

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ACS 580

BCAN-11 3AXD50000033816

CANOPEN INTERFACE MODULE

Used with the applicable ABB ACS380 drive options configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: ABB official manufacturer documentation

TECHNICAL DATA

Mains connection	
Voltage and power range	1-phase, 200 to 240 V, +10%/–15% 0.25 to 3.0 kW (1/3 to 3 HP) 3-phase, 200 to 240 V, +10%/–15% 0.25 to 15 kW (1/3 to 20 HP) 3-phase, 380 to 480 V, +10%/–15% 0.37 to 22 kW (1/2 to 30 HP)
Frequency	50/60 Hz ± 5%
Efficiency class (IEC 61800-9-2)	IE2
Common DC connection	
DC voltage level	–1 and –2 types 270 to 324 V ±10% –4 types 513 to 648 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% seconds with 100% torque step
Speed control performance, closed loop	
Static accuracy	0.1% of motor rated speed
Dynamic accuracy	<1% seconds 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) EN/IEC61800-5-2: IEC61508 ed2: SIL 3, IEC 61511: SIL 3, IEC 62061: SIL CL 3, EN ISO 13849-1: PL e/cat. 3

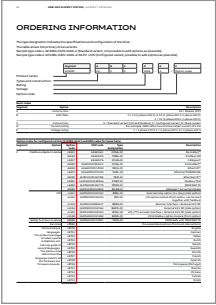
Environmental limits	
Ambient temperature	
Transportation and storage	–40 to +70 °C (–40 to +158 °F)
Operation	–10 to +50 °C (14 to 122 °F), with derating up to 60 °C (except R0, which has max. temperature of 50 °C)
Cooling method	Air-cooled, dry clean air
Altitude	0 to 4000 m, (0 to 13000 ft) for 400 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 Optional UL type 1 Kit
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 2014/35/EU 2, EN 61800-5-1: 2007	
Machinery Directive 2006/42/EC, EN 61800-5-2: 2007	
EMC Directive 2014/30/EU, EN 61800-3: 2004 + A1: 2012	
UL, cUL certification – file E211945	
TUV Certification for functional safety	
Quality assurance system ISO 9001	
Ecodesign (EU) 2019/1781	
Environmental system ISO 14001	
RoHS directive 2011/65/EU	
Waste electrical and electronic equipment directive (WEEE) 2002/96/EC	
EAC, KC, RCM	

HOW TO SELECT A DRIVE

How you build up your ordering code

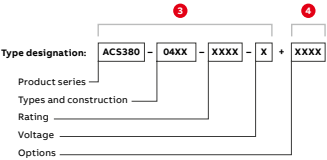
Start by identifying your supply voltage
This indicates what rating table to use;
see page 17.

Select the ordering code for the ACS380
machinery drive by choosing either the
standard or the configured variant (page
16). Then choose the desired EMC level on
page 6. If the configured variant is
selected, choose the desired fieldbus
protocol (page 30) by selecting the correct
option code and add the option codes to
the drive's ordering code.



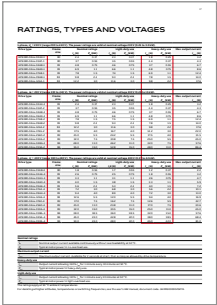
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Choose other options (on page 30) and
add the option codes to the drive's order
code. Remember to use a "+" mark before
each option code.

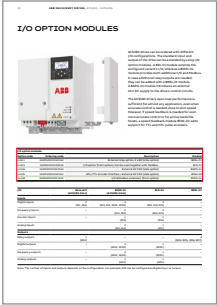


- 1
- 2
- 3
- 4

Choose the motor power and
current rating from the ratings
table on page 17.



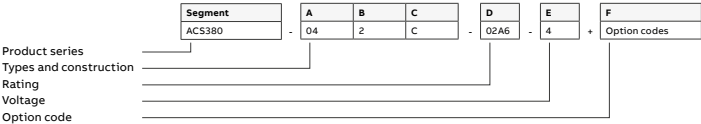
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ORDERING INFORMATION

The type designation indicates the specifications and configuration of the drive.
The table shows the primary drive variants.
Sample type code 1: ACS380-0425-02A6-4 (Standard 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)



Basic codes			
Segment	Option	Description	
A	Construction	04 = Module, IP20	
B	EMC filter	0 = C3 (3-phase 400 V) or C4 (1-phase 230 V, 3-phase 230 V) 2 = C2 (3-phase 400 V, 1-phase 230 V)	
C	Connectivity	S = Standard variant (I/O and Modbus), C = Configured variant, N = Base 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, 2 = 3-phase 230 V, 4 = 3-phase 400 V	

Option codes for configured variant (ACS380-04xC) and MRP codes for loose items					
Segment	Option	Option code	MRP code	Type designation	Description
F	Fieldbus adapter module	+K451	68469341	FDNA-01	DeviceNet™
		+K454	68469325	FPBA-01	Profibus-DP
		+K457	68469376	FCAN-01	CANopen®
		+K462	3AUAA000094512	FCNA-01	ControlNet™
		+K469	3AUAA000072069	FECA-01	EtherCAT®
		+K470	3AUAA000072120	FEPL-02	Ethernet POWERLINK
		+K490	3AXD50000192786	FEIP-21	EtherNet/IP™
		+K491	3AXD5000049964	FMBT-21	Modbus/TCP
		+K492	3AXD50000192779	FPNO-21	PROFINET I/O
		+K495	3AXD50000033816	BCAN-11	CANopen® (screw terminals)
	I/O	+L511	3AXD50000022162	BREL-01	External relay option (4 x relay) (side option)
		+L515	3AXD50000191635	BIO-01	I/O option module (front option, can be used together with fieldbus)
		+L516	3AXD50000982417	BRES-01	Resolver interface + External 24 V DC (side option)
		+L534	3AXD50000022164	BAPO-01	External 24 V DC (side option)
		+L535	3AXD50000022163	BTAC-02	HTL/TTL encoder interface + External 24 V DC (side option)
		+L538	3AXD50000022162	BMIO-01	I/O & Modbus option module (front option)
Safety functions module		+Q986	3AXD50000112821	FSPS-21	PROFIsafe with PROFINET I/O
Services		+P992	Pre-assembled options (front and side options)		
The product package includes a quick installation and start-up guide in several languages. The option code determines the language variants of the hardware and firmware manuals.	Printed manual languages:	+R700	English		
		+R701	German		
		+R702	Italian		
		+R703	Dutch		
		+R704	Danish		
		+R705	Swedish		
		+R706	Finnish		
		+R707	French		
		+R708	Spanish		
		+R709	Portuguese (Portugal)		
	+R711	Russian			
	+R712	Chinese			
	+R714	Turkish			
	+R713	Polish			

RATINGS, TYPES AND VOLTAGES

1-phase, U_N = 230 V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 3.0 kW).								
Drive type	Frame size	Nominal ratings		Light-duty use		Heavy-duty use		Max. output current
		I_N (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	
ACS380-04xx-02A4-1	R0	2.4	0.37	2.3	0.37	1.8	0.25	3.2
ACS380-04xx-03A7-1	R0	3.7	0.55	3.5	0.55	2.4	0.37	4.3
ACS380-04xx-04A8-1	R1	4.8	0.75	4.6	0.75	3.7	0.55	6.7
ACS380-04xx-06A9-1	R1	6.9	1.1	6.6	1.1	4.8	0.75	8.6
ACS380-04xx-07A8-1	R1	7.8	1.5	7.4	1.5	6.9	1.1	12.4
ACS380-04xx-09A8-1	R2	9.8	2.2	9.3	2.2	7.8	1.5	14.0
ACS380-04xx-12A2-1	R2	12.2	3.0	11.6	3.0	9.8	2.2	17.6

3-phase, U_N = 230 V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 15 kW).								
Drive type	Frame size	Nominal ratings		Light-duty use		Heavy-duty use		Max. output current
		I_N (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	
ACS380-04xx-02A4-2	R1	2.4	0.37	2.3	0.37	1.8	0.25	3.2
ACS380-04xx-03A7-2	R1	3.7	0.55	3.5	0.55	2.4	0.37	4.3
ACS380-04xx-04A8-2	R1	4.8	0.75	4.6	0.75	3.7	0.55	6.7
ACS380-04xx-06A9-2	R1	6.9	1.1	6.6	1.1	4.8	0.75	8.6
ACS380-04xx-07A8-2	R1	7.8	1.5	7.5	1.5	6.9	1.1	12.4
ACS380-04xx-09A8-2	R1	9.8	2.2	9.3	2.2	7.8	1.5	14.0
ACS380-04xx-12A2-2	R2	12.2	3.0	11.6	3.0	9.8	2.2	17.6
ACS380-04xx-17A5-2	R3	17.5	4.0	16.7	4.0	12.2	3.0	22.0
ACS380-04xx-25A0-2	R3	25.0	5.5	24.2	5.5	17.5	4.0	31.5
ACS380-04xx-033A-2	R3	32.0	7.5	30.8	7.5	25.0	5.5	45.0
ACS380-04xx-048A-2	R4	48.0	11.0	46.2	11.0	32.0	7.5	57.6
ACS380-04xx-055A-2	R4	55.0	15.0	52.8	15.0	48.0	11.0	86.4

3-phase, U_N = 400 V (range 380 to 480 V). The power ratings are valid at nominal voltage 400 V (0.37 to 22 kW).								
Drive type	Frame size	Nominal ratings		Light-duty use		Heavy-duty use		Max. output current
		I_N (A)	P_N (kW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)	
ACS380-04xx-01A8-4	R0	1.8	0.55	1.7	0.55	1.2	0.37	2.2
ACS380-04xx-02A6-4	R1	2.6	0.75	2.5	0.75	1.8	0.55	3.2
ACS380-04xx-03A3-4	R1	3.3	1.1	3.1	1.1	2.6	0.75	4.7
ACS380-04xx-04A0-4	R1	4.0	1.5	3.8	1.5	3.3	1.1	5.9
ACS380-04xx-05A6-4	R1	5.6	2.2	5.3	2.2	4.0	1.5	7.2
ACS380-04xx-07A2-4	R1	7.2	3.0	6.8	3.0	5.6	2.2	10.1
ACS380-04xx-09A4-4	R1	9.4	4.0	8.9	4.0	7.2	3.0	13.0
ACS380-04xx-12A6-4	R2	12.6	5.5	12.0	5.5	9.4	4.0	16.9
ACS380-04xx-17A0-4	R3	17.0	7.5	16.2	7.5	12.6	5.5	22.7
ACS380-04xx-25A0-4	R3	25.0	11.0	23.8	11.0	17.0	7.5	30.6
ACS380-04xx-033A-4	R3	32.0	15.0	30.5	15.0	25.0	11.0	45.0
ACS380-04xx-038A-4	R4	38.0	18.5	36.0	18.5	32.0	15.0	57.6
ACS380-04xx-045A-4	R4	45.0	22.0	42.8	22.0	38.0	18.5	68.4
ACS380-04xx-050A-4	R4	50.0	22.0	48.0	22.0	45.0	22.0	81.0

Nominal ratings	
I_N	Nominal output 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}	Output current allowing 150% I_N for 1 minute every 10 minutes at 50 °C.
P_{Hd}	Typical motor power in heavy-duty use.
Light-duty use	
I_{Ld}	Output current allowing 110% I_N 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.

TOOLS FOR CONFIGURATION, MONITORING AND PROCESS TUNING

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



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

Drive Composer
The Drive Composer PC tool offers fast and harmonized setup, commissioning and monitoring. Drive Composer entry (a 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.



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

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



Ordering code	Description	Type designation
3AXD50000032449	PC cable, USB to RJ45	BCBL-01
3AXD50000019865	Cold configurator adapter, packed kit	CCA-01
3AUA0000108087	Drive Composer pro PC tool (single user license)	DCPT-01
3AUA0000145150	Drive Composer pro PC tool (10 users license)	DCPT-01
3AUA0000145151	Drive Composer pro PC tool (20 users license)	DCPT-01
3AXD50000131976	Panel bus adapter	BSPL-01
3AXD50000128624	Panel bus termination plug	BPLG-01

Free Drive Composer entry available at <https://new.abb.com/drives/software-tools/drive-composer>

FLEXIBLE CONNECTIVITY TO AUTOMATION NETWORKS

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

The ACS380 configured variant is compatible with a wide range of fieldbus protocols. Fieldbus adapter modules are automatically configured during first power up, 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 to get the full functionality and to make integration easy. For this reason, ABB also offers tools for seamless integration to automation systems of various manufacturers.



UNIVERSAL COMMUNICATION WITH ABB FIELDBUS ADAPTERS			
The machinery drives support the following fieldbus protocols:			
Option code	Ordering code	Fieldbus protocol	Adapter module
+K451	68469341	DeviceNet™	FDNA-01
+K454	68469325	PROFIBUS DP, DPV0/DPV1	FPBA-01
+K457	68469376	CANopen®	FCAN-01
+K462	3AUA0000094512	ControlNet™	FCNA-01
+K469	3AUA0000072069	EtherCAT®	FECA-01
+K470	3AUA0000072120	Ethernet POWERLINK	FEPL-02
+K490	3AXD50000192786	Ethernet/IP™ and OPC UA	FEIP-21
+K491	3AXD50000049964	Modbus/TCP and OPC UA	FMST-21
+K492	3AXD50000192779	PROFINET IO and OPC UA	FPNO-21
+K495	3AXD50000033816	CANopen® (screw terminals)	BCAN-11