



HONEYWELL ALL PURPOSE VARIABLE FREQUENCY DRIVES SMARTVFD HVAC

DESCRIPTION

SmartVFD HVAC drives are all-purpose, and can handle both constant-torque and variable-torque loads. The firmware includes special features that make start-up and commissioning of HVAC applications especially easy. Application-specific startup wizards for pumps and fans, combined with the simple and intuitive user interface, make the SmartVFD a pleasure rather than a chore. Integration is a snap with the SmartVFD. It includes both Ethernet and RS485 connections, and will talk BACnet, Modbus, and JCI N2. Take the complexity out of drive selection, installation, and startup - choose SmartVFD for your HVAC projects and start saving time, money, and manpower as well as energy.

FEATURES

- *Intuitive commissioning*
- *High resolution graphic interface*
- *User manual included in firmware*
- *Simple start-up wizard - pump or fan*
- *Fire mode*
- *2 PID controllers*
- *Real-time clock*

Honeywell



SPECIFICATIONS

Supply Voltage	Model specific, 3 phase, 60 Hz, 380-480 VAC or 200-240 VAC
Motor Rating	0.75 to 250 Hp
Frequency Range	0-320 Hz
Acceleration Time	0.1 - 3000 seconds
Deceleration Time	0.1 - 3000 seconds
Digital Inputs	6 logical, 24 VDC= on, 0 VDC= off, all configurable
Analog Input	2; 0-10V or 4-20 mA voltage input impedance 200Ω k current impedance 250Ω
Digital Output	Open collector, max. load 48V/ 50 mA
Analog Output	1; 0-10 VDC or 4-20 mA programmable 500Ω maximum load
Relay Outputs	2; SPDT 8A at 24 VDC or 250 VAC 0.4A at 125 VDC minimum load 10mA at 5 VAC/VDC
Filter Type	5% DC choke Class 2 GMC/ RFI
EMC	Complies with EN50082-1, -2 EN61800-3
Communication Protocol	
RS485	JCI N2, MODBUS, BACnet MS/TP
Ethernet	BACnet/ IP, Modbus/TCP
Operating Humidity	0 to 95% RH (non-condensing)
Operating Temperature	14° to 104°F (-10° to 40°C)
Approvals	UL Listed File E190898 CE RoHS
Eco Friendly	Yes
Warranty	3 years

STANDARD I/O BOARD

Terminal	Signal	Technical information
1	Reference output	+10 VDC, +3%; Maximum current 10 mA
		Analog input channel 1: Short-circuited protected 0- +10VDC (Ri = 200 kΩ) 4-20 mA (Ri = 250 Ω) Resolution 0.1%, accuracy ±1% Selection V/mA with dip-switches
3	Analog input common (current)	Differential input if not connected to ground; Allows ±20V differential mode voltage to GND
4	Analog input voltage or current	Analog input channel 2: Short-circuited protected Default: 4-20 mA (Ri =250 Ω) 0-10 VDC (Ri = 200kΩ) Resolution 0.1%, accuracy ±1% Selection V/mA with dip-switches
5	Analog input common (current)	Differential input if not connected to ground; Allows 20V differential mode voltage to GND
6	24VDC aux. voltage	+24 VDC, ±10%, max volt. ripple < 100mVrms; max. 250mA Dimensioning: max. 1000mA/control unit. Short-circuit protected
7	I/O ground	Ground for reference and controls (connected internally to frame earth through 1MΩ)
8	Digital input 1	Positive or negative logic Ri = min. 5kΩ
9	Digital input 2	0...5VDC = "0" 15...30VDC = "1"
10	Digital input 3	
11	Common A for DIN1-DIN6	Digital inputs can be disconnected from ground
12	24 VDC aux. voltage	+24 VDC, ±10%, max volt. ripple < 100mVrms; max. 250mA Dimensioning: max. 1000mA/control unit. Short-circuit protected
13	I/O ground	Ground for reference and controls (connected internally to frame earth through 1MΩ)
14	Digital input 4	Positive or negative logic Ri = min. 5kΩ
15	Digital input 5	0...5VDC = "0" 15...30VDC = "1"
16	Digital input 6	
17	Common A for DIN1-DIN6	Digital inputs can be isolated from ground.
18	Analog signal (+output)	Analog output channel 1, selection 0 -20mA, load <500Ω Default: 0-20 mA/0-10 VDC Resolution 0.1%, accuracy ±2% Selection V/mA with dip-switches Short-circuited protected.
19	Analog output common	
30	24 VDC auxiliary input voltage	Can be used as external power backup for the control unit
A	RS485	Differential receiver/transmitter
B	RS485	Set bus termination with dip switches

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MOTOR CONTROLS



MOTOR CONTROLS

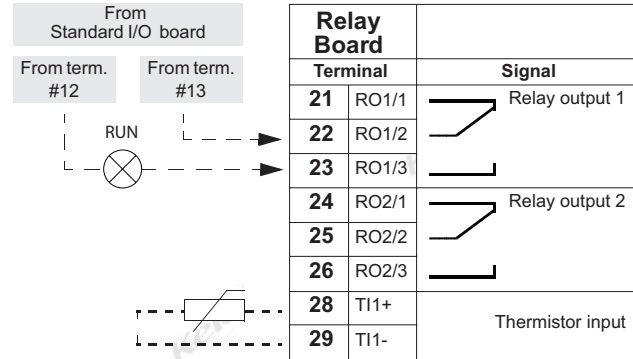
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RELAY BOARD TECHNICAL INFORMATION

Relay board	Relay board with two change-over contact (SPDT) relays and one relay with normally-open (NO or SPST) contact. 5.5 mm isolation between channels.	
21	Relay Output 1*	Switching capacity 2 4VDC/8A 250 VAC/8A 125 VDC/0.4A Min.switching load 5V/10mA
22		
23		
24	Relay Output 2*	Switching capacity 24 VDC/8A 250 VAC/8A 125 VDC/0.4A Min.switching load 5V/10mA
25		
26		
28	Thermistor Input	Rtrip = 4.7 kΩ (PTC); Measuring voltage 3.5V
29		

* If 230VAC is used as control voltage from the output relays, the control circuitry must be powered with a separate isolation transformer to limit short circuit current and overvoltage spikes. This is to prevent welding on the relay contacts. Refer to standard EN 60204-1, section 7.2.9

RELAY CONNECTIONS



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MOTOR CONTROLS

DIMENSIONS AND WEIGHTS

Frame	208/ 230 VAC	460 VAC	Enclosure NEMA type	Width in. (cm)	Height in. (cm)	Depth in. (cm)	Weight lb (kg)
4	0.75-4 HP	1.5-7.5 HP	1	5 (12.7)	12.9 (32.77)	7.5 (19.05)	13.0 (5.9)
4	0.75-4 HP	1.5-7.5 HP	12	5 (12.7)	12.9 (32.77)	7.5 (19.05)	13.0 (5.9)
4	0.75-4 HP	1.5-7.5 HP	3	20.5 (52.07)	20 (50.8)	10 (25.4)	13.0 (5.9)
5	5-10 Hp	10-20 Hp	1	5.7 (14.48)	16.5 (41.91)	8.4 (21.34)	22.0 (10.0)
5	5-10 Hp	10-20 Hp	12	5.7 (14.48)	16.5 (41.91)	8.4 (21.34)	22.0 (10.0)
5	5-10 Hp	10-20 Hp	3	20.5 (52.07)	24 (60.96)	10 (25.4)	22.0 (10.0)
6	15-20 Hp	25-40 Hp	1	7.7 (19.56)	21.9 (55.63)	9 (22.86)	44.0 (20.0)
6	15-20 Hp	25-40 Hp	12	7.7 (19.56)	21.9 (55.63)	9 (22.86)	44.0 (20.0)
6	15-20 Hp	25-40 Hp	3	28.5 (72.39)	36 (88.9)	10 (25.4)	44.0 (20.0)
7	25-40 Hp	50-75 Hp	1	9.3 (23.62)	25.4 (64.51)	10.2 (25.91)	83.0 (37.7)
7	25-40 Hp	50-75 Hp	12	9.3 (23.62)	25.4 (64.51)	10.2 (25.91)	83.0 (37.7)
7	25-40 Hp	50-75 Hp	3	28.8 (73.15)	48 (121.92)	12 (30.48)	83.0 (37.7)
8	50-75 Hp	100-150 Hp	1	11.4 (28.96)	38 (96.52)	13.5 (34.29)	154.0 (70.0)
8	50-75 Hp	100-150 Hp	12	11.4 (28.96)	38 (96.52)	13.5 (34.29)	154.0 (70.0)
8	50-75 Hp	100-150 Hp	3	11.4 (28.96)	38 (96.52)	13.5 (34.29)	154.0 (70.0)
9	100-125 Hp	200-250 Hp	1	18.9 (48.00)	45.3 (115.06)	14.4 (36.58)	238.0 (108.2)
9	100-125 Hp	200-250 Hp	12	18.9 (48.00)	45.3 (115.06)	14.4 (36.58)	238.0 (108.2)



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ORDERING INFORMATION

HP	Amps	Frame	NEMA 1	NEMA 12	NEMA3R
460 VAC					
1.5	3.4	4	HVFSD3C0015G100	HVFSD3C0015G200	HVFSD3C0015G300
2	4.8	4	HVFSD3C0020G100	HVFSD3C0020G200	HVFSD3C0020G300
3	5.6	4	HVFSD3C0030G100	HVFSD3C0030G200	HVFSD3C0030G300
4	8	4	HVFSD3C0040G100	HVFSD3C0040G200	HVFSD3C0040G300
5	9.6	4	HVFSD3C0050G100	HVFSD3C0050G200	HVFSD3C0050G300
7.5	12	4	HVFSD3C0075G100	HVFSD3C0075G200	HVFSD3C0075G300
10	16	5	HVFSD3C0100G100	HVFSD3C0100G200	HVFSD3C0100G300
15	23	5	HVFSD3C0150G100	HVFSD3C0150G200	HVFSD3C0150G300
20	31	5	HVFSD3C0200G100	HVFSD3C0200G200	HVFSD3C0200G300
25	38	6	HVFSD3C0250G100	HVFSD3C0250G200	HVFSD3C0250G300
30	46	6	HVFSD3C0300G100	HVFSD3C0300G200	HVFSD3C0300G300
40	61	6	HVFSD3C0400G100	HVFSD3C0400G200	HVFSD3C0400G300
50	72	7	HVFSD3C0500G100	HVFSD3C0500G200	HVFSD3C0500G300
60	87	7	HVFSD3C0600G100	HVFSD3C0600G200	HVFSD3C0600G300
75	105	7	HVFSD3C0750G100	HVFSD3C0750G200	HVFSD3C0750G300
100	140	8	HVFSD3C1000G100	HVFSD3C1000G200	HVFSD3C1000G300
125	170	8	HVFSD3C1250G100	HVFSD3C1250G200	HVFSD3C1250G300
150	205	8	HVFSD3C1500G100	HVFSD3C1500G200	HVFSD3C1500G300
200	261	9	HVFSD3C2000G100	HVFSD3C2000G200	-
250	310	9	HVFSD3C2500G100	HVFSD3C2500G200	-
208/ 230 VAC					
0.75	3.7	4	HVFSD3A0007G100	HVFSD3A0007G200	HVFSD3A0007G300
1	4.8	4	HVFSD3A0010G100	HVFSD3A0010G200	HVFSD3A0010G300
1.5	6.6	4	HVFSD3A0015G100	HVFSD3A0015G200	HVFSD3A0015G300
2	8	4	HVFSD3A0020G100	HVFSD3A0020G200	HVFSD3A0020G300
3	11	4	HVFSD3A0030G100	HVFSD3A0030G200	HVFSD3A0030G300
5	18	5	HVFSD3A0050G100	HVFSD3A0050G200	HVFSD3A0050G300
7.5	24	5	HVFSD3A0075G100	HVFSD3A0075G200	HVFSD3A0075G300
10	31	5	HVFSD3A0100G100	HVFSD3A0100G200	HVFSD3A0100G300
15	48	6	HVFSD3A0150G100	HVFSD3A0150G200	HVFSD3A0150G300
20	62	6	HVFSD3A0200G100	HVFSD3A0200G200	HVFSD3A0200G300
25	75	7	HVFSD3A0250G100	HVFSD3A0250G200	HVFSD3A0250G300
30	88	7	HVFSD3A0300G100	HVFSD3A0300G200	HVFSD3A0300G300
40	105	7	HVFSD3A0400G100	HVFSD3A0400G200	HVFSD3A0400G300
50	140	8	HVFSD3A0500G100	HVFSD3A0500G200	HVFSD3A0500G300
60	170	8	HVFSD3A0600G100	HVFSD3A0600G200	HVFSD3A0600G300
75	205	8	HVFSD3A0750G100	HVFSD3A0750G200	HVFSD3A0750G300
100	261	9	HVFSD3A1000G100	HVFSD3A1000G200	-
125	310	9	HVFSD3A1250G100	HVFSD3A1250G200	-

Drives are typically sized to match the horsepower rating of the motor, which will be accurate 95 percent of the time. For greatest accuracy, drives should be sized based upon the Full Load Amps or current draw of the motor. The VFD must have a slightly larger current rating maximum.

ACCESSORIES

32006630-001 LON communication card
HVFDCABLE Commissioning cable and USB adaptor