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ПРОМЫШЛЕННЫЕ ПРИВОДЫ

Техническое описание на преобразователи ACS880-31



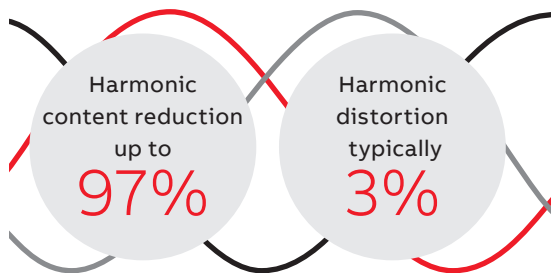
Ultra-low harmonic drives4

ACS880-31

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

The drive produces exceptionally low harmonic content and exceeds the requirements of harmonic guidance/standards such as IEEE 519, IEC61000-3-2, IEC61000-3-12, IEC61000-3-4 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 a nominal situation and an undistorted network. A common DC solution introduces a cost-efficient way of keeping the supply network clean in an installation of multiple drives.



Keeps the network clean

Minimized downtime

The ACS880 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. The drive's active supply unit can 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 features built-in harmonics mitigation. This includes an active supply unit and

a low harmonic line filter. As there is no need for external filters, multi-pulse arrangements or special transformers, the simple installation offers significant space, time and cost savings.

As there is less risk of overheating 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 a lower current, which improves motor efficiency and may allow a smaller motor to be used.

Maximized motor performance and efficiency4

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

Reduces the total cost of ownership

Efficient energy utilization

The ACS880 ultra-low harmonic drives achieve a unity power factor, indicating that electrical energy is being used efficiently.

The drive offers the possibility for network power factor correction to compensate for the 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 mean reduced system losses and better overall system efficiency.



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 73
- I/O extension modules, see page 63
- Communication protocol adapters, see page 58
- Speed feedback interfaces, see page 65
- Functional safety modules, see page 70
- Remote monitoring tool, see page 66
- Application-specific software, see page 20
- Du/dt filters, see page 90
- Sine filters, see page 76



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 65 (as standard for nxR8i)
- Cabling solutions for bottom and top entry and exit
- Functional safety modules, see page 70
- I/O extension modules, see page 63
- Communication protocol adapters, see page 63
- Speed feedback interfaces, see page 65
- Du/dt and common mode filter options for motor protection, see page 90
- Marine construction option
- Cabinet light and heater option

The drives have an extensive selection of built-in features and options. See page 100.

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
- DC voltage boost to compensate for a voltage drop caused by an output filter or long motor cables, and to ensure full motor supply voltage
- Increased system efficiency with lower component losses due to very low level of harmonics

Ratings, types and voltages

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

$U_N = 400\text{ V}$ (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 (dB(A))	Heat dissipation (W)	Air flow (m ³ /h)
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)			
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	860/913 ^{*)}
ACS880-31-145A-3	R8	145	178.3	75	138	75	105	55	68	2963	860/913 ^{*)}
ACS880-31-169A-3	R8	169	246.5	90	161	90	145	75	68	3168	860/913 ^{*)}
ACS880-31-206A-3	R8	206	287.3	110	196	110	169	90	68	3990	860/913 ^{*)}

^{*)} (IP2X/IP55)

$U_N = 500\text{ V}$ (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 (dB(A))	Heat dissipation (W)	Air flow (m ³ /h)
		I_N (A)	I_{MAX} (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)			
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	860/913 ^{*)}
ACS880-31-124A-5	R8	124	178	75	118	75	96	55	68	2800	860/913 ^{*)}
ACS880-31-156A-5	R8	156	247	90	148	90	124	75	68	3168	860/913 ^{*)}
ACS880-31-180A-5	R8	180	287	110	171	110	156	90	68	3872	860/913 ^{*)}

^{*)} (IP2X/IP55)

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.

Summary of features and options

ACS880 air-cooled single drives

	Option 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 ⁸⁾
Mounting							
Wall-mounting		●	●	-	-	-	-
For cabinet mounting	+P940 +P944	□ □	□ -	- -	- -	- -	- -
Cabinet-built		-	-	●	●	●	●
Vibration dampers	+C131	□	-	-	-	-	-
Flange mounting	+C135	□ ¹⁵⁾	□ ¹⁵⁾	-	-	-	-
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	□	□	-	-	-	-
Nickel plated busbars (tin plating as standard) ³⁰⁾	+C255	□	-	-	-	-	-
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 1 st environment, restricted distribution, C2, grounded network (TN)	+E202	□ ²⁾	□	□ ²⁾	□ ¹⁶⁾	□ ¹⁹⁾	□ ²²⁾
EMC 2 nd environment, C3, grounded network (TN)	+E200	□ ³⁾	□	□ ³⁾	●	□ ²⁰⁾	●
EMC 2 nd environment, C3, ungrounded network (IT)	+E201	□ ⁴⁾	□	□ ⁴⁾	●	□ ²³⁾	●
Line filter							
AC or DC choke		●	-	●	●	-	-
Advanced line harmonic filter (LCL)		-	●	-	-	●	●
Output filter							
Common mode filter	+E208	□	□	□	●	□ ²⁸⁾	●
du/dt filters	+E205	■	■	□	●	□	●
Braking (see braking unit table)							
Brake chopper	+D150	□ ⁵⁾	■ ⁸⁾	□	□ ⁶⁾	□	□
Brake resistor	+D151	■	■ ⁸⁾	□	□ ⁶⁾	□	□

● Standard

□ Selectable option, with plus code

■ Selectable option, external, no plus code

ACS880 air-cooled single drives

	Option 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 ⁸⁾
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	□	¹⁷⁾	–	–	□	–
Application control program for chemical industry process control	+N5550	□	¹⁷⁾	–	–	–	–
Application control program for ESP pumps	+N5600	□	□	□	□	□	□
Application control program for tower cranes	+N5650	□	□	–	–	–	–
Application control program for position control	+N5700	□	□	□	□	□	□
Application control program for anticavitation	+N5900	□	□	–	–	–	–
Support for asynchronous motor		●	●	●	●	●	●
Support for permanent magnet motor		●	●	●	●	●	●
Support for Synchronous reluctance motor (SynRM)	+N7502	□	□	□	□	□	□
High-speed operation up to 598 Hz output frequency. Operation above 598 Hz requires also +N8200.	+N7500	□ ²⁹⁾	–	–	–	–	–
High-speed license. Allows high-speed operation above 598 Hz output frequency.	+N8200	□ ²⁴⁾	–	□ ²⁴⁾	□ ²⁴⁾	□ ²⁴⁾	□ ²⁴⁾
Rectifier bridge							
12-pulse	+A004	–	–	–	□	–	–
Line side apparatus							
aR line fuses		–	–	●	●	●	●
Main switch		–	–	●	●	●	●
Line contactor	+F250	–	–	□	□ ¹⁰⁾	●	● ¹¹⁾
Air circuit breaker	+F255	–	–	–	□ ⁷⁾	–	● ¹²⁾
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

ACS880 air-cooled single drives

	Option 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 ⁸⁾
Safety functions¹⁸⁾							
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	□	□	□	□	□ ⁸⁾	□ ⁸⁾
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

ACS880 air-cooled single drives

	Option 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" ²⁵⁾		□	□	□	□	□	□
Built-in adapters for several communication protocols: for more details see section "Communication protocol adapters" ²⁶⁾		□	□	□	□	□	□
Approvals							
CE, UKCA		●	●	●	●	●	●
UL, cUL	+C129	●	●	□	□	□	□
CSA	+C134	●	●	□	□	□	□
EAC/GOST R ⁹⁾		●	●	●	●	●	●
RoHS		●	●	●	●	●	●
RCM		●	●	●	●	●	●
Marine type approvals ¹³⁾	+C132	□ ¹³⁾	□ ¹³⁾	□ ¹³⁾	□ ¹³⁾	□ ¹³⁾	□ ¹³⁾
Marine construction	+C121	–	–	□	□	□	□
Marine product certification for essential applications		□ ⁸⁾	□ ⁸⁾	□ ⁸⁾	□ ⁸⁾	–	–
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).

⁵⁾ 2nd environment C4 for frame sizes R1 to R5, 380 to 500 V, and frame sizes R3 to R6, 690 V (-01).

⁶⁾ Frame sizes R1 to R4 built-in and R5 to R9 as selectable option

⁷⁾ 2×R8i

⁸⁾ 2×D8T to 4×D8T

– Check availability from local ABB

– EAC has replaced GOST R

– D8T, 2×D7T and 2×D8T

– R8i to 2×R8i, 400 to 500 V. R8i to 3×R8i, 690 V

– 3×R8i, 400 to 500 V. 4×R8i and 6×R8i, 690 V

– ACS880 marine type approvals and type approved drives are listed at

– For cabinet-built drives (-07)

– Available only with IP20 (+P940 or +P944)

– For 1140A-3 and 1070A-5 (-07 nxR8i).

– Pending

– 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.

– For frame sizes R8 and R11, 380 to 500 V (-17, -37).

– For frame size R8, 380 to 500 V (-17, -37). As standard for R11, 380 to 690 V.

– Only for frame size R11.

– Only for frame size 1xR8i, 380 to 500 V (-17, -37).

– For frame size R8, 380 to 500 V (-17, -37). For R11, 380 to 690 V, please contact your local ABB.

– For availability and further information, please contact your local ABB office.

– 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.

– Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.

– For ACS880-37LC.

– Common mode filter (+E208) is standard for 690 V devices.

– Available for voltages from 380 to 500 V.

– Frames R5 – R9

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ACS880 liquid-cooled single drives

	Option 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 1 st environment, restricted distribution, C2, grounded network (TN)	+E202	–	–	–
EMC 2 nd environment, C3, grounded network (TN)	+E200	–	–	–
EMC 2 nd environment, C3, ungrounded network (IT)	+E201	–	–	–
EMC 2 nd 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	□	□	□ ²⁷⁾
Brake resistor	+D151	□	□	□ ²⁷⁾

- Standard
- Selectable option, with plus code
- Selectable option, external, no plus code

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ACS880 liquid-cooled single drives

	Option 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	□ ²⁴⁾	□ ²⁴⁾	□ ²⁴⁾
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	□ ²⁴⁾	□ ²⁴⁾	□ ²⁴⁾
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

ACS880 liquid-cooled single drives

	Option code	ACS880-07LC nxR8i	ACS880-07CLC nxR8i	ACS880-17/37LC nxR8i
Safety functions ¹⁸⁾				
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

ACS880 liquid-cooled single drives

	Option 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" ²⁵⁾		□	□	□
Built-in adapters for several communication protocols: for more details see section "Communication protocol adapters" ²⁶⁾		□	□	□
Approvals				
CE, UKCA		●	●	●
UL, cUL	+C129	□	□	□
CSA	+C134	□ ¹⁷⁾	□ ¹⁷⁾	□ ¹⁷⁾
EAC/GOST R ⁹⁾		●	–	●
RoHS		●	●	●
RCM		●	●	●
Marine type approvals ¹³⁾	+C132	□	□	□
Marine construction	+C121	□	□	□
Marine product certification for essential applications		□ ⁸⁾	□ ⁸⁾	□ ⁸⁾
TÜV nord certificate for safety functions		●	●	●
ATEX certified safe disconnection function, Ex II (2) GD (notified body: Eurofins)	+Q971	–	–	–
SEMI F47		●	●	●

● Standard

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– Not available

¹⁾ Without control panel, +0J400

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⁶⁾ Frame sizes R1 to R4 built-in and R5 to R9 as selectable option

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⁹⁾ Check availability from local ABB

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– Only for frame size R11.

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– Three option slots are available for I/O extension, speed feedback, communication protocol and functional safety options.

– For ACS880-37LC.

– Common mode filter (+E208) is standard for 690 V devices.

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