

LOW VOLTAGE AC DRIVES

# ABB drives for HVAC

## ACH580, 0.75 to 500 kW



ACH580 drives set new standards in both simplicity and reliability, ensuring smooth, energy-efficient operation of your HVAC systems in normal and mission-critical situations.

— 01 ACH580 drives can be integrated with several types of AC motors.

— 02 ABB HVAC drives are ideal to control many kinds of applications.

— 03 ACH580 ultra-low harmonic drives secure power quality for mission-critical applications like data centers.

### Complete HVAC functionality in a scalable package

ACH580 drives offer a complete HVAC functionality for controlling fans, pumps and compressors as well as complex equipment like air-handling units and chillers. All this comes with a great scalability in terms of power range, ingress protection, construction and harmonics performance.

### Effortless installation, commissioning and operation

While built-in features significantly reduce installation time, the intuitive control panel with an HVAC-specific menu and help assistants make startup, commissioning and operation easy. An optional Bluetooth® capability enables drive commissioning and monitoring from a distance.

### Reliability and quality

Product features, such as coated boards, earth fault protection, undervoltage or overcurrent control, ensure process reliability. Every drive is factory-tested, verifying its performance and all protective functions.

### Instant availability

ACH580-01 wall-mounted drives are widely available from ABB-authorized partners and distributors, and ABB's central and regional stocks for immediate delivery.



01



02



03

## Technical data

Voltage and power range	3-phase, $U_N$ 380 to 480 V, +10/-15% ACH580-01: from 0.75 to 250 kW ACH580-04: from 250 to 500 kW ACH580-07: from 75 to 500 kW ACH580-31: from 4 to 110 kW ACH580-34: from 132 to 355 kW 3-phase, $U_N$ 208 to 240 V, +10/-15% ACH580-01: from 0.75 to 75 kW 1-phase, $U_N$ 208 to 240 V, +10/-15% ACH580-01: from 0.37 to 37 kW
Frequency	48 Hz to 63 Hz
Power factor	ACH580-01, ACH580-04 and ACH580-07: 0.98 ACH580-31 and ACH580-34: 1.0
Degree of protection	ACH580-01, ACH580-31: IP21 (UL Type 1) or IP55 (UL Type 12) ACH580-04, ACH580-34: IP00, IP20 ACH580-07: IP21, IP42 or IP54
Ambient conditions	ACH580-01, ACH580-31 and ACH580-34: -15 to +50 °C ACH580-04: -15 to +55 °C ACH580-07: 0 to +50 °C
Compliance	CE EAC UL, cUL Low Voltage Directive 2014/34/EU, EN 61800-5-1: 2007 Machinery Directive 2006/42/EC, EN 61800-5-2: 2016 EMC Directive 2014/30/EU, EN 61800-3: 2004 + A1: 2012 RoHS directive 2011/65/EU TÜV certification for functional safety
Functional safety	STO according to EN 61800-5-2: 2016, IEC 61508 Parts 1-2: 2010, ISO 13849-1: 2015, ISO 13849-2: 2012, IEC 62061: 2015 SIL 3/PL e
EMC	EMC according to EN 61800-3: 2004 + A1: 2012 Class C2 as standard for ACH580-01, ACH580-31 Class C1 with built-in filter as option for ACH580-01 up to 55 kW
Harmonics	Compliance with IEC 61000-3-12: 2011 For ACH580-31 and ACH580-34, harmonics are below the limits set by IEE519-2014 and G5/4 *)
Control connections	Standard I/O configuration: 2 analog inputs, 2 analog outputs, 6 digital inputs (DI5 digital or frequency input), 3 relay outputs, EIA-485 (BACnet MS/TP, Modbus RTU, N2), 1 voltage output 24 V DC, 1 reference voltage 10 V DC, Safe torque off (SIL 3/PL e), 1 external voltage input 24 V AC/DC to power up the control unit (in ACH580-01 75 to 250 kW and all ACH580-31) I/O extension module CMOD-01: 1 external 24 V DC/AC, 1 digital output, 2 relay outputs I/O extension module CMOD-02: 1 external 24 V DC/AC, 1 isolated PTC interface with capability to trigger STO I/O extension module CHDI-01: 6 115/230V AC digital inputs, 2 relay outputs

### Control and communication options

Fieldbus adapters	BACnet/IP, Modbus/TCP, PROFIBUS DP, PROFINET, DeviceNet, EtherNet/IP, EtherNet POWERLINK as internal options Ethernet adapter for remote monitoring as external option
PC tools	Drive composer entry available for free via ABB website Drive composer pro
Control panel options	ACH-AP-H, assistant control panel as standard ACH-AP-W, Bluetooth assistant control panel CDPI-01, panel bus adapter for remote panel mounting and to chain the control panel to several drives DPMP-01, panel flush mounting kit DPMP-02/03, panel surface mounting kit DPMP-04/05, panel surface mounting kit for outdoor environment

\*) IEE519 and G5/4 specify harmonic limits for the entire system and not the drive itself. Check that the full system is compliant, including other loads.

## Scalability. Broad functionality. Easiness.

### Essential features inside

- 5 PIDs to control HVAC processes
- Control panel with graphical display
- Advanced motor control for asynchronous, permanent magnet and synchronous reluctance motors
- BACnet MS/TP, Modbus RTU and N2 as standard
- Multi fan/-pump/-compressor control for up to 8 units
- Safe torque off (STO) SIL 3/PL e
- Fireman's override

### Get started easily

- Quick access to terminals for drive cabling and wiring
- Side-by-side mounting for wall-installed units
- Integrated PID controls, relays, timers, and supervision functions eliminate the need for external PLCs
- Intuitive user interface making drive start-up, operation and diagnostics effortless
- Ready-made HVAC assistants for pumps, fans, or compressors for shorter commissioning time
- Support for the most common communication protocols
- Free Drive composer software for drive commissioning and monitoring
- Adaptive programming for customizing the drive without any previous programming knowledge

### Learn it once, use it everywhere

- ACH580 drives in the standard configuration share same I/O terminals, fieldbus options, control logic and user interface
- The common drives' architecture lets apply the knowledge gained with one ABB drive to others, enabling a smooth transition between drives from ABB all-compatible portfolio

### Benefits of ACH580-31/34 ultra-low harmonic drives

Poor power factor and harmonics in electrical systems can negatively affect connected equipment and cause energy losses and electrical system failures.

### All-in-one concept

ABB's HVAC ultra-low harmonic (ULH) drives have a built-in active front end reducing THDi to a level below 3%, so there is no need for external filters, which increase installation complexity and space.

### Secured operation of a power network

ACH580 ULH drives minimize harmonics and keep the power factor equal to 1.0 so that sensitive equipment stays running.

### Saving capital and operating costs

ACH580 ULH greatly reduces the cost of a project eliminating the need for oversized transformers, generators, cables and other equipment. Power factor unity helps to avoid penalties for reactive power from utilities.

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

[new.abb.com/drives](http://new.abb.com/drives)

[new.abb.com/drives/drivespartners](http://new.abb.com/drives/drivespartners)

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