

ACQ580 LV AC DRIVES

ACQ580 packaged drive with disconnect for Water and Wastewater

1 to 200 hp



The ACQ580 Drive with integrated disconnect is the latest addition to the ABB drives portfolio. This robust, rugged, and compact package enables mounting within line of site of equipment as well as an additional means for lockout tagout.

This drive is offered with either an input disconnect (ACQ580-PD) or an input circuit breaker (ACQ580-PC). Both include drive fuses and are available in power ranges from 1 to 100 HP at 208/230V, 1 to 200 HP at 460V, and 2 to 150 HP at 575V. It is available in UL Type (NEMA) 1 and 12 enclosures and delivers innovative pumping features for water and wastewater applications.

Connection to power and motors is simple. Programming, using the Primary Setting menu, and assistants, simplifies commissioning, setup and daily control. Embedded water and wastewater application features create an intuitive environment for users with dedicated pumping features that enhance the performance of the pumping system.

Secure the flow

The ACQ580 variable frequency drive (VFD) delivers innovative pumping features for the water and wastewater industry. Primary Setting menu and assistants simplifies commissioning, setup and daily control. Embedded water and wastewater application features create an intuitive environment for users and dedicated pumping features enhance the performance of the pumping system.

Speak the language

Leveraging clear, water industry terminology, the control panel enables operators to efficiently interface with the drives in terms they use every day. The optional Bluetooth control panel allows for wireless commissioning and monitoring.

Feel the Power

ACQ580 drives are designed for customers who value reliability, high quality, and robustness. With embedded pump functionality, the ACQ580 keeps the pump system operating optimally and efficiently. Product features, such as coated boards and optional compact UL Type 12 enclosures, make the ACQ580 suitable for harsh conditions.

For outdoor use Type 3R is available 1-30 Hp at 230V, 1-60 Hp at 460V and 2-30 hp at 575V.

All ACQ580 drives are current-rated devices. The HP ratings provided are for reference only and are based on typical 4-pole motors at nominal voltages (NEC Table 430.250). If full motor torque is required, ensure the drive has a continuous current rating equal to, or greater than the full load amp rating of the motor.

The ACQ580 is available in both normal and heavy-duty ratings. Normal duty ratings provide a 110% short term overload rating for one minute every ten minutes. Heavy duty ratings provide a 150% short term overload rating for one minute every ten minutes. All ACQ580 drives and their protective functions are thoroughly tested for optimal performance.

Technical data

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| Power range | 1 to 100 hp, 208/230 V 1 to 200 hp, 460 V 2 to 150 hp, 575 V |
| Voltage range ACQ580-Px-xxxA-2 ACQ580-Px-xxxA-4 ACQ580-Px-xxxA-6 | 208-240 V, 3-phase input, 3-phase output 440-480 V, 3-phase input, 3-phase output 525-600 V, 3-phase input, 3-phase output |
| Power factor (cosφ) at nominal load | 0.98 |
| Efficiency at rated power | 98% |
| Power loss | Approximately 2-3% of rated power |
| Short Circuit Current Rating | Fused Disconnect 100kA SCCR Circuit Breaker with fuses 65kA SCCR |
| Frequency | 50/60 Hz ±5% |
| Supported motor control | Scalar and vector |
| Supported motor types | Induction, Permanent magnet, Synchronous reluctance |
| Mains choke | DC choke, 5% equivalent impedance |
| Degree of protection | UL (NEMA) Type 1, 12, 3R IP21, IP55 |
| Ambient conditions | -15 to +40 °C (5 to 104 °F) 50°C (122°F) available with derate |
| Compliance | UL, cUL, CSA and EAC approvals |
| Construction features | Bottom entry/bottom exit cable connections Hand-Off-Auto control panel Rotary disconnect device |
| Control connections | Two analog inputs, two analog outputs, six digital inputs including thermistor input, three relay outputs, EIA-485 Modbus RTU, safe torque off (STO), external 24 V DC supply input, USB via control panel |

Control and communication options

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| Control panel options | Hand-Off-Auto control panel with bluetooth |
| Optional communication extension modules | EtherNet/IP Modbus TCP Profibus-DP ProfiNet DeviceNet |
| Optional I/O extension modules | CMOD-01: External 24 V DC/AC and digital I/O extension (2 x relay output and 1 x digital output) CMOD-02: External 24 V and isolated PTC interface CHDI-01: six 115/230V AC digital inputs and two relay outputs CAIO-01: Analog I/O extension (3x AI bipolar and 2x AO unipolar) |
| PC tools and programmability | Drive composer tool entry, available for free via ABB website Drive composer tool pro |

Typical applications

- Pumps
- Blowers
- Mixers

Installation type

- Wall-mounted

High enclosure class

- UL (NEMA) Type 1 / IP21
- UL (NEMA) Type 12 / IP55
- UL (NEMA) Type 3R

Built-in pump functionality

- Primary settings for ease of use
- Start-up assistants
- Diagnostic assistant
- Intelligent multi-pump control
- Quick ramps
- Sleep boost
- Auto change
- Level control
- Soft pipe fill
- Sensorless flow calculations
- Pump cleaning
- Two independent adjustable accel/decel ramp
- Motor preheating
- PID control
 - PID sleep / wake-up
- Cavitation Detection and Control
- Dry pump protection
- Dry run protection
- Pressure protection
 - Inlet pressure protection
 - Maximum pressure protection
 - Minimum pressure protection
- Flow protection
- Energy optimizer and calculator
- Load profile
- Adaptive programming

Standard Hand/Off/Auto Control Panel:

- Primary Settings menu to ease drive startup
- Real Time Clock
- Diagnostic and Maintenance functions
- Full Graphic Display, including Chart, Graph, Meter options
- 21 editable home views
- USB interface for PC and tool connection
- Parameters are Alpha-numeric
- Back-up and Restore function built into panel
- Automatic back-up after parameter change