

# ABB water/wastewater drives

## ACQ550, 1 to 550 HP



System reliability, pump efficiency and a suite of industry-specific controls enable you to successfully maintain a reliable water cycle management system.

With this in mind, we designed our variable speed AC drives specifically for Water/Wastewater environments and applications. These devices are available, as standard, for panel-mounting or factory direct NEMA-1, drip-proof NEMA-12 or outdoor-rated NEMA-3R enclosures.

A water industry start-up assistant resides within the intuitive, full graphic display panel to aid in commissioning submersible, centrifugal or positive displacement pumps. This control panel can also be mounted remotely, or on the cover of the drive, and used to upload, store and download parameters in multiple drive setups.

### Application control

The extensive library of pre-programmed, water-specific application macros allows rapid configuration of inputs, outputs, and parameters to maximize convenience and minimize start-up time. To simplify troubleshooting, the drive uses a real-time clock, which allows for accurate time stamps on faults, resets and more. Two integral option slots, that can be configured for additional relay outputs (i.e. drive status indications, timed or pump staging

A reliable system is critical to protecting, supplying and recycling water. What you choose matters. The world trusts you to make good decisions and you take that responsibility seriously. We'll help safeguard your system to run efficiently and provide the value and dependability you demand.

applications) or a variety of different communication bus adapters, are at your disposal.

### Cost savings

We designed our solutions to give you the most flexible motor control performance through two standard modes: Scalar (V/Hz) for typical pumps and Sensorless Vector for the more demanding applications. Through either of these, you will have accurate speed control of any standard induction motor.

Save energy by applying variable electronic speed control to your pumps and pumping systems. These savings can be achieved over bypass or valve-operated flow control, traditional diesel driven systems or across the line operations. The Affinity Laws of physics define the relationship between pumps and the power they require. On centrifugal pump applications, the power requirement of the pump varies by the cube of the speed. Electronically reducing the pump speed by 20% will typically cut energy costs in half.

### Designed for water

The ACQ550 - which ranges from 1 to 550 HP - is well-suited to meet your needs, from the simplest pumping applications, through the most demanding.

## Technical Data

<b>ACQ550-U1 wall mount</b>	
Available enclosures	NEMA 1 & 12 Enclosures 1.5 - 200 Hp
<b>ACQ550-CC bypass</b>	
Available enclosures	NEMA 1, 12 and 3R Enclosures 1.5 - 200 Hp NEMA 1 & 12 Free Standing 250 - 400 Hp
Main input disconnect	Two Contactor Bypass with circuit breaker disconnect (CC)
<b>ACQ550-PC/PD with circuit breaker or disconnect</b>	
Available enclosures	NEMA 1, 1.5 - 400 Hp NEMA 12, 1.5 - 550 Hp NEMA 3R, 1.5 - 200 Hp
Main input disconnect	Circuit Breaker (PC) Disconnect Switch (PD)
<b>Input power connection</b>	
Voltage and power range	3-phase, 208 to 240 V, +10/-15%, 1 - 100 Hp 3-phase, 380 to 480 V, +10/-15%, 1 - 550 Hp 3-phase, 500 to 600 V, +10/-15%, 1.5 - 150 Hp
Frequency	48 to 63 Hz
Power factor	0.98
<b>Programmable control connection</b>	
<b>Two analog inputs</b>	
Voltage signal	0 (2) to 10 V, Rin > 250 k $\Omega$ single-ended
Current signal	0 (4) to 20 mA, Rin = 100 $\Omega$ single-ended
Potentiometer reference value	10 V $\pm$ 1% max. 1 k $\Omega$ to 10 k $\Omega$
<b>Two analog outputs</b>	
Auxiliary voltage	0 (4) to 20 mA, load < 500 $\Omega$ $\pm$ 3% 24 V DC $\pm$ 10%, max. 250 mA (short circuit protected)
Six digital inputs	12 to 24 V DC with internal or external supply, PNP and NPN
<b>Three relay outputs</b>	
Maximum switching capacity	8 A/24 VDC or 250 VAC; 0.4 A/120 VDC
Maximum continuous	I <sub>c</sub> = 2 A RMS
<b>Environmental limits</b>	
Protection class	UL Type 1, 12 or 3R (NEMA 1, NEMA 12, NEMA 3R)
Ambient temperature	-5 to 40°C (5 to 104°F) 40 to 50°C (104 to 122°F) with derate No frost allowed fswitch 4 kHz, PN and I2 derated to 90%
Relative humidity	Lower than 95% (without condensation)

<b>Option modules</b>	
Fieldbus adapters	DeviceNet
	PROFIBUS-DP
	ControlNet
	CANopen
	Ethernet (EIP,MB/TCP,PROFINET)
	EtherCat adapter
Additional modules	PROFINET IO
	Panel mounting kits
	Relay output extension module
<b>Output (motor) connection</b>	
Frequency	Frequency 0 to 500 Hz
Acceleration time	0.1 to 1800 s
Deceleration time	0.1 to 1800 s
<b>Serial communication built in as standard</b>	
Embedded building automation protocols	RS 485
	Modbus RTU protocol
	BACnet
Product compliance 240 V, 480 V, 600 V products	UL, cUL, CSA, CE, C-TICK, and GOST-R approvals
	Low Voltage Directive 73/23/EEC with supplements
	Machinery Directive 98/37/EC
	EMC Directive 89/336/EEC with supplements
	Quality assurance system ISO 9001 and Environmental system ISO 140001