

# Product Flyer

## ABB Industrial Pump and Fan AC Drives

### ACS310, 0.5 to 30 Hp (0.37 to 22 kW)

An extension to the ABB standard drives family is a series of drives specifically designed for variable torque applications such as pumps and fans.

The specific 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.

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 Soft PFC) macros
- Energy optimizer
- Load analyzer for optimized dimensioning of the drive, motor and process
- Embedded Modbus RTU (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
- Cooling Fan Control
- Pump Cleaning
- Under and Overload
- Pump protection
- Sleep function
- Pipefill (precharge)
- Built-in energy counters, energy saved displayed in local currency

#### Power and Voltage Range

- 3-phase, 200 to 240 V  $\pm$  10%  
0.5 to 15Hp (0.37 to 11kW)
- 3-phase, 380 to 480 V  $\pm$  10%  
0.5 to 30Hp (0.37 to 22kW)

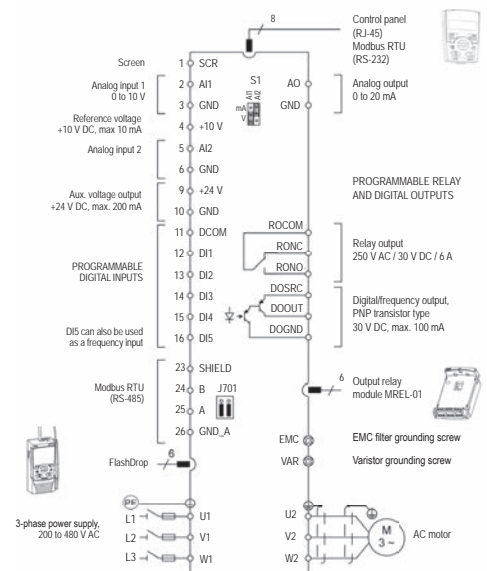
#### Applications

- Booster pumps
- Submersible pumps
- Irrigation pumps
- Supply and return fans

#### Options

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

#### ACS310 Control Connections



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## Ratings, types and voltages

Ratings				Type Code	Frame Size
P <sub>N</sub>	P <sub>N</sub>	I <sub>2N</sub> <sup>1)</sup>	I <sub>LD</sub> <sup>2)</sup>		
Hp	kW	A	A		
<b>3-phase supply voltage 200 - 240 V units</b>					
0.5	0.37	2.6	2.4	ACS310-03U-02A6-2	R0
0.75	0.55	3.9	3.5	ACS310-03U-03A9-2	R0
1	0.75	5.2	4.7	ACS310-03U-05A2-2	R1
1.5	1.1	7.4	6.7	ACS310-03U-07A4-2	R1
2	1.5	8.3	7.5	ACS310-03U-08A3-2	R1
3	2.2	10.8	9.8	ACS310-03U-10A8-2	R2
5	4	19.4	17.6	ACS310-03U-19A4-2	R2
7.5	5.5	26.8	24.4	ACS310-03U-26A8-2	R3
10	7.5	34.1	31.0	ACS310-03U-34A1-2	R4
15	11	50.8	46.2	ACS310-03U-50A8-2	R4

<b>3-phase supply voltage 380 - 480 V units</b>					
0.5	0.37	1.3	1.2	ACS310-03U-01A3-4	R0
0.75	0.55	2.1	1.9	ACS310-03U-02A1-4	R0
1	0.75	2.6	2.4	ACS310-03U-02A6-4	R1
1.5	1.1	3.6	3.3	ACS310-03U-03A6-4	R1
2	1.5	4.5	4.1	ACS310-03U-04A5-4	R1
3	2.2	6.2	5.6	ACS310-03U-06A2-4	R1
5	4	9.7	8.8	ACS310-03U-09A7-4	R1
7.5	5.5	13.8	12.5	ACS310-03U-13A8-4	R3
10	7.5	17.2	15.6	ACS310-03U-17A2-4	R3
15	11	25.4	23.1	ACS310-03U-25A4-4	R3
20	15	34.1	31	ACS310-03U-03A4-1	R4
25	18.5	41.8	38	ACS310-03U-41A8-4	R4
30	22	48.4	44	ACS310-03U-48A4-4	R4

<sup>1)</sup>I<sub>2N</sub> maximum continuous output current at ambient temperature of +40 °C.  
No overloadability, derating 1% for every additional 1°C up to 50 °C.

<sup>2)</sup>I<sub>LD</sub> continuous output current at max ambient temperature of +50 °C.  
10% overloadability for one minute every ten minutes.

<b>Input power connection</b>	
Voltage and power connection	3-phase, 200 to 240 V ± 10 0.5 to 15 Hp (0.37 to 11 kW) 3-phase, 380 to 480 V ± 10% 0.5 to 30 Hp (0.37 to 22 Hp)
Frequency	48 to 63 Hz

<b>Motor connection</b>	
Motor types	Asynchronous induction motors
Voltage	3-phase, from 0 to U <sub>supply</sub>
Frequency	0 to 500 Hz
Switching frequency	4, 8, 12 and 16 kHz (derated)
Type of control	Scalar control. Linear, squared and user definable U/f profiles. Energy optimizer

<b>Inputs and outputs / control interface</b>	
Two analog inputs	Selectable for both voltage and current. Voltage signal: Unipolar 0 (2 V) to 10 V Bipolar -10 to 10 V Current signal: Unipolar 0 (4 mA) to 20 mA Bipolar -20 to 20 mA Potentiometer ref. value: 10 V DC ± 1%
One analog output	0 (4 mA) to 20 mA Internal auxiliary voltage: 24 V DC ± 10%

Five digital inputs	12 to 24 V DC with internal or external supply, PNP or NPN Digital input DI5 can be programmed for pulse train input, 0 to 10 kHz
One digital output	Transistor output, 30 V DC Digital output can be programmed as pulse train output, 10 Hz to 16 kHz
One relay output	250 V AC / 30 V DC
One pulse train output	Digital output can be programmed as pulse train output, 10 Hz to 16 kHz
PTC and PT100	Any of the 5 digital inputs or analog input can be configured for PTC. Analog output can be used to feed PT100 sensor

<b>Serial communication</b>	
Embedded Fieldbus	Modbus RTU (EIA-485)
Cable	Shielded twisted pair, impedance 100 to 150 ohms
Termination	Trunk line, drop lines allowed
Isolation	Bus interface isolated from drive
Transfer rate	1.2 to 76.8 kbit/s
Communication type	Serial, asynchronous, half duplex
Protocol	Modbus

<b>Options</b>	
User interface	Basic control panel, ACS-CP-C Advanced control panel, ACS-CP-A Panel mounting kits for cabinet door installation FlashDrop tool for cold configuration
I/O extensions	MREL-01 module, three Form C relay outputs, 250 V AC / 30 V DC
Enclosure kits	NEMA 1 kit
Chokes and filters	AC input and output chokes EMC filters
PC tools	DriveWindow Light 2
Ethernet adapter	SREA-01 module

<b>Environmental limits</b>	
Degree of protection	IP20 / Optional NEMA 1 enclosure
Ambient temperature	-10 to 50 °C (14 to 122 °F), no frost allowed

<b>Product compliance</b>	
Markings	CE and C-Tick approvals UL, cUL and GOST R RoHS compliant
Directives	Low Voltage Directive 2006/95/EC Machinery Directive 98/37/EC EMC Directive 2004/108/EC
Harmonics	EN 61000-3-12 and EN 61000-3-12 with external optional AC input chokes
EMC	Class C3 (2 <sup>nd</sup> environment unrestricted distribution) inbuilt as standard Class C2 and C1 with external optional EMC filters
Vibration	Seismic certification IBC-2003

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