

ABB drives for HVAC

ACH580-01 technical data sheet

Comprehensive climate control, effortless operation

The next evolution of climate control sets new standards both in simplicity and reliability. It can be integrated with any motor. It communicates in the languages you and your system already know. It exceeds specifications in mission critical environments. It provides productivity through comfort in commercial buildings. And the best part? All you need to do is to set it up and focus on what counts.

Introducing the ACH580 drives for HVAC.

Technical data

Supply connection	
Voltage and power range	3-phase, 380 to 480 V, +10/-15% (0.75 to 250 kW), auto-identification of input line
Frequency	48 to 63 Hz
Fundamental power factor	0.98
Efficiency at rated power	98%
Motor connection	
Supported motor control	Scalar and vector
Supported motor types	Async or induction motor (what is the term?), Permanent magnet motor (vector), SynRM (vector)
Voltage	3-phase, from 0 to UN
Frequency	0 to 500 Hz
Environmental limits	
Ambient temperature	
Transportation and storage	-40 to 70 °C
Air temperature/relative humidity (operation)	-15 to +50 °C; 5 to 95% no condensation allowed Reduced loadability above 40 °C.
Output current	Rated current available at 0 to 1000 m reduced by 1% per 100 m over 1000 to 2000 m 2000 to 4000 m, please consult ABB
Degree of protection	IP21 or IP55
Inputs and outputs	
2 analog inputs	
Current/voltage input mode selected from control panel	
Voltage signal	0 (2) to 10 V, Rin > 200 kΩ
Current signal	0 (4) to 20 mA, Rin = 100 Ω
Potentiometer reference value	10 V ±1% max. 20 mA
2 analog outputs	
AO1 software configurable for current or voltage. AO2 current	
Voltage signal	0 to 10 V, Rload: > 100 kΩ
Current signal	0 to 20 mA, Rload: < 500 Ω
Internal auxiliary voltage	24 V DC ±10%, max. 250 mA
6 digital inputs	12 to 24 V DC, 24 V AC, Connectivity of PTC sensors supported by a single digital input. PNP or NPN connection (5 DI's with NPN connection).
3 relay and outputs	
Maximum switching voltage 250 V AC/30 V DC Maximum continuous current 2 A rms	
PTC and PT 100	Any of the 6 digital inputs or analog inputs can be configured for PTC, with a limit of 6 sensors Both analog outputs can be used to feed the PT100 sensor
Motor connection	
Optional in frames R0... R5	1.04 A at 24 V AC/DC ±10%
Standard in frames R6... R9	1.50 A at 24 V AC/DC ±10%

Communication

Protocols as standard (EIA-485): BACnet MS/TP, Modbus RTU and N2
Available as plug-in options: BACnet/IP, LonWorks, Modbus TCP etc.
Available as an external option: Ethernet adapter for remote monitoring

Application functions

First start assistant
Primary settings for HVAC applications
Hand-Off-Auto operation mode
Start interlock (de-frost)
Delayed start
Run permissive (damper monitoring)
Override operation mode
Real time clock (scheduling)
Loop controllers for motor and process
Motor flying start
Motor pre-heating
Energy optimizer and calculators

Protection functions

Overvoltage controller
Undervoltage controller
Motor Earth-leakage monitoring
Motor short-circuit protection
Motor overtemperature protection
Output and input switch supervision
Motor overload protection
Phase-loss detection (both motor and supply)
Under load supervision (belt loss detection)
Overload supervision
Stall protection
Loss of AI signal monitoring

Product compliance

Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC
Quality assurance system ISO 9001 and Environmental system ISO 14001
CE, UL, cUL, and EAC approvals
Galvanic isolation according to PELV
RoHS2 (Restriction of Hazardous Substances)
EN 61800-5-1:2007; IEC/EN 61000-3-12;
EN61800-3: 2004 + A1: 2012 Category C2 (1st environment restricted distribution);
Safe torque off (EN 61800-5-2)

Standards and directives

EMC (according to EN61800-3) Class C2 (1st environment restricted distribution)
Harmonics IEC/EN 61000-3-12

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Types and nominal ratings		Frame size	Type designation
P ^N kW	I ^N A		
UN = 380 to 480 V (380, 400, 415, 440, 460, 480 V)			
0.75	2.6	R0	ACH580-01-02A6-4
1.1	3.3	R0	ACH580-01-03A3-4
1.5	4.0	R0	ACH580-01-04A0-4
2.2	5.6	R0	ACH580-01-05A6-4
3.0	7.2	R1	ACH580-01-07A2-4
4.0	9.4	R1	ACH580-01-09A4-4
5.5	12.6	R1	ACH580-01-12A6-4
7.5	17.0	R2	ACH580-01-017A-4
11.0	25.0	R2	ACH580-01-025A-4
15.0	32.0	R3	ACH580-01-032A-4
18.5	38.0	R3	ACH580-01-038A-4
22.0	45.0	R3	ACH580-01-045A-4
30	62	R4	ACH580-01-062A-4
37	73	R4	ACH580-01-073A-4
45	88	R5	ACH580-01-088A-4
55	106	R5	ACH580-01-106A-4
75	145	R6	ACH580-01-145A-4
90	169	R7	ACH580-01-169A-4
110	206	R7	ACH580-01-206A-4
132	246	R8	ACH580-01-246A-4
160	293	R8	ACH580-01-293A-4
200	363	R9	ACH580-01-363A-4
250	430	R9	ACH580-01-430A-4

NOTE: HVAC control panel and EMC filter are included.

H1 = Height with cable connection box
W = Width
D = Depth



For more information please contact your local ABB representative or visit:
new.abb.com/drives/hvac

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Specifications subject to change without notice.

Dimensions, weights and free space requirements

Dimensions and weights

Frame size	IP21 / UL type 1						
	Dimensions and weights						
	H1 mm	H2 mm	H3 mm	H4 mm	W mm	D mm	Weight kg
R0	-	-	303	330	125	210	4.5
R1	-	-	303	330	125	223	4.6
R2	-	-	394	430	125	227	7.5
R3	-	-	454	490	203	228	14.9
R4	-	-	600	636	203	257	19
R5	596	596	732	633	203	295	34
R6	548	549	726	589	252	369	45
R7	600	601	880	641	284	370	55
R8	680	677	965	721	300	393	70
R9	680	680	955	741	380	418	98

Dimensions and weights

Frame size	IP55 / UL type 12				
	Dimensions and weights				
	H3 mm	H4 mm	W mm	D mm	Weight kg
R0	303	330	125	222	5.1
R1	303	330	125	233	5.5
R2	394	430	125	239	7.8
R3	454	490	203	237	15.1
R4	600	636	203	265	20
R5	732	632.5	203	320	34
R6	726	589.4	252	380	46
R7	880	641.4	284	381	56
R8	965	721.1	300	452	74
R9	955	741.4	380	477	102

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