

LOW VOLTAGE AC DRIVES

ABB drives for HVACR

ACH580, 0.75 to 500 kW



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

Complete HVACR functionality in a scalable package

ACH580 drives offer a complete HVACR 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 HVACR-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, on a real motor 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.



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



ABB HVACR drives are ideal to control many kinds of applications.



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

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 CAIO-01, 3xAI bipolar, 2xAO unipolar I/O extension module CHDI-01: 6 115/230 V AC digital inputs, 2 relay outputs
Control and communication options	
Fieldbus adapters	BACnet MSTP, Modbus, and N2 as standard, BACnet IP, Modbus/TCP, PROFIBUS DP, PROFINET, DeviceNet, EtherNet/IP, EtherNet POWERLINK as internal options Ethernet adapter for remote monitoring and diagnostics 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.

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

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Scalability. Broad functionality. Easiness.

Essential features inside

- 5 PIDs to control HVACR processes
- Control panel with graphical display
- Advanced motor control for asynchronous, permanent magnet and synchronous reluctance and Ferrite assisted 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 makes commissioning, operations and diagnostics effortless
- Ready-made HVACR 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
- ABB's all-compatible portfolio allows enables a smooth transition between drives

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 HVACR 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. ABB ULH drives also meet the needs of the new Ecodesign standard IEC 61800-9-2 by improving system efficiency compared to traditional diode fed drives.