



AIR EQUIPMENT COMPANY
EXPERTS HELPING EXPERTS

ABB ACH580 HVAC Drives


Product Introduction

[What is a VFD?](#)

CMTA

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ACH580 HVAC Drives

Video link - <https://www.youtube.com/embed/LbirQ-82shU?html5=1&rel=0&wmode=transparent&autoplay=1>

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ACH580

One drive, fulfills all your HVAC needs

What is your primary requirement in an HVAC VFD?

- 1 **Simple setup and reliable performance** . Would you like to get up and running as quickly as possible? The primary settings menu saves time with prompts for essential settings, eliminating the search through a long list of parameters. Alternatively, plug into the PC tool for more detailed monitoring and process tuning capabilities. Easily access help via the diagnostic tools to troubleshoot and resolve issues without tech support.
- 2 **A drive designed around HVAC applications and building automation compatibility** . Are you looking for a drive that integrates seamlessly to your BAS but won't break the bank? Standard built-in HVAC features (like embedded BACnet) eliminate the cost and space requirements of extra components. The compact drives also supports either scalar or sensorless vector motor control.
- 3 **An HVAC drive that's safe**. Are you working in harsh and hazardous environments and tight spaces? The robust ACH580 is available in a Type 12 enclosure, which has a smaller footprint than competitors. The optional Bluetooth control panel provides remote control out of the arc flash boundary.
- 4 **A U.S. company I can trust**. What are you looking for in a business partner for your drive requirements? ABB is globally recognized as a leader in VFD technology. Assembled in ABB's Wisconsin drive factory, every ACH580 drive comes with 24/7 technical support at no extra cost, and a drive service network that will work within your business priorities and timeline.

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Innovation is key to ABB's competitive advantage

Leadership built on consistent R&D investment



More than \$1.5 billion
invested annually in R&D



Collaboration with 70
universities



8,500 scientists and
engineers



7 corporate research centers
linked by a global research
center

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Drives US

Made in Wisconsin

New Berlin production + Wauwatosa corporate office

Number of employees ~650

Manufacturing Focus

- LV Drives 200/400/600V 1-1000Hp
- MV Drives 4kV 500-4000Hp
- LV Products assembly

Functions

- Marketing, sales, project management
- Product development, application
- Drives regional service hub and repair center
- Customer service and tech support
- Training



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ACH580 HVAC Drives

The market leader building on a proven history of innovative HVAC products

ACH500



1993 –
2000

ACH400



2000 –
2003

ACH550



2003 –
Present

ACH580



New!!
2019 –
Present

4th Generation - Over 25 years of expert knowledge in designing and building HVAC Drives

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ACH580 HVAC Drives

Innovations and industry first's for HVAC

- Dedicated product specifically designed for the HVAC Industry
- Vertical design to maximize use of space in the Mech. Room
- Input impedance as standard for harmonic mitigation
- EMI/RFI filter as standard
- Ultra Low Harmonic solution
- Onboard Serial Communication
- Multiline English Control Panel
- Electronic Bypass Controller
- Intelligent Bypass Controller with English Control Panel
- Standard Damper Control Circuit
- Standard Fireman's Override
- Serial Communications in Bypass
- Brownout, Short Circuit, Phase Loss, Welded Contactor, Single Phase, Proof of Flow as standard in Drive and Bypass mode
- Dedicated VFD Fuses



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ACH580 HVAC Drives

ACH580-01 (Base Drive) Highlights

Easy ordering, installation, commissioning and use

- Compact wall-mounted drives in enclosure classes UL Type 1 and Type 12 up to 350hp, 460V
- Color coded I/O terminals for ease of installation
- Primary settings and Assistants make commissioning fast and efficient

Essential features for high performance

- Accurate and energy efficient motor control for various motor types
- Optimized mitigation of harmonics
- Functional programming for tailoring the drive to your specific application
- Suite of HVAC specific features



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ACH580 hardware overview

Compact UL Type 12 (IP55)

High power density from compact drive

- Width and height similar to Type 1 unit
- Separate panel door
- Protection class remains even without control panel

Type 12 allows installation closer to motor in many applications

- Save costs with shorter motor cables

No need to change air filters

- Reduced maintenance costs

Light and robust design

- Increased use of plastics



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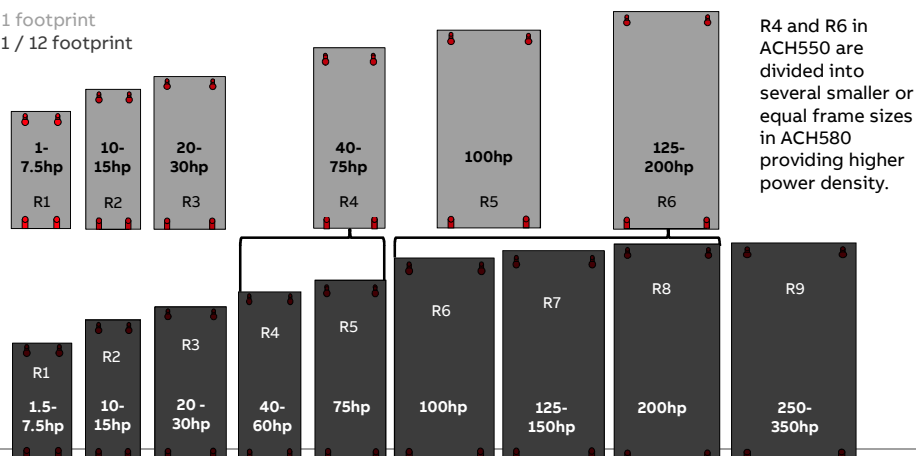
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ACH580 to ACH550 dimensions

Equal or smaller units with wider power range (400V)

ACH550 Type 1 footprint
ACH580 Type 1 / 12 footprint



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ACH580 Enclosed Product

Disconnect or Circuit Breaker

Vertical and Box (side-by-side) configurations

Available with Input Disconnect or Circuit Breaker (padlockable in off position)

- Fast Acting Fuses (standard)
- 100kA rated (standard)

Control Panel (standard)

Available 1-350 HP

Available Type 1, 12, and 3R

- Thermostatically controlled strip heater in 3R
- Thermostatically controlled cooling fan(s) 3R

Custom configurations/packages available



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ACH580 Eclipse Bypass

Technically superior, no change required. Same bypass as the ACH550.

Vertical and Box configurations



The compact Vertical configuration saves space. The Box configuration provides more flexibility to allow for installation in dusty or outdoor spaces.

- Available up to 100HP at 230V, 350HP at 460V, and 150HP at 575V
- Available Type 1, 12 and 3R Rated Enclosures

Intelligent Microprocessor Controlled Bypass w/ industry leading capabilities

- Serial Communication capability (standard)
- Voltage tolerance +30% to -35% (standard)
- Dedicated VFD fuses (standard)
- Single Phase, Brownout, and Welded Contactor protection (standard)
- Programmable Class 10, 20, 30 OL protection (standard)
- Programmable auto transfer to Bypass (standard)
- Damper Control and Firemans Override functions (standard)
- 100kA rated (standard)
- Custom configurations/packages available

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ACH580 Ultra-low harmonic drive

Critical Facility Applications

Data centers



- Cooling is critical
- Sensitive equipment that are susceptible for harmonic disturbances

Hospitals



- Good indoor air quality is important to guarantee patient safety
- Medical equipment can be damaged due to harmonics

Airports



- Huge need for HVAC system
- Communication equipment that might be interrupted by harmonics

Tunnel ventilation



- Long cables might cause voltage drops, drive has ability to boost output voltage to provide nominal voltage to motor

These examples and other commercial buildings benefit from low harmonic content in the network

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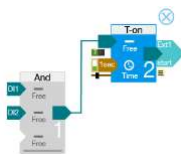
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ACH580 HVAC drives

All-compatible platform

Shared features of the all-compatible platform



Adaptive programming

- ACH580 firmware includes an easy to use and visual adaptive programming feature
- Adaptive programming can be used to add logical functions and conditions for process fine-tuning



User Interface

- Intuitive control panel options with similar functionality across platform
- Mobile phone connectivity via optional Bluetooth assistant control panel



Same PC tools for ABB All-compatible drives

- Free of charge Drive Composer Entry available in www.abb.com
- Same parameter structure makes all-compatible platform easy to use



Connectivity

- ACH580 supports F-series fieldbus adapters used in ABB all-compatible platform
- Fieldbus settings made easy with redesigned simple settings menu

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ACH580 – ABB HVAC drives

Comprehensive range of HVAC software features

HVAC control program

- Auto start after power loss
- Run permissive - (damper monitoring)
- 4 Start interlocks - (safety switches, freeze status)
- Start and stop delays (e.g. when no damper feedback available)
- Under-/overload curves (broken belt, dry pump supervision)
- User definable supervisions (to monitor any value)
- Override for HVAC with constant/PID loop/AI reference
- Flow calculation with sensors
 - PID closed loop controllers for HVAC applications
 - Integration of external controller features
 - Even sleep and sleep boost available
- Motor flying start and motor pre-heat
- Energy Optimizer
- BACnet MS/TP embedded, BACnet/IP as option



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ACH580 Options

Control panel options

ACH580 has several different panel options:

- ACH-AP-H Assistant control panel
 - Delivered as standard
- ACH-AP-W Assistant control Includes Bluetooth interface from DriveTune App
- DPMP-06-EXT-H includes DPMP-06 panel mount & CDPI-01 Panel bus adapter
 - Daisy chain multiple drives behind one keypad
- CDUM-01 Blank control panel cover for dust protection



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ACH580 Control Panel

A drive that speaks HVAC language

HVAC control panel as a standard

Standard control panel supports multiple different languages

- Primary settings makes the commissioning of the drive fast and simple

USB interface for PC and tool connection as standard

- Possible to move information between PC and the drive with no extra hardware

Help button for problem solving

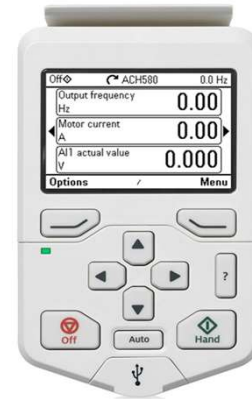
- Less calls to technical support

Drive settings can be stored to control panel

- Easy transfer of parameter from drive to another
- Ensures drive settings are not lost

QR Code with unit information

Automatic parameter upload



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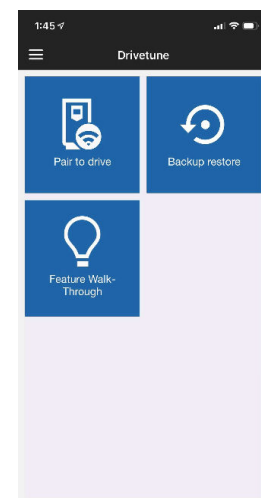
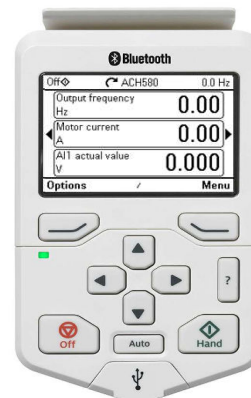
ACH580 Control Panel

ACH-AP-W and DriveTune

ACH580 can be equipped with **ACH-AP-W** Assistant control panel with wireless Bluetooth interface

Drivetune mobile application (free download)

- Used in **basic commissioning** and in **troubleshooting & maintenance** tasks
- Available for Android and iOS



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Key ACH580 improvements over ACH550

Ease of use

- Effortless commissioning and operation with new intuitive main menu
 - Primary Settings menu including assistants for defining essential settings without going into the parameter list
 - I/O menu for faster configuration
 - Motor default parameters preset to match Baldor EM series motors
- Colored terminals
- Intuitive 4-key navigation in menus and assistants
- New diagnostics menu to help with any issues you might have with the ACH580
- Clear, robust laser marked terminals
- Dedicated USB connector for computer interface



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Key ACH580 improvements over ACH550

Reliability / Safety

- 550 -> 580 conversion kit available
 - 580 has a backwards compatibility mode to allow use with older E-Cclipse Bypasses & Disconnects
 - AEC will provide all parts and labor
- Available Bluetooth control Panel protects your personnel
 - Arc Flash
 - Lose the ladder
 - Cut the cord
- Motor heating mode for condensation prevention
- Improved protection functions (e.g. ground-fault detection)
- Variable speed main cooling fan



Lose the ladder
No need to access difficult-to-reach work areas to access drive information



Protect your personnel
Stay out of hazardous areas when commissioning and tuning a drive (arc flash)

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Key ACH580 improvements over ACH550

One drive, many HVAC applications, many motor types

- Same or reduced size in all frames compared to ACH550
- Wall mounted power range extended to 350hp (480V) and 250hp (600V)
- ACH580-01 UL Type 12 with small depth increase compared to UL Type 1
- 21 editable home view signals with different display styles
- Support for induction, PM and SynRM motors
- Flexible parameter interface with pointer parameters allow using values outside default parameter selection lists
- Adaptive programming
- 4 individual user sets
- Sensorless and multiple pump control capability



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Environment control

Save energy and the environment

Energy savings of up to 70% – the ACH580 helps to use only the exact amount of energy needed to run the motor.

The energy optimizer feature ensures maximum torque per ampere, reducing energy drawn from the supply by 10 percent.

The drive is compatible with energy-efficient IE4 motor types such as Permanent Magnet (PM) and SynRM motors.

Analyze and optimize processes with built-in energy efficiency calculators.

Life cycle services ensure your processes run efficiently, year after year.



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Cost Control

The true cost of ownership of HVAC applications

Cost of ownership is down to three components

**WHOLE
LIFE
COST**

=



Capital costs

+



Operating costs

+



Cost of NOT running

Optimize COO with ACH580 HVAC Drive

Increase energy efficiency

Improve productivity with the right combination of VFDs and high efficiency motors

Ensure reliable operation of HVAC systems to

- Avoid high costs of unplanned outages
- Maximize uptime
- Prevent significant negative impacts on critical zones in facilities such as hospitals or data centers

Use ABB's broad service offering including preventive maintenance so that equipment will not break down unexpectedly.

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Achieve Success

ACH580 HVAC Drives come with access to experts and products you need

Market leading products and technology

Air Equipment Company and ABB have experts, programs, and training available to ensure your success.

- Consult with us to ensure that you are designing functional, cost-effective, and easy-to-maintain systems.
- Rely on Air Equipment Company to get the information/expertise you need to specify the product correctly.
- Preventive maintenance offered through AEC Service to keep your system in tip-top shape.
- When equipment goes down, you need service now. That's why AEC has local service that responds. We also have several drives in stock in our Louisville and Lexington offices.
- Excellent 24/7/365, free, technical support from ABB.
- Support tools
 - Harmonic Calculator
 - VFD Schedule Tool
 - CAD and BIM drawings

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Tack

