Honeywell

Honeywell CORE Drive

HVAC CONTROL VARIABLE FREQUENCY DRIVE

QUICK START GUIDE

CONTENTS

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INSTALLATION

- Please read this instruction sheet thoroughly before installation and keep this instruction sheet and the CD shipped with the product at hand and distribute to all users for reference.
- To ensure the safety of operators and equipment, only qualified personnel familiar with AC motor variable frequency drives (VFD) are allowed to do installation, trial run and parameter settings. Always read this instruction sheet thoroughly before using the AC motor VFD, especially the WARNING, DANGER and CAUTION notes. If you have any questions, please contact your dealer.

Please read prior to installation for safety.

⚠ CAUTION

- ❑ The ground terminal ⏚ of the VFD must be grounded correctly. The grounding method must comply with the laws of the country and local codes where the VFD is to be installed.
- ❑ After power has been turned off to the VFD, the VFD's capacitors may still be holding a high voltage charge. Do not work with the VFD while the POWER indicator light is ON. To prevent personal injury, DO NOT touch the internal circuits and components until the voltage between +1 and – is less than 25VDC. Please wait at least 5 minutes for 22kW/30hp models to discharge to a safe voltage level. (10 minutes for 30kW/40hp models).
- ❑ The CMOS ICs on the internal circuit boards of the VFD are sensitive to static electricity. DO NOT touch the circuit boards with bare hands before taking anti-static measures. Never reassemble the internal components or circuits.
- ❑ If the wiring needs to be changed, please turn off the power of the VFD before wiring. The internal DC-bus capacitors need time to discharge; wiring changes made before the voltage is discharged to the safe level may cause short circuit and fire. To ensure personal safety, only perform wiring changes after the safety voltage level is reached.
- ❑ DO NOT install the VFD in a place subjected to high temperature, direct sunlight and inflammable materials. See specification data in this manual for details.

⚠ WARNING

- ❑ Never apply power to the output terminals U/T1, V/T2, W/T3 of the VFD.
- ❑ Please stop operation immediately when a fault occurs during operation of the VFD and motor and refer to fault code information to reset the drive.
- ❑ DO NOT use Hi-pot test for internal components. The semi-conductors in the VFD are easily damaged by high-voltage.

⚠ CAUTION

- ❑ When the motor cable between the VFD and motor is too long (see motor cable data on page 3), the layer insulation of the motor may be damaged. Please use a frequency inverter duty motor and add an output reactor to prevent damage to the motor and the VFD.
- ❑ The rated voltage of the VFD must be ≤ 240V for 208V and 230V models and ≤ 480V for 460V models and the mains supply current capacity must be ≤ 5000A RMS (≤10000A RMS for the ≥ 30kW/40hp models).
- ❑ The VFD must be placed in a clean, well-ventilated and dry location, free from corrosive gases or liquids.
- ❑ The VFD must be stored within an ambient temperature range of –25C/-13F ~ +75C/167F and relative humidity range of 0% to 95% without condensation.
- ❑ DO NOT place the VFD on the ground directly. It should be stored properly. Moreover, if the surrounding environment is humid, you should put exsiccator in the package. To prevent condensation and frost, please DO NOT store in an area with rapid changes in temperature. DO NOT install the VFD in a place subjected to direct sunlight or vibration.
- ❑ If the VFD is stored for more than 3 months, the temperature should not be higher than 30° C (86° F). Storage longer than one year is not recommended, it could result in the degradation of the electrolytic capacitors.
- ❑ Please turn on the power after the front cover is installed. DO NOT operate with moist hands. Make sure that the VFD is not under load at first. After a fault occurs, please wait 5 seconds after a fault has been cleared before pressing RESET key.

ENVIRONMENT FOR OPERATION, STORAGE AND TRANSPORTATION

DO NOT expose the VFD to an improper environment, such as dust, direct sunlight, corrosive/inflammable gases, humidity, liquid and vibration environment. The salt in the air must be less than 0.01mg/cm^2 every year.

Environment	Installation location	IEC60364-1/IEC60664-1 Pollution degree 2, Indoor use only			
	Surrounding Temperature	Storage: -25^{o}C / -13^{o}F ~ +70^{o}C / 167^{o}F	Transportation: -25 ^{o}C / -13^{o}F ~ +70 ^{o}C / 167^{o}F		
		Non-condensation, non-frozen			
	Rated Humidity	Operation: Max. 90%	Storage/Transportation: Max. 95%		
		No condensing water			
	Air Pressure	Operation/ Storage: 86 to 106 kPa	Transportation: 70 to 106 kPa		
	Pollution Level	IEC721-3-3			
		Operation: Class 3C2; Class 3S2	Storage: Class 2C2; Class 2S2	Transportation: Class 1C2; Class 1S2	
		No concentrate			
		Conformal coated boards			
	Altitude	Operation	If VFD is installed at altitude 0~1000m, follow normal operation restriction. If it is installed at altitude 1000~3000m, decrease 2% of rated current or lower 0.5^{o}C of temperature for every 100m increase in altitude. Maximum altitude for Corner Grounded is 2000m.		
Package Drop	Storage / Transportation	ISTA procedure 1A(according to weight) IEC60068-2-31			
Vibration	1.0mm, peak to peak value range from 2Hz to 13.2 Hz; 0.7G~1.0G range from 13.2Hz to 55Hz; 1.0G range from 55Hz to 512 Hz. Comply with IEC 60068-2-6				
Impact	IEC/EN 60068-2-27				
Operation Position	Max. allowed offset angle ±10^o (under normal installation position)				
Plenum Rating	Compliance with UL 508C, the Standard for Power Conversion Equipments, 3rd Edition, and the Canadian Standard for Industrial Control Equipment, C22.2-No. 14.				

Motor Cable Lengths			
For Models 7.5HP/5.5kW and above:			
Insulation Level of Motor	1000V	1300V	1600V
460VAC Input Voltage	66ft	328ft	1312ft
230VAC Input Voltage	1312ft	1312ft	1312ft
For Models 5HP/3.7kW and below:			
Insulation Level of Motor	1000V	1300V	1600V
460VAC Input Voltage	66ft	165ft	165ft
230VAC Input Voltage	328ft	328ft	328ft

Model	Frame	Top cover	Conduit Box	Protection Level	Operation Temperature*
HCRDAxxxxx1000T HCRDCxxxxx1000T	Frame A~C 230V: 0.75-33kW 1-40hp 460V: 0.75~37kW 1-50hp	Remove top cover	Standard conduit plate	IP20/UL Open Type	HD: -10-50^o C (14-120^o F) ND: -10-40^o C (14-104^o F)
		Standard with top cover		IP20/UL Type1/ NEMA1	HD: -10-40^o C (14-104^o F) ND: -10-40^o C (14-104^o F)
	Frame D~E 230V:≥37kW/50hp 460V:≥45kW/60hp	N/A	With conduit box	IP20/UL Type1/ NEMA1	HD: -10-40^o C (14-104^o F) ND: -10-40^o C (14-104^o F)

* HD = Heavy Duty, higher overload rating. ND = Normal Duty, Standard HVAC applications

NOTE: To prevent personal injury, please make sure that the case and wiring are installed according to this instruction. The figures in this instruction are only for reference, they may be slightly different from the one you have but it will not affect your customer rights. The installation instruction may revise without prior notice. Please refer to our distributors or download the updated version at http://www.customer.honeywell.com/VFD.

SPECIFICATION TABLES

Table 1. GENERAL SPECIFICATIONS

Control Characteristics	Control Method	1: V/F (V/F control); 2: SVC (Sensorless Vector Control)				
	Starting Torque	Reach up to 150% or above at 0.5Hz.				
	V/F Curve	4 point adjustable V/F curve and square curve				
	Speed Response Ability	5Hz				
	Torque Limit	Heavy Duty: Max.170% torque current				
	Torque Accuracy	±5%				
	Max. Output Frequency (Hz)	230V series: 600.00Hz (55kw and above: 400.00Hz);				
		460V series: 600.00Hz (90KW and above: 400.00Hz)				
	Frequency Output Accuracy	Digital command:±0.01%, -10C~+40C, Analog command: ±0.1%, 25±10C				
	Output Frequency Resolution	Digital command: 0.01Hz, Analog command: max. output frequency x 0.03/60 Hz (±11 bit)				
	Overload Tolerance	Normal duty: 120% of rated current for 1 minute				
		Heavy duty: 120% of rated current for 1 minute;160% of rated current for 3 seconds				
	Frequency Setting Signal	0~+10V, 4~20mA, 0~20mA, pulse input				
	Accel./Deccel. Time	0.00~600.00/0.0~6000.0 seconds				
	Main control function	Fault restart	Parameter copy	Dwell	BACnet COMM	Momentary power loss ride thru
		Speed search	Over-torque detection	Torque limit	16 preset speed options	Accel/Deccel. time switch
		S-curve accel/ deccel	3-wire sequence	Auto-Tuning (rotational, stationary)	Frequency upper/ lower limit settings	Cooling fan on/off switch
		Slip compensation	Torque compensation	JOG frequency	MODBus communication (RS-485 RJ45, max. 115.2 kbps)	DC injection braking at start/stop
		Smart Stall	PID control (with sleep function)	Energy saving control		
	Fan Control	**230V series**				
		Model HCRDA0200B1000T (20HP) and above are PWM controlled				
		Model HCRDA0150B1000T (15HP) and below are on/off switch controlled				
		460V series				
		Model HCRDC0200B1000T and above are PWM controlled				
		Model HCRDC0150B1000T (15HP) and below are on/off switch controlled				
Protection Characteristics	Motor Protection	Electronic thermal relay protection				
	Over-current Protection	Normal Duty: Over-current protection for 240% rated current				
		Current clamp Normal duty: 170~175%				
	Over-voltage Protection	230: drive will stop when DC-BUS voltage exceeds 410V				
		460: drive will stop when DC-BUS voltage exceeds 820V				
	Over-temperature Protection	Built-in temperature sensor				
	Stall Prevention	Stall prevention during acceleration, decceleration and running independently				
	Restart After Instantaneous Power Failure	Parameter setting up to 20 seconds				
	Grounding Leakage Current Protection	Leakage current is higher than 50% of rated current of the AC motor drive				
	International Certifications	CE, GB 12668.3 c UL us				

Table 2. 230V Series

Frame size			**A**					**B**			**C**			**D**		**E**		
Model HCRDAxxxxx1000T			1hp	2hp	3hp	5hp	7.5hp	10hp	15hp	20hp	25hp	30hp	40hp	50hp	60hp	75hp	100hp	125hp
Output Rating	Normal "HVAC" Duty - Variable Torque	Rated Output Capacity (kVA)	2	3	4	6	8.4	12	18	24	30	36	42	58	72	86	110	128
		Rated Output Current (A)	5	7.5	10	15	21	31	46	61	75	90	105	146	180	215	276	322
		Applicable Motor Output (kW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
		Applicable Motor Output (HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
		Overload tolerance	120% of rated current for 1 minute															
		Max. output frequency (Hz)	600.00Hz (55KW~: 400.00Hz)															
		Carrier Frequency (kHz)	2~15kHz (8KHz)								2~10kHz (6kHz)					2~9kHz (4KHz)		
	Heavy Duty - Constant Torque	Rated Output Capacity (kVA)	1.8	2	3.2	4.4	6.8	10	13	20	26	30	36	48	58	72	86	102
		Rated Output Current (A)	4.6	5	8	11	17	25	33	49	65	75	90	120	146	180	215	255
		Applicable Motor Output (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
		Applicable Motor Output (HP)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
		Overload tolerance	120% of rated current for 1 minute, 160% of rated current for 3 seconds															
		Max. output frequency (Hz)	600.00Hz(55KW~: 400.00Hz)															
		Carrier Frequency (kHz)	2~15kHz (8KHz)								2~10kHz (6kHz)`					2~9kHz(4KHz)		
Input Rating	Input Current (A) Normal Duty		6.4	9.6	15	22	25	35	50	65	83	100	116	146	180	215	276	322
	Input Current (A) Heavy Duty		3.9	6.4	12	16	20	28	36	52	72	83	99	124	143	171	206	245
	Rated Voltage/Frequency		3-phase AC 200V~240V (-15% ~ +10%), 50/60Hz															
	Operating Voltage Range		170~265Vac															
	Frequency Tolerance		47~63Hz															
Cooling method			Natural Cooling		Fan Cooling													
Braking Chopper			Frame A,B,C: Built-in											Frame D and above: Optional				
DC choke			Frame A, B,C: Optional											Frame D and above: 3% built-in				
EMI Filter			Optional															

Table 3. 460V Series

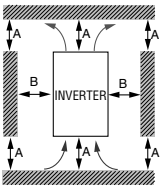
Frame			A						B			C			D			
Models HCRDCxxxxx1000T			1hp	2hp	3hp	5hp	7.5hp	10hp	15hp	20hp	25hp	30hp	40hp	50hp	60hp	75hp	100hp	125hp
Output Rating	Normal "HVAC" Duty - Variable Torque	Rated Output Capacity (kVA)	2.4	2.9	4	6	9.6	11.2	18	24	29	36	45	57	73	88	115	143
		Rated Output Current (A)	3	3.7	5	7.5	12	14	22.5	30	36	45	56	72	91	110	144	180
		Applicable Motor Output (kW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
		Applicable Motor Output (HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
		Overload tolerance	120% of rated current for 1 minute															
		Max. output frequency (Hz)	600.00Hz (90KW~: 400.00Hz)															
		Carrier Frequency (kHz)	2~15kHz (8KHz)									2~10kHz (6kHz)						2~9 kHz (4KHz
	Heavy Duty - Constant Torque	Rated Output Capacity (kVA)	2.2	2.4	3.2	4.8	8.4	10	14	19	25	30	36	48	58	73	88	120
		Rated Output Current (A)	2.8	3	4	6	10.5	12	18	24	32	38	45	60	73	91	110	150
		Applicable Motor Output (kW)	0.4	0.75	1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75
		Applicable Motor Output (HP)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
		Overload tolerance	120% of rated current for 1 minute;160% of rated current for 3 seconds															
		Max. output frequency (Hz)	600.00Hz(90KW~: 400.00Hz)															
		Carrier Frequency (kHz)	2~15kHz (8KHz)									2~10kHz (6kHz)						2~9 kHz (4KHz
Input Rating	Input Current (A) Normal Duty		4.3	5.4	7.4	11	18	20	25	33	39	47	58	76	91	110	144	180
	Input Current (A) Heavy Duty		3.5	4.3	5.9	8.7	15.5	17	20	26	35	40	47	63	74	101	114	157
	Rated Voltage/Frequency		3-phase AC 380V~480V (-15%~+10%), 50/60Hz															
	Operating Voltage Range		323~528Vac															
	Frequency Tolerance		47~63Hz															
Cooling method			Natural Cooling			Fan Cooling												
Braking Chopper			Frame A,B,C: Built-in												Frame D and above: Optional			
DC choke			Frame A, B,C: Optional												Frame D and above: 3% DC built-in			
EMI Filter			Frame A, B, C - EMI filter NOT built-in												Frame D and above: Optional			

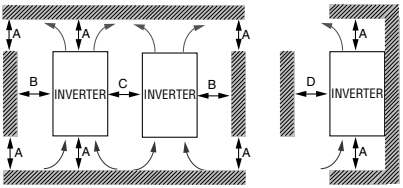
MINIMUM MOUNTING CLEARANCES

(Appearances shown in the following figures are only for reference)

◄— (BLUE ARROW) INFLOW
(FRAME A-E)
SINGLE DRIVE: INDEPENDENT INSTALLATION

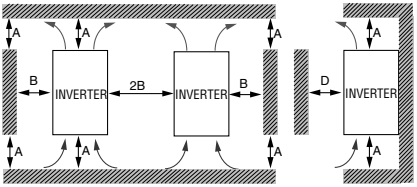
◄— (RED ARROW) OUTFLOW
(FRAME A-C)
PARALLEL MOUNTING IN HORIZONTAL





FRAME A, B, C

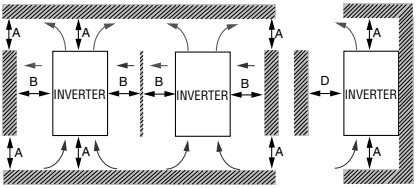
MULTIPLE DRIVES: INDEPENDENT INSTALLATION IN HORIZONTAL



FRAME D, E

MULTIPLE DRIVES: INDEPENDENT INSTALLATION IN HORIZONTAL

INSTALL A BARRIER BETWEEN THE DRIVES



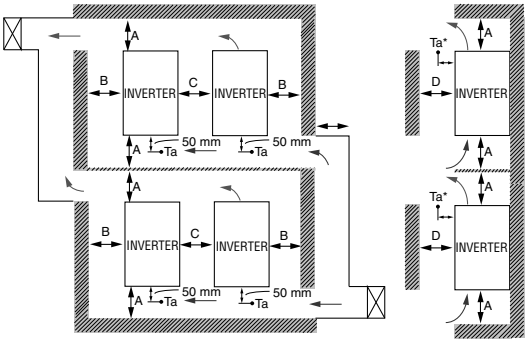
FRAME A, B, C

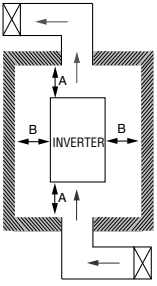
MULTIPLE DRIVES: INDEPENDENT INSTALLATION

TA: FRAME A~E

IT IS SUGGESTED TO INSTALL A BARRIER BETWEEN THE DRIVES. ADJUST THE SIZE OF THE BARRIER TILL THE TEMPERATURE OF THE FAN ON THE INFLOW SIDE IS LOWER THAN THE OPERATION TEMPERATURE.

(REFER TO THE RIGHT FIGURE) OPERATION TEMPERATURE IS THE TEMPERATURE MEASURED 50MM AWAY FROM THE INFLOW SIDE OF THE FAN.





MINIMUM MOUNTING CLEARANCE				
FRAME	A (mm/in)	B (mm/in)	C (mm/in)	D (mm/in)
A~C	60/1.2	30/0.6	10/0.2	0
D~F	100/3.3	50/1.7	-	0

NOTE:

- THE MOUNTING CLEARANCES SHOWN IN THE LEFT FIGURE ARE NOT FOR INSTALLING THE DRIVE IN A CONFINED SPACE (SUCH AS CABINET OR ELECTRIC BOX). WHEN INSTALLING IN A CONFINED SPACE, BESIDES THESE SAME MINIMUM MOUNTING CLEARANCES, IT NEEDS TO HAVE THE VENTILATION EQUIPMENT OR AIR ONDITIONER TO KEEP THE SURROUNDING TEMPERATURE LOWER THAN THE OPERATION TEMPERATURE.
- THE FOLLOWING TABLE SHOWS HEAT DISSIPATION AND THE REQUIRED AIR VOLUME WHEN INSTALLING A SINGLE DRIVE IN A CONFINED SPACE. WHEN INSTALLING MULTIPLE DRIVES, THE REQUIRED AIR VOLUME SHALL BE MULTIPLIED BY THE NUMBER OF DRIVES.
- REFER TO THE CHART (AIR FLOW RATE FOR COOLING) FOR VENTILATION EQUIPMENT DESIGN AND SELECTION.
- REFER TO THE CHART (POWER DISSIPATION) FOR AIR CONDITIONER DESIGN AND SELECTION.
- IT IS THE MINIMUM DISTANCE REQUIRED FOR FRAME A~D. IF DRIVES ARE INSTALLED CLOSER THAN THE MINIMUM MOUNTING CLEARANCE, THE FAN MAY NOT FUNCTION PROPERLY.

M31500

Fig. 1. Minimum Mounting Clearances.

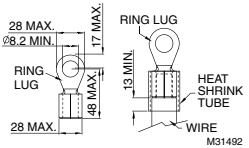
Table 4. Air Flow Requirements

Air flow rate for cooling								Power Dissipation		
		Flow Rate (cfm)			Flow Rate (m^3/hr)			Power Dissipation (Watts)		
Model 230Vac	Frame Size	External	Internal	Total	External	Internal	Total	Loss External (Heat sink)	Internal	Total
HCRDA0010A1000T	A	-	-	-	-	-	-	40	31	71
HCRDA0020A1000T	A	-	-	-	-	-	-	61	39	100
HCRDA0030A1000T	A	14	-	14	24	-	24	81	45	126
HCRDA0050A1000T	A	14	-	14	24	-	24	127	57	184
HCRDA0075A1000T	A	10	-	10	17	-	17	158	93	251
HCRDA0100B1000T	B	40	14	54	68	24	92	291	101	392
HCRDA0150B1000T	B	66	14	80	112	24	136	403	162	565
HCRDA0200B1000T	B	58	14	73	99	24	124	570	157	727
HCRDA0250C1000T	C	166	12	178	282	20	302	622	218	840
HCRDA0300C1000T	C	166	12	178	282	20	302	777	197	974
HCRDA0400C1000T	C	146	12	158	248	20	268	878	222	1100
HCRDA0500D1000T	D	179	30	209	304	51	355	1271	311	1582
HCRDA0600D1000T	D	179	30	209	304	51	355	1550	355	1885
HCRDA0750E1000T	E	228	73	301	387	124	511	1762	489	2251
HCRDA1000E1000T	E	228	73	301	387	124	511	2020	574	2594
HCRDA1250E1000T	E	246	73	319	418	124	542	2242	584	3026
Model 460Vac										
HCRDC0010A1000T	A	-	-	-	-	-	-	35	32	67
HCRDC0020A1000T	A	-	-	-	-	-	-	44	31	75
HCRDC0030A1000T	A	-	-	-	-	-	-	58	43	101
HCRDC0050A1000T	A	14	-	14	24	-	24	92	60	152
HCRDC0075A1000T	A	10	-	10	17	-	17	135	99	234
HCRDC0100A1000T	A	10	-	10	17	-	17	165	164	439
HCRDC0150B1000T	B	40	14	54	68	24	92	275	93	380
HCRDC0200B1000T	B	66	14	80	112	24	136	370	194	564
HCRDC0250B1000T	B	58	14	73	99	24	124	370	194	564
HCRDC0300C1000T	C	99	21	120	168	36	204	455	358	813
HCRDC0400C1000T	C	99	21	120	168	36	204	609	363	972
HCRDC0500C1000T	C	126	21	147	214	36	250	845	405	1250
HCRDC0600D1000T	D	179	30	209	304	51	355	1056	459	1515
HCRDC0750D1000T	D	179	30	209	304	51	355	1163	669	1832
HCRDC1000D1000T	D	179	30	209	304	51	355	1639	657	2296
HCRDC1250D1000T	D	186	30	216	316	51	367	1787	955	2742

The required airflow shown in chart is for installing single drive in a confined space.
When installing the multiple drives, the required air volume should be the required air volume for single drive multiplied by the number of the drives.
Heat dissipation for each model is calculated by rated voltage, current and default carrier at full load, full speed, and maximum ambient temperature

SPECIFICATIONS FOR WIRING TERMINALS

Table 5. Specifications for Wiring Terminals (refer to wiring diagram)

◉ Control terminals O Main terminals		Wire Gauge: 26-16AWG. (0.1281-1.318mm^2) Torque (±10%): 5kg-cm[4.31 lb-in.] (0.49Nm), 5kg-cm[4.31 lb-in.] (0.49Nm)		
Models VFD-	**Max. Wire Gauge**	**Min. Wire Gauge**	**Torque (±10%)**	**Note**
HCRDA0010A1000T	8 AWG (8.4mm^2)	14 AWG (2.1mm^2)	M4 20kg-cm (17.4 lb-in.) (1.962Nm)	
HCRDA0020A1000T		14 AWG (2.1mm^2)		
HCRDA0030A1000T		12 AWG (3.3mm^2)		
HCRDA0050A1000T		10 AWG (5.3mm^2)		
HCRDA0075A1000T		10 AWG (5.3mm^2)		
HCRDC0010A1000T		14 AWG (2.1mm^2)		
HCRDC0020A1000T		14 AWG (2.1mm^2)		
HCRDC0030A1000T		14 AWG (2.1mm^2)		
HCRDC0050A1000T		14 AWG (2.1mm^2)		
HCRDC0075A1000T		10 AWG (5.3mm^2)		
HCRDC0100A1000T		10 AWG (5.3mm^2)		
HCRDA0100B1000T	4 AWG (21.2mm^2)	8 AWG (8.4mm^2)	M5 35kg-cm (30.4 lb-in.) (3.4335Nm)	Terminal D+[+2 & +1]: Torque 45 Kg-cm [39.0 lb-in.] (4.415Nm) (±10%) Use 600V, 90°C wired for UL installation for HCRDA0200B1000T install in ambient temperature exceeds 40°C.
HCRDA0150B1000T		4 AWG (21.2mm^2)		
HCRDA0200B1000T		4 AWG (21.2mm^2)		
HCRDC0150B1000T		8 AWG (8.4mm^2)		
HCRDC0200B1000T		8 AWG (8.4mm^2)		
HCRDC0250B1000T		6 AWG (13.3mm^2)		
HCRDA0250C1000T	1/0 AWG (53.5mm^2)	1 AWG (42.4mm^2)	M8 80kg-cm (69.4 lb-in.) (7.848Nm)	Terminal D+[+2 & +1]: Torque 90 Kg-cm [78.2 lb-in.] (8.83Nm) (±10%) Use 600V, 90°C wired for UL installation for HCRDA0400C1000T install in ambient temperature exceeds 40°C.
HCRDA0300C1000T		1/0 AWG (53.5mm^2)		
HCRDA0400C1000T		1/0 AWG (53.5mm^2)		
HCRDC0300C1000T		4 AWG (21.2mm^2)		
HCRDC0400C1000T		4 AWG (21.2mm^2)		
HCRDC0500C1000T		2 AWG (33.6mm^2)		
HCRDA0500D1000T	4/0 AWG (107mm^2)	4/0 AWG (107mm^2)	M8 200kg-cm (173 lb-in.) (19.62Nm)	Use the specified insulated heat shrink tubing that complies with UL (600C, YDPU2). Must use 90°C wire for HCRDA0600D1000T & HCRCD1250D1000T. 
HCRDA0600D1000T		4/0 AWG (107mm^2)		
HCRDC0600D1000T		1/0 AWG (53.5mm^2)		
HCRDC0750D1000T		2/0 AWG (67.4mm^2)		
HCRDC1000D1000T		4/0 AWG (107mm^2)		
HCRDC1250D1000T		4/0 AWG (107mm^2)		
HCRDA0750E1000T	4/0 AWG*2 (107mm2*2)	1/0 AWG*2 (53.5mm^2*2)	M8 200kg-cm (173 lb-in.)	(Figure 1) The usage of ring terminals should comply with the specifications shows in the figure. (Figure 2) Grounding wire specification: 300MCM*2 [152 mm2*2] Torque M8 180Kg-cm [156 lb-in.] (17.64Nm) (±10%) (Figure 3) The figure shows the specification of insulated heat shrink tubing that complies with UL (600C, YDPU2)
HCRDA1000E1000T		2/0 AWG*2 (67.4mm^2*2)		
HCRDA1250E1000T		3/0AWG*2 (85mm^2*2)		

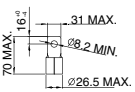


FIGURE 1

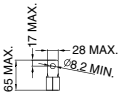


FIGURE 2

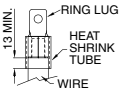


FIGURE 3

M31491

Table 6. Fuse and Non-fuse Circuit Breaker					
	Input Current I(A)		Line Fuse		Recommended non-fuse breaker (A) **
Model 230V	Normal Duty	Heavy Duty	I (A)	Bussmann P/N	
HCRDA0010A1000T	6.4	3.9	15	JJN-15	15
HCRDA0020A1000T	9.6	6.4	20	JJN-20	20
HCRDA0030A1000T	15	12	30	JJN-30	30
HCRDA0050A1000T	22	16	40	JJN-40	40
HCRDA0075A1000T	25	20	50	JJN-50	50
HCRDA0100B1000T	35	28	60	JJN-60	60
HCRDA0150B1000T	50	36	100	JJN-100	100
HCRDA0200B1000T	65	52	125	JJN-125	125
HCRDA0250C1000T	83	72	150	JJN-150	150
HCRDA0300C1000T	100	83	200	JJN-200	200
HCRDA0400C1000T	116	99	225	JJN-225	225
HCRDA0500D1000T	146	124	250	JJN-250	250
HCRDA0600D1000T	180	143	300	JJN-300	300
HCRDA0750E1000T	215	171	400	JJN-400	400
HCRDA1000E1000T	276	206	450	JJN-450	450
HCRDA1250E1000T	322	245	600	JJN-600	600
	Input current (A)		Line Fuse		Recommended non-fuse breaker (A) **
Model 460V	Normal Duty	Heavy Duty	I (A)	Bussmann P/N	
HCRDC0010A1000T	4.3	3.5	10	JJS-10	5
HCRDC0020A1000T	5.4	4.3	10	JJS-10	10
HCRDC0030A1000T	7.4	5.9	15	JJS-15	15
HCRDC0050A1000T	11	8.7	20	JJS-20	20
HCRDC0075A1000T	18	15.5	30	JJS-30	30
HCRDC0100A1000T	20	17	40	JJS-40	40
HCRDC0150B1000T	25	20	50	JJS-50	50
HCRDC0200B1000T	33	26	60	JJS-60	60
HCRDC0250B1000T	39	35	75	JJS-75	75
HCRDC0300C1000T	47	40	100	JJS-100	100
HCRDC0400C1000T	58	47	125	JJS-125	125
HCRDC0500C1000T	76	63	150	JJS-150	150
HCRDC0600D1000T	91	74	175	JJS-175	175
HCRDC0750D1000T	110	101	250	JJS-250	250
HCRDC1000D1000T	144	114	300	JJS-300	300
HCRDC1250D1000T	180	157	300	JJS-300	300

** To comply with UL standard: Per UL 508, paragraph 45.8.4, part a:
The rated current of the breaker shall be 2~4 times of the maximum rated input current of AC motor drive.

NOTE: Fuses with specification smaller than the data in the following table are allowed

Table 7. Dimensions for Frames A, B, C in mm [inch].

208/230Vac	460Vac	HP	Weight (kg.)	Frame	W	H	D	W1	H1	D1*	S1	ϕ1	ϕ2	ϕ3
HCRDA0010A1000T	HCRDC0010A1000T	1	2.8	A	130 [5.12]	250 [9.84]	170 [6.69]	116 [4.57]	236 [9.29]	45.8 [1.80]	6.2 [.24]	22.2 [.87]	34 [1.34]	28 [1.1]
HCRDA0020A1000T	HCRDC0020A1000T	2	2.8											
HCRDA0030A1000T	HCRDC0030A1000T	3	2.8											
HCRDA0050A1000T	HCRDC0050A1000T	5	2.8											
HCRDA0075A1000T	HCRDC0075A1000T	7.5	2.8											
	HCRDC0100A1000T	10	2.8											
HCRDA0100B1000T		10	4.6	B	190 [7.48]	320 [12.60]	190 [7.48]	173 [6.81]	303 [11.93]	77.9 [3.07]	8.5 [0.33]	22.2 [0.87]	34 [1.34]	28 [1.10]
HCRDA0150B1000T	HCRDC0150B1000T	15	4.6											
HCRDA0200B1000T	HCRDC0200B1000T	20	5.6											
	HCRDC0250B1000T	25												
HCRDA0250C1000T		25	10.5	C	250 [9.84]	400 [15.75]	210 [8.27]	231 [9.09]	381 [15.00]	92.9 [3.66]	8.5 [0.33]	22.2 [0.87]	34 [1.34]	50 [1.97]
HCRDA0300C1000T	HCRDC0300C1000T	30	10.5/8.7											
HCRDA0400C1000T	HCRDC0400C1000T	40	10.5/8.7											
	HCRDC0500C1000T	50	9.4											

D1*: Flange mounting Unit: mm [inch]

FRAME A

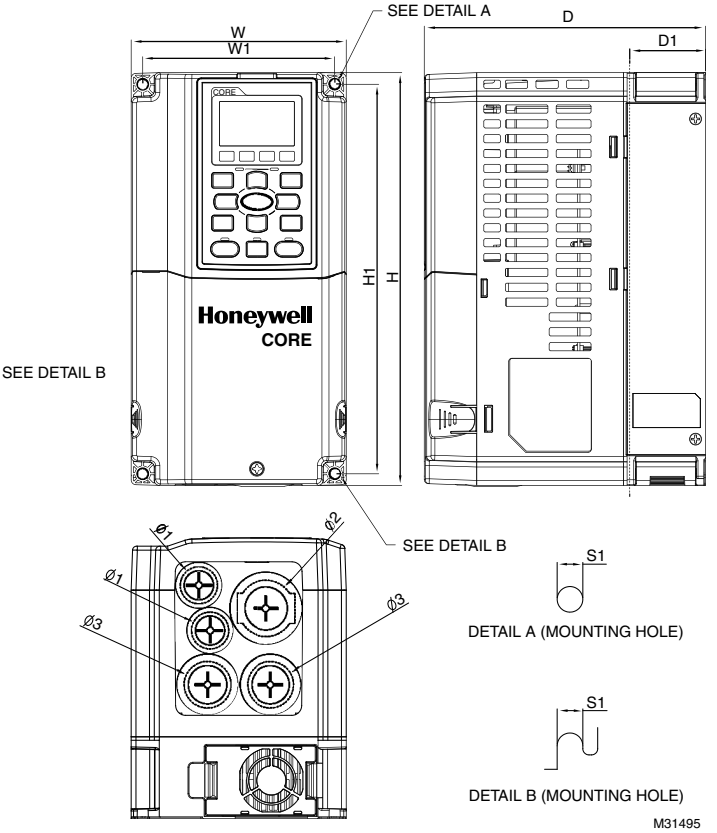


Fig. 2. Frame A: Units in mm (inches). See also Table 7.

FRAME B

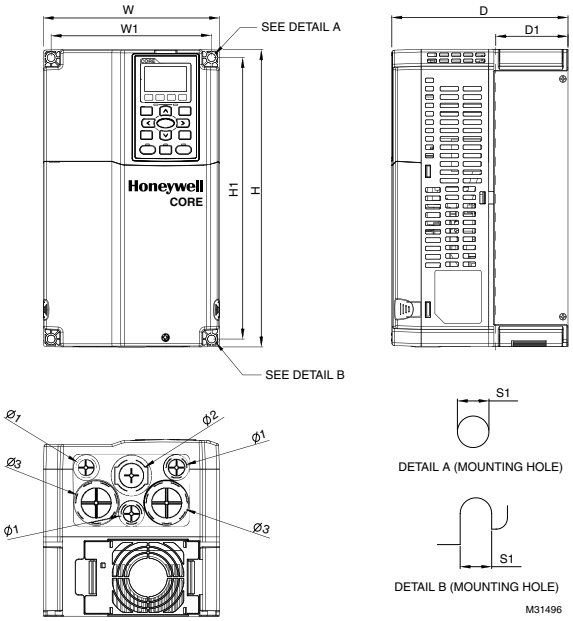


Fig. 3. Frame B: Units in mm (inches). See also Table 7.

FRAME C

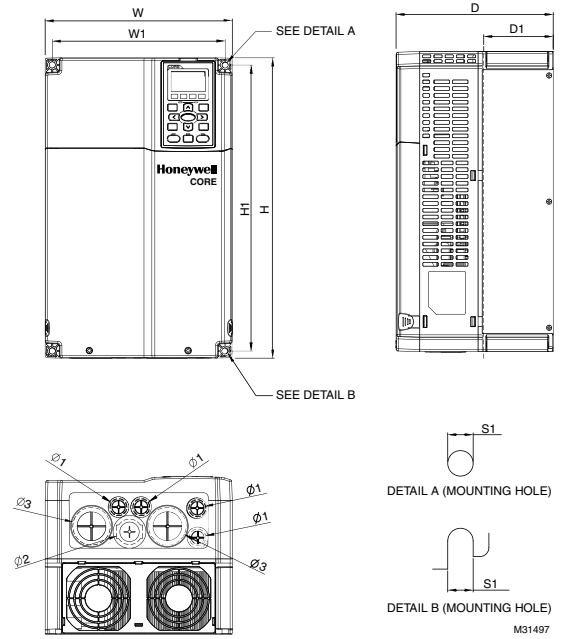


Fig. 4. Frame C: Units in mm (inches). See also Table 7.

Table 8. Dimensions for Frames D and E.

208/230Vac	460Vac	HP	Weight (Kg.)	Frame	W	H	D	W1	H1	D1*	S1	ϕ1	ϕ2	ϕ3
HCRDA0500D1000T		50	35.5	D	330 [12.99]	688.3 [27.10]	275 [10.83]	285 [11.22]	550 [21.65]	107.2 [4.22]	11.0 [0.43]	76.2 [3.00]	34.0 [1.34]	22.0 [0.87]
HCRDA0600D1000T	HCRDC0600D1000T	60	35.5											
	HCRDC0750D1000T	75	35.5											
	HCRDC1000D1000T	100	40.5											
	HCRDC1250D1000T	125	40.5											
HCRDA0750E1000T		75	45.7	E	370 [14.57]	715.8 [28.18]	300 [11.81]	335 [13.19	589 [23.19]	143.0 [5.63]	13.0 [0.51]	22.0 [0.87]	34.0 [1.34]	92.0 [3.62]
HCRDA1000E1000T		100	46.2											
HCRDA1250E1000T		125	54.7											

*D1 Flange mounting

FRAME D

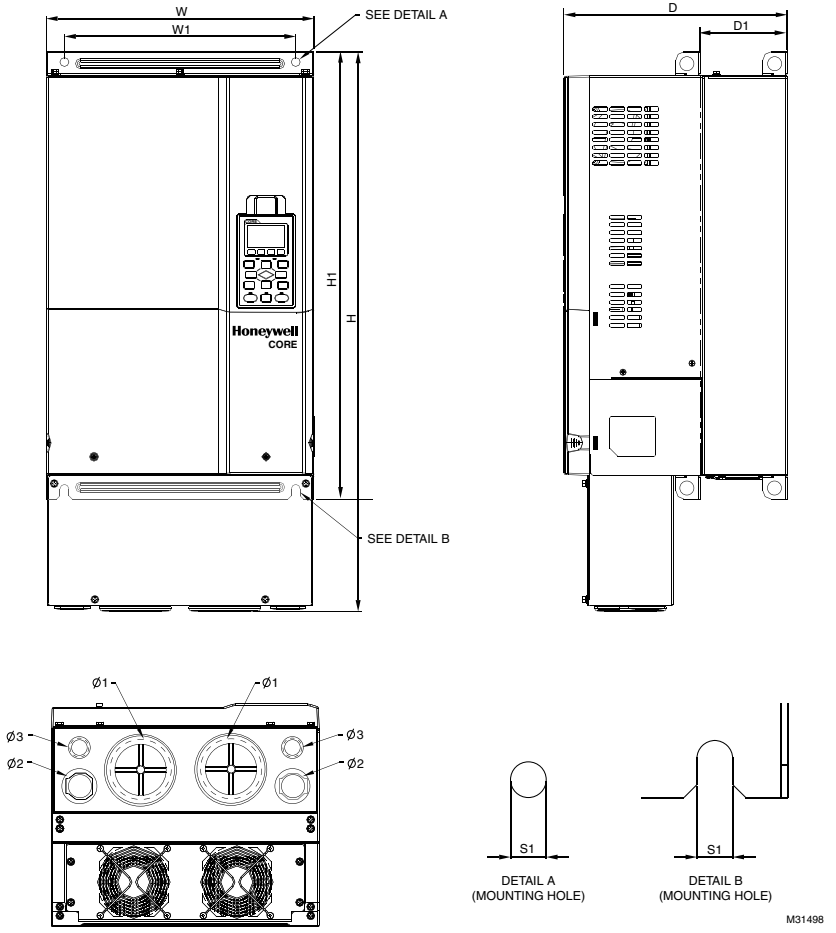


Fig. 5. Frame D: Units in mm (inches). See also Table 8.

FRAME E

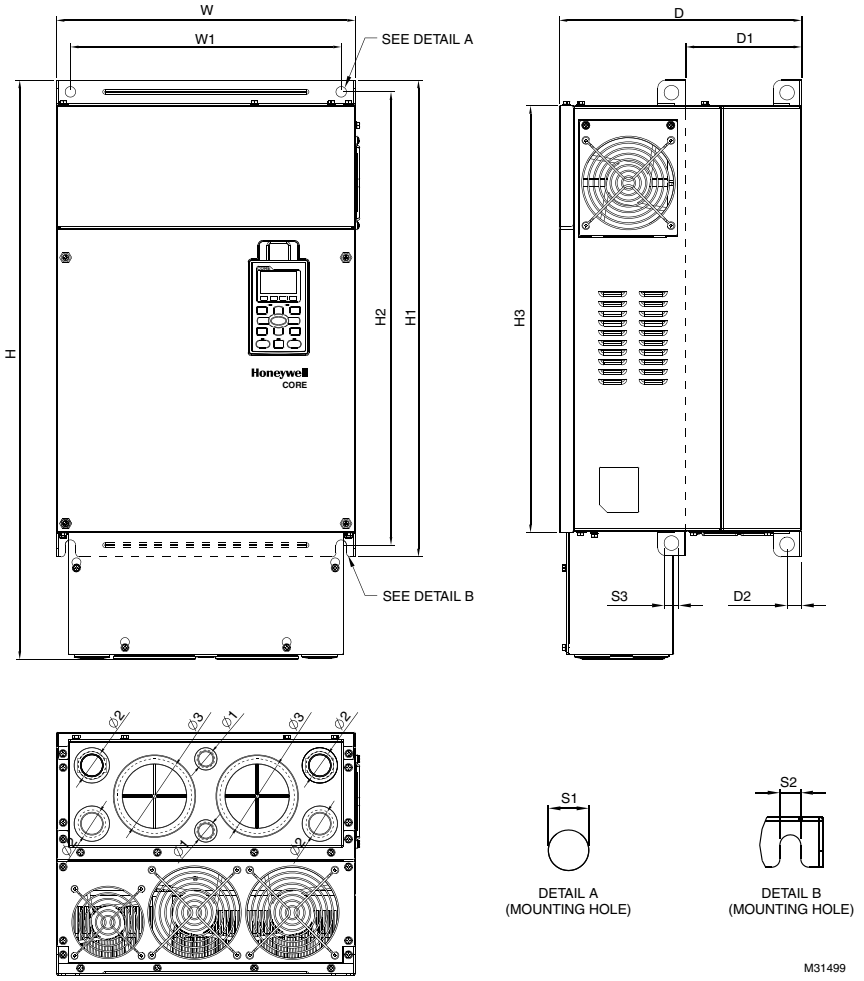


Fig. 6. Frame E: Units in mm (inches). See also Table 8.

KEYPAD BASICS

Table 9. Descriptions of Keypad Functions

Key	Descriptions
RUN	This is the RUN/START command to the VFD when in Hand/Keypad control only.
	It can operate the AC motor drive by the function setting and the RUN LED will be ON.
STOP RESET	Stop Command Key. This key has the highest processing priority in any situation. Drive will always STOP when this button is pressed.
	The RESET key can be used to reset the drive after the fault occurs. For those faults that can't be reset by the RESET key, see the fault records after pressing MENU key for details.
FWD REV	This key controls the operational direction of the motor. NOT activated out of the box.
ENTER	Press ENTER and go to the next submenu. If at the parameter level, press enter to modify and press enter to save changes
ESC	ESC key function is to leave current menu and return to the last menu. It is also functioned as a return key in the sub-menu.
MENU	Press menu to return to main menu. See main menu descriptions on following pages.

Table 9. Descriptions of Keypad Functions

	RIGHT and LEFT arrows to move the cursor with a numeric parameter, or to enter into and out of menus.
	UP and DOWN arrows used to change numeric parameter values, or cycle through menu options.
	Function Keys - will have different functions at different times as displayed on the screen. Used during Wizard Mode.
	Pressing the HAND key will take the VFD into Hand control, where the user can control the motor Frequency and START and STOP.
	Pressing this key will revert the VFD to remote/Automatic control from a remote speed and start command source.

Table 10. Descriptions of LED Functions

LED	Descriptions
	Steady ON: operation indicator for the VFD, including DC brake, zero speed, standby, restart after fault and speed search.
	Blinking: VFD is decelerating to stop.
	Steady OFF: VFD is not running.
	Steady ON: VFD is stopped.
	Blinking: VFD is in the standby status.
	Steady OFF: VFD running.
	Operation Direction LED (green: forward running, red: reverse running).
	Blinking: drive is changing the operation direction.
	HAND LED: When HAND LED is on (HAND mode); when HAND LED is off (AUTO mode).
	AUTO LED: When AUTO LED is on (AUTO mode); when AUTO LED is off (HAND mode).

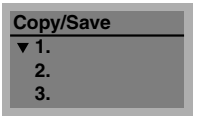
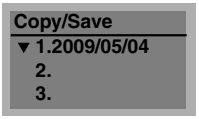
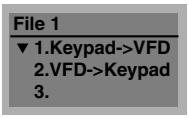
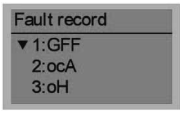
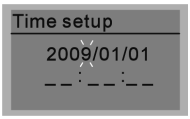
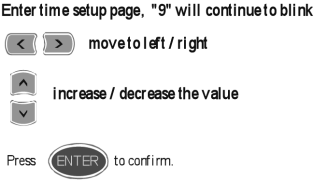
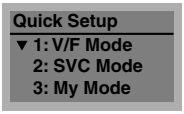
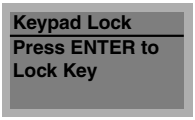
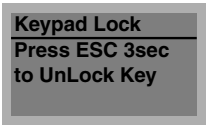
START-UP WIZARD GUIDE

Table 11. Honeywell Commissioning Start-Up Wizard

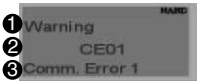
Screen #	Screen Verbiage	Screen Description	Screen options
1	Boot Screen	Honeywell displayed for 3 seconds	N/A
2	Selection Screen	Choose how to interact with the VFD: Recommendation: Press function key F4 to start the wizard	F4: Initials the START UP WIZARD Menu: redirects to MAIN MENU ESC: redirects to MONITOR Screen
3	Select Language	Choose the keypad programming language Use UP and DOWN arrows to change from default. Press ENTER to accept change. F1 BACK up one menu (SAME function throughout WIZARD) F4 Next Parameter (SAME function throughout WIZARD)	1. English 2. Spanish 3. Chinese 4. Portuguese 5. French Use arrow keys to adjust. Press ENTER to save changes, F4 to advance without changes.
4	Clock Time and DATE	Select the time (Military) HH:MM:SS and date YY/MM/DD	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
5	Motor Voltage	Motor's rated voltage based upon Motor Name Plate data	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
6	Motor Current	Motor's rated current in FLA, Full Load AMPs based upon Motor Name Plate data. Do not use motor service factor amperage for this value.	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
7	Motor FREQ	Motor's rated frequency based upon Motor Name Plate data	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
8	Motor RPM	Motor's rated RPM based upon Motor Name Plate data	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
9	ACCEL TIME	The time required to accelerate from the motor's current speed reference to a new speed reference	Acceleration time is factory set for typical Fan and Pump needs. Use arrow keys to adjust. Press ENTER to save changes, F4 to advance without changes.
10	DECEL TIME	The time required to decelerate from the motor's current speed reference to a new speed reference	Decceleration time is factory set for typical Fan and Pump needs. Use arrow keys to adjust. Press ENTER to save changes, F4 to advance without changes.
11, 12, 13	PRESET SPEED 1,2,3	Present Speed options. On digital input closure the VFD will ignore the speed reference from the analog input and will run at the programmed speed.	With the use of MFI (Multifunction inputs) 1, 2, or 3 the drive can be sent to the programmed speed on digital input closure (Usage not required in the field). Adjust as needed or press F4 to accept factory defaults.
14	Analog Input	Select the speed reference signal type.	0. 0-10V - Use AVI (Analog Voltage Input terminal) 1. 4-20mA - Use ACI (Analog current input terminals) 2. 2-10V - Use AVI 3. 0-20mA - Use ACI
15	MIN Frequency	The minimum frequency at which the motor will operate	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
16	MAX Frequency	The maximum frequency at which the motor will operate	Press F4 to accept factory defaults. Use arrow keys to adjust ONLY if needed. PRESS ENTER to save changes.
17	PRESS F4 to SAVE ALL	Saves all parameter updates - VFD is ready to operate	F1 will escape the user back to the Selection Screen again F4 will save parameters and take the user to the display screen

MENU STRUCTURE

Table 12. Main Menu Structure.
NOTE: This menu is accessed when the MENU button is pressed.

Start Wizard	Restart the Start-up Wizard: See Wizard instructions
Copy/Save	1. Copy Parameters (4 parameter copies can be stored per keypad) 2. Press Enter on row 1-4, then select save to save parameters or load to upload parameters to the connect VFD from the saved parameter list.   
Fault Record 	1. Records the last 6 fault records 2. The first fault is the current or most recent fault 3. Select the fault code for time, date, frequency output, current, voltage, and DC Bus Voltage at time of fault 4. Press ENTER to view a particular fault and scroll UP and DOWN to see data
Time Setup 	
Quick Setup 	Quick Settings Menu contains a list of optional parameter lists for different applications. MY MODE, where frequency used parameters can be saved is located here. STARTUP WIZARD parameters are also listed in this menu.
Keypad Lock 	The keypad is locked when ENTER is pressed. When any key is pressed the following screen will appear. 
Language	Use the arrow key to move up and down to change the language selection
Display Setup 	Display Setup Menu allows the user to adjust the backlight time and contract. UP and DOWN arrows are used to adjust settings. ENTER must be pressed for changes to be saved.
Advanced Parameters	Full Parameter list setup. Refer to the Full User Manual on the accompanying CD or at customer.honeywell.com for access
Splash Screen	See Full User Manual for details
Main Page	See Full User Manual for details
PLC Enabled	See Full User Manual for details
Copy PLC	See Full User Manual for details
PC Link	See Full User Manual for details or customer.honeywell.com

WARNING CODES

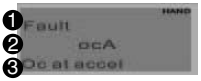


❶ Display error signal
❷ Abbreviated error code
❸ Display error description

Table 13. Warning Codes

Warning Code	Keypad Display	Description
CE01	Comm. Error 1	Modbus function code error
CE02	Comm. Error 2	Address of Modbus data is error
CE03	Comm. Error 3	Modbus data error
CE04	Comm. Error 4	Modbus communication error
CE10	Comm. Error 10	Modbus transmission time-out
CP10	Keypad Time Out	Keypad transmission time-out
SE1	Save Error 1	Keypad COPY error 1
SE2	Save Error 2	Keypad COPY error 2
SE3	Save Error 3	Keypad COPY error 3
oH1	Over heat 1 warn	IGBT over-heating warning
oH2	Over heat 2 warn	Capacity over-heating warning
PID	PID FBK Error	PID feedback error
ANL	Analog loss	ACI signal error
uC	Under Current	Low current
AUE	Auto-Tune Error	Auto tuning error
oSPD	Over Speed Warn	Over-speed warning
DAvE	Deviation Warn	Over speed deviation warning
PHL	Phase Loss Warn	Phase loss
ot1	Over Torque 1	Over torque 1
ot2	Over Torque 2	Over torque 2
oH3	Motor Over Heat	Motor over-heating
oSL	Over Slip Warn	Over slip
tUn	Auto Tuning	Auto tuning processing
OPHL	Output PHL Warn	Output phase loss warning
Ecid	ExCom ID failed	Duplicate MAC ID error
ECLv	ExCom pwr loss	Low voltage of communication card
Ectt	ExCom Test Mode	Communication card in test mode
ECFF	ExCom Facty def	Factory default setting error
ECiF	ExCom Inner err	Serious internal error
Ecio	ExCom IONet brk	IO connection break off
ECEF	ExCom Link fail	Ethernet Link fail
Ecto	ExCom Inr T-out	Communication time-out for communication card and drive
ECCS	ExCom Inr CRC	Check sum error for Communication card and drive
ECrF	ExCom Rtn def	Communication card returns to default setting
ECo0	ExCom MTCP over	Modbus TCP exceed maximum communication value
ECo1	ExCom EIP over	EtherNet/IP exceed maximum communication value
ECiP	ExCom IP fail	IP fail
EC3F	ExCom Mail fail	Mail fail
Ecby	ExCom Busy	Communication card busy

FAULT CODES AND DESCRIPTIONS



❶ Display error signal
❷ Abbreviated error code
❸ Display error description

Table 14. Fault Codes and Descriptions
NOTE: Additional details and screen shots of the error messages can be found in the full manual.

Fault Code	Keypad Fault Desc	Fault Descriptions	Corrective Actions
ocA	oc at accel	Over-current during acceleration	1. Short-circuit at motor output: Check for possible poor insulation at the output.
		(Output current exceeds triple rated current during acceleration)	2. Acceleration Time too short: Increase the Acceleration Time.
			3. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
ocd	oc at decel	Over-current during decceleration	1. Short-circuit at motor output: Check for possible poor insulation at the output.
		(Output current exceeds triple rated current during decceleration.)	2. Decceleration Time too short: Increase the Decceleration Time.
			3. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
ocn	oc at normal SPD	Over-current during steady state operation	1. Short-circuit at motor output: Check for possible poor insulation at the output.
		(Output current exceeds triple rated current during constant speed.)	2. Sudden increase in motor loading: Check for possible motor stall.
			3. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
ocS	oc at stop	Hardware failure in current detection	Return to the factory
GFF	Ground fault	Ground fault	When (one of) the output terminal(s) is grounded, short circuit current is more than 50% of AC motor drive rated current, the AC motor drive power module may be damaged.
			NOTE: The short circuit protection is provided for AC motor drive protection, not for protecting the user.
			1. Check the wiring connections between the AC motor drive and motor for possible short circuits, also to ground.
			2. Check whether the IGBT power module is damaged.
			3. Check for possible poor insulation at the output.
occ	Short Circuit	Short-circuit is detected between upper bridge and lower bridge of the IGBT module	Return to the factory
ovA	ov at accel	DC BUS over-voltage during acceleration (230V: DC 450V; 460V: DC 900V)	1. Check if the input voltage falls within the rated AC motor drive input voltage range.
			2. Check for possible voltage transients.
			3. If DC BUS over-voltage due to regenerative voltage, please increase the Decceleration Time or add an optional brake resistor.
ovd	ov at decel	DC BUS over-voltage during decceleration (230V: DC 450V; 460V: DC 900V)	1. Check if the input voltage falls within the rated AC motor drive input voltage range.
			2. Check for possible voltage transients.
			3. If DC BUS over-voltage due to regenerative voltage, please increase the Decceleration Time or add an optional brake resistor.

Table 14. Fault Codes and Descriptions
NOTE: Additional details and screen shots of the error messages can be found in the full manual.

ovn	ov at normal SPD	DC BUS over-voltage at constant speed (230V: DC 450V; 460V: DC 900V)	1. Check if the input voltage falls within the rated AC motor drive input voltage range.
			2. Check for possible voltage transients.
			3. If DC BUS over-voltage due to regenerative voltage, please increase the Decceleration Time or add an optional brake resistor.
ovS	ov at stop	Hardware failure in voltage detection	1. Check if the input voltage falls within the rated AC motor drive input voltage range.
			2. Check for possible voltage transients.
LvA	Lv at accel	DC BUS voltage is less than Pr.06-00 during acceleration	1. Check if the input voltage is normal
			2. Check for possible sudden load
Lvd	Lv at decel	DC BUS voltage is less than Pr.06-00 during decceleration	1. Check if the input voltage is normal
			2. Check for possible sudden load
Lvn	Lv at normal SPD	DC BUS voltage is less than Pr.06-00 in constant speed	1. Check if the input voltage is normal
			2. Check for possible sudden load
LvS	Lv at stop	DC BUS voltage is less than Pr.06-00 at stop	1. Check if the input voltage is normal
			2. Check for possible sudden load
OrP	Phase lacked	Phase Loss	Check Power Source Input if all 3 input phases are connected without loose contacts.
			For models 40hp and above, please check if the fuse for the AC input circuit is blown.
oH1	IGBT over heat	IGBT overheating	1. Ensure that the ambient temperature falls within the specified temperature range.
		IGBT temperature exceeds protection level	2. Make sure that the ventilation holes are not obstructed.
		1 to15HP: 90 °C	3. Remove any foreign objects from the heatsinks and check for possible dirty heat sink fins.
		20 to 100HP: 100 °C	4. Check the fan and clean it.
			5. Provide enough spacing for adequate ventilation.
oH2	CAP over heat	Heatsink overheating	1. Ensure that the ambient temperature falls within the specified temperature range.
		Capacitance temperature exceeds 90°C cause heatsink overheating.	2. Make sure heat sink is not obstructed. Check if the fan is operating
			3. Check if there is enough ventilation clearance for AC motor drive.
oH3	Motor over heat	Motor overheating	1. Make sure that the motor is not obstructed.
		The AC motor drive detects that the internal temperature exceeds Pr.06-30 (PTC level)	2. Ensure that the ambient temperature falls within the specified temperature range.
			3. Take the next higher power AC motor drive model.
PWR	Power RST OFF	Power off	
oL	Over load	Overload, The AC motor drive detects excessive drive output current.	Check if the motor is overloaded, if yes, replace with next larger drive
ot1	Over Torque 1	These two fault codes will be displayed when output current exceeds the over-torque detection level (Pr06-06 or Pr06-09) and exceeds over-torque detection (Pr06-07 or Pr06-10) and it is set to 2 or 4 in Pr06-05 or Pr06-08.	1. Check whether the motor is overloaded.
			2. Check whether motor rated current setting (Pr.05-01) is suitable
ot2	Over Torque 2		3. Take the next higher power AC motor drive model.
uC	Under Ampere	Low current detection	Check Pr.06-61, Pr.06-62, Pr.06-63.
LMIT	Limit Error	Limit error	

Table 14. Fault Codes and Descriptions
NOTE: Additional details and screen shots of the error messages can be found in the full manual.

cF1	EEPROM write Err	Internal EEPROM can not be programmed.	1. Press “RESET” key to the factory setting
			2. Return to the factory.
cF2	EEPROM read Err	Internal EEPROM can not be read.	1. Press “RESET” key to the factory setting
			2. Return to the factory.
cd1	las sensor Err	U-phase error	Reboots the power. If fault code is still displayed on the keypad please return to the factory
cd2	lbs sensor Err	V-phase error	Reboots the power. If fault code is still displayed on the keypad please return to the factory
cd3	lcs sensor Err	W-phase error	Reboots the power. If fault code is still displayed on the keypad please return to the factory
AFE	PID Fbk error	PID loss (ACI)	1. Check the wiring of the PID feedback
			2. Check the PID parameters settings
ACE	ACI loss	ACI loss	1. Check the ACI wiring
			2. Check if the ACI signal is less than 4mA
EF	External fault	External Fault	1. Input EF (N.O.) on external terminal is closed to GND. Output U, V, W will be turned off.
			2. Give RESET command after fault has been cleared.
EF1	Emergency stop	Emergency stop	1. When the multi-function input terminals MI1 to MI6 are set to emergency stop, the AC motor drive stops output U, V, W and the motor coasts to stop.
			2. Press RESET after fault has been cleared.
bb	Base block	External Base Block	1. When the external input terminal (B.B) is active, the AC motor drive output will be turned off.
			2. Deactivate the external input terminal (B.B) to operate the AC motor drive again.
Pcod	Password error	Password is locked.	Keypad will be locked. Cycle power OFF and then ON to re-enter the correct password. See Pr.00-07 and 00-08.
ccod	SW Code Error	Software code error	
CE1	PC Err command	Illegal function code	Check if the function code is correct (function code must be 03, 06, 10, 63)
CE2	PC Err address	Illegal data address (00H to 254H)	Check if the communication address is correct
CE3	PC Err data	Illegal data value	Check if the data value exceeds max./min. value
CE4	PC slave fault	Data is written to read-only address	Check if the communication address is correct
CE10	PC time out	Modbus transmission time-out	
CP10	Keypad time out	Keypad transmission time-out	
dEb	Dec Energy back	When Pr07-12 is not set to 0 and momentary power off or power cut, it will display dEb during accel./decel. stop.	1. Set Pr07-12 to 0
			2. Check if input power is stable
S1	S1-emergy stop	Emergency stop for external safety	
Fire	On Fire	Fire Mode	
Uoc, Voc, Woc	A, B, or C phase short	Phase A, B, or C short circuit	
OPHL	U, V, or W phase lacked	Output phase loss (Phase U), (Phase V), (phase W)	

WIRING DIAGRAMS

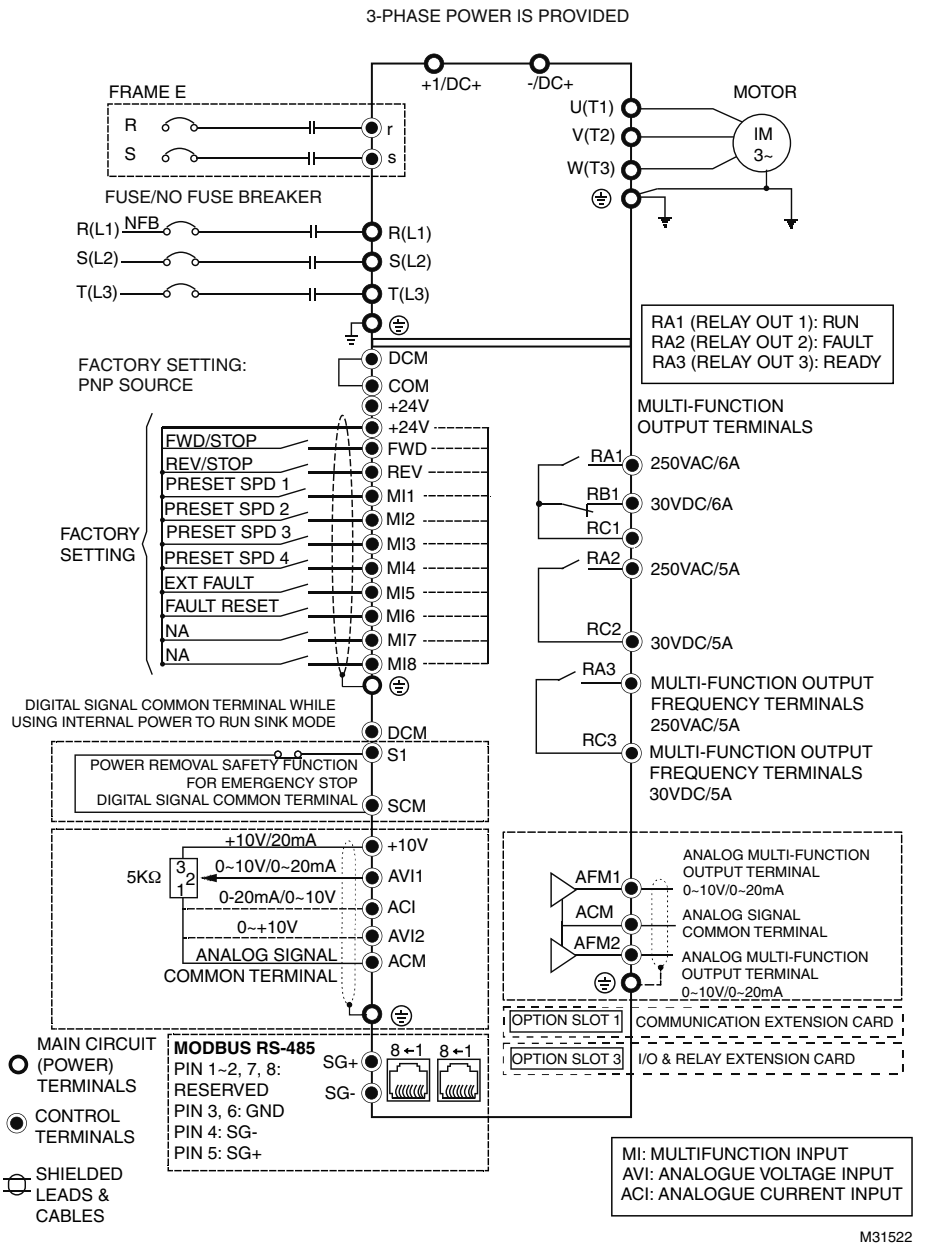


Fig. 7. Wiring Diagram for Frames D and E

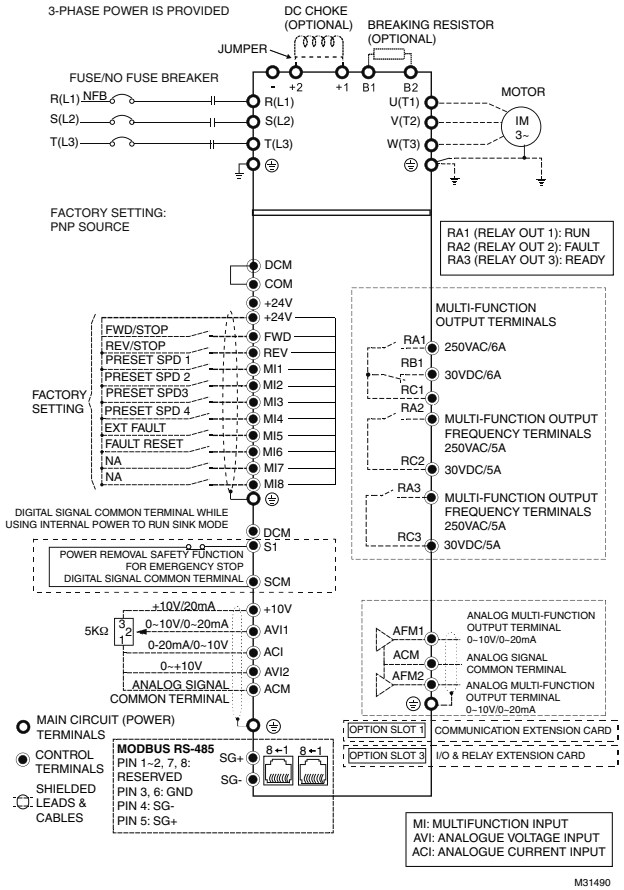


Fig. 8. Wiring Diagram for Frames A-C

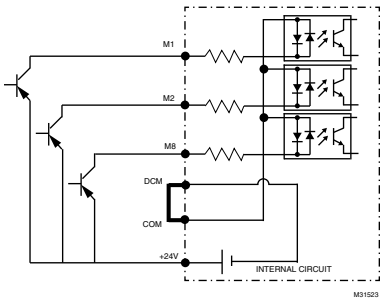


Fig. 9. Source Mode with internal power (+24VDC)

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