

LOW VOLTAGE AC DRIVES

Compact drive, impressive results

ACH180, 0.5HP to 30HP



Designed specifically for HVACR applications, the ACH180 delivers reliable, cost-effective, and energy-efficient performance. This makes it the ideal solution to fulfill your essential HVACR needs.

Dedicated to HVACR

This compact drive incorporates our extensive HVACR experience, meeting essential application requirements for higher comfort and lower energy use. Built-in HVACR protocols including BACnet and Modbus seamlessly integrate with OEM or building automation systems. The ACH180 can control high efficiency motors, like the EC Titanium™, helping you reach the highest efficiency standards.

Cost-effective

With the ACH180, you can reduce the size of your cabinet due to its compact design. Additionally, its controlled airflow helps limit contamination, which can extend the lifespan of your drive. Its higher ambient operating conditions minimizes the need for air-conditioned cabinets and ultimately help reduce costs.

Easy to use

The ACH180 has an embedded graphical user interface with a simple and familiar parameter structure enabling faster commissioning. Installation is made easy with color-coded control and spring cage terminals on this simply designed product.



ACH180 is ideal to control fans in air handlers, fan arrays and cooling towers.



There are a variety of different inputs and controls that may be applied to the drive being used on pumping applications.

Technical data

Mains connection	
Voltage and power range	1-phase, 208 to 240 V, +10%/-15%, 0.5HP to 3HP 3-phase, 208 to 240 V, +10%/-15%, 0.5HP to 15HP 3-phase, 380 to 480 V, +10%/-15%, 0.75HP to 30HP
Dimensions (H x W x D, in)	R0: 6.85 x 2.76 x 5.63, R1: 7.48 x 2.76 x 5.63, R2: 7.95 x 4.72 x 5.63, R3: 8.07 x 6.69 x 6.85, R4: 8.07 x 10.24 x 7.03
Frequency	50/60 Hz ±5%
Degree of protection	UL open type (IP20)
Ambient conditions	R0: -10 to 40 °C R0: -10 to 50 °C with derate R1-R4: -10 to 50 °C R1-R4: -10 to 60 °C with derate
Altitude	0 to 1,000 m without derating 1,000 to 2,000 m with derating of 1%/100 m
Approvals	CE, RoHS, UL, cUL, TÜV NORD, UKCA, KC, RCM, EAC
Safety	Safe torque off (STO) acc. to EN/IEC 61800-5-2, IEC 61508 ed2: SIL 3, IEC 61511: SIL 3, IEC 62061: SIL CL 3, EN ISO 13849-1: PL e
EMC	EMC category C2 (1-phase drives) EMC category C3 (3-phase drives) EMC category C1 (1-phase and 3-phase) with an external filter
Product rating	ACH180-04S-xxxx-1: 1-phase 200 to 240 V, ACH180-04S-xxxx-2: 3-phase 200 to 240 V, ACH180-04S-xxxx-4: 3-phase 380 to 480 V
Control and connectivity	
Motor control mode	Scalar control Sensorless vector control
I/O interface	4 x DI: PNP or NPN connection, 2 x AI: SW configures mA or V mode, AI1 can be DI5 1 x AO: SW configures mA or V mode 1 x DO: 24 V DC, 200 mA 1 x RO: 230 V, 2 A 1 x RJ45: Connects to control panel or PC tool
User interface	Integrated graphical user interface
Drive programming	Adaptive and sequence programming
Communication	Protocols as standard (EIA-485): Modbus RTU, BACnet MS/TP, N2, GP1
PC Tool	Drive Composer Entry available for free from ABB website Drive Composer Pro
Mobile App	Drivetune for commissioning via Bluetooth

Learn more from the ACH180 website.



Learn more from ABB drives, motors and PLCs for HVACR website.



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

new.abb.com/drives
new.abb.com/drives/drivespartners
new.abb.com/motors-generators

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB. Copyright© 2023 ABB. All rights reserved.

Highlights

Ease of use

- Compact design, uniform height and depth
- Integrated graphical user interface
- Spring cage terminals
- Part of ABB's all-compatible drives portfolio

Reliability

- Conformally coated circuit boards as standard
- Minimized air flow through the electronics
- Earth fault protection
- All drives are factory tested at maximum temperatures with full nominal loads

HVACR specific features

- Auto start after power loss
- Run permissive (damper monitoring)
- 4 start interlocks (safety switches, freeze stat)
- Under/overload curves (broken belt, clogged filter, dry pump/no flow supervision)
- Fireman's override mode for life safety smoke control applications
- PID closed loop controllers for HVACR applications
- Improve the total (motor and drive) efficiency up to 20% with Energy Optimizer
- Motor flying start and motor pre-heat
- Hand-Off-Auto control panel

Scalability

- Sensorless vector control
- Supports EC Titanium™
- Supports permanent magnet synchronous motors
- Built-in EMC filter
- Built-in STO
- Built-in HVACR communications
- Adaptive and sequence programming

Energy efficiency and Ecodesign

- Meets latest UL standards for drive UL61800-5-1
- Complies with applicable UL60335-2-40 requirements