1800	71	56	26	118
ACS880-07LC-2880A-7	3xD8T + 4xR8i	2880	4320	2700	2765	2700	2154	2000	72	65	29	134
ACS880-07LC-3260A-7	3xD8T + 4xR8i	3260	4890	3000	3130	3000	2438	2300	72	75	29	134
ACS880-07LC-3580A-7	4xD8T + 5xR8i	3580	5370	3400	3437	3200	2678	2600	73	81	37	172
ACS880-07LC-4050A-7	4xD8T + 5xR8i	4050	6075	3800	3888	3800	3029	2800	74	94	37	172
ACS880-07LC-4840A-7	5xD8T + 6xR8i	4840	7260	4400	4646	4400	3620	3500	74	115	44	208
ACS880-07LC-5650A-7	6xD8T + 7xR8i	5650	8475	5200	5424	5200	4226	4000	75	129	49	238
ACS880-07LC-6460A-7	6xD8T + 8xR8i	6460	9690	6000	6202	6000	4832	4700	75	147	52	254
12-pulse diode [1]												
ACS880-07LC-0530A-7+A004	2xD8T + 1xR8i	530	795	500	509	450	474	355	67	13	19	74
ACS880-07LC-0600A-7+A004	2xD8T + 1xR8i	600	900	560	576	560	536	400	67	15	19	74
ACS880-07LC-0670A-7+A004	2xD8T + 1xR8i	670	1005	630	643	630	599	450	67	16	19	74
ACS880-07LC-0750A-7+A004	2xD8T + 1xR8i	750	1125	710	720	710	670	500	67	19	19	74
ACS880-07LC-0850A-7+A004	2xD8T + 1xR8i	850	1275	800	816	800	760	560	67	21	19	74
ACS880-07LC-1030A-7+A004	2xD8T + 2xR8i	1030	1545	1000	989	900	921	710	69	23	23	90
ACS880-07LC-1170A-7+A004	2xD8T + 2xR8i	1170	1755	1100	1123	1100	1046	800	69	26	23	90
ACS880-07LC-1310A-7+A004	2xD8T + 2xR8i	1310	1965	1200	1258	1200	1171	900	69	30	23	90
ACS880-07LC-1470A-7+A004	2xD8T + 2xR8i	1470	2205	1400	1411	1200	1314	1000	69	34	23	90
ACS880-07LC-1660A-7+A004	2xD8T + 2xR8i	1660	2490	1600	1594	1400	1484	1200	69	39	23	90
ACS880-07LC-1940A-7+A004	2xD8T + 3xR8i	1940	2910	1800	1862	1800	1734	1400	71	43	26	106
ACS880-07LC-2180A-7+A004	2xD8T + 3xR8i	2180	3270	2000	2093	2000	1949	1400	71	49	26	106
ACS880-07LC-2470A-7+A004	4xD8T + 3xR8i	2470	3705	2300	2371	2300	2208	1800	71	57	30	140
ACS880-07LC-2880A-7+A004	4xD8T + 4xR8i	2880	4320	2700	2765	2700	2575	2000	72	65	34	156
ACS880-07LC-3260A-7+A004	4xD8T + 4xR8i	3260	4890	3000	3130	3000	2914	2300	72	76	34	156
ACS880-07LC-3580A-7+A004	4xD8T + 5xR8i	3580	5370	3400	3437	3200	3200	2600	73	81	37	172
ACS880-07LC-4050A-7+A004	4xD8T + 5xR8i	4050	6075	3800	3888	3800	3620	2800	74	94	37	172
ACS880-07LC-4840A-7+A004	6xD8T + 6xR8i	4840	7260	4400	4646	4400	4327	3500	74	111	45	222
ACS880-07LC-5650A-7+A004	6xD8T + 7xR8i	5650	8475	5200	5424	5200	5051	4000	75	129	49	238
ACS880-07LC-6460A-7+A004	6xD8T + 8xR8i	6460	9690	6000	6202	6000	5775	4700	75	147	52	254

[1] +A004 is option code for 12-pulse half controlled rectifier bridge

H

Ratings, types and voltages
Liquid-cooled drives, ACS880-07CLC

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

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	Coolant heat dissipation	Coolant volume	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)	(l/min)
6-pulse diode												
ACS880-07CLC-0390A-7	1xD8D + 1xR8i	390	585	355	374	355	292	250	66	9.7	7.1	28
ACS880-07CLC-0430A-7	1xD8D + 1xR8i	430	645	400	413	355	322	250	66	10	7.1	28
ACS880-07CLC-0480A-7	1xD8D + 1xR8i	480	720	450	461	400	359	315	66	12	7.1	28
ACS880-07CLC-0530A-7	1xD8D + 1xR8i	530	795	500	509	450	396	355	66	13	7.1	28
ACS880-07CLC-0600A-7	1xD8D + 1xR8i	600	900	560	576	560	449	400	66	14	7.1	28
ACS880-07CLC-0670A-7	1xD8D + 1xR8i	670	1005	630	643	630	501	450	66	16	7.1	28
ACS880-07CLC-0750A-7	1xD8D + 1xR8i	750	1125	710	720	710	561	500	66	17	7.1	28
ACS880-07CLC-0850A-7	1xD8D + 1xR8i	850	1275	800	816	800	636	560	66	20	7.1	28
ACS880-07CLC-1030A-7	2xD8D + 2xR8i	1030	1545	1000	989	900	770	710	68	25	10.8	54
ACS880-07CLC-1170A-7	2xD8D + 2xR8i	1170	1755	1100	1123	1100	875	800	68	27	10.8	54
ACS880-07CLC-1310A-7	2xD8D + 2xR8i	1310	1965	1200	1258	1200	980	900	68	31	10.8	54
ACS880-07CLC-1470A-7	2xD8D + 2xR8i	1470	2205	1400	1411	1200	1100	1000	68	34	10.8	54
ACS880-07CLC-1660A-7	2xD8D + 2xR8i	1660	2490	1600	1594	1400	1242	1200	68	39	10.8	54
ACS880-07CLC-1940A-7	3xD8D + 3xR8i	1940	2910	1800	1862	1800	1451	1400	69	45	14.6	72
ACS880-07CLC-2180A-7	3xD8D + 3xR8i	2180	3270	2000	2093	2000	1631	1400	69	51	14.6	72
ACS880-07CLC-2470A-7	3xD8D + 3xR8i	2470	3705	2300	2371	2300	1848	1800	69	58	14.6	72
ACS880-07CLC-2880A-7	4xD8D + 4xR8i	2880	4320	2700	2765	2700	2154	2000	70	67	22.5	98
ACS880-07CLC-3260A-7	4xD8D + 4xR8i	3260	4890	3000	3130	3000	2438	2300	70	77	22.5	98
12-pulse diode												
ACS880-07CLC-0530A-7+A004	2xD8D + 1xR8i	530	795	500	509	450	396	355	66	13	7.6	38
ACS880-07CLC-0600A-7+A004	2xD8D + 1xR8i	600	900	560	576	560	449	400	66	14	7.6	38
ACS880-07CLC-0670A-7+A004	2xD8D + 1xR8i	670	1005	630	643	630	501	450	66	16	7.6	38
ACS880-07CLC-0750A-7+A004	2xD8D + 1xR8i	750	1125	710	720	710	561	500	66	17	7.6	38
ACS880-07CLC-0850A-7+A004	2xD8D + 1xR8i	850	1275	800	816	800	636	560	66	20	7.6	38
ACS880-07CLC-1030A-7+A004	2xD8D + 2xR8i	1030	1545	1000	989	900	770	710	68	25	10.8	54
ACS880-07CLC-1170A-7+A004	2xD8D + 2xR8i	1170	1755	1100	1123	1100	875	800	68	27	10.8	54
ACS880-07CLC-1310A-7+A004	2xD8D + 2xR8i	1310	1965	1200	1258	1200	980	900	68	31	10.8	54
ACS880-07CLC-1470A-7+A004	2xD8D + 2xR8i	1470	2205	1400	1411	1200	1100	1000	68	34	10.8	54
ACS880-07CLC-1660A-7+A004	2xD8D + 2xR8i	1660	2490	1600	1594	1400	1242	1200	68	39	10.8	54
ACS880-07CLC-1940A-7+A004	4xD8D + 3xR8i	1940	2910	1800	1862	1800	1451	1400	69	45	15.0	82
ACS880-07CLC-2180A-7+A004	4xD8D + 3xR8i	2180	3270	2000	2093	2000	1631	1400	69	51	15.0	82
ACS880-07CLC-2470A-7+A004	4xD8D + 3xR8i	2470	3705	2300	2371	2300	1848	1800	69	58	15.0	82
ACS880-07CLC-2880A-7+A004	4xD8D + 4xR8i	2880	4320	2700	2765	2700	2154	2000	70	67	22.5	98
ACS880-07CLC-3260A-7+A004	4xD8D + 4xR8i	3260	4890	3000	3130	3000	2438	2300	70	77	22.5	98
ACS880-07CLC-3580A-7+A004	6xD8D + 5xR8i	3580	5370	3400	3437	3200	2678	2600	72	84	25.8	126
ACS880-07CLC-4050A-7+A004	6xD8D + 5xR8i	4050	6075	3800	3888	3800	3029	2800	72	95	25.8	126
ACS880-07CLC-4840A-7+A004	6xD8D + 6xR8i	4840	7260	4400	4646	4400	3620	3500	72	114	29.1	142
ACS880-07CLC-5650A-7+A004	8xD8D + 7xR8i	5650	8475	5200	5424	5200	4226	4000	73	133	33.9	170
ACS880-07CLC-6460A-7+A004	8xD8D + 8xR8i	6460	9690	6000	6202	6000	4832	4700	73	152	37.2	186
24-pulse diode												
ACS880-07CLC-2470A-7+A006	4xD8D + 3xR8i	2470	3705	2300	2371	2300	1848	1800	69	58	15.0	82
ACS880-07CLC-3260A-7+A006	4xD8D + 4xR8i	3260	4890	3000	3130	3000	2438	2300	70	77	22.5	98
ACS880-07CLC-4840A-7+A006	8xD8D + 6xR8i	4840	7260	4400	4646	4400	3620	3500	72	114	30.0	154
ACS880-07CLC-5650A-7+A006	8xD8D + 7xR8i	5650	8475	5200	5424	5200	4226	4000	73	133	33.9	170
ACS880-07CLC-6460A-7+A006	8xD8D + 8xR8i	6460	9690	6000	6202	6000	4832	4700	73	152	37.2	186

Ratings, types and voltages

Liquid-cooled regenerative drives, ACS880-17LC

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

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	$P_{loss\ coolant}$	Coolant volume	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))	(kW)	(l)	(l/min)
ACS880-17LC-0390A-7	1xR8i + 1xR8i	390	590	355	374	355	292	250	68	15	12	68
ACS880-17LC-0430A-7	1xR8i + 1xR8i	430	650	400	413	355	322	250	68	17	12	68
ACS880-17LC-0480A-7	1xR8i + 1xR8i	480	720	450	461	400	359	315	68	19	12	68
ACS880-17LC-0520A-7	1xR8i + 1xR8i	520	780	500	499	450	389	355	68	21	12	68
ACS880-17LC-0600A-7	1xR8i + 1xR8i	600	900	560	576	500	449	400	68	24	12	68
ACS880-17LC-0670A-7	1xR8i + 1xR8i	670	1010	630	643	560	501	450	68	27	12	68
ACS880-17LC-0750A-7	1xR8i + 1xR8i	750	1130	710	720	630	561	500	68	31	12	68
ACS880-17LC-0830A-7	1xR8i + 1xR8i	830	1250	800	797	710	621	560	68	35	12	68
ACS880-17LC-1000A-7	2xR8i + 2xR8i	1000	1500	1000	960	900	748	710	70	38	19	120
ACS880-17LC-1170A-7	2xR8i + 2xR8i	1170	1760	1100	1123	1000	875	800	70	44	19	120
ACS880-17LC-1270A-7	2xR8i + 2xR8i	1270	1910	1200	1219	1200	950	900	70	50	19	120
ACS880-17LC-1470A-7	2xR8i + 2xR8i	1470	2210	1400	1411	1200	1100	1000	70	55	19	120
ACS880-17LC-1620A-7	2xR8i + 2xR8i	1620	2430	1600	1555	1400	1212	1200	70	63	19	120
ACS880-17LC-1940A-7	3xR8i + 3xR8i	1940	2910	1800	1862	1800	1451	1400	72	70	29	192
ACS880-17LC-2180A-7	3xR8i + 3xR8i	2180	3270	2000	2093	2000	1631	1600	72	81	29	192
ACS880-17LC-2390A-7	3xR8i + 3xR8i	2390	3590	2300	2294	2200	1788	1800	72	93	29	192
ACS880-17LC-2880A-7	4xR8i + 4xR8i	2880	4320	2700	2765	2600	2154	2000	73	105	38	224
ACS880-17LC-3160A-7	4xR8i + 4xR8i	3160	4740	3000	3034	2900	2364	2300	73	121	38	224
ACS880-17LC-3580A-7	5xR8i + 5xR8i	3580	5370	3400	3437	3200	2678	2500	74	132	48	296
ACS880-17LC-4050A-7	6xR8i + 5xR8i	4050	6080	3800	3888	3600	3029	2800	75	151	52	360
ACS880-17LC-4700A-7	6xR8i + 6xR8i	4700	7050	4400	4512	4400	3516	3400	75	182	58	376
ACS880-17LC-5650A-7	8xR8i + 7xR8i	5650	8480	5200	5424	5000	4226	4000	76	208	68	424
ACS880-17LC-6260A-7	8xR8i + 8xR8i	6260	9390	6000	6010	6000	4682	4500	76	286	75	504

Ratings, types and voltages

Liquid-cooled ultra-low harmonic drives, ACS880-37LC

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

Drive type	Frame size	Nominal ratings			Light overload use		Heavy-duty use		Noise level	$P_{loss\ coolant}$	Coolant volume	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))	(kW)	(l)	(l/min)
ACS880-37LC-0390A-7	1xR8i + 1xR8i	390	590	355	374	355	292	250	68	15	12	68
ACS880-37LC-0430A-7	1xR8i + 1xR8i	430	650	400	413	355	322	250	68	17	12	68
ACS880-37LC-0480A-7	1xR8i + 1xR8i	480	720	450	461	400	359	315	68	19	12	68
ACS880-37LC-0520A-7	1xR8i + 1xR8i	520	780	500	499	450	389	355	68	21	12	68
ACS880-37LC-0600A-7	1xR8i + 1xR8i	600	900	560	576	500	449	400	68	24	12	68
ACS880-37LC-0670A-7	1xR8i + 1xR8i	670	1010	630	643	560	501	450	68	27	12	68
ACS880-37LC-0750A-7	1xR8i + 1xR8i	750	1130	710	720	630	561	500	68	31	12	68
ACS880-37LC-0830A-7	1xR8i + 1xR8i	830	1250	800	797	710	621	560	68	35	12	68
ACS880-37LC-1000A-7	2xR8i + 2xR8i	1000	1500	1000	960	900	748	710	70	38	19	120
ACS880-37LC-1170A-7	2xR8i + 2xR8i	1170	1760	1100	1123	1000	875	800	70	44	19	120
ACS880-37LC-1270A-7	2xR8i + 2xR8i	1270	1910	1200	1219	1200	950	900	70	50	19	120
ACS880-37LC-1470A-7	2xR8i + 2xR8i	1470	2210	1400	1411	1200	1100	1000	70	55	19	120
ACS880-37LC-1620A-7	2xR8i + 2xR8i	1620	2430	1600	1555	1400	1212	1200	70	63	19	120
ACS880-37LC-1940A-7	3xR8i + 3xR8i	1940	2910	1800	1862	1800	1451	1400	72	70	29	192
ACS880-37LC-2180A-7	3xR8i + 3xR8i	2180	3270	2000	2093	2000	1631	1600	72	81	29	192
ACS880-37LC-2390A-7	3xR8i + 3xR8i	2390	3590	2300	2294	2200	1788	1800	72	93	29	192
ACS880-37LC-2880A-7	4xR8i + 4xR8i	2880	4320	2700	2765	2600	2154	2000	73	105	38	224
ACS880-37LC-3160A-7	4xR8i + 4xR8i	3160	4740	3000	3034	2900	2364	2300	73	121	38	224
ACS880-37LC-3580A-7	5xR8i + 5xR8i	3580	5370	3400	3437	3200	2678	2500	74	132	48	296
ACS880-37LC-4050A-7	6xR8i + 5xR8i	4050	6080	3800	3888	3600	3029	2800	75	151	52	360
ACS880-37LC-4700A-7	6xR8i + 6xR8i	4700	7050	4400	4512	4400	3516	3400	75	182	58	376
ACS880-37LC-5650A-7	8xR8i + 7xR8i	5650	8480	5200	5424	5000	4226	4000	76	208	68	424
ACS880-37LC-6260A-7	8xR8i + 8xR8i	6260	9390	6000	6010	6000	4682	4500	76	286	75	504

Nominal ratings	
I_N	Rated current available continuously without overloadability at 45 °C.
P_N	Typical motor power in no-overload use.
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.
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 45 °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 45 °C.
P_{Hd}	Typical motor power in heavy-duty use.
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 circuit.

The ratings apply at 45 °C ambient temperature. At higher temperatures (up to 55 °C) the derating is 1%/1 °C.
Operation above 150 Hz might require type-specific derating.

H

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]
		Internal coolant volume	External coolant volume							
	P_{max} (kW)	(l)	(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
[5] Two pumps running

Dimensions
ACS880

ACS880-01, IP21

Frame size	Height H1 (mm)	Height H2 (mm)	Width (mm)	Depth (mm)	Weight (kg)
R1	409	370	155	226	7
R2	409	370	155	249	8.4
R3	475	420	172	261	10.8
R4	576	490	203	274	18.6
R5	730	596	203	274	22.8
R6	726	569	251	357	42.2
R7	880	600	284	365	53
R8	963	681	300	386	68
R9	955	680	380	413	95

H1 = Height with cable entry box. H2 = Height without cable entry box.
Width and depth with cable entry box.
Dimensions of the IP20 version are in the ACS880 drive modules catalog.

ACS880-01, IP55

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
R1	450	162	292	8.1
R2	450	162	315	9.5
R3	525	180	327	12
R4	576	203	344	19.1
R5	730	203	344	23.4
R6	726	251	421	42.9
R7	880	284	423	54
R8	963	300	452	74
R9	955	380	477	102

ACS880-11/31, IP21

Frame size	Height H1 (mm)	Height H2 (mm)	Width (mm)	Depth (mm)	Weight (kg)
R3	495	490	203	356	21.3
R6	771	771	252	382	61
R8	965	965	300	430	103/118 [1)]

H1 = Height with cable entry box. H2 = Height without cable entry box.
Width and depth with cable entry box.
[1)] For types -105A-3, 145A-3, -101A-5, -124A-5: 103 kg
For types -169A-3, 206A-3, -156A-5, -180A-5: 118 kg

ACS880-11/31, IP55

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
R3	495	203	360	23.3
R6	771	252	445	63
R8	966	300	496	109/124 [1)]

[1)] For types -105A-3, 145A-3, -101A-5, -124A-5: 109 kg
For types -169A-3, 206A-3, -156A-5, -180A-5: 124 kg

ACS880-07, IP22/42/54 *)

Frame size	Height		Width	Depth	Weight
	IP22/42 (mm)	IP54 (mm)	(mm)	(mm)	(kg)
R6	2145	2315	430	673/698 [1)]	240
R7	2145	2315	430	673/698 [1)]	250
R8	2145	2315	430	673/698 [1)]	265
R9	2145	2315	830	698	375
R10	2145	2315	830	698	530
R11	2145	2315	830	698	580

[1)] 698 mm for IP54

ACS880-07, IP22/42/54 *)

Frame size	Height		Width		Depth	Weight	
	IP22/42 (mm)	IP54 (mm)	6-pulse (mm)	12-pulse (mm)	(mm)	6-pulse (kg)	12-pulse (kg)
D8T+2×R8i	2145	2315	1830	–	698	1470	–
2×D7T+2×R8i	2145	2315	–	2030	698	–	1710
2×D8T+2×R8i [1)]	2145	2315	2030	–	698	1650	–
2×D8T+2×R8i	2145	2315	2230	2230	698	1770	1870
2×D8T+3×R8i	2145	2315	2430	2430	698	1920	2020
3×D8T+3×R8i	2145	2315	2630	–	698	2230	–
3×D8T+4×R8i	2145	2315	3030	–	698	2590	–
4×D8T+3×R8i	2145	2315	–	3030	698	–	2600
4×D8T+4×R8i	2145	2315	–	3430	698	–	2960
4×D8T+5×R8i	2145	2315	3630	3630	698	3030	3110

[1)] ACS880-07-1160A-7

ACS880-17/37, IP22/42/54 *)

Frame size	Height		Width	Depth	Weight
	IP22/42 (mm)	IP54 (mm)	(mm)	(mm)	(kg)
R8	2145	2315	430	673/698 [1)]	320
R11	2145	2315	1230	698	750
R8i+R8i	2145	2315	1230	698	1180
2xR8i+2xR8i	2145	2315	2230/2430 [2)]	698	1970/2090 [2)]
3xR8i+3xR8i	2145	2315	3230	698/738 [3)]	2730/2930 [3)]
4xR8i+4xR8i	2145	2315	3830	738	3700
6xR8i+5xR8i	2145	2315	5030	738	4830
6xR8i+6xR8i	2145	2315	5330	738	4980

[1)] 698 mm for IP54
[2)] 2430mm/2090 kg for -1210A-3, -1430A-3, -1700A-3, -1530A-5.
[3)] 738mm/2930kg for -2060A-3, -2530A-3, -1980A-5, -2270A-5.

*) Dimensions are for standard configuration including measures for door installed components.
Plus code options can affect dimensions. For more information, please see dimensional drawings in hardware manual.

ACS880-07LC, IP42/54

Frame size	Height	Width		Depth	Weight	
	(mm)	6-pulse (mm)	12-pulse (mm)	(mm)	6-pulse (kg)	12-pulse (kg)
1xD8T + 1xR8i	2002	1700	–	644	1480	–
1xD8T + 2xR8i	2002	1900	–	644	1610	–
2xD8T + 1xR8i	2002	–	2300	644	–	2230
2xD8T + 2xR8i	2002	1900	2500	644	1760	2360
2xD8T + 3xR8i	2002	2100	2700	644	1930	2530
3xD8T + 3xR8i	2002	2500	–	644	2230	–
3xD8T + 4xR8i	2002	2800	–	644	2490	–
4xD8T + 3xR8i	2002	–	3240	644	–	2980
4xD8T + 4xR8i	2002	–	3400	644	–	3240
4xD8T + 5xR8i	2002	3600	3600	644	3410	3410
5xD8T + 6xR8i	2002	4500	–	644	3410	–
6xD8T + 6xR8i	2002	–	4200	644	–	4030
6xD8T + 7xR8i	2002	4800	4800	644	4470	4470
6xD8T + 8xR8i	2002	5000	5000	644	4640	4640

ACS880-07CLC, IP42/54

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
1xD8D+1xR8i	2002	700	636	580
2xD8D+1xR8i	2002	700	636	580
2xD8D+2xR8i	2002	900	636	710
3xD8D+3xR8i	2002	1200	636	1030
4xD8D+3xR8i	2002	1200	636	1030
4xD8D+4xR8i	2002	1500	636	1290
6xD8D+5xR8i	2002	2200	636	1890
6xD8D+6xR8i	2002	2400	636	2060
8xD8D+7xR8i	2002	2700	636	2290
8xD8D+12xR8i	2002	2900	636	2520

ACS880-1007LC, liquid-cooling unit

Unit type	Height (mm)	Width [1] (mm)	Depth (mm)	Weight (kg)
ACS880-1007LC-0070	2002	300/330	636	200
ACS880-1007LC-0195+C140	2002	600/630	636	310
ACS880-1007LC-0195+C141	2002	600/630	636	366
ACS880-1007LC-0195+C213	2002	600/630	636	373

[1] The first values are for line-up connected unit and the latter values for standalone unit.

ACS880-17/37LC, IP42/54

Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
1xR8i+1xR8i	2002	2000	644	2040
2xR8i+2xR8i	2002	2400/2500 [1]	644	5070/5400 [2]
3xR8i+3xR8i	2002	3200	644	7250
4xR8i+4xR8i	2002	4000	644	9060
5xR8i+5xR8i	2002	4600	644	10470
6xR8i+5xR8i	2002	5800	644	13600
6xR8i+6xR8i	2002	6000	644	13980
8xR8i+7xR8i	2002	7300	644	17020
8xR8i+12xR8i	2002	7600	644	17590

[1] 2400 mm for -1000A-7, - 1170A-7 and -1270A-7. 2500 mm for -1470A-7 and -1620A-7.
[2] 5070 kg for -1000A-7, - 1170A-7 and -1270A-7. 5400 kg for -1470A-7 and -1620A-7.

Standard interface and extensions for plug-in connectivity

—
01
Control unit ZCU
—
02
Example of a typical single drives input/output connection diagram. Variations maybe possible. For further information, please see the ACS880 user manual.

ACS880 drives 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, they offer 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 54.

—
01

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

—
02

XPOW		**External power input**
1	+24VI	24 V DC, 2 A
2	GND	
XAI		**Reference voltage and analog inputs**
1	+VREF	10 V DC, R_L 1 to 10 kohm
2	-VREF	-10 V DC, R_L 1 to 10 kohm
3	AGND	Ground
4	AI1+	Speed reference 0(2) to 10 V, R_{in} > 200 kohm
5	AI1-	
6	AI2+	By default not in use. 0(4) to 20 mA, R_{in} > 100 ohm
7	AI2-	
J1	J1	AI1 current/voltage selection jumper
J2	J2	AI2 current/voltage selection jumper
XAO		**Analog outputs**
1	AO1	Motor speed rpm 0 to 20 mA, R_L < 500 ohm
2	AGND	
3	AO2	Motor current 0 to 20 mA, R_L < 500 ohm
4	AGND	
XD2D		**Drive-to-drive link**
1	B	Drive-to-drive link or built-in Modbus
2	A	
3	BGND	
J3	J3	Drive-to-drive link termination switch
XRO1, XRO2, XRO3		**Relay outputs**
11	NC	Ready 250 V AC/30 V DC 2 A
12	COM	
13	NO	
21	NC	Running 250 V AC/30 V DC 2 A
22	COM	
23	NO	
31	NC	Faulted (-1) 250 V AC/30 V DC 2 A
32	COM	
33	NO	
XD24		**Digital interlock**
1	DIIL	Digital interlock
2	+24VD	+24 V DC 200 mA
3	DICOM	Digital input ground
4	+24VD	+24 V DC 200 mA
5	DIOGND	Digital input/output ground
J6		Ground selection switch
XDIO		**Digital input/outputs**
1	DIO1	Output: Ready
2	DIO2	Output: Running
XDI		Digital inputs
1	DI1	Stop (0)/Start (1)
2	DI2	Forward (0)/Reverse (1)
3	DI3	Reset
4	DI4	Acceleration and deceleration select
5	DI5	Constant speed 1 (1=On)
6	DI6	Not in use by default
XSTO		**Safe torque off**
1	OUT1	Safe torque off. Both circuits must be closed for the drive to start.
2	SGND	
3	IN1	
4	IN2	
X12		**Safety functions module connection**
X13		**Control panel connection**
X205		**Memory unit connection**

Control panel options

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

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.

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

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

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01

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02

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03

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04

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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	–
–	3AXD50000025965	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

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View your drives installed base and plan service activities

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Report service events

Access information anywhere

Download the apps using the QR codes below or directly from the app stores

Drivetune for commissioning and managing drives

Drivebase for ensured reliability and reduced downtime on production sites

Connectivity to automation systems

—
01
ACS880 is compatible with many communication protocols
—
02
Input/output extension modules

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

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

—
Communication protocol adapters

Option code	Ordering code for loose item	Communication protocol	Adapter
+K451	68469341	DeviceNet™	FDNA-01
+K454	68469325	PROFIBUS DP. DPV0/DPV1	FPBA-01
+K457	68469376	CANopen®	FCAN-01
+K458	3AUA0000031336	Modbus RTU	FSCA-01
+K462	3AUA0000094512	ControlNet	FCNA-01
+K469	3AUA0000072069	EtherCAT®	FECA-01
+K470	3AXD5000019239	POWERLINK	FEPL-02
+K491	3AXD50000049964	Modbus/TCP	FMBT-21
+K492	3AXD50000192779	PROFINET IO	FPNO-21
+K490	3AXD50000192786	EtherNet/IP	FEIP-21
+Q986	3AXD50000112821	PROFIsafe safety functions module	FSPS-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.

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01

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02

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

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

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Analog and digital input/output extension modules

Option code	Ordering code for loose item	Description	I/O module
+L501	68805368	4×DI/O, 2×RO	FIO-01
+L500	68805384	3×AI (mA/V), 1×AO (mA), 2×DI/O	FIO-11
+L515	3AUA0000108669	2×F-type option extension slots	FEA-03
+L525	3AUA0000141436	2×AI (mA/V), 2×AO (mA)	FAIO-01
+L526	3AUA0000141438	3×DI (up to 250 V DC or 230 V AC), 2×RO	FDIO-01

Feedback interface and DDCS communication options

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03
FEN-01 TTL encoder interface module
—
04
FDCO-01 DDCS communication module

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

*) Excluding FSE-31.

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Feedback interface modules

Option code	Ordering code for loose item	Description	Feedback module
+L517	68805422	2 inputs (TTL pulse encoder), 1 output	FEN-01
+L518	68805830	2 inputs (SinCos absolute, TTL pulse encoder), 1 output	FEN-11
+L516	68805848	2 inputs (Resolver, TTL pulse encoder), 1 output	FEN-21
+L502	68978955	1 input (HTL pulse encoder), 1 output	FEN-31
+L521	3AXD50000023272	Pulse encoder interface for functional safety (for more details see section “Safety options”)	FSE-31

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

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Optical communication modules

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

Remote monitoring options

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01
Remote monitoring tool NETA-21
—
02
RMDE reliability monitoring device

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

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Remote monitoring option

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

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01

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02

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

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RMDE reliability monitoring device

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

PC tool options

— 03
Drive Composer pro PC tool

— 04
Drive Application Builder

PC tools

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

Drive Composer pro provides additional features, such as

- graphical reference and control chain diagrams
- possibility to connect to several drives simultaneously over Ethernet or panel bus
- graphical interface for configuring functional safety features.

Drive Application Builder is a common tool for several ABB automation products, such as drives, PLCs, HMIs and robots.

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

— 03

— 04

— **PC tools**

Ordering code	Description	PC tool
3AUA0000108087	PC tool for setup, commissioning and monitoring of drives	Drive Composer pro
3AXD50000342389	Standard version of the Drive Application Builder for IEC 61131-3 programming, DABS-STANDARD	licenses for Drive Application Builder [1]
3AXD50000342402	Premium version of the Drive Application Builder for IEC 61131-3 programming, DABP-PREMIUM	
3AXD50000343027	Software development productivity add-ons for Drive Application Builder, version control and static analysis extensions for improve software engineering productivity, single workstation, DABX-PRODUCTIVITY-ADD-ONS	
1SAS010000R0102	Automation Builder 2.x Standard (2). Integrated engineering for PLC, drives, motion, SCADA and panels.	Automation Builder
1SAS010002R0102	Automation Builder 2.x Premium (5). Integrated Engineering and features for engineering productivity and collaboration.	
+N8010	License key for drive application programming based on IEC 61131-3 using Drive Application Builder	IEC programming

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

Safety options

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01
ACS880 drive with FSO-21, FSE-31 and FENA-21

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).

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 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/FENA-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)]

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Safety function modules

Option code	Ordering code for loose item	Description	Safety module
+Q973	3AXD50000016771	Safety functions module FSO-12	FSO-12
+Q972+L521	3AXD50000023987 + 3AXD50000023272	Safety functions module FSO-21 and encoder FSE-31	FSO-21+FSE-31
+Q971	–	ATEX-certified safe disconnection function, EX II (2) GD	
+Q982	–	PROFIsafe safety communication to be used together with FSO-12 or FSO-21: forces to select a functional safety module and PROFINET adapter, FPNO-21	FSO-12 or FSO-21 +FPNO-21
+Q986 [2)]	3AXD50000112821	PROFIsafe safety functions module FSPS-21	FSPS-21
+L536	3AXD50000024934	Thermistor protection module FPTC-01	FPTC-01
+L537+Q971	3AXD50000024924	ATEX-certified thermistor protection module FPTC-02 , Ex II (2) GD	FPTC-02

[1)] Thermistor modules comply with SIL 2 / PL c.
[2)] Please contact your local ABB office to check availability.

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

EMC – electromagnetic compatibility

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01 Immunity and emission compatibility

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

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

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

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

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

Selecting an EMC filter						
Drive type	**Voltage (V)**	**Frame sizes**	**1st environment, restricted distribution, C2, grounded network (TN) Option code**	**2nd environment, C3, grounded network (TN) Option code**	**2nd environment, C3, ungrounded network (IT) Option code**	**2nd environment, C4, grounded network (TN)** [2]
ACS880-01	380 to 500	R1 to R9	+E202	+E200	+E201 [1]	As standard
ACS880-01	525 to 690	R3 to R9	–	+E200	+E201 [1]	As standard
ACS880-11	380 to 500	R3 to R8	+E202 [5]	+E200	+E201	As standard
ACS880-31	380 to 500	R3 to R8	+E202 [5]	+E200	+E201	As standard
ACS880-07	380 to 500	R6 to R9	+E202	+E200	+E201	As standard
ACS880-07	525 to 690	R6 to R9	–	+E200	+E201 [1]	As standard
ACS880-07	380 to 500	R10 to R11	+E202	+E200	+E201	As standard
ACS880-07	525 to 690	R10 to R11	–	+E200	+E201	As standard
ACS880-07	380 to 690	n×R8i	+E202 (only for 1140A-3 and 1070A-5)	As standard	As standard	–
ACS880-17	380 to 500	R8	+E202	+E200	+E201	As standard
ACS880-17	380 to 690	R11	+E202 (not for 690 V)	As standard	As standard [3]	–
ACS880-17	380 to 690	n×R8i	+E202 (not for 690 V, only for 1xR8i)	As standard	As standard	–
ACS880-37	380 to 500	R8	+E202	+E200	+E201	As standard
ACS880-37	380 to 690	R11	+E202 (not for 690 V)	As standard	As standard [3]	–
ACS880-37	380 to 690	n×R8i	+E202 (not for 690 V, only for 1xR8i)	As standard	As standard	–
ACS880-07CLC	525 to 690	n×R8i	–	As standard [4]	As standard [4]	As standard
ACS880-17LC	525 to 690	n×R8i	–	As standard [4]	As standard [4]	As standard
ACS880-37LC	525 to 690	n×R8i	–	As standard [4]	As standard [4]	As standard

[1] 2nd environment, C4: ACS880-01, 380 to 500 V, frame sizes R1 to R5. ACS880-01, 690 V, frame sizes R3 to R6. ACS880-07, 690 V, frame size R6.
[2] EMC plan required.
[3] Please contact your local ABB.
[4] Radiated emission and immunity (cabinet construction).
[5] Not available for R6.

Sine filters

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

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

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

Sine filter for wall-mounted single drives, ACS880-01

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

I_N	P_N [1]	Noise level [2]	Heat dissi-pation [2]	Drive type	Filter type	Degree of protection	Filter width		Filter depth		Filter height		Filter weight		Frame size
(A)	(kW)	(dB)	(W)				IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (kg)	IP21 (kg)	
2.3	0.75	72	60	ACS880-01-02A4-3	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
3.1	1.1	72	60	ACS880-01-03A3-3	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
3.8	1.5	72	60	ACS880-01-04A0-3	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
5.3	2.2	72	100	ACS880-01-05A6-3	B84143V0006R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
7.2	3	72	90	ACS880-01-07A2-3	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	7	14.4	R1
9.2	4	72	90	ACS880-01-09A4-3	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	7	14.4	R1
12.1	5.5	72	80	ACS880-01-12A6-3	B84143V0016R229	IP00/IP21	275	420	122	200	235	290	12	24.4	R1
16	7.5	75	140	ACS880-01-017A-3	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	20	36	R2
24	11	75	140	ACS880-01-025A-3	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	20	36	R2
31	15	75	160	ACS880-01-032A-3	B84143V0033R229	IP00/IP21	355	500	120	200	285	360	24	36	R3
37	18.5	78	220	ACS880-01-038A-3	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	41	90.3	R3
43	22	78	220	ACS880-01-045A-3	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	41	90.3	R4
58	30	78	250	ACS880-01-061A-3	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	43	90.3	R4
64	30	79	310	ACS880-01-072A-3	B84143V0075R229	IP00/IP21	400	650	173	350	360	460	62	90.3	R5
77	37	79	400	ACS880-01-087A-3	B84143V0095R229	IP00/IP21	440	700	164	350	500	580	70	132	R5
91	45	80	600	ACS880-01-105A-3	B84143V0130S230	IP00/IP21	560	850	300	480	420	500	110	192	R6
126	55	80	550	ACS880-01-145A-3	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	112	129.9	R6
153	75	80	550	ACS880-01-169A-3	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	112	129.9	R7
187	90	80	900	ACS880-01-206A-3	B84143V0230S229	IP00/IP21	570	850	285	480	430	500	120	192	R7
209	110	80	900	ACS880-01-246A-3	B84143V0230S229	IP00/IP21	570	850	285	480	430	500	120	192	R8
249	132	80	1570	ACS880-01-293A-3	B84143V0390S229	IP00/IP21	555	850	328	550	580	610	212	268.4	R8
297	160	80	1570	ACS880-01-363A-3	B84143V0390S229	IP00/IP21	555	850	328	550	580	610	212	268.4	R9
352	160	80	1570	ACS880-01-430A-3	B84143V0390S229	IP00/IP21	555	850	328	550	580	610	212	268.4	R9

Nominal ratings	
I_N	Rated current of the drive-filter combination available continuously without overload at 40 °C.
P_N	Typical motor power

[1] Please note that sine filters cause a voltage drop, reducing the available shaft power from the motor.
[2] Noise level is a combined value for the drive and the filter. Heat dissipation is a value for the filter.
For further information, please contact your local ABB office.

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

I_N	P_N [1]	Noise level [2]	Heat dissipation [2]	Drive type	Filter type	Degree of protection	Filter width		Filter depth		Filter height		Filter weight		Frame size
(A)	(kW)	(dB)	(W)				IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (kg)	IP21 (kg)	
1.9	0.8	72	60	ACS880-01-02A1-5	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
2.8	1.1	72	60	ACS880-01-03A0-5	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
3.1	1.5	72	60	ACS880-01-03A4-5	B84143V0004R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
4.4	2.2	72	100	ACS880-01-04A8-5	B84143V0006R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
4.8	3	72	100	ACS880-01-05A2-5	B84143V0006R229	IP00/IP21	235	384	95	152	200	246	5	14.4	R1
7	4	72	90	ACS880-01-07A6-5	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	7	14.4	R1
10.2	5.5	72	90	ACS880-01-11A0-5	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	7	14.4	R1
13	7.5	70	80	ACS880-01-014A-5	B84143V0016R229	IP00/IP21	275	420	122	200	235	290	12	24.4	R2
20	11	75	140	ACS880-01-021A-5	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	20	36	R2
25	15	75	160	ACS880-01-027A-5	B84143V0033R229	IP00/IP21	355	500	120	200	285	360	24	36	R3
32	18.5	78	220	ACS880-01-034A-5	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	41	90.3	R3
35	22	78	220	ACS880-01-040A-5	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	41	90.3	R4
44	30	78	250	ACS880-01-052A-5	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	43	90.3	R4
52	37	78	250	ACS880-01-065A-5	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	43	90.3	R5
61	37	78	310	ACS880-01-077A-5	B84143V0075R229	IP00/IP21	400	650	173	350	360	460	62	132	R5
80	55	80	630	ACS880-01-096A-5	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	110	192	R6
104	55	80	630	ACS880-01-124A-5	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	110	192	R6
140	90	80	550	ACS880-01-156A-5	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	112	129.9	R7
161	110	80	550	ACS880-01-180A-5	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	112	129.9	R7
205	132	80	900	ACS880-01-240A-5	B84143V0230S229	IP00/IP21	570	850	285	480	430	500	120	192	R8
221	132	80	900	ACS880-01-260A-5	B84143V0230S229	IP00/IP21	570	850	285	480	430	500	120	192	R8
289	200	80	1570	ACS880-01-361A-5	B84143V0390S229	IP00/IP21	555	850	328	550	580	610	212	268.4	R9
332	200	80	1570	ACS880-01-414A-5	B84143V0390S229	IP00/IP21	555	850	328	550	580	610	212	268.4	R9

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

I_N	P_N [1]	Noise level [2]	Heat dissipation [2]	Drive type	Filter type	Degree of protection	Filter width		Filter depth		Filter height		Filter weight		Frame size
(A)	(kW)	(dB)	(W)				IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (kg)	IP21 (kg)	
7.3	5.5	72	90	ACS880-01-07A4-7	B84143V0010R230	IP00/IP21	380	500	110	200	290	360	15	36	R3
9.3	7.5	72	90	ACS880-01-09A9-7	B84143V0010R230	IP00/IP21	380	500	110	200	290	360	15	36	R3
13.5	11	72	130	ACS880-01-14A3-7	B84143V0018R230	IP00/IP21	380	500	121	200	290	360	19	36	R3
17.1	15	72	130	ACS880-01-019A-7	B84143V0018R230	IP00/IP21	380	500	121	200	290	360	19	36	R3
21	18.5	72	160	ACS880-01-023A-7	B84143V0026R230	IP00/IP21	380	500	141	200	290	360	30	68	R3
25	22	72	160	ACS880-01-027A-7	B84143V0026R230	IP00/IP21	380	500	141	200	290	360	30	68	R3
33	30	75	250	ACS880-01-035A-7	B84143V0040R230	IP00/IP21	440	650	147	350	355	430	49	90.3	R5
40	37	75	250	ACS880-01-042A-7	B84143V0040R230	IP00/IP21	440	650	147	350	355	430	49	90.3	R5
48	45	78	290	ACS880-01-049A-7	B84143V0056R230	IP00/IP21	440	650	162	350	355	430	52	90.3	R5
56	55	78	290	ACS880-01-061A-7	B84143V0056R230	IP00/IP21	440	600	162	350	355	430	52	90.3	R6
78	75	79	610	ACS880-01-084A-7	B84143V0092R230	IP00/IP21	500	700	193	350	490	580	85	132	R6
92	90	79	610	ACS880-01-098A-7	B84143V0092R230	IP00/IP21	500	700	193	350	490	580	85	132	R7
112	110	80	630	ACS880-01-119A-7	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	110	192	R7
112	110	80	630	ACS880-01-142A-7	B84143V0130S230	IP00/IP21	560	850	230	480	569	500	110	192	R8
138	132	80	930	ACS880-01-174A-7	B84143V0207S230	IP00/IP21	560	850	279	550	570	610	185	268.4	R8
161	132	80	930	ACS880-01-210A-7	B84143V0207S230	IP00/IP21	560	850	279	550	570	610	185	268.4	R9
208	200	80	930	ACS880-01-271A-7	B84143V0207S230	IP00/IP21	560	850	279	550	570	610	185	268.4	R9

Sine filters for wall-mounted regenerative and ultra-low harmonic drives, ACS880-11 and ACS880-31

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

I_N	P_N [1]	Noise level [2]	Heat dissi-pation [2]	Drive type	Filter type	Degree of protection	Filter width		Filter depth		Filter height		Filter weight		Frame size
(A)	(kW)	(dB)	(W)				IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (kg)	IP21 (kg)	
9.2	4	72	90	ACS880-11/31-09A4-3	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	5.2	14.4	R3
12.1	5.5	72	80	ACS880-11/31-12A6-3	B84143V0016R229	IP00/IP21	275	420	122	200	235	290	7.9	24.4	R3
16	7.5	75	140	ACS880-11/31-017A-3	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	12.1	36	R3
24	11	75	140	ACS880-11/31-025A-3	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	12.1	36	R3
31	15	75	160	ACS880-11/31-032A-3	B84143V0033R229	IP00/IP21	355	500	120	200	285	360	12.1	36	R6
37	18.5	78	220	ACS880-11/31-038A-3	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	20.2	104.7	R6
43	22	78	220	ACS880-11/31-045A-3	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	20.2	104.7	R6
58	30	78	250	ACS880-11/31-061A-3	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	21.2	104.7	R6
64	37	79	310	ACS880-11/31-072A-3	B84143V0075R229	IP00/IP21	400	650	173	350	360	460	24.9	104.7	R6
77	45	79	400	ACS880-11/31-087A-3	B84143V0095R229	IP00/IP21	440	700	164	350	500	580	36.1	142.1	R6
91	55	80	600	ACS880-11/31-105A-3	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	71.2	204	R8
126	75	80	550	ACS880-11/31-145A-3	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	57	125.6	R8
153	90	80	550	ACS880-11/31-169A-3	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	57	125.6	R8
187	110	80	900	ACS880-11/31-206A-3	B84143V0230S229	IP00/IP21	570	850	285	480	430	500	69.9	204	R8

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

I_N	P_N [1]	Noise level [2]	Heat dissi-pation [2]	Drive type	Filter type	Degree of protection	Filter width		Filter depth		Filter height		Filter weight		Frame size
(A)	(kW)	(dB)	(W)				IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (mm)	IP21 (mm)	IP00 (kg)	IP21 (kg)	
7	4	72	90	ACS880-11/31-07A6-5	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	5.2	14.4	R3
10.2	5.5	72	90	ACS880-11/31-11A0-5	B84143V0011R229	IP00/IP21	235	384	110	152	200	246	5.2	14.4	R3
13	75	70	80	ACS880-11/31-014A-5	B84143V0016R229	IP00/IP21	275	420	122	200	235	290	7.9	24.4	R3
20	11	75	140	ACS880-11/31-021A-5	B84143V0025R229	IP00/IP21	355	500	120	200	285	360	12.1	36	R3
25	15	75	160	ACS880-11/31-027A-5	B84143V0033R229	IP00/IP21	355	500	120	200	285	360	12.1	36	R6
32	18.5	78	220	ACS880-11/31-034A-5	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	20.2	104.7	R6
35	22	78	220	ACS880-11/31-040A-5	B84143V0050R229	IP00/IP21	400	650	140	350	360	460	20.2	104.7	R6
44	30	78	250	ACS880-11/31-052A-5	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	21.2	104.7	R6
52	37	78	250	ACS880-11/31-065A-5	B84143V0066R229	IP00/IP21	400	650	147	350	360	460	21.2	104.7	R6
61	37	78	310	ACS880-11/31-077A-5	B84143V0075R229	IP00/IP21	400	650	173	350	360	460	24.9	104.7	R6
80	55	80	630	ACS880-11/31-096A-5	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	71.2	204	R8
104	55	80	630	ACS880-11/31-124A-5	B84143V0130S230	IP00/IP21	565	850	300	480	420	500	71.2	204	R8
140	90	80	550	ACS880-11/31-156A-5	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	57	125.6	R8
161	110	80	550	ACS880-11/31-180A-5	B84143V0162S229	IP00/IP21	500	730	300	400	380	430	57	125.6	R8

Nominal ratings	
I_N	Rated current of the drive-filter combination available continuously without overload at 40 °C.
P_N	Typical motor power

[1] Please note that sine filters cause a voltage drop, reducing the available shaft power from the motor.
[2] Noise level is a combined value for the drive and the filter. Heat dissipation is a value for the filter.
For further information please contact your local ABB office.

Sine filters for cabinet-built single drives, ACS880-07

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V. [3]

I_N (A)	P_N [1] (kW)	Noise level [2] (dB)	Heat dissi-pation [2] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height mm	Filter width mm	Filter depth mm	Filter weight kg	Frame size
6-pulse diode												
91	45	80	2.4	1750	ACS880-07-0105A-3	B84143V0130S229	IP22	2145	600	646	330	R6
126	55	80	2.5	1750	ACS880-07-0145A-3	B84143V0162S229	IP22	2145	600	646	330	R6
153	75	80	3	1750	ACS880-07-0169A-3	B84143V0162S229	IP22	2145	600	646	330	R7
187	90	80	3.7	1750	ACS880-07-0206A-3	B84143V0230S229	IP22	2145	600	646	340	R7
209	110	80	4.7	1750	ACS880-07-0246A-3	B84143V0230S229	IP22	2145	600	646	340	R8
249	132	80	6	1750	ACS880-07-0293A-3	B84143V0390S229	IP22	2145	600	646	430	R8
297	160	80	6.9	1150	ACS880-07-0363A-3	B84143V0390S229	IP22	2145	600	646	430	R9
352	160	80	8.1	1150	ACS880-07-0430A-3	B84143V0390S229	IP22	2145	600	646	430	R9
470	250	80	11.1	4950	ACS880-07-0505A-3	NSIN0900-6	IP22	2145	1000	646	840	R10
540	250	80	11.9	4950	ACS880-07-0585A-3	NSIN0900-6	IP22	2145	1000	646	840	R10
600	315	80	13.6	4950	ACS880-07-0650A-3	NSIN0900-6	IP22	2145	1000	646	840	R10
647	355	80	14.3	4950	ACS880-07-0725A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
731	400	80	15.4	4950	ACS880-07-0820A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
785	450	80	16.1	5170	ACS880-07-0880A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
1140	630	81	25	6290	ACS880-07-1140A-3	NSIN1380-6	IP22	2145	1000	646	960	D8T+2×R8i
12-pulse diode												
990	560	81	22	7720	ACS880-07-0990A-3+A004	NSIN1380-6	IP22	2145	1000	646	960	2×D7T+2×R8i
1140	630	81	26	7720	ACS880-07-1140A-3+A004	NSIN1380-6	IP22	2145	1000	646	960	2×D8T+2×R8i

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V. [3]

I_N (A)	P_N [1] (kW)	Noise level [2] (dB)	Heat dissi-pation [2] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height mm	Filter width mm	Filter depth mm	Filter weight kg	Frame size
6-pulse diode												
80	55	80	2.4	1750	ACS880-07-0096A-5	B84143V0130S229	IP22	2145	600	646	330	R6
104	55	80	2.6	1750	ACS880-07-0124A-5	B84143V0130S229	IP22	2145	600	646	330	R6
140	90	80	3	1750	ACS880-07-0156A-5	B84143V0162S229	IP22	2145	600	646	330	R7
162	110	80	3.4	1750	ACS880-07-0180A-5	B84143V0162S229	IP22	2145	600	646	330	R7
205	132	80	4.7	1750	ACS880-07-0240A-5	B84143V0230S229	IP22	2145	600	646	340	R8
221	132	80	5.3	1750	ACS880-07-0260A-5	B84143V0230S229	IP22	2145	600	646	340	R8
289	200	80	6.9	1150	ACS880-07-0361A-5	B84143V0390S229	IP22	2145	600	646	430	R9
332	200	80	8.1	1150	ACS880-07-0414A-5	B84143V0390S229	IP22	2145	600	646	430	R9
430	250	80	7.4	3650	ACS880-07-0460A-5	NSIN0485-6	IP22	2145	400	646	340	R10
470	315	80	12.1	4950	ACS880-07-0503A-5	NSIN0900-6	IP22	2145	1000	646	840	R10
514	355	80	12.9	4950	ACS880-07-0583A-5	NSIN0900-6	IP22	2145	1000	646	840	R10
560	400	80	14.6	4950	ACS880-07-0635A-5	NSIN0900-6	IP22	2145	1000	646	840	R10
637	450	80	15.3	4950	ACS880-07-0715A-5	NSIN0900-6	IP22	2145	1000	646	840	R11
730	500	80	16.4	4950	ACS880-07-0820A-5	NSIN0900-6	IP22	2145	1000	646	840	R11
730	500	80	17.1	4950	ACS880-07-0880A-5	NSIN0900-6	IP22	2145	1000	646	840	R11
1170	710	81	26	6290	ACS880-07-1070A-5	NSIN1380-6	IP22	2145	1000	646	960	D8T+2×R8i
12-pulse diode												
990	710	81	24	7720	ACS880-07-0990A-5+A004	NSIN1380-6	IP22	2145	1000	646	960	2×D7T+2×R8i

U_N = 690 V (range 525 to 690 V). The power ratings are valid at nominal voltage 690 V. [3]												
I_N (A)	P_N [1] (kW)	Noise level [2] (dB)	Heat dissipation [2] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height (mm)	Filter width (mm)	Filter depth (mm)	Filter weight (kg)	Frame size
6-pulse diode												
56	55	78	2.1	1750	ACS880-07-0061A-7	B84143V0056R230	IP22	2145	600	646	280	R6
78	75	79	2.6	1750	ACS880-07-0084A-7	B84143V0092R230	IP22	2145	600	646	310	R6
92	90	79	3.1	1750	ACS880-07-0098A-7	B84143V0092R230	IP22	2145	600	646	310	R7
112	110	80	3.4	1750	ACS880-07-0119A-7	B84143V0130S230	IP22	2145	600	646	330	R7
112	110	80	4.4	1750	ACS880-07-0142A-7	B84143V0130S230	IP22	2145	600	646	330	R8
138	132	80	5.3	1750	ACS880-07-0174A-7	B84143V0207S230	IP22	2145	600	646	410	R8
161	132	80	5.6	1150	ACS880-07-0210A-7	B84143V0207S230	IP22	2145	600	646	410	R9
208	200	80	6.2	1150	ACS880-07-0271A-7	B84143V0207S230	IP22	2145	600	646	410	R9
303	250	80	7.9	3650	ACS880-07-0330A-7	NSIN0485-6	IP22	2145	400	646	340	R10
340	315	80	9.1	3650	ACS880-07-0370A-7	NSIN0485-6	IP22	2145	400	646	340	R10
356	351	80	9.9	3650	ACS880-07-0430A-7	NSIN0485-6	IP22	2145	400	646	340	R10
360	355	80	11.6	3650	ACS880-07-0470A-7	NSIN0485-6	IP22	2145	400	646	340	R11
400	355	80	12.3	3650	ACS880-07-0522A-7	NSIN0485-6	IP22	2145	400	646	340	R11
450	400	80	17.4	4950	ACS880-07-0590A-7	NSIN0900-6	IP22	2145	1000	646	840	R11
550	500	80	18.1	5170	ACS880-07-0650A-7	NSIN0900-6	IP22	2145	1000	646	840	R11
550	500	80	18.1	5170	ACS880-07-0721A-7	NSIN0900-6	IP22	2145	1000	646	840	R11
800	800	80	23	6290	ACS880-07-0800A-7	NSIN0900-6	IP22	2145	1000	646	840	D8T+2×R8i
900	900	81	29	6290	ACS880-07-0900A-7	NSIN1380-6	IP22	2145	1000	646	960	D8T+2×R8i
1160	1100	81	35	7720	ACS880-07-1160A-7	NSIN1380-6	IP22	2145	1000	646	960	2×D8T+2×R8i
12-pulse diode												
800	800	80	23	7720	ACS880-07-0800A-7+A004	NSIN0900-6	IP22	2145	1000	646	840	2×D7T+2×R8i
950	900	81	29	7720	ACS880-07-0950A-7+A004	NSIN1380-6	IP22	2145	1000	646	960	2×D8T+2×R8i
1160	1100	81	35	7720	ACS880-07-1160A-7+A004	NSIN1380-6	IP22	2145	1000	646	960	2×D8T+2×R8i

[1] Please note that sine filters cause a voltage drop, reducing the available shaft power from the motor.
[2] Heat dissipation and noise level are combined values for the drive and the filter.
[3] Higher powers available as application engineered (+P902).
For further information please contact your local ABB office.

Sine filters for cabinet-built regenerative and ultra-low harmonic drives, ACS880-17 and ACS880-37

U_N = 400 V (range 380 to 415 V). The power ratings are valid at nominal voltage 400 V. [4]												
I_N (A)	P_N [1] (kW)	Noise level [2] (dB)	Heat dissipation [3] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height (mm)	Filter width (mm)	Filter depth (mm)	Filter weight (kg	Frame size
91	55	70	0.6	700	ACS880-17/37-0105A-3	B84143V0130R230	IP22	2145	600	646	330	R8
126	75	70	0.55	700	ACS880-17/37-0145A-3	B84143V0162S229	IP22	2145	600	646	330	R8
153	90	70	0.55	700	ACS880-17/37-0169A-3	B84143V0162S229	IP22	2145	600	646	330	R8
187	110	70	0,9	805	ACS880-17/37-0206A-3	B84143V0230S229	IP22	2145	600	646	330	R8
264	160	77	1.6	2100	ACS880-17/37-0293A-3	B84143V0390S229	IP22	2145	600	646	430	R11
327	200	77	1.6	2100	ACS880-17/37-0363A-3	B84143V0390S229	IP22	2145	600	646	430	R11
398	250	77	1.7	2100	ACS880-17/37-0442A-3	B84143V0390S229	IP22	2145	600	646	430	R11
455	250	80	3.0	2000	ACS880-17/37-0505A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
527	315	80	3.4	2000	ACS880-17/37-0585A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
585	355	80	3.8	2000	ACS880-17/37-0650A-3	NSIN0900-6	IP22	2145	1000	646	840	R11
450	250	80	16	700	ACS880-17/37-0450A-3	NSIN0485-6	IP22	2145	400	636	340	1×R8i+1×R8i
620	355	80	22	2000	ACS880-17/37-0620A-3	NSIN0900-6	IP22	2145	1000	636	840	1×R8i+1×R8i
870	500	81	32	2000	ACS880-17/37-0870A-3	NSIN1380-6	IP22	2145	1000	636	960	1×R8i+1×R8i
1110	630	81	38	2000	ACS880-17/37-1110A-3	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i
1210	710	81	41	2000	ACS880-17/37-1210A-3	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i

U_N = 500 V (range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.[4]

I_N (A)	P_N[1] (kW)	Noise level[2] (dB)	Heat dissipation[3] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height (mm)	Filter width (mm)	Filter depth (mm)	Filter weight (kg)	Frame size
80	45	70	0.6	700	ACS880-17/37-0101A-5	B84143V0130S230	IP22	2145	600	646	330	R8
104	55	70	0.6	700	ACS880-17/37-0124A-5	B84143V0130S230	IP22	2145	600	646	330	R8
140	75	70	0.6	700	ACS880-17/37-0156A-5	B84143V0162S229	IP22	2145	600	646	330	R8
161	90	70	0.6	805	ACS880-17/37-0180A-5	B84143V0162S229	IP22	2145	600	646	330	R8
234	160	77	0.9	2100	ACS880-17/37-0260A-5	B84143V0230S229	IP22	2145	600	646	340	R11
325	200	77	1.6	2100	ACS880-17/37-0361A-5	B84143V0390S229	IP22	2145	600	646	430	R11
373	250	77	1.6	2100	ACS880-17/37-0414A-5	B84143V0390S229	IP22	2145	600	646	430	R11
414	315	80	3.3	2000	ACS880-17/37-0460A-5	NSIN0900-6	IP22	2145	1000	646	840	R11
453	355	80	3.6	2000	ACS880-17/37-0503A-5	NSIN0900-6	IP22	2145	1000	646	840	R11
420	250	80	15	700	ACS880-17/37-0420A-5	NSIN0485-6	IP22	2145	400	636	340	1×R8i+1×R8i
570	400	80	21	2000	ACS880-17/37-0570A-5	NSIN0900-6	IP22	2145	1000	636	840	1×R8i+1×R8i
780	560	80	30	2000	ACS880-17/37-0780A-5	NSIN0900-6	IP22	2145	1000	636	840	1×R8i+1×R8i
1010	710	81	39	2000	ACS880-17/37-1010A-5	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i
1110	800	81	40	2000	ACS880-17/37-1110A-5	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i

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

I_N (A)	P_N[1] (kW)	Noise level[2] (dB)	Heat dissipation[3] (kW)	Air flow (m³/h)	Drive type	Filter type	Degree of protection	Filter height (mm)	Filter width (mm)	Filter depth (mm)	Filter weight (kg)	Frame size
157	160	77	0.9	2100	ACS880-17/37-0174A-7	B84143V0207S230	IP22	2145	600	646	410	R11
189	200	77	0.9	2100	ACS880-17/37-0210A-7	B84143V0207S230	IP22	2145	600	646	410	R11
244	250	77	0.9	2100	ACS880-17/37-0271A-7	B84143V0207S230	IP22	2145	600	646	410	R11
297	315	80	2.2	700	ACS880-17/37-0330A-7	NSIN0485-6	IP22	2145	400	646	340	R11
333	355	80	2.3	700	ACS880-17/37-0370A-7	NSIN0485-6	IP22	2145	400	646	340	R11
387	400	80	2.4	700	ACS880-17/37-0430A-7	NSIN0485-6	IP22	2145	400	646	340	R11
320	315	80	18	700	ACS880-17/37-0320A-7	NSIN0485-6	IP22	2145	400	636	340	1×R8i+1×R8i
390	355	80	21	700	ACS880-17/37-0390A-7	NSIN0485-6	IP22	2145	400	636	340	1×R8i+1×R8i
580	560	80	30	2000	ACS880-17/37-0580A-7	NSIN0900-6	IP22	2145	1000	636	840	1×R8i+1×R8i
660	630	80	35	2000	ACS880-17/37-0660A-7	NSIN0900-6	IP22	2145	1000	636	840	2×R8i+2×R8i
770	710	80	41	2000	ACS880-17/37-0770A-7	NSIN0900-6	IP22	2145	1000	636	840	2×R8i+2×R8i
950	900	81	47	2000	ACS880-17/37-0950A-7	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i
1130	1100	81	57	2000	ACS880-17/37-1130A-7	NSIN1380-6	IP22	2145	1000	636	960	2×R8i+2×R8i

[1] Please note that sine filters cause a voltage drop, reducing the available shaft power from the motor.
[2] Noise level is a combined value for the drive and the filter.
[3] Heat dissipation is a combined value for the drive and the filter, except for frame sizes R8 and R11 the heat dissipation value is for the filter only.
[4] Higher powers available as application engineered (+P902).
Sine filters for larger types are available as customized option.
For further information please contact your local ABB office.

Brake options

01 Brake resistor, SACE15RE13

Brake chopper
The brake chopper is built-in as standard for ACS880-01 frame sizes R1 to R4. For other constructions and frames, a brake chopper is a selectable internal option (except for the ACS880-11 and ACS880-31, where the chopper is an external option*). Braking control is integrated into ACS880 single drives. It not only controls braking, but also supervises system status and detects failures such as brake resistor and resistor cable short-circuits, chopper short-circuits, and calculated resistor overtemperature.

Brake resistor
The brake resistors are separately available for the ACS880-x1 and built in for the cabinet-built ACS880-x7. 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. No separate fuses in the brake circuit are required if e.g. the mains cable is protected with fuses and no mains cable/fuse overrating takes place.

*) For more information, please contact your local ABB office.

01

Brake resistor	Height mm	Width mm	Depth mm	Weight kg
JBR-03	124	340	77	0.8
SACE08RE44	365	290	131	6.1
SACE15RE22	365	290	131	6.1
SACE15RE13	365	290	131	6.8
SAFUR80F500	600	300	345	14
SAFUR90F575	600	300	345	12
SAFUR125F500	1320	300	345	25
SAFUR200F500	1320	300	345	30

Brake options, ACS880-01

U_N = 230 V (range 208 to 240 V)

Braking power		Brake resistor(s)				Drive type	Frame size
P_{brcont} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
0.75	65	JBR-03	80	40	0.14	ACS880-01-04A6-2	R1
1.1	65	JBR-03	80	40	0.14	ACS880-01-06A6-2	R1
1.5	65	JBR-03	80	40	0.14	ACS880-01-07A5-2	R1
2.2	65	JBR-03	80	40	0.14	ACS880-01-10A6-2	R1
4	18	SACE15RE22	22	420	2	ACS880-01-16A8-2	R2
5.5	18	SACE15RE22	22	420	2	ACS880-01-24A3-2	R2
7.5	13	SACE15RE13	13	435	2	ACS880-01-031A-2	R3
11	12	SACE15RE13	13	435	2	ACS880-01-046A-2	R4
11	12	SACE15RE13	13	435	2	ACS880-01-061A-2	R4
18.5	6	SAFUR90F575	8	1800	4.5	ACS880-01-075A-2+D150	R5
22	6	SAFUR90F575	8	1800	4.5	ACS880-01-087A-2+D150	R5
30	3.5	SAFUR125F500	4	3600	9	ACS880-01-115A-2+D150	R6
37	3.5	SAFUR125F500	4	3600	9	ACS880-01-145A-2+D150	R6
45	2.4	SAFUR200F500	2.7	5400	13.5	ACS880-01-170A-2+D150	R7
55	2.4	SAFUR200F500	2.7	5400	13.5	ACS880-01-206A-2+D150	R7
75	1.8	SAFUR200F500	2.7	5400	13.5	ACS880-01-274A-2+D150	R8

U_N = 400 V (range 380 to 415 V)							
Braking power		Brake resistor(s)				Drive type	Frame size
P_{brcont} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
0.75	78	JBR-03	80	40	0.14	ACS880-01-02A4-3	R1
1.1	78	JBR-03	80	40	0.14	ACS880-01-03A3-3	R1
1.5	78	JBR-03	80	40	0.14	ACS880-01-04A0-3	R1
2.2	78	JBR-03	80	40	0.14	ACS880-01-05A6-3	R1
3	78	JBR-03	80	40	0.14	ACS880-01-07A2-3	R1
4	78	JBR-03	80	40	0.14	ACS880-01-09A4-3	R1
5.5	78	JBR-03	80	40	0.14	ACS880-01-12A6-3	R1
7.5	39	SACE08RE44	44	210	1	ACS880-01-017A-3	R2
11	39	SACE08RE44	44	210	1	ACS880-01-025A-3	R2
15	19	SACE15RE22	22	420	2	ACS880-01-032A-3	R3
18.5	19	SACE15RE22	22	420	2	ACS880-01-038A-3	R3
22	13	SACE15RE13	13	435	2	ACS880-01-045A-3	R4
22	13	SACE15RE13	13	435	2	ACS880-01-061A-3	R4
37	8	SAFUR90F575	8	1800	4.5	ACS880-01-072A-3+D150	R5
45	8	SAFUR90F575	8	1800	4.5	ACS880-01-087A-3+D150	R5
55	5.4	SAFUR80F500	6	2400	6	ACS880-01-105A-3+D150	R6
75	5.4	SAFUR80F500	6	2400	6	ACS880-01-145A-3+D150	R6
90	3.3	SAFUR125F500	4	3600	9	ACS880-01-169A-3+D150	R7
110	3.3	SAFUR125F500	4	3600	9	ACS880-01-206A-3+D150	R7
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-246A-3+D150	R8
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-293A-3+D150	R8
160	2	SAFUR200F500	2.7	5400	13.5	ACS880-01-363A-3+D150	R9
160	2	SAFUR200F500	2.7	5400	13.5	ACS880-01-430A-3+D150	R9

U_N = 500 V (range 380 to 500 V)							
Braking power		Brake resistor(s)				Drive type	Frame size
P_{brcont} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
0.75	78	JBR-03	80	40	0.14	ACS880-01-02A1-5	R1
1.1	78	JBR-03	80	40	0.14	ACS880-01-03A0-5	R1
1.5	78	JBR-03	80	40	0.14	ACS880-01-03A4-5	R1
2.2	78	JBR-03	80	40	0.14	ACS880-01-04A8-5	R1
3	78	JBR-03	80	40	0.14	ACS880-01-05A2-5	R1
4	78	JBR-03	80	40	0.14	ACS880-01-07A6-5	R1
5.5	78	JBR-03	80	40	0.14	ACS880-01-11A0-5	R1
7.5	39	SACE08RE44	44	210	1	ACS880-01-014A-5	R2
11	39	SACE08RE44	44	210	1	ACS880-01-021A-5	R2
15	19	SACE15RE22	22	420	2	ACS880-01-027A-5	R3
18.5	19	SACE15RE22	22	420	2	ACS880-01-034A-5	R3
22	13	SACE15RE13	13	435	2	ACS880-01-040A-5	R4
22	13	SACE15RE13	13	435	2	ACS880-01-052A-5	R4
37	8	SAFUR90F575	8	1800	4.5	ACS880-01-065A-5+D150	R5
45	8	SAFUR90F575	8	1800	4.5	ACS880-01-077A-5+D150	R5
55	5.4	SAFUR80F500	6	2400	6	ACS880-01-096A-5+D150	R6
75	5.4	SAFUR80F500	6	2400	6	ACS880-01-124A-5+D150	R6
90	3.3	SAFUR125F500	4	3600	9	ACS880-01-156A-5+D150	R7
110	3.3	SAFUR125F500	4	3600	9	ACS880-01-180A-5+D150	R7
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-240A-5+D150	R8
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-260A-5+D150	R8
160	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-361A-5+D150	R9
160	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-414A-5+D150	R9
200	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-01-441A-5+D150	R9

U_N = 690 V (range 525 to 690 V)							
Braking power		Brake resistor(s)				Drive type	Frame size
P_{brcont} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
5.5	44	SACE08RE44	44	210	1	ACS880-01-07A4-7	R3
7.5	44	SACE08RE44	44	210	1	ACS880-01-09A9-7	R3
11	44	SACE08RE44	44	210	1	ACS880-01-14A3-7	R3
15	44	SACE08RE44	44	210	1	ACS880-01-019A-7	R3
18.5	44	SACE08RE44	44	210	1	ACS880-01-023A-7	R3
22	44	SACE08RE44	44	210	1	ACS880-01-027A-7	R3
33	18	SACE15RE22	22	420	2	ACS880-01-035A-7+D150	R5
45	18	SACE15RE22	22	420	2	ACS880-01-042A-7+D150	R5
45	18	SACE15RE22	22	420	2	ACS880-01-049A-7+D150	R5
55	13	SACE15RE13	13	435	2	ACS880-01-061A-7+D150	R6
65	13	SACE15RE13	13	435	2	ACS880-01-084A-7+D150	R6
90	8	SAFUR90F575	8	1800	4.5	ACS880-01-098A-7+D150	R7
110	8	SAFUR90F575	8	1800	4.5	ACS880-01-119A-7+D150	R7
132	6	SAFUR80F500	6	2400	6	ACS880-01-142A-7+D150	R8
160	6	SAFUR80F500	6	2400	6	ACS880-01-174A-7+D150	R8
200	4	SAFUR125F500	4	3600	9	ACS880-01-210A-7+D150	R9
200	4	SAFUR125F500	4	3600	9	ACS880-01-271A-7+D150	R9

All brake resistors are to be installed outside the converter module. The JBR brake resistors are built-in to an IP20 metal housing.
The SACE brake resistors are built-in to an IP21 metal housing. The SAFUR brake resistors are built-in to an IP00 metal frame.

Ratings	
P_{brcont}	Continuous brake chopper power. The value applies to the minimum resistance value. With a higher resistance value, the P_{brcont} may increase in some ACS880 units.
R	Resistance value for the listed resistor type.
R_{min}	Minimum allowable resistance value for the brake resistor.
E_r	Energy pulse that the resistor assembly will withstand (400 s duty cycle). This energy will heat the resistor element from 40 °C to the maximum allowable temperature.
P_{rcont}	Continuous power (heat) dissipation of the resistor when placed correctly. Energy E_r dissipates in 400 seconds.

Brake options, ACS880-07

U_N = 400 V (range 380 to 415 V)						
Braking power		Brake resistor(s)				Drive type	Frame size
P_{brmax} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
55	5.4	SAFUR80F500	6	2400	6	ACS880-07-0105A-3+D150 [2)]	R6
75	5.4	SAFUR80F500	6	2400	6	ACS880-07-0145A-3+D150 [2)]	R6
90	3.3	SAFUR125F500	4	3600	9	ACS880-07-0169A-3+D150 [2)]	R7
110	3.3	SAFUR125F500	4	3600	9	ACS880-07-0206A-3+D150 [2)]	R7
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0246A-3+D150 [2)]	R8
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0293A-3+D150 [2)]	R8
160	2	SAFUR200F500	2.7	5400	13.5	ACS880-07-0363A-3+D150 [2)]	R9
160	2	SAFUR200F500	2.7	5400	13.5	ACS880-07-0430A-3+D150 [2)]	R9
250	2	2×SAFUR125F500	2	7200	18	ACS880-07-0505A-3+D150 [2)]	R10
315	1.3	2×SAFUR200F500	1.35	10800	27	ACS880-07-0585A-3+D150 [2)]	R10
315	1.3	2×SAFUR200F500	1.35	10800	27	ACS880-07-0650A-3+D150 [2)]	R10
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0725A-3+D150 [2)]	R11
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0820A-3+D150 [2)]	R11
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0880A-3+D150 [2)]	R11

U_N = 400 V (range 380 to 415 V)													
Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brmax} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
6-pulse diode													
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-07-1140A-3+D150 [2)]	D8T+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1250A-3+D150 [2)]	2×D8T+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1480A-3+D150 [2)]	2×D8T+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1760A-3+D150 [2)]	2×D8T+2×R8i
12-pulse diode													
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-07-0990A-3+A004+D150 [2)]	2×D7T+2×R8i
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-07-1140A-3+A004+D150 [2)]	2×D8T+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1250A-3+A004+D150 [2)]	2×D8T+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1480A-3+A004+D150 [2)]	2×D8T+2×R8i
1058	0.4	1635	251	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-07-1760A-3+A004+D150 [2)]	2×D8T+2×R8i

U_N = 500 V (range 380 to 500 V)							
Braking power		Brake resistor(s)				Drive type	Frame size
P_{brmax} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
55	5.4	SAFUR80F500	6	2400	6	ACS880-07-0096A-5+D150 [2)]	R6
75	5.4	SAFUR80F500	6	2400	6	ACS880-07-0124A-5+D150 [2)]	R6
90	3.3	SAFUR125F500	4	3600	9	ACS880-07-0156A-5+D150 [2)]	R7
110	3.3	SAFUR125F500	4	3600	9	ACS880-07-0180A-5+D150 [2)]	R7
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0240A-5+D150 [2)]	R8
132	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0260A-5+D150 [2)]	R8
160	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0361A-5+D150 [2)]	R9
160	2.3	SAFUR200F500	2.7	5400	13.5	ACS880-07-0414A-5+D150 [2)]	R9
250	2	2×SAFUR125F500	2	7200	18	ACS880-07-0460A-5+D150 [2)]	R10
250	2	2×SAFUR125F500	2	7200	18	ACS880-07-0503A-5+D150 [2)]	R10
315	1.3	2×SAFUR200F500	1.35	10800	27	ACS880-07-0583A-5+D150 [2)]	R10
315	1.3	2×SAFUR200F500	1.35	10800	27	ACS880-07-0635A-5+D150 [2)]	R10
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0715A-5+D150 [2)]	R11
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0820A-5+D150 [2)]	R11
400	0.7	3×SAFUR200F500	0.9	16200	40	ACS880-07-0880A-5+D150 [2)]	R11

U_N = 500 V (range 380 to 500 V)													
Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brcont} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
6-pulse diode													
806	0.68	1210	134	108	333	412	575	710	2xNBRA-659	2 x (2 x SAFUR200F500)	21600	ACS880-07-1070A-5+D150 [2)]	D8T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR200F500)	32400	ACS880-07-1320A-5+D150 [2)]	2×D8T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR180F460)	32400	ACS880-07-1450A-5+D150 [2)]	2×D8T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR200F500)	32400	ACS880-07-1580A-5+D150 [2)]	2×D8T+2×R8i
12-pulse diode													
806	0.68	1210	134	108	333	412	575	710	2xNBRA-659	2 x (2 x SAFUR200F500)	21600	ACS880-07-0990A-5+A004+D150 [2)]	2×D7T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR200F500)	32400	ACS880-07-1320A-5+A004+D150 [2)]	2×D8T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR180F460)	32400	ACS880-07-1450A-5+A004+D150 [2)]	2×D8T+2×R8i
1208	0.45	1815	201	162	500	618	862	1065	3xNBRA-659	3 x (2 x SAFUR200F500)	32400	ACS880-07-1580A-5+A004+D150 [2)]	2×D8T+2×R8i

U_N = 690 V (range 525 to 690 V)						
Braking power		Brake resistor(s)				Drive type	
P_{brmax} (kW)	R_{min} (ohm)	Type	R (ohm)	E_r (kJ)	P_{rcont} (kW)		
55	13	SACE15RE13	13	435	2	ACS880-07-0061A-7+D150 [2)]	R6
65	13	SACE15RE13	13	435	2	ACS880-07-0084A-7+D150 [2)]	R6
90	8	SAFUR90F575	8	1800	4,5	ACS880-07-0098A-7+D150 [2)]	R7
110	8	SAFUR90F575	8	1800	4,5	ACS880-07-0119A-7+D150 [2)]	R7
132	6	SAFUR80F500	6	2400	6	ACS880-07-0142A-7+D150 [2)]	R8
160	6	SAFUR80F500	6	2400	6	ACS880-07-0174A-7+D150 [2)]	R8
200	4	SAFUR125F500	4	3600	9	ACS880-07-0210A-7+D150 [2)]	R9
200	4	SAFUR125F500	4	3600	9	ACS880-07-0271A-7+D150 [2)]	R9
285	2.2	SAFUR200F500	2.7	3600	13	ACS880-07-0330A-7+D150 [2)]	R10
285	2.2	SAFUR200F500	2.7	3600	13	ACS880-07-0370A-7+D150 [2)]	R10
285	2.2	SAFUR200F500	2.7	3600	13	ACS880-07-0430A-7+D150 [2)]	R10
350	2	2×SAFUR125F500	2	7200	18	ACS880-07-0470A-7+D150 [2)]	R11
350	2	2×SAFUR125F500	2	7200	18	ACS880-07-0522A-7+D150 [2)]	R11
400	1.8	2×SAFUR125F500	2	7200	18	ACS880-07-0590A-7+D150 [2)]	R11
400	1.8	2×SAFUR125F500	2	7200	18	ACS880-07-0650A-7+D150 [2)]	R11
400	1.8	2×SAFUR125F500	2	7200	18	ACS880-07-0721A-7+D150 [2)]	R11

[2)] = +D150+D151 if resistor is ordered

U_N = 690 V (range 525 to 690 V)													
Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brmax} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
6-pulse diode													
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-0800A-7+D150 [2)]	D8T+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-0900A-7+D150 [2)]	D8T+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-1160A-7+D150 [2)]	2×D8T+2×R8i
12-pulse diode													
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-0800A-7+A004+D150 [2)]	2×D7T+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-0950A-7+A004+D150 [2)]	2×D8T+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-07-1160A-7+A004+D150 [2)]	2×D8T+2×R8i

Brake choppers and resistors for larger types are available as customized option.

Ratings	
P_{brmax}	Maximum braking power of the ACS880 equipped with the standard chopper and resistor.
R	Resistance value for the listed resistor type.
R_{min}	Minimum allowable resistance value for the brake resistor.
E_r	Energy pulse that the resistor assembly will withstand (400 s duty cycle). This energy will heat the resistor element from 40 °C to the maximum allowable temperature.
P_{cont}	Maximum continuous braking power
I_{max}	Maximum peak current during braking. Current is achieved with recommended resistor resistance.
I_{rms}	Corresponding rms current during load cycle.
P_{rcont}	Continuous power (heat) dissipation of the resistor when placed correctly. Energy E_r dissipates in 400 seconds.

Additional width for ACS880-07	
Brake quantity	Width (mm)
1xSAFUR	400
2xSAFUR	800

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Brake options, ACS880-37

U_N = 400 V (range 380 to 415 V)

Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brmax} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
230	1.7	345	65	42	130	195	224	336	NBRA658	2 x SAFUR210F575	16800	ACS880-37-0105A-3+D150 [2)]	R8
230	1.7	345	65	42	130	195	224	336	NBRA658	2 x SAFUR210F575	16800	ACS880-37-0145A-3+D150 [2)]	R8
230	1.7	345	65	42	130	195	224	336	NBRA658	2 x SAFUR210F575	16800	ACS880-37-0169A-3+D150 [2)]	R8
230	1.7	345	65	42	130	195	224	336	NBRA658	2 x SAFUR210F575	16800	ACS880-37-0206A-3+D150 [2)]	R8
355	1.2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0293A-3+D150 [2)]	R11
355	1.2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0363A-3+D150 [2)]	R11
355	1.2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0442A-3+D150 [2)]	R11
355	1,2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0505A-3+D150 [2)]	R11
355	1.2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0585A-3+D150 [2)]	R11
355	1.2	532	84	60	167	250	287	430	NBRA659	2 x SAFUR180F460	24000	ACS880-37-0650A-3+D150 [2)]	R11
353	1.2	545	84	54	167	444	287	444	NBRA659	2 x SAFUR180F460	12000	ACS880-37-0450A-3+D150 [2)]	R8i+R8i
353	1.2	545	84	54	167	444	287	444	NBRA659	2 x SAFUR180F460	12000	ACS880-37-0620A-3+D150 [2)]	R8i+R8i
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-37-0870A-3+D150 [2)]	R8i+R8i
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-37-1110A-3+D150 [2)]	2×R8i+2×R8i
706	0.6	1090	168	108	333	514	575	888	2xNBRA659	2 x (2 x SAFUR180F460)	24000	ACS880-37-1210A-3+D150 [2)]	2×R8i+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-37-1430A-3+D150 [2)]	2×R8i+2×R8i
1058	0.4	1635	252	162	500	771	862	1332	3xNBRA659	3 x (2 x SAFUR180F460)	36000	ACS880-37-1700A-3+D150 [2)]	2×R8i+2×R8i

U_N = 500 V (range 380 to 500 V)

Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brmax} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
268	2	334	45	36	111	138	192	239	NBRA658	2 x SAFUR125F500	14400	ACS880-37-0101A-5+D150 [2)]	R8
268	2	334	45	36	111	138	192	239	NBRA658	2 x SAFUR125F500	14400	ACS880-37-0124A-5+D150 [2)]	R8
268	2	334	45	36	111	138	192	239	NBRA658	2 x SAFUR125F500	14400	ACS880-37-0156A-5+D150 [2)]	R8
268	2	334	45	36	111	138	192	239	NBRA658	2 x SAFUR125F500	14400	ACS880-37-0180A-5+D150 [2)]	R8
403	1.35	502	67	54	167	208	287	357	NBRA659	2 x SAFUR200F500	21600	ACS880-37-0260A-5+D150 [2)]	R11
403	1.35	502	67	54	167	208	287	357	NBRA659	2 x SAFUR200F500	21600	ACS880-37-0361A-5+D150 [2)]	R11
403	1.35	502	67	54	167	208	287	357	NBRA659	2 x SAFUR200F500	21600	ACS880-37-0414A-5+D150 [2)]	R11
403	1.35	502	67	54	167	208	287	357	NBRA659	2 x SAFUR200F500	21600	ACS880-37-0460A-5+D150 [2)]	R11
403	1.35	502	67	54	167	208	287	357	NBRA659	2 x SAFUR200F500	21600	ACS880-37-0503A-5+D150 [2)]	R11
403	1.35	605	67	54	167	206	287	355	NBRA659	2 x SAFUR200F500	10800	ACS880-37-0420A-5+D150 [2)]	R8i+R8i
403	1.35	605	67	54	167	206	287	355	NBRA659	2 x SAFUR200F500	10800	ACS880-37-0570A-5+D150 [2)]	R8i+R8i
806	0.68	1210	134	108	333	412	575	710	2xNBRA659	2 x (2 x SAFUR200F500)	21600	ACS880-37-0780A-5+D150 [2)]	R8i+R8i
806	0.68	1210	134	108	333	412	575	710	2xNBRA659	2 x (2 x SAFUR180F460)	21600	ACS880-37-1010A-5+D150 [2)]	2×R8i+2×R8i
806	0.68	1210	134	108	333	412	575	710	2xNBRA659	2 x (2 x SAFUR200F500)	21600	ACS880-37-1110A-5+D150 [2)]	2×R8i+2×R8i
1208	0.45	2815	201	162	500	618	862	1065	3xNBRA659	3 x (2 x SAFUR200F500)	32400	ACS880-37-1530A-5+D150 [2)]	2×R8i+2×R8i

U_N = 690 V (range 525 to 690 V)													
Nominal ratings					Duty cycle (1min/ 5min)		Duty cycle (10s/ 60s)		Brake chopper type	Brake resistor type		Drive type	Frame size
P_{brmax} (kW)	R (ohm)	I_{max} (A)	I_{rms} (A)	P_{cont} (kW)	P_{br} (kW)	I_{rms} (A)	P_{br} (kW)	I_{rms} (A)			E_r (kJ)		
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0174A-7+D150 [2)]	R11
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0210A-7+D150 [2)]	R11
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0271A-7+D150 [2)]	R11
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0330A-7+D150 [2)]	R11
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0370A-7+D150 [2)]	R11
403	1.35	364	97	54	167	151	287	259	NBRA669	2 x SAFUR200F500		ACS880-37-0430A-7+D150 [2)]	R11
404	1.35	835	97	54	167	149	287	257	NBRA669	2 x SAFUR200F500	10800	ACS880-37-0320A-7+D150 [2)]	R8i+R8i
404	1.35	835	97	54	167	149	287	257	NBRA669	2 x SAFUR200F500	10800	ACS880-37-0390A-7+D150 [2)]	R8i+R8i
807	0.68	1670	194	108	333	298	575	514	2xNBRA669	2 x (2 x SAFUR200F500)	21600	ACS880-37-0580A-7+D150 [2)]	R8i+R8i
807	0.68	1670	194	108	333	298	575	514	2xNBRA669	2 x (2 x SAFUR200F500)	21600	ACS880-37-0660A-7+D150 [2)]	2×R8i+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-37-0770A-7+D150 [2)]	2×R8i+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-37-0950A-7+D150 [2)]	2×R8i+2×R8i
1211	0.45	2505	291	162	500	447	862	771	3xNBRA-669	3 x (2 x SAFUR200F500)	32400	ACS880-37-1130A-7+D150 [2)]	2×R8i+2×R8i

Brake choppers and resistors for larger types are available as customized option.
[2)] = +D150+D151 if resistor is ordered

Ratings	
P_{brmax}	Maximum braking power of the ACS880 equipped with the standard chopper and resistor.
R	Resistance value for the listed resistor type.
R_{min}	Minimum allowable resistance value for the brake resistor.
E_r	Energy pulse that the resistor assembly will withstand (400 s duty cycle). This energy will heat the resistor element from 40 °C to the maximum allowable temperature.
P_{cont}	Maximum continuous braking power
I_{max}	Maximum peak current during braking. Current is achieved with recommended resistor resistance.
I_{rms}	Corresponding rms current during load cycle.
P_{rcont}	Continuous power (heat) dissipation of the resistor when placed correctly. Energy E_r dissipates in 400 seconds.

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Brake options, ACS880-07CLC, ACS880-17LC and ACS880-37LC

For liquid-cooled cabinet drives, ACS880-07CLC, -17LC and -37LC, brake options are available as engineered variants.

Du/dt filters

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

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

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

Filter selection table for ACS880

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

[1] Manufactured before 1.1.1998.
[2] For motors manufactured before 1.1.1998, check for additional instructions with the motor manufacturer.

Non-ABB motors

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

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NOCH0016-60

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NOCH0016-62

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NOCH0016-65

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FOCH0610-70

External du/dt filter for ACS880-01, ACS880-11 and ACS880-31

			du/dt filter type *) 3 filters included, dimensions apply to one filter.															
			Unprotected (IP00)						Protected to IP22						Protected to IP54			
400 V	500 V	690 V	NOCH0016-60	NOCH0030-60	NOCH0070-60	NOCH0120-60*)	FOCH0260-70	FOCH0320-50	NOCH0016-62	NOCH0030-62	NOCH0070-62	NOCH0120-62	FOCH0260-72	FOCH0320-52	NOCH0016-65	NOCH0030-65	NOCH0070-65	NOCH0120-65
02A4-3	02A1-5		x						x						x			
03A3-3	03A0-5		x						x						x			
	03A4-5		x						x						x			
04A0-3	04A8-5		x						x						x			
05A6-3	05A2-5	07A4-7	x						x						x			
07A2-3	07A6-5		x						x						x			
09A4-3		09A9-7	x						x						x			
12A6-3	11A0-5		x						x						x			
		14A3-7	x						x						x			
	014A-5			x						x						x		
017A-3		019A-7		x						x						x		
	021A-5			x						x						x		
		023A-7		x						x						x		
025A-3				x						x						x		
		027A-7		x						x						x		
	027A-5				x						x						x	
032A-3	034A-5	035A-7			x						x						x	
038A-3	040A-5	042A-7			x						x						x	
045A-3	052A-5	049A-7			x						x						x	
061A-3					x						x						x	
	065A-5	061A-7				x						x						x
072A-3	077A-5					x						x						x
087A-3		084A-7				x						x						x
105A-3	096A-5	098A-7				x						x						x
	124A-5	119A-7					x						x					
145A-3	156A-5	142A-7					x						x					
169A-3	180A-5	174A-7					x						x					
206A-3	240A-5	210A-7					x						x					
246A-3	260A-5	271A-7					x						x					
293A-3							x						x					
363A-3	361A-5							x						x				
430A-3	414A-5							x						x				

Applicability

Separate du/dt filters are available for the ACS880- 01, -11 and -31. Unprotected IP00 filters must be placed in an enclosure that provides an adequate degree of protection.

Factory-installed du/dt filters are available for the ACS880-07. They are installed inside the drive cabinet.

Dimensions and weights of the du/dt filters

du/dt filter	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
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*	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

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.

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

Jokab safety products
ABB Jokab Safety is 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

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

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

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

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

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

Traditional IE2 induction motor

IE4 synchronous reluctance motor SynRM

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Losses

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

Synchronous reluctance technology combines the performance of a permanent magnet motor with the simplicity and service-friendliness of an induction motor. The new rotor has neither magnets nor windings and suffers virtually no power losses. Because the footprints are identical, it is easy to replace an induction motor with a SynRM motor.

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

Keep your process running

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

Replacements
Fast and efficient replacement services to minimize production downtime.

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

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

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

Option code	Description
+P904	Extension of warranty to 24 months from commissioning or 30 months from delivery
+P909	Extension of warranty to 36 months from commissioning or 42 months from delivery
+P911	Extension of warranty to 66 months from delivery

Global service network 24/7

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

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

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

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

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

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

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

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

ABB Ability™ Digital Powertrain

1 Intelligent powertrain

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

2 Turning data into valuable information

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

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

3

Accessing data for analytics

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

4

Gain a digital advantage

Ensuring that the right person has the right information to at the right time brings:

- Appropriate response to production challenges, minimizing operating costs and wastage of products
- Greater insight into various aspects of your process, thereby improving quality and reducing variations, errors and waste
- Lower risk of production downtime and change of the maintenance from reactive to predictive

Summary of features and options

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ACS880 air-cooled single drives

	Ordering code	ACS880-01 R1 to R9	ACS880-11/31 R3 to R8	ACS880-07 R6 to R11	ACS880-07 nxR8i	ACS880-17/37 R8 to R11	ACS880-17/37 nxR8i [9]
Mounting							
Wall-mounting		●	●	–	–	–	–
For cabinet mounting	+P940 +P944	□ □	□ –	– –	– –	– –	– –
Cabinet-built		–	–	●	●	●	●
Flange mounting	+C135	□[16]	□[16]	–	–	–	–
Cabling							
Bottom entry and exit		●	●	●	●	●	●
Top entry and exit	+H351, +H353	–	–	□	□	□	□
Degree of protection							
IP20 (UL open type)	+P940 +P944	□ □	□ –	– –	– –	– –	– –
IP21 (UL type 1)		●	●	–	–	–	–
IP22 (UL type 1)		–	–	●	●	●	●
IP42 (UL type 1)	+B054	–	–	□	□	□	□
IP54 (UL type 12)	+B055	–	–	□	□	□	□
IP55 (UL type 12)	+B056	□	□[5]	–	–	–	–
Motor control							
DTC motor control		●	●	●	●	●	●
Control panel							
Intuitive control panel		●[1]	●[1]	●	●	●	●
Integrated control panel holder in the drive		●	●	●	●	●	●
Control panel mounting platform DPMP-01 (flush) / DPMP-02 (surface)		■	■	●	●	●	●
EMC filters							
EMC 1st environment, restricted distribution, C2, grounded network (TN)	+E202	□[2]	□[17]	□[2]	□[18]	□[21]	□[24]
EMC 2nd environment, C3, grounded network (TN)	+E200	□[3]	□	□[3]	●	□[22]	●
EMC 2nd environment, C3, ungrounded network (IT)	+E201	□[4]	□	□[4]	●	□[25]	●
Line filter							
AC or DC choke		●	–	●	●	–	–
Advanced line harmonic filter (LCL)		–	●	–	–	●	●
Output filter							
Common mode filter	+E208	□	□	□	●	□[30]	●
du/dt filters	+E205	■	■	□	●	□	●
Braking (see braking unit table)							
Brake chopper	+D150	□[6]	■[9]	□	□[7]	□	□
Brake resistor	+D151	■	■[9]	□	□[7]	□	□

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

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ACS880 air-cooled single drives

	Ordering code	ACS880-01 R1 to R9	ACS880-11/31 R3 to R8	ACS880-07 R6 to R11	ACS880-07 nxR8i	ACS880-17/37 R8 to R11	ACS880-17/37 nxR8i [9]
Software							
Primary control program		●	●	●	●	●	●
Drive application programming based on IEC 61131-3 using Drive Application Builder (available for primary control program)	+N8010	□	□	□	□	□	□
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 Rod pump	+N5250	□	□	–	–	–	–
Application control program for test bench	+N5300	□	□	□	□	□	□
Application control program for cooling tower direct drive	+N5350	□	□	□	□	□	□
Application control program for override control	+N5450	□	□	□	□	–	□
Application control program for spinning and traverse	+N5500	□	[19]	–	–	□	–
Application control program for chemical industry process control	+N5550	□	[19]	–	–	–	–
Application control program for ESP pumps	+N5600	□	□	□	□	□	□
Application control program for tower cranes	+N5650	□	□	–	–	–	–
Application control program for position control	+N5700	□	□ [26]	□	□	[19]	[19]
Support for asynchronous motor		●	●	●	●	●	●
Support for permanent magnet motor		●	●	●	●	●	●
Support for synchronous reluctance motor (SynRM)	+N7502	□	□	□	□	□	□
High speed license. Allows high speed operation above 598 Hz output frequency.	+N8200	□ [26]	–	□ [26]	□ [26]	□ [26]	□ [26]
Rectifier bridge							
12-pulse	+A004	–	–	–	□	–	–
Line side apparatus							
aR line fuses		–	–	●	●	●	●
Main switch		–	–	●	●	●	●
Line contactor	+F250	–	–	□	□ [11]	●	● [12]
Air circuit breaker	+F255	–	–	–	□ [8]	–	● [13]
Earthing switch	+F259	–	–	–	□	–	□
Cabinet options							
Cabinet heater (ext. supply)	+G300	–	–	□	□	□	□
Output for motor heater (ext. supply)	+G313	–	–	□	□	□	□
Customized options	+P902	–	–	□	□	□	□

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

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ACS880 air-cooled single drives

	Ordering code	ACS880-01 R1 to R9	ACS880-11/31 R3 to R8	ACS880-07 R6 to R11	ACS880-07 nxR8i	ACS880-17/37 R8 to R11	ACS880-17/37 nxR8i [9]
Safety functions [20]							
Safe torque off (STO)		●	●	●	●	●	●
Safety functions module, FSO-12, without encoder, configurable functions: - Safe stop 1 (SS1-t, SS1-r), - Safely-limited speed (SLS) - Safe brake control (SBC) - Safe maximum speed (SMS) - Safe stop emergency (SSE) - Prevention of unexpected start-up (POUS) - Safe torque off (STO)	+Q973	□	□	□	□	□	□
Safety functions module, FSO-21, with encoder support, configurable functions: - Safe stop 1 (SS1-t, SS1-r) - Safely-limited speed (SLS) - Safe brake control (SBC) - Safe maximum speed (SMS) - Safe stop emergency (SSE) - Prevention of unexpected start-up (POUS) - Safe direction (SDI), requires encoder feedback, FSE-31 - Safe speed monitoring (SSM) - Safe torque off (STO)	+Q972	□	□	□	□	□	□
Pulse encoder interface module, FSE-31	+L521	□	□	□	□	□	□
PROFIsafe over PROFINET	+Q982	□	□	□	□	□	□
PROFIsafe safety functions module, FSPS-21	+Q986	□	□	□	□	□ [9]	□ [9]
Prevention of unexpected start-up with safety relay (preconfigured)	+Q957	–	–	□	□	□	□
Prevention of unexpected start-up with FSO-12 and -21 (preconfigured)	+Q950	–	–	□	□	□	□
Emergency stop, category 0 with opening the main contactor/breaker, with safety relay (preconfigured)	+Q951	–	–	□	□	□	□
Emergency stop, category 1 with opening the main contactor/breaker, with safety relay (preconfigured)	+Q952	–	–	□	□	□	□
Emergency stop, category 0 with STO, with safety relay (preconfigured)	+Q963	–	–	□	□	□	□
Emergency stop, category 1 with STO, with safety relay (preconfigured)	+Q964	–	–	□	□	□	□
Emergency stop, configurable category 0 or 1 with opening the main contactor/breaker, with FSO-12 and -21 (preconfigured)	+Q978	–	–	□	□	□	□
Emergency stop, configurable category 0 or 1 with STO and FSO-12 and -21 (preconfigured)	+Q979	–	–	□	□	□	□
Safely-limited speed with encoder, with FSO-21 and FSE-31 (preconfigured)	+Q965	–	–	□	□	□	□
ATEX certified thermistor protection module, FPTC-02, Ex II (2) GD	+L537 +Q971	□	□	□	□	□	□
ATEX thermal motor protection PTC/PT100, Ex II (2) GD	+L513/+L514 +Q971	–	–	□	□	□	□
Earth fault protection							
Earth fault monitoring, earthed mains		●	●	●	●	●	●
Earth fault monitoring, unearthed mains	+Q954	–	–	□	□	□	□

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

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ACS880 air-cooled single drives

	Ordering code	ACS880-01 R1 to R9	ACS880-11/31 R3 to R8	ACS880-07 R6 to R11	ACS880-07 nxR8i	ACS880-17/37 R8 to R11	ACS880-17/37 nxR8i [9]
Control connections (I/O) and communications							
2 pcs analog inputs, programmable, galvanically isolated		●	●	●	●	●	●
2 pcs analog outputs, programmable		●	●	●	●	●	●
6 pcs digital inputs, programmable, galvanically isolated – can be divided into two groups		●	●	●	●	●	●
2 pcs digital inputs/outputs		●	●	●	●	●	●
1 pcs digital input interlock		●	●	●	●	●	●
3 pcs relay outputs programmable		●	●	●	●	●	●
Drive-to-drive link/Built-in Modbus		●	●	●	●	●	●
Assistant control panel/PC tool connection		●	●	●	●	●	●
Possibility for external power supply for control unit		●	●	●	●	●	●
Built-in I/O extension and speed feedback modules: for more details see sections: “Input/output extension modules”, “Speed feedback interfaces for precise process control” and “DDCS communication option modules” [27]		□	□	□	□	□	□
Built-in adapters for several communication protocols: for more details see section “Communication protocol adapters” [28]		□	□	□	□	□	□
Approvals							
CE		●	●	●	●	●	●
UL, cUL	+C129	●	●	□	□	□	□
CSA	+C134	●	●	□	□	□	□
EAC/GOST R [10]		●	●	●	●	●	●
RoHS		●	●	●	●	●	●
RCM		●	●	●	●	●	●
Marine type approvals [14]	+C132	□[14]	–	□[14]	□[14]	□[14]	□[14]
Marine construction	+C121	–	–	□	□	□	□
Marine product certification for essential applications		□[9]	–	□[9]	□[9]	–	–
TÜV nord certificate for safety functions		●	●	●	●	●	●
ATEX certified safe disconnection function, Ex II (2) GD (notified body: Eurofins)	+Q971	□	□	□	□	□	□
SEMI F47		●	●	●	●	●	●

● Standard
□ Selectable option, with plus code
■ Selectable option, external, no plus code
– Not available

[1] Without control panel, +0J400
[2] For frame sizes R1 to R9, 380 to 500 V (-01). For frame sizes R6 to R11, 380 to 500 V (-07).
[3] For frame sizes R1 to R9, 380 to 500 V, and frame sizes R3 to R9, 690 V (-01). For frame sizes R6 to R11, 380 to 690 V (-07).
[4] For frame sizes R6 to R9, 380 to 500 V, and frame sizes R7 to R9, 690 V (-01). For frame sizes R6 to R9, 380 to 500 V and frame size R6, 690 V and frame sizes R10 to R11, 380 to 690 V (-07).
2nd environment C4 for frame sizes R1 to R5, 380 to 500 V, and frame sizes R3 to R6, 690 V (-01).
[5] IP55 for R6: Please contact ABB to check availability.
[6] Frame sizes R1 to R4 built-in and R5 to R9 as selectable option
[7] 2×R8i
[8] 2×D8T to 4×D8T
[9] Check availability from local ABB
[10] EAC has replaced GOST R
[11] D8T, 2×D7T and 2×D8T
[12] R8i to 2×R8i, 400 to 500 V. R8i to 3×R8i, 690 V
[13] 3×R8i, 400 to 500 V. 4×R8i and 6×R8i, 690 V
[14] ACS880 marine type approvals and type approved drives are listed at https://new.abb.com/drives/segments/marine/marine-type-approvals.
[15] For cabinet-built drives (-07)
[16] Available only with IP20 (+P940 or +P944)
[17] +E202 for frame size R6: Please contact ABB to check availability.
[18] For 1140A-3 and 1070A-5 (-07 nxR8i).
[19] Pending
[20] 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. With frames R6 to R11 it is possible to mount the FSO-xx inside the drive without using the drive’s option slots.
[21] For frame sizes R8 and R11, 380 to 500 V (-17, -37).
[22] For frame size R8, 380 to 500 V (-17,-37). As standard for R11, 380 to 690 V.
[23] Only for frame size R11.
[24] Only for frame size 1xR8i, 380 to 500 V (-17,-37).
[25] For frame size R8, 380 to 500 V (-17,-37). For R11, 380 to 690 V, please contact your local ABB.
[26] For availability and further information, please contact your local ABB office.
[27] Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.
The slot number for I/O and encoder options can be extended with FEA-03 option. Please note that functional safety and communication protocol adapters cannot be used with FEA-03.
[28] Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.
[29] For ACS880-37LC.
[30] Common mode filter (+E208) is standard for 690 V devices.

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ACS880 liquid-cooled single drives

	Ordering code	ACS880-07LC nxR8i	ACS880-07CLC nxR8i	ACS880-17/37LC nxR8i
Mounting				
Wall-mounting		–	–	–
For cabinet mounting	+P940 +P944	– –	– –	– –
Cabinet-built		●	●	●
Flange mounting	+C135	–	–	–
Cabling				
Bottom entry and exit		●	●	●
Top entry and exit		□	–	□
Degree of protection				
IP20 (UL open type)	+P940 +P944	– –	– –	– –
IP21 (UL type 1)		–	–	–
IP22 (UL type 1)		–	–	–
IP42 (UL type 1)	+B054	●	●	●
IP54 (UL type 12)	+B055	□	□	□
IP55 (UL type 12)	+B056	–	–	–
Motor control				
DTC motor control		●	●	●
Control panel				
Intuitive control panel		●	●	●
Integrated control panel holder in the drive		–	–	–
Control panel mounting platform DPMP-01 (flush) / DPMP-02 (surface)		–	–	–
EMC filters				
EMC 1st environment, restricted distribution, C2, grounded network (TN)	+E202	–	–	–
EMC 2nd environment, C3, grounded network (TN)	+E200	–	–	–
EMC 2nd environment, C3, ungrounded network (IT)	+E201	–	–	–
EMC 2nd environment, C3, grounded (TN) and ungrounded (IT)	+E210	●	●	●
Line filter				
AC or DC choke		●	–	–
Advanced line harmonic filter (LCL)		–	–	●
Output filter				
Common mode filter	+E208	●	●	●
du/dt filters	+E205	●	●	●
Braking (see braking unit table)				
Brake chopper	+D150	□	□	□[29)]
Brake resistor	+D151	□	□	□[29)]

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

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ACS880 liquid-cooled single drives

	Ordering code	ACS880-07LC nxR8i	ACS880-07CLC nxR8i	ACS880-17/37LC nxR8i
Software				
Primary control program		●	●	●
Drive application programming based on IEC 61131-3 using Drive Application Builder (available for primary control program)	+N8010	□	□	□
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 Rod pump	+N5250	□	–	□
Application control program for test bench	+N5300	□	–	□
Application control program for cooling tower direct drive	+N5350	–	–	–
Application control program for override control	+N5450	□	–	□
Application control program for spinning and traverse	+N5500	–	–	–
Application control program for chemical industry process control	+N5550	–	–	–
Application control program for ESP pumps	+N5600	□	□	□
Application control program for tower cranes	+N5650	–	–	–
Application control program for position control	+N5700	□[26)]	□[26)]	□[26)]
Support for asynchronous motor		●	●	●
Support for permanent magnet motor		●	●	●
Support for synchronous reluctance motor (SynRM)	+N7502	□	□	□
High speed license. Allows high speedoperation above 598 Hz output frequency.	+N8200	□[26)]	□[26)]	□[26)]
Rectifier bridge				
12-pulse	+A004	□	□	–
24-pulse		–	□	–
Line side apparatus				
aR line fuses		●	●	●
Main switch		–	–	–
Line contactor	+F250	–	–	–
Air circuit breaker	+F255	●	–	●
Earthing switch	+F259	□	–	□
Cabinet options				
Cabinet heater (ext. supply)	+G300	□	□	□
Output for motor heater (ext. supply)	+G313	□	□	□
Customized options	+P902	●	●	●

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

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ACS880 liquid-cooled single drives

	Ordering code	ACS880-07LC nxR8i	ACS880-07CLC nxR8i	ACS880-17/37LC nxR8i
Safety functions [20)]				
Safe torque off (STO)		●	●	●
Safety functions module, FSO-12, without encoder, configurable functions: - Safe stop 1 (SS1-t, SS1-r), - Safely-limited speed (SLS) - Safe brake control (SBC) - Safe maximum speed (SMS) - Safe stop emergency (SSE) - Prevention of unexpected start-up (POUS) - Safe torque off (STO)	+Q973	□	–	□
Safety functions module, FSO-21, with encoder support, configurable functions: - Safe stop 1 (SS1-t, SS1-r) - Safely-limited speed (SLS) - Safe brake control (SBC) - Safe maximum speed (SMS) - Safe stop emergency (SSE) - Prevention of unexpected start-up (POUS) - Safe direction (SDI), requires encoder feedback, FSE-31 - Safe speed monitoring (SSM) - Safe torque off (STO)	+Q972	□	–	□
Pulse encoder interface module, FSE-31	+L521	□	–	□
PROFIsafe over PROFINET	+Q982	□	–	□
PROFIsafe safety functions module, FSPS-21	+Q986	□	–	□
Prevention of unexpected start-up with safety relay (preconfigured)	+Q957	□	–	□
Prevention of unexpected start-up with FSO-12 and -21 (preconfigured)	+Q950	□	–	□
Emergency stop, category 0 with opening the main contactor/breaker, with safety relay (preconfigured)	+Q951	□	□	□
Emergency stop, category 1 with opening the main contactor/breaker, with safety relay (preconfigured)	+Q952	□	–	□
Emergency stop, category 0 with STO, with safety relay (preconfigured)	+Q963	□	–	□
Emergency stop, category 1 with STO, with safety relay (preconfigured)	+Q964	□	–	□
Emergency stop, configurable category 0 or 1 with opening the main contactor/breaker, with FSO-12 and -21 (preconfigured)	+Q978	□	–	□
Emergency stop, configurable category 0 or 1 with STO and FSO-12 and -21 (preconfigured)	+Q979	□	–	□
Safely-limited speed with encoder, with FSO-21 and FSE-31 (preconfigured)	+Q965	□	–	□
ATEX certified thermistor protection module, FPTC-02, Ex II (2) GD	+L537 +Q971	□	–	□
ATEX thermal motor protection PTC/PT100, Ex II (2) GD	+L513/+L514 +Q971	□	–	□
Earth fault protection				
Earth fault monitoring, earthed mains		●	●	●
Earth fault monitoring, unearthed mains	+Q954	□	□	□

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

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ACS880 liquid-cooled single drives

	Ordering code	ACS880-07LC nxR8i	ACS880-07CLC nxR8i	ACS880-17/37LC nxR8i
Control connections (I/O) and communications				
2 pcs analog inputs, programmable, galvanically isolated		●	●	●
2 pcs analog outputs, programmable		●	●	●
6 pcs digital inputs, programmable, galvanically isolated – can be divided into two groups		●	●	●
2 pcs digital inputs/outputs		●	●	●
1 pcs digital input interlock		●	●	●
3 pcs relay outputs programmable		●	●	●
Drive-to-drive link/Built-in Modbus		●	●	●
Assistant control panel/PC tool connection		●	●	●
Possibility for external power supply for control unit		●	●	●
Built-in I/O extension and speed feedback modules: for more details see sections: “Input/output extension modules”, “Speed feedback interfaces for precise process control” and “DDCS communication option modules” [27]		□	□	□
Built-in adapters for several communication protocols: for more details see section “Communication protocol adapters” [28]		□	□	□
Approvals				
CE		●	●	●
UL, cUL	+C129	□ [19]	□ [19]	□ [19]
CSA	+C134	□ [19]	□ [19]	□ [19]
EAC/GOST R [10]		●	–	●
RoHS		●	●	●
RCM		●	●	●
Marine type approvals [14]	+C132	□	□	□
Marine construction	+C121	□	□	□
Marine product certification for essential applications		□ [9]	□ [9]	□ [9]
TÜV nord certificate for safety functions		●	●	●
ATEX certified safe disconnection function, Ex II (2) GD (notified body: Eurofins)	+Q971	–	–	–
SEMI F47		●	●	●

● Standard
□ Selectable option, with plus code
■ Selectable option, external, no plus code
– Not available

[1] Without control panel, +0J400
[2] For frame sizes R1 to R9, 380 to 500 V (-01). For frame sizes R6 to R11, 380 to 500 V (-07).
[3] For frame sizes R1 to R9, 380 to 500 V, and frame sizes R3 to R9, 690 V (-01). For frame sizes R6 to R11, 380 to 690 V (-07).
[4] For frame sizes R6 to R9, 380 to 500 V, and frame sizes R7 to R9, 690 V (-01). For frame sizes R6 to R9, 380 to 500 V and frame size R6, 690 V and frame sizes R10 to R11, 380 to 690 V (-07).
2nd environment C4 for frame sizes R1 to R5, 380 to 500 V, and frame sizes R3 to R6, 690 V (-01).
[5] IP55 for R6: Please contact ABB to check availability.
[6] Frame sizes R1 to R4 built-in and R5 to R9 as selectable option
[7] 2×R8i
[8] 2×D8T to 4×D8T
[9] Check availability from local ABB
[10] EAC has replaced GOST R
[11] D8T, 2×D7T and 2×D8T
[12] R8i to 2×R8i, 400 to 500 V. R8i to 3×R8i, 690 V
[13] 3×R8i, 400 to 500 V. 4×R8i and 6×R8i, 690 V
[14] ACS880 marine type approvals and type approved drives are listed at https://new.abb.com/drives/segments/marine/marine-type-approvals.
[15] For cabinet-built drives (-07)
[16] Available only with IP20 (+P940 or +P944)
[17] +E202 for frame size R6: Please contact ABB to check availability.
[18] For 1140A-3 and 1070A-5 (-07 nxR8i).
[19] Pending
[20] 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. With frames R6 to R11 it is possible to mount the FSO-xx inside the drive without using the drive’s option slots.
[21] For frame sizes R8 and R11, 380 to 500 V (-17, -37).
[22] For frame size R8, 380 to 500 V (-17,-37). As standard for R11, 380 to 690 V.
[23] Only for frame size R11.
[24] Only for frame size 1xR8i, 380 to 500 V (-17,-37).
[25] For frame size R8, 380 to 500 V (-17,-37). For R11, 380 to 690 V, please contact your local ABB.
[26] For availability and further information, please contact your local ABB office.
[27] Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.
The slot number for I/O and encoder options can be extended with FEA-03 option. Please note that functional safety and communication protocol adapters cannot be used with FEA-03.
[28] Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.
[29] For ACS880-37LC.
[30] Common mode filter (+E208) is standard for 690 V devices.

Additional information
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

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

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new.abb.com/motors-generators

Video playlist:
ACS880 how-to videos

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3AUA0000098111 REV P EN 14.12.2020

LOW VOLTAGE AC DRIVES

ABB general purpose drives

ACS310, 0.37 to 22 kW/0.5 to 30 hp

Make wise savings with your pump and fan applications. ACS310 drives.

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ACS310 drives for a wide range of variable torque applications

ABB general purpose drive, ACS310 is easy to select and easy to use. It is enough for most basic applications with no high overload demands. ACS310 is suitable for wide range of variable torque applications and simple machines.

The drive's dedicated pump and fan features lower operating costs, boost energy efficiency and reduces CO_2 emissions. Included amongs these features are built-in PID controllers and PFC (pump and fan control) that varies the drive's performance in response to changes in pressure, flow or other external data.

Among the pre-programmed protection functions is pump cleaning. This prevents pump and pipe clogging by initiating a sequence of forward and reverse runs of the pump to clean the impeller.

Within pumping applications, energy savings can be up to 50 percent, compared to direct-on-line motor-driven systems that use mechanical flow control methods. The ABB general purpose drives provide built-in features for efficient energy management. Energy savings can be easily monitored using the built-in counters that display energy savings in kilowatt hours and saved carbon dioxide emissions. The savings can also be displayed in local currencies.

The compact design and uniform dimensions make cabinet mounting of the drive straightforward, thereby providing a fast and space saving installation. The ACS310 drives have an embedded Modbus interface for system monitoring that saves the cost of external fieldbus devices and enables to integrate the drives easily with PLC. When combined with preprogrammed application macros, an intuitive user interface and several assistant screens, installation time is further reduced while speeding up parameter setting and drive commissioning.

The ACS310 drives meet the needs of OEMs, logistical and technical distributors as well as the requirements of end users with pumping and ventilation applications. The drives are supported by one of the most extensive global sales and service networks with presence in over 100 countries.

Highlights

- Powerful set of pump and fan features
- Boosted energy efficiency
- Tailored for cabinet installations
- Clever drive commissioning assistants and convenient user interface
- Motor noice smoothing
- Worldwide availability and service

ABB
STOP
START
U1
MAINS
V1
W1
BRAKE
BRK+
BRK-
U2
MOTOR
V2
W2

Essentials inside for basic applications

ACS310 drives are simple and easy with all essentials included for applications with no high overload demand.

Compact design with flexible mounting options saves space and installation time. Short menus and preprogrammed macros makes commissioning fast and easy. The drives powerful set of pump and fan features reduce mechanical stress and thus maintenance costs. Within pumping applications, energy savings of up to 50% can be achieved compared to direct-on-line motor-driven systems that use mechanical flow control methods. Wherever your machine is located, the local ABB will be there to support you and your clients.

Multipump and -fan control
One drive controls several pumps or fans and eliminates the need for an external programmable logic controller. One pump is drive controlled and auxiliary pumps are on/off controlled. This reduces the motor stress and increase lifetime when auxiliary motors are driven according to the needed pump/fan capacity. Interlock function enables one motor to be disengaged from the mains supply while others continue operating in parallel.

Quick and easy commissioning
Predefined I/O configurations for application macros and built-in assistants speed up commissioning of the drive, allowing you to concentrate on your business.

Robust design and quality
ACS310 has coated control boards to increase robustness. Automatic fault reset to ensure uninterrupted operation. And protection against unstable supply networks.

Energy optimizer
Intelligent drive control method improving the energy efficiency and system operation, especially while operating on partial centrifugal loads.

Load analyzer
Built-in statistical tool that saves process data, such as current and torque values, which can be used to analyze and optimise the process. It can also be used for following system behaviour before and after any system modifications.

Compact and space saving design
Compact size, with power range from 0.37 to 22 kW and flexible mounting possibilities ensure optimized installation in a wide range of applications, resulting in space and cost savings.

Powerful set of pump and fan features
Integrated and preprogrammed features like pump cleaning, pipefill, inlet/outlet pressure supervision and detection of under or overload improve system reliability and lifetime. Built-in PFC feature can eliminate the need for an external programmable logic controller (PLC).

Internal Modbus EIA-485 connection
Built-in terminals and connectivity for Modbus RTU as standard enables the system control and monitoring in the most user friendly and cost effective way.

Relay extension module MREL-01
The optional MREL-01 module offers three additional relay outputs. The outputs can be configured for different functions by setting selected parameters eg, for multipump/-fan control.

Remote monitoring
Optional SREA-01 module enables remote monitoring and access to drive's parameters and process via webbrowser. It enables sending log files, alarms and events by E-mail and SMS. Additionally SREA-01 offers Modbus TCP connectivity to ACS310.

FlashDrop tool
FlashDrop is a powerful palm sized drive configuration tool that copies a pre-defined drive parameter set into a drive in 2 seconds without a power connection to the drive.

Typical applications

The ACS310 drive is specifically designed to meet the variable torque loads demanded by centrifugal fans and pumps. The result is maximum application uptime, reduced maintenance cost and higher energy savings.

Irrigation systems, whether agricultural, horticultural or those used on golf courses, have a common demand for a reliable and efficient flow of water.

The built-in real-time clock provides true time and date stamps that control the start and stop times of watering based on the daily demand profile. Soft pipe filling provides a pump with soft-start, enabling a smooth build-up of flow in pipes while increasing the life time of the pipe work and pumping system.

A booster pump system is designed to boost supplied water pressure to a predetermined level in water and wastewater plants. The ACS310 drive features pump and fan control (PFC) for use where several parallel pumps are operated together and the required flow rate is variable.

PID control is available to allow the process to accurately maintain a pressure setpoint by adjusting the control outputs, thus allowing for precise control within difficult processes.
A sleep & boost function detects slow rotation and runs the pump to boost pressure prior to shutdown. The pressure is continuously monitored and pumping restarts when the pressure falls below the minimum level.

Level control is used to adjust the filling or emptying of storage tanks. Storage tanks may be located within processes such as pulp and paper for supplying process fluids like wastewater. The drive has signal supervision for level control and a pipe cleaning feature, thereby preventing solids from building up on pumps impellers or the tank walls.

Storage tanks are often mounted in narrow locations, with limited space for components like AC drives. The compact size and various mounting methods of the ACS310 drives enables easy installation and space savings in new installations and retrofits.

Wood drying kilns have a high demand for powerful and efficient ventilation to dry out the wood. In wood kilns centrifugal fans and AC drives are used to control the air flow demand. To increase the kilns' capacity, multiple fans may be controlled via one drive by using the pump and fan control (PFC) feature. At the start of the drying process, the relative humidity is high thus there is a demand for higher air flow rates. As the wood dries out the auxiliary fans may shut-down, thereby saving energy and reducing maintenance.

How to select a drive

It is very easy to select the right drive. This is how you build up your own ordering code using the type designation key.

Start with identifying your supply voltage. This tells you what rating table to use. See page 10.

Choose your motor's power and current rating from the ratings table on page 10.

Select your drive's ordering code from the rating table based on your motor's nominal power rating.

10 ABB GENERAL PURPOSE DRIVES, ACS310, CATALOG

Ratings and types

Ratings				Type designation	Frame size
P_N (kW)	P_N (hp)	I_{2N} [1] (A)	I_{2N} [2] (A)		
1-phase AC supply, 200 to 240 V					
0.37	0.5	2.4	2.3	ACS310-01X-02A4-2	R0
0.75	1.0	4.7	4.5	ACS310-01X-04A7-2	R1
1.1	1.5	6.7	6.5	ACS310-01X-06A7-2	R1
1.5	2.0	7.5	7.2	ACS310-01x-07A5-2	R2
2.2	3.0	9.8	9.4	ACS310-01x-09A8-2	R2
3-phase AC supply, 200 to 240 V					
0.37	0.5	2.6	2.4	ACS310-03X-02A6-2	R0
0.55	0.75	3.9	3.5	ACS310-03X-03A9-2	R0
0.75	1.0	5.2	4.7	ACS310-03X-05A2-2	R1
1.1	1.5	7.4	6.7	ACS310-03X-07A4-2	R1
1.5	2.0	8.3	7.5	ACS310-03X-08A3-2	R1
2.2	3.0	10.8	9.8	ACS310-03X-10A8-2	R2
3.0	4.0	14.6	13.3	ACS310-03X-14A6-2	R2
4.0	5.0	19.4	17.6	ACS310-03X-19A4-2	R2
5.5	7.5	26.8	24.4	ACS310-03X-26A8-2	R3
7.5	10.0	34.1	31.0	ACS310-03X-34A1-2	R4
11.0	15.0	50.8	46.2	ACS310-03X-50A8-2	R4
3-phase AC supply, 380 to 480 V					
0.37	0.5	1.3	1.2	ACS310-03X-01A3-4	R0
0.55	0.75	2.1	1.9	ACS310-03X-02A1-4	R0
0.75	1.0	2.6	2.4	ACS310-03X-02A6-4	R1
1.1	1.5	3.6	3.3	ACS310-03X-03A6-4	R1
1.5	2.0	4.5	4.1	ACS310-03X-04A5-4	R1
2.2	3.0	6.2	5.6	ACS310-03X-06A2-4	R1
3.0	4.0	8.0	7.3	ACS310-03X-08A0-4	R1
4.0	5.0	9.7	8.8	ACS310-03X-09A7-4	R1
5.5	7.5	13.8	12.5	ACS310-03X-13A8-4	R3
7.5	10.0	17.2	15.6	ACS310-03X-17A2-4	R3
11.0	15.0	25.4	23.1	ACS310-03X-25A4-4	R3
15.0	20.0	34.1	31	ACS310-03X-34A1-4	R4
18.5	25.0	41.8	38	ACS310-03X-41A8-4	R4
22.0	30.0	48.4	44	ACS310-03X-48A4-4	R4

X within the type designation stands for E or U.
[1] I_{2N} maximum continuous output current at ambient temperature of +40 °C. No overloadability, derating 1% for every additional 1 °C up to +50 °C.
[2] I_{2N} continuous output current at max ambient temperature of +50 °C. 10% overloadability for one minute every ten minutes.

Type designation
This is the unique reference number (shown in column 5, right) that clearly identifies your drive by current rating and frame size. Once the drive's type designation has been selected, the frame size (column 6) can be used to determine the drive dimensions, shown on page 12.

Voltages
ACS310 is available in two voltage ranges:
2 = 200 to 240 V
4 = 380 to 480 V

Insert either "2" or "4", depending on your chosen voltage, into the type designation shown above.

Construction
"XXE" within the type designation (shown above) varies depending on the drive phase and EMC filtering. Choose below the one you need.

01 = 1-phase
03 = 3-phase
E = EMC filter connected, 50 Hz frequency
U = EMC filter disconnected, 60 Hz frequency (In case the filter is required it can easily be connected)

Page 10

10 ABB GENERAL PURPOSE DRIVES, ACS310, CATALOG

Ratings and types

Ratings				Type designation	Frame size
P_N (kW)	P_N (hp)	I_{2N} [1] (A)	I_{2N} [2] (A)		
1-phase AC supply, 200 to 240 V					
0.37	0.5	2.4	2.3	ACS310-01X-02A4-2	R0
0.75	1.0	4.7	4.5	ACS310-01X-04A7-2	R1
1.1	1.5	6.7	6.5	ACS310-01X-06A7-2	R1
1.5	2.0	7.5	7.2	ACS310-01x-07A5-2	R2
2.2	3.0	9.8	9.4	ACS310-01x-09A8-2	R2
3-phase AC supply, 200 to 240 V					
0.37	0.5	2.6	2.4	ACS310-03X-02A6-2	R0
0.55	0.75	3.9	3.5	ACS310-03X-03A9-2	R0
0.75	1.0	5.2	4.7	ACS310-03X-05A2-2	R1
1.1	1.5	7.4	6.7	ACS310-03X-07A4-2	R1
1.5	2.0	8.3	7.5	ACS310-03X-08A3-2	R1
2.2	3.0	10.8	9.8	ACS310-03X-10A8-2	R2
3.0	4.0	14.6	13.3	ACS310-03X-14A6-2	R2
4.0	5.0	19.4	17.6	ACS310-03X-19A4-2	R2
5.5	7.5	26.8	24.4	ACS310-03X-26A8-2	R3
7.5	10.0	34.1	31.0	ACS310-03X-34A1-2	R4
11.0	15.0	50.8	46.2	ACS310-03X-50A8-2	R4
3-phase AC supply, 380 to 480 V					
0.37	0.5	1.3	1.2	ACS310-03X-01A3-4	R0
0.55	0.75	2.1	1.9	ACS310-03X-02A1-4	R0
0.75	1.0	2.6	2.4	ACS310-03X-02A6-4	R1
1.1	1.5	3.6	3.3	ACS310-03X-03A6-4	R1
1.5	2.0	4.5	4.1	ACS310-03X-04A5-4	R1
2.2	3.0	6.2	5.6	ACS310-03X-06A2-4	R1
3.0	4.0	8.0	7.3	ACS310-03X-08A0-4	R1
4.0	5.0	9.7	8.8	ACS310-03X-09A7-4	R1
5.5	7.5	13.8	12.5	ACS310-03X-13A8-4	R3
7.5	10.0	17.2	15.6	ACS310-03X-17A2-4	R3
11.0	15.0	25.4	23.1	ACS310-03X-25A4-4	R3
15.0	20.0	34.1	31	ACS310-03X-34A1-4	R4
18.5	25.0	41.8	38	ACS310-03X-41A8-4	R4
22.0	30.0	48.4	44	ACS310-03X-48A4-4	R4

X within the type designation stands for E or U.
[1] I_{2N} maximum continuous output current at ambient temperature of +40 °C. No overloadability, derating 1% for every additional 1 °C up to +50 °C.
[2] I_{2N} continuous output current at max ambient temperature of +50 °C. 10% overloadability for one minute every ten minutes.

Type designation
This is the unique reference number (shown in column 5, right) that clearly identifies your drive by current rating and frame size. Once the drive's type designation has been selected, the frame size (column 6) can be used to determine the drive dimensions, shown on page 12.

Voltages
ACS310 is available in two voltage ranges:
2 = 200 to 240 V
4 = 380 to 480 V

Insert either "2" or "4", depending on your chosen voltage, into the type designation shown above.

Construction
"XXE" within the type designation (shown above) varies depending on the drive phase and EMC filtering. Choose below the one you need.

01 = 1-phase
03 = 3-phase
E = EMC filter connected, 50 Hz frequency
U = EMC filter disconnected, 60 Hz frequency (In case the filt er is required it can easily be connected)

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Choose your options (on pages 18 to 24) and add the option codes to drive's ordering code. Remember to use a "+" mark before each option code.

18 ABB GENERAL PURPOSE DRIVES, ACS310, CATALOG

Options

How to select options
The options shown in the table below are available within the ACS310 range.
The control panels have an associated 4-Figure option code, which is shown in the second column.
It is this code that replaces XXXX in the type code above.

Options	Ordering code	Description	Model
Protection class	68566266 [a]	NEMA 1/UL type 1 (R0, R1, R2)	MULI-R1
	68566410 [a]	NEMA 1/UL type 1 (R3)	MULI-R3
	3AUA0000025688 [b]	IP66/IP67/UL type 4X enclosure	
Control panel	2400	Assistant control panel	ACS-CP-A
	2404	Basic control panel	ACS-CP-C
Panel mounting kit	68566674 [a]	Panel mounting kit	ACS-M-CP-BAS
	3AUA0000051086 [a]	Panel holder mounting kit	DPMP-01
Extension modules	LS11	Relay output extension module. Option includes three (3) additional relay outputs.	MREL-01
Tools	68566280 [a]	FlashDrop tool	MFDT-01
	64532871 [a]	DriveWindow Light	DriveWindow Light
External options	[c]	Input chokes	
	[c]	EMC filters	
	[c]	Output chokes	
Remote monitoring	3AUA0000039179 [d]	Ethernet adapter	SREA-01

[a] To be ordered as separate item.
[b] The ACS310 is compatible with ACS-CP-A basic control panel Rev M or later.
[c] The ACS310 is compatible with ACS-CP-A assistant control panel Rev E or later. New panel can be manufactured since 2007 with serial number 8YYWWXXXXX, where year Y = 7 or greater and revision R = B, E, K, ...)

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Type designation:

Ratings and types

Ratings				Type designation	Frame size
P_N (kW)	P_N (hp)	I_{2N} [1] (A)	I_{LD} [2] (A)		
1-phase AC supply, 200 to 240 V					
0.37	0.5	2.4	2.3	ACS310-01X-02A4-2	R0
0.75	1.0	4.7	4.5	ACS310-01X-04A7-2	R1
1.1	1.5	6.7	6.5	ACS310-01X-06A7-2	R1
1.5	2.0	7.5	7.2	ACS310-01x-07A5-2	R2
2.2	3.0	9.8	9.4	ACS310-01x-09A8-2	R2
3-phase AC supply, 200 to 240 V					
0.37	0.5	2.6	2.4	ACS310-03X-02A6-2	R0
0.55	0.75	3.9	3.5	ACS310-03X-03A9-2	R0
0.75	1.0	5.2	4.7	ACS310-03X-05A2-2	R1
1.1	1.5	7.4	6.7	ACS310-03X-07A4-2	R1
1.5	2.0	8.3	7.5	ACS310-03X-08A3-2	R1
2.2	3.0	10.8	9.8	ACS310-03X-10A8-2	R2
3.0	4.0	14.6	13.3	ACS310-03X-14A6-2	R2
4.0	5.0	19.4	17.6	ACS310-03X-19A4-2	R2
5.5	7.5	26.8	24.4	ACS310-03X-26A8-2	R3
7.5	10.0	34.1	31.0	ACS310-03X-34A1-2	R4
11.0	15.0	50.8	46.2	ACS310-03X-50A8-2	R4
3-phase AC supply, 380 to 480 V					
0.37	0.5	1.3	1.2	ACS310-03X-01A3-4	R0
0.55	0.75	2.1	1.9	ACS310-03X-02A1-4	R0
0.75	1.0	2.6	2.4	ACS310-03X-02A6-4	R1
1.1	1.5	3.6	3.3	ACS310-03X-03A6-4	R1
1.5	2.0	4.5	4.1	ACS310-03X-04A5-4	R1
2.2	3.0	6.2	5.6	ACS310-03X-06A2-4	R1
3.0	4.0	8.0	7.3	ACS310-03X-08A0-4	R1
4.0	5.0	9.7	8.8	ACS310-03X-09A7-4	R1
5.5	7.5	13.8	12.5	ACS310-03X-13A8-4	R3
7.5	10.0	17.2	15.6	ACS310-03X-17A2-4	R3
11.0	15.0	25.4	23.1	ACS310-03X-25A4-4	R3
15.0	20.0	34.1	31	ACS310-03X-34A1-4	R4
18.5	25.0	41.8	38	ACS310-03X-41A8-4	R4
22.0	30.0	48.4	44	ACS310-03X-48A4-4	R4

X within the type designation stands for E or U.

[1] I_{2N} maximum continuous output current at ambient temperature of +40 °C. No overloadability, derating 1% for every additional 1 °C up to +50 °C.

[2] I_{LD} continuous output current at max ambient temperature of +50 °C. 10% overloadability for one minute every ten minutes.

Type designation
This is the unique reference number (shown in column 5, right) that clearly identifies your drive by current rating and frame size. Once the drive's type designation has been selected, the frame size (column 6) can be used to determine the drive dimensions, shown on page 12.

Voltages
ACS310 is available in two voltage ranges:
2 = 200 to 240 V
4 = 380 to 480 V

Insert either "2" or "4", depending on your chosen voltage, into the type designation shown above.

Construction
"XXE" within the type designation (shown above) varies depending on the drive phase and EMC filtering. Choose below the one you need.

01 = 1-phase
03 = 3-phase
E = EMC filter connected, 50 Hz frequency
U = EMC filter disconnected, 60 Hz frequency (In case the fi lter is required it can easily be connected)

Technical data

Mains connection	
Voltage and power range	1-phase, 200 to 240 V ± 10% 0.37 to 2.2 kW (0.5 to 3 hp) 3-phase, 200 to 240 V ± 10% 0.37 to 11 kW (0.5 to 15 hp) 3-phase, 380 to 480 V ± 10% 0.37 to 22 kW (0.5 to 30 hp)
Frequency	48 to 63 Hz
Motor connection	
Voltage	3-phase, from 0 to U_{supply}
Frequency	0 to 500 Hz
Continuous loading capability	I_{2N} maximum continuous output current at ambient temperature of +40 °C. No overloadability, derating 1% for every additional 1 °C up to 50 °C.
	I_{LD} continuous output current at max. ambient temperature of +50 °C. 10% overloadability for one minute every ten minutes. At start 1.6 x I2N for 2 s
Switching frequency	
Default	4 kHz
Selectable	4 to 16 kHz with 4 kHz steps
Acceleration time	0.1 to 1800 s
Deceleration time	0.1 to 1800 s
Motor control method	Scalar U/f
Environmental limits	
Ambient temperature	-10 to +40 °C (14 to 104 °F) without derating, +40 to 50 °C (104 to 122 °F) with derating, no frost allowed
Altitude Output current	Rated current available at 0 to 1000 m (0 to 3281 ft) reduced by 1% per 100 m (328 ft) over 1000 to 2000 m (3281 to 6562 ft)
Relative humidity	Lower than 95% (without condensation)
Degree of protection	IP20/optional NEMA 1 enclosure
Enclosure colour	NCS 1502-Y, RAL 9002, PMS 420 C
Contamination levels	IEC721-3-3 No conductive dust allowed
Transportation	Class 1C2 (chemical gases) Class 1S2 (solid particles)
Storage	Class 2C2 (chemical gases) Class 2S2 (solid particles)
Operation	Class 3C2 (chemical gases) Class 3S2 (solid particles)

Product compliance
Low Voltage Directive 2006/95/EC
Machinery Directive 2006/42/EC
EMC Directive 2004/108/EC
Quality assurance system ISO 9001
Environmental system ISO 14001
UL, cUL, CE, C-Tick and GOST R approvals
RoHS compliant

Programmable control connections	
Two analog inputs	
Voltage signal	
Unipolar	0 (2) to 10 V, R_{in} > 312 kΩ
Bipolar	-10 to 10 V, R_{in} > 312 kΩ
Current signal	
Unipolar	0 (4) to 20 mA, R_{in} = 100 Ω
Bipolar	-20 to 20 mA, R_{in} = 100 Ω
Potentiometer reference	10 V ± 1% max. 10 mA, R < 10 kΩ
value	0.1%
Resolution	± 2%
Accuracy	
One analog output	0 (4) to 20 mA, load < 500 Ω
Auxiliary voltage	24 V DC ± 10%, max. 200 mA
Five digital inputs	12 to 24 V, PNP and NPN, programmable DI5 0 to 16 kHz pulse train
Input impedance	2.4 kΩ
One relay output	
Type	NO + NC
Maximum switching voltage	250 V AC/30 V DC
Maximum switching current	0.5 A/30 V DC; 5 A/230 V AC
Maximum continuous current	2 A rms
One digital output	
Type	Transistor output
Maximum switching voltage	30 V DC
Maximum switching current	100 mA/30 V DC, short circuit protected
Frequency	10 Hz to 16 kHz
Resolution	1 Hz
Accuracy	0.2%
Serial communication	
Fieldbuses	Modbus EIA-485, embedded
Cable	Shielded twisted pair, impedance 100 to 150 ohms
Termination	Daisy-chained bus, without dropout lines
Isolation	Bus interface isolated from drive
Transfer rate	1.2 to 76.8 kbit/s
Communication type	Serial, asynchronous, half duplex
Protocol	Modbus
Chokes	
AC input chokes	External option. For reducing THD in partial loads and to comply with EN/IEC 61000-3-12.
AC output chokes	External option. To achieve longer motor cables

Dimensions and weights

Cabinet-mounted drives (IP20/UL open)

Frame size	IP20/UL Open					
	H1 (mm)	H2 (mm)	H3 (mm)	W (mm)	D (mm)	Weight (kg)
R0	169	202	239	70	161	1.2
R1	169	202	239	70	161	1.2
R2	169	202	239	105	165	1.5
R3	169	202	236	169	169	2.5
R4	181	202	244	260	169	4.4

H1 = Height without fastenings and clamping plate
H2 = Height with fastenings but without clamping plate
H3 = Height with fastenings and clamping plate
W = Width
D = Depth

Wall-mounted drives (NEMA 1)

Frame size	NEMA 1/UL Type 1					
	H4 (mm)	H5 (mm)	W (mm)	D1 (mm)	D2 (mm)	Weight (kg)
R0	257	280	70	169	187	1.6
R1	257	280	70	169	187	1.6
R2	257	282	105	169	191	1.9
R3	260	299	169	177	195	3.1
R4	270	320	260	177	195	5.0

H4 = Height with fastenings and NEMA 1 connection box
H5 = Height with fastenings, NEMA 1 connection box and hood
W = Width
D = Depth

Cooling and fuses

Cooling

AACS310 is fitted with cooling fans as standard. The cooling air must be free from corrosive substances and must not be above the maximum ambient temperature of 50 °C. For more specific limits see the Technical data – Environmental limits in this catalog.

Fuses

Standard fuses can be used with ACS310 drives for branch circuit protection. Use the following table for selecting the correct input fuse for each drive.

Cooling air flow

Type designation	Frame size	Heat dissipation		Air flow	
		(W)	BTU/hr[1]	m^3/h	ft^3/min
1-phase AC supply, 200 to 240 V					
ACS310-01X-02A4-2	R0	48	163	–[2]	–[2]
ACS310-01X-04A7-2	R1	72	247	24	14
ACS310-01X-06A7-2	R1	97	333	24	14
ACS310-01X-07A5-2	R2	101	343	21	12
ACS310-01X-09A8-2	R2	124	422	21	12
3-phase AC supply, 200 to 240 V					
ACS310-03X-02A6-2	R0	42	142	–[2]	–[2]
ACS310-03X-03A9-2	R0	54	183	–[2]	–[2]
ACS310-03X-05A2-2	R1	64	220	24	14
ACS310-03X-07A4-2	R1	86	295	24	14
ACS310-03X-08A3-2	R1	88	302	21	12
ACS310-03X-10A8-2	R2	111	377	21	12
ACS310-03X-14A6-2	R2	140	476	52	31
ACS310-03X-19A4-2	R2	180	613	52	31
ACS310-03X-26A8-2	R3	285	975	71	42
ACS310-03X-34A1-2	R4	328	1119	96	57
ACS310-03X-50A8-2	R4	488	1666	96	57
3-phase AC supply, 380 to 480 V					
ACS310-03X-01A3-4	R0	35	121	–[2]	–[2]
ACS310-03X-02A1-4	R0	40	138	–[2]	–[2]
ACS310-03X-02A6-4	R1	50	170	13	8
ACS310-03X-03A6-4	R1	60	204	13	8
ACS310-03X-04A5-4	R1	69	235	13	8
ACS310-03X-06A2-4	R1	90	306	19	11
ACS310-03X-08A0-4	R1	107	364	24	14
ACS310-03X-09A7-4	R1	127	433	24	14
ACS310-03X-13A8-4	R3	161	551	52	31
ACS310-03X-17A2-4	R3	204	697	52	31
ACS310-03X-25A4-4	R3	301	1029	71	42
ACS310-03X-34A1-4	R4	408	1393	96	57
ACS310-03X-41A8-4	R4	498	1700	96	57
ACS310-03X-48A4-4	R4	588	2007	96	57

X within the type designation stands for E or U.
[1] BTU/hr = British Thermal Unit per hour. BTU/hr is approximately 0.293 Watts.
[2] Frame size R0 with free convection cooling.

Free space requirements

Enclosure type	Space above (mm)	Space below (mm)	Space on left/right (mm)
All frame sizes	75	75	0

Selection table

Type designation	Frame size	IEC fuses		UL fuses	
		Max. (A)	Fuse type*)	Max. (A)	Fuse type*)
1-phase AC supply, 200 to 240 V					
ACS310-01X-02A4-2	R0	10	gG	10	UL class T
ACS310-01X-04A7-2	R1	16	gG	20	UL class T
ACS310-01X-06A7-2	R1	16	gG	25	UL class T
ACS310-01X-07A5-2	R2	20	gG	30	UL class T
ACS310-01X-09A8-2	R2	25	gG	35	UL class T
3-phase AC supply, 200 to 240 V					
ACS310-03X-02A6-2	R0	10	gG	10	UL class T
ACS310-03X-03A9-2	R0	10	gG	10	UL class T
ACS310-03X-05A2-2	R1	10	gG	15	UL class T
ACS310-03X-07A4-2	R1	16	gG	15	UL class T
ACS310-03X-08A3-2	R1	16	gG	15	UL class T
ACS310-03X-10A8-2	R2	16	gG	20	UL class T
ACS310-03X-14A6-2	R2	25	gG	30	UL class T
ACS310-03X-19A4-2	R2	25	gG	35	UL class T
ACS310-03X-26A8-2	R3	63	gG	60	UL class T
ACS310-03X-34A1-2	R4	80	gG	80	UL class T
ACS310-03X-50A8-2	R4	100	gG	100	UL class T
3-phase AC supply, 380 to 480 V					
ACS310-03X-01A3-4	R0	10	gG	10	UL class T
ACS310-03X-02A1-4	R0	10	gG	10	UL class T
ACS310-03X-02A6-4	R1	10	gG	10	UL class T
ACS310-03X-03A6-4	R1	10	gG	10	UL class T
ACS310-03X-04A5-4	R1	16	gG	15	UL class T
ACS310-03X-06A2-4	R1	16	gG	15	UL class T
ACS310-03X-08A0-4	R1	16	gG	20	UL class T
ACS310-03X-09A7-4	R1	20	gG	25	UL class T
ACS310-03X-13A8-4	R3	25	gG	30	UL class T
ACS310-03X-17A2-4	R3	35	gG	35	UL class T
ACS310-03X-25A4-4	R3	50	gG	50	UL class T
ACS310-03X-34A1-4	R4	80	gG	80	UL class T
ACS310-03X-41A8-4	R4	100	gG	100	UL class T
ACS310-03X-48A4-4	R4	100	gG	100	UL class T

The rated fuse currents given in the table are the maximums for the mentioned fuse types.

X within the type designation stands for E or U.
*) According to IEC-60269 standard.

For U.S. market please see ACS310 U.S. catalog.

Control connections

Application macros
Application macros are preprgrammed parameter sets. While starting up the drive, the user typically selects one of the macros that is best suited for the application. The diagram gives an overview of ACS310 control connections and shows the default I/O connections for the ABB standard macro.

- ABB standard macro
- 3-wire macro
- Alternative macro
- Motor potentiometer
- Hand/auto macro
- PID control macro
- PFC control macro
- SPFC control macro
- Modbus application macro

In addition to the standard macros, the user can create three user macros. The user macro allows the user to save the parameter settings for later use.

The diagram below gives an overview of ACS310 control connections. Please refer to the ACS310 user's manual for more detailed information.

Typical I/O connections

DI configuration NPN connected (sink)

DI configuration PNP connected (source) with external power supply

Control program example

One of the ACS310's integrated pump and fan features is soft pump and fan control (SPFC), which is used for pump and fan alternation applications where lower pressure peaks are desirable when a new auxiliary motor is connected on-line. The following example explains how ACS310 can operate up to 4 to 5 pumps or fans in parallel based on the capacity demand. In this example, we use three parallel pumps to maintain the water pressure in the pipelines.

The drive controls the motor of pump 1, varying the motor speed to control the pump capacity. This motor is the speed regulated motor. When the demand exceeds that of the first motor's, the drive automaticly starts an auxiliary pump. The speed of the first pump is adjusted so that the actual value follows the process reference.

Parameter settings

Before starting the configuration, ensure that the drive has been installed properly and that the electrical connections are complete. Connection example can be found from ACS310 User's manual.

Startup data
The correct motor parameters are set within parameter group 99. Then select SPFC control macro using parameter 9902. This software macro updates the defined list of parameter values to their default values.

Pump and fan control parameters
Parameters can be found in parameter group 81. First change Short menu to to Long from parameter 1611 in group 16. This shows the full parameter group list including group 81.

Frequency limits to start and stop auxiliary motors
Parameter 8109 START FREQ 1 is set to 50 Hz, which is also the default value. Since we have in this example also another auxiliary motor, parameter 8110 START FREQ 2 is set to 50 Hz for the second auxiliary motor. To stop an axiliary motor we set parameters 8112 LOW FREQ 1 and 8113 LOW FREQ 2 to 25 Hz.

Auxiliary motors start and stop delay
Delay stabilizes the contactors before starting or stopping a motor.
Parameter 8115 AUX MOT START D is left to its default value 5 s.
Parameter 8116 AUX MOT STOP D is left to its default value 20 s.

Number of auxiliary motors and motors in total
Parameter 8117 NR OF AUX MOT is set to 2.
Parameter 8127 MOTORS is set to 3.

Autochange functionality for SPFC
The Autochange functionality for SPFC equalizes duty time between multiple motors, when auxiliary motors are not running. The time interval between motor changes is managed with parameter 8118.

Interlocks
Interlock detects if any of the pumps are unavailable and starts the next available pump, when used. Set parameter 8120 INTERLOCKS to take input from DI3 in this example (depends of the number of interlocks and how thay are connected).

Start delay for speed controlled motor
Parameter 8122 PFC START DELAY is left to its default value 0.5 s.

Enabling pump and fan control
Parameter 8123 PFC ENABLE is set to 3 (SPFC + AUTOCHANGE)

Relay configuration
Relay configuration depends how many and how the motors are connected.
Note! The macro SPFC already sets Transistor output parameter 1805 DO SIGNAL to PFC as an additional relay output which is connected.

- Parameter 1401 RELAY OUTPUT 1 is set to PFC
- Parameter 1402 RELAY OUTPUT 2 is set to PFC

Default I/O settings

X1A		
1	SCR	Signal cable shield (screen)
2	AI1	**Ext. ref. 1 (Hand) / Ext. ref. 2 (PID/PFC):** 0...10 V [1]
3	GND	Analog input circuit common
4	+10 V	Reference voltage: +10 V DC, max. 10 mA
5	AI2	**Process actual value:** 4...20 mA [3]
6	GND	Analog input circuit common
7	AO	**Output frequency value:** 0...20 mA
8	GND	Analog output circuit common
9	+24 V	Auxiliary voltage output: +24 V DC, max. 200 mA
10	GND	Auxiliary voltage output common
11	DCOM	Digital input common
12	DI1	**Stop (0) / Start (1) (Hand)**
13	DI2	**Hand (0) / PID/PFC (1) control selection**
14	DI3	**Interlock:** Deactivation always stops the drive
15	DI4	**Interlock:** Deactivation stops constant speed motor
16	DI5	**Stop (0) / Start (1) (PID/PFC)**
X1B		
17	ROCOM	Relay output 1 **PFC**
18	RONC	
19	RONO	
20	DOSRC	Digital output, max. 100 mA **PFC**
21	DOOUT	
22	DOGND	

1. Hand: 0...10 V → 0...50 Hz. PID/PFC: 0...10 V → 0...100% PID setpoint.
2. 360 degree grounding under a clamp.
3. The signal source must be powered externally. See the manufacturer's instructions.

Options

How to select options

The options shown in the table below are available within the ACS310 range.
The control panels have an associated 4-figure option code, which is shown in the second column.
It is this code that replaces XXXX in the type code above.

Options	Ordering code	Description	Model
Protection class	68566398 *)	NEMA 1/UL type 1 (R0, R1, R2)	MUL1-R1
	68566410 *)	NEMA 1/UL type 1 (R3)	MUL1-R3
	3AUA0000023888 *)	IP66/IP67/UL type 4X enclosure	
Control panel	J400	Assistant control panel	ACS-CP-A
	J404	Basic control panel	ACS-CP-C
Panel mounting kit	68294673 *)	Panel mounting kit	ACS/H-CP-EXT
	3AUA0000013086 *)	Panel holder mounting kit	OPMP-01
Extension modules	L511	Relay output extension module. Option includes three (3) additional relay outputs.	MREL-01
Tools	68566380 *)	FlashDrop tool	MFDT-01
	64532871 *)	DriveWindow Light	DriveWindow Light
External options	*)	Input chokes	
	*)	EMC filters	
	*)	Output chokes	
Remote monitoring	3AUA0000039179 *)	Ethernet adapter	SREA-01

*) To be ordered as separate item.
1) The ACS310 is compatible with ACS-CP-C basic control panel Rev M or later.
2) The ACS310 is compatible with ACS-CP-A assistant control panel Rev E or later.
New panel series manufactured since 2007 with serial number XYYWWRXXXX,
where year Y = 7 or greater and revision R = E, F, G, ...)

Options
Interface

—
01 Panel cover (included as standard)
—
02 Basic control panel
—
03 Assistant control panel
—
04 Panel holder mounting kit OPMP-01
—
05 NEMA 1 kit
—
06 Terminal cover (included as standard)
—
07 Clamping plates (included as standard)

—
01

—
02

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03

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04

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05

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06

—
07

User interface

Panel cover
The purpose of the panel cover is to protect the drive's connection surfaces. The ACS310 drive is delivered with a panel cover as standard. In addition, there are two alternative control panels available as options.

Basic control panel
The basic control panel features a single line numeric display. The panel can be used to control the drive, set parameter values or copy them from one drive to another.

Assistant control panel
The assistant control panel features a multilingual alphanumeric display for easy drive programming.
The control panel has various assistants and an built-in help function to guide the user. It includes a real time clock, which can be used during fault logging and in controlling the drive, such as at start/stop. The control panel can be used for copying parameters for back up or for downloading to another drive. A large graphical display and soft keys make it extremely easy to navigate.

Panel mounting kits
To attach the control panel to the outside of a larger enclosure, two panel mounting kits are available.
A simple and cost-efficient installation is possible with the ACS/H-CP-EXT kit, while the OPMP-01 kit provides a more user-friendly solution, including a panel platform that enables the panel to be removed in the same way as a drive-mounted panel. The panel mounting kits include all hardware required eg, 3 m extension cables and installation instructions.

Protection and installation

NEMA 1 kit
The NEMA 1 kit includes a connection box for finger protection, conduit tube installation, and a hood for protection against dirt and dust.

Terminal cover
The terminal cover is for protection of the I/O connections.

Clamping plates
The clamping plates are used for protection against electrical disturbances. The clamping plates with the clamps are included in the drive package as standard.

Options
User interfaces

—
01 Extension module MREL-01
—
02 SREA-01 Ethernet adapter

—
01

—
02

Serial communication

The embedded Modbus EIA-485 fieldbus brings connectivity to major automation systems. A single twisted pair cable avoids large amounts of conventional cabling, thereby reducing costs and increasing system reliability.

Modbus TCP to Modbus RTU gateway
Additionally SREA-01 Ethernet adapter offers Modbus TCP to Modbus RTU gateway functionality which enables Modbus TCP connectivity to ACS310. Please refer to SREA-01 user's guide for more detailed information.

Extension module

MREL-01
ACS310 has one relay output as standard. The optional MREL-01 module offers three additional relay outputs. The outputs can be configured for different functions by setting selected parameters.

SREA-01 Ethernet adapter
SREA-01 Ethernet adapter with remote monitoring access can send process data, data logs and event messages independently, without a PLC or a dedicated on-site computer. It has an internal web server for configuration and drive access.

In remote locations without qualified service people on-site it is vital to be able to monitor the drive remotely. Monitoring and diagnostics routines can be easily implemented with ABB's remote monitoring tool.
The remote monitoring tool enables the connection of multiple drives to Ethernet, to collect operational data from the process and send the collected data to a central location for process monitoring and further analysis.

Options
Software tools

A separate order line and type code is required for any of these software tool options.

DriveWindow Light
DriveWindow Light is an easy-to-use startup and maintenance tool for ACS310 drives. It can be used in an offline mode, which enables parameter setting at the office even before going to the actual site. The parameter browser enables viewing, editing and saving of parameters. The parameter comparison feature makes it possible to compare parameter values between the drive and saved parameter files. With the parameter subset you can create your own parameter sets. Controlling the drive is one of the features in DriveWindow Light. With this software tool, you can monitor up to four signals simultaneously. This can be done in both graphical and numerical format. DriveWindow Light version 2.9 or later is compatible with ACS310 drives.

Startup wizards
Startup wizards make the setting of parameters easy. Simply launch the wizard, select an appropriate assistant eg, for setting analog outputs, and all parameters related to this function are shown together with help pictures.

Highlights
- Editing, saving and downloading parameters
- Graphical and numerical signal monitoring
- Drive control
- Startup wizards

Options
External

A separate order line and type designation is required for any of these external options.

—
01 FlashDrop tool

FlashDrop tool
FlashDrop is a powerful palm sized tool for fast and easy parameter selecting and setting. It gives the possibility to hide selected parameters to protect the machine. Only the parameters needed in the application are shown. The tool can copy parameters between two drives or between a PC and a drive. All the above can be done without a power connection to the drive – in fact, it is not even necessary to unpack the drive.

—
01

DrivePM
DrivePM (Drive parameter manager) is a tool to create, edit and copy parameter sets for FlashDrop. For each parameter/group the user has a possibility to hide it, which means that the drive user does not see the parameter/group at all. DrivePM version 1.2 is compatible with ACS310 drives.

FlashDrop package includes
- FlashDrop tool
- DrivePM software
- User's manual in English
- Cable OPCA-02 for connection between the PC and FlashDrop tool
- Battery charger

Type designation ACS310-	Frame size	Input choke	I_{1N} without choke (A)	I_{1N} with choke[1] (A)	I_{TH} (A)	L (mH)
1-phase AC supply, 200 to 240 V						
01X-02A4-2	R0	CHK-A1	6.1	4.5	5	8.0
01X-04A7-2	R1	CHK-B1	11.4	8.1	10	2.8
01X-06A7-2	R1	CHK-C1	16.1	11	16	1.2
01X-07A5-2	R2	CHK-C1	16.8	12	16	1.2
01X-09A8-2	R2	CHK-D1	21	15	25	1.0
3-phase AC supply, 200 to 240 V						
03X-02A6-2	R0	CHK-01	4.7	2.6	4.2	6.4
03X-03A9-2	R0	CHK-02	6.7	3.5	7.6	4.6
03X-05A2-2	R1	CHK-03	8.4	4.2	13	2.7
03X-07A4-2	R1	CHK-03	13	6.1	13	2.7
03X-08A3-2	R1	CHK-04	13.2	6.9	22	1.5
03X-10A8-2	R2	CHK-04	15.7	9.2	22	1.5
03X-14A6-2	R2	CHK-04	23.9	13	22	1.5
03X-19A4-2	R2	CHK-04	27.3	13.3	22	1.5
03X-26A8-2	R3	CHK-06	45	20.9	47	0.7
03X-34A1-2	R4	CHK-06	55	26.2	47	0.7
03X-50A8-2	R4	CHK-06	76	41	47	0.7
3-phase AC supply, 380 to 480 V						
03X-01A3-4	R0	CHK-01	2.4	1.3	4.2	6.4
03X-02A1-4	R0	CHK-01	4.9	2	4.2	6.4
03X-02A6-4	R1	CHK-01	4.5	2.5	4.2	6.4
03X-03A6-4	R1	CHK-01	6.6	3.5	4.2	6.4
03X-04A5-4	R1	CHK-02	7.6	3.8	7.6	4.6
03X-06A2-4	R1	CHK-02	10.6	5.3	7.6	4.6
03X-08A0-4	R1	CHK-02	12.8	6.8	7.6	4.6
03X-09A7-4	R1	CHK-03	15	8.6	13	2.7
03X-13A8-4	R3	CHK-03	20.7	12.3	13	2.7
03X-17A2-4	R3	CHK-04	24.3	12.6	22	1.5
03X-25A4-4	R3	CHK-04	34	19.5	22	1.5
03X-34A1-4	R4	CHK-05	57	27.2	33	1.1
03X-41A8-4	R4	CHK-06	67	35.2	47	0.7
03X-48A4-4	R4	CHK-06	74	42	47	0.7

[1] Values at 50 Hz/230 V and at 50 Hz/400 V power supplies

I_{1N} = Nominal input current
I_{TH} = Nominal choke thermal current
L = Choke inductance

Type designation ACS310-	Frame size	Output choke	Cable length (m)
1-phase AC supply, 200 to 240 V			
01X-02A4-2	R0	ACS-CHK-B3	60
01X-04A7-2	R1	ACS-CHK-B3	100
01X-06A7-2	R1	ACS-CHK-C3	100
01X-07A5-2	R2	ACS-CHK-C3	100
01X-09A8-2	R2	ACS-CHK-C3	100
3-phase AC supply, 200 to 240 V			
03X-02A6-2	R0	ACS-CHK-B3	60
03X-03A9-2	R0	ACS-CHK-B3	60
03X-05A2-2	R1	ACS-CHK-B3	100
03X-07A4-2	R1	ACS-CHK-C3	100
03X-08A3-2	R1	ACS-CHK-C3	100
03X-10A8-2	R2	ACS-CHK-C3	100
03X-14A6-2	R2	NOCH-0016-6x	100
03X-19A4-2	R2	NOCH-0016-6x	100
03X-26A8-2	R3	NOCH-0030-6x	100
03X-34A1-2	R4	NOCH-0030-6x	100
03X-50A8-2	R4	NOCH-0070-6x	100
3-phase AC supply, 380 to 480 V			
03X-01A3-4	R0	ACS-CHK-B3	60
03X-02A1-4	R0	ACS-CHK-B3	60
03X-02A6-4	R1	ACS-CHK-B3	100
03X-03A6-4	R1	ACS-CHK-B3	100
03X-04A5-4	R1	ACS-CHK-C3	100
03X-06A2-4	R1	ACS-CHK-C3	100
03X-08A0-4	R1	NOCH-0016-6x	100
03X-09A7-4	R1	NOCH-0016-6x	100
03X-13A8-4	R3	NOCH-0016-6x	100
03X-17A2-4	R3	NOCH-0016-6x	100
03X-25A4-4	R3	NOCH-0030-6x	100
03X-34A1-4	R4	NOCH-0030-6x	100
03X-41A8-4	R4	NOCH-0030-6x	100
03X-48A4-4	R4	NOCH-0070-6x	100

Input chokes
An input choke smoothens the wave shape of mains current and reduces total harmonic distortion (THD). Together with the input choke, the ACS310 is designed to fulfill the requirements of the harmonics standard EN/IEC 61000-3-12. In addition, the input choke provides improved protection against mains voltage transients.

Output chokes
An output choke decreases du/dt on the output and filters current spikes caused by voltage spikes. With an output choke it is possible to increase the motor cable length which could be otherwise limited due to a temperature increase resulting from current spikes and electromagnetic performance.

Options
External

A separate order line and type designation is required for any of these external options.

EMC filters

The ACS310's internal EMC filter is designed to meet category C3 requirements of EN/IEC 61800-3 standard. External EMC filters are used to enhance the drives electromagnetic performance in conjunction with its internal filtering. Maximum motor cable length depends on required electromagnetic performance, according to the table below.

Type designation ACS310-	Frame size	Filter type	Cable length [1] with external EMC filter			Cable length [1] without external EMC filter	
			C1 (m)	C2 (m)	C3 (m)	C3 (m)	C4 (m)
1-phase AC supply, 200 to 240 V							
01X-02A4-2	R0	RFI-11	10	30	–	30	30
01X-04A7-2	R1	RFI-12	10	30	50	30	50
01X-06A7-2	R1	RFI-12	10	30	50	30	50
01X-07A5-2	R2	RFI-13	10	30	50	30	50
01X-09A8-2	R2	RFI-13	10	30	50	30	50
3-phase AC supply, 200 to 240 V							
03X-02A6-2	R0	RFI-32	10	30	–	30	30
03X-03A9-2	R0	RFI-32	10	30	–	30	30
03X-05A2-2	R1	RFI-32	10	30	50	30	50
03X-07A4-2	R1	RFI-32	10	30	50	30	50
03X-08A3-2	R1	RFI-32	10	30	50	30	50
03X-10A8-2	R2	RFI-32	10	30	50	30	50
03X-14A6-2	R2	RFI-33	10	30	50	30	50
03X-19A4-2	R2	RFI-33	10	30	50	30	50
03X-26A8-2	R3	RFI-34	10	30	50	30	50
03X-34A1-2	R4	RFI-34	10	30	50	30	50
03X-50A8-2	R4	RFI-34	10	30	50	30	50
3-phase AC supply, 380 to 480 V							
03X-01A3-4	R0	RFI-32	30	30	–	30	30
03X-02A1-4	R0	RFI-32	30	30	–	30	30
03X-02A6-4	R1	RFI-32	50	50	50	30	50
03X-03A6-4	R1	RFI-32	50	50	50	30	50
03X-04A5-4	R1	RFI-32	50	50	50	30	50
03X-06A2-4	R1	RFI-32	50	50	50	30	50
03X-08A0-4	R1	RFI-32	50	50	50	30	50
03X-09A7-4	R1	RFI-32	50	50	50	30	50
03X-13A8-4	R3	RFI-33	40	40	40	30	50
03X-17A2-4	R3	RFI-33	40	40	40	30	50
03X-25A4-4	R3	RFI-33	40	40	40	30	50
03X-34A1-4	R4	RFI-34	–	30	–	30	50
03X-41A8-4	R4	RFI-34	–	30	–	30	50
03X-48A4-4	R4	RFI-34	–	30	–	30	50

[1] Internal EMC filter must be connected with the EMC screw in the drive. When the filter is not connected the C4 maximum cable lengths are allowed to be used.

Low leakage current filters

Low leakage current filters are ideal for installations where residual current devices (RCD) are required and leakage current needs to be below 30 mA.

Type designation ACS355-	Frame size	Filter type	Cable length [1] with LRFI filter
			C2 (m)
Low leakage current filters, 3-phase AC supply, 400 V			
03X-01A3-4	R0	LRFI-31	10
03X-02A1-4	R0	LRFI-31	10
03X-02A6-4	R1	LRFI-31	10
03X-03A6-4	R1	LRFI-31	10
03X-04A5-4	R1	LRFI-31	10
03X-06A2-4	R1	LRFI-31	10
03X-08A0-4	R1	LRFI-32	10
03X-09A7-4	R1	LRFI-32	10

[1] Internal EMC filter must be disconnected by removing the EMC screw from the drive.

EMC standards in general

EN 61800-3 (2004), product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN 61800-3/A11 (2000), product standard
Category C1	Group 1 Class B	1st environment, unrestricted distribution
Category C2	Group 1 Class A	1st environment, restricted distribution
Category C3	Group 2 Class A	2nd environment, unrestricted distribution
Category C4	Not applicable	2nd environment, restricted distribution

Compact AC500-eCo PLC with ACS310

ABB's programmable logic controller AC500-eCo can be used for controlling and monitoring the system, for applications that require complex control logic and when several drives are connected together through Modbus link.

Easy commissioning and fast startup
Additionally SREA-01 Ethernet adapter offers Modbus TCP to Modbus RTU gateway functionality which enables Modbus TCP connectivity to ACS310. Please refer to SREA-01 user's guide for more detailed information.

Compact design saves installation space
- The compact size of the PLC and drive provides flexibility when integrating into existing or new system designs.
- AC500-eCo is an economical, entry level PLC for stand-alone solutions and equipment control. It saves space due to onboard digital and analog I/O. AC500-eCo is easy to program and provides six programming languages.

Flexible system expansion
When the system requirements expand, ABB's wide product range provides a flexible and cost-efficient way to meet the system's growing needs.

AC500-eCo belongs to the AC500 PLC platform. AC500 is a scalable and modular platform which can be combined and flexibly expanded to suit either decentralized or centralized configurations.

Automation Builder, the programming tool for AC500, is based on IEC 61131-3 standard. Automation Builder is used for the entire AC500 PLC platform. Automation Builder easily allows to change the CPU in an existing configuration to fit the CPU type to the performance need of the application.

Ready-made communication and control blocks for AC500-eCo and AC500 PLC range are available, supporting a wide range of ABB's low voltage AC drives.

Benefits
- Control of a motor in minutes
- Cost-efficient system expansion, since the same application program can be used for the entire AC500 PLC platform
- Fast commissioning with ready-made Modbus macro

ABB product offering

ABB micro drives
ABB micro drives are designed to be incorporated into a wide variety of machines such as mixers, conveyors, fans or pumps or anywhere where a fixed speed motor needs connect with a variablespeed motor. The ABB micro drives meet the requirements of OEMs, machinery builders and panel builders. These drives are widely available through the ABB distribution network. The drives are easy to select and provide a range of built-in features as standard. For more information, please visit abb.com/drives.

ABB general purpose drives
ABB general purpose drives are ideal in situations where there is a need for a drive that is easy to install, commission and use. They are designed to offer control over a broad range of standard drive applications and have a wide range of built-in features simplifying all operations. For more information, please visit abb.com/drives.

ABB's Programmable Logic Controllers PLCs
The AC500, AC500-eCo, AC500-S and AC500-XC scalable PLC ranges provide solutions for small, middle and high-end applications. Our AC500 PLC platform offers different performance levels and is the ideal choice for high availability, extreme environments or safety solutions. Our AC500 PLC platform offers interoperability and compatibility in hardware and software from compact PLCs up to high end and safety PLCs. For more information, please visit abb.com/plc.

Control panels
The CP600-eCo and CP600 HMI 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 a single touch. For more information, please visit abb.com/plc.

Automation Builder engineering suite
Automation Builder integrates engineering and maintenance for PLC, Drives, Motion, HMI and Robotics. Automation Builder is an integrated software suite for machine builders and system integrators wanting to automate their machines and systems in a productive way. Automation Builder combines the proven ABB tools RobotStudio, Drive manager, Drive Composer pro, Mint WorkBench, Panel Builder and succeeds Control Builder Plus. Build solutions with Drive application programming (IEC 61131-3), Drive management, configuration and diagnosis with common process data editor, and Drive engineeringin Drive Composer pro. Download Automation Builder from abb.com/automationbuilder.

AC motors
ABB's low voltage AC motors are designed to save energy, reduce operating costs and enable demanding motor applications to perform reliably and without unscheduled downtime. General performance motors combine convenience and easy handling seamlessly with ABB's engineering expertise. Process performance motors provide the most comprehensive, versatile set of motors for the process industries and heavy-duty applications. For more information, please visit abb.com/motors&generators.

Services to match your needs

Your service needs depend on your operation, life cycle of your equipment and business priorities. We have identified our customers' four most common needs and defined service options to satisfy them. What is your choice to keep your drives at peak performance?

Is uptime your priority?

Keep your drives running with precisely planned and executed maintenance.

Example services include:
- ABB Ability Life Cycle Assessment
- Installation and Commissioning
- Spare Parts
- Preventive Maintenance
- Reconditioning
- ABB Drive Care agreement
- Drive Exchange

Operational efficiency

Is rapid response a key consideration?

If your drives require immediate action, our global network is at your service.

Example services include:
- Technical Support
- On-site Repair
- ABB Ability Remote Assistance
- Response time agreements
- Training

Rapid response

Drives service
Your choice, your future

The future of your drives depends on the service you choose.
Whatever you choose, it should be a well-informed decision. No guesswork. We have the expertise and experience to help you find and implement the right service for your drive equipment. You can start by asking yourself these two critical questions:

- Why should my drive be serviced?
- What would my optimal service options be?

From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

Your choice, your business efficiency
ABB Drive Care agreement lets you focus on your core business. A selection of predefined service options matching your needs provides optimal, more reliable performance, extended drive lifetime and improved cost control. So you can reduce the risk of unplanned downtime and find it easier to budget for maintenance.

Need to extend your assets' lifetime?

Maximize your drive's lifetime with our services.

Example services include:

- ABB Ability Life Cycle Assessment
- Upgrades, Retrofits and Modernization
- Replacement, Disposal and Recycling

Life cycle management

Is performance most critical to your operation?

Get optimal performance out of your machinery and systems.

Example services include:

- ABB Ability Remote Services
- Engineering and Consulting
- Inspection and Diagnostics
- Upgrades, Retrofits and Modernization
- Workshop Repair
- Tailored services

Performance improvement

A lifetime of peak performance

You're in control of every life cycle phase of your drives. At the heart of drive services is a four-phase product life cycle management model. This model defines the services recommended and available throughout drives lifespan.

Now it's easy for you to see the exact service and maintenance available for your drives.

ABB drives life cycle phases explained:

	Active	Classic	Limited	Obsolete
	Full range of life cycle services and support		Limited range of life cycle services and support	Replacement and end-of-life services
Product	Product is in active sales and manufacturing phase.	Serial production has ceased. Product may be available for plant extensions, as a spare part or for installed base renewal.	Product is no longer available.	Product is no longer available.
Services	Full range of life cycle services is available.	Full range of life cycle services is available. Product enhancements may be available through upgrade and retrofit solutions.	Limited range of life cycle services is available. Spare parts availability is limited to available stock.	Replacement and end-of-life services are available.

Keeping you informed
We notify you every step of the way using life cycle status statements and announcements.

Your benefit is clear information about your drives' status and precise services available. It helps you plan the preferred service actions ahead of time and make sure that continuous support is always available.

Step 1
Life Cycle Status Announcement
Provides early information about the upcoming life cycle phase change and how it affects the availability of services.

Step 2
Life Cycle Status Statement
Provides information about the drive's current life cycle status, availability of product and services, life cycle plan and recommended actions.

Additional information
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

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

abb.com/drives
abb.com/drivespartners
abb.com/plc
abb.com/automationbuilder

ACS310 how-to video:

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3AUA0000051082 REV H EN 04.09.2018

LOW VOLTAGE AC DRIVES

ABB machinery drives

ACS380, 0.25 to 22 kW/0.37 to 30 hp

Persistent and adaptable performance. ACS380 machinery drives.

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The ACS380 machinery drives
Persistent and adaptable performance

The ACS380 is an all-compatible machinery drive ideal for machine building thanks to its robust and compact design. The all-compatible ABB drives share the same architecture and user interfaces for easy usability.

Easy to adapt and configure to machines
With ACS380, commissioning is quick and easy thanks to its intuitive control panel. Also, connecting to automation systems is easy thanks to preconfigured fieldbus protocols. On the hardware side, ease of use has been enhanced by having all the essential features built-in as standard. This reduces the need for additional hardware and simplifies drive selection.

Persistent performance for your application
The ACS380 machinery drive is a robust and compact drive ideal for machine building. It is ready-customized and comes in a power range from 0.25 to 22 kW, and voltages from 200 to 240 V (one-phase) and 380 to 480 V (three-phase). ACS380 offers EMC and connectivity variants with built-in EMC filters and/or preconfigured fieldbus protocols for ease of integration and connectivity. This saves a lot of time and money for machine builders using large numbers of drives per year.

Reliability and consistent high quality
The ACS380 drives have improved durability and reliability in harsh conditions, including coated circuit boards and enclosure IP20 as standard. All drives are tested during production at maximum temperatures with nominal loads. Tests cover both performance and all protective functions. The drives are designed for an ambient temperature of up to 50°C without derating. The drives have in their class a unique 3-phase measurement that gives very reliable earth fault protection. Also, the foil coated control panel offers a good protection against dust and gases and the galvanically isolated fieldbus gives good noise immunity.

Loc
1499.5rpm
1499.50
rpm
Back
OK
Stop
Start
ABB
HOST
MODULE
NETWORK
ACS380

Adaptability, reliability and persistence for machine building

The ACS380 machinery drives are part of ABB's all-compatible drives portfolio. The drives give you persistent performance throughout their whole life cycle. They also offer a wider range of standard and optional features for optimal machine building.

Ease of use built-in
ACS380 has as standard control panel with clear display. The control panel's icon-based menu helps you set up the drive quickly and effectively without needing to study manuals. If there is need for an alphanumeric, multilingual graphical user panel, also that is available.

All-compatible user interface making your life easier
ACS380 is part of ABB all-compatible drives portfolio. Other product in this portfolio are ACS480, ACS580 and ACS880 drives. All these drives have the same, easy to use PC tools and similar intuitive multilingual user interface as well as parameter structure, making using and learning them fast and easy.

Simple to select and install
Built-in features such as an EMC filter, a Modbus RTU fieldbus interface and safe torque off functionality simplify drive selection, installation and use. DriveSize helps to select the optimal drive and motor for the application.

Easy setup and integration to automation
ACS380 can be easily set-up by using the control panel or easy to use PC tools. Settings can also be copied to several drives by using either assistant control panel or PC tools. Also download the settings to an unpowered drive is possible by using the cold configuration tool. Preconfigured fieldbus protocols enable connectivity with all major industrial automation networks with minimized effort and complexity.

Designed for maximum reliability
Design features like coated control boards, minimized air flow through the control board section, reliable earth fault protection by 3-phase current measurement and design for 50°C ambient temperature make ACS380 a safe choice for customers expecting high reliability. This is topped up by full load test that is done to every single drive during the production.

Drive based programmability
ACS380 has built-in as standard possibility for adaptive programming that enables customizing the drive software by using either sequential or block programming. This can in some cases even eliminate the need of a separate PLC.

Remote monitoring
With a built-in web server and standalone data logger, NETA-21 remote monitoring tool kit enables worldwide and secure remote access to drive.

Same startup and maintenance tools as for other ABB automation products
ACS380 is using the same tools as other ABB all-compatible drives. Drive composer PC tool for startup, configuration, monitoring and process tuning. Automation Builder for automation engineering and Drive Manager for single point of commissioning.

ACS380 drives software with versatile features

Exceptional motor control performance. Whether the requirement is high starting torque, accurate speed control, stable torque or tolerance for sudden load variations, ACS380 can do it with or without encoder feedback. ACS380 can be used even in simple positioning applications when using external motion controller.

One drive for different motor types. ACS380 supports perfectly both induction and permanent magnet motors.

Silent motor operation. Noise can be further reduced by the energy optimizer or by increasing the drive switching frequency.

"Mini PLC" inside the drive. Scale up and customize the drive to your application's requirements with adaptive programming.

Easy integration to automation. Preconfigured fieldbus protocols enable connectivity with all major industrial automation networks with minimized effort and complexity.

Built-in support for limit switches

Integrated mechanical brake control

Additional machinery features like fast stop functions and parabolic speed reference

Analyze and optimize the process with the load profile log, which shows you how the drive has been used.

Technical data

Mains connection	
Voltage and power range	1-phase, 200 to 240 V, +10%/-15% 0.25 to 2.2 kW 3-phase, 380 to 480 V, +10%/-15% 0.25 to 22 kW
Frequency	50/60 Hz ± 5%
Common DC connection	
DC voltage level	-1 types 270 to 325 V ±10% -4 types 485 to 620 V ±10%
Charging circuit	Internal charging circuit
Motor connection	
Voltage	0 to U_N, 3-phase
Frequency	0 to 599 Hz
Motor control	Scalar control Vector control
Switching frequency	1 to 12 kHz, default 4 kHz
Dynamic braking	Flux braking (moderate or full) Resistor braking (optional)
Motor control performance	
Speed control performance, open loop	
Static accuracy	20% of motor rated slip
Dynamic accuracy	1%s with 100% torque step
Speed control performance, closed loop	
Static accuracy	0.1% of motor rated speed
Dynamic accuracy	<1%s with 100% torque step
Torque control performance	
Torque step rise time	< 10 ms, rated torque step
Non-linearity	±5% with rated torque
Braking power connection	
Brake chopper	Built-in brake chopper as standard
Brake resistor	External resistor connected to drive

Functional safety	
Built-in safety features	Safe torque off (STO) acc. to EN/IEC61800-5-2: IEC61508 ed2: SIL 3, IEC 61511: SIL 3, IEC 62061: SIL CL 3, EN ISO 13849-1: PL e
Environmental limits	
Ambient temperature	
Transportation and storage	-40 to +70 °C (-40 to +158 °F)
Operation	-10 to +50 °C (14 to 122 °F), with derating up to 60 °C (except R0, which has max temperature of 50 °C)
Cooling method	Air-cooled, dry clean air
Altitude	0 to 4000 m, (0 to 13000 ft) for 400 V units (see allowed power systems in HW manual) 0 to 2000 m, (0 to 6600 ft) for 200 V units derating above 1000 m (3300 ft)
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	IP20 as standard
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases) Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases) Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases) Class 3S2 (solid particles)
Product compliance	
	CE Low Voltage Directive 2006/95/EC, EN 61800-5-1: 2007 Machinery Directive 2006/42/EC, EN 61800-5-2: 2007 EMC Directive 2004/108/EC, EN 61800-3: 2004 + A1: 2012 UL, cUL certification TUV Certification for functional safety Quality assurance system ISO 9001 Environmental system ISO 14001 Waste electrical and electronic equipment directive (WEEE) 2002/96/EC RoHS directive 2011/65/EU EAC

How to select a drive

It is very easy to select the right drive. This is how you build up your own ordering code using the type designation key.

1 Start with identifying your supply voltage This tells you what rating table to use. See page 12.

2 Choose your motor's power and current rating from the ratings table on page 12.

3 Select the ordering code for the ACS380 machinery drive by choosing either the standard or the configured variant (page 11). Then choose the desired EMC level on page 11. If the configured variant is selected, choose your fieldbus protocol (page 16) by selecting the correct option code and add the option codes to drive's ordering code.

Ordering information ACS380
How to built up your ordering code

The type designation tells you the specifications and configuration of the drive.
The table shows the primary drive variants.
Sample type code 1: ACS380-04ZS-02A6-4 (I/O & Modbus variant, not possible to add options as pluscode)
Sample type code 2: ACS380-04ZC-02A6-4+K475+ L535 (Configured variant, possible to add options as pluscode)

Segment	A	B	C	D	E	F
ACS380	- 04	Z	C	02A6	4	+ Option codes

Product series
Types and construction
Rating
Voltage
Option code

Basic codes

Segment	Option	Description
A	Construction	04 = Module, IP20
B	EMC filter	0 = C3 (400 V variant) or C4 (200 V variant), 2 = High filtering level for First environment (EN 61800-3, Class C2)
C	Connectivity	S = Standard variant (I/O and Modbus), C = Configured variant
D	Current rating	For example, 02A6 refers to a nominal output current of 2.6 A
E	Voltage rating	1 = 1-phase 230 V, 4 = 3-phase 380...480 V

Option codes for configured variant (ACS380-04c)

Segment	Option	Code	Description
F	Fieldbus	+K451	FENA-01 DeviceNet protocol
		+K454	FPBA-01 preconfigured Profibus-DP protocol
		+K457	FCAN-01 preconfigured CANopen protocol
		+K458	FECA-01 preconfigured EtherCAT protocol
		+K470	FEPL-02 Ethernet POWERLINK protocol
		+K475	FENA-21 preconfigured Profinet protocol (Ethernet/IP or Modbus/TCP built-in)
		+K490*	FEIP-21 Preconfigured Ethernet/IP protocol
		+K491*	FMBT-21 Preconfigured Modbus/TCP protocol
		+K492*	FPNO-21 Preconfigured PROFINET IO protocol
		+K495	BCAN-12 Preconfigured CANopen interface
	I/O	+L511	BREL-01 External relay option (6x relay) (side option)
		+L514	BAPO-01 External 24 V DC (side option)
		+L516	BTAC-02 HTL/TTL encoder interface + External 24 VDC (side option)
		+L518	BMIO-01 I/O & Modbus extension module (Front option)
		+L515	BIO-01 I/O extension module (Front option,can be used together with Fieldbus)
	Languages: The product package includes the user interface in English. Quick installation and start-up guide is English, French, German, Italian and Spanish, and in the local language (if it is available). The option code determines the language variants of the Quick guide and Firmware manual	+R700	English
		+R701	German
		+R702	Italian
		+R703	Dutch
		+R704	Danish
		+R705	Swedish
		+R706	Finnish
		+R707	French
		+R708	Spanish
		+R709	Portuguese (In Portugal)
		+R711	Russian
		+R712	Chinese
		+R714	Turkish

*Preconfigured K490, K491, K492 coming during 2018. In the meantime functionality can be done using K475.

Page 11

4 Choose other options (on page 18) and add the option codes to the drive's order code. Remember to use a "+" mark before each option code.

Ratings, types and voltages

ACS380

U_N = 200 V (range 200 to 240 V). The power ratings are valid at nominal voltage 200 V (0.25 to 3.0 kW)

Heavy-duty use P_{hd} kW	Heavy-duty use I_{hd} A	Maximum output current I_{max} A	Light-overload use P_{ld} kW	Light-overload use I_{ld} A	Nominal ratings P_n kW	Nominal ratings I_n A	Type designation	Frame size
0.25	1.8	3.2	0.37	2.3	0.37	2.4	ACS380-04xx-02A4-1	R0
0.37	2.4	4.3	0.55	3.5	0.55	3.7	ACS380-04xx-03A7-1	R0
0.55	3.7	6.7	0.75	4.6	0.75	4.8	ACS380-04xx-04A8-1	R1
0.75	4.8	8.6	1.1	6.6	1.1	6.9	ACS380-04xx-06A9-1	R1
1.1	6.9	12.4	1.5	7.4	1.5	7.8	ACS380-04xx-07A8-1	R1
1.5	7.8	14.0	2.2	9.3	2.2	9.8	ACS380-04xx-09A8-1	R2
2.2	9.8	17.6	3.0	11.6	3.0	12.2	ACS380-04xx-12A2-1	R2

U_N = 400 V (range 380 to 480 V). The power ratings are valid at nominal voltage 400 V (0.37 to 22 kW)

Heavy-duty use P_{hd} kW	Heavy-duty use I_{hd} A	Maximum output current I_{max} A	Light-overload use P_{ld} kW	Light-overload use I_{ld} A	Nominal ratings P_n kW	Nominal ratings I_n A	Type designation	Frame size
0.37	1.2	2.2	0.55	1.7	0.55	1.8	ACS380-04xx-01A8-4	R0
0.55	1.9	3.2	0.75	2.5	0.75	2.6	ACS380-04xx-02A6-4	R1
0.75	2.6	4.7	1.1	3.1	1.1	3.3	ACS380-04xx-03A3-4	R1
1.1	3.3	5.9	1.5	3.8	1.5	4	ACS380-04xx-04A0-4	R1
1.5	4	7.2	2.2	5.3	2.2	5.6	ACS380-04xx-05A6-4	R1
2.2	5.6	10.1	3	6.8	3	7.2	ACS380-04xx-07A2-4	R1
3	7.2	13	4	8.9	4	9.4	ACS380-04xx-09A4-4	R1
4	9.4	16.9	5.5	12	5.5	12.6	ACS380-04xx-12A6-4	R2
5.5	12.6	22.7	7.5	16.2	7.5	17	ACS380-04xx-17A0-4	R3
7.5	17	30.6	11	23.8	11	25	ACS380-04xx-25A0-4	R3
11	25	44	15	31	15	32	ACS380-04xx-032A-4	R4
15	32	57	18.5	36	18.5	38	ACS380-04xx-038A-4	R4
18.5	38	68	22	43	22	45	ACS380-04xx-045A-4	R4
22	45	81	22	48	22	50	ACS380-04xx-050A-4	R4

Nominal ratings
I_n Rated current available continuously without overloadability at 50 °C.
P_n Typical motor power in no-overload use.
Maximum output current
I_{max} Maximum output current. Available for 2 seconds at start, then as long as allowed by drive temperature.
Heavy-duty use
I_{hd} Continuous current allowing 150% I_{hd} for 1 minute every 10 minutes at 50 °C.
P_{hd} Typical motor power in heavy-duty use.
Light-overload use
I_{ld} Continuous current allowing 110% I_{ld} for 1 minute every 10 minutes at 50 °C.
P_{ld} Typical motor power in light-overload use.
The ratings apply at 50 °C ambient temperatures.
For derating at higher altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000029274

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Input/output, extension and feedback modules for increased connectivity

Standard input and output of ACS380 machinery drives can be extended by using optional input/output extension modules. The modules are easily installed in the extension slots located in the drive. It is also possible to use an optional speed feedback module that supports TTL and HTL pulse encoders.

Extension module options

Option code	Description	Type designation
+L514	External 24 V DC	BAPO-01
+L511	External relay option (6xRO)	BREL-01
+L515	I/O extension	BIO-01

Feedback interface module options

Option code	Connections	Option
+L516	Encoder interface + External 24 V DC	BTAC-02

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Type designation: ACS380 – 04XX – XXXX – X + XXXX

Product series
Types and construction
Rating
Voltage
Options

Ordering information ACS380

How to built up your ordering code

The type designation tells you the specifications and configuration of the drive.
The table shows the primary drive variants.
Sample type code 1: ACS380-042S-02A6-4 (I/O & Modbus variant, not possible to add options as pluscode)
Sample type code 2: ACS380-042C-02A6-4+K475+ L535 (Configured variant, possible to add options as pluscode)

Segment		A	B	C		D		E		F
ACS380	-	04	2	C	-	02A6	-	4	+	Option codes

Product series
Types and construction
Rating
Voltage
Option code

Basic codes		
Segment	**Option**	**Description**
A	Construction	04 = Module, IP20
B	EMC filter	0 = C3 (400 V variant) or C4 (200 V Variant), 2 = High filtering level for First environment (EN 61800-3, Class C2)
C	Connectivity	S = Standard variant (I/O and Modbus), C = Configured variant
D	Current rating	For example, 02A6 refers to a nominal output current of 2.6 A
E	Voltage rating	1 = 1-phase 230 V, 4 = 3-phase 380...480 V

Option codes for configured variant (ACS380-04x)			
Segment	**Option**	**Code**	**Description**
F	Fieldbus	+K451	FDNA-01 DeviceNet protocol
		+K454	FPBA-01 preconfigured Profibus-DP protocol
		+K457	FCAN-01 preconfigured CANopen protocol
		+K469	FECA-01 preconfigured EtherCAT protocol
		+K470	FEPL-02 Ethernet POWERLINK protocol
		+K475	FENA-21 preconfigured Profinet protocol (Ethernet/IP or Modbus/TCP built-in)
		+K490*	FEIP-21 Preconfigured EtherNet/IP protocol
		+K491*	FMBT-21 Prenconfigured Modbus/TCP protocol
		+K492*	FPNO-21 Preconfigured PROFINET IO protocol
		+K495	BCAN-11 Preconfigured CANopen interface
	I/O	+L511	BREL-01 External relay option (4x relay) (side option)'
		+L534	BAPO-01 External 24 V DC (side option)
		+L535	BTAC-02 HTL/TTL encoder interface + External 24 V DC (side option)
		+L538	BMIO-01 I/O & Modbus extension module (front option)
		+L515	BIO-01 I/O extension module (front option,can be used together with fieldbus)
	Languages: The product package includes the User interface guide and Quick installation and start-up guide in English, French, German, Italian and Spanish, and in the local language (if it is available). The option code determines the language variants of the Hardware manual and Firmware manual.	+R700	English
		+R701	German
		+R702	Italian
		+R703	Dutch
		+R704	Danish
		+R705	Swedish
		+R706	Finnish
		+R707	French
		+R708	Spanish
		+R709	Portuguese (in Portugal) Russian
		+R711	Russian
		+R712	Chinese
		+R714	Turkish

*Preconfigured K490, K491, K492 coming during 2018. In the meantime functionality can be done using K475.

Ratings, types and voltages

ACS380

U_N = 200 V (range 200 to 240 V). The power ratings are valid at nominal voltage 200 V (0.25 to 3.0 kW)								
Heavy-duty use		Maximum output current	Light-overload use		Nominal ratings		Type designation	Frame size
P_{Hd} kW	I_{Hd} A	I_{max} A	P_{Ld} kW	IL_d A	P_N kW	I_N A		
0.25	1.8	3.2	0.37	2.3	0.37	2.4	ACS380-04xx-02A4-1	R0
0.37	2.4	4.3	0.55	3.5	0.55	3.7	ACS380-04xx-03A7-1	R0
0.55	3.7	6.7	0.75	4.6	0.75	4.8	ACS380-04xx-04A8-1	R1
0.75	4.8	8.6	1.1	6.6	1.1	6.9	ACS380-04xx-06A9-1	R1
1.1	6.9	12.4	1.5	7.4	1.5	7.8	ACS380-04xx-07A8-1	R1
1.5	7.8	14.0	2.2	9.3	2.2	9.8	ACS380-04xx-09A8-1	R2
2.2	9.8	17.6	3.0	11.6	3.0	12.2	ACS380-04xx-12A2-1	R2

U_N = 400 V (range 380 to 480 V). The power ratings are valid at nominal voltage 400 V (0.37 to 22 kW)								
Heavy-duty use		Maximum output current	Light-overload use		Nominal ratings		Type designation	Frame size
P_{Hd} kW	I_{Hd} A	I_{max} A	P_{Ld} kW	IL_d A	P_N kW	I_N A		
0.37	1.2	2.2	0.55	1.7	0.55	1.8	ACS380-04xx-01A8-4	R0
0.55	1.8	3.2	0.75	2.5	0.75	2.6	ACS380-04xx-02A6-4	R1
0.75	2.6	4.7	1.1	3.1	1.1	3.3	ACS380-04xx-03A3-4	R1
1.1	3.3	5.9	1.5	3.8	1.5	4	ACS380-04xx-04A0-4	R1
1.5	4	7.2	2.2	5.3	2.2	5.6	ACS380-04xx-05A6-4	R1
2.2	5.6	10.1	3	6.8	3	7.2	ACS380-04xx-07A2-4	R1
3	7.2	13	4	8.9	4	9.4	ACS380-04xx-09A4-4	R1
4	9.4	16.9	5.5	12	5.5	12.6	ACS380-04xx-12A6-4	R2
5.5	12.6	22.7	7.5	16.2	7.5	17	ACS380-04xx-17A0-4	R3
7.5	17	30.6	11	23.8	11	25	ACS380-04xx-25A0-4	R3
11	25	44	15	31	15	32	ACS380-04xx-032A-4	R4
15	32	57	18.5	36	18.5	38	ACS380-04xx-038A-4	R4
18.5	38	68	22	43	22	45	ACS380-04xx-045A-4	R4
22	45	81	22	48	22	50	ACS380-04xx-050A-4	R4

Nominal ratings	
I_N	Rated current available continuously without overloadability at 50 °C.
P_N	Typical motor power in no-overload use.
Maximum output current	
I_{max}	Maximum output current. Available for 2 seconds at start, then as long as allowed by drive temperature.
Heavy-duty use	
I_{Hd}	Continuous current allowing 150% I_{Hd} for 1 minute every 10 minutes at 50 °C.
P_{Hd}	Typical motor power in heavy-duty use.
Light-overload use	
I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 10 minutes at 50 °C.
P_{Ld}	Typical motor power in light-overload use.

The ratings apply at 50 °C ambient temperatures.
For derating at higher altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000029274

Dimensions

ACS380 IP20				
	Height	Width	Depth	Weight
Frames	mm	mm	mm	kg
R0	223	70	174	1.4
R1	223	70	174	1.6
R2	223	95	174	1.9
R3	223	169	174	3.0
R4	223	260	174	5.8

Drive commissioning and adaptable use with your control panel

ACS380 has as standard an icon based control panel with clear display. If there is need for other type of panel or mounting the panel in the door of the enclosure, also that is possible.

Control panel as standard
Almost anyone can set up and commission the machinery drive using available control panels. The ACS380 comes with the integrated icon based control panel as standard. You do not need to know any drive parameters as the control panel helps you to set up the essential settings quickly and get the drive into action. In addition, ACS380 supports the assistant control panel (AP-I, AP-S or AP-W).

Assistant control panel, ACS-AP-I*
The optional Assistant control has a graphical, multilingual display. There is no need to know any drive parameters, as the control panel helps you set up the essential settings quickly and get the drive into action without a hassle. Panel can be used with any products belonging to ABB all-compatible product portfolio.

Bluetooth control panel, ACS-AP-W*
The optional Bluetooth panel enables connection with the Drivetune mobile app. The app is available for free from Google Play and the Apple App store. Together with the Drivetune app and the Bluetooth panel, users can, for example, commission and monitor the drive remotely.

Basic control panel, ACS-BP-S
If there is a need to install basic panel into cabinet door, ACS-BP-S is right choice. The icon based control panel supports users with basic operation, settings and fault tracking when nothing extra is needed.

Control panel mounting platform, DPMP-01
This mounting platform is for flush mountings. The panel mounting platform does not include the control panel.

Control panel mounting platform, DPMP-02
This mounting platform is for surface mounting. The panel mounting platform does not include the control panel.

* Also compatible with other ABB all-compatible drives: ACS480, ACS580, and ACS880 drives.

Control panel options

Ordering code	Description	Type designation
3AUA0000088311	Assistant control panel	ACS-AP-I
3AUA0000064884	Assistant control panel	ACS-AP-S
3AXD0000025965	Assistant control panel with bluetooth interface	ACS-AP-W
3AXD0000028828	Basic control panel	ACS-BP-S
3AUA0000108878	Control panel mounting platform (flush mounted)	DPMP-01
3AXD0000009374	Control panel mounting platform (surface mounted)	DPMP-02

Tools for configuration, monitoring and process tuning

ACS380 has various tools simplifying the commissioning, operation and monitoring of the drive.

Easy configuration for unpowered drives
With CCA-01 tool is it possible to configure drive parameters and even download a new software from PC to the unpowered ACS380. The power supply is taken from a PC USB port.

PC tools
The Drive composer PC tool offers fast and harmonized setup, commissioning and monitoring. The free version of the tool provides startup and maintenance capabilities and gathers all drive information, such as parameter loggers, faults, and backups 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.

Using the BCBL-01 cable, the PC can be connected directly to the RJ-45 panel port on the top of the ACS380 drive.

When using the Assistant control panel, the Drive composer tool is connected to the drive using the mini USB connection on the panel.

Remote monitoring
With a built-in web server and stand-alone datalogger NETA-21 module enables worldwide and secure access to drives.

Ordering code	Description	Type designation
3AXD50000032449	PC cable, USB to RJ45	BCBL-01
3AXD50000019865	Cold configurator adapter, packed kit	CCA-01
3AUA0000094517	2 x panel bus interface 2 x 32 = max. 64 drives 2 x Ethernet interface SD memory card USB port for WLAN/3G	NETA-21

Flexible connectivity to automation networks

Fieldbus communication reduces wiring costs when compared with traditional hard wired input/output connections.

The ACS380 configured variant is compatible with a wide range of fieldbus protocols. Fieldbus modules come as preinstalled and proconfigured thus reducing commissioning time and allowing drive commissioning from the PLC. The ACS380 standard variant comes with built-in Modbus RTU protocol.

Support tools for integration with automation
Support for the fieldbuses is not always enough alone to get the full functionality and to make the integration easy. Due to this ABB also offers tools for seamless integration to automation systems of various manufacturers.

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Universal communication with ABB fieldbus adapters
The machinery drives support the following fieldbus protocols:

Option code	Fieldbus protocol	Adapter
+K454	PROFIBUS DP, DPV0/DPV1	FPBA-01
+K457	CANopen®	FCAN-01
+K469	EtherCAT®	FECA-01
+K475	Two port EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-21
+K470	Ethernet POWERLINK	FEPL-02

Standard interface and extensions for ACS380 machinery drives

The ACS380 machinery drives offer two different standard interfaces: the standard variant (I/O and Modbus) and the configured variant with different interfaces. In addition, the drive has one option slot available that can be used for speed feedback, relay extensions or options which allow an external +24 V supply. For further information please see the ACS380 hardware and firmware manuals.

Default I/O connections of standard variant

Terminals	Descriptions
	Aux. voltage output and digital connections
+24 V	Aux. voltage output +24 V DC, max. 200 mA
DGND	Aux. voltage output common
DCOM	Digital input common for all
DI 1	Digital input 1: Stop (0)/Start (1)
DI 2	Digital input 2: Forward (0)/Reverse (1)
DI 3	Digital input 3: Speed selection
DI 4	Digital input 4: Speed selection
DIO 1	Digital input function: Ramp set 1 (0)/Ramp set 2 (1)
DIO 2	Digital output function: Ready to run (0)/Not ready (1)
DIO SRC	Signal cable shield (screen)
DIO COM	Digital input common for all
	Reference voltage and analog I/O
AI 1	Output frequency/Speed reference (0...10 V)
AGND	Analog input circuit common
AI 2	Not configured
AGND	Analog input circuit common
AO	Output frequency (0...20 mA)
AGND	Analog output circuit common
SCR	Signal cable shield (screen)
+10 V	Reference voltage
	Safe torque off (STO)
S+	Safe torque-off function. Connected at factory. Drive starts only when both circuits are closed. Refer to Safe torque off function in the hardware manual.
SGND	
S 1	
S 2	
	Relay output
RC	No fault [Fault (-1)]
RA	
RB	
	EIA-485 Modbus RTU
B+	Embedded Modbus RTU (EIA-485)
A-	
BGND	
Shield	
Termination	

Default I/O connections of standard variant

Terminals	Descriptions
	Aux. voltage output and digital connections
+24 V	Aux. voltage output +24 V DC, max. 250 mA
DGND	Aux. voltage output common
DCOM	Digital input common for all
DI 1	Digital input 1: Stop (0)/Start (1)
DI 2	Digital input 2: Forward (0)/Reverse (1)
	Safe torque off (STO)
S+	Safe torque-off function. Connected at factory. Drive starts only when both circuits are closed. Refer to Safe torque off function in the hardware manual.
SGND	
S 1	
S 2	
	Relay output
RC	Fault (-1)
RA	250 V AC/30 V DC
RB	2 A

		Extension module connections
DSUB9	PROFIBUS	+K454
DSUB9	CANopen®	+K457
RJ-45 x2	EtherCAT®	+K469
RJ-45 x2	PROFINET	+K475
	Ethernet/IP™	
	ModbusTCP	

Input/output, extension and feedback modules for increased connectivity

Standard input and output of ACS380 machinery drives can be extended by using optional input/output extension modules. The modules are easily installed in the extension slots located in the drive. It is also possible to use an optional speed feedback module that supports TTL and HTL pulse encoders.

Extension module options		
Option code	**Description**	**Type designation**
+L534	External 24 C DC	BAPO-01
+L511	External relay option (4xRO)	BREL-01
+L515	I/O extension	BIO-01

Feedback interface module options		
Option code	**Connections**	**Option**
+L535	Encoder interface + External 24 V DC	BTAC-02

Brake options

Brake chopper
The brake chopper is built-in as standard for the ACS380. It not only controls braking, but also supervises system status and detects failures such as brake resistor and resistor cable short-circuits, chopper short-circuit, and calculated resistor over-temperature.

Control of the mechanical brake
Mechanical brake control is integrated into the ACS380 machinery drives. It uses state machine logic to control brake opening, closing, holding, wait and delay to integrate complex brake operation into the application.

Brake resistor
The brake resistors are separately available for the ACS380. Resistors other than the standard option resistors may be used, provided that the specified resistance value is within the specified limits and that the heat dissipation capacity of the resistor is sufficient for the drive application (see hardware manual). No separate fuses in the brake circuit are required if the conditions for e.g., the mains cable is protected with fuses and no mains cable/fuse overrating takes place.

1-phase U_N = 200...240 V (200, 208, 220, 230, 240 V)

		Internal brake chopper			
	Frame	P_{BRcont} (kW)	R_{min} (ohm)	R_{max} (ohm)	P_{BRmax} (kW)
ACS380-04xx-02A4-1	R0	0.3	32.5	468.0	0.4
ACS380-04xx-03A7-1	R0	0.4	32.5	316.2	0.6
ACS380-04xx-04A8-1	R1	0.6	32.5	212.7	0.8
ACS380-04xx-06A9-1	R1	0.8	32.5	144.9	1.1
ACS380-04xx-07A8-1	R1	1.1	32.5	96.5	1.7
ACS380-04xx-09A8-1	R2	1.5	32.5	69.9	2.3
ACS380-04xx-12A2-1	R2	2.2	19.5	47.1	3.3

3-phase U_N = 380...480 V (380, 400, 415, 440, 460, 480 V)

		Internal brake chopper			
	Frame	P_{BRcont} (kW)	R_{min} (ohm)	R_{max} (ohm)	P_{BRmax} (kW)
ACS380-04xx-01A8-4	R0	0.4	98.8	933.3	0.6
ACS380-04xx-02A6-4	R1	0.6	98.8	627.8	0.8
ACS380-04xx-03A3-4	R1	0.8	98.8	427.5	1.1
ACS380-04xx-04A0-4	R1	1.1	98.8	284.7	1.7
ACS380-04xx-05A6-4	R1	1.5	98.8	206.4	2.3
ACS380-04xx-07A2-4	R1	2.2	52.7	139.1	3.3
ACS380-04xx-09A4-4	R1	3.0	52.7	102.0	4.5
ACS380-04xx-12A6-4	R2	4.0	31.6	75.7	6.0
ACS380-04xx-17A0-4	R3	5.5	31.6	54.4	8.3
ACS380-04xx-25A0-4	R3	7.5	22.6	39.0	11.3
ACS380-04xx-032A-4	R4	11.0	5.6	29.3	16.5
ACS380-04xx-038A-4	R4	15.0	5.6	23.7	22.5
ACS380-04xx-045A-4	R4	18.5	5.6	19.7	27.8
ACS380-04xx-050A-4	R4	22.0	5.6	19.7	33.0

EMC – electromagnetic compatibility

The ACS380 machinery drives are equipped with a built-in filter to reduce high frequency emissions. Low EMC filters (C3 for 200 V and 400 V) are standard on ACS380-040X drives. High EMC filters (C2 for all voltages) are denoted by type codes ACS380-042X. C1 can be achieved with an external EMC filter.

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

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

Comparison of EMC standards

EMC according to EN 61800-3 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

Input chokes and dU/dt filters

If there is need to optimize the line side harmonics,
an external input choke can be used together with ACS380.

1-phase U_N = 200...240 V (200, 208, 220, 230, 240 V)			
	C1 filter	Input choke, max. ambient temp. 40 °C	du/dt filter type, max. ambient temp. 40 °C
ACS380-04xx-02A4-1	TBA	ABB Drives: CHK-A1	ABB Drives: ACS-CHK-B3
ACS380-04xx-03A7-1	TBA	ABB Drives: CHK-B1	ABB Drives: ACS-CHK-B3
ACS380-04xx-04A8-1	TBA	ABB Drives: CHK-B1	ABB Drives: ACS-CHK-B3
ACS380-04xx-06A9-1	TBA	ABB Drives: CHK-C1	ABB Drives: ACS-CHK-C3
ACS380-04xx-07A8-1	TBA	ABB Drives: CHK-C1	ABB Drives: ACS-CHK-C3
ACS380-04xx-09A8-1	TBA	ABB Drives: CHK-D1	ABB Drives: ACS-CHK-C3
ACS380-04xx-12A2-1	TBA	ABB Drives: CHK-D1	ABB Drives: ACS-CHK-C3

3-phase U_N = 380...480 V (380, 400, 415, 440, 460, 480 V)			
	C1 filter	Input choke, max. ambient temp. 40 °C	du/dt filter type, max. ambient temp. 40 °C
ACS380-04xx-01A8-4	Schaffner FN 3268-7-44	ABB Drives: CHK-01	ABB Drives: ACS-CHK-B3
ACS380-04xx-02A6-4	Schaffner FN 3268-7-44	ABB Drives: CHK-01	ABB Drives: ACS-CHK-B3
ACS380-04xx-03A3-4	Schaffner FN 3268-7-44	ABB Drives: CHK-01	ABB Drives: ACS-CHK-B3
ACS380-04xx-04A0-4	Schaffner FN 3268-7-44	ABB Drives: CHK-02	ABB Drives: ACS-CHK-C3
ACS380-04xx-05A6-4	Schaffner FN 3268-7-44	ABB Drives: CHK-02	ABB Drives: ACS-CHK-C3
ACS380-04xx-07A2-4	Schaffner FN 3268-16-44	ABB Drives: CHK-02	ABB Drives: NOCH0016-6x
ACS380-04xx-09A4-4	Schaffner FN 3268-16-44	ABB Drives: CHK-03	ABB Drives: NOCH0016-6x
ACS380-04xx-12A6-4	Schaffner FN 3268-16-44	ABB Drives: CHK-03	ABB Drives: NOCH0016-6x
ACS380-04xx-17A0-4	Schaffner FN 3268-30-33	ABB Drives: CHK-04	ABB Drives: NOCH0030-6x
ACS380-04xx-25A0-4	Schaffner FN 3268-30-33	ABB Drives: CHK-04	ABB Drives: NOCH0030-6x
ACS380-04xx-032A-4	To be coming later	To be coming later	To be coming later
ACS380-04xx-038A-4	To be coming later	To be coming later	To be coming later
ACS380-04xx-045A-4	To be coming later	To be coming later	To be coming later
ACS380-04xx-050A-4	To be coming later	To be coming later	To be coming later

Cooling, fuses and circuit breakers

Cooling
ACS380 drives are fitted with variable-speed cooling air fans. The cooling air must be free from corrosive materials and not exceed the maximum ambient temperature of 50°C (60°C with derating*).

Fuse and circuit breakers
Standard fuses and circuit breakers can be used with ACS380. For input fuses or circuit breakers, see the table below. Also manual motor protectors can be used. See hardware manual for details.

Cooling air flow and recommended input protection fuses

1-phase U_N = 200...240 V (200, 208, 220, 230, 240 V)

		Heat dissipation*		Air flow		Max. noise level	IEC fuses		IEC fuses		UL fuses	
		W	BTU/Hr	m³/h	ft³/min	dBA	A	Fuse type	A	Fuse type	A	Fuse type
ACS380-04xx-02A4-1	R0	52	178	-*	-*	<30	10	gG	32	gR	10	UL class T
ACS380-04xx-03A7-1	R0	66	226	-*	-*	<30	10	gG	32	gR	10	UL class T
ACS380-04xx-04A8-1	R1	84	287	57	33	63	16	gG	40	gR	20	UL class T
ACS380-04xx-06A9-1	R1	109	373	57	33	63	20	gG	50	gR	20	UL class T
ACS380-04xx-07A8-1	R1	120	408	57	33	63	25	gG	63	gR	25	UL class T
ACS380-04xx-09A8-1	R2	140	477	63	37	59	32	gG	63	gR	25	UL class T
ACS380-04xx-12A2-1	R2	170	579	63	37	59	35	gG	63	gR	35	UL class T

Cooling air flow and recommended input protection fuses

3-phase U_N = 380...480 V (380, 400, 415, 440, 460, 480 V)

		Heat dissipation		Air flow		Max. noise level	IEC fuses		IEC fuses		UL fuses	
		W	BTU/Hr	m³/h	ft³/min	dBA	A	Fuse type	A	Fuse type	A	Fuse type
ACS380-04xx-01A8-4	R0	46	156	-*	-*	<30	4	gG	25	gR	6	UL class T
ACS380-04xx-02A6-4	R1	60	205	57	33	63	6	gG	25	gR	6	UL class T
ACS380-04xx-03A3-4	R1	67	229	57	33	63	6	gG	25	gR	6	UL class T
ACS380-04xx-04A0-4	R1	75	256	57	33	63	10	gG	32	gR	10	UL class T
ACS380-04xx-05A6-4	R1	93	317	57	33	63	10	gG	32	gR	10	UL class T
ACS380-04xx-07A2-4	R1	112	383	57	33	63	16	gG	40	gR	20	UL class T
ACS380-04xx-09A4-4	R1	139	476	57	33	63	16	gG	40	gR	20	UL class T
ACS380-04xx-12A6-4	R2	183	624	63	37	59	25	gG	50	gR	25	UL class T
ACS380-04xx-17A0-4	R3	232	793	128	75	66	32	gG	63	gR	35	UL class T
ACS380-04xx-25A0-4	R3	346	1182	128	75	66	50	gG	80	gR	50	UL class T
ACS380-04xx-032A-4	R4	460	1570	216	127	69	63	gG	100	gR	60	UL class T
ACS380-04xx-038A-4	R4	561	1916	216	127	69	80	gG	125	gR	80	UL class T
ACS380-04xx-045A-4	R4	663	2263	216	127	69	100	gG	160	gR	100	UL class T
ACS380-04xx-050A-4	R4	663	2263	216	127	69	100	gG	160	gR	100	UL class T

*Frame size R0 with free convection cooling

Below listed miniature circuit breakers are tested and approved to be used with ACS380. Other circuit breakers can also be used with the drive if they provide the same electrical characteristics.

Circuit breakers			
1-phase U_N = 200...240 V (200, 208, 220, 230, 240 V)	**Frame**	**ABB miniature circuit breaker Type**	**kA[1)]**
ACS380-04xx-02A4-1	R0	S 201P-B 10 NA	5
ACS380-04xx-03A7-1	R0	S 201P-B 10 NA	5
ACS380-04xx-04A8-1	R1	S 201P-B 16 NA	5
ACS380-04xx-06A9-1	R1	S 201P-B 20 NA	5
ACS380-04xx-07A8-1	R1	S 201P-B 25 NA	5
ACS380-04xx-09A8-1	R2	S 201P-B 25 NA	5
ACS380-04xx-12A2-1	R2	S 201P-B 32 NA	5
3-phase U_N = 380...480 V (380, 400, 415, 440, 460, 480 V)			
ACS380-04xx-01A8-4	R0	S 203P-B 4	5
ACS380-04xx-02A6-4	R1	S 203P-B 6	5
ACS380-04xx-03A3-4	R1	S 203P-B 6	5
ACS380-04xx-04A0-4	R1	S 203P-B 8	5
ACS380-04xx-05A6-4	R1	S 203P-B 10	5
ACS380-04xx-07A2-4	R1	S 203P-B 16	5
ACS380-04xx-09A4-4	R1	S 203P-B 16	5
ACS380-04xx-12A6-4	R2	S 203P-B 25	5
ACS380-04xx-17A0-4	R3	S 203P-B 32	5
ACS380-04xx-25A0-4	R3	S 203P-B 50	5
ACS380-04xx-032A-4	R4	Contact ABB	
ACS380-04xx-038A-4	R4	Contact ABB	
ACS380-04xx-045A-4	R4	Contact ABB	
ACS380-04xx-050A-4	R4	Contact ABB	

[1)] Maximum allowed rated conditional short-circuit current (IEC 61800-5-1) of the electrical power network.

Need a motor? This is our offering.

Our machinery drives control virtually any type of AC motor including induction, permanent magnet, servo and synchronous reluctance motors. Our adaptable machinery drives ensure an energy efficient and reliable motor controller with significant cost savings for the user.

Machinery drives and induction motors form a reliable combination
Induction motors are used throughout the industry in several types of industry applications which demand robust and high enclosure motor and drive solutions. The ACS380 machinery drives fit perfectly together with this type of motor, used in a wide range of industrial environments.

Machinery drives and permanent magnet motors for smooth operation
Permanent magnet technology is often used for improved motor characteristics such as energy efficiency, compactness and control performance. Actual characteristics between different permanent magnet motors can vary considerably. Machinery drives can control ABB's and most other permanent magnet motors in an efficient way.

Machinery drives and IE4 synchronous reluctance motors for a package with high efficiency
Combining the machinery drives control technology with our synchronous reluctance (SynRM) motors provides an IE4 motor and drive package that gives you great energy savings benefits. The key is in the rotor design. The synchronous reluctance rotor replaces the traditional induction rotor and requires no permanent magnets. ABB has tested the SynRM motor and drive packages and produced manufacturer’s statements providing verified system (drive and motor efficiency).

Save time, ease troubleshooting and improve drive performance with ABB smartphone apps

Better connectivity and user experience with Drivetune

Easy and fast access to product information and support

Services and support on the go with Drivebase

Search for support documents and contacts

Manage your drives and the process lines and machines they control

Easy access to cloud-based drive and process information from anywhere via an online connection

Start up, commission and tune your drive and application

Simplified user guidance with instant access to drive status and configuration

Performance optimization via drive troubleshooting features and fast support

Maintain and service all your installed drives on one or multiple sites

Get 6 months extra warranty for free by registering your drive with the Drivebase app

Access your product and service information in the cloud from anywhere

Access your drive's diagnostics data

Push notifications for critical product and service updates

Access information anywhere

Download the apps using the QR codes below or directly from the app stores

Drivetune for commissioning and managing drives

Drivebase for ensured reliability and reduced downtime on production sites

Services to match your needs

Your service needs depend on your operation, life cycle of your equipment and business priorities. We have identified our customers' four most common needs and defined service options to satisfy them. What is your choice to keep your drives at peak performance?

Is uptime your priority?

Keep your drives running with precisely planned and executed maintenance.

Example services include:
- ABB Ability Life Cycle Assessment
- Installation and Commissioning
- Spare Parts
- Preventive Maintenance
- Reconditioning
- ABB Drive Care agreement
- Drive Exchange

Operational efficiency

Is rapid response a key consideration?

If your drives require immediate action, our global network is at your service.

Example services include:
- Technical Support
- On-site Repair
- ABB Ability Remote Assistance
- Response time agreements
- Training

Rapid response

Drives service
Your choice, your future

The future of your drives depends on the service you choose.
Whatever you choose, it should be a well-informed decision. No guesswork. We have the expertise and experience to help you find and implement the right service for your drive equipment. You can start by asking yourself these two critical questions:

- Why should my drive be serviced?
- What would my optimal service options be?

From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

Your choice, your business efficiency
ABB Drive Care agreement lets you focus on your core business. A selection of predefined service options matching your needs provides optimal, more reliable performance, extended drive lifetime and improved cost control. So you can reduce the risk of unplanned downtime and find it easier to budget for maintenance.

We can help you more by knowing where you are!
Register your drive at www.abb.com/drivereg for extended warranty options and other benefits.

Need to extend your assets' lifetime?

Maximize your drive's lifetime with our services.

Example services include:
- ABB Ability Life Cycle Assessment
- Upgrades, Retrofits and Modernization
- Replacement, Disposal and Recycling

Life cycle management

Is performance most critical to your operation?

Get optimal performance out of your machinery and systems.

Example services include:
- ABB Ability Remote Services
- Engineering and Consulting
- Inspection and Diagnostics
- Upgrades, Retrofits and Modernization
- Workshop Repair
- Tailored services

Performance improvement

Notes

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

www.abb.com/drives
www.abb.com/drivespartners
www.abb.com/motors&generators

Online manuals
for the ACS380 drives

Video playlist:
ACS380 how-to videos

3AUA0000187460 REV C EN 8.2.2018

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