ABB general purpose drives
ACS310, 0.37 to 22 kW/0.5 to 30 Hp

ABB general purpose drives, ACS310, are dedicated to variable torque applications such as booster pumps and centrifugal fans.

The drive design includes a powerful set of features which benefit pump and fan applications including 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. The drives also have pre-programmed protection functions such as pipe cleaning for preventive maintenance.

The ACS310 drives provide built-in energy efficiency features. Energy savings can be easily monitored using the built-in energy calculators, that display energy savings in kilowatt hours and saved carbon dioxide emissions. The savings can also be displayed in local currencies.

Among the energy efficiency calculators is an energy optimizer that helps to improve system's energy efficiency while operating at partial loads. Load analyzer is a built-in statistical tool to analyze the drive as well as motor dimensioning and further analyze the process energy efficiency and operation. Even the drive's internal fan is controlled by software to reduce noise and losses, improving energy efficiency.

These features, combined with pre-programmed application macros, an intuitive user interface and several assistant screens, speed up the installation, parameter setting and commissioning of the drive.

Highlights

- Pump and fan features such as pump and fan control (PFC and SPFC)
- Pipe cleaning and fill functions
- Energy efficiency calculators
- Energy optimizer
- Load analyzer for optimized dimensioning of the drive, motor and process
- Embedded Modbus EIA-485 fieldbus interface
- FlashDrop tool for fast parameter setting
- Unified height and depth
- Full output current at 50 °C ambient
- Short parameter menu view

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)

Applications

- Booster pumps
- Irrigation systems
- Level control
- Centrifugal fans

Options

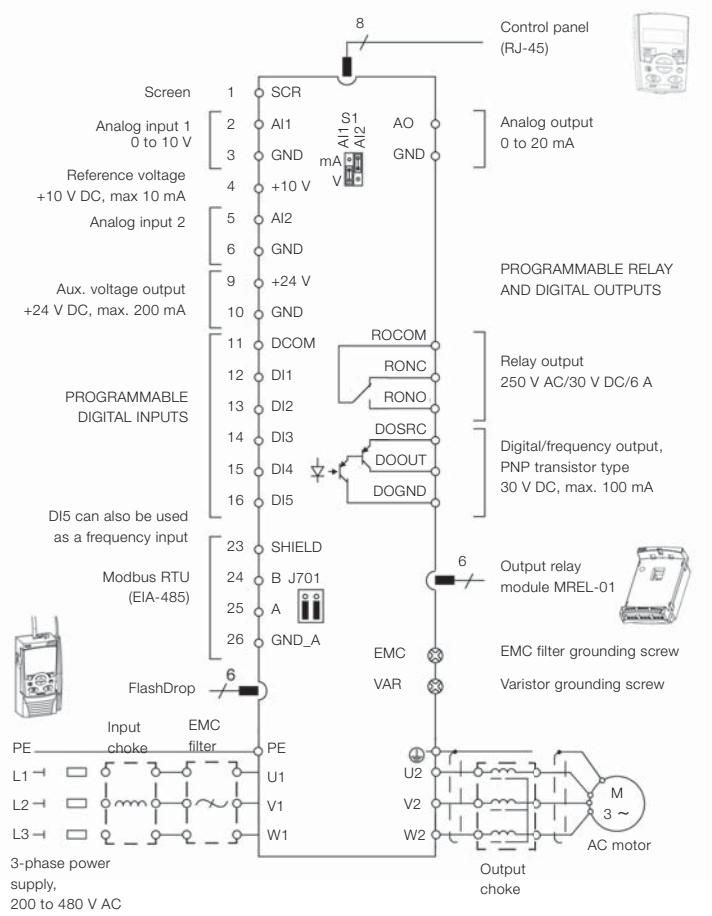
- Basic and Assistant control panels
- FlashDrop tool for fast cold configuration
- MREL-01 Relay output extension module
- SREA-01 Ethernet adapter
- DriveWindow Light PC tool

Technical data 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	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	8.3	7.5	ACS310-03X-08A3-2	R1
2.2	3	10.8	9.8	ACS310-03X-10A8-2	R2
3	4	14.6	13.3	ACS310-03X-14A6-2	R2
4	5	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	34.1	31.0	ACS310-03X-34A1-2	R4
11	15	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	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	4.5	4.1	ACS310-03X-04A5-4	R1
2.2	3	6.2	5.6	ACS310-03X-06A2-4	R1
3	4	8.0	7.3	ACS310-03X-08A0-4	R1
4	5	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	17.2	15.6	ACS310-03X-17A2-4	R3
11	15	25.4	23.1	ACS310-03X-25A4-4	R3
15	20	34.1	31	ACS310-03X-034A-4	R4
18.5	25	41.8	38	ACS310-03X-41A8-4	R4
22	30	48.4	44	ACS310-03X-48A4-4	R4

[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.

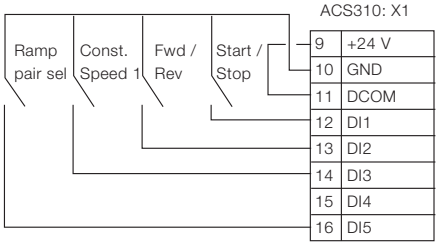
[2] I_{LD} continuous output current at max ambient temperature of +50 °C. 10% overloadability for one minute every ten minutes.



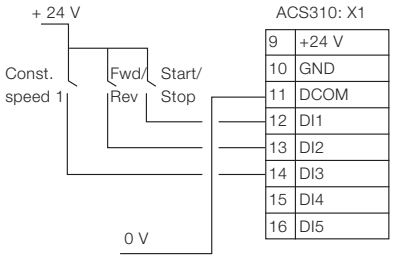
Note: For 1-phase power supply, connect power to U1/L and V1/N terminals.

Mains connection	
Voltage and power connection	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	
Motor types	Asynchoronous induction motors
Voltage	3-phase, from 0 to U_{supply}
Frequency	0 to 500 Hz
Switching frequency	4, 8, 12 and 16 kHz (derated)
Type of control	Scalar U/f Linear, squared and user definable U/f profiles Energy optimizer
Serial communication	
Fieldbus	Modbus RTU EIA-485 and EIA-232 Modbus TCP with SREA-01 option module
Environmental limits	
Degree of protection	IP20/Optional NEMA 1 enclosure
Ambient temperature	-10 to +50 °C (14 to 122 °F), no frost allowed
Product compliance	
Markings	CE and C-Tick approvals UL, cUL and GOST R RoHS compliant
Directives	Low Voltage Directive 2006/95/EC Machinery Directive 2006/42/EC EMC Directive 2004/108/EC
Harmonics	For reducing THD in partial loads and to comply with EN/IEC 61000-3-12 with external AC input chokes
EMC	Class C3 (2nd environment unrestricted distribution) built-in as standard Class C2 and C1 with external optional EMC filters

Typical I/O connections



DI configuration NPN connected (sink)



DI configuration PNP connected (source) with external power supply

For more details see ACS310 catalog (3AUA0000051082).

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

www.abb.com/drives
www.abb.com/drivespartners

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