



Variable Frequency Drive (VFD) Factory-Installed Option 2-Speed Motor Control for 2-Stage Cooling Rooftop Units

Installation, Start-Up and Service Instructions

This document provides supplemental installation, setup and troubleshooting information for the Variable Frequency Drive (VFD) factory-installed option. It is to be used with the base unit Installation Instructions for 48/50TC, 50TCQ, 48/50HC, 50HCQ, and 40RU 2-Stage cooling units with a VFD fan speed relay board, sizes 07-30. Units equipped with the VFD are identified by an indicator in the unit's model number (see the unit's nameplate). Use Table 1 to identify whether a given unit is equipped with the factory-installed VFD option.

NOTE: Read the entire instruction manual before starting the installation.

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SAFETY CONSIDERATIONS

⚠ CAUTION

CONFIGURATION OVERRIDE HAZARD

Do not use ABB or Carrier start-up assistant on this VFD application. Use of start-up assistant will override the factory VFD configurations.

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in USA, ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies hazards which could result in personal injury or death. CAUTION is used

to identify unsafe practices, which may result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

GENERAL

Staged Air Volume (SAV™)
Indoor Fan Speed System

The Staged Air Volume (SAV) system utilizes a Fan Speed control board and Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed in sequence with the unit’s ventilation, cooling and heating operation. Per ASHRAE 90.1-2016 and IECC¹-2015 standards, during the first stage of cooling operation the SAV system will adjust the fan motor to provide 66% of the design airflow rate for the unit. When the call for the second stage of cooling is required, the SAV™ system will allow the design airflow rate for the unit established (100%). During the heating mode, the SAV system will allow total design airflow rate (100%) operation. During ventilation mode, the SAV system will operate the fan motor at 66% of full speed.

Figures 1-4 show the VFDs used for the SAV indoor fan speed system.



Fig. 1 — ACH550 Variable Frequency Drive (VFD)

Table 1 — Model Size/VFD Option Indicator

MODEL/SIZES	POSITION IN MODEL NUMBER	VFD FIOP INDICATOR
48/50TC / 07-30	17	G-M
50TCQ / 07-24	17	G-M
48/50HC / 07-28	17	G-M
50HCQ / 07-12	17	G-M
40RUA / 07-30	9	T
40RUS / 08-30	9	T
40RUQ / 07-25	9	T



Fig. 2 — ACS320 Variable Frequency Drive (VFD)



Fig. 3 — ACH580 Variable Frequency Drive (VFD)

1. Third-party trademarks and logos are the property of their respective owners.



Fig. 4 — ACH180 Variable Frequency Drive (VFD)

Identifying Factory Option

This supplement only applies to units that meet the criteria detailed in Table 1. If the unit does not meet that criteria, discard this document.

NOTE: See Fig. 5-6 for examples of typical Model Number Nomenclature.

NOTE: 48/50LC units are not covered in this document; VFDs are standard equipment on belt drive LC units. VFD instructions for the 48/50LC series are found in the Service and Maintenance Instructions for the LC base units.

Unit Installation with SAV Option

48/50HC, 50HCQ, 48/50TC, AND 50TCQ ROOFTOP

Refer to the base unit installation instructions for standard required operating and service clearances.

40RU WITHOUT REMOTE VFD KEYPAD

Additional service clearance is required on the rear for 40RU fan coil unit equipped with the SAV option. Increase the recommended rear panel clearance to 30 inches.

40RU WITH REMOTE VFD KEYPAD

Refer to the base unit installation instructions for standard required operating and service clearances. Install the accessory remote VFD keypad before positioning the 40RU unit in its final operating location.

NOTE: The remote VFD keypad is a field-installed option. It is not included as part of the factory-installed VFD option.

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Example:	4	8	H	C	D	D	2	4	A	2	A	6	-	0	A	0	G	0	
Product Type																		Factory Assigned	
Product Series																			
Heat Options																			
Refrig. Systems Options																			
Cooling Tons																			
Sensor Options																			
Indoor Fan Options																			
Coil Options (RTPF) (Outdoor - Indoor - Hail Guard)																			
Voltage																			
Design Revision																			
Electrical Options																			
G = Two-Speed Blower																			
H = HACR and Two-Speed Blower																			
J = Non-Fused Disconnect and Two-Speed Blower																			
K = Through the basepan electrical and Two-Speed Blower																			
L = HACR and Through the Basepan Electrical and Two-Speed Blower																			
M = Non-Fused Disconnect and Through the basepan electrical and Two-Speed Blower																			
Service Options																			
Intake / Exhaust Options																			
Base Unit Controls																			

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	0	R	U	A	A	1	2	T	1	A	6	-	0	A	0	A	0

Model Type
Packaged Air-Handling Unit Puron

Type of Coil

Refrigeration Options

Nominal Tonnage

Staged Air Volume
T = SAV/VFD

Indoor Fan Options - Belt Drive

Coil Options

Packaging

Future Use

Cabinet Paint

Future Use

Future Use

Revision Number

Voltage

Fig. 6 — Model Number Nomenclature Example, 40RU-Series

IMPORTANT: Do NOT change units equipped with the VFD option to operate at less than the preset 66% minimum Hertz (Hz) setting. For example, do not change a unit equipped with a standard static motor to operate at less than 40 Hz (which is 66% of its 60 Hz rating).

Tables 2-10 list the minimum recommended cfm per fan motor type (single speed or 2-speed) for the units covered in this document.

Table 2 — 48TC Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
48TC 07	1,800	1,800	1,188
48TC 08	2,250	2,250	1,485
48TC 09	2,550	2,873	1,896
48TC 12	3,000	3,380	2,231
48TC 14	3,600	4,225	2,789
48TC 16	4,500	5,625	3,713
48TC 17	4,500	4,500	2,970
48TC 20	5,250	5,250	3,465
48TC 24	6,000	6,000	3,960
48TC 28	7,500	8,450	5,577
48TC 30	8,250	8,250	5,445

Table 3 — 50TC Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	SPEED FAN MOTOR (AT LOW SPEED)
50TC 07	1,800	1,800	1,188
50TC 08	2,250	2,250	1,485
50TC 09	2,550	2,873	1,896
50TC 12	3,000	3,380	2,231
50TC 14	3,600	4,225	2,789
50TC 16	4,500	5,625	3,713
50TC 17	4,500	4,500	2,970
50TC 20	5,250	5,250	3,465
50TC 24	6,000	6,000	3,960
50TC 28	7,500	8,450	5,577
50TC 30	8,250	8,250	5,445

Table 4 — 50TCQ Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
50TCQ 07	1,800	1,800	1,188
50TCQ 08	2,250	2,535	1,673
50TCQ 09	2,550	2,873	1,896
50TCQ 12	3,000	3,000	1,980
50TCQ 14	3,750	4,225	2,789
50TCQ 17	4,500	5,070	3,346
50TCQ 24	6,000	6,760	4,462

Table 5 — 48HC Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
48HC 07	1,800	1,800	1,300
48HC 08	2,250	2,535	1,673
48HC 09	2,550	2,550	1,683
48HC 11	3,000	3,380	2,231
48HC 12	3,000	3,380	2,231
48HC 14	3,750	4,225	2,789
48HC 17	4,500	5,070	3,346
48HC 20	5,250	5,915	3,904
48HC 24	6,000	7,500	4,950
48HC 28	7,500	8,450	5,577

Table 6 — 50HC Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
50HC 07	1,800	1,800	1,200
50HC 08	2,250	2,535	1,673
50HC 09	2,550	2,550	1,683
50HC 11	3,000	3,380	2,231
50HC 12	3,000	3,380	2,231
50HC 14	3,750	4,225	2,789
50HC 17	4,500	5,070	3,346
50HC 20	5,250	5,915	3,904
50HC 24	6,000	7,500	4,950
50HC 28	7,500	8,450	5,577

Table 7 — 50HCQ Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
50HCQ 07	1,800	1,800	1,188
50HCQ 08	2,250	2,250	1,485
50HCQ 09	2,550	2,873	1,896
50HCQ 12	3,000	3,380	2,231

Table 8 — 40RUA Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
40RUA 07	1,800	2,030	1,338
40RUA 08	2,250	2,535	1,673
40RUA 12	3,000	3,380	2,231
40RUA 14	3,750	4,225	2,789
40RUA 16	4,500	4,500	2,970
40RUA 25	6,000	6,000	3,960
40RUA 28	7,500	8,450	5,577
40RUA 30	9,000	9,295	6,135

Table 9 — 40RUS Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
40RUS 08	2,250	2,535	1,673
40RUS 10	2,550	2,873	1,896
40RUS 12	3,000	3,380	2,231
40RUS 14	3,750	4,225	2,789
40RUS 16	4,500	4,500	2,970
40RUS 25	6,000	6,000	3,960
40RUS 28	7,500	8,450	5,577
40RUS 30	9,000	9,295	6,135

Table 10 — 40RUQ Min cfm Per Fan Motor Type

MODEL-SIZE	SINGLE SPEED FAN MOTOR	2-SPEED FAN MOTOR (AT HIGH SPEED)	2-SPEED FAN MOTOR (AT LOW SPEED)
40RUQ 07	1,800	2,030	1,338
40RUQ 08	2,250	2,535	1,673
40RUQ 12	3,000	3,380	2,231
40RUQ 16	4,500	4,500	2,970
40RUQ 25	6,000	6,000	3,960

Pre-Start Check, SAV™ Option

1. Remove the access panel to reach the VFD.
 - 48/50 Series: Blower compartment panel
 - 40RU: Rear access panel

NOTE: See Fig. 7-24 for VFD location in the units covered by this document.
2. Read all safety, caution and warning labels.
3. Inspect wiring at the VFD for loose or disconnected wires at the terminal strip and for wires in contact with sharp edges and moving parts (pulley, belt).

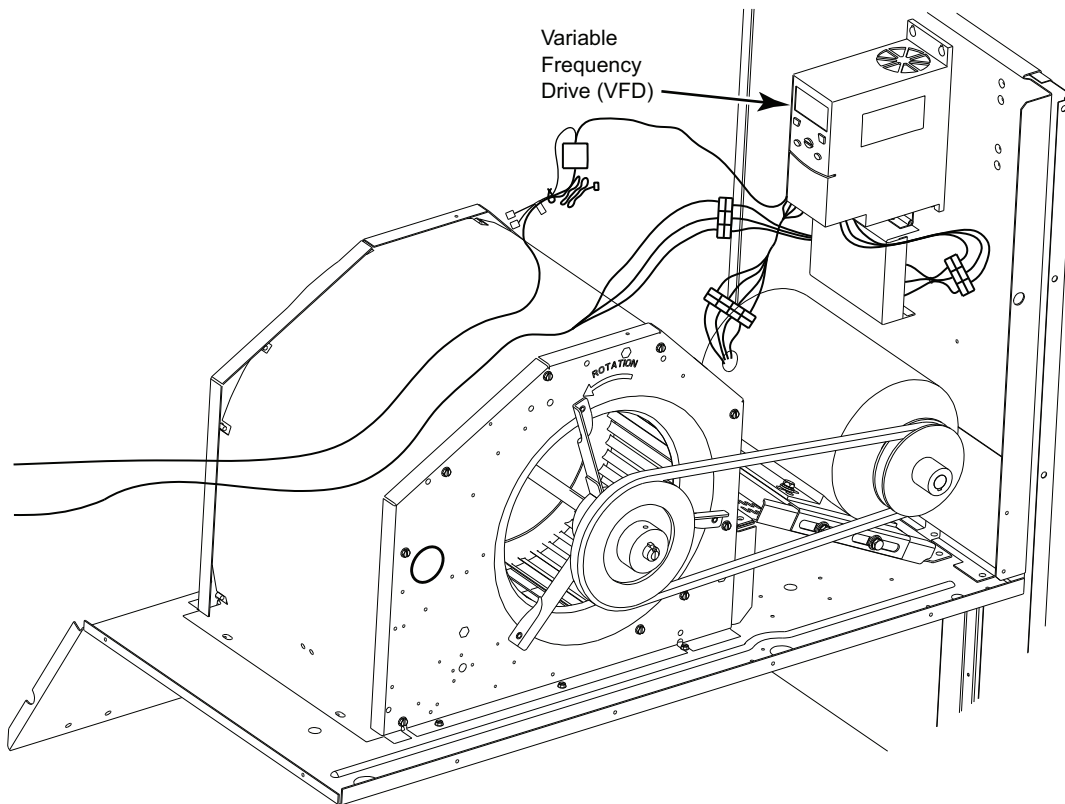


Fig. 7 — ACS320/ACH180 VFD Location for the following units: 48/50TC 07 and 50TCQ 07 (208/230-v and 460-v units only)

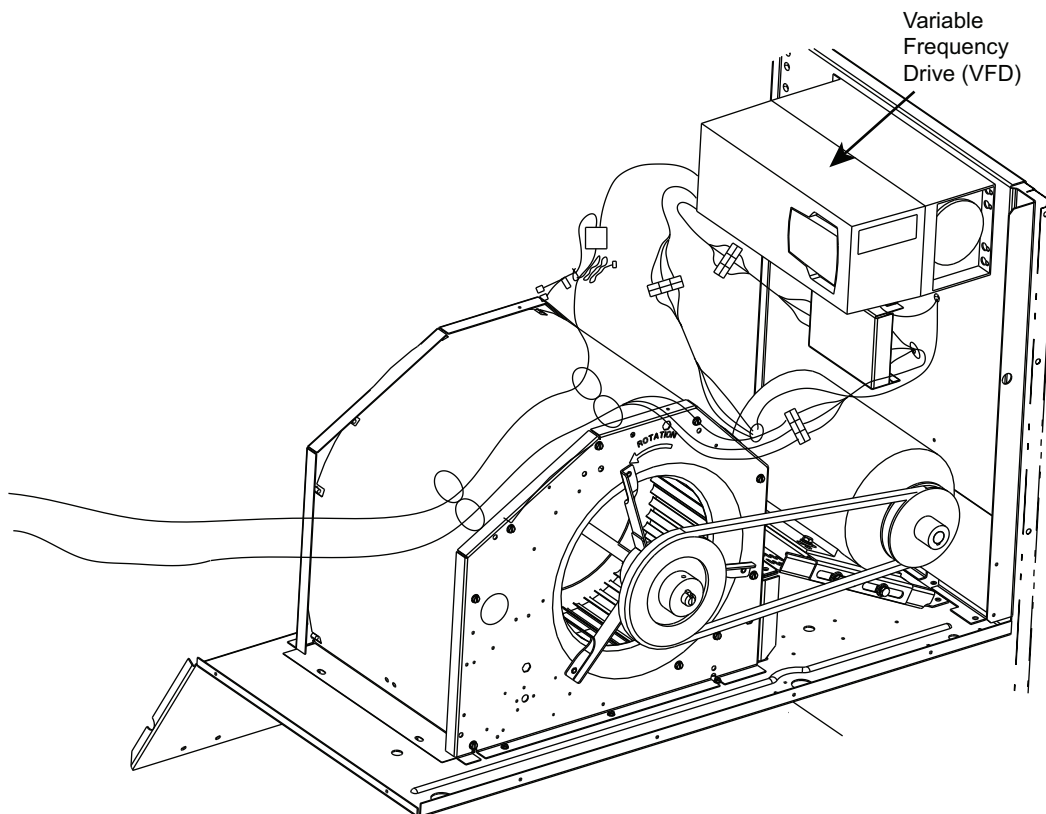


Fig. 8 — ACH550/580 VFD Location for the following units: 48/50TC 07 (575-v units only)

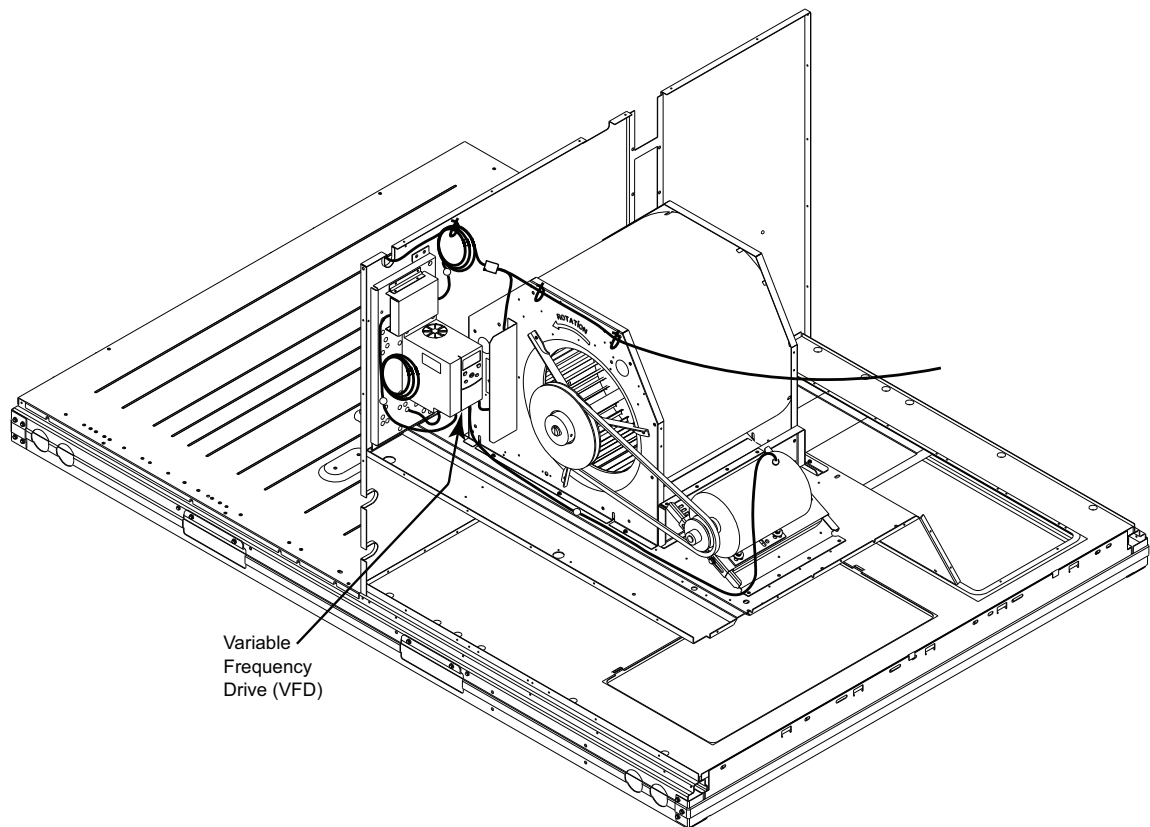


Fig. 9 — ACS320/ACH180 VFD Location for the following units: 48/50TC 08 (208/230-v and 460-v units only)

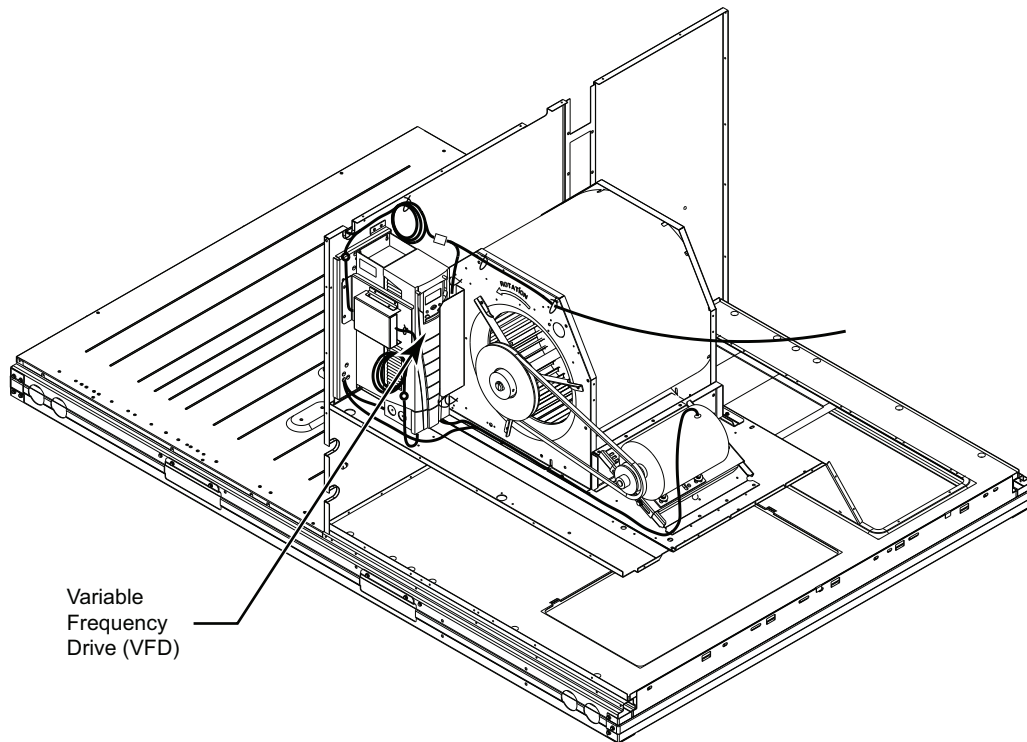


Fig. 10 — ACH550/580 VFD Location for the following units: 48/50TC 08 (575-v units only)

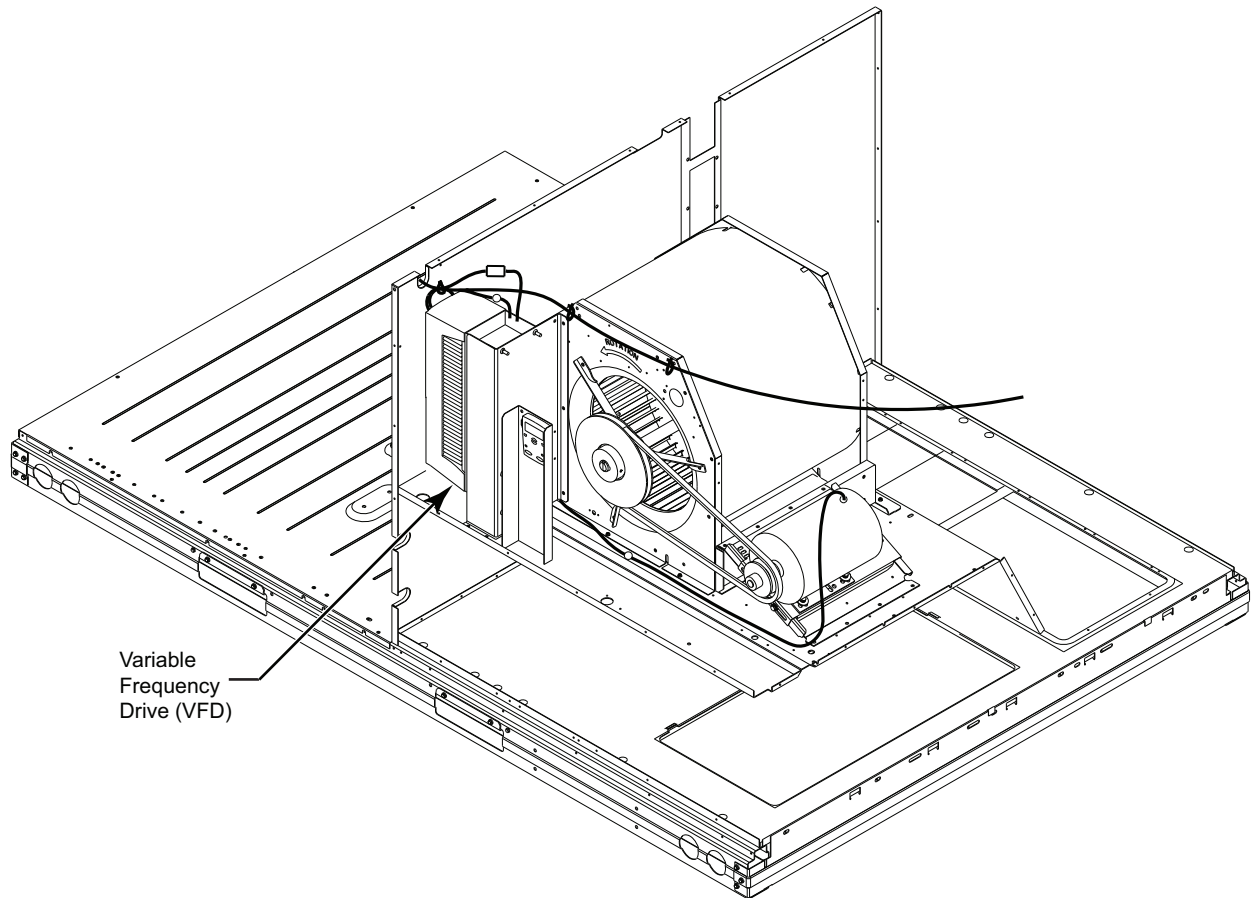


Fig. 11 — ACH550/580 VFD Location for the following units: 48/50HC 07 and 50HCQ 07

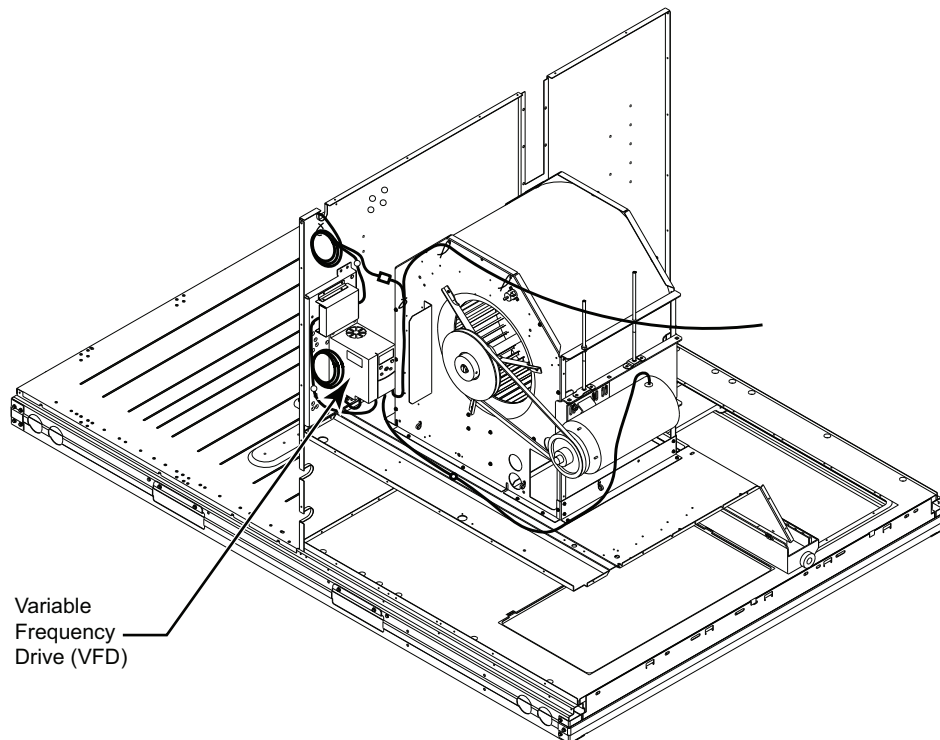


Fig. 12 — ACS320/ACH180 VFD Location for the following units: 48/50TC 09-14 and 50TCQ 08-12 (208/230-v and 460-v units only)

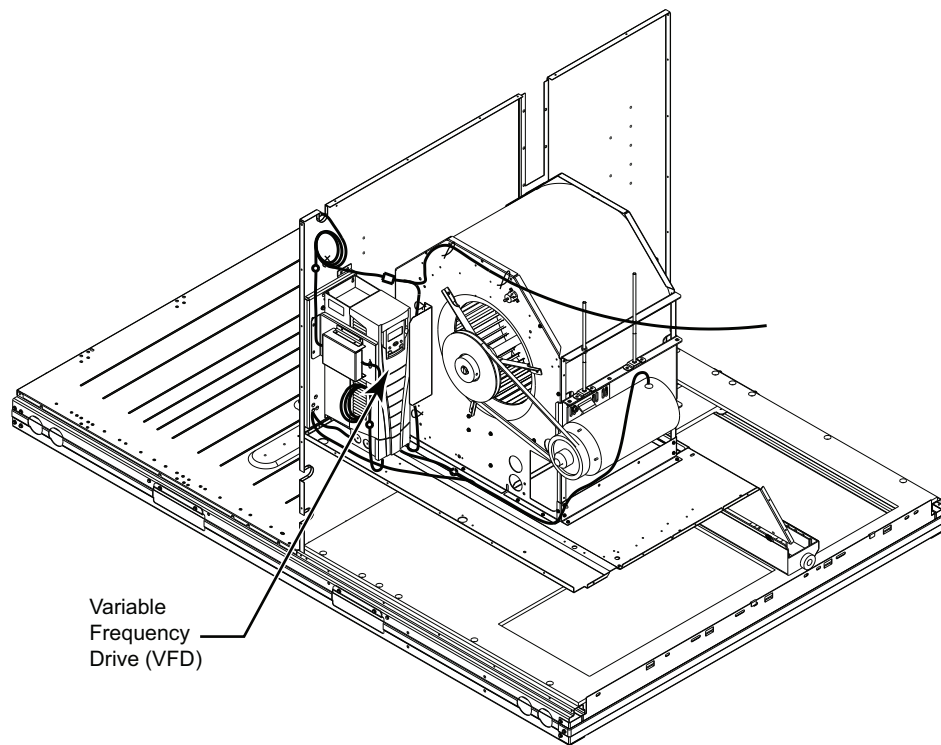


Fig. 13 — ACH550/580 VFD Location for the following units: 48/50TC 09-14 and 50TCQ 08-12 (575-v units only)

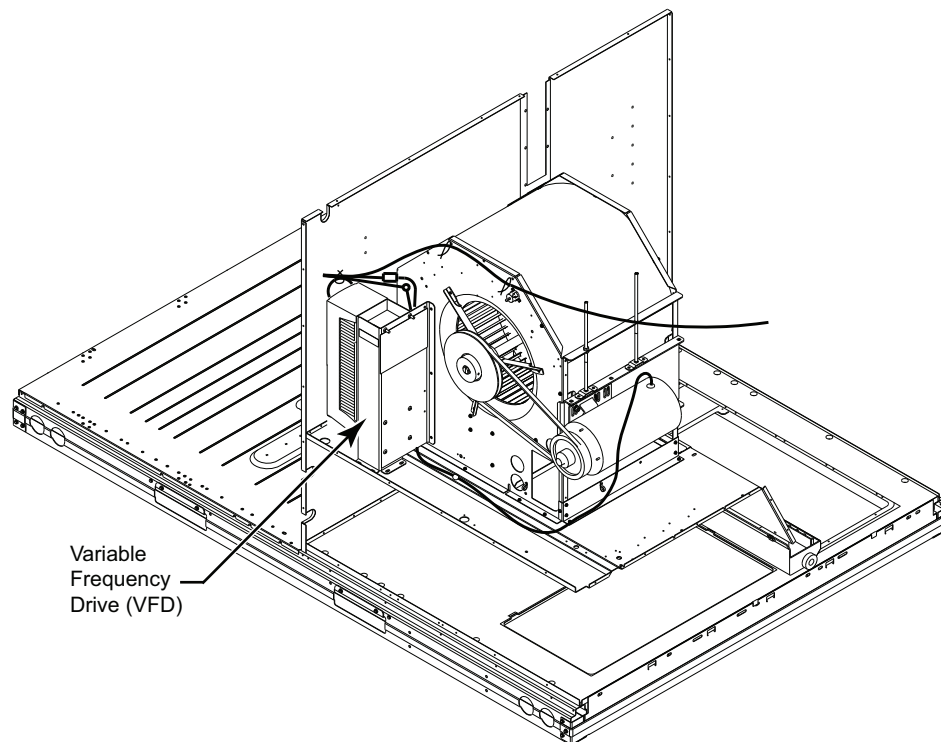


Fig. 14 — ACH550/580 VFD Location for the following units: 48/50HC 08-09 and 50HCQ 08-09

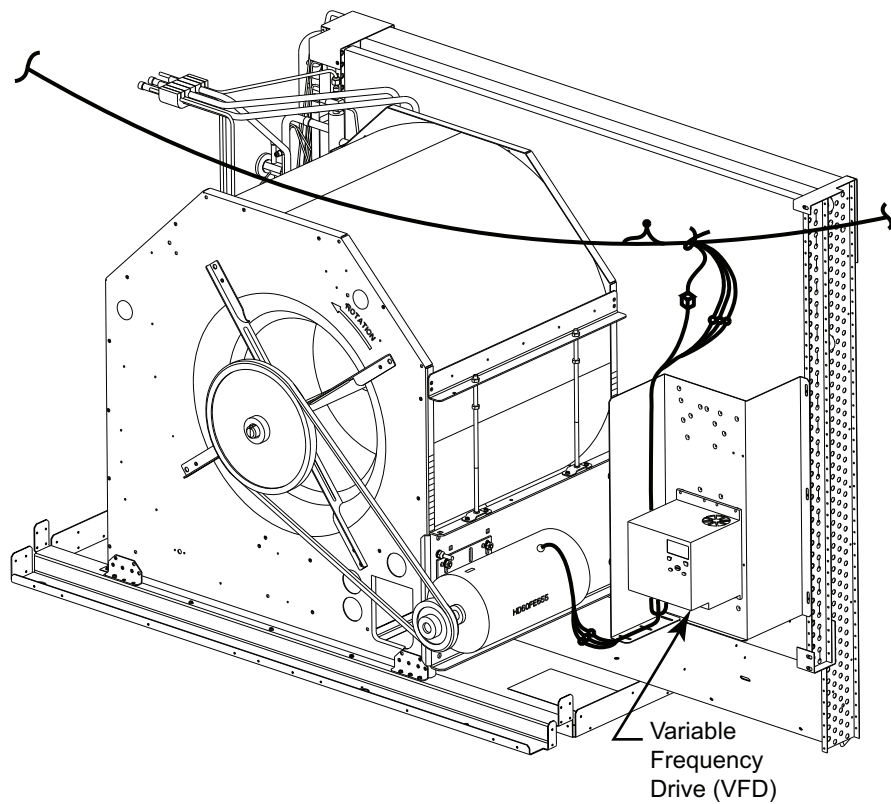


Fig. 15 — ACS320/ACH180 VFD Location for the following units: 48/50TC 16 and 50TCQ 14 (208/230-v and 460-v units only)

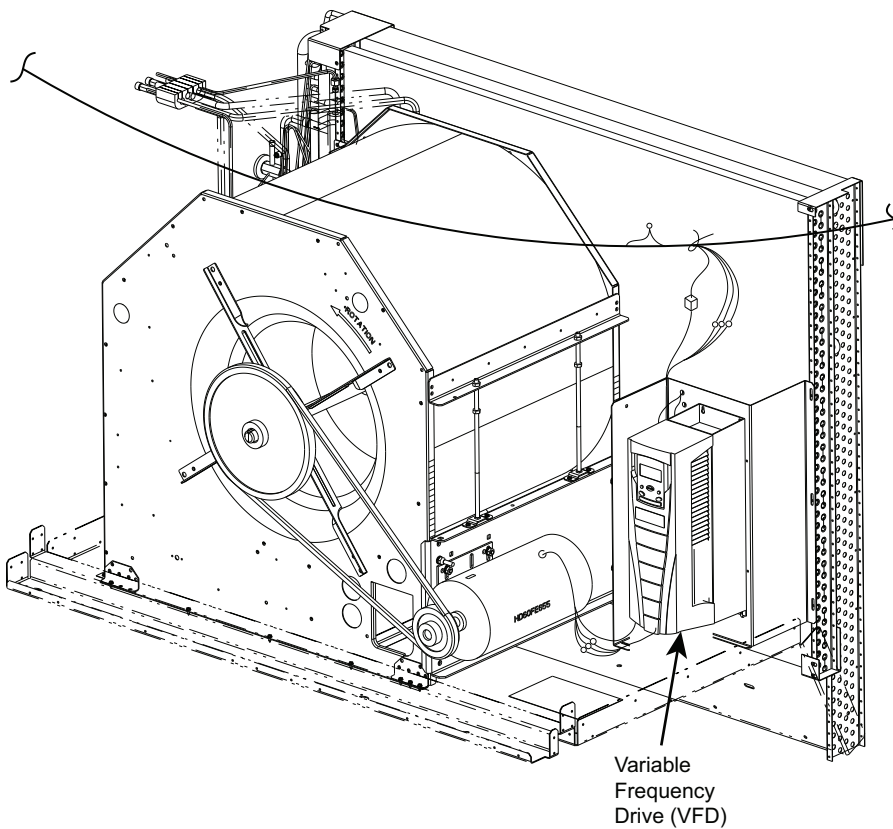
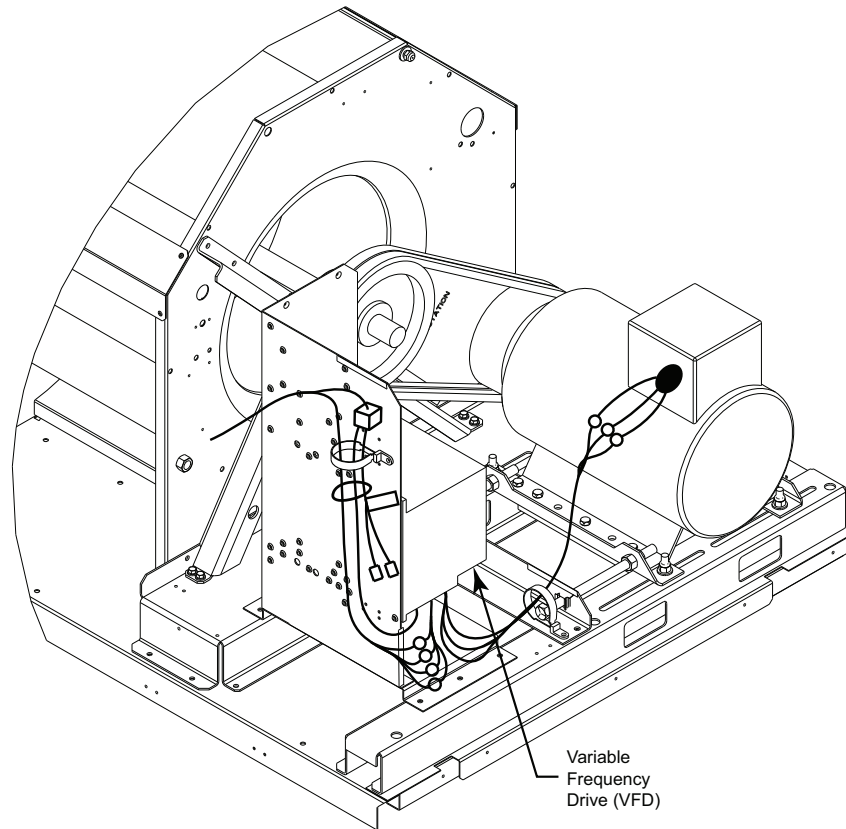
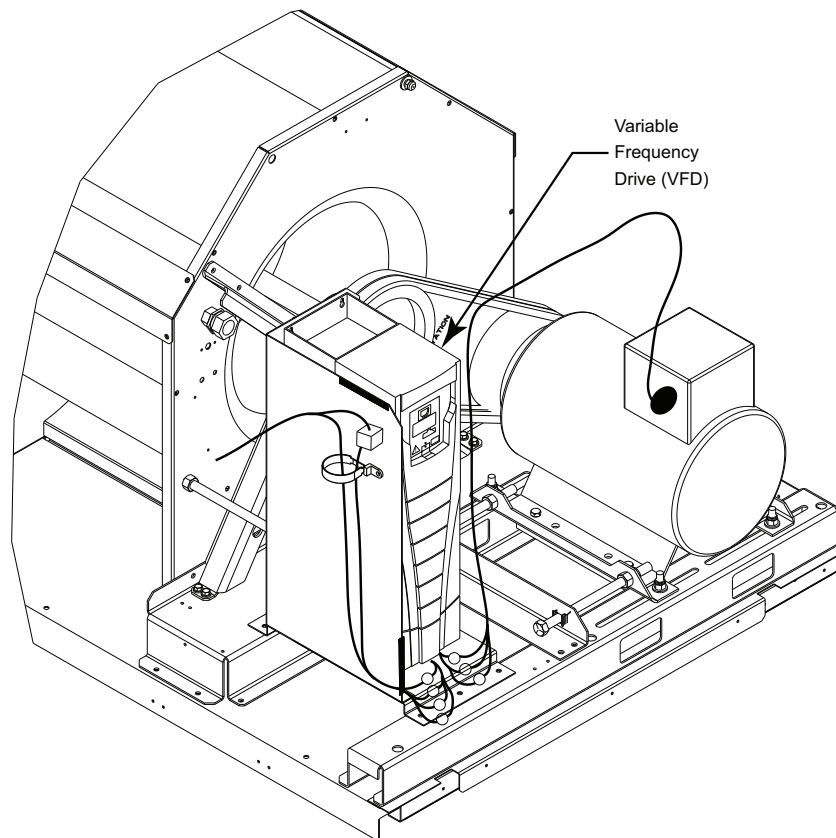


Fig. 16 — ACH550/580 VFD Location for the following units: 48/50TC 16 and 50TCQ 14 (575-v units only)



**Fig. 17 — ACS320/ACH180 VFD Location for the following units: 48/50TC 17-30, 50TCQ 17-24 and 48/50HC 17-28
No ComfortLink Controls (208/230-v and 460-v units only)**



**Fig. 18 — ACH550/580 VFD Location for the following units: 48/50TC 17-30 and 50TCQ 17-24 (575-v units only),
48/50HC 17-28 ComfortLink Controls and 575 Units**

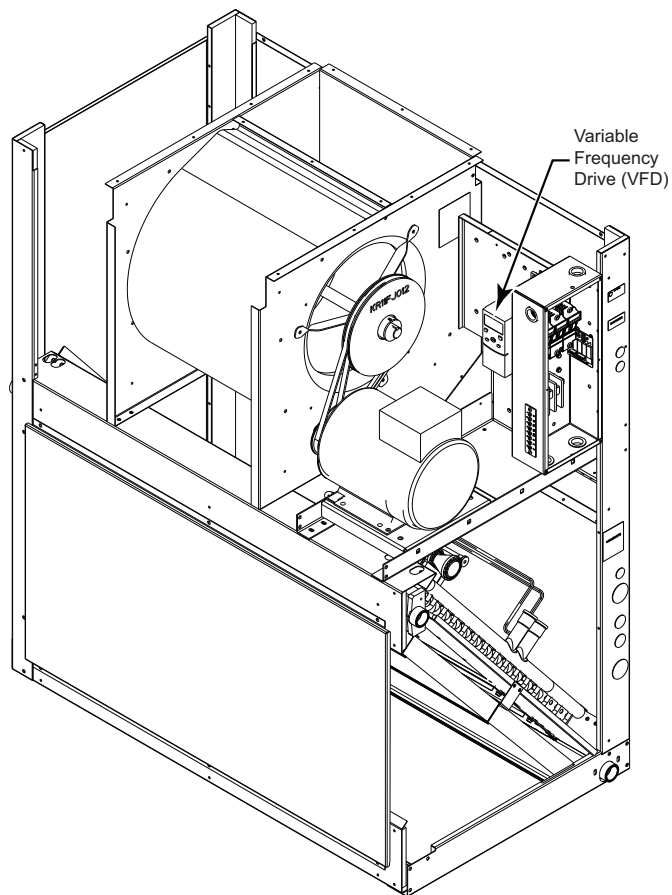


Fig. 19 — ACS320/ACH180 VFD Location for the following units: 40RUA/RUQ 07-12, 40RUS 08-12 (208/230-v and 460-v only)

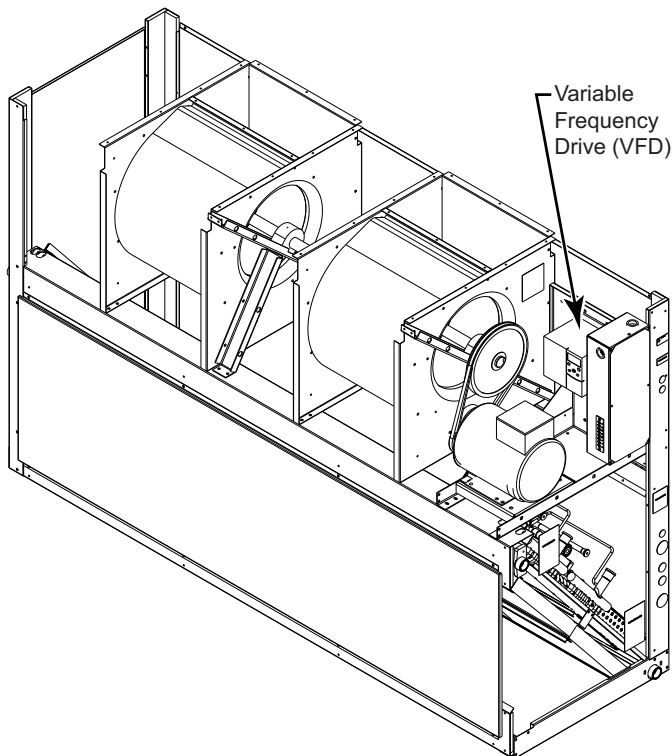


Fig. 20 — ACS320/ACH180 VFD Location for the following units: 40RUA/RUS 14-25, 40RUQ 16-25 (208/230-v and 460-v only)

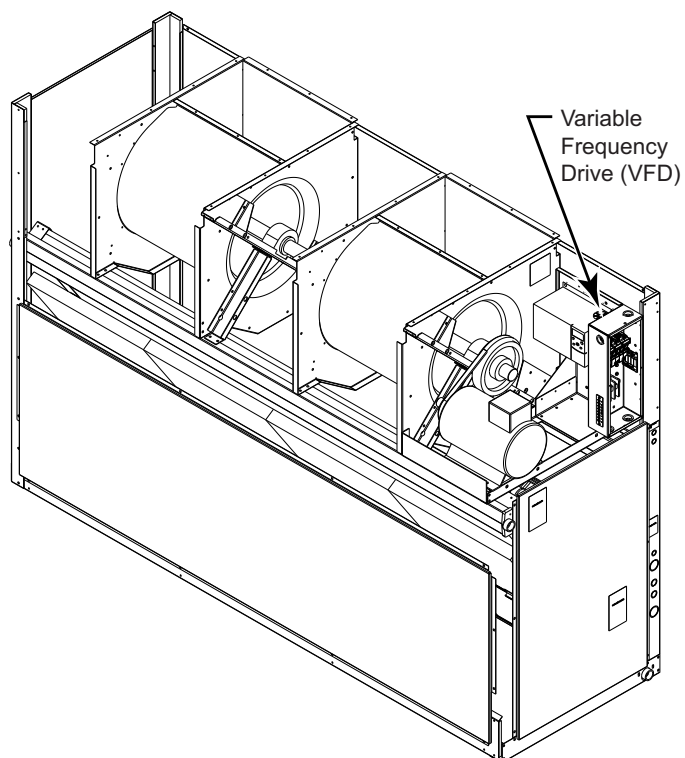


Fig. 21 — ACS320/ACH180 VFD Location for the following units: 40RUA/RUS 28-30 (208/230-v and 460-v only)

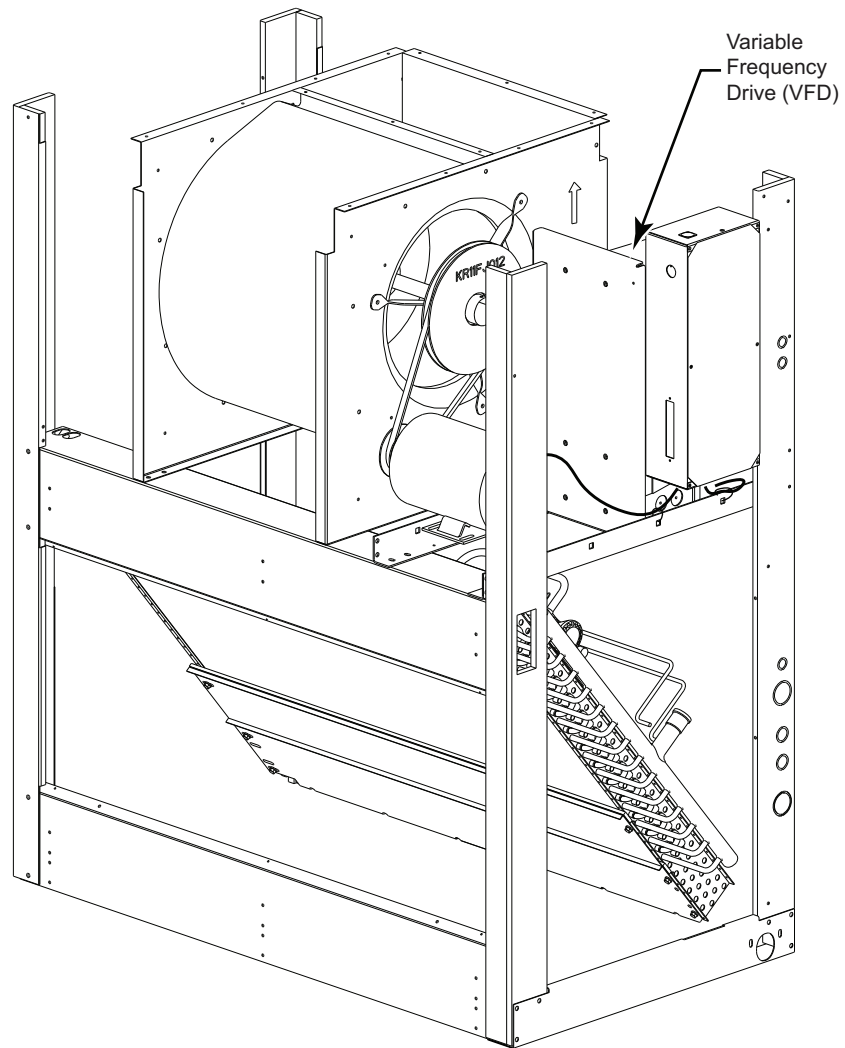


Fig. 22 — ACH550/580 VFD Location for the following units: 40RUA/RUQ 07-12, 40RUS 08-12 (575-v only)

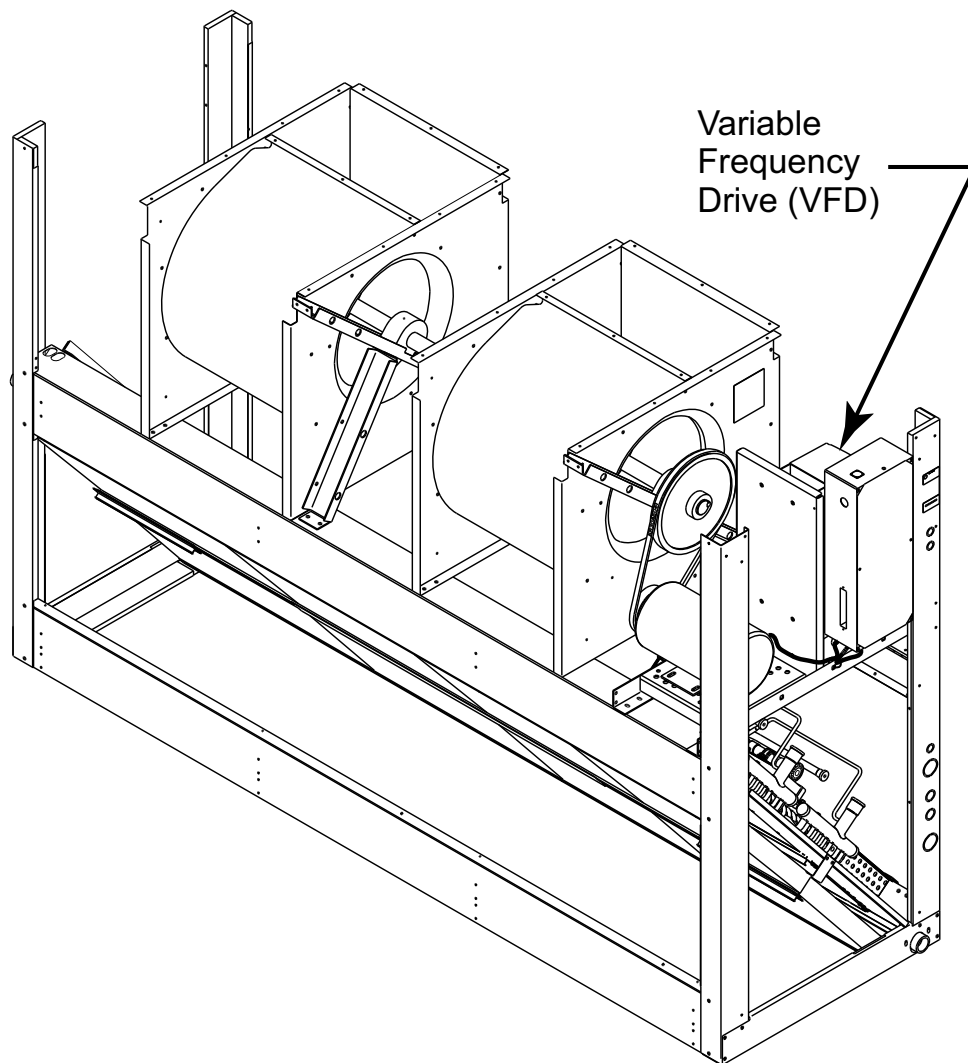


Fig. 23 — ACH550/580 VFD Location for the following units: 40RUA/RUS 14-25, 40RUQ 16-25 (575-v only)

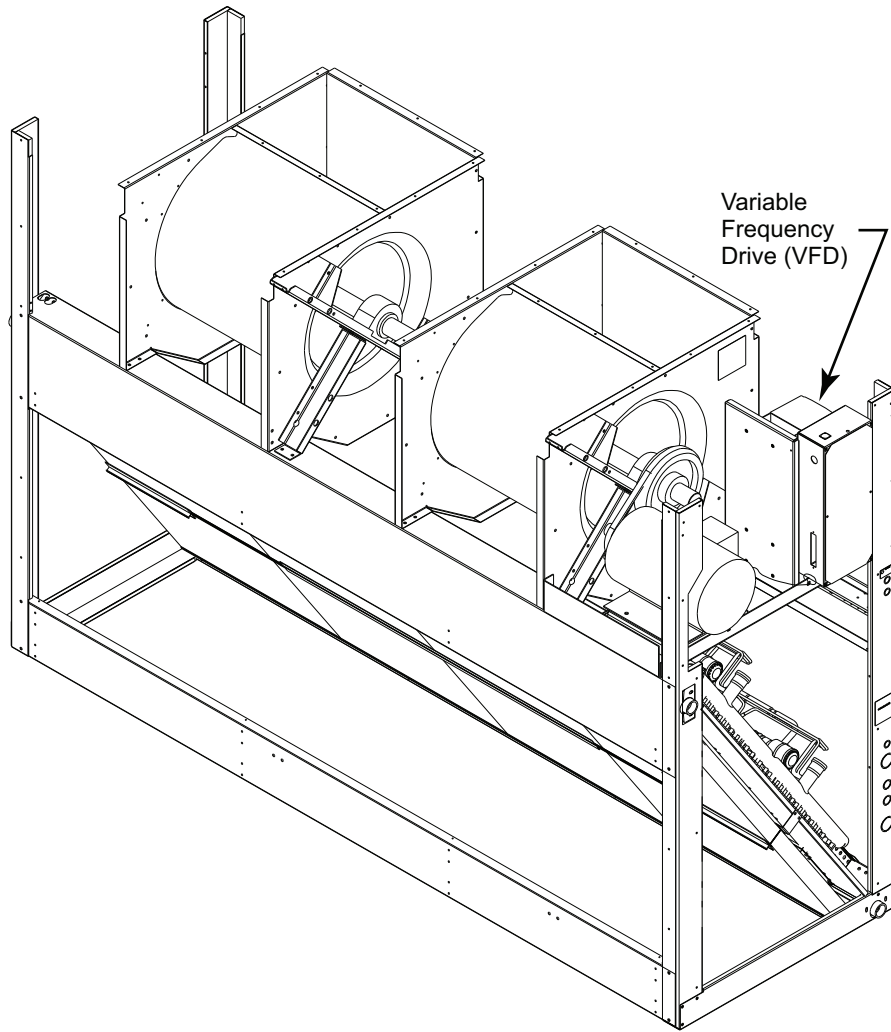


Fig. 24 — ACH550/580 VFD Location for the following units: 40RUA/RUS 28-30 (575-v only)

START-UP, SAV™ OPTION

Compressor Rotation

Units equipped with a VFD on the indoor fan motor cannot use rotation direction of the indoor fan motor and fan to visually confirm a correct phase connection to the unit and compressors. Correct phases to equipment for proper compressor rotation. The VFD will maintain the same rotation as input phases are changed. Pressure gages **MUST BE USED** during cooling system start-up to confirm correct compressor rotation and operation.

Indoor Fan Motor

Raise the cooling set point at the space thermostat to higher than space temperature. Switch the thermostat's FAN switch to CONT (Continuous) position. Fan motor will start, run at reduced speed.

Check for fan rotation direction. To reverse the fan rotation, disconnect all power to unit and then switch two motor power leads between the VFD and the motor. Restore unit power and recheck fan rotation direction.

Check fan motor speed. Motor shaft should be rotating at 1,150 to 1,180 rpm (19.2 to 19.7 rps).

Switch the thermostat's FAN switch to AUTO position. Fan motor will stop.

Cooling with SAV

FIRST STAGE (Y1)

Set the thermostat FAN switch to AUTO and the SYSTEM switch to COOL. Slowly lower the cooling set point until first stage compressor starts. Indoor fan motor also starts, runs at reduced speed.

SECOND STAGE (Y2)

Lower the cooling set point until second stage compressor starts. Indoor fan motor will switch to high speed.

Check fan motor speed. Motor shaft should be rotating at 1,725 to 1,760 rpm (28.8 to 29.3 rps).

Confirm compressors are running at correct rotation by checking suction and discharge pressures. To reverse the compressor rotation, disconnect unit power and switch two of the unit's main power leads. Restore unit power and recheck compressor operation.

Reset thermostat cooling set point to a position above space temperature. Both compressors will shut off. Indoor fan motor will stop immediately.

40RU, 50 SERIES UNITS

Indoor fan motor will stop immediately.

48 SERIES UNITS

Indoor fan operation will continue for 45-seconds, then stop.

Operating Sequences, SAV Option

VENTILATION (FAN ONLY)

Ventilation mode occurs when the indoor fan runs without accompanying cooling or heating system operation. The thermostat's FAN selection switch will be in CONT (Continuous) position; no demand for cooling or heating will be present.

48 SERIES UNITS

The thermostat's G terminal is energized with 24-v. This signal is conveyed to the 48 Series unit's Central Terminal Board (CTB) at the field connection TSTAT terminal strip at terminal G. The 24-v signal follows an internal trace path through jumper JMP6 to connector CONTL BOARD pin 1. A harness wire connects pin 1 to IGC board terminal G. The IGC energizes its fan relay, energizing IGC terminal IFO. This 24-v signal follows a harness conductor back to the CTB's CONTL BOARD connector at pin 6 and pin 7. Pin 7 is connected to the Fan Speed Board at connector J1 pin 4. Relay K3 is energized. A 24-VDC signal is passed to the VFD terminal 14. The VFD starts the indoor fan motor and runs it at 40 Hz for reduced/low speed operation.

50HC, TC SERIES UNITS

The thermostat's G terminal is energized with 24-v. This signal is conveyed to the 50HC,TC Series unit's Central Terminal Board (CTB) at the field connection TSTAT terminal strip at terminal G. The 24-v signal follows an internal trace path through jumper JMP6 to connector CONTL BOARD pin 1. A harness wire connects pin 1 to the Fan Speed Board at connector J1 pin 4. Relay K3 is energized. A 24-VDC signal is passed to the VFD terminal 14. The VFD starts the indoor fan motor and runs it at 40 Hz for reduced/low speed operation.

50HCQ, TCQ SERIES

The thermostat's G terminal is energized with 24-v. This signal is conveyed to the 50HCQ,TCQ Series unit's Central Terminal Board (CTB) at the field connection TSTAT terminal strip at terminal G. The 24-v signal follows an internal trace path to connector REHEAT/DEFROST pin 1. A harness wire connects pin 1 to DFB board terminal P2-3. The DFB energizes its fan relay, energizing DFB terminal P3-8. This 24-v signal follows a harness conductor back to the CTB's REHEAT/DEFROST pin 2. An internal trace path connects pin 2 to CONTL BOARD connector at pin 1. Pin 1 is connected to the Fan Speed Board at connector J1 pin 4. Relay K3 is energized. A 24-VDC signal is passed to the VFD terminal 14. The VFD starts the indoor fan motor and runs it at 40 Hz for reduced/low speed operation.

Cooling (FAN Switch in AUTO)

FIRST STAGE (Y1)

When the thermostat initiates a call for First Stage Cooling by closing its Y1 contacts, the thermostat also energizes its G terminal. Follow the sequence under Ventilation above. Fan Speed Relay board relay K3 is energized, causing the VFD to start the indoor fan motor and run at 40 Hz for reduced fan speed operation.

When space temperature drops to satisfy the thermostat Y1 demand, contact Y1 opens de-energizing terminal G. Relay K3 is de-energized. The relay board output at J2-2 to the VFD is removed and indoor fan motor ramps down to stop.

SECOND STAGE (Y2)

If space temperature continues to rise, thermostat Y2 demand will be initiated. Contact Y2 will close, sending a 24-v signal to CTB's TSTAT terminal strip at Y2. An internal path passes this signal to connector DDC/TSTAT pin 6. A harness wire carries this signal to Fan Speed Relay board pin J1-3. Relay K2 is energized. The relay board's output to VFD at pin J2-2 is de-energized and the output at J2-3 is energized, causing the VFD to shift its output to the indoor fan motor to 60 Hz. The indoor fan motor ramps up to full/high speed operation.

When the space temperature drops to satisfy thermostat Y2 demand, contact Y2 opens de-energizing terminal Y2. Relay K2 is de-energized, removing the VFD input at terminal 15. Fan Speed Board output at pin J2-2 is restored to the VFD at terminal 14; VFD shifts back to 40 Hz output to the indoor fan motor and motor shifts back to reduced speed operation.

Heating

When the thermostat initiates a call for First Stage Heating by closing its W1 contacts, a 24-v signal is conveyed to the CTB's TSTAT terminal strip at W1. An internal path passes this signal to connector DDC/TSTAT pin 5. A harness wire carries this signal to Fan Speed Relay board pin J1-2. Relay K1 is energized. The relay board's output to VFD at pin J2-3 is energized, providing a 24VDC signal to VFD terminal 15. The VFD starts the indoor fan motor, runs at 60 Hz for full/high speed operation.

When space temperature rises to satisfy the thermostat W1 demand, contact W1 opens de-energizing terminal W1. Relay K1 is de-energized. The relay board output at J2-3 to the VFD is removed.

40RU, 50-SERIES

Indoor fan motor ramps down to stop.

48-SERIES

The IGC's fan-off delay sequence will energize relay K3 for 45-seconds, causing the VFD to operate the indoor fan motor at 40 Hz (low speed) for 45-seconds, then indoor fan motor will ramp down to stop.

Operating Fan for Test and Balance

During the Test and Balance procedure, it is necessary to operate the supply fan in High Speed without concurrent operation of the Cooling or Heating systems. Use the following procedure to force the fan speed to High.

UNITS WITHOUT ACCESSORY KEYPAD

1. Set the space thermostat to SYSTEM OFF and FAN in AUTO.
2. Disconnect unit power. Lock-out/tag out.
3. Open the fan access panel and locate the VFD (see Fig. 7-24 for your specific unit).
4. Locate and connect the WHT and YEL wires extending from the VFD. The two wires are bundled together using the label shown in Fig. 25.

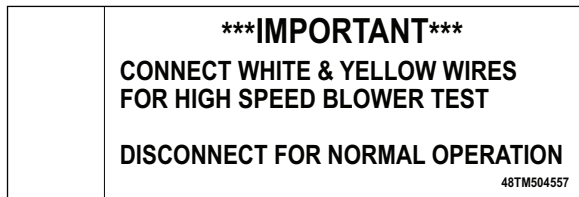


Fig. 25 — High Speed Test Label

5. Locate pressure ports or pitot tubes in the return duct and supply duct to measure external static pressure. See Fig. 26 for typical locations.
6. Restore unit power.
7. Set the space thermostat to FAN CONT.
8. Check the motor speed with stroboscope or similar tool. Motor shaft speed must be in 1,725 to 1,760 rpm (28.8 to 29.3 rps) range for High Speed.
9. Replace the fan access panel.
10. Perform test and balance procedure.
11. Adjust the supply fan speed according to base unit instructions to deliver the project selection cfm value. Ensure the selection cfm value is not lower than the "Min cfm Per Fan Motor Type" for this unit-size as found in Tables 2-10 on page 4.

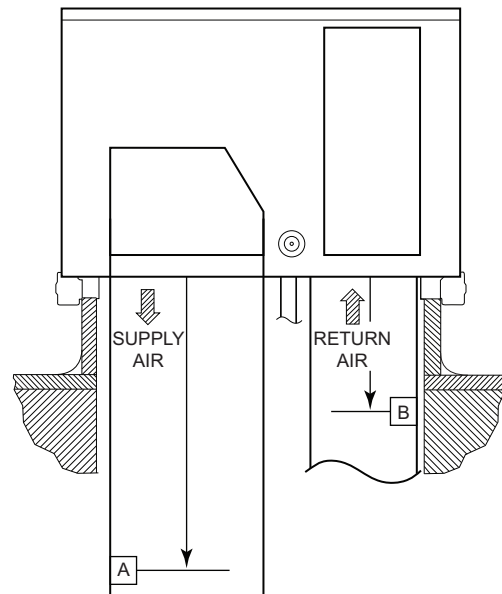
To restore the unit to ready-to-start condition, disconnect the unit power and lock-out/tag-out, set the space thermostat to FAN AUTO, remove the test pressure ports from the external duct locations, and disconnect the WHT and YEL wires. Replace the supply fan access panel. Restore unit power.

UNIT WITH ACCESSORY VFD KEYPAD

1. Set the space thermostat to SYSTEM OFF and FAN in AUTO.
2. Disconnect unit power. Lock-out/tag-out.
3. Open the fan access panel (see Fig. 7-24 for specific unit).
4. Locate pressure ports or pitot tubes in the return duct and supply duct to measure external static pressure. See Fig. 26 for typical locations.

5. Restore unit power.
6. Set the space thermostat to FAN CONT.
7. At the VFD keypad, tap the HAND key and then tap the UP arrow button to increase the motor speed until 60.0 is displayed on the display screen.
8. Check the motor speed with stroboscope or similar tool. Motor shaft speed must be in 1,725 to 1,760 rpm (28.8 to 29.3 rps) range for High Speed.
9. Replace the fan access panel.
10. Perform Test and Balance procedure.
11. Adjust the supply fan speed according to base unit instructions to deliver the project selection cfm value. Ensure the selection cfm value is not lower than the "Min cfm Per Fan Motor Type" for this unit-size as found in Tables 2-10 on page 4.

To restore the unit to ready-to-start condition, tap the DOWN arrow button to reduce motor speed until the 40.0 is displayed on the display screen and then tap the AUTO key. Disconnect the unit power and lock-out/tag-out, set the space thermostat to FAN AUTO. Remove the test pressure ports from the external duct locations. Restore unit power.



AHRI PRESSURE LOCATIONS					
MODEL	SIZES	SUPPLY AIR [A]		RETURN AIR [B]	
		in.	mm	in.	mm
48/50HC	07-12	43.5	1100	12	310
	14	64.5	1640	14	350
	17-28	83.0	2110	19	490
48/50TC	07	32.0	830	10	260
	08-14	43.5	1100	12	310
	16	64.5	1640	14	350
50HCQ	17-30	83.0	2110	19	490
	07-09	43.5	1100	12	310
	12	44.5	1130	13	330
50TCQ	07	32.0	830	10	260
	08-12	43.5	1100	12	310
	14	44.5	1130	14	350
	17-24	83.0	2110	19	490

Fig. 26 — Measuring External Static Pressure — Distance Below Unit Base

SERVICE

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution will result in equipment damage.

DO NOT exceed the recommended minimum Hz or cfm settings. Operating these units at a Hz setting below 40 Hz or at a cfm below the minimums listed in Tables 2-10 (page 4) will result in damage to the unit.

Figures 7-24 show the location of the VFD option in the various units covered by this document.

SAV™ Option Components

The SAV factory option is comprised of three major components and related connecting harnesses:

1. Fan Speed Relay Board
2. Variable Frequency Drive
3. Indoor Fan Motor, designed for use with VFD

Fan Speed Relay Board

This board (Part Number: HK50ZA002) is designated as the VFD Fan Board on the unit wiring diagram labels. It is a small (3.0 x 3.12 in., 76 x 79 mm) printed circuit board with four SPDT control relays. See Fig. 27. There is no software on this board. The relay board is located in the unit's main control box; refer to unit label diagram for Component Location view.

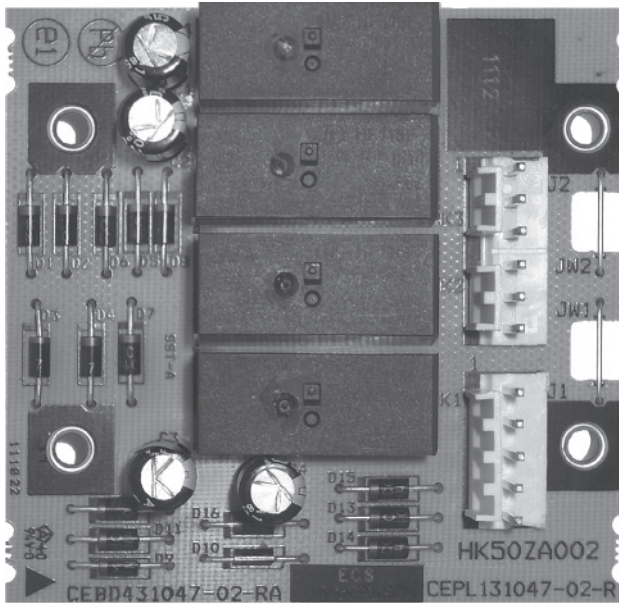


Fig. 27 — VFD Fan Board

The board is arranged in two separate circuits with individual pin connectors. Connector J1 is connected to the 24-vac input signal circuit with the four relay coils. Connector J2 is connected to the 24-vdc output circuit that connects to the VFD's terminal strip. See Fig. 29 (on page 20) for a simplified connection schematic for Fan Speed Relay board and the VFD.

In this SAV application, there are three inputs to the relay board, originating from the space thermostat's G, Y2 and W1 terminals. An input from terminal G (for continuous fan operation for ventilation or from a Y1 call) will result in the VFD starting the indoor fan motor and running the motor at LOW speed. An input from either Y2 or W1 will result in the VFD running the indoor fan motor at HIGH speed. See Table 11 for relay operation for each unit mode. Relay K4 is not used in this 2-speed application.

Table 11 — Two-Speed Configuration Logic (Thermostat Control)

INPUT	RELAY COIL STATUS			CONTROLLING OUTPUT	FAN MOTOR SPEED
	K1	K2	K3		
G	Off	Off	On	K3	Low (40 Hz)
Y1	Off	Off	On	K3	Low (40 Hz)
Y2	Off	On	On	K2	High (60 Hz)
W1	On	On	On	K1	High (60 Hz)

Configuration Jumpers

The relay board has two configuration jumpers, marked JW1 and JW2. For this 2-speed motor application, both jumpers must be cut and open (see Fig. 28). Factory-installed boards will have these jumpers cut. Service replacement boards have these jumpers intact; servicer must cut both jumpers when installing a new service board. Failure to cut these jumpers will cause continuous fan motor operation.

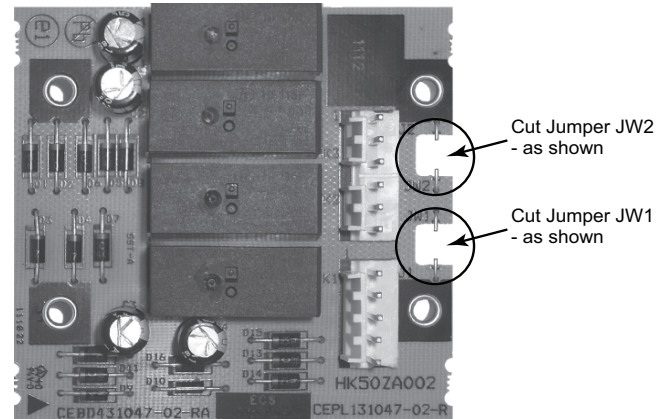


Fig. 28 — Jumpers JW1 and JW2 Cut for Two-Speed Fan Board Configuration

Variable Frequency Drive

The VFD switches the indoor fan motor speed between full/high speed (60 Hz motor operation) and reduced/low speed (40 Hz motor operation) as required by ASHRAE 90.1-2016 and IECC-2015 requirements for two-stage HVAC units. The VFD is factory-configured to match the current and power requirements for each motor selection and all wiring connections are completed by the factory; no field adjustments or connections are necessary.

While the basic VFD retains all of its standard capabilities, the SAV 2-speed application uses only a limited portion of these features to provide two discrete output speeds to the motor. Consequently the VFD is not equipped with a keypad. A keypad is available as an accessory (P/N: CRDISKIT001A00) ACH550/ACS320 or (P/N: CRDISKIT003A00) ACH580/ACH180 for field-installation or expanded service access to VFD parameter and troubleshooting tables. New ACH180 product line comes with an integrated/non-removable keypad.

⚠ CAUTION

CONFIGURATION OVERRIDE HAZARD

Do not use ABB or Carrier start-up assistant on this VFD application. Use of start-up assistant will override the factory VFD configurations.

The SAV control circuit inputs to the VFD are 24-vdc signals.

- For ACS320/ACH180 VFDs the voltage is sourced from the VFD at its terminal 9/21 (+24 V). 2-Speed Indoor Fan system speed inputs are received at terminals 13/9 (DI2) for low speed (40 Hz) motor operation and 14/10 (DI3) for high speed (60 Hz) motor operation. See Table 12 and Fig. 30-32.

- When neither input is present, the VFD will shut the fan motor off. There is no separate indoor fan contactor required in this application.

The VFD used in the SAV™ system has soft start capabilities to slowly ramp up the speeds, eliminating any high inrush of air volume during speed changes. It also has internal over current protection for the fan motor.

INDOOR FAN MOTOR

The indoor fan motors used with the VFD are specially manufactured for use with VFD power circuits. The motor winding insulation is specially formulated to resist breakdown due to voltage stress issues. The motor shaft includes grounding rings to prevent damage to bearings caused by grounding currents. Replace these motors with Factory Authorized Parts available from Replacement Components Division (RCD).

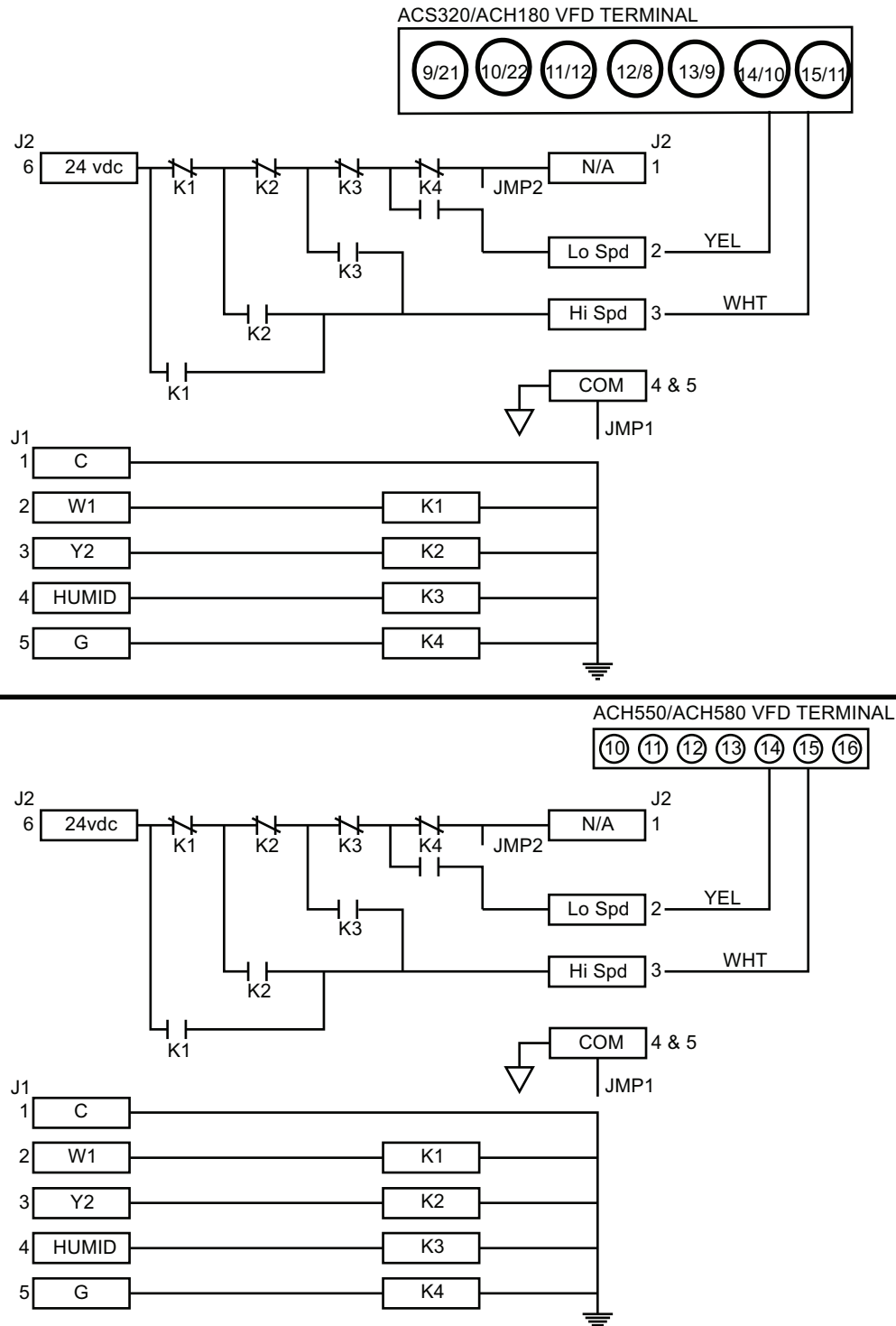


Fig. 29 — Connection Schematic - Fan Speed Relay Board and VFD

Table 12 — ACS320/ACH180 VFD Terminal Designations

TERMINAL	FUNCTION
U1/L1 V1/L2 W1/L3	Three-Phase Main Circuit Input Power Supply
U2/T1 V2/T2 W2/T3	Three-Phase AC Output to Motor, 0-v to Maximum Input Voltage Level
10/22 (GND) 11/12 (COMMON)	Factory-Supplied Jumper
9/21 (24 VDC) 12/8 (DI1)	Run (factory-supplied jumper)
9/21 (24 VDC) 15/11 (DI4)	Start Enable 1 (factory-supplied jumper). When opened, the drive goes to emergency stop.
13/9 (DI2) 14/10 (DI3)	Factory Wired for 24 vdc Input from Fan Speed Board

CONNECTION	TERM	DESCRIPTION
Digital I/O and Relay Output Connections		
	24 V	Aux. +24 vdc, max 200 mA
	DGND	Aux. voltage output common
	DI1	Stop (0) / Start (1)
	DI2	Not configured
	DI3	Not configured
	DI4	Start interlock 1 (1 = allow start)
	DCOM	Digital input common
	DO	Not energized
	DO COM	Digital output common
	DO SRC	Digital output auxiliary voltage
	AI1/DI5	Speed reference (0-10V)
	AGND	Analog input circuit common
	AI2	Not used
	AGND	Analog output circuit common
	AO	Output frequency (0-20 mA)
	10V	Ref. voltage +10 vdc
	SCREEN	Signal cable shield (screen)
Safe Torque Off (STO) (only on ACH180-04S)		
	S+	Safe torque off function. Connected at the factory.
	SGND	Drive starts only when both circuits are closed.
	S1	
	S2	
EIA-485 Modbus RTU		
	B+	Embedded Modbus RTU (EIA-485)
	A-	
	AGND	
	SHIELD	

Fig. 30 — Wiring Terminals

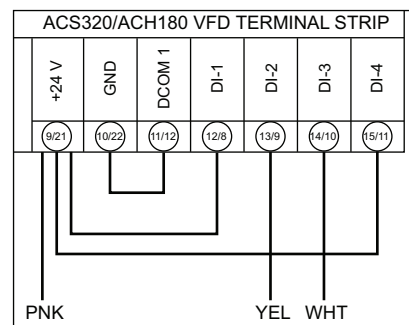


Fig. 31 — ACS320/ACH180 VFD Wiring

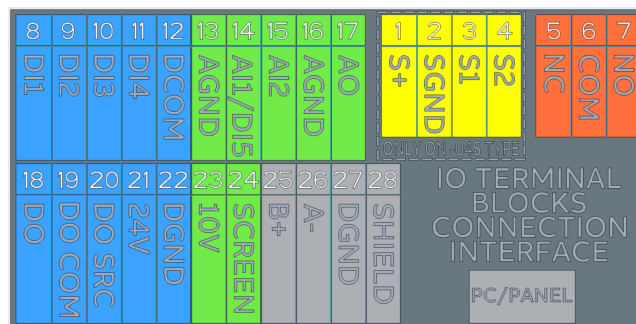


Fig. 32 — ACH180 Terminal Block Connections Label

Table 13 and Fig. 33 are provided here for informational and comparison purposes. These connections are explained in more detail in the section “ACH550/ACS320 VFD REMOTE KEYPAD” on page 66.

Table 13 — ACH550/580 VFD Terminal Designations

TERMINAL	FUNCTION
U1/L1 V1/L2 W1/L3	Three-Phase Main Circuit Input Power Supply
U2/T1/U V2/T2/V W2/T3/W	Three-Phase AC Output to Motor, 0-v to Maximum input voltage level
11 (GND) 12 (COMMON)	Factory-Supplied Jumper
10 (24 VDC) 13 (DI1)	Run (factory-supplied jumper)
10 (24 VDC) 16 (DI4)	Start Enable 1 (factory-supplied jumper). When opened, the drive goes to emergency stop.
14 (DI2) 15 (DI3)	Factory Wired for 24 vdc Input from Fan Speed Board

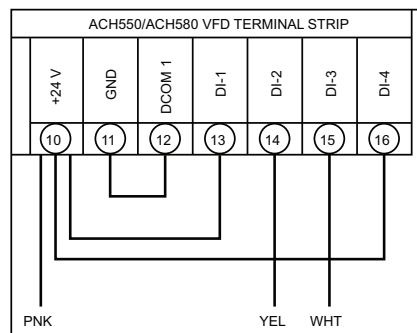


Fig. 33 — ACH550/580 VFD Wiring

The Central Terminal Board (CTB) is a large printed circuit board that is located in the unit control box. This printed circuit board contains multiple termination strips and connectors to simplify factory control box wiring and field control connections. Terminals are clearly marked on the board surface. See Fig. 34.

The CTB contains no software and no logic. But it does include seven configuration jumpers that are cut to configure the board to read external optional and accessory controls, including that the unit is a heat pump. Table 14 lists the control functions of the jumpers.

JUMPER	CONTROL FUNCTION	NOTE
JMP1	Phase Monitor	
JMP2	Occupancy Control	
JMP3	Smoke Detector Shutdown	
JMP4	Remote Shutdown	
JMP5	Heat Pump/Reheat	50HCQ, TCQ default: Cut
JMP6	Heat Pump/Reheat	50HCQ, TCQ default: Cut
JMP7	Heat Pump/Reheat	50HCQ, TCQ default: Cut

Jumpers JMP5, JMP6 and JMP7 are located in notches across the top of the CTB (see Fig. 34). These jumpers are intact on units with gas heat or electric heat. These jumpers are factory cut on all heat pump units and on units with Humidi-MiZer® (reheat) system option.

Factory-installed boards will have these jumpers factory-cut where required. Service replacement boards have these jumpers intact; servicer must cut these jumpers as indicated in Table 15 when installing a replacement board.

	UNIT TYPE / MODEL		
Configuration Jumper	Gas Heat 48HC, TC ^a	Electric Heat 50 HC, TC ^a	Heat Pump 50HCQ, TCQ
JMP5	Intact	Intact	Cut
JMP6	Intact	Intact	Cut
JMP7	Intact	Intact	Cut

NOTE(S):

- a. Unit without Humidi-MiZer (reheat) option.

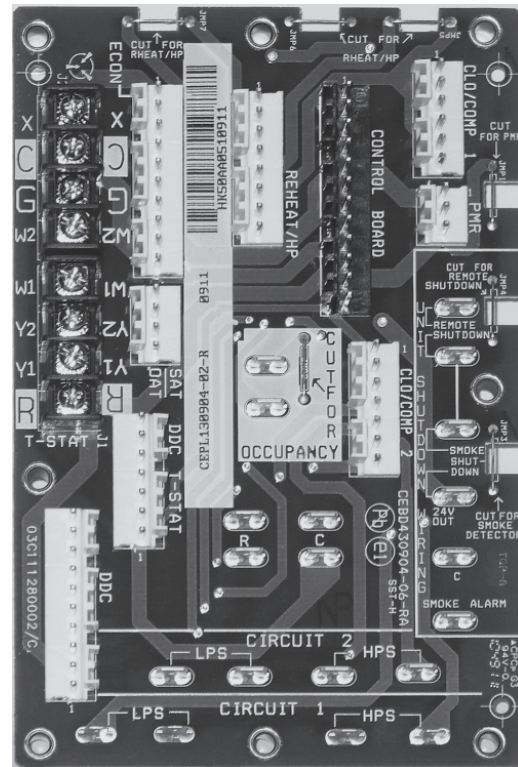


Fig. 34 — Central Terminal Board (CTB)

Table 16 details the fuse requirement for the VFD installed in 48/50TC, 50TCQ, 48/50HC, and 50HCQ units. Table 17 details the fuse requirement for the VFD installed in 40RU units. Check the control wiring diagram label on the specific unit in use for the fuse location.

Table 16 — VFD Fuse Requirements — 48/50TC, 50TCQ, 48/50HC, and 50HCQ Units

UNIT	HP	VOLTAGE	VFD ACS320 / ACH180 / ACH550 / ACH580	MOTOR	STANDARDIZED FUSE	HARNESS WIRE GAUGE ^a
48/50TC07-14 50TCQ07-12 48/50HC07-12 50HCQ07-09	1.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD56FR233	35A - JLN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD56FR463	20A - JJS-20	12
		575	HK30WA360 (550)	HD56FR579	10A - JJS-10	14
	2.4	208/230	HK30WA523 (320) / HK30WB505 (180)	HD56FE653	35A - JLN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD56FE653	20A - JJS-20	12
		575	HK30WA360 (550) / HK30WB369 (580)	HD56FE577	10A - JJS-10	14
	2.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FE654	35A - JLN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD58FE654	20A - JJS-20	12
	3.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD60FE656 HD58FR236	35A - JLN-35	10
		460	HK30WA534 (320) / HK30WB511 (180)	HD60FE656 HD58FR236	25A - JJS-25	12
		575	HK30WA361 (550) / HK30WB370 (580)	HD58FE577	10A - JJS-10	14
	4.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD60FK658	35A - JLN-36	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD60FK658	30A - JJS-30	12
		575	HK30WA362 (550)	HD60FE576 HD60FL576	15A - JJS-15	12
48/50TC16 50TCQ14 48/50HC14 50HCQ12	2.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FE654	35A - JLN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD58FE654	20A - JJS-20	12
		575	HK30WA360 (550) / HK30WB369 (580)	—	10A - JJS-10	14
	3.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD60FE656 HD58FR236	35A - JLN-35	10
		460	HK30WA534 (320) / HK30WB511 (180)	HD60FE656 HD58FR236	25A - JJS-25	12
		575	HK30WA361 (550)	HD58FE577	10A - JJS-10	14
	5.0	208/230	HK30WA524 (320) / HK30WB507 (180)	HD60FQ659	50A - JLN-50	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD60FK659	30A - JJS-30	10
		575	HK30WA362 (550) / HK30WB371 (580)	HD60FE576 HD60FL576 HD60FK577	15A - JJS-15	12
48/50TC17-30 50TCQ17-24 48/50HC17-28	2.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FE654	35A - JLN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD58FE654	20A - JJS-20	12
		575	HK30WA360 (550) / HK30WB369 (580)	—	10A - JJS-10	14
	3.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FR236	35A - JLN-35	10
		460	HK30WA534 (320) / HK30WB511 (180)	HD60FE656	25A - JJS-25	12
		575	HK30WA361 (550)	HD58FE577	10A - JJS-10	14
	4.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD60FK658	35A - JLN-35	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD60FK658	30A - JJS-30	12
		575	HK30WA362 (550) / HK30WB371 (580)	HD60FE576 HD60FL576	15A - JJS-15	12
	5.0	208/230	HK30WA524 (320) / HK30WB507 (180)	HD60FQ659	50A - JLN-50	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD60FQ659	30A - JJS-30	12
		575	HK30WA362 (550) / HK30WB371 (580)	HD60FE576 HD60FL576 HD60FK577	15A - JJS-15	12
	7.5	208/230	HK30WA524 (320) / HK30WB507 (180)	HD62FX654	50A - JLN-50	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD62FX654	30A - JJS-30	12
		575	HK30WA362 (550) / HK30WB371 (580)	HD62FL576	15A - JJS-15	12
	10.0	208/230	HK30WA525 (320) / HK30WB507 (180)	HD64FX655	50A - JLN-50	8
		460	HK30WA533 (320) / HK30WB513 (180)	HD64FX655	35A - JJS-35	12
		575	HK30WA363 (550) / HK30WB372 (580)	HD64FL576	15A - JJS-15	12

NOTE(S):

a. Harness wire gauge between control box and VFD.

Table 17 — VFD Fuse Requirements — 40RU Units

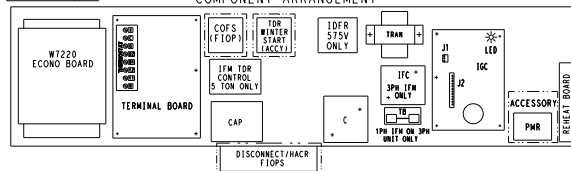
UNIT	HP	VOLTAGE	VFD ACS320 / ACH180 / ACH550 / ACH580	MOTOR	STANDARDIZED FUSE	HARNESS WIRE GAUGE ^a
40RU	1.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD56FR233	35A - JJN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD56FR463	20A - JJS-20	12
		575	HK30WA360 (550) / HK30WB369 (580)	HD56FR579	10A - JJS-10	14
	2.4	208/230	HK30WA523 (320) / HK30WB505 (180)	HD56FE653	35A - JJN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD56FE653	20A - JJS-20	12
		575	HK30WA360 (550) / HK30WB369 (580)	HD56FE577	10A - JJS-10	14
	2.9	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FE654	35A - JJN-35	10
		460	HK30WA530 (320) / HK30WB510 (180)	HD58FE654	20A - JJS-20	12
	3.7	208/230	HK30WA523 (320) / HK30WB505 (180)	HD58FR236 HD60FE656	35A - JJN-35	10
		460	HK30WA534 (320) / HK30WB511 (180)	HD58FR236 HD60FE656	25A - JJS-25	12
		575	HK30WA361 (550) / HK30WB370 (580)	HD58FE577	10A - JJS-10	14
	5.0	208/230	HK30WA524 (320) / HK30WB507 (180)	HD60FQ659	50A - JJN-50	10
		460	HK30WA532 (320) / HK30WB512 (180)	HD60FQ659	30A - JJS-30	10
		575	HK30WA362 (550) / HK30WB371 (580)	HD60FK577	15A - JJS-15	12
	7.5	208/230	HK30WA524 (320) / HK30WB507 (180)	HD62FX654	50A - JJN-50	8
		460	HK30WA532 (320) / HK30WB512 (180)	HD62FX654	30A - JJS-30	12
		575	HK30WA362 (550) / HK30WB371 (580)	HD62FL576	15A - JJS-15	12
	10.0	208/230	HK30WA525 (320) / HK30WB507 (180)	HD64FX655	50A - JJN-50	8
		460	HK30WA533 (320) / HK30WB513 (180)	HD64FX655	35A - JJS-35	12
		575	HK30WA363 (550) / HK30WB372 (580)	HD64FL576	15A - JJS-15	12

NOTE(S):

a. Harness wire gauge between control box and VFD.

Control and Power Wiring Diagrams

See Fig. 35-41 for examples of typical unit wiring diagrams. For details pertaining to a specific unit, see the control and power wiring diagram labels on the unit.



NOTE: 1. TERMINAL BOARD SCHEMATIC LAYOUT DOES NOT MATCH ACTUAL TERMINAL BOARD TO SIMPLIFY CIRCUIT TRACES.
2. TERMINAL BOARD JUMPERS 5, 6 AND 7 ARE CUT FOR REHEAT UNITS.
3. ENSURE DESIGNATED JUMPERS ON TERMINAL BOARD ARE CUT WHEN ADDING SMOKE DETECTORS, PHASE LOSS RELAY, OCCUPANCY AND REMOTE SHUTDOWN.
4. IFC OCCURS FOR 208/230 AND 460 VOLT UNIT WITH 3 PHASE INDOOR FAN MOTOR, AND ALL 575 VOLT WITHOUT DIRECT DRIVE INDOOR FAN MOTOR.

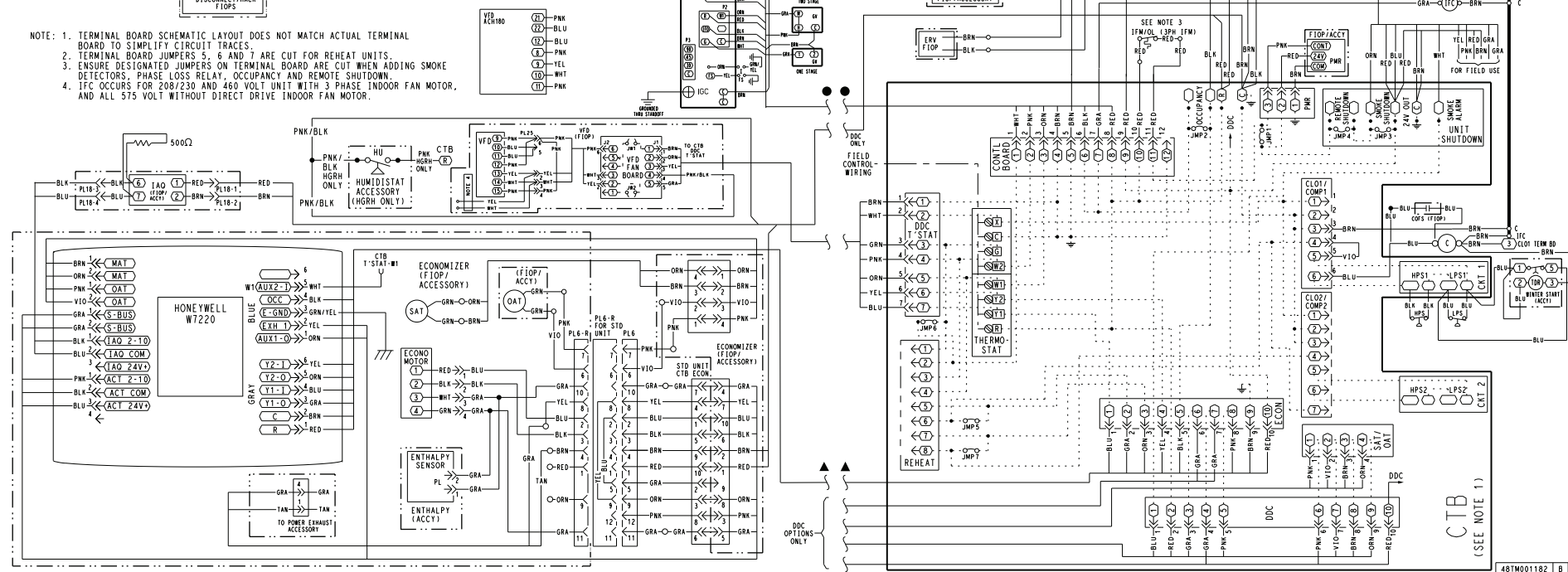


Fig. 35 — Typical Wiring Diagram - Single Package Rooftop Unit (48TC*07 with ACS320/ACH180 VFD shown)

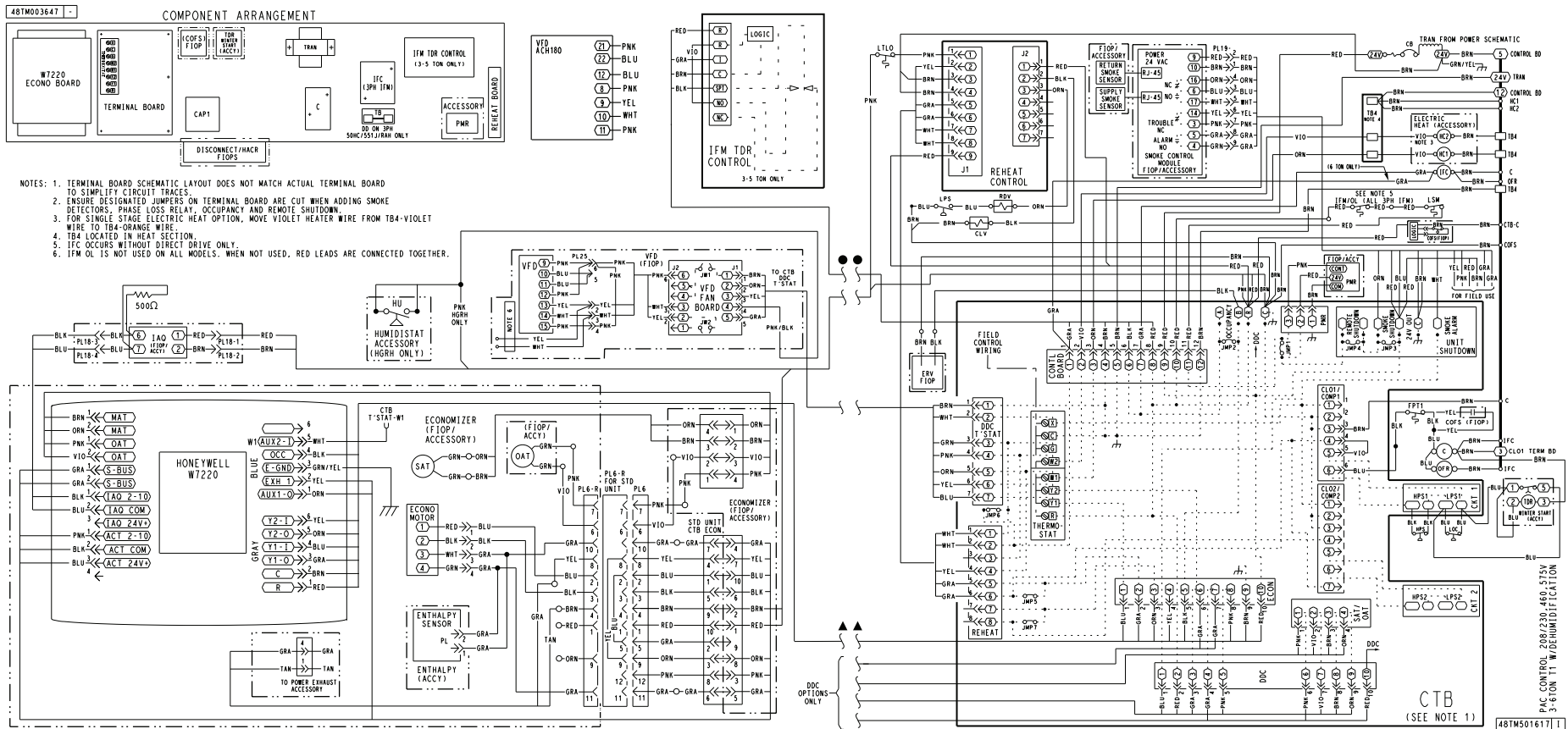


Fig. 36 — Typical Wiring Diagram - Single Package Rooftop Unit (50TC*07 with ACS320/ACH180 VFD shown)

Fig. 37 — Typical Wiring Diagram - Single Package Rooftop Unit (48HC*14 with ACH550/ACH580 VFD shown)

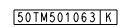


Fig. 38 — Typical Wiring Diagram - Single Package Rooftop Unit (50HC*14 with ACH550/ACH580 VFD shown)

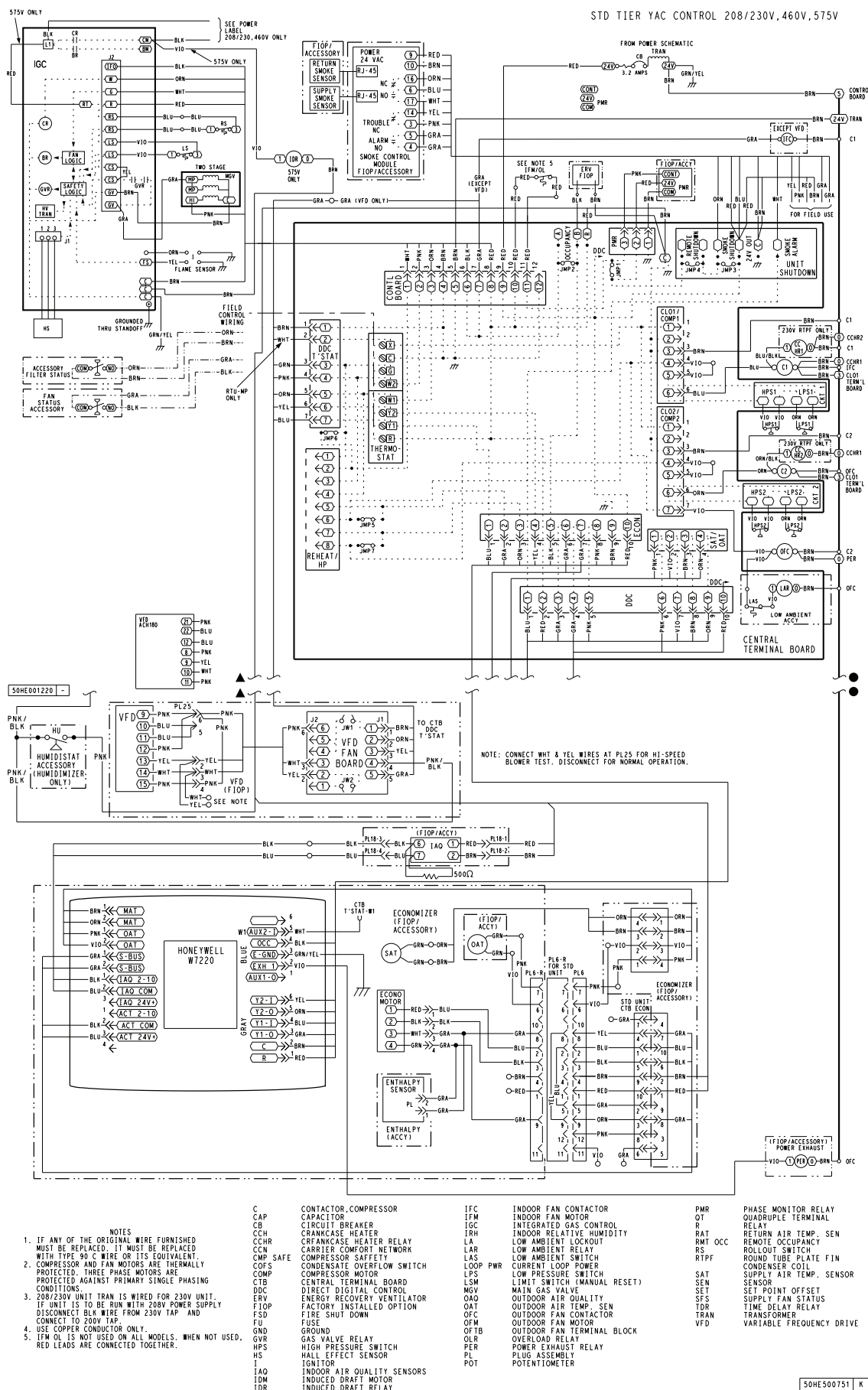


Fig. 39 — Typical Wiring Diagram - Single Package Rooftop Unit (48TC*17-30 and 48HC*17-28 no Comfort Link with ACS320/ACH180 VFD shown)



VFD MAINTENANCE

If installed in an appropriate environment, the VFD requires very little maintenance.

Table 18 lists the routine maintenance intervals recommended by Carrier.

Table 18 — Maintenance Intervals

MAINTENANCE	INTERVAL
Heat Sink Temperature Check and Cleaning	Every 6 to 12 Months (depending on the dustiness of the environment)
Remote Keypad Battery Change	Every Ten Years

Heat Sink Cleaning

The heat sink fins accumulate dust from the cooling air. In a normal environment check the heat sink annually, in a dusty environment check more often.

Use the following procedure to clean the heat sink on ACH550 VFDs:

1. Turn off and lock out unit power.
2. Remove the drive cover (see Fig. 42).
3. Press together the retaining clips on the top cover and lift (see Fig. 43).

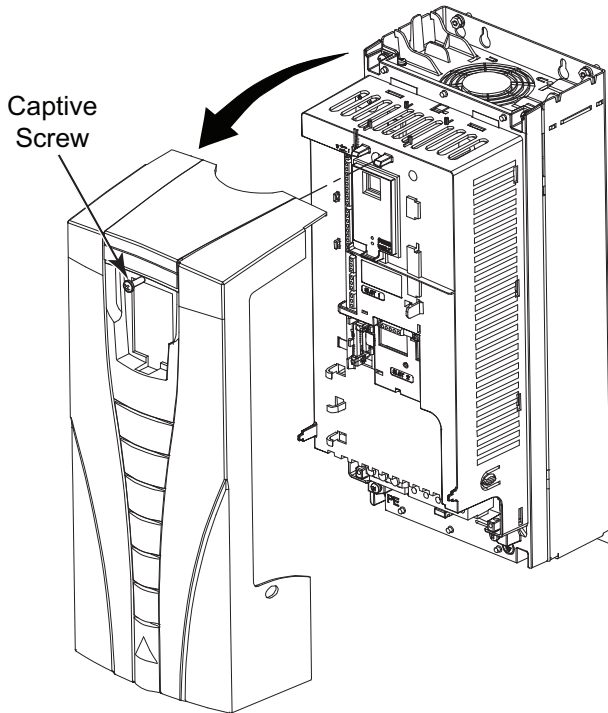


Fig. 42 — Remove ACH550 VFD Front Cover

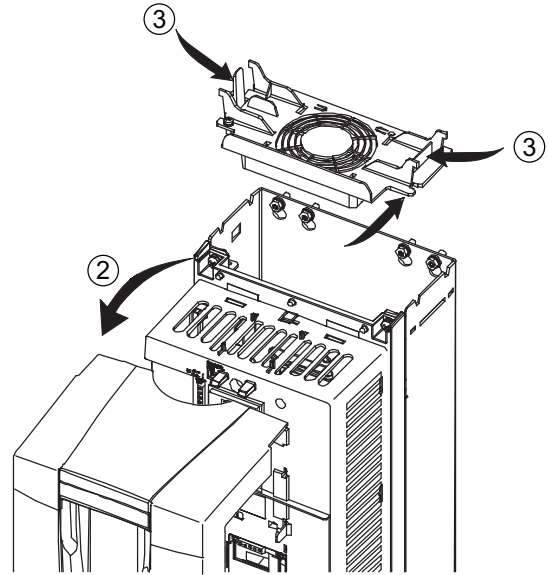


Fig. 43 — Remove Top Cover on ACH550 VFD

4. Blow clean compressed air (not humid) from bottom to top while simultaneously using a vacuum cleaner at the air outlet to trap the dust.
5. Replace the cooling fan.
6. Replace the drive cover.
7. Restore power.

Use the following procedure to clean the heat sink on ACH580 VFDs:

1. Turn off and lock out unit power.
2. Remove the drive cover (see Fig. 49).
3. Remove the top fan cover (see Fig. 44).
4. Blow clean compressed air (not humid) from bottom to top while simultaneously using a vacuum cleaner at the air outlet to trap the dust.
5. Replace the top fan cover.
6. Replace the drive cover.
7. Restore power.

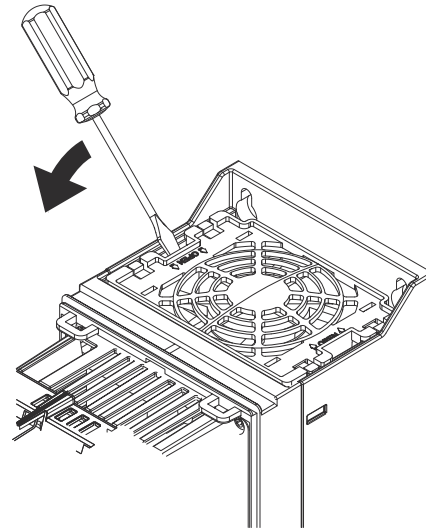


Fig. 44 — Remove Top Cover/Fan Assembly on ACH580 VFD

Use the following procedure to clean the heat sink on ACS320 VFDs:

1. Turn off and lock out unit power.
2. Insert a small straight blade screwdriver into the slot and press in to release the top cover as shown in Fig. 45.

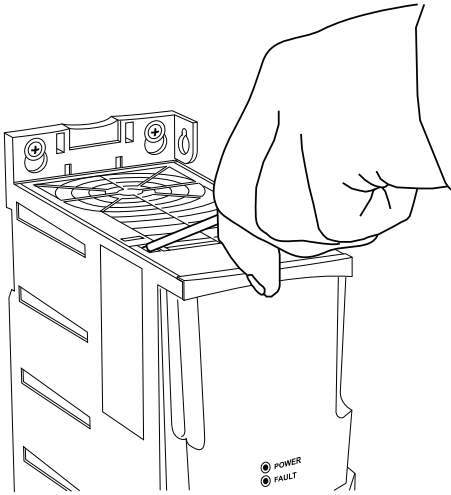


Fig. 45 — Remove Top Cover on ACS320 VFD

3. Blow clean compressed air (not humid) from top of ACS320 while simultaneously using a vacuum cleaner at the base to trap the dust.
4. Replace the top cover.
5. Restore power.

Fan Replacement

The life span of the drive's cooling fan(s) depends on the drive usage and ambient temperature.

Fan failure can be predicted by the increasing noise from fan bearings and the gradual rise in the heat sink temperature in spite of heat sink cleaning. If the drive is operated in a critical part of a process, fan replacement is recommended once these symptoms start appearing. Replacement fans are available from Carrier.

ACH580 MAIN FAN REPLACEMENT

To replace the main fan for frame sizes R1 and R2, perform the following (see Fig. 46-47):

1. Remove power from drive. Wait for 5 minutes and then make sure by measuring that there is no voltage.
2. Remove drive cover.
3. Press together the retaining clips on the fan cover and lift. Disconnect the fan cable.
4. Install the new fan by reversing Steps 2 to 4.
5. Restore power.

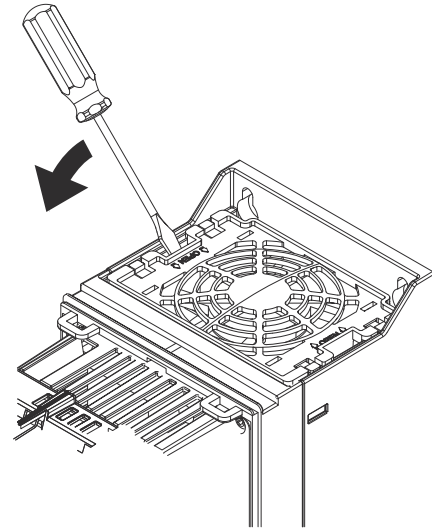


Fig. 46 — Remove Main Fan Fingerguard

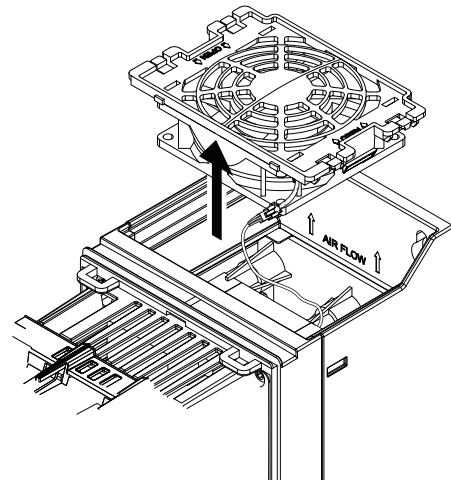


Fig. 47 — Remove Main Fan

ACH580 AUXILIARY COOLING FAN REPLACEMENT

To replace the internal enclosure fan for frame sizes R1 and R2 perform the following (see Fig. 48-50):

1. Remove power from drive. Wait for 5 minutes and then make sure by measuring that there is no voltage.
2. Remove the remote keypad, if installed. See Fig. 48.
3. Remove the front cover by loosening the retaining screw (see Fig. 49).
4. Unplug fan power supply wires from the drive (see Fig. 50).
5. Remove the fingerguard: Insert a screwdriver into the hole of the fingerguard (see Fig. 50).
6. Unplug the fan power supply wires from the drive (see Fig. 50).
7. Pull off the fan.
8. Install the new fan in reverse order.

NOTE: Make sure that the arrow on the fan points to the same direction as the arrow on the drive frame.

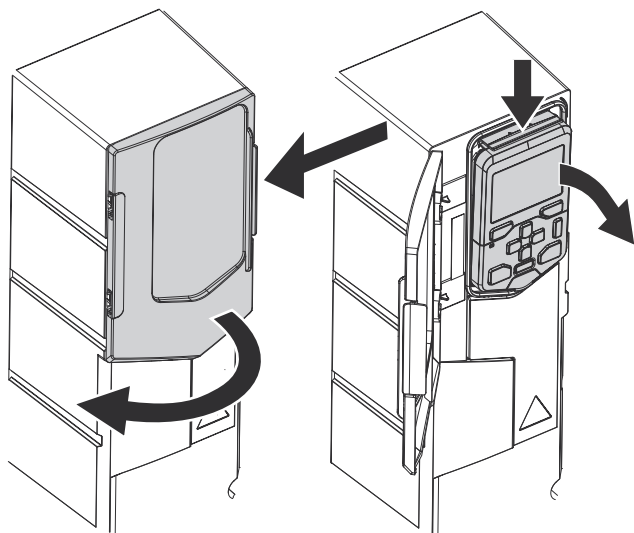


Fig. 48 — Open Keypad Cover and Remove Keypad

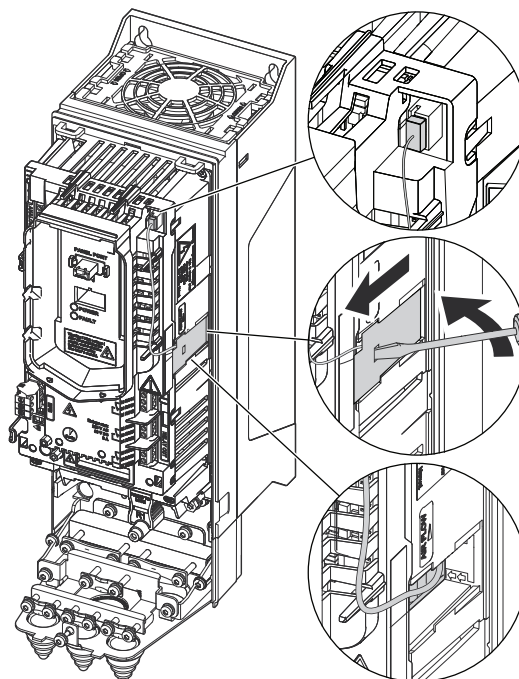


Fig. 50 — Remove Auxiliary Fan

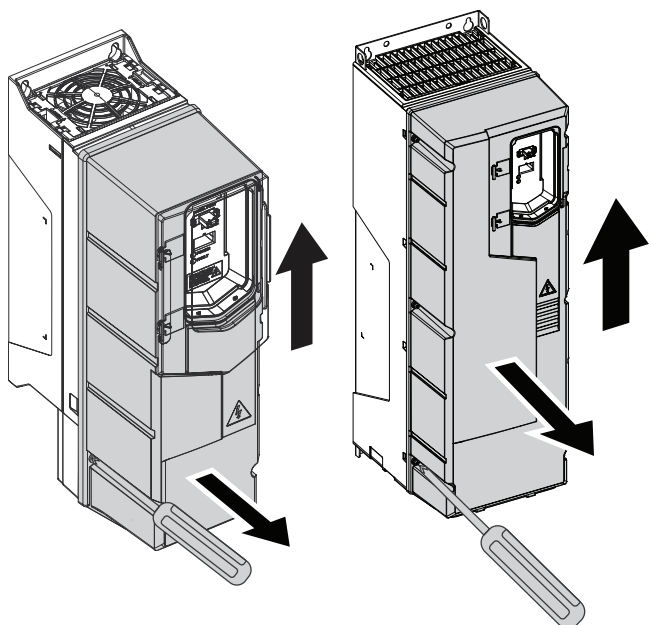


Fig. 49 — Remove Drive Cover (R1 and R2 Frame Sizes)

ACH550 FAN REPLACEMENT

To replace the fan perform the following

1. Remove power from drive. Wait for 5 minutes and then make sure by measuring that there is no voltage.
2. Remove drive cover (see Fig. 42 on page 32).
3. Press the lever located on the left side of the fan mount and rotate the fan up and out (see Fig. 51).
4. Disconnect the fan cable (see Fig. 51).
5. Reinstall the fan in reverse order.
6. Restore power.

NOTE: Make sure that the arrow on the fan points to the same direction as the arrow on the drive frame.

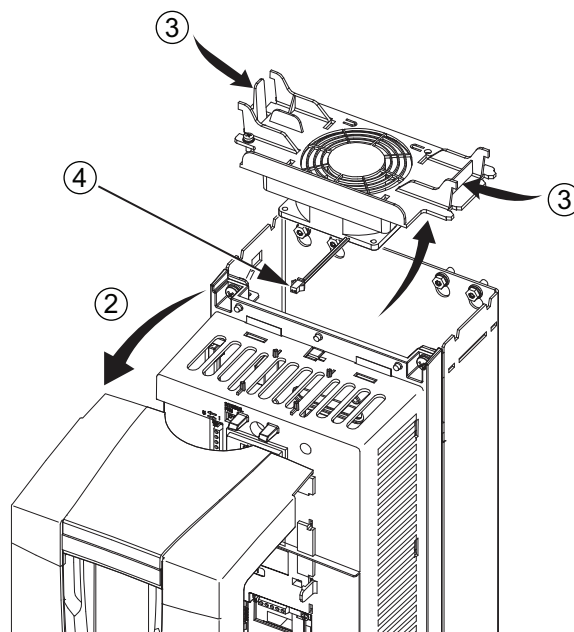


Fig. 51 — ACH550 Fan Replacement

ACS320 FAN REPLACEMENT

To replace the fan perform the following:

1. Remove power from drive. Wait for 5 minutes and then make sure by measuring that there is no voltage.
2. Insert a small straight blade screwdriver into the slot and press in to release the top cover as shown in Fig. 45.
3. Free the fan cable from the clip in the drive frame (see Fig. 52).
4. Lift the holder from the hinges (see Fig. 52).

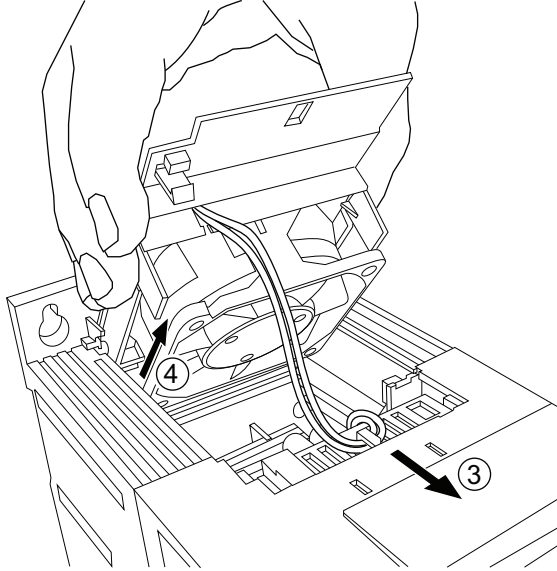


Fig. 52 — Remove Fan Holder and Free Fan Cable

5. Disconnect the fan cable. The fan cable connector is located on the control board that is against the front of the drive.
6. Free the fan cable from the clip in the fan holder (see Fig. 53).
7. Remove the fan from the holder (see Fig. 53).

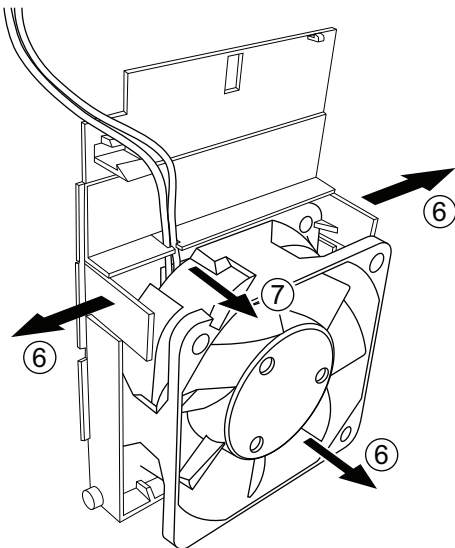


Fig. 53 — Remove Fan from Holder

8. Install the new fan in reverse order.
9. Restore power.

REPLACING THE COOLING FANS

Parameter 05.04 Fan on-time counter shows the running time of the cooling fan. After you replace the fan, reset the fan counter. Refer to the firmware manual.

You can get replacement fans from ABB.

1. Stop the drive and lockout unit energy.
2. Press the two clips by fingers to open the fan cover. See Fig. 54.
3. Carefully lift the fan cover out of the drive.

NOTE: The fan cover holds the cooling fan.

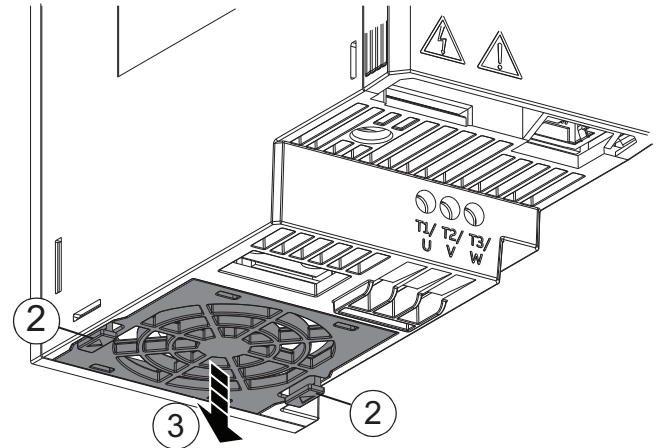


Fig. 54 — Lifting the Fan Cover Out of Drive

4. Disconnect the fan power cable. See Fig. 55.

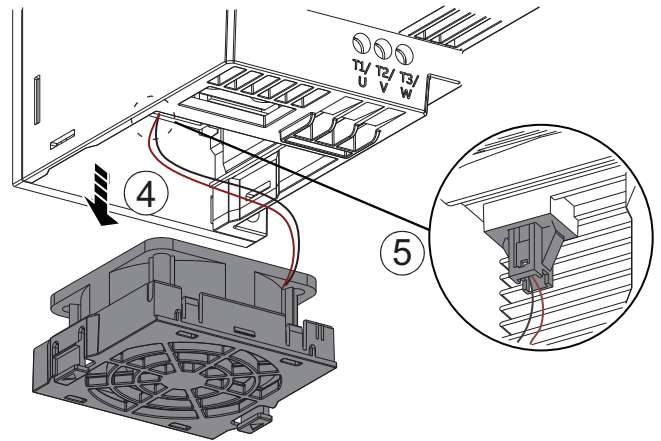


Fig. 55 — Disconnecting the Fan

5. Free the fan clips and remove the fan from the fan cover.
6. Install the new fan into the fan cover. Make sure that the air flow is in the correct direction. The air flows in from the bottom of the drive and out from the top of the drive. As shown in the following figure, the side with the fan power cable is aligned to the double bars sign on the fan cover. See Fig. 56.

Bypass the VFD

WARNING

Bypassing the VFD is not recommended. This is a temporary procedure to provide cooling or heating operation when a new VFD is required. When in this bypass mode the fire shut down will not turn off the blower and it will continue to run. The bypass should only be used for a short duration until a new VFD has been received.

The factory-installed VFD is wired and agency approved as outlined in this manual. This VFD is utilized to help provide added efficiencies and comfort during the cooling operation.

If there is an occasion where the VFD has mis-functioned and temporary cooling/operation is required, bypass the VFD as shown in Fig. 59-60.

To bypass ACS320/ACH180 VFD on fused units – 48/50TC 07-14, 50TCQ 07-12, 48/50HC 07-12, 50HCQ 08-09, and 40RU:

1. Turn off and lock out unit power.
2. Disconnect the connector linking the fuse to the VFD.
3. Disconnect the connector between the VFD and the indoor fan motor.
4. Disconnect the ground wires at the base of the VFD.
5. Remove the VFD, if required.
6. Replace standard fuses with Slow Blow fuses.
7. Connect the lead from the fuse to the lead from the indoor fan motor.
8. Connect the ground wire from the indoor fan motor to the fan deck.
9. Restore power.

To bypass ACH550/580 VFD on non-fused units – 48/50TC 16-30, 50TCQ 14-24, and 48/50HC 17-28:

1. Turn off and lock out unit power.
2. Disconnect the connection between the control box and the VFD.
3. Disconnect the connection between the indoor fan motor and the VFD.
4. Disconnect the ground wires at the base of the VFD.
5. Remove the VFD, if required.
6. Connect the lead from the control box to the lead from the indoor fan motor.
7. Attach the ground wire leading from the fan motor to the fan deck.
8. Restore power.

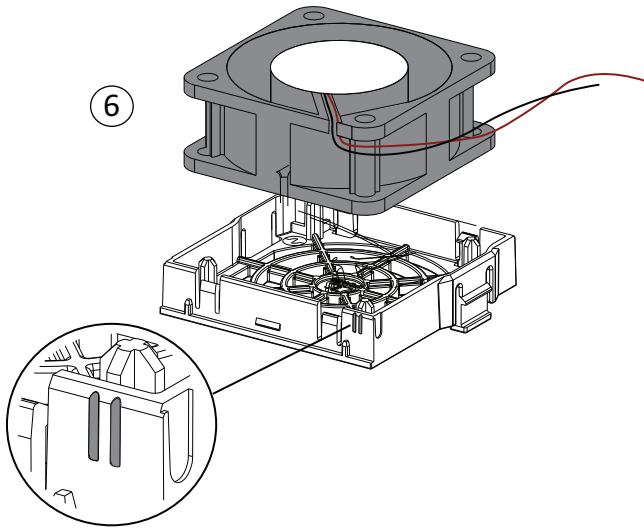


Fig. 56 — Install New Fan into Fan Cover

7. Connect the fan power cable. See Fig. 57.

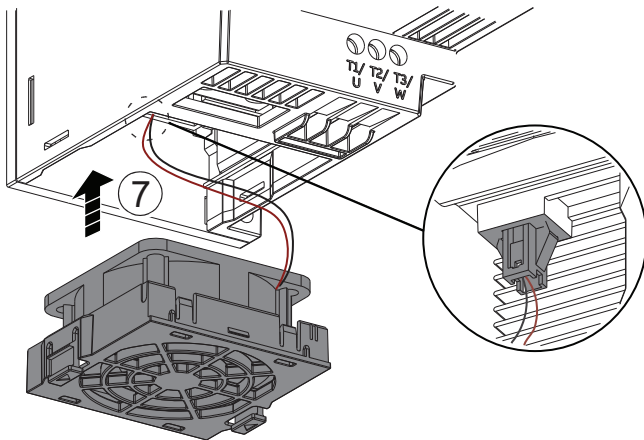


Fig. 57 — Connect Fan To Power

8. Carefully put the fan cover into position in the drive. Make sure that the fan power cable is routed correctly. Push the cover to lock into position. See Fig. 58.

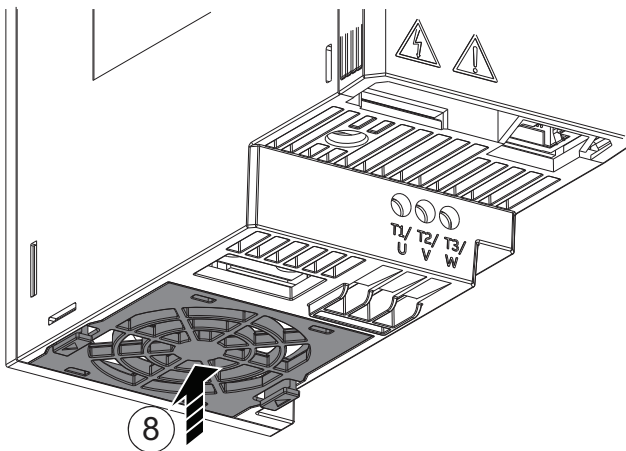
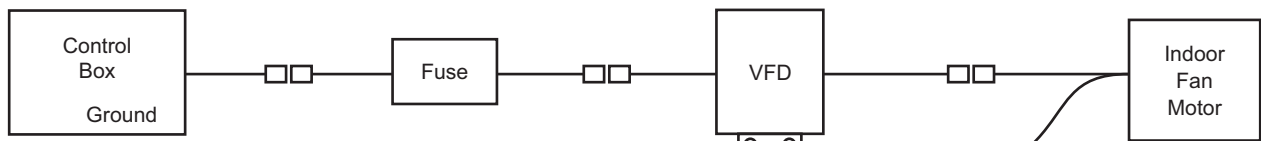
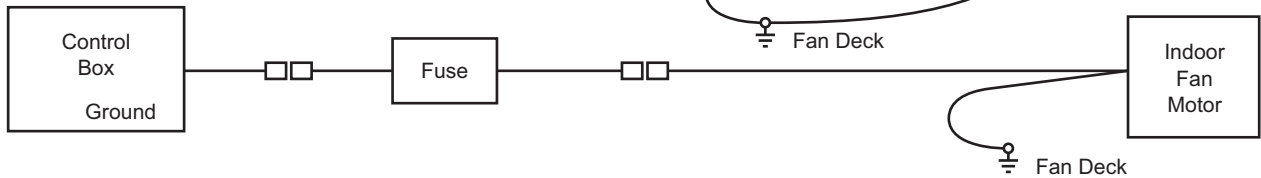


Fig. 58 — Place Fan Cover Back into Drive

Unit with Fuse and VFD



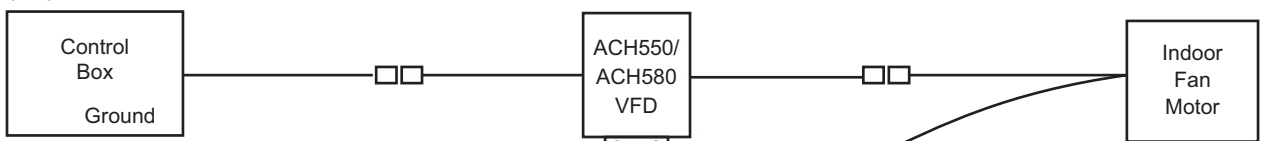
Unit without VFD



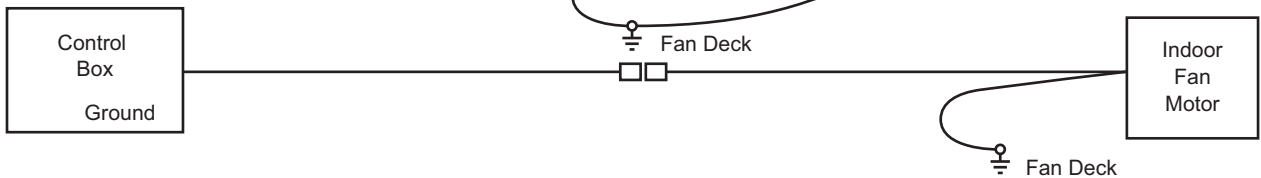
NOTE: Standard fuses need to be replaced with Slow Blow fuses for bypass.

**Fig. 59 — To Bypass ACS320/ACH180 VFD on Fused Units —
48/50TC 07-14, 50TCQ 07-12, 48/50HC 07-12, 50HCQ 08-09 and 40RU Units**

Unit with VFD



Unit without VFD



**Fig. 60 — To Bypass ACH550/580 VFD on Non-fused Units —
48/50TC 16-30, 50TCQ 14-24 and 48/50HC 17-28 Units**

VFD PARAMETERS

The parameters for the VFDs are listed in the following tables:

- Table 19 — ACS320/ACH180 VFD common parameters for 48/50 units with electromechanical controls
- Table 20 — ACS320/ACH180 Parameters for 48/50 units with electromechanical controls
- Table 21 — ACS320/ACH180 VFD common parameters for 48/50 units with I/O Flex controls
- Table 22 — ACS320/ACH180 Parameters for 48/50 units with I/O Flex controls
- Table 23 — ACS320/ACH180 VFD common parameters for 40RU units with electromechanical controls
- Table 24 — ACS320/ACH180 Parameters for 40RU units with electromechanical controls
- Table 25 — ACS320/ACH180 VFD common parameters for 40RU units with I/O Flex controls
- Table 26 — ACS320/ACH180 Parameters for 40RU units with I/O Flex controls
- Table 27 — ACH550/580 VFD common parameters for 48/50 units with electromechanical controls
- Table 28 — ACH550/580 Parameters for 48/50 units with electromechanical controls
- Table 29 — ACH550/580 VFD Parameters for 40RU Units with VFD Fan Speed Relay Board
- Table 30 — ACH550/580 Parameters for 40RU units with I/O Flex controls
- Table 31 — ACH550/580 common parameters for 48/50 units with ComfortLink controls

Table 19 — ACS320/ACH180 VFD Common Parameters for 48/50 Units with Electromechanical Controls

PARAMETERS ACS320 / ACH180	DESCRIPTION	SETTING ACS320 / ACH180
9802 / 58.01	COMM PROT Sel	Not Selected / (0)
9907 / 99.08	Motor Nominal Frequency	60 Hz
1001 / 20.01	EXT1 Commands	—
1102 / 19.11	EXT1/EXT2 Sel	—
1103 / 28.11	REF 1 Select	—
1201 / 28.22	Const Speed Sel	DI2,3 / (3)
1201 / 28.23	Const Speed Sel	DI2,3 / (4)
1202 / 28.26	Const Speed 1	40 Hz
1203 / 28.27	Const Speed 2	60 Hz
1204 / 28.28	Const Speed 3	60 Hz
1205 / 28.29	Const Speed 4	—
1401 / 10.24	Relay Output 1	(16) FLT / Fault/Warning (16)
1403 / NA	Relay Output 3	Not Selected
1501 / 13.12	AO1 Content Sel	—
1601 / 20.40	Run Enable	—
1608 / 20.41	N/A	—
1611 / NA	Parameter View	3 / NA
2007 / 30.13	Minimum Frequency	0 Hz
2008 / 30.14	Maximum Frequency	60 Hz
2101 / 21.19	Start FCN	(1) Auto / (2)
2102 / 21.03	Stop FCN	(1) Coast / (0)
2201 / 28.71	ACCEL/DECEL	(0) Not Sel / (0)
2202 / 28.72	ACCEL	30 sec.
2203 / 28.73	DECEL	30 sec.
2603 / 97.13	IR COMP Volt	0 Volts
2606 / 97.01	Switching Freq	4 kHz / (4)
3102 / 31.15	Trial Time	300.0 sec.
3103 / 31.16	Delay Time	6.0 sec.
3104 / 31.12	AR Overcurrent	Enabled / Enabled/Bit 0 (1)
5101 / NA	FBA Type	—
5201 / NA	Station ID	—
5202 / NA	Baud Rate	—
5203 / NA	Parity	—
5301 / 58.02	EFB Protocol ID	—
5302 / 58.03	EFB Station ID	—
5303 / 58.04	EFB Baud Rate	—
5304 / 58.05	EFB Parity	—
5305 / 58.24	EFB CTRL Profile	—

LEGEND

— - HVAC Default, field does not require change.

Table 20 — ACS320/ACH180 VFD Parameters, for 48/50 Units with Electromechanical Controls

VFD PARAMETERS ACS320 / ACH180	PKG ABB	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
48TM003773-DATA / 48TM009827-DATA	48TM003773	HD56FR233	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 1.7 Hp 230-v
48TM003776-DATA / 48TM009830-DATA	48TM003776	HD56FR463	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 1.7 Hp 460-v
48TM003772-DATA / 48TM009826-DATA	48TM003772	HD56FE653	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.4 Hp 230-v
48TM003784-DATA / 48TM009835-DATA	48TM003784	HD56FE653	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.4 Hp 460-v
48TM003782-DATA / 48TM009833-DATA	48TM003782	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.9 Hp 230-v
48TM003777-DATA / 48TM009831-DATA	48TM003777	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
48TM003774-DATA / 48TM009828-DATA	48TM003774	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 3.7 Hp 230-v
48TM003783-DATA / 48TM009834-DATA	48TM003783	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	SRT 3.7 Hp 460-v
48TM003775-DATA / 48TM009829-DATA	48TM003775	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 5.3 Hp 230-v
48TM003778-DATA / 48TM009832-DATA	48TM003778	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	SRT 5.3 Hp 460-v
50TM001206-DATA / 50TM003500-DATA	50TM001206	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.9 Hp 230-v
50TM001211-DATA / 50TM003504-DATA	50TM001211	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
50TM001209-DATA / 50TM003502-DATA	50TM001209	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 3.7 Hp 230-v
50TM001210-DATA / 50TM003503-DATA	50TM001210	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	SRT 3.7 Hp 460-v
50TM001208-DATA / 50TM003501-DATA	50TM001208	HD60FQ659	HK30WA524 / HK30WB507	7.5 / 10.0	SRT 5.0 Hp 230-v
50TM001212-DATA / 50TM003505-DATA	50TM001212	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	SRT 5.0 Hp 460-v
50HE001312-DATA / 50HE007829-DATA	50HE001312	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 2.9 Hp 230-v
50HE001316-DATA / 50HE007833-DATA	50HE001316	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
50HE001313-DATA / 50HE007830-DATA	50HE001313	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 3.7 Hp 230-v
50HE001317-DATA / 50HE007834-DATA	50HE001317	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	MRT 3.7 Hp 460-v
50HE001314-DATA / 50HE007831-DATA	50HE001314	HD60FQ659	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 5.0 Hp 230-v
50HE001318-DATA / 50HE007835-DATA	50HE001318	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
50HE001315-DATA / 50HE007832-DATA	50HE001315	HD62FX654	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 7.5 Hp 230-v
50HE001319-DATA / 50HE007836-DATA	50HE001319	HD62FX654	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 7.5 Hp 460-v
50HE001320-DATA / 50HE007837-DATA	50HE001320	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 5.3 Hp 230-v
50HE001321-DATA / 50HE007838-DATA	50HE001321	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.3 Hp 460-v
50HE402586-DATA / 50HE007858-DATA	50HE402586	HD64FX655	HK30WA525 / HK30WB507	10.0 / 10.0	MRT 10.0 Hp 230-v
50HE402591-DATA / 50HE007859-DATA	50HE402591	HD64FX655	HK30WA533 / HK30WB513	10.0 / 10.0	MRT 10.0 Hp 460-v
50H4002326-DATA / 50HE007828-DATA	50H4002326	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
50HE003081-DATA / 50HE007848-DATA	50HE003081	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 2.9 Hp 230-v
50HE003082-DATA / 50HE007849-DATA	50HE003082	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
50HE003084-DATA / 50HE007850-DATA	50HE003084	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 3.7 Hp 230-v
50HE003085-DATA / 50HE007851-DATA	50HE003085	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	MRT 3.7 Hp 460-v
50HE003086-DATA / 50HE007852-DATA	50HE003086	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 5.3 Hp 230-v
50HE003087-DATA / 50HE007853-DATA	50HE003087	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.3 Hp 460-v
50HE003089-DATA / 50HE007854-DATA	50HE003089	HD60FQ659	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 5.0 Hp 230-v
50HE003090-DATA / 50HE007855-DATA	50HE003090	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
50HE003092-DATA / 50HE007856-DATA	50HE003092	HD62FX654	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 7.5 Hp 230-v
50HE003093-DATA / 50HE007857-DATA	50HE003093	HD62FX654	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 7.5 Hp 460-v
48TM005163-DATA / 48TM009837-DATA	48TM005163	HD56FR233	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 1.7 Hp 230-v
48TM005166-DATA / 48TM009840-DATA	48TM005166	HD56FR463	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 1.7 Hp 460-v
48TM005162-DATA / 48TM009836-DATA	48TM005162	HD56FE653	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.4 Hp 230-v
48TM005174-DATA / 48TM009845-DATA	48TM005174	HD56FE653	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.4 Hp 460-v
48TM005164-DATA / 48TM009838-DATA	48TM005164	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 3.7 Hp 230-v
48TM005173-DATA / 48TM009844-DATA	48TM005173	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	SRT 3.7 Hp 460-v
48TM005165-DATA / 48TM009839-DATA	48TM005165	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 5.3 Hp 230-v
48TM005168-DATA / 48TM009842-DATA	48TM005168	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	SRT 5.3 Hp 460-v
48TM005172-DATA / 48TM009843-DATA	48TM005172	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.9 Hp 230-v
48TM005167-DATA / 48TM009841-DATA	48TM005167	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v

Table 20 — ACS320/ACH180 VFD Parameters, for 48/50 Units with Electromechanical Controls (cont)

VFD PARAMETERS ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	MAX AMPS 2003 / 30.17	CROSS REFERENCE	
						EM PKG	CL PKG
48TM003773-DATA / 48TM009827-DATA	230	5.6	1,725	1.7	5.6	48TM482532	48TM482683
48TM003776-DATA / 48TM009830-DATA	460	2.9	1,725	1.7	2.9	48TM482535	48TM482686
48TM003772-DATA / 48TM009826-DATA	230	6.8	1,725	2.4	6.8	48TM482531	48TM482682
48TM003784-DATA / 48TM009835-DATA	460	3.4	1,725	2.4	3.4	48TM482593	48TM482694
48TM003782-DATA / 48TM009833-DATA	230	7.8	1,725	2.9	7.8	48TM482591	48TM482692
48TM003777-DATA / 48TM009831-DATA	460	3.8	1,725	2.9	3.8	48TM482536	48TM482687
48TM003774-DATA / 48TM009828-DATA	230	9.8	1,725	3.7	9.8	48TM482533	48TM482684
48TM003783-DATA / 48TM009834-DATA	460	4.9	1,725	3.7	4.9	48TM482592	48TM482693
48TM003775-DATA / 48TM009829-DATA	230	12.7	1,740	5.3	12.7	48TM482534	48TM482685
48TM003778-DATA / 48TM009832-DATA	460	6.4	1,740	5.3	6.4	48TM482537	48TM482688
50TM001206-DATA / 50TM003500-DATA	230	7.8	1,725	2.9	7.8	50TM480822	50TM480915
50TM001211-DATA / 50TM003504-DATA	460	3.8	1,725	2.9	3.8	50TM480842	50TM480916
50TM001209-DATA / 50TM003502-DATA	230	9.8	1,725	3.7	9.8	50TM480837	50TM480917
50TM001210-DATA / 50TM003503-DATA	460	4.9	1,725	3.7	4.9	50TM480838	50TM480918
50TM001208-DATA / 50TM003501-DATA	230	17.1	1,760	5.0	17.1	50TM480824	50TM480921
50TM001212-DATA / 50TM003505-DATA	460	8.6	1,760	5.0	8.6	50TM480843	50TM480922
50HE001312-DATA / 50HE007829-DATA	230	7.8	1,725	2.9	7.8	50HE402582	50HE402817
50HE001316-DATA / 50HE007833-DATA	460	3.8	1,725	2.9	3.8	50HE402587	50HE402822
50HE001313-DATA / 50HE007830-DATA	230	9.8	1,725	3.7	9.8	50HE402583	50HE402818
50HE001317-DATA / 50HE007834-DATA	460	4.9	1,725	3.7	4.9	50HE402588	50HE402823
50HE001314-DATA / 50HE007831-DATA	230	20.4	1,760	5.0	20.4	50HE402584	50HE402819
50HE001318-DATA / 50HE007835-DATA	460	10.2	1,760	5.0	10.2	50HE402589	50HE402824
50HE001315-DATA / 50HE007832-DATA	230	28.5	1,760	7.5	28.5	50HE402585	50HE402820
50HE001319-DATA / 50HE007836-DATA	460	13.7	1,760	7.5	13.7	50HE402590	50HE402825
50HE001320-DATA / 50HE007837-DATA	230	12.7	1,740	5.3	12.7	50HE402584	50HE402819
50HE001321-DATA / 50HE007838-DATA	460	6.4	1,740	5.3	6.4	50HE402589	50HE402824
50HE402586-DATA / 50HE007858-DATA	230	30.4	1,755	10.0	30.4	50HE402586	50HE402821
50HE402591-DATA / 50HE007859-DATA	460	15.2	1,755	10.0	15.2	50HE402591	50HE402826
50H4002326-DATA / 50HE007828-DATA	460	10.2	1,760	5.0	10.2	N/A	N/A
50HE003081-DATA / 50HE007848-DATA	230	7.8	1,725	2.9	7.8	N/A	N/A
50HE003082-DATA / 50HE007849-DATA	460	3.8	1,725	2.9	3.8	N/A	N/A
50HE003084-DATA / 50HE007850-DATA	230	9.8	1,725	3.7	9.8	N/A	N/A
50HE003085-DATA / 50HE007851-DATA	460	4.9	1,725	3.7	4.9	N/A	N/A
50HE003086-DATA / 50HE007852-DATA	230	12.7	1,740	5.3	12.7	N/A	N/A
50HE003087-DATA / 50HE007853-DATA	460	6.4	1,740	5.3	6.4	N/A	N/A
50HE003089-DATA / 50HE007854-DATA	230	20.4	1,760	5.0	20.4	N/A	N/A
50HE003090-DATA / 50HE007855-DATA	460	10.2	1,760	5.0	10.2	N/A	N/A
50HE003092-DATA / 50HE007856-DATA	230	28.5	1,760	7.5	28.5	N/A	N/A
50HE003093-DATA / 50HE007857-DATA	460	13.7	1,760	7.5	13.7	N/A	N/A
48TM005163-DATA / 48TM009837-DATA	230	5.6	1,725	1.7	5.6	48TM482532	48TM482683
48TM005166-DATA / 48TM009840-DATA	460	2.9	1,725	1.7	2.9	48TM482535	48TM482686
48TM005162-DATA / 48TM009836-DATA	230	6.8	1,725	2.4	6.8	48TM482531	48TM482682
48TM005174-DATA / 48TM009845-DATA	460	3.4	1,725	2.4	3.4	48TM482593	48TM482694
48TM005164-DATA / 48TM009838-DATA	230	9.8	1,725	3.7	9.8	48TM482533	48TM482684
48TM005173-DATA / 48TM009844-DATA	460	4.9	1,725	3.7	4.9	48TM482592	48TM482693
48TM005165-DATA / 48TM009839-DATA	230	12.7	1,740	5.3	12.7	48TM482534	48TM482685
48TM005168-DATA / 48TM009842-DATA	460	6.4	1,740	5.3	6.4	48TM482537	48TM482688
48TM005172-DATA / 48TM009843-DATA	230	7.8	1,725	2.9	7.8	48TM482591	48TM482692
48TM005167-DATA / 48TM009841-DATA	460	3.8	1,725	2.9	3.8	48TM482536	48TM482687

Table 21 — ACS320/ACH180 VFD Common Parameters for 48/50 Units with I/O Flex Controls

PARAMETERS ACS320 / ACH180	DESCRIPTION	SETTING ACS320 / ACH180
9907 / 99.08	Motor Nominal Frequency	60 Hz
1204 / 28.28	Const Speed 3	60 Hz
1403 / NA	Relay Output 3	—
1611 / NA	Parameter View	3
2007 / 30.13	Minimum Frequency	0 Hz
2008 / 30.14	Maximum Frequency	60 Hz
2101 / 21.19	Start FCN	(1) Auto / (2)
2201 / 28.71	ACCEL/DECEL	(0) Not Sel / (0)
2603 / 97.13	IR COMP Volt	0 volts
2606 / 97.01	Switching Freq	4 kHz / (4)
3102 / 31.15	Trial Time	300.0 sec.
3103 / 31.16	Delay Time	6.0 sec.
3104 / 31.12	AR Overcurrent	Enabled / Enabled/Bit0 (1)
5101 / NA	FBA Type	—
5301 / 58.02	EFB Protocol ID	—
5305 / 58.25	EFB CTRL Profile	—

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls

VFD PARAMETERS ACS320 / ACH180	PKG ABB	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
48LC000507-DATA / 48LC001067-DATA	48LC000507	HD56FR233	HK30WA504 / HK30WB502	1.5 / 2.0	SRT 1.7 Hp 230V
48LC000508-DATA / 48LC001068-DATA	48LC000508	HD56FR463	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 1.7 Hp 460-v
48LC000511-DATA / 48LC001069-DATA	48LC000511	HD56FE653	HK30WA504 / HK30WB502	1.5 / 2.0	SRT 2.4 Hp 230-v
48LC000512-DATA / 48LC001070-DATA	48LC000512	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 2.4 Hp 460-v
48LC000514-DATA / 48LC001071-DATA	48LC000514	HD56FR233	HK30WA504 / HK30WB502	1.5 / 2.0	SRT 1.7 Hp 230-v
48LC000515-DATA / 48LC001072-DATA	48LC000515	HD56FR463	HK30WA511 / HK30WB509	1.5 / 2.0	SRT 1.7 Hp 460-v
48LC000517-DATA / 48LC001073-DATA	48LC000517	HD56FE653	HK30WA517 / HK30WB511	5.0 / 5.0	SRT 2.4 Hp 230-v
48LC000519-DATA / 48LC001074-DATA	48LC000519	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
48LC000521-DATA / 48LC001075-DATA	48LC000521	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	SRT 2.9 Hp 230-v
48LC000522-DATA / 48LC001076-DATA	48LC000522	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
48LC000524-DATA / 48LC001077-DATA	48LC000524	HD56FR233	HK30WA504 / HK30WB502	1.5 / 2.0	SRT 1.7 Hp 230-v
48LC000525-DATA / 48LC001078-DATA	48LC000525	HD56FR463	HK30WA511 / HK30WB509	1.5 / 2.0	SRT 1.7 Hp 460-v
48LC000527-DATA / 48LC001079-DATA	48LC000527	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	SRT 2.9 Hp 230-v
48LC000528-DATA / 48LC001080-DATA	48LC000528	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
48LC000530-DATA / 48LC001081-DATA	48LC000530	HD56FR233	HK30WA504 / HK30WB502	1.5 / 2.0	SRT 1.7 Hp 230-v
48LC000531-DATA / 48LC001082-DATA	48LC000531	HD56FR463	HK30WA513 / HK30WB511	3.0 / 5.0	SRT 1.7 Hp 460-v
48LC000536-DATA / 48LC001084-DATA	48LC000536	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.4 Hp 460-v
48LC000662-DATA / 48LC001164-DATA	48LC000662	HD56FR463	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 1.7 Hp 460-v
48LC000535-DATA / 48LC001083-DATA	48LC000535	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.4 Hp 230-v
48LC000539-DATA / 48LC001085-DATA	48LC000539	HD60FK658	HK30WA506 / HK30WB505	3.0 / 5.0	MRT 4.9 Hp 230-v
48LC000663-DATA / 48LC001165-DATA	48LC000663	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.4 Hp 460-v
48LC000543-DATA / 48LC001088-DATA	48LC000543	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
48LC000540-DATA / 48LC001086-DATA	48LC000540	HD60FK658	HK30WA513 / HK30WB511	3.0 / 5.0	MRT 4.9 Hp 460-v
48LC000542-DATA / 48LC001087-DATA	48LC000542	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000546-DATA / 48LC001090-DATA	48LC000546	HD60FE656	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 3.7 Hp 460-v
48LC000545-DATA / 48LC001089-DATA	48LC000545	HD60FE656	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 3.7 Hp 230-v
48LC000661-DATA / 48LC001163-DATA	48LC000661	HD56FR463	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 1.7 Hp 460-v
48LC000547-DATA / 48LC001091-DATA	48LC000547	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000548-DATA / 48LC001092-DATA	48LC000548	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
48LC000550-DATA / 48LC001093-DATA	48LC000550	HD60FK658	HK30WA506 / HK30WB505	3.0 / 5.0	MRT 5.25 Hp 230-v
48LC000551-DATA / 48LC001094-DATA	48LC000551	HD60FK658	HK30WA513 / HK30WB511	3.0 / 5.0	MRT 5.25 Hp 460-v
48LC000553-DATA / 48LC001095-DATA	48LC000553	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000554-DATA / 48LC001096-DATA	48LC000554	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000556-DATA / 48LC001097-DATA	48LC000556	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000557-DATA / 48LC001098-DATA	48LC000557	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000559-DATA / 48LC001099-DATA	48LC000559	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000560-DATA / 48LC001100-DATA	48LC000560	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000562-DATA / 48LC001101-DATA	48LC000562	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000563-DATA / 48LC001102-DATA	48LC000563	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000565-DATA / 48LC001103-DATA	48LC000565	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000566-DATA / 48LC001104-DATA	48LC000566	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000568-DATA / 48LC001105-DATA	48LC000568	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000569-DATA / 48LC001106-DATA	48LC000569	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
48LC000571-DATA / 48LC001107-DATA	48LC000571	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000572-DATA / 48LC001108-DATA	48LC000572	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000574-DATA / 48LC001109-DATA	48LC000574	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	SRT 7.5 Hp 230-v
48LC000575-DATA / 48LC001110-DATA	48LC000575	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	SRT 7.5 Hp 460-v
48LC000577-DATA / 48LC001111-DATA	48LC000577	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000578-DATA / 48LC001112-DATA	48LC000578	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000580-DATA / 48LC001113-DATA	48LC000580	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000581-DATA / 48LC001114-DATA	48LC000581	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
48LC000583-DATA / 48LC001115-DATA	48LC000583	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000584-DATA / 48LC001116-DATA	48LC000584	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000586-DATA / 48LC001117-DATA	48LC000586	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	SRT 5.0 Hp 230-v
48LC000587-DATA / 48LC001118-DATA	48LC000587	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	SRT 5.0 Hp 460-v
48LC000589-DATA / 48LC001119-DATA	48LC000589	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	SRT 7.5 Hp 230-v
48LC000590-DATA / 48LC001120-DATA	48LC000590	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000592-DATA / 48LC001121-DATA	48LC000592	HD62FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000593-DATA / 48LC001122-DATA	48LC000593	HD62FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000595-DATA / 48LC001123-DATA	48LC000595	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000596-DATA / 48LC001124-DATA	48LC000596	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000598-DATA / 48LC001125-DATA	48LC000598	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000599-DATA / 48LC001126-DATA	48LC000599	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000601-DATA / 48LC001127-DATA	48LC000601	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000602-DATA / 48LC001128-DATA	48LC000602	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	EXT1 COMMANDS 1001 / 20.01	EXT7 / EXT2 SEL 1102 / 19.11	REF1 SPEED SEL 1103 / 28.11
48LC000507-DATA / 48LC001067-DATA	230	5.6	1,725	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000508-DATA / 48LC001068-DATA	460	2.9	1,725	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000511-DATA / 48LC001069-DATA	230	6.8	1,725	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000512-DATA / 48LC001070-DATA	460	3.4	1,725	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000514-DATA / 48LC001071-DATA	230	5.6	1,725	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000515-DATA / 48LC001072-DATA	460	2.9	1,725	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000517-DATA / 48LC001073-DATA	230	6.8	1,725	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000519-DATA / 48LC001074-DATA	460	3.8	1,725	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000521-DATA / 48LC001075-DATA	230	7.8	1,725	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000522-DATA / 48LC001076-DATA	460	3.8	1,725	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000524-DATA / 48LC001077-DATA	230	5.6	1,695	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000525-DATA / 48LC001078-DATA	460	2.9	1,690	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000527-DATA / 48LC001079-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000528-DATA / 48LC001080-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000530-DATA / 48LC001081-DATA	230	5.6	1,695	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000531-DATA / 48LC001082-DATA	460	2.9	1,690	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000536-DATA / 48LC001084-DATA	460	3.4	1,680	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000662-DATA / 48LC001164-DATA	460	2.9	1,690	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000535-DATA / 48LC001083-DATA	230	6.8	1,680	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000539-DATA / 48LC001085-DATA	230	12.7	1,745	4.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000663-DATA / 48LC001165-DATA	460	3.4	1,680	2.4	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000543-DATA / 48LC001088-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000540-DATA / 48LC001086-DATA	460	6.4	1,745	4.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000542-DATA / 48LC001087-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000546-DATA / 48LC001090-DATA	460	4.9	1,750	3.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000545-DATA / 48LC001089-DATA	230	9.8	1,750	3.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000661-DATA / 48LC001163-DATA	460	2.9	1,690	1.7	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000547-DATA / 48LC001091-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000548-DATA / 48LC001092-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000550-DATA / 48LC001093-DATA	230	12.7	1,745	5.25	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000551-DATA / 48LC001094-DATA	460	6.4	1,745	5.25	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000553-DATA / 48LC001095-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000554-DATA / 48LC001096-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000556-DATA / 48LC001097-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000557-DATA / 48LC001098-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000559-DATA / 48LC001099-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000560-DATA / 48LC001100-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000562-DATA / 48LC001101-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000563-DATA / 48LC001102-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000565-DATA / 48LC001103-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000566-DATA / 48LC001104-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000568-DATA / 48LC001105-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000569-DATA / 48LC001106-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000571-DATA / 48LC001107-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000572-DATA / 48LC001108-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000574-DATA / 48LC001109-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000575-DATA / 48LC001110-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000577-DATA / 48LC001111-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000578-DATA / 48LC001112-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000580-DATA / 48LC001113-DATA	230	7.8	1,750	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000581-DATA / 48LC001114-DATA	460	3.8	1,750	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000583-DATA / 48LC001115-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000584-DATA / 48LC001116-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000586-DATA / 48LC001117-DATA	230	17.1	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000587-DATA / 48LC001118-DATA	460	8.6	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000589-DATA / 48LC001119-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000590-DATA / 48LC001120-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000592-DATA / 48LC001121-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000593-DATA / 48LC001122-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000595-DATA / 48LC001123-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000596-DATA / 48LC001124-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000598-DATA / 48LC001125-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000599-DATA / 48LC001126-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000601-DATA / 48LC001127-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000602-DATA / 48LC001128-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

[illegible]

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	A01 CONTENT SEL 1501 / 13.12	MAX AMPS 2003 / 30.17	STOP FCN 2102 / 21.03	ACCEL 2202 / 28.72	DECEL 2203 / 28.73	STATION ID 5201 / NA	BAUD RATE 5202 / NA	PARITY 5203 / NA
48LC000507-DATA / 48LC001067-DATA	0103 OUTPUT FREQ / (3)	5.6	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000508-DATA / 48LC001068-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000511-DATA / 48LC001069-DATA	0103 OUTPUT FREQ / (3)	6.8	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000512-DATA / 48LC001070-DATA	0103 OUTPUT FREQ / (3)	3.4	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000514-DATA / 48LC001071-DATA	0103 OUTPUT FREQ / (3)	5.6	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000515-DATA / 48LC001072-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000517-DATA / 48LC001073-DATA	0103 OUTPUT FREQ / (3)	6.8	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000519-DATA / 48LC001074-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000521-DATA / 48LC001075-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000522-DATA / 48LC001076-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	30 sec.	10 sec.	—	—	—
48LC000524-DATA / 48LC001077-DATA	0103 OUTPUT FREQ / (3)	5.6	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000525-DATA / 48LC001078-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000527-DATA / 48LC001079-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000528-DATA / 48LC001080-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000530-DATA / 48LC001081-DATA	0103 OUTPUT FREQ / (3)	5.6	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000531-DATA / 48LC001082-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000536-DATA / 48LC001084-DATA	0103 OUTPUT FREQ / (3)	3.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000662-DATA / 48LC001164-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000535-DATA / 48LC001083-DATA	0103 OUTPUT FREQ / (3)	6.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000539-DATA / 48LC001085-DATA	0103 OUTPUT FREQ / (3)	12.7	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000663-DATA / 48LC001165-DATA	0103 OUTPUT FREQ / (3)	3.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000543-DATA / 48LC001088-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000540-DATA / 48LC001086-DATA	0103 OUTPUT FREQ / (3)	6.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000542-DATA / 48LC001087-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000546-DATA / 48LC001090-DATA	0103 OUTPUT FREQ / (3)	4.9	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000545-DATA / 48LC001089-DATA	0103 OUTPUT FREQ / (3)	9.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000661-DATA / 48LC001163-DATA	0103 OUTPUT FREQ / (3)	2.9	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000547-DATA / 48LC001091-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000548-DATA / 48LC001092-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000550-DATA / 48LC001093-DATA	0103 OUTPUT FREQ / (3)	12.7	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000551-DATA / 48LC001094-DATA	0103 OUTPUT FREQ / (3)	6.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000553-DATA / 48LC001095-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000554-DATA / 48LC001096-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000556-DATA / 48LC001097-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000557-DATA / 48LC001098-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000559-DATA / 48LC001099-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000560-DATA / 48LC001100-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000562-DATA / 48LC001101-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000563-DATA / 48LC001102-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000565-DATA / 48LC001103-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000566-DATA / 48LC001104-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000568-DATA / 48LC001105-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000569-DATA / 48LC001106-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000571-DATA / 48LC001107-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000572-DATA / 48LC001108-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000574-DATA / 48LC001109-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000575-DATA / 48LC001110-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000577-DATA / 48LC001111-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000578-DATA / 48LC001112-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000580-DATA / 48LC001113-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000581-DATA / 48LC001114-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000583-DATA / 48LC001115-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000584-DATA / 48LC001116-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000586-DATA / 48LC001117-DATA	0103 OUTPUT FREQ / (3)	17.1	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000587-DATA / 48LC001118-DATA	0103 OUTPUT FREQ / (3)	8.6	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000589-DATA / 48LC001119-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000590-DATA / 48LC001120-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000592-DATA / 48LC001121-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000593-DATA / 48LC001122-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000595-DATA / 48LC001123-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000596-DATA / 48LC001124-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000598-DATA / 48LC001125-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000599-DATA / 48LC001126-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000601-DATA / 48LC001127-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000602-DATA / 48LC001128-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	EFB STATION ID 5302 / 58.03	EFB BAUD RATE 5303 / 58.04	EFB PARITY 5304 / 58.05	COMM PROT SEL 9802 / 58.01	RUN ENABLE 1601 / 20.40	START INTERLOCK 1608 / 20.41	CROSS REFERENCE	
							EM PKG	CL PKG
48LC000507-DATA / 48LC001067-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000508-DATA / 48LC001068-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000511-DATA / 48LC001069-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000512-DATA / 48LC001070-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000514-DATA / 48LC001071-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000515-DATA / 48LC001072-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000517-DATA / 48LC001073-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000519-DATA / 48LC001074-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000521-DATA / 48LC001075-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000522-DATA / 48LC001076-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000524-DATA / 48LC001077-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000525-DATA / 48LC001078-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000527-DATA / 48LC001079-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000528-DATA / 48LC001080-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000530-DATA / 48LC001081-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000531-DATA / 48LC001082-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000536-DATA / 48LC001084-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000662-DATA / 48LC001164-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000535-DATA / 48LC001083-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000539-DATA / 48LC001085-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000663-DATA / 48LC001165-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000543-DATA / 48LC001088-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000540-DATA / 48LC001086-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000542-DATA / 48LC001087-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000546-DATA / 48LC001090-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000545-DATA / 48LC001089-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000661-DATA / 48LC001163-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000547-DATA / 48LC001091-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000548-DATA / 48LC001092-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000550-DATA / 48LC001093-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000551-DATA / 48LC001094-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000553-DATA / 48LC001095-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000554-DATA / 48LC001096-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000556-DATA / 48LC001097-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000557-DATA / 48LC001098-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000559-DATA / 48LC001099-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000560-DATA / 48LC001100-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000562-DATA / 48LC001101-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000563-DATA / 48LC001102-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000565-DATA / 48LC001103-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000566-DATA / 48LC001104-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000568-DATA / 48LC001105-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000569-DATA / 48LC001106-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000571-DATA / 48LC001107-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000572-DATA / 48LC001108-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000574-DATA / 48LC001109-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000575-DATA / 48LC001110-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000577-DATA / 48LC001111-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000578-DATA / 48LC001112-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000580-DATA / 48LC001113-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000581-DATA / 48LC001114-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000583-DATA / 48LC001115-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000584-DATA / 48LC001116-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000586-DATA / 48LC001117-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000587-DATA / 48LC001118-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000589-DATA / 48LC001119-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000590-DATA / 48LC001120-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000592-DATA / 48LC001121-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000593-DATA / 48LC001122-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000595-DATA / 48LC001123-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000596-DATA / 48LC001124-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000598-DATA / 48LC001125-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000599-DATA / 48LC001126-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000601-DATA / 48LC001127-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A
48LC000602-DATA / 48LC001128-DATA	1	76.8 kbps	8 NONE 1 / (0)	BACnet / (2)	D14 / (5)	D11 / (2)	N/A	N/A

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	PKG ABB VFD	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
48LC000604-DATA / 48LC001129-DATA	48LC000604	HD60FK658	HK30WA506 / HK30WB505	3.0 / 5.0	MRT 5.25 Hp 230-v
48LC000605-DATA / 48LC001130-DATA	48LC000605	HD60FK658	HK30WA513 / HK30WB511	3.0 / 5.0	MRT 5.25 Hp 460-v
48LC000607-DATA / 48LC001131-DATA	48LC000607	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000608-DATA / 48LC001132-DATA	48LC000608	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000610-DATA / 48LC001133-DATA	48LC000610	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000611-DATA / 48LC001134-DATA	48LC000611	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000613-DATA / 48LC001135-DATA	48LC000613	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000614-DATA / 48LC001136-DATA	48LC000614	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
48LC000616-DATA / 48LC001137-DATA	48LC000616	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000617-DATA / 48LC001138-DATA	48LC000617	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000619-DATA / 48LC001139-DATA	48LC000619	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000620-DATA / 48LC001140-DATA	48LC000620	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000622-DATA / 48LC001141-DATA	48LC000622	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000623-DATA / 48LC001142-DATA	48LC000623	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000625-DATA / 48LC001143-DATA	48LC000625	HD58FE654	HK30WA505 / HK30WB503	2.0 / 3.0	MRT 2.9 Hp 230-v
48LC000626-DATA / 48LC001144-DATA	48LC000626	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v
48LC000628-DATA / 48LC001145-DATA	48LC000628	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	SRT 5.0 Hp 230-v
48LC000629-DATA / 48LC001146-DATA	48LC000629	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	SRT 5.0 Hp 460-v
48LC000631-DATA / 48LC001147-DATA	48LC000631	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	SRT 7.5 Hp 230-v
48LC000632-DATA / 48LC001148-DATA	48LC000632	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	SRT 7.5 Hp 460-v
48LC000634-DATA / 48LC001149-DATA	48LC000634	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	SRT 10.0 Hp 230-v
48LC000635-DATA / 48LC001150-DATA	48LC000635	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000637-DATA / 48LC001151-DATA	48LC000637	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000638-DATA / 48LC001152-DATA	48LC000638	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000640-DATA / 48LC001153-DATA	48LC000640	HD60FQ659	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 5.0 Hp 230-v
48LC000641-DATA / 48LC001154-DATA	48LC000641	HD60FQ659	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 5.0 Hp 460-v
48LC000644-DATA / 48LC001155-DATA	48LC000644	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000645-DATA / 48LC001156-DATA	48LC000645	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000647-DATA / 48LC001157-DATA	48LC000647	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	MRT 5.0 Hp 230-v
48LC000648-DATA / 48LC001158-DATA	48LC000648	HD60FQ659	HK30WA514 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
48LC000650-DATA / 48LC001159-DATA	48LC000650	HD62FX654	HK30WA508 / HK30WB507	10.0 / 10.0	MRT 7.5 Hp 230-v
48LC000651-DATA / 48LC001160-DATA	48LC000651	HD62FX654	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 7.5 Hp 460-v
48LC000653-DATA / 48LC001161-DATA	48LC000653	HD64FX655	HK30WA535 / HK30WB508	15.0 / 15.0	MRT 10.0 Hp 230-v
48LC000654-DATA / 48LC001162-DATA	48LC000654	HD64FX655	HK30WA536 / HK30WB515	15.0 / 20.0	MRT 10.0 Hp 460-v
48LC000664-DATA / 48LC001166-DATA	48LC000664	HD60FQ659	HK30WA515 / HK30WB513	10.0 / 10.0	MRT 5.0 Hp 460-v
50H4002326-DATA / 50HE007828-DATA	50H4002326	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
50HE003081-DATA / 50HE007848-DATA	50HE003081	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 2.9 Hp 230-v
50HE003082-DATA / 50HE007849-DATA	50HE003082	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	MRT 2.9 Hp 460-v
50HE003084-DATA / 50HE007850-DATA	50HE003084	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 3.7 Hp 230-v
50HE003085-DATA / 50HE007851-DATA	50HE003085	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	MRT 3.7 Hp 460-v
50HE003086-DATA / 50HE007852-DATA	50HE003086	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	MRT 5.3 Hp 230-v
50HE003087-DATA / 50HE007853-DATA	50HE003087	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.3 Hp 460-v
50HE003089-DATA / 50HE007854-DATA	50HE003089	HD60FQ659	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 5.0 Hp 230-v
50HE003090-DATA / 50HE007855-DATA	50HE003090	HD60FQ659	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 5.0 Hp 460-v
50HE003092-DATA / 50HE007856-DATA	50HE003092	HD62FX654	HK30WA524 / HK30WB507	7.5 / 10.0	MRT 7.5 Hp 230-v
50HE003093-DATA / 50HE007857-DATA	50HE003093	HD62FX654	HK30WA532 / HK30WB512	7.5 / 7.5	MRT 7.5 Hp 460-v
48TM005163-DATA / 48TM009837-DATA	48TM005163	HD56FR233	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 1.7 Hp 230-v
48TM005166-DATA / 48TM009840-DATA	48TM005166	HD56FR463	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 1.7 Hp 460-v
48TM005162-DATA / 48TM009836-DATA	48TM005162	HD56FE653	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.4 Hp 230-v
48TM005174-DATA / 48TM009845-DATA	48TM005174	HD56FE653	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.4 Hp 460-v
48TM005164-DATA / 48TM009838-DATA	48TM005164	HD60FE656	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 3.7 Hp 230-v
48TM005173-DATA / 48TM009844-DATA	48TM005173	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	SRT 3.7 Hp 460-v
48TM005165-DATA / 48TM009839-DATA	48TM005165	HD60FK658	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 5.3 Hp 230-v
48TM005168-DATA / 48TM009842-DATA	48TM005168	HD60FK658	HK30WA532 / HK30WB512	7.5 / 7.5	SRT 5.3 Hp 460-v
48TM005172-DATA / 48TM009843-DATA	48TM005172	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	SRT 2.9 Hp 230-v
48TM005167-DATA / 48TM009841-DATA	48TM005167	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	SRT 2.9 Hp 460-v

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ^a ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	EXT1 COMMANDS 1001 / 20.01	EXT7 / EXT2 SEL 1102 / 19.11	REF1 SPEED SEL 1103 / 28.11
48LC000604-DATA / 48LC001129-DATA	230	12.7	1,745	5.25	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000605-DATA / 48LC001130-DATA	460	6.4	1,745	5.25	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000607-DATA / 48LC001131-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000608-DATA / 48LC001132-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000610-DATA / 48LC001133-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000611-DATA / 48LC001134-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000613-DATA / 48LC001135-DATA	230	7.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000614-DATA / 48LC001136-DATA	460	3.8	1,735	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000616-DATA / 48LC001137-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000617-DATA / 48LC001138-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000619-DATA / 48LC001139-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000620-DATA / 48LC001140-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000622-DATA / 48LC001141-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000623-DATA / 48LC001142-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000625-DATA / 48LC001143-DATA	230	7.8	1,750	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000626-DATA / 48LC001144-DATA	460	3.8	1,750	2.9	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000628-DATA / 48LC001145-DATA	230	17.1	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000629-DATA / 48LC001146-DATA	460	8.6	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000631-DATA / 48LC001147-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000632-DATA / 48LC001148-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000634-DATA / 48LC001149-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000635-DATA / 48LC001150-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000637-DATA / 48LC001151-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000638-DATA / 48LC001152-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000640-DATA / 48LC001153-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000641-DATA / 48LC001154-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000644-DATA / 48LC001155-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000645-DATA / 48LC001156-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000647-DATA / 48LC001157-DATA	230	20.4	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000648-DATA / 48LC001158-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000650-DATA / 48LC001159-DATA	230	28.5	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000651-DATA / 48LC001160-DATA	460	14.3	1,760	7.5	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000653-DATA / 48LC001161-DATA	230	30.4	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000654-DATA / 48LC001162-DATA	460	15.2	1,755	10.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
48LC000664-DATA / 48LC001166-DATA	460	10.2	1,760	5.0	(1) DI1 / (1)	EXT1 / (0)	AI1 Scaled / (1)
50H4002326-DATA / 50HE007828-DATA	460	10.2	1,760	5.0	—	—	—
50HE003081-DATA / 50HE007848-DATA	230	7.8	1,725	2.9	—	—	—
50HE003082-DATA / 50HE007849-DATA	460	3.8	1,725	2.9	—	—	—
50HE003084-DATA / 50HE007850-DATA	230	9.8	1,725	3.7	—	—	—
50HE003085-DATA / 50HE007851-DATA	460	4.9	1,725	3.7	—	—	—
50HE003086-DATA / 50HE007852-DATA	230	12.7	1,740	5.3	—	—	—
50HE003087-DATA / 50HE007853-DATA	460	6.4	1,740	5.3	—	—	—
50HE003089-DATA / 50HE007854-DATA	230	20.4	1,760	5.0	—	—	—
50HE003090-DATA / 50HE007855-DATA	460	10.2	1,760	5.0	—	—	—
50HE003092-DATA / 50HE007856-DATA	230	28.5	1,760	7.5	—	—	—
50HE003093-DATA / 50HE007857-DATA	460	13.7	1,760	7.5	—	—	—
48TM005163-DATA / 48TM009837-DATA	230	5.6	1,725	1.7	—	—	—
48TM005166-DATA / 48TM009840-DATA	460	2.9	1,725	1.7	—	—	—
48TM005162-DATA / 48TM009836-DATA	230	6.8	1,725	2.4	—	—	—
48TM005174-DATA / 48TM009845-DATA	460	3.4	1,725	2.4	—	—	—
48TM005164-DATA / 48TM009838-DATA	230	9.8	1,725	3.7	—	—	—
48TM005173-DATA / 48TM009844-DATA	460	4.9	1,725	3.7	—	—	—
48TM005165-DATA / 48TM009839-DATA	230	12.7	1,740	5.3	—	—	—
48TM005168-DATA / 48TM009842-DATA	460	6.4	1,740	5.3	—	—	—
48TM005172-DATA / 48TM009843-DATA	230	7.8	1,725	2.9	—	—	—
48TM005167-DATA / 48TM009841-DATA	460	3.8	1,725	2.9	—	—	—

NOTE(S):

a. VFD Parameters 48TM005433-DATA thru 50TM001618-DATA begin on page 53.

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	CONST SPEED SEL 1201 / 28.22	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28	CONST SPEED 4 1205 / 28.29
48LC000604-DATA / 48LC001129-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000605-DATA / 48LC001130-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000607-DATA / 48LC001131-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000608-DATA / 48LC001132-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000610-DATA / 48LC001133-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000611-DATA / 48LC001134-DATA	NOT SEL / (0)	32.1 Hz	47.7 Hz	60 Hz	60 Hz
48LC000613-DATA / 48LC001135-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000614-DATA / 48LC001136-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000616-DATA / 48LC001137-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000617-DATA / 48LC001138-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000619-DATA / 48LC001139-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000620-DATA / 48LC001140-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000622-DATA / 48LC001141-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000623-DATA / 48LC001142-DATA	NOT SEL / (0)	34.0 Hz	49.4 Hz	60 Hz	60 Hz
48LC000625-DATA / 48LC001143-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000626-DATA / 48LC001144-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000628-DATA / 48LC001145-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000629-DATA / 48LC001146-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000631-DATA / 48LC001147-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000632-DATA / 48LC001148-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000634-DATA / 48LC001149-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000635-DATA / 48LC001150-DATA	NOT SEL / (0)	31.5 Hz	37.0 Hz	60 Hz	60 Hz
48LC000637-DATA / 48LC001151-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000638-DATA / 48LC001152-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000640-DATA / 48LC001153-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000641-DATA / 48LC001154-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000644-DATA / 48LC001155-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000645-DATA / 48LC001156-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
48LC000647-DATA / 48LC001157-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000648-DATA / 48LC001158-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000650-DATA / 48LC001159-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000651-DATA / 48LC001160-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000653-DATA / 48LC001161-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000654-DATA / 48LC001162-DATA	NOT SEL / (0)	36.0 Hz	43.2 Hz	60 Hz	60 Hz
48LC000664-DATA / 48LC001166-DATA	NOT SEL / (0)	31.4 Hz	38.7 Hz	60 Hz	60 Hz
50H4002326-DATA / 50HE007828-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003081-DATA / 50HE007848-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003082-DATA / 50HE007849-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003084-DATA / 50HE007850-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003085-DATA / 50HE007851-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003086-DATA / 50HE007852-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003087-DATA / 50HE007853-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003089-DATA / 50HE007854-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003090-DATA / 50HE007855-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003092-DATA / 50HE007856-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50HE003093-DATA / 50HE007857-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005163-DATA / 48TM009837-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005166-DATA / 48TM009840-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005162-DATA / 48TM009836-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005174-DATA / 48TM009845-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005164-DATA / 48TM009838-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005173-DATA / 48TM009844-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005165-DATA / 48TM009839-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005168-DATA / 48TM009842-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005172-DATA / 48TM009843-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005167-DATA / 48TM009841-DATA	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	A01 CONTENT SEL 1501 / 13.12	MAX AMPS 2003 / 30.17	STOP FCN 2102 / 21.03	ACCEL 2202 / 28.72	DECEL 2203 / 28.73	STATION ID 5201 / NA	BAUD RATE 5202 / NA	PARITY 5203 / NA
48LC000604-DATA / 48LC001129-DATA	0103 OUTPUT FREQ / (3)	12.7	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000605-DATA / 48LC001130-DATA	0103 OUTPUT FREQ / (3)	6.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000607-DATA / 48LC001131-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000608-DATA / 48LC001132-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000610-DATA / 48LC001133-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000611-DATA / 48LC001134-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000613-DATA / 48LC001135-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000614-DATA / 48LC001136-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000616-DATA / 48LC001137-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000617-DATA / 48LC001138-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000619-DATA / 48LC001139-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000620-DATA / 48LC001140-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000622-DATA / 48LC001141-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000623-DATA / 48LC001142-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000625-DATA / 48LC001143-DATA	0103 OUTPUT FREQ / (3)	7.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000626-DATA / 48LC001144-DATA	0103 OUTPUT FREQ / (3)	3.8	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000628-DATA / 48LC001145-DATA	0103 OUTPUT FREQ / (3)	17.1	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000629-DATA / 48LC001146-DATA	0103 OUTPUT FREQ / (3)	8.6	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000631-DATA / 48LC001147-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000632-DATA / 48LC001148-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000634-DATA / 48LC001149-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000635-DATA / 48LC001150-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000637-DATA / 48LC001151-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000638-DATA / 48LC001152-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000640-DATA / 48LC001153-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000641-DATA / 48LC001154-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000644-DATA / 48LC001155-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000645-DATA / 48LC001156-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000647-DATA / 48LC001157-DATA	0103 OUTPUT FREQ / (3)	20.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000648-DATA / 48LC001158-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000650-DATA / 48LC001159-DATA	0103 OUTPUT FREQ / (3)	28.5	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000651-DATA / 48LC001160-DATA	0103 OUTPUT FREQ / (3)	14.3	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000653-DATA / 48LC001161-DATA	0103 OUTPUT FREQ / (3)	30.4	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000654-DATA / 48LC001162-DATA	0103 OUTPUT FREQ / (3)	15.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
48LC000664-DATA / 48LC001166-DATA	0103 OUTPUT FREQ / (3)	10.2	(1) Coast / (0)	10 sec.	10 sec.	—	—	—
50H4002326-DATA / 50HE007828-DATA	—	10.2	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003081-DATA / 50HE007848-DATA	—	7.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003082-DATA / 50HE007849-DATA	—	3.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003084-DATA / 50HE007850-DATA	—	9.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003085-DATA / 50HE007851-DATA	—	4.9	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003086-DATA / 50HE007852-DATA	—	12.7	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003087-DATA / 50HE007853-DATA	—	6.4	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003089-DATA / 50HE007854-DATA	—	20.4	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003090-DATA / 50HE007855-DATA	—	10.2	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003092-DATA / 50HE007856-DATA	—	28.5	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
50HE003093-DATA / 50HE007857-DATA	—	13.7	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005163-DATA / 48TM009837-DATA	—	5.6	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005166-DATA / 48TM009840-DATA	—	2.9	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005162-DATA / 48TM009836-DATA	—	6.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005174-DATA / 48TM009845-DATA	—	3.4	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005164-DATA / 48TM009838-DATA	—	9.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005173-DATA / 48TM009844-DATA	—	4.9	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005165-DATA / 48TM009839-DATA	—	12.7	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005168-DATA / 48TM009842-DATA	—	6.4	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005172-DATA / 48TM009843-DATA	—	7.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—
48TM005167-DATA / 48TM009841-DATA	—	3.8	(1) Coast / (0)	30 sec.	30 sec.	—	—	—

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	EFB STATION ID 5302 / 58.03	EFB BAUD RATE 5303 / 58.04	EFB PARITY 5304 / 58.05	COMM PROT SEL 9802 / 58.01	RUN ENABLE 1601 / 20.40	START INTERTLOCK 1608 / 20.41	CROSS REFERENCE	
							EM PKG	CL PKG
48LC000604-DATA / 48LC001129-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000605-DATA / 48LC001130-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000607-DATA / 48LC001131-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000608-DATA / 48LC001132-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000610-DATA / 48LC001133-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000611-DATA / 48LC001134-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000613-DATA / 48LC001135-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000614-DATA / 48LC001136-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000616-DATA / 48LC001137-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000617-DATA / 48LC001138-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000619-DATA / 48LC001139-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000620-DATA / 48LC001140-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000622-DATA / 48LC001141-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000623-DATA / 48LC001142-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000625-DATA / 48LC001143-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000626-DATA / 48LC001144-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000628-DATA / 48LC001145-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000629-DATA / 48LC001146-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000631-DATA / 48LC001147-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000632-DATA / 48LC001148-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000634-DATA / 48LC001149-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000635-DATA / 48LC001150-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000637-DATA / 48LC001151-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000638-DATA / 48LC001152-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000640-DATA / 48LC001153-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000641-DATA / 48LC001154-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000644-DATA / 48LC001155-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000645-DATA / 48LC001156-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000647-DATA / 48LC001157-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000648-DATA / 48LC001158-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000650-DATA / 48LC001159-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000651-DATA / 48LC001160-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000653-DATA / 48LC001161-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000654-DATA / 48LC001162-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
48LC000664-DATA / 48LC001166-DATA	1	76.8 kbps	8 NONE 1	BACnet / (2)	DI4 / (5)	DI1 / (2)	N/A	N/A
50H4002326-DATA / 50HE007828-DATA	—	—	—	—	—	—	N/A	N/A
50HE003081-DATA / 50HE007848-DATA	—	—	—	—	—	—	N/A	N/A
50HE003082-DATA / 50HE007849-DATA	—	—	—	—	—	—	N/A	N/A
50HE003084-DATA / 50HE007850-DATA	—	—	—	—	—	—	N/A	N/A
50HE003085-DATA / 50HE007851-DATA	—	—	—	—	—	—	N/A	N/A
50HE003086-DATA / 50HE007852-DATA	—	—	—	—	—	—	N/A	N/A
50HE003087-DATA / 50HE007853-DATA	—	—	—	—	—	—	N/A	N/A
50HE003089-DATA / 50HE007854-DATA	—	—	—	—	—	—	N/A	N/A
50HE003090-DATA / 50HE007855-DATA	—	—	—	—	—	—	N/A	N/A
50HE003092-DATA / 50HE007856-DATA	—	—	—	—	—	—	N/A	N/A
50HE003093-DATA / 50HE007857-DATA	—	—	—	—	—	—	N/A	N/A
48TM005163-DATA / 48TM009837-DATA	—	—	—	—	—	—	48TM482532	48TM482683
48TM005166-DATA / 48TM009840-DATA	—	—	—	—	—	—	48TM482535	48TM482686
48TM005162-DATA / 48TM009836-DATA	—	—	—	—	—	—	48TM482531	48TM482682
48TM005174-DATA / 48TM009845-DATA	—	—	—	—	—	—	48TM482593	48TM482694
48TM005164-DATA / 48TM009838-DATA	—	—	—	—	—	—	48TM482533	48TM482684
48TM005173-DATA / 48TM009844-DATA	—	—	—	—	—	—	48TM482592	48TM482693
48TM005165-DATA / 48TM009839-DATA	—	—	—	—	—	—	48TM482534	48TM482685
48TM005168-DATA / 48TM009842-DATA	—	—	—	—	—	—	48TM482537	48TM482688
48TM005172-DATA / 48TM009843-DATA	—	—	—	—	—	—	48TM482591	48TM482692
48TM005167-DATA / 48TM009841-DATA	—	—	—	—	—	—	48TM482536	48TM482687

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	PKG ABB ACS320	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
48TM005433-DATA / 48TM009847-DATA	48TM005433	HD56FR233	HK30WA506 / HK30WB505	3.0 / 5.0	SRT 3.0 Hp 230-v
48TM005436-DATA / 48TM009850-DATA	48TM005436	HD56FR463	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 3.0 Hp 460-v
48TM005439-DATA / 48TM009853-DATA	48TM005439	HD58FE654	HK30WA506 / HK30WB505	3.0 / 5.0	SRT 3.0 Hp 230-v
48TM005437-DATA / 48TM009851-DATA	48TM005437	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 3.0 Hp 230-v
48TM005435-DATA / 48TM009849-DATA	48TM005435	HD60FK658	HK30WA506 / HK30WB505	3.0 / 5.0	SRT 3.0 Hp 230-v
48TM005438-DATA / 48TM009852-DATA	48TM005438	HD60FK658	HK30WA514 / HK30WB512	7.5 / 7.5	SRT 7.5 Hp 230-v
48TM005432-DATA / 48TM009846-DATA	48TM005432	HD56FE653	HK30WA506 / HK30WB505	3.0 / 5.0	SRT 3.0 Hp 230-v
48TM005441-DATA / 48TM009855-DATA	48TM005441	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	SRT 3.0 Hp 230-v
48TM005434-DATA / 48TM009848-DATA	48TM005434	HD60FE656	HK30WA506 / HK30WB505	3.0 / 5.0	SRT 3.0 Hp 230-v
48TM005440-DATA / 48TM009854-DATA	48TM005440	HD60FE656	HK30WA517 / HK30WB511	5.0 / 5.0	SRT 5.0 Hp 230-v
50TM001619-DATA / 50TM003510-DATA	50TM001619	HD56FE653	HK30WA506 / HK30WB505	3.0 / 5.0	N/A
50TM001620-DATA / 50TM003511-DATA	50TM001620	HD56FE653	HK30WA512 / HK30WB510	3.0 / 3.0	N/A
50TM001614-DATA / 50TM003506-DATA	50TM001614	HD58FE654	HK30WA506 / HK30WB505	3.0 / 5.0	N/A
50TM001622-DATA / 50TM003512-DATA	50TM001622	HD58FE654	HK30WA512 / HK30WB510	3.0 / 3.0	N/A
50TM001616-DATA / 50TM003507-DATA	50TM001616	HD60FQ659	HK30WA507 / HK30WB506	7.5 / 7.5	N/A
50TM001623-DATA / 50TM003513-DATA	50TM001623	HD60FQ659	HK30WA506 / HK30WB505	3.0 / 5.0	N/A
50TM001617-DATA / 50TM003508-DATA	50TM001617	HD60FE656	HK30WA506 / HK30WB505	3.0 / 5.0	N/A
50TM001618-DATA / 50TM003509-DATA	50TM001618	HD60FE656	HK30WA517 / HK30WB511	7.5 / 5.0	N/A

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	EXT1 COMMANDS 1001 / 20.01	EXT7 / EXT2 SEL 1102 / 19.11	REF1 SELECT 1103 / 28.11
48TM005433-DATA / 48TM009847-DATA	230	5.6	1,725	1.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005436-DATA / 48TM009850-DATA	460	2.9	1,725	1.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005439-DATA / 48TM009853-DATA	230	7.8	1,725	2.9	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005437-DATA / 48TM009851-DATA	230	7.8	1,725	2.9	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005435-DATA / 48TM009849-DATA	230	12.7	1,740	5.3	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005438-DATA / 48TM009852-DATA	230	12.7	1,740	5.3	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005432-DATA / 48TM009846-DATA	230	6.8	1,725	2.4	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005441-DATA / 48TM009855-DATA	230	6.8	1,725	2.4	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005434-DATA / 48TM009848-DATA	230	9.8	1,725	3.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
48TM005440-DATA / 48TM009854-DATA	230	9.8	1,725	3.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001619-DATA / 50TM003510-DATA	230	6.8	1,725	2.4	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001620-DATA / 50TM003511-DATA	460	6.8	1,725	2.4	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001614-DATA / 50TM003506-DATA	230	7.8	1,725	2.9	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001622-DATA / 50TM003512-DATA	460	7.8	1,725	2.9	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001616-DATA / 50TM003507-DATA	230	12.6	1,755	5.0	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001623-DATA / 50TM003513-DATA	460	6.3	1,755	5.0	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001617-DATA / 50TM003508-DATA	230	9.8	1,725	3.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)
50TM001618-DATA / 50TM003509-DATA	460	9.8	1,725	3.7	10 COMM / (14)	8 COMM / (32)	8 COMM / (8)

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28	CONST SPEED 4 1205 / 28.29
48TM005433-DATA / 48TM009847-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005436-DATA / 48TM009850-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005439-DATA / 48TM009853-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005437-DATA / 48TM009851-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005435-DATA / 48TM009849-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005438-DATA / 48TM009852-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005432-DATA / 48TM009846-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005441-DATA / 48TM009855-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005434-DATA / 48TM009848-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
48TM005440-DATA / 48TM009854-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001619-DATA / 50TM003510-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001620-DATA / 50TM003511-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001614-DATA / 50TM003506-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001622-DATA / 50TM003512-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001616-DATA / 50TM003507-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001623-DATA / 50TM003513-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001617-DATA / 50TM003508-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—
50TM001618-DATA / 50TM003509-DATA	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	60 Hz	—

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	A01 CONTENTS SEL 1501 / 13.12	MAX AMPS 2003 / 30.17	STOP FCN 2102 / 21.03	ACCEL 2202 / 28.72	DECEL 2203 / 28.73	STATION ID 5201 / NA	BAUD RATE 5202 / NA	PARITY 5203 / NA
48TM005433-DATA / 48TM009847-DATA	102 Speed / (1)	5.6	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005436-DATA / 48TM009850-DATA	102 Speed / (1)	2.9	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005439-DATA / 48TM009853-DATA	102 Speed / (1)	7.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005437-DATA / 48TM009851-DATA	102 Speed / (1)	7.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005435-DATA / 48TM009849-DATA	102 Speed / (1)	12.7	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005438-DATA / 48TM009852-DATA	102 Speed / (1)	12.7	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005432-DATA / 48TM009846-DATA	102 Speed / (1)	6.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005441-DATA / 48TM009855-DATA	102 Speed / (1)	6.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005434-DATA / 48TM009848-DATA	102 Speed / (1)	9.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
48TM005440-DATA / 48TM009854-DATA	102 Speed / (1)	9.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001619-DATA / 50TM003510-DATA	102 Speed / (1)	6.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001620-DATA / 50TM003511-DATA	102 Speed / (1)	6.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001614-DATA / 50TM003506-DATA	102 Speed / (1)	7.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001622-DATA / 50TM003512-DATA	102 Speed / (1)	7.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001616-DATA / 50TM003507-DATA	102 Speed / (1)	12.6	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001623-DATA / 50TM003513-DATA	102 Speed / (1)	6.3	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001617-DATA / 50TM003508-DATA	102 Speed / (1)	9.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1
50TM001618-DATA / 50TM003509-DATA	102 Speed / (1)	9.8	Ramp / (1)	30 sec.	30 sec.	1	9.6 kbps	8 NONE 1

LEGEND

— - HVAC Default, field does not require change.

Table 22 — ACS320/ACH180 VFD Parameters, for 48/50 Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	EFB STATION ID 5302 / 58.03	EFB BAUD RATE 5303 / 58.04	EFB PARITY 5304 / 58.05	COMM PROT SEL 9802 / 58.01	RUN ENABLE 1601 / 20.40	START INTERLOCK 1608 / 20.41	CROSS REFERENCE	
							EM PKG	CL PKG
48TM005433-DATA / 48TM009847-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005436-DATA / 48TM009850-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005439-DATA / 48TM009853-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005437-DATA / 48TM009851-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005435-DATA / 48TM009849-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005438-DATA / 48TM009852-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005432-DATA / 48TM009846-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005441-DATA / 48TM009855-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005434-DATA / 48TM009848-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
48TM005440-DATA / 48TM009854-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001619-DATA / 50TM003510-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001620-DATA / 50TM003511-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001614-DATA / 50TM003506-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001622-DATA / 50TM003512-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001616-DATA / 50TM003507-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001623-DATA / 50TM003513-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A
50TM001617-DATA / 50TM003508-DATA	—	—	—	1 Std Modbus / (1)	DI4 / (5)	DI1 / (2)	N/A	N/A

LEGEND

— - HVAC Default, field does not require change.

Table 23 — ACS320/ACH180 VFD Common Parameters for 40RU Units with Electromechanical Controls

PARAMETERS ACS320 / ACH180	DESCRIPTION	VFD FAN BOARD SETTING ACS320 / ACH180	UNIT CONTROL BOARD (UCB) SETTING ACS320 / ACH180
9802 / 58.01	COMM PROT Sel	—	—
9907 / 99.08	Motor Nominal Frequency	60 Hz	60 Hz
1001 / 20.01	EXT1 Commands	—	DI1 / (1)
1102 / 19.11	EXT1/EXT2 Sel	—	EXT1 / (0)
1103 / 28.11	REF 1 Select	—	AI1 Scaled / (1)
1201 / 28.22	Const Speed Sel	DI2,3 / (3)	DI2,3 / (3)
1201 / 28.23	Const Speed Sel	DI2,3 / (4)	DI2,3 / (4)
1202 / 28.26	Const Speed 1	40 Hz	40 Hz
1203 / 28.27	Const Speed 2	60 Hz	60 Hz
1204 / 28.28	Const Speed 3	60 Hz	60 Hz
1205 / 28.29	Const Speed 4	—	—
1301 / 12.17	Minimum AI1	—	0.02
1401 / 10.24	Relay Output 1	(16) FLT / Fault/Warning (16)	FAULT (-1) / (15)
1403 / NA	Relay Output 3	—	—
1501 / 13.12	AO1 Content Sel	—	—
1601 / 20.40	Run Enable	—	—
1608 / 20.41	N/A	—	(0) Not Sel / (0)
1611 / NA	Parameter View	3	3
2007 / 30.13	Minimum Frequency	0 Hz	0 Hz
2008 / 30.14	Maximum Frequency	60 Hz	60 Hz
2101 / 21.19	Start FCN	(1) Auto / (2)	(1) Auto / (2)
2102 / 21.03	Stop FCN	(1) Coast / (0)	(1) Coast / (0)
2201 / 28.71	ACCEL/DECEL	(0) Not Sel / (0)	(0) Not Sel / (0)
2202 / 28.72	ACCEL	30 sec.	30 sec.
2203 / 28.73	DECEL	30 sec.	30 sec.
2603 / 97.13	IR COMP Volt	0 volts	0 volts
2606 / 97.01	Switching Freq	4 kHz / (4)	4 kHz / (4)
3102 / 31.15	Trial Time	300.0 sec.	300.0 sec.
3103 / 31.16	Delay Time	6.0 sec.	6.0 sec.
3104 / 31.12	AR Overcurrent	Enabled / Enabled/Bit 0 (1)	Enabled / Enabled/Bit 0 (1)
5101 / NA	FBA Type	—	—
5201 / NA	Station ID	—	—
5202 / NA	Baud Rate	—	—
5203 / NA	Parity	—	—
530 / 58.02	EFB Protocol ID	—	—
5302 / 58.03	EFB Station ID	—	—
5303 / 58.04	EFB Baud Rate	—	—
5304 / 58.05	EFB Parity	—	—
5305 / 58.25	EFB CTRL Profile	—	—

LEGEND

— - HVAC Default, field does not require change.

Table 24 — ACS320/ACH180 VFD Parameters, for 40RU Units with Electromechanical Controls

VFD PARAMETERS ACS320 / ACH180	PKG ABB ACS320	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
40RU000130-DATA / 40RU001050-DATA	40R0000130	HD56FR233	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 1.7 Hp 230-v
40RU000131-DATA / 40RU001051-DATA	40R0000131	HD56FR463	HK30WA530 / HK30WB510	3.0 / 3.0	40RU 1.7 Hp 460-v
40RU480011-DATA / 40RU001078-DATA	40RU480011	HD56FE653	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 2.4 Hp 230-v
40RU480012-DATA / 40RU001079-DATA	40RU480012	HD56FE653	HK30WA530 / HK30WB510	3.0 / 3.0	40RU 2.4 Hp 460-v
40RU480014-DATA / 40RU001080-DATA	40RU480014	HD58FE654	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 2.9 Hp 230-v
40RU480015-DATA / 40RU001081-DATA	40RU480015	HD58FE654	HK30WA530 / HK30WB510	3.0 / 3.0	40RU 2.9 Hp 460-v
40RU480016-DATA / 40RU001082-DATA	40RU480016	HD60FE656	HK30WA523 / HK30WB505	5.0 / 5.0	40RU 3.7 Hp 230-v
40RU480017-DATA / 40RU001083-DATA	40RU480017	HD60FE656	HK30WA534 / HK30WB511	5.0 / 5.0	40RU 3.7 Hp 460-v
40RU000133-DATA / 40RU001052-DATA	40R0000133	HD58FR236	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 3.7 Hp 230-v
40RU000134-DATA / 40RU001053-DATA	40R0000134	HD58FR236	HK30WA534 / HK30WB511	5.0 / 5.0	40RU 3.7 Hp 460-v
40RU480002-DATA / 40RU001072-DATA	40RU480002	HD60FQ659	HK30WA524 / HK30WB507	7.0 / 10.0	40RU 5.0 Hp 230-v
40RU480003-DATA / 40RU001073-DATA	40RU480003	HD60FQ659	HK30WA532 / HK30WB512	7.0 / 7.5	40RU 5.0 Hp 460-v
40RU480005-DATA / 40RU001074-DATA	40RU480005	HD62FX654	HK30WA524 / HK30WB507	7.0 / 10.0	40RU 7.5 Hp 230-v
40RU480006-DATA / 40RU001075-DATA	40RU480006	HD62FX654	HK30WA532 / HK30WB512	7.0 / 7.5	40RU 7.5 Hp 460-v
40RU480008-DATA / 40RU001076-DATA	40RU480008	HD64FX655	HK30WA525 / HK30WB507	10.0 / 10.0	40RU 10 Hp 230-v
40RU480009-DATA / 40RU001077-DATA	40RU480009	HD64FX655	HK30WA533 / HK30WB513	10.0 / 10.0	40RU 10 Hp 460-v

Table 24 — ACS320/ACH180 VFD Parameters, for 40RU Units with Electromechanical Controls (cont)

VFD PARAMETERS ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	MOTOR NOM. FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	MAX AMPS 2003 / 30.17	CROSS REFERENCE	
							EM PKG	CL PKG
40RU000130-DATA / 40RU001050-DATA	230	5.8	60 Hz	1,725	1.7	6.7	40RU480130	—
40RU000131-DATA / 40RU001051-DATA	460	2.9	60 Hz	1,725	1.7	3.3	40RU480131	—
40RU480011-DATA / 40RU001078-DATA	230	7.1	60 Hz	1,725	2.4	8.2	40RU480011	—
40RU480012-DATA / 40RU001079-DATA	460	3.4	60 Hz	1,725	2.4	3.9	40RU480012	—
40RU480014-DATA / 40RU001080-DATA	230	8.6	60 Hz	1,725	2.9	9.9	40RU480014	—
40RU480015-DATA / 40RU001081-DATA	460	3.8	60 Hz	1,725	2.9	4.4	40RU480015	—
40RU480016-DATA / 40RU001082-DATA	230	10.8	60 Hz	1,725	3.7	12.4	40RU480016	—
40RU480017-DATA / 40RU001083-DATA	460	4.9	60 Hz	1,725	3.7	5.6	40RU480017	—
40RU000133-DATA / 40RU001052-DATA	230	10.2	60 Hz	1,725	3.7	11.7	40RU480133	—
40RU000134-DATA / 40RU001053-DATA	460	4.8	60 Hz	1,725	3.7	5.5	40RU480134	—
40RU480002-DATA / 40RU001072-DATA	230	17.0	60 Hz	1,760	5.0	19.6	40RU480002	—
40RU480003-DATA / 40RU001073-DATA	460	7.6	60 Hz	1,760	5.0	8.7	40RU480003	—
40RU480005-DATA / 40RU001074-DATA	230	21.5	60 Hz	1,760	7.5	24.7	40RU480005	—
40RU480006-DATA / 40RU001075-DATA	460	14.3	60 Hz	1,760	7.5	16.4	40RU480006	—
40RU480008-DATA / 40RU001076-DATA	230	28.6	60 Hz	1,755	10.0	32.2	40RU480008	—
40RU480009-DATA / 40RU001077-DATA	460	15.2	60 Hz	1,755	10.0	17.5	40RU480009	—

LEGEND

— - HVAC Default, field does not require change.

Table 25 — ACS320/ACH180 VFD Common Parameters for 40RU Units with I/O Flex Controls

PARAMETERS	DESCRIPTION	SETTING ACS320 / ACH180
1001 / 20.01	EXT1 Commands	DI1 / (1)
1102 / 19.11	EXT1 / EXT2 Sel	EXT1 / (0)
1103 / 28.11	REF 1 Select	AI1 Scaled / (1)
1201 / 28.22	Const Speed Sel	DI2,3 / (3)
1201 / 28.23	Const Speed Sel	DI2,3 / (4)
1202 / 28.26	Const Speed 1	40 Hz
1203 / 28.27	Const Speed 2	60 Hz
1204 / 28.28	Const Speed 3	60 Hz
1205 / 28.29	Const Speed 4	—
1401 / 10.24	Relay Output 1	(16) FLT / Fault/Warning (16)
1403 / NA	Relay Output 3	—
1501 / 13.12	A01 Content Sel	0103 OUTPUT FREQ / (3)
1601 / 20.40	RUN ENABLE	DI1 / (2)
1608 / 20.41	N/A	—
1611 / NA	Parameter View	3
2007 / 30.13	Minimum Frequency	0.0 Hz
2008 / 30.14	Maximum Frequency	60 Hz
2101 / 21.19	Start FCN	(1) Auto / (2)
2102 / 21.03	Stop FCN	(1) Coast / (0)
2201 / 28.71	ACCEL / DECEL	(0) Not Sel / (0)
2202 / 28.72	ACCEL	30s
2203 / 28.73	DECEL	10s
2603 / 97.13	IR COMP Volt	0 volts
2606 / 97.01	Switching Freq	4 kHz / (4)
3102 / 31.15	Trial Time	300.0s
3103 / 31.16	Delay Time	6.0s
3104 / 31.12	AR Overcurrent	Enabled / Enabled/Bit 0 (1)
5101 / NA	FBA Type	—
5201 / NA	Station ID	—
5202 / NA	Baud Rate	—
5203 / NA	Parity	—
5301 / 58.02	EFB Protocol ID	—
5302 / 58.03	EFB Station ID	1
5303 / 58.04	EFB Baud Rate	76.8 kbps
5304 / 58.05	EFB Parity	8 NONE 1
5305 / 58.25	EFB CTRL Profile	—
9802 / 58.01	COMM PROT Sel	BACnet / (2)
9907 / 99.08	Motor Nominal Frequency	60 Hz
9908 / 99.09	N. RPM	1,725

LEGEND

— - HVAC Default, field does not require change.

Table 26 — ACS320/ACH180 VFD Parameters, for 40RU Units with I/O Flex Controls

VFD PARAMETERS ACS320 / ACH180	PKG ABB ACS320	MOTOR PART NUMBER	VFD PART NUMBER ACS320 / ACH180	DRIVE HP ACS320 / ACH180	DESCRIPTION
40RU000203-DATA / 40RU001054-DATA	40R0000203	HD56FR233	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 1.7 Hp 230-v
40RU000204-DATA / 40RU001055-DATA	40R0000204	HD56FR463	HK30WA530 / HK30WB510	3.0 / 3.0	40RU 1.7 Hp 460-v
40RU000218-DATA / 40RU001058-DATA	40R0000218	HD56FE653	HK30WA523 / HK30WB505	3.0 / 5.0	40RU 2.4 Hp 230-v
40RU000219-DATA / 40RU001059-DATA	40R0000219	HD56FE653	HK30WA530 / HK30WB510	3.0 / 3.0	40RU 2.4 Hp 460-v
40RU000223-DATA / 40RU001060-DATA	40RU000223	HD60FE656	HK30WA523 / HK30WB505	5.0	40RU 3.7 Hp 230-v
40RU000224-DATA / 40RU001061-DATA	40RU000224	HD60FE656	HK30WA534 / HK30WB511	5.0	40RU 3.7 Hp 460-v
40RU000206-DATA / 40RU001056-DATA	40R0000206	HD58FR236	HK30WA523 / HK30WB505	5.0	40RU 3.7 Hp 230-v
40RU000207-DATA / 40RU001057-DATA	40R0000207	HD58FR236	HK30WA534 / HK30WB511	5.0	40RU 3.7 Hp 460-v

Table 26 — ACS320/ACH180 VFD Parameters, for 40RU Units with I/O Flex Controls (cont)

VFD PARAMETERS ACS320 / ACH180	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	MOTOR NOM. FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	MAX AMPS 2003 / 30.17	CROSS REFERENCE	
							EM PKG	CL PKG
40RU000203-DATA / 40RU001054-DATA	230	5.8	60 Hz	1,725	1.7	6.7	40RU480130	—
40RU000204-DATA / 40RU001055-DATA	460	2.9	60 Hz	1,725	1.7	3.3	40RU480131	—
40RU000218-DATA / 40RU001058-DATA	230	7.1	60 Hz	1,725	2.4	8.2	40RU480011	—
40RU000219-DATA / 40RU001059-DATA	460	3.4	60 Hz	1,725	2.4	3.9	40RU480012	—
40RU000223-DATA / 40RU001060-DATA	230	10.8	60 Hz	1,725	3.7	12.4	40RU480016	—
40RU000224-DATA / 40RU001061-DATA	460	4.9	60 Hz	1,725	3.7	5.6	40RU480017	—
40RU000206-DATA / 40RU001056-DATA	230	10.2	60 Hz	1,725	3.7	11.7	40RU480133	—
40RU000207-DATA / 40RU001057-DATA	460	4.8	60 Hz	1,725	3.7	5.5	40RU480134	—

LEGEND

— - HVAC Default, field does not require change.

Table 27 — ACH550/580 VFD Common Parameters for 48/50 Units with Electromechanical Controls

PARAMETERS ACH550 / ACH580	DESCRIPTION	SETTING ACH550 / ACH580
9802 / 58.01	COMM PROT Sel	—
9907 / 99.08	Motor Nominal Frequency	60 Hz
1001 / 20.01	EXT1 Commands	—
1102 / 19.11	EXT1/EXT2 Sel	—
1103 / 28.11	REF 1 Select	—
1201 / 28.22	Const Speed Sel	DI2,3 / DI2
1201 / 28.23	Const Speed Sel	DI2,3 / DI3
1202 / 28.26	Const Speed 1	40 Hz
1203 / 28.27	Const Speed 2	60 Hz
1204 / 28.28	Const Speed 3	60 Hz
1205 / 28.29	Const Speed 4	—
1401 / 10.24	Relay Output 1	—
1403 / 10.30	Relay Output 3	16 FLT/Alarm / FLT/(14) Fault
1501 / 13.12	AO1 Content Sel	—
1601 / 20.40	Run Enable	—
2007 / 30.13	Minimum Frequency	0 Hz
2008 / 30.14	Maximum Frequency	60 Hz
2101 / 21.19	Start FCN	Auto / Automatic
2102 / 21.03	Stop FCN	Ramp
2201 / 28.71	ACCEL/DECEL	Not Sel / 0
2202 / 28.72	ACCEL	30 sec.
2203 / 28.73	DECEL	30 sec.
2606 / 97.01	Switching Freq	4 kHz
5101 / 51.01	FBA Type	—
5201 / 58.03	Station ID	—
5202 / 58.04	Baud Rate	—
5203 / 58.05	Parity	—
5301 / 58.25	EFB Protocol ID	—
5302 / 58.03	EFB Station ID	—
5303 / 58.04	EFB Baud Rate	—
5304 / 58.05	EFB Parity	—
5305 / 58.25	EFB CTRL Profile	—

Table 28 — ACH550/580 VFD Parameters, for 48/50 Units with Electromechanical Controls

VFD PARAMETERS	PKG ABB ACH550	MOTOR PART NUMBER	ACH550 / ACH580 VFD PART NUMBER	DRIVE HP	DESC
48TM482532-DATA	48TM482532	HD56FR233	HK30WA352 / HK30WB304	3.0	SRT 1.7 Hp 230-v
48TM482535-DATA	48TM482535	HD56FR463	HK30WA356 / HK30WB319	3.0	SRT 1.7 Hp 460-v
48TM482538-DATA	48TM482538	HD56FR579	HK30WA360 / HK30WB340	3.0	SRT 1.7 Hp 575-v
48TM482531-DATA	48TM482531	HD56FE653	HK30WA352 / HK30WB304	3.0	SRT 2.4 Hp 230-v
48TM482593-DATA	48TM482593	HD56FE653	HK30WA356 / HK30WB319	3.0	SRT 2.4 Hp 460-v
48TM482530-DATA	48TM482530	HD56FE577	HK30WA360 / HK30WB340	3.0	SRT 2.4 Hp 575-v
48TM482591-DATA	48TM482591	HD58FE654	HK30WA352 / HK30WB304	3.0	SRT 2.9 Hp 230-v
48TM482536-DATA	48TM482536	HD58FE654	HK30WA356 / HK30WB319	3.0	SRT 2.9 Hp 460-v
48TM482533-DATA	48TM482533	HD60FE656	HK30WA353 / HK30WB305	5.0	SRT 3.7 Hp 230-v
48TM482592-DATA	48TM482592	HD60FE656	HK30WA357 / HK30WB320	5.0	SRT 3.7 Hp 460-v
48TM482539-DATA	48TM482539	HD58FE577	HK30WA361 / HK30WB341	5.0	SRT 3.7 Hp 575-v
48TM482534-DATA	48TM482534	HD60FK658	HK30WA354 / HK30WB306	7.5	SRT 5.3 Hp 230-v
48TM482537-DATA	48TM482537	HD60FK658	HK30WA358 / HK30WB321	7.5	SRT 5.3 Hp 460-v
48TM482540-DATA	48TM482540	HD60FE576	HK30WA362 / HK30WB342	7.5	SRT 5.3 Hp 575v
50TM480839-DATA	50TM480839	HD56FE653	HK30WA352 / HK30WB304	3.0	SRT 2.4 Hp 230-v
50TM480840-DATA	50TM480840	HD56FE653	HK30WA356 / HK30WB319	3.0	SRT 2.4 Hp 460-v
50TM480841-DATA	50TM480841	HD56FE577	HK30WA360 / HK30WB340	3.0	SRT 2.4 Hp 575-v
50TM480822-DATA	50TM480822	HD58FE654	HK30WA352 / HK30WB304	3.0	SRT 2.9 Hp 230-v
50TM480842-DATA	50TM480842	HD58FE654	HK30WA356 / HK30WB319	3.0	SRT 2.9 Hp 460-v
50TM480837-DATA	50TM480837	HD60FE656	HK30WA353 / HK30WB305	5.0	SRT 3.7 Hp 230-v
50TM480838-DATA	50TM480838	HD60FE656	HK30WA357 / HK30WB320	5.0	SRT 3.7 Hp 460-v
50TM480821-DATA	50TM480821	HD58FE577	HK30WA361 / HK30WB341	5.0	SRT 3.7 Hp 575-v
50TM480824-DATA	50TM480824	HD60FK657	HK30WA354 / HK30WB306	7.5	SRT 5.0 Hp 230-v
50TM480843-DATA	50TM480843	HD60FK657	HK30WA358 / HK30WB321	7.5	SRT 5.0 Hp 460-v
50TM480823-DATA	50TM480823	HD60FK577	HK30WA362 / HK30WB342	7.5	SRT 5.0 Hp 575-v
50HE402582-DATA	50HE402582	HD58FE654	HK30WA352 / HK30WB304	3.0	MRT 2.9 Hp 230-v
50HE402587-DATA	50HE402587	HD58FE654	HK30WA356 / HK30WB319	3.0	MRT 2.9 Hp 460-v
50HE402583-DATA	50HE402583	HD60FE656	HK30WA353 / HK30WB305	5.0	MRT 3.7 Hp 230-v
50HE402588-DATA	50HE402588	HD60FE656	HK30WA357 / HK30WB320	5.0	MRT 3.7 Hp 460-v
50HE402592-DATA	50HE402592	HD58FE577	HK30WA361 / HK30WB341	5.0	MRT 3.7 Hp 575-v
50HE402584-DATA	50HE402584	HD60FK657	HK30WA354 / HK30WB306	7.5	MRT 5.0 Hp 230-v
50HE402589-DATA	50HE402589	HD60FK657	HK30WA358 / HK30WB321	7.5	MRT 5.0 Hp 460-v
50HE402593-DATA	50HE402593	HD60FK577	HK30WA362 / HK30WB342	7.5	MRT 5.0 Hp 575-v
50HE402585-DATA	50HE402585	HD62FK654	HK30WA354 / HK30WB306	7.5	MRT 7.5 Hp 230-v
50HE402590-DATA	50HE402590	HD62FK654	HK30WA358 / HK30WB321	7.5	MRT 7.5 Hp 460-v
50HE402594-DATA	50HE402594	HD62FL576	HK30WA362 / HK30WB342	7.5	MRT 7.5 Hp 575-v
50HE403636-DATA	50HE403636	HD60FK658	HK30WA354 / HK30WB306	7.5	MRT 5.3 Hp 230-v
50HE403637-DATA	50HE403637	HD60FK658	HK30WA358 / HK30WB321	7.5	MRT 5.3 Hp 460-v
50HE403638-DATA	50HE403638	HD60FE576	HK30WA362 / HK30WB342	7.5	MRT 5.3 Hp 575-v
50HE402586-DATA	50HE402586	HD64FK654	HK30WA355 / HK30WB307	10.0	MRT 10.0 Hp 230-v
50HE402591-DATA	50HE402591	HD64FK654	HK30WA359 / HK30WB322	10.0	MRT 10.0 Hp 460-v
50HE402595-DATA	50HE402595	HD64FL576	HK30WA363 / HK30WB343	10.0	MRT 10.0 Hp 575-v
50HE003083-DATA	50HE003083	HD58FE577	HK30WA361 / HK30WB341	5.0	MRT 3.7 Hp 575-v
50HE003088-DATA	50HE003088	HD60FE576	HK30WA362 / HK30WB342	7.5	MRT 5.3 Hp 575-v
50HE003091-DATA	50HE003091	HD60FK577	HK30WA362 / HK30WB342	7.5	MRT 5.0 Hp 575-v
50HE003094-DATA	50HE003094	HD62FL576	HK30WA362 / HK30WB342	7.5	MRT 7.5 Hp 575-v
48TM005169-DATA	48TM005169	HD56FR579	HK30WA360 / HK30WB340	3.0	SRT 1.7 Hp 575-v
48TM005161-DATA	48TM005161	HD56FE577	HK30WA360 / HK30WB340	3.0	SRT 2.4 Hp 575-v
48TM005170-DATA	48TM005170	HD58FE577	HK30WA361 / HK30WB341	5.0	SRT 3.7 Hp 575-v
50TM001601-DATA	50TM001601	HD56FE577	HK30WA360 / HK30WB340	3.0	SRT 2.4 Hp 575-v
50TM001205-DATA	50TM001205	HD58FE577	HK30WA361 / HK30WB341	5.0	SRT 3.7 Hp 575-v
50TM001207-DATA	50TM001207	HD60FK577	HK30WA362 / HK30WB342	7.5	SRT 5.0 Hp 575-v

Table 28 — ACH550/580 VFD Parameters, for 48/50 Units with Electromechanical Controls (cont)

ACH550 / ACH580 LOOKUP VARIABLE	550 / 580 VOLTAGE	550 / 580 NOM. AMPS	550 / 580 NOM. RPM	550 / 580 NOM. HP	550 / 580 MAX AMPS	CROSS REFERENCE	
VFD PARAMETERS	9905 / 99.07	9906 / 99.06	9908 / 99.09	9909 / 99.10	2003 / 30.17	EM PKG	CL PKG
48TM482532-DATA	230	5.8	1,725	1.7	6.7	48TM482532	48TM482683
48TM482535-DATA	460	2.9	1,725	1.7	3.3	48TM482535	48TM482686
48TM482538-DATA	575	3.1	1,725	1.7	3.6	48TM482538	48TM482689
48TM482531-DATA	230	7.9	1,725	2.4	9.1	48TM482531	48TM482682
48TM482593-DATA	460	3.6	1,725	2.4	4.1	48TM482593	48TM482694
48TM482530-DATA	575	3.8	1,725	2.4	4.4	48TM482530	48TM482681
48TM482591-DATA	230	9.2	1,725	2.9	10.6	48TM482591	48TM482692
48TM482536-DATA	460	4.2	1,725	2.9	4.8	48TM482536	48TM482687
48TM482533-DATA	230	11.7	1,725	3.7	13.5	48TM482533	48TM482684
48TM482592-DATA	460	5.4	1,725	3.7	6.2	48TM482592	48TM482693
48TM482539-DATA	575	4.9	1,725	3.7	5.6	48TM482539	48TM482690
48TM482534-DATA	230	13.6	1,740	5.3	15.6	48TM482534	48TM482685
48TM482537-DATA	460	6.4	1,740	5.3	7.4	48TM482537	48TM482688
48TM482540-DATA	575	6.0	1,725	5.3	6.9	48TM482540	48TM482691
50TM480839-DATA	230	7.9	1,725	2.4	9.1	50TM480839	—
50TM480840-DATA	460	3.6	1,725	2.4	4.1	50TM480840	—
50TM480841-DATA	575	3.8	1,725	2.4	4.4	50TM480841	—
50TM480822-DATA	230	9.2	1,725	2.9	10.6	50TM480822	50TM480915
50TM480842-DATA	460	4.2	1,725	2.9	4.8	50TM480842	50TM480916
50TM480837-DATA	230	11.7	1,725	3.7	13.5	50TM480837	50TM480917
50TM480838-DATA	460	5.4	1,725	3.7	6.2	50TM480838	50TM480918
50TM480821-DATA	575	4.9	1,725	3.7	5.6	50TM480821	50TM480919
50TM480824-DATA	230	17.1	1,760	5.0	19.7	50TM480824	50TM480921
50TM480843-DATA	460	8.6	1,760	5.0	9.9	50TM480843	50TM480922
50TM480823-DATA	575	7.6	1,745	5.0	8.7	50TM480823	50TM480920
50HE402582-DATA	230	9.2	1,725	2.9	10.6	50HE402582	50HE402817
50HE402587-DATA	460	4.2	1,725	2.9	4.8	50HE402587	50HE402822
50HE402583-DATA	230	11.7	1,725	3.7	13.5	50HE402583	50HE402818
50HE402588-DATA	460	5.4	1,725	3.7	6.2	50HE402588	50HE402823
50HE402592-DATA	575	4.9	1,725	3.7	5.6	50HE402592	50HE402827
50HE402584-DATA	230	17.1	1,760	5.0	19.7	50HE402584	50HE402819
50HE402589-DATA	460	8.6	1,760	5.0	9.9	50HE402589	50HE402824
50HE402593-DATA	575	7.6	1,745	5.0	8.7	50HE402593	50HE402828
50HE402585-DATA	230	23.5	1,760	7.5	27.0	50HE402585	50HE402820
50HE402590-DATA	460	11.9	1,760	7.5	13.7	50HE402590	50HE402825
50HE402594-DATA	575	9.0	1,750	7.5	10.4	50HE402594	50HE402829
50HE403636-DATA	230	13.6	1,740	5.3	15.6	50HE402584	50HE402819
50HE403637-DATA	460	6.4	1,740	5.3	7.4	50HE402589	50HE402824
50HE403638-DATA	575	6.0	1,725	5.3	6.9	50HE402593	50HE402828
50HE402586-DATA	230	30.4	1,755	10.0	35.0	50HE402586	50HE402821
50HE402591-DATA	460	15.2	1,755	10.0	17.5	50HE402591	50HE402826
50HE402595-DATA	575	11.0	1,755	10.0	12.7	50HE402595	50HE402830
50HE003083-DATA	575	4.9	1,725	3.7	5.6	N/A	N/A
50HE003088-DATA	575	6.0	1,725	5.3	6.9	N/A	N/A
50HE003091-DATA	575	7.6	1,745	5.0	8.7	N/A	N/A
50HE003094-DATA	575	9.0	1,750	7.5	10.4	N/A	N/A
48TM005169-DATA	575	3.1	1,725	1.7	3.6	N/A	N/A
48TM005161-DATA	575	3.8	1,725	2.4	4.4	N/A	N/A
48TM005170-DATA	575	4.9	1,725	3.7	5.6	N/A	N/A
50TM001601-DATA	575	3.8	1,725	2.4	4.4	N/A	N/A
50TM001205-DATA	575	4.9	1,725	3.7	5.6	N/A	N/A
50TM001207-DATA	575	7.6	1,745	5.0	8.7	N/A	N/A

ACH550/580 VFD Common Parameters for 48/50 Units with I/O Flex Controls

Please contact your Carrier National Accounts representative for all I/O Flex ACH580 questions.

**Table 29 — ACH550/580 VFD Parameters —
40RU/40RUQ Unit VFD Parameters for Units with VFD Fan Speed Relay Board —
40RUA 07-30, 40RUS 08-30 and 40RUQ 07-25**

550 / 580 VFD PART NUMBER	550 / 580 ABB PART NUMBER	DESC	MOTOR PART NUMBER	550 / 580 VOLTAGE 9905 / 99.07	550 / 580 NOM AMPS 9906 / 99.06	550 / 580 MOTOR NOM FREQ 9907 / 99.08	550 / 580 NOM RPM 9908 / 99.09	550 / 580 NOM HP 9909 / 99.10
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	2.4 Hp 230-v	HD56FE653	230	7.9	60 Hz	1,725	2.4
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	2.4 Hp 460-v	HD56FE653	460	4.0	60 Hz	1,725	2.4
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	2.4 Hp 575-v	HD56FE577	575	3.4	60 Hz	1,725	2.4
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	2.9 Hp 230-v	HD58FE654	230	9.2	60 Hz	1,725	2.9
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	2.9 Hp 460-v	HD58FE654	460	4.0	60 Hz	1,725	2.9
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	3.7 Hp 230-v	HD60FE656	230	11.2	60 Hz	1,725	3.7
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	3.7 Hp 460-v	HD60FE656	460	5.6	60 Hz	1,725	3.7
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	3.7 Hp 575-v	HD58FE577	575	4.2	60 Hz	1,725	3.7
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	5.0 Hp 230-v	HD60FK653	230	15.3	60 Hz	1,745	5.0
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	5.0 Hp 460-v	HD60FK653	460	6.4	60 Hz	1,745	5.0
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	5.0 Hp 575-v	HD60FK575	575	5.4	60 Hz	1,760	5.0
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	7.5 Hp 230-v	HD62FK652	230	22.4	60 Hz	1,760	7.5
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	7.5 Hp 460-v	HD62FK652	460	9.7	60 Hz	1,760	7.5
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	7.5 Hp 575-v	HD62FK576	575	9.0	60 Hz	1,750	7.5
HK30WA355 / HK30WB307	ACH550-UH-031A-2 / ACH580-01-031A-2	10.0 Hp 230-v	HD64FK654	230	30.8	60 Hz	1,760	10.0
HK30WA359 / HK30WB324	ACH550-UH-015A-4 / ACH580-01-023A-4	10.0 Hp / 15 Hp 460-v	HD64FK654	460	15.4	60 Hz	1,760	10.0
HK30WA363 / HK30WB343	ACH550-UH-011A-6 / ACH580-01-011A-6	10.0 Hp 575-v	HD64FK575	575	11.0	60 Hz	1,755	10.0

**Table 29 — ACH550/580 VFD Parameters —
40RU/40RUQ Unit VFD Parameters for Units with VFD Fan Speed Relay Board —
40RUA 07-30, 40RUS 08-30 and 40RUQ 07-25 (cont)**

550 / 580 VFD PART NUMBER	550 / 580 ABB PART NUMBER	550 / 580 CONST SPEED SEL 1201 / 28.22	550 / 580 CONST SPEED SEL 1201 / 28.23	550 / 580 CONST SPEED 1 1202 / 28.26	550 / 580 CONST SPEED 2 1203 / 28.27	550 / 580 CONST SPEED 3 1204 / 28.28	550 / 580 RELAY OUT 3 1403 / 10.30
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA355 / HK30WB307	ACH550-UH-031A-2 / ACH580-01-031A-2	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA359 / HK30WB324	ACH550-UH-015A-4 / ACH580-01-023A-4	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault
HK30WA363 / HK30WB343	ACH550-UH-011A-6 / ACH580-01-011A-6	DI2,3 / DI2	DI2,3 / DI3	40 Hz	60 Hz	60 Hz	(16) FLT- Alarm / (14) Fault

**Table 29 — ACH550/580 VFD Parameters —
40RU/40RUQ Unit VFD Parameters for Units with VFD Fan Speed Relay Board —
40RUA 07-30, 40RUS 08-30 and 40RUQ 07-25 (cont)**

550 / 580 VFD PART NUMBER	550 / 580 ABB PART NUMBER	550 / 580 MAX AMPS 2003 / 30.17	550 / 580 MIN FREQ 2007 / 30.13	550 / 580 MAX FREQ 2008 / 30.14	550 / 580 SWITCH FREQ 2606 / 97.01	550 / 580 START FCN 2101 / 21.19	550 / 580 STOP FCN 2102 / 21.03	550 / 580 ACCEL/ DECEL 2201 / 28.71	550 / 580 ACCEL 2202 / 28.72	550 / 580 DECEL 2203 / 28.73
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	9.1	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	4.6	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	3.9	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	10.6	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	5.3	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA353 / HK30WB305	ACH550-UH-017A-2 / ACH580-01-017A-2	12.9	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357 / HK30WB321	ACH550-UH-08A8-4 / ACH580-01-07A6-4	6.4	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361 / HK30WB341	ACH550-UH-06A1-6 / ACH580-01-06A1-6	4.8	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	17.6	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	7.4	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	6.2	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354 / HK30WB306	ACH550-UH-024A-2 / ACH580-01-024A-2	25.8	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358 / HK30WB322	ACH550-UH-012A-4 / ACH580-01-012A-4	11.2	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362 / HK30WB342	ACH550-UH-09A0-6 / ACH580-01-09A0-6	10.4	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA355 / HK30WB307	ACH550-UH-031A-2 / ACH580-01-031A-2	35.4	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA359 / HK30WB324	ACH550-UH-015A-4 / ACH580-01-023A-4	17.7	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA363 / HK30WB343	ACH550-UH-011A-6 / ACH580-01-011A-6	12.7	0 Hz	60 Hz	4 kHz	Auto	Ramp	Not Sel / 0	30 sec.	30 sec.

Table 30 — ACH550/580 VFD Parameters, for 40RU Units with I/O Flex Controls

ACH550 / ACH580 VFD PARAMETERS	PKG ABB ACH550	MOTOR PART NUMBER	ACH550 / ACH580 VFD PART NUMBER	DRIVE HP	DESC
40RU000205-DATA / 40RU000606-DATA	40RU000205	HD56FR579	HK30WA360 / HK30WB340	3.0	40RU 1.7 Hp 575-v
40RU000220-DATA / 40RU000608-DATA	40RU000220	HD56FE577	HK30WA360 / HK30WB340	3.0	40RU 2.4 Hp 575-v
40RU000225-DATA / 40RU000609-DATA	40RU000225	HD58FE577	HK30WA361 / HK30WB341	5.0	40RU 3.7 Hp 575-v
40RU000208-DATA / 40RU000607-DATA	40RU000208	HD58FE577	HK30WA361 / HK30WB341	5.0	40RU 3.7 Hp 575-v

Table 30 — ACH550/580 VFD Parameters, for 40RU Units with I/O Flex Controls (cont)

ACH550 / ACH580 VFD PARAMETERS	NOM. AMPS 9906 / 99.06	NOM. HP 9909 / 99.10	MAX AMPS 2003 / 30.17	CROSS REFERENCE	
				EM PKG	CL PKG
40RU000205-DATA / 40RU000606-DATA	2.8	1.7	3.2	40RU480132	—
40RU000220-DATA / 40RU000608-DATA	3.8	2.4	4.4	40RU480013	—
40RU000225-DATA / 40RU000609-DATA	4.9	3.7	5.6	40RU480018	—
40RU000208-DATA / 40RU000607-DATA	4.5	3.7	5.2	40RU480135	—

LEGEND

— - HVAC Default, field does not require change.

Table 31 — ACH550/580 VFD Common Parameters for 48/50 Units with ComfortLink Controls

PARAMETERS ACH550 / ACH580	DESCRIPTION	SETTING ACH550 / ACH580
9802 / 58.01	COMM PROT SEL	6 LEN / 8 LEN
9907 / 99.08	Motor Nominal Frequency	60 Hz
1001 / 20.01	EXT1 Commands	—
1102 / 19.11	EXT1/EXT2 Sel	—
1103 / 28.11	REF 1 Select	—
1201 / 28.22	Const Speed Sel	—
1202 / 28.26	Const Speed 1	—
1203 / 28.27	Const Speed 2	—
1204 / 28.28	Const Speed 3	—
1205 / 28.29	Const Speed 4	—
1401 / 10.24	Relay Output 1	—
1403 / 10.30	Relay Output 3	—
1501 / 13.12	AO1 Content Sel	—
1601 / 20.40	RUN ENABLE	—
2007 / 30.13	Minimum Frequency	—
2008 / 30.14	Maximum Frequency	—
2101 / 21.19	Start FCN	—
2102 / 21.03	Stop FCN	—
2201 / 28.71	ACCEL/DECEL	—
2202 / 28.72	ACCEL	—
2203 / 28.73	DECEL	—
2606 / 97.01	Switching Freq	—
5101 / 51.01	FBA Type	—
5201 / 58.03	Station ID	—
5202 / 58.04	Baud Rate	—
5203 / 58.05	Parity	—
5301 / 58.25	EFB Protocol ID	0601 hex / NA
5302 / 58.03	EFB Station ID	41
5303 / 58.04	EFB Baud Rate	38.4 kbps
5304 / 58.05	EFB Parity	8 NONE 1
5305 / 58.25	EFB CTRL Profile	DCU PROFILE / ABB Drives

LEGEND

— - HVAC Default, field does not require change.

ACH180 VFD STANDARD KEYPAD DETAIL

By default, the ACH180 has an integrated control panel. (See Fig. 61.)

1. Display, shows the **Home** view as default.
2. **Status LED**, green and red colors indicate the state and potential problems.
3. **Back** key, opens the **Options** view.
4. Arrow keys, for menu navigation and setting values.
5. **OK** key, opens the **Menu** in the **Home** view.
6. **Off** key, stops the drive and switches to the Off mode.
7. **Auto/Hand** key, opens a selection screen view that allows the user to select between **Auto** and **Hand** modes.

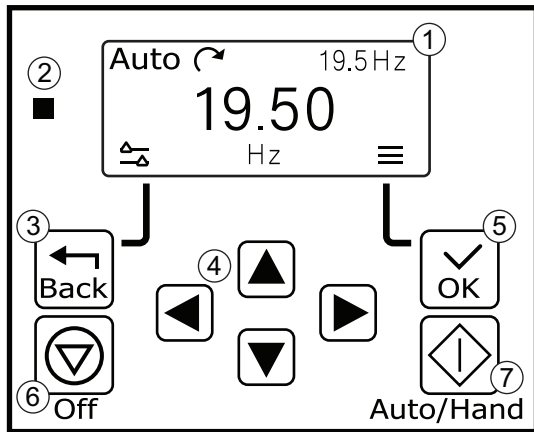
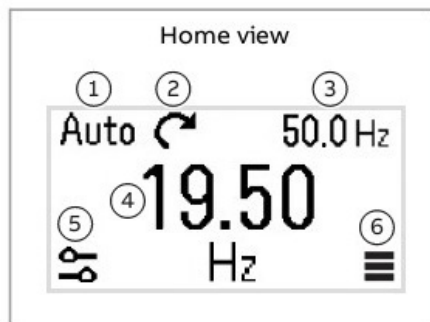


Fig. 61 — ACH180 Integrated Keypad

Submenus

The Main menu items have submenus. Some submenus also have menus and/or option lists. The content of the submenus depends on the drive type.

The Home view is the main view. You can open the main Menu and Options menu from the Home view. (See Fig. 62.)



1	Control location - Hand, Off or Auto
2	Rotation direction - forward or reverse
3	Location reference setting - enabled
4	Frequency - target
5	Options menu - quick access menu
6	Main menu - menu list

Fig. 62 — ACH180 Home View

Options Menu and Main Menu

The ACH180 drives have 5 menu options available (see Fig. 63):

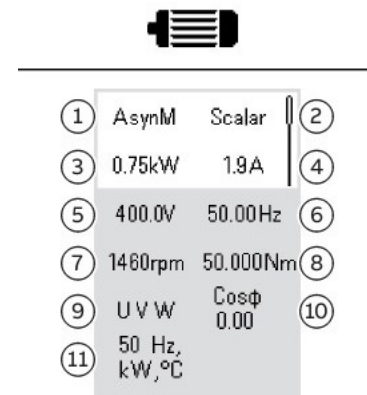
1. Motor data/motor parameters
2. Motor Control
3. Diagnostics
4. Energy Efficiency
5. Parameters

Figures 64-68 show the available options and information within each of the submenus.



Fig. 63 — ACH180 Options Menu Items

Motor data



1	Motor type - AsynM, PMSM, EC, Ti
2	Control mode - Scalar, Vector
3	Nominal power
4	Nominal current
5	Nominal voltage
6	Nominal frequency
7	Nominal speed
8	Nominal torque
9	Phase order, U V W, U W V
10	Nominal Cosphi
11	Unit selection, SI or US units

Fig. 64 — Motor Data Submenu

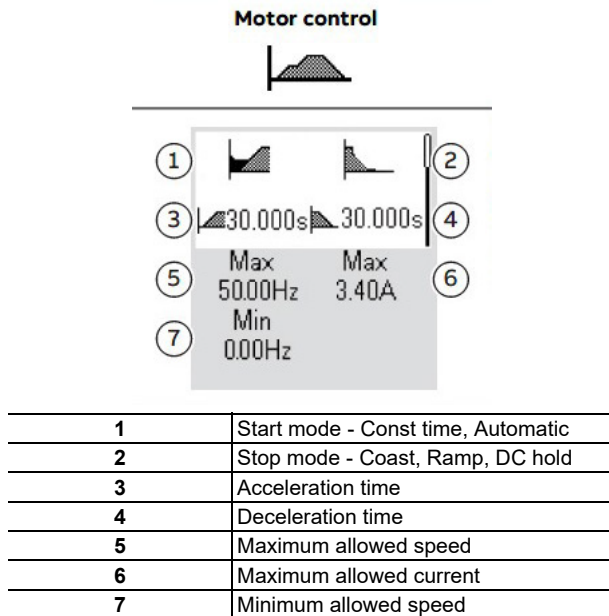


Fig. 65 — Motor Control Submenu

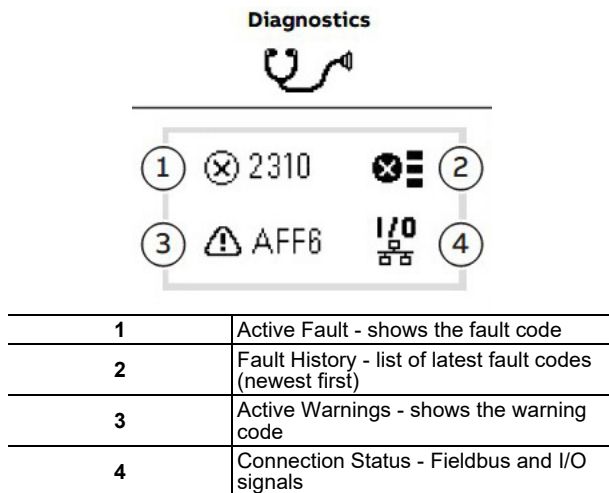


Fig. 66 — Diagnostics Submenu

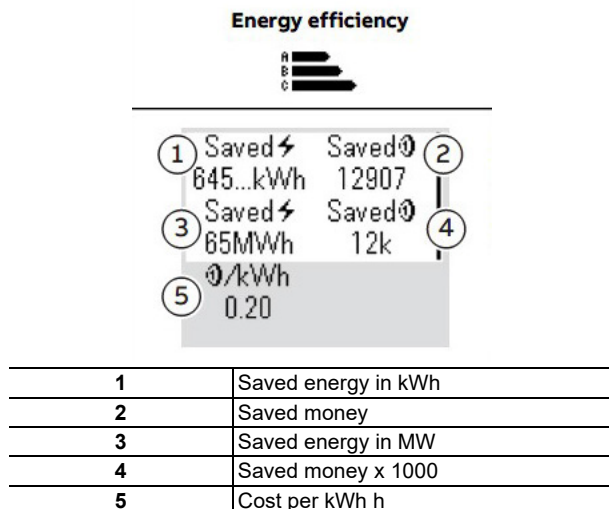


Fig. 67 — Energy Efficiency Submenu

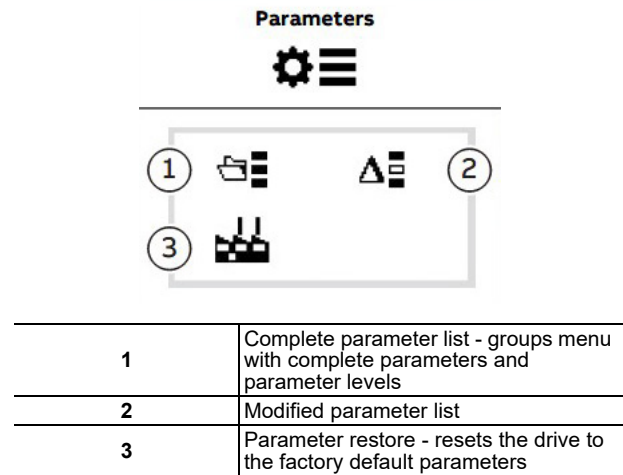


Fig. 68 — Parameters Submenu

ACH180 VFD Diagnostics

The drive detects error situations and reports them using the Status LED on the control panel (see Fig. 61). See Table 35 for more information about the Fault and Alarm Codes.

FAULTS (RED LED LIT)

The VFD signals that it has detected a severe error, or fault, by:

1. Enabling the red LED on the drive (LED is either steady or flashing).
2. Setting an appropriate bit in a Fault Word parameter.
3. Overriding the control panel display with the display of a fault code.
4. Stopping the motor (if it was on).

ALARMS (GREEN LED FLASHING)

For less severe errors, called alarms, the diagnostic display is advisory. For these situations, the drive is simply reporting that it had detected something unusual. In these situations, the drive:

1. Flashes the green LED on the drive (does not apply to alarms that arise from control panel operation errors).
2. Sets an appropriate bit in an Alarm Word parameter.
3. Overrides the control panel display with the display of an alarm code and/or name.

ACH550/ACS320 VFD REMOTE KEYPAD

NOTE: The following only applies when a unit with the factory-installed SAV™ option is equipped with the field-installed Remote VFD Keypad (P/N CRDISKKIT001A00) ACH550/ACS320 or (P/N CRDISKKIT003A00) ACH580.

On 48/50 Series single package rooftop units and 40RU fan coils equipped with the SAV option, the supply fan speed is controlled by a 3-phase VFD. See Fig. 7-24 for the location of the VFD in the units covered by this supplement.

The VFD is powered during normal operation to prevent condensation from forming on the boards during the off mode and is stopped by driving the speed to 0. The units use ABB VFDs. The interface wiring for the VFDs is shown in Fig. 69. Terminal designations are shown in the Terminal Designation table (see Table 32). Configurations are shown in the VFD Keypad Parameters tables (see Tables 36-42 on pages 80-87).

Table 32 — ACH550/580 VFD Terminal Designations

TERMINAL	FUNCTION
U1/L1 V1/L2 W1/L3	Three-Phase Main Circuit Input Power Supply
U2/T1/U V2/T2/V W2/T3/W	Three-Phase AC Output to Motor, 0-v to Maximum input voltage level
11 (GND) 12 (COMMON)	Factory-Supplied Jumper
10 (24 VDC) 13 (DI1)	Run (factory-supplied jumper)
10 (24 VDC) 16 (DI4)	Start Enable 1 (factory-supplied jumper). When opened, the drive goes to emergency stop.
14 (DI2) 15 (DI3)	Factory Wired for 24 vdc Input from Fan Speed Board

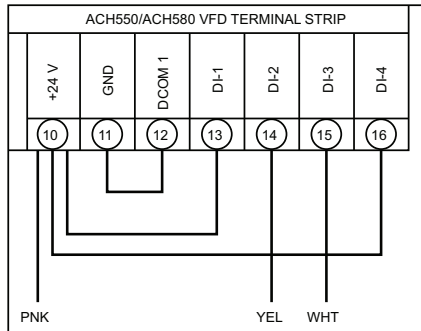


Fig. 69 — ACH550/580 VFD Wiring

Details on ACH550/ACS320 operation with remote keypad start below. For details on remote keypad for ACH580 VFDs, see “ACH580 Operation with Remote Keypad” on page 74.

ACH550/ACS320 Operation with Remote Keypad

The remote keypad used with ACH550/ACS320 VFDs is shown in Fig. 70. The functions of SOFT KEYS (1 and 2) change depending on what is displayed on the screen. The function of SOFT KEY 1 matches the word in the lower left-hand box on the display screen. The function of SOFT KEY 2 matches the word in the lower right-hand box on the display screen. If the box is empty, then the SOFT KEY does not have a function on that specific screen. The UP and DOWN keys are used to navigate through the menus. The OFF key is used to turn off the VFD. The AUTO key is used to change control of the drive to automatic control. The HAND key is used to change control of the drive to local (hand-held) control. The HELP button is used to access the help screens.

For the VFD to operate on the units covered by this document, the drive must be set in AUTO mode. The word “AUTO” will appear in the upper left hand corner of the VFD display. Press the AUTO button to set the drive in AUTO mode.

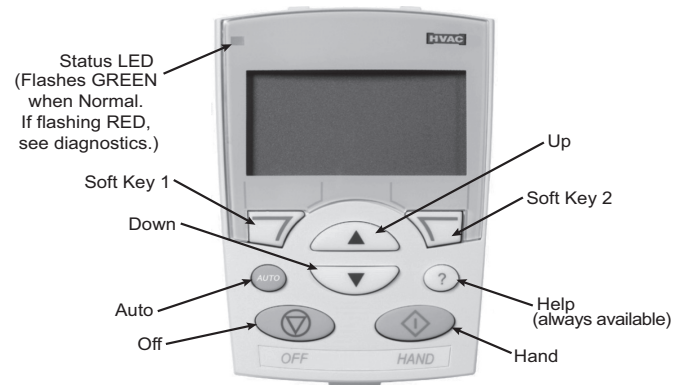


Fig. 70 — ACH550/ACS320 VFD Keypad

START UP WITH ASSISTANT

Initial start-up has been performed at the factory. Use of the start up assistant will override factory VFD configurations.

CAUTION

CONFIGURATION OVERRIDE HAZARD

Do not use ABB or Carrier start-up assistant on this VFD application. Use of start-up assistant will override the factory VFD configurations.

START UP BY CHANGING PARAMETERS INDIVIDUALLY

Initial start-up is performed at the factory. To start up the VFD by changing individual parameters, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PARAMETERS on the display screen and press ENTER (SOFT KEY 2).
3. Use the UP or DOWN keys to highlight the desired parameter group and press SEL (SOFT KEY 2).
4. Use the UP or DOWN keys to highlight the desired parameter and press EDIT 320/550 (SOFT KEY 2).
5. Use the UP or DOWN keys to change the value of the parameter.
6. Press SAVE (SOFT KEY 2) to store the modified value. Press CANCEL (SOFT KEY 1) to keep the previous value. Any modifications that are not saved will not be changed.
7. Choose another parameter or press EXIT/BACK (SOFT KEY 1) to return to the listing of parameter groups. Continue until all the parameters have been configured and then press EXIT/BACK (SOFT KEY 1) to return to the main menu.

NOTE: The current parameter value appears above the highlight parameter. To view the default parameter value, press the UP and DOWN keys simultaneously. To restore the default factory settings, select the application macro “HVAC Default.” ACH550/ACS320 only.

ACH550/ACS320 VFD Modes

The VFD has several different modes for configuring, operating, and diagnosing the VFD. The modes are:

- Standard Display mode — shows drive status information and operates the drive
- Parameters mode — edits parameter values individually
- Start-up Assistant mode — guides the start up and configuration
- Changed Parameters mode — shows all changed parameters
- Drive Parameter Backup mode — stores or uploads the parameters
- Clock Set mode — sets the time and date for the drive
- I/O Settings mode — checks and edits the I/O settings

STANDARD DISPLAY MODE

Use the standard display mode to read information on the drive status and operate the drive. To reach the standard display mode, press EXIT until the LCD display shows status information as described below. See Fig. 71.

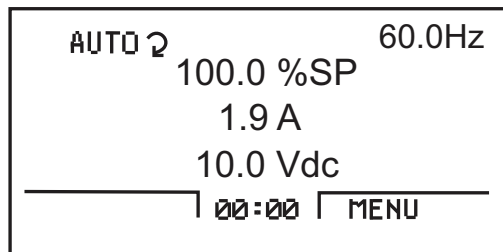


Fig. 71 — Standard Display Example

The top line of the LCD display shows the basic status information of the drive. The HAND icon indicates that the drive control is local from the control panel. The AUTO icon indicates that the drive is in remote control mode, such as the basic I/O or field bus.

The arrow icon indicates the drive and motor rotation status. A rotating arrow (clockwise or counterclockwise) indicates that the drive is running and at set point and the shaft direction is forward or reverse. A rotating blinking arrow indicates that the drive is running but not at set point. A stationary arrow indicates that the drive is stopped. For the units covered in this manual, the correct display rotation is clockwise.

The upper right corner shows the frequency set point that the drive will maintain.

Using parameter group 34, the middle of the LCD display can be configured to display 3 parameter values. The default display shows parameters 0103 (OUTPUT FREQ) in percent speed, 0104 (CURRENT) in amperes, and 0120 (A11) in voltage DC.

The bottom corners of the LCD display show the functions currently assigned to the two soft keys. The lower middle displays the current time (if configured to show the time).

The first time the drive is powered up, it is in the OFF mode. To switch to local hand-held control and control the drive using the control panel, press and hold the HAND button. Pressing the HAND button switches the drive to hand control while keeping the drive running. Press the AUTO button to switch to remote input control. To start the drive press the HAND or AUTO buttons, to stop the drive press the OFF button.

To adjust the speed in HAND mode, press the UP or DOWN buttons (the reference changes immediately). The reference can be modified in the local control (HAND) mode, and can be parameterized (using Group 11 reference select) to also allow modification in the remote control mode.

PARAMETERS MODE

The Parameters mode is used to change the parameters on the drive. To change parameters, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PARAMETERS on the display screen and press ENTER (SOFT KEY 2).
3. Use the UP or DOWN keys to highlight the desired parameter group and press SEL (SOFT KEY 2).
4. Use the UP or DOWN keys to highlight the desired parameter and press EDIT (SOFT KEY 2).
5. Use the UP or DOWN keys to change the value of the parameter.
6. Press SAVE (SOFT KEY 2) to store the modified value. Press CANCEL (SOFT KEY 1) to keep the previous value. Any modifications that are not saved will not be changed.
7. Choose another parameter or press EXIT (SOFT KEY 1) to return to the listing of parameter groups. Continue until all the parameters have been configured and then press EXIT (SOFT KEY 1) to return to the main menu.

NOTE: The current parameter value appears above the highlight parameter. To view the default parameter value, press the UP and DOWN keys simultaneously. To restore the default factory settings, select the Carrier application macro.

CHANGED PARAMETERS MODE

The Changed Parameters mode is used to view and edit recently changed parameters on the drive. To view the changed parameters, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight CHANGED PAR on the display screen and press ENTER (SOFT KEY 2). A list of the recently changed parameters will be displayed.
3. Use the UP or DOWN keys to highlight the desired parameter group and press EDIT (SOFT KEY 2) to change the parameter if desired.
4. Press EXIT (SOFT KEY 1) to exit the Changed Parameters mode.

DRIVE PARAMETER BACKUP MODE

The drive parameter back up mode is used to export the parameters from one drive to another. The parameters can be uploaded from a VFD to the removable control panel. The control panel can then be transferred to another drive and the parameters downloaded into memory.

Depending on the motor and application, there are two options available. The first option is to download all parameters. This copies both application and motor parameters to the drive from the control panel. This is recommended when using the same application for drives of the same size. This can also be used to create a backup of the parameters group for the drive.

The second option downloads only the application parameters to the drive. This is recommended when using the same application for drives of different sizes. Parameters 9905, 9906, 9907, 9908, 9909, 1605, 1607, 5201, and group 51 parameters and internal motor parameters are not copied.

Upload All Parameters

To upload and store parameters in the control panel from the VFD, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PAR BACKUP on the display screen and press ENTER (SOFT KEY 2).
3. Use the UP or DOWN keys to highlight UPLOAD TO PANEL and press SEL (SOFT KEY 2).
4. The text “Copying Parameters” will be displayed with a progress indicator. To stop the process, select ABORT (SOFT KEY 1).
5. When the upload is complete, the text “Parameter upload successful” will be displayed.
6. The display will then return to the PAR BACKUP menu. Select EXIT (SOFT KEY 1) to return to the main menu.
7. The control panel can now be disconnected from the drive.

Download All Parameters

To download all parameters from the control panel to the VFD, perform the following procedure:

1. Install the control panel with the correct parameters onto the VFD.
2. Select MENU (SOFT KEY 2). The Main menu will be displayed.
3. Use the UP or DOWN keys to highlight PAR BACKUP on the display screen and press ENTER (SOFT KEY 2).
4. Use the UP or DOWN keys to highlight DOWNLOAD TO DRIVE ALL and press SEL (SOFT KEY 2).
5. The text “Restoring Parameters” will be displayed with a progress indicator. To stop the process, select ABORT (SOFT KEY 1).
6. When the download is complete, the text “Parameter download successful” will be displayed.
7. The display will then return to the PAR BACKUP menu. Select EXIT (SOFT KEY 1) to return to the main menu.
8. The control panel can now be disconnected from the drive.

Download Application Parameters

To download application parameters only to the control panel from the VFD, perform the following procedure:

1. Install the control panel with the correct parameters onto the VFD.
2. Select MENU (SOFT KEY 2). The Main menu will be displayed.
3. Use the UP or DOWN keys to highlight PAR BACKUP on the display screen and press ENTER (SOFT KEY 2).
4. Use the UP or DOWN keys to highlight DOWNLOAD APPLICATION and press SEL (SOFT KEY 2).
5. The text “Downloading Parameters (partial)” will be displayed with a progress indicator. To stop the process, select ABORT (SOFT KEY 1).
6. When the download is complete, the text “Parameter download successful” will be displayed.
7. The display will then return to the PAR BACKUP menu. Select EXIT (SOFT KEY 1) to return to the main menu.
8. The control panel can now be disconnected from the drive.

CLOCK SET MODE

Use the clock set mode to set the date and time for the internal clock of the VFD. In order to use the timer functions of the VFD control, the internal clock must be set. The date is used to determine weekdays and is visible in the fault logs.

To set the clock, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight CLOCK SET on the display screen and press ENTER (SOFT KEY 2). The clock set parameter list will be displayed.
3. Use the UP or DOWN keys to highlight CLOCK VISIBILITY and press SEL (SOFT KEY 2). This parameter is used to display or hide the clock on the screen. Use the UP or DOWN keys to change the parameter setting. Press OK (SOFT KEY 2) to save the configuration and return to the Clock Set menu.
4. Use the UP or DOWN keys to highlight SET TIME and press SEL (SOFT KEY 2). Use the UP or DOWN keys to change the hours and minutes. Press OK (SOFT KEY 2) to save the configuration and return to the Clock Set menu.
5. Use the UP or DOWN keys to highlight TIME FORMAT and press SEL (SOFT KEY 2). Use the UP or DOWN keys to change the parameter setting. Press OK (SOFT KEY 2) to save the configuration and return to the Clock Set menu.
6. Use the UP or DOWN keys to highlight SET DATE and press SEL (SOFT KEY 2). Use the UP or DOWN keys to change the day, month, and year. Press OK (SOFT KEY 2) to save the configuration and return to the Clock Set menu.
7. Use the UP or DOWN keys to highlight DATE FORMAT and press SEL (SOFT KEY 2). Use the UP or DOWN keys to change the parameter setting. Press OK (SOFT KEY 2) to save the configuration and return to the Clock Set menu.
8. Press EXIT (SOFT KEY 1) twice to return to the main menu.

I/O SETTINGS MODE

Use the I/O Settings mode to view and edit the I/O settings.

To configure the I/O settings, perform the following procedure:

1. Select MENU (SOFT KEY 2). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight I/O SETTINGS on the display screen and press ENTER (SOFT KEY 2). The I/O Settings parameter list will be displayed.
3. Use the UP or DOWN keys to highlight the desired I/O setting and press SEL (SOFT KEY 2).
4. Use the UP or DOWN keys to select the parameter to view. Press OK (SOFT KEY 2).
5. Use the UP or DOWN keys to change the parameter setting. Press SAVE (SOFT KEY 2) to save the configuration. Press CANCEL (SOFT KEY 1) to keep the previous value. Any modifications that are not saved will not be changed.
6. Press EXIT (SOFT KEY 1) twice to return to the main menu.

ACH550/ACS320 VFD Diagnostics

The drive detects error situations and reports them using:

- Green and red LEDs on the body of the drive (located under the keypad)
- Status LED on the control panel
- Control panel display
- The Fault Word and Alarm Word parameter bits (parameters 0305 to 0309)

The form of the display depends on the severity of the error. The user can specify the severity for many errors by directing the drive to ignore the error situation, report the situation as an alarm, or report the situation as a fault.

FAULTS (RED LED LIT)

The VFD signals that it has detected a severe error, or fault, by:

- Enabling the red LED on the drive (LED is either steady or flashing)
- Setting an appropriate bit in a Fault Word parameter (0305 to 0307)
- Overriding the control panel display with the display of a fault code
- Stopping the motor (if it was on)

ALARMS (GREEN LED FLASHING)

For less severe errors, called alarms, the diagnostic display is advisory. For these situations, the drive is simply reporting that it had detected something unusual. In these situations, the drive:

- Flashes the green LED on the drive (does not apply to alarms that arise from control panel operation errors)
- Sets an appropriate bit in an Alarm Word parameter (0308 or 0309)
- Overrides the control panel display with the display of an alarm code and/or name

Alarm messages disappear from the control panel display after a few seconds. The message returns periodically as long as the alarm condition exists. See Table 34 for a list of alarm codes.

Correcting Faults

The recommended corrective action for faults is shown in the Fault Codes Table 33. The VFD can also be reset to remove the fault. If an external source for a start command is selected and is active, the VFD may start immediately after fault reset.

To reset a fault indicated by a flashing red LED, turn off the power for 5 minutes. To reset a fault indicated by a red LED (not flashing), press RESET from the control panel or turn off the power for 5 minutes. Depending on the value of parameter 1604 (FAULT RESET SELECT), digital input or serial communication could also be used to reset the drive. When the fault has been corrected, the motor can be started.

History

For reference, the last three fault codes are stored into parameters 0401, 0412, 0413. For the most recent fault (identified by parameter 0401), the drive stores additional data (in parameters 0402-0411) to aid in troubleshooting a problem. For example, a parameter 0404 stores the motor speed at the time of the fault. To clear the fault history (all of Group 04, Fault History parameters), follow these steps:

1. In the control panel, Parameters mode, select parameter 0401.
2. Press EDIT.
3. Press the UP and DOWN buttons simultaneously.
4. Press SAVE.

CORRECTING ALARMS

To correct alarms, first determine if the alarm requires any corrective action (action is not always required). Use Table 34 to find and address the root cause of the problem.

If diagnostics troubleshooting has determined that the drive is defective during the warranty period, contact Carrier.

Table 33 — ACH550/ACS320 Fault Codes

FAULT CODE	FAULT NAME IN PANEL	DESCRIPTION AND RECOMMENDED CORRECTIVE ACTION
1	OVERCURRENT	Output current is excessive. Check for excessive motor load, insufficient acceleration time (parameters 2202 ACCELER TIME 1, default 30 seconds), or faulty motor, motor cables or connections.
2	DC OVERVOLT	Intermediate circuit DC voltage is excessive. Check for static or transient over voltages in the input power supply, insufficient deceleration time (parameters 2203 DECELER TIME 1, default 30 seconds), or undersized brake chopper (if present).
3	DEV OVERTEMP	Drive heat sink is overheated. Temperature is at or above 115°C (239°F). Check for fan failure, obstructions in the air flow, dirt or dust coating on the heat sink, excessive ambient temperature, or excessive motor load.
4	SHORT CIRC	Fault current. Check for short-circuit in the motor cable(s) or motor or supply disturbances.
5	OVERLOAD	Inverter overload condition. The drive output current exceeds the ratings.
6	DC UNDERVOLT	Intermediate circuit DC voltage is not sufficient. Check for missing phase in the input power supply, blown fuse, or under voltage on main circuit.
7	AI1 LOSS	Analog input 1 loss. Analog input value is less than AI1 FLT LIMIT (3021). Check source and connection for analog input and parameter settings for AI1 FLT LIMIT (3021) and 3001 AI<MIN FUNCTION.
8	AI2 LOSS	Analog input 2 loss. Analog input value is less than AI2 FLT LIMIT (3022). Check source and connection for analog input and parameter settings for AI2 FLT LIMIT (3022) and 3001 AI<MIN FUNCTION.
9	MOT OVERTEMP	Motor is too hot, as estimated by the drive. Check for overloaded motor. Adjust the parameters used for the estimate (3005 - 3009). Check the temperature sensors and Group 35 parameters.
10	PANEL LOSS	Panel communication is lost and either drive is in local control mode (the control panel displays LOC), or drive is in remote control mode (REM) and is parameterized to accept start/stop, direction or reference from the control panel. To correct check the communication lines and connections. Check parameter 3002 PANEL COMM ERROR, parameters in Group 10: Command Inputs and Group 11:Reference Select (if drive operation is REM).
11	ID RUN FAIL	The motor ID run was not completed successfully. Check motor connections.
12	MOTOR STALL	Motor or process stall. Motor is operating in the stall region. Check for excessive load or insufficient motor power. Check parameters 3010 - 3012.
13	RESERVED	Not used.
14	EXT FAULT 1	Digital input defined to report first external fault is active. See parameter 3003 EXTERNAL FAULT 1.
15	EXT FAULT 2	Digital input defined to report second external fault is active. See parameter 3004 EXTERNAL FAULT 2.
16	EARTH FAULT	The load on the input power system is out of balance. Check for faults in the motor or motor cable. Verify that motor cable does not exceed maximum specified length.
17	UNDERLOAD	Motor load is lower than expected. Check for disconnected load. Check parameters 3013 UNDERLOAD FUNCTION through 3015 UNDERLOAD CURVE.
18	THERM FAIL	Internal fault. The thermistor measuring the internal temperature of the drive is open or shorted. Contact Carrier.
19	OPEX LINK	Internal fault. A communication-related problem has been detected between the OMIO and OINT boards. Contact Carrier.
20	OPEX PWR	Internal fault. Low voltage condition detected on the OINT board. Contact Carrier.
21	CURR MEAS	Internal fault. Current measurement is out of range. Contact Carrier.
22	SUPPLY PHASE	Ripple voltage in the DC link is too high. Check for missing main phase or blown fuse.
23	RESERVED	Not used.
24	OVERSPEED	Motor speed is greater than 120% of the larger (in magnitude) of 2001 MINIMUM SPEED or 2002 MAXIMUM SPEED parameters. Check parameter settings for 2001 and 2002. Check adequacy of motor braking torque. Check applicability of torque control. Check brake chopper and resistor.
25	RESERVED	Not used.
26	DRIVE ID	Internal fault. Configuration block drive ID is not valid.
27	CONFIG FILE	Internal configuration file has an error. Contact Carrier.
28	SERIAL 1 ERR	Field bus communication has timed out. Check fault setup (3018 COMM FAULT FUNC and 3019 COMM FAULT TIME). Check communication settings (Group 51 or 53 as appropriate). Check for poor connections and/or noise on line.
29	EFB CON FILE	Error in reading the configuration file for the field bus adapter.
30	FORCE TRIP	Fault trip forced by the field bus. See the field bus reference literature.
31	EFB 1	Fault code reserved for the EFB protocol application. The meaning is protocol dependent.
32	EFB 2	Fault code reserved for the EFB protocol application. The meaning is protocol dependent.
33	EFB 3	Fault code reserved for the EFB protocol application. The meaning is protocol dependent.
34	MOTOR PHASE	Fault in the motor circuit. One of the motor phases is lost. Check for motor fault, motor cable fault, thermal relay fault, or internal fault.
35	OUTP WIRING	Error in power wiring suspected. Check that input power wired to drive output. Check for ground faults.
101 - 105	SYSTEM ERROR	Error internal to the drive. Contact Carrier and report the error number.
1000	PAR HZRPM	Parameter values are inconsistent. Check for any of the following: 2001 MINIMUM SPEED > 2002 MAXIMUM SPEED 2007 MINIMUM FREQ > 2008 MAXIMUM FREQ 2001 MINIMUM SPEED / 9908 MOTOR NOM SPEED is outside of the range: -128/+128 2002 MAXIMUM SPEED / 9908 MOTOR NOM SPEED is outside of the range: -128/+128 2007 MINIMUM FREQ / 9907 MOTOR NOM FREQ is outside of the range: -128/+128 2008 MAXIMUM FREQ / 9907 MOTOR NOM FREQ is outside of the range: -128/+128
1001	PAR PFA REFNG	Parameter values are inconsistent. Check that 2007 MINIMUM FREQ is negative, when 8123 PFA ENABLE is active.
1002	PAR PFA IOCNF	Parameter values are inconsistent. The number of programmed PFA relays does not match with Interlock configuration, when 8123 PFA ENABLE is active. Check consistency of RELAY OUTPUT parameters 1401 - 1403, and 1410 - 1412. Check 8117 NR OF AUX MOTORS, 8118 AUTOCHANGE INTERV, and 8120 INTERLOCKS.
1003	PAR AI SCALE	Parameter values are inconsistent. Check that parameter 1301 AI 1 MIN > 1302 AI 1 MAX and that parameter 1304 AI 2 MIN > 1305 AI 2 MAX.
1004	PAR AO SCALE	Parameter values are inconsistent. Check that parameter 1504 AO 1 MIN > 1505 AO 1 MAX and that parameter 1510 AO 2 MIN > 1511 AO 2 MAX.
1005	PAR PCU 2	Parameter values for power control are inconsistent: Improper motor nominal kVA or motor nominal power. Check the following parameters: $1.1 < (9906 \text{ MOTOR NOM CURR} * 9905 \text{ MOTOR NOM VOLT} * 1.73 / \text{PN}) < 2.6$ Where: PN = 1000 * 9909 MOTOR NOM POWER (if units are kW) or PN = 746 * 9909 MOTOR NOM POWER (if units are HP, e.g., in US)

Table 33 — ACH550/ACS320 Fault Codes (cont)

FAULT CODE	FAULT NAME IN PANEL	DESCRIPTION AND RECOMMENDED CORRECTIVE ACTION
1006	PAR EXT RO	Parameter values are inconsistent. Check the extension relay module for connection and 1410 - 1412 RELAY OUTPUTS 4 - 6 have non-zero values.
1007	PAR FBUS	Parameter values are inconsistent. Check that a parameter is set for field bus control (e.g., 1001 EXT1 COMMANDS = 10 (COMM)), but 9802 COMM PROT SEL = 0.
1008	PAR PFA MODE	Parameter values are inconsistent. The 9904 MOTOR CTRL MODE must = 3 (SCALAR SPEED) when 8123 PFA ENABLE activated.
1009	PAR PCU 1	Parameter values for power control are inconsistent or improper motor nominal frequency or speed. Check for both of the following: $1 < (60 * 9907 \text{ MOTOR NOM FREQ} / 9908 \text{ MOTOR NOM SPEED} < 16$ $0.8 < 9908 \text{ MOTOR NOM SPEED} / (120 * 9907 \text{ MOTOR NOM FREQ} / \text{Motor poles}) < 0.992$
1010	OVERRIDE/PFA CONFLICT	Override mode is enabled and PFA is activated at the same time. This cannot be done because PFA interlocks cannot be observed in the override mode.

Table 34 — ACH550/ACS320 Alarm Codes

ALARM CODE	ALARM NAME IN PANEL	DESCRIPTION AND RECOMMENDED CORRECTIVE ACTION
2001	—	Not used.
2002	—	Not used.
2003	—	Not used.
2004	DIR LOCK	The change in direction being attempted is not allowed. Do not attempt to change the direction of motor rotation, or Change parameter 1003 DIRECTION to allow direction change (if reverse operation is safe).
2005	I/O COMM	Field bus communication has timed out. Check fault setup (3018 COMM FAULT FUNC and 3019 COMM FAULT TIME). Check communication settings (Group 51 or 53 as appropriate). Check for poor connections and/or noise on line.
2006	AI1 LOSS	Analog input 1 is lost, or value is less than the minimum setting. Check input source and connections. Check the parameter that sets the minimum (3021) and the parameter that sets the Alarm/Fault operation (3001).
2007	AI2 LOSS	Analog input 2 is lost, or value is less than the minimum setting. Check input source and connections. Check parameter that sets the minimum (3022) and the parameter that sets the Alarm/Fault operation (3001).
2008	PANEL LOSS	Panel communication is lost and either the VFD is in local control mode (the control panel displays HAND), or the VFD is in remote control mode (AUTO) and is parameterized to accept start/stop, direction or reference from the control panel. To correct, check the communication lines and connections, Parameter 3002 PANEL LOSS, and parameters in groups 10 COMMAND INPUTS and 11 REFERENCE SELECT (if drive operation is REM).
2009	—	Reserved
2010	MOT OVERTEMP	Motor is hot, based on either the VFD estimate or on temperature feedback. This alarm warns that a Motor Overload fault trip may be near. Check for overloaded motor. Adjust the parameters used for the estimate (3005 - 3009). Check the temperature sensors and Group 35 parameters.
2011	UNDERLOAD	Motor load is lower than expected. This alarm warns that a Motor Underload fault trip may be near. Check that the motor and drive ratings match (motor is NOT undersized for the drive). Check the settings on parameters 3013 to 3015.
2012	MOTOR STALL	Motor is operating in the stall region. This alarm warns that a Motor Stall fault trip may be near.
2013 ^a	AUTORESET	This alarm warns that the drive is about to perform an automatic fault reset, which may start the motor. To control automatic reset, use parameter group 31 (AUTOMATIC RESET).
2014	AUTOCHANGE	This alarm warns that the PFA autochange function is active. To control PFA, use parameter group 81 (PFA) and the Pump Alternation macro.
2015	PFA INTERLOCK	This alarm warns that the PFA interlocks are active, which means that the drive cannot start any motor (when Autochange is used), or a speed regulated motor (when Autochange is not used).
2016	—	Reserved
2017 ^a	OFF BUTTON	This alarm indicates that the OFF button has been pressed.
2018	PID SLEEP	This alarm warns that the PID sleep function is active, which means that the motor could accelerate when the PID sleep function ends. To control PID sleep, use parameters 4022 - 4026 or 4122 - 4126.
2019	ID RUN	The VFD is performing an ID run.
2020	OVERRIDE	Override mode is activated.
2021	START ENABLE 1 MISSING	This alarm warns that the Start Enable 1 signal is missing. To control Start Enable 1 function, use parameter 1608. To correct, check the digital input configuration and the communication settings.
2022	START ENABLE 2 MISSING	This alarm warns that the Start Enable 2 signal is missing. To control Start Enable 2 function, use parameter 1609. To correct, check the digital input configuration and the communication settings.
2023	EMERGENCY STOP	Emergency stop is activated.

NOTE(S):

- a. This alarm is not indicated by a relay output, even when the relay output is configured to indicate alarm conditions, parameter 1401 RELAY OUTPUT = 5 (ALARM) or 16 (FLT/ALARM).

Reset After Using Start-Up Assistant

⚠ CAUTION

CONFIGURATION OVERRIDE HAZARD

Do not use ABB or Carrier start-up assistant on this VFD application. Use of start-up assistant will override the factory VFD configurations.

The following section details how to reset the VFD after accidentally using Start-Up Assistant.

When the VFD has been incorrectly programmed by using Start-Up Assistant, the drive may be locked in an override loop because of motor ID Run Fail (error code 11) and First Start (error code 2025).

Use the following procedure to reset the factory configurations for ACS320 VFDs:

1. Disconnect unit power. Lock-out/tag out.
2. Remove the VFD's terminal cover.
3. Disconnect the DI1 input at terminal 12. The terminals are numbered on the bottom of the block (see Fig. 72 for the location of terminal block that contains terminal 12).
4. Connect the VFD Keypad accessory to the VFD (if not already connected).

NOTE: The VFD Keypad is a field-installed accessory; it is not included with the factory-installed VFD option.

5. Go immediately to parameter 1705 OVERRIDE ENABLE and select "Off".

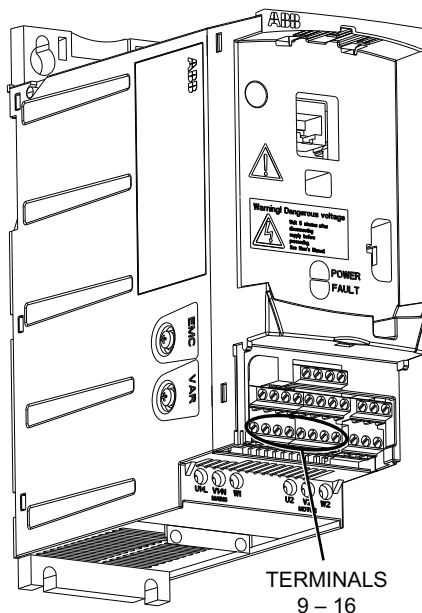


Fig. 72 — ACS320 Terminal Blocks

6. At this point, providing you have a clean backup of the drive, you can select "DOWNLOAD FULL SET" from "PAR BACKUP" from the Main Menu. If you do not have a clean backup the drive will have to be manually programmed following the instructions in this document.
7. When the correct parameters have been uploaded, disconnect power to the unit, reconnect DI1 to Terminal 12, and replace the terminal cover.
8. Reconnect power to the unit. The VFD is now commissioned from the backup file.

Use the following procedure to reset the factory configurations for ACH550 VFDs:

1. Disconnect unit power. Lock-out/tag-out.
 2. Remove the VFD's front cover (see Fig. 42 on page 32).
 3. Disconnect the DI1 input at Terminal 13 (see Fig. 73 for location of DI1).
 4. Connect the VFD Keypad accessory to the VFD (if not already connected).
- NOTE: The VFD Keypad is a field-installed accessory; it is not included with the factory-installed VFD option.
5. With the wire disconnected, use the keypad to stop the loop and enter "358" in parameter 1704 OVERRIDE PASS CODE.
 6. Go immediately to parameter 1705 OVERRIDE ENABLE and select "Off".
 7. At this point, providing you have a clean backup of the drive, you can select "DOWNLOAD FULL SET" from "PAR BACKUP" from the Main Menu.
 8. If you do not have a clean backup the drive will have to be manually programmed following the instructions in this document.
 9. When the correct parameters have been uploaded, disconnect power to the unit, reconnect DI1 to Terminal 13, and replace the VFD cover.
 10. Reconnect power to the unit. The VFD is now commissioned from the backup file.

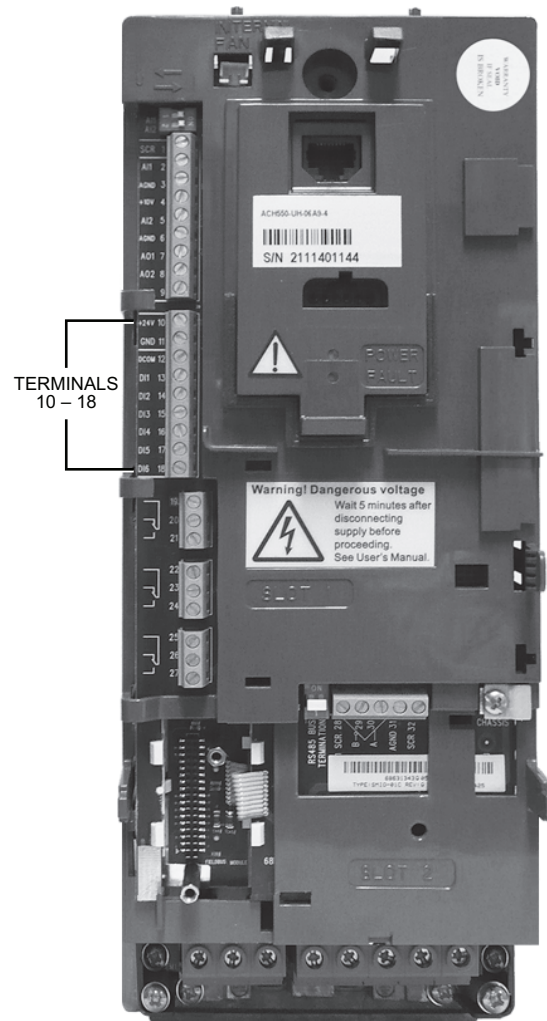


Fig. 73 — Terminal Block Location on ACH550 VFD

ACH580 Operation with Remote Keypad

The VFD keypad is shown in Fig. 74-75. The functions of the Left and Right Softkeys (⏏ and ⏏) change depending on what is displayed on the screen. The function of Left Softkey matches the word in the lower left-hand box on the display screen. The function of Right Softkey matches the word in the lower right-hand box on the display screen. If the box is empty, then the Softkey does not have a function on that specific screen. The Arrow Keys are used to navigate through the menus. The Off key is used to turn off the VFD. The AUTO key is used to change control of the drive to automatic control. The Hand key is used to change control of the drive to local (handheld) control. The Help key is used to access the help screens.

For the VFD to operate on the units covered by this document, the drive must be set in AUTO mode. The word “AUTO” will appear in the upper left hand corner of the VFD display. Press the AUTO button to set the drive in AUTO mode.

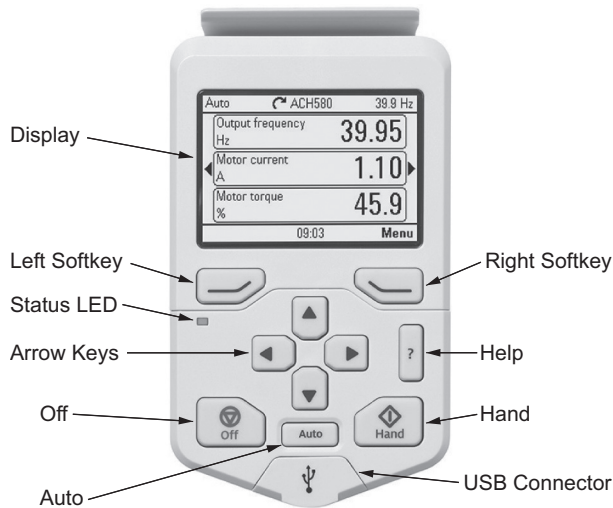


Fig. 74 — ACH580 VFD Keypad — Front

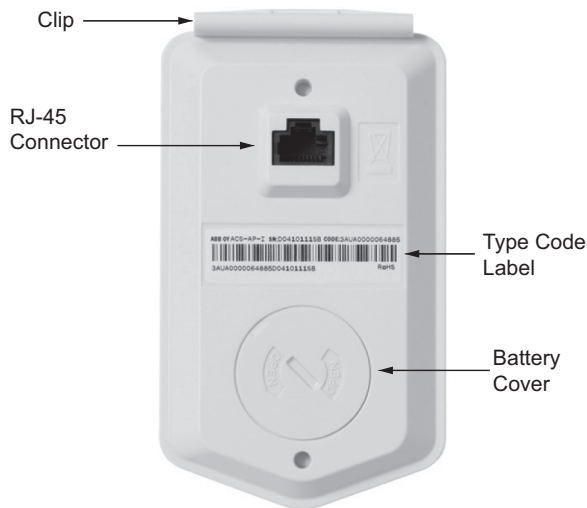


Fig. 75 — ACH580 VFD Keypad — Back

FIRST START ASSISTANT

Initial start-up has been performed at the factory. Use of the start up assistant will override factory VFD configurations.

⚠ CAUTION

CONFIGURATION OVERRIDE HAZARD

Do not use ABB or Carrier start-up assistant on this VFD application. Use of start-up assistant will override the factory VFD configurations.

Use the following procedure to reset the factory configurations for ACH580 VFDs:

1. Disconnect unit power. Lock-out/tag-out.
2. Remove the VFD's front cover.
3. Disconnect the DI1 input at Terminal 13 (see Fig. 76 for location of DI1).

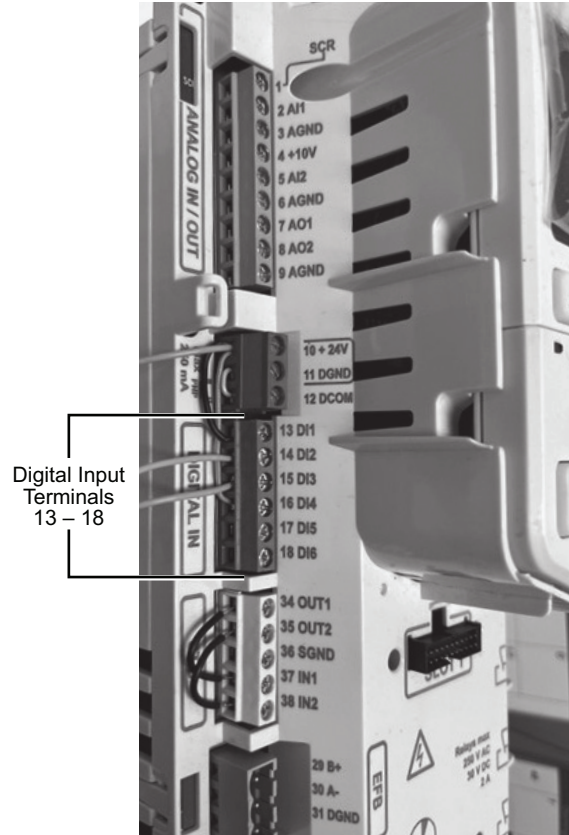


Fig. 76 — Digital Input Terminal Block Location on ACH580 VFD

4. Connect the VFD Keypad accessory to the VFD (if not already connected).
NOTE: The VFD Keypad is a field-installed accessory; it is not included with the factory-installed VFD option.
5. At this point, providing you have a clean backup of the drive, you can select “RESTORE” from “BACKUP” Menu from the Main Menu.
NOTE: To restore a backup, the drive has to be in Local control.
6. If you do not have a clean backup the drive will have to be manually programmed following the instructions in this document.
7. When the correct parameters have been uploaded, disconnect power to the unit, reconnect DI1 to Terminal 13, and replace the VFD cover.
8. Reconnect power to the unit. The VFD is now commissioned from the backup file.

START UP BY CHANGING PARAMETERS INDIVIDUALLY

Initial start-up is performed at the factory. To start up the VFD by changing individual parameters, perform the following procedure:

1. Select MENU (Press ). The Main menu is displayed.
2. Use the UP or DOWN keys to highlight PARAMETERS on the display screen and press ENTER (Press ).
3. Use the UP or DOWN keys to highlight the desired parameter group and press SEL (Press ).
4. Use the UP or DOWN keys to highlight the desired parameter and press EDIT (Press ).
5. Use the UP or DOWN keys to change the value of the parameter.
6. Press SAVE (Press ) to store the modified value. Press CANCEL (Press ) to keep the previous value. Any modifications that are not saved will not be changed.
7. Choose another parameter or press EXIT/BACK (Press ) to return to the listing of parameter groups. Continue until all the parameters have been configured and then press EXIT/BACK (Press ) to return to the main menu.

NOTE: The current parameter value appears above the highlight parameter. To view the default parameter value, press the UP and DOWN keys simultaneously.

ACH580 VFD Modes

The VFD has several different modes for configuring, operating, and diagnosing the VFD. The modes are:

1. Standard Display mode — shows drive status information and operates the drive
2. Parameters mode — edits parameter values individually
3. Start-up Assistant mode — guides the start up and configuration
4. Changed Parameters mode — shows all changed parameters
5. Drive Parameter Backup mode — stores or uploads the parameters
6. Clock Set mode — sets the time and date for the drive
7. I/O Settings mode — checks and edits the I/O settings

ACH580 STANDARD DISPLAY MODE

Use the standard display mode to read information on the drive status and operate the drive. To reach the standard display mode, press BACK until the LCD display shows status information as described below. (See Fig. 77.)

The top line of the LCD display shows the basic status information of the drive. The HAND icon indicates that the drive control is local from the control panel. The AUTO icon indicates that the drive is in remote control mode, such as the basic I/O or field bus.

The arrow icon indicates the drive and motor rotation status. A rotating arrow (clockwise or counterclockwise) indicates that the drive is running and at set point and the shaft direction is forward or reverse. A rotating blinking arrow indicates that the drive is running but not at set point. A stationary arrow indicates that the drive is stopped. For the units covered in this manual, the correct display rotation is clockwise.

The upper right corner shows the frequency set point that the drive will maintain. From Home view press “Options” then “Edit Home View” to change the Home layout, the middle of the LCD display can be configured to display 3 parameter values, Graphs or digital indicators. The default display shows (OUTPUT FREQ) in percent speed, (CURRENT) in amperes, and (AI1) in voltage DC.

The bottom corners of the LCD display show the functions currently assigned to the two soft keys. The lower middle displays the current time (if configured to show the time).

The first time the drive is powered up, it is in the OFF mode. To switch to local hand-held control and control the drive using the control panel, press and hold the HAND button. Pressing the HAND button switches the drive to hand control while keeping the drive running. Press the AUTO button to switch to remote input control. To start the drive press the HAND or AUTO buttons, to stop the drive press the OFF button.

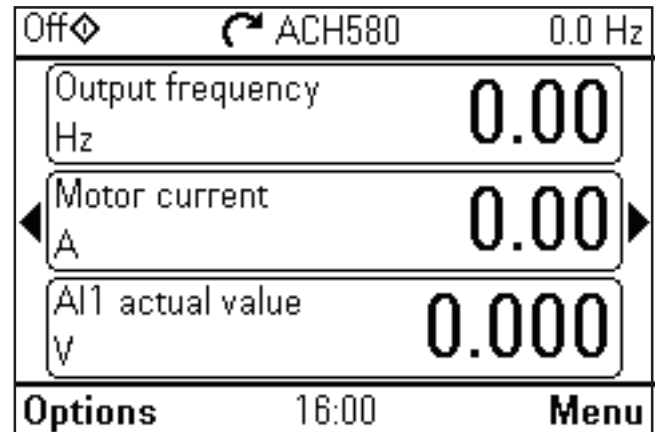


Fig. 77 — ACH580 Standard Display Example

The top line of the LCD display shows the basic status information of the drive. The HAND icon indicates that the drive control is local from the control panel. The AUTO icon indicates that the drive is in remote control mode, such as the basic I/O or field bus.

The arrow icon indicates the drive and motor rotation status. A rotating arrow (clockwise or counterclockwise) indicates that the drive is running and at set point and the shaft direction is forward or reverse. A rotating blinking arrow indicates that the drive is running but not at set point. A stationary arrow indicates that the drive is stopped. For the units covered in this manual, the correct display rotation is clockwise.

The upper right corner shows the frequency set point that the drive will maintain.

From Home view press “Options” then “Edit Home View” to change the Home layout, the middle of the LCD display can be configured to display 3 parameter values, Graphs or digital indicators. The default display shows (OUTPUT FREQ) in percent speed, (CURRENT) in amperes, and (AI1) in voltage DC.

The bottom corners of the LCD display show the functions currently assigned to the two soft keys. The lower middle displays the current time (if configured to show the time).

The first time the drive is powered up, it is in the OFF mode. To switch to local hand-held control and control the drive using the control panel, press and hold the HAND button. Pressing the HAND button switches the drive to hand control while keeping the drive running. Press the AUTO button to switch to remote input control. To start the drive press the HAND or AUTO buttons, to stop the drive press the OFF button.

To adjust the speed in HAND mode, press the UP or DOWN buttons (the reference changes immediately). The reference can be modified in the local control (HAND) mode, and can be parameterized (using Group 11 reference select) to also allow modification in the remote control mode.

PARAMETERS MODE

The Parameters mode is used to change the parameters on the drive. To change parameters, perform the following procedure:

1. Select MENU (Press ). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PARAMETERS on the display screen and press Select (Press ).
3. Use the UP or DOWN keys to highlight the desired parameter group and press Select (Press ).
4. Use the UP or DOWN keys to highlight the desired parameter and press EDIT (Press ).
5. Use the UP or DOWN keys to change the value of the parameter.
6. Press SAVE (Press ) to store the modified value. Press CANCEL (Press ) to keep the previous value. Any modifications that are not saved will not be changed.
7. Choose another parameter or press BACK (Press ) to return to the listing of parameter groups. Continue until all the parameters have been configured and then press EXIT (Press ) to return to the main menu.

CHANGED PARAMETERS MODE

The Changed Parameters mode is used to view and edit recently changed parameters on the drive. To view the changed parameters, perform the following procedure:

1. Select MENU (Press ). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PARAMETERS on the display screen and press Select (Press ).
3. Use the UP or DOWN keys to highlight MODIFIED on the display screen and press Select (Press ). A list of the recently changed parameters will be displayed.
4. Use the UP or DOWN keys to highlight the desired parameter group and press EDIT (Press ). A list of the recently changed parameters will be displayed.
5. Press BACK (Press ) to exit the Changed Parameters mode.

DRIVE PARAMETER BACKUP MODE

The drive parameter back up mode is used to export the parameters from one drive to another. The parameters can be uploaded from a VFD to the removable control panel. The control panel can then be transferred to another drive and the parameters downloaded into memory.

Depending on the motor and application, there are two options available. The first option is to download all parameters. This copies both application and motor parameters to the drive from the control panel. This is recommended when using the same application for drives of the same size. This can also be used to create a backup of the parameters group for the drive.

The second option downloads only the application parameters to the drive. This is recommended when using the same application for drives of different sizes. Parameters 99.07, 99.06, 99.08, 99.09, 99.10, and group 51 parameters and internal motor parameters are not copied.

Upload All Parameters

To upload and store parameters in the control panel from the VFD insert the Keypad into the VFD slot (Fig. 78) and animation will appear loading the VFD configuration.

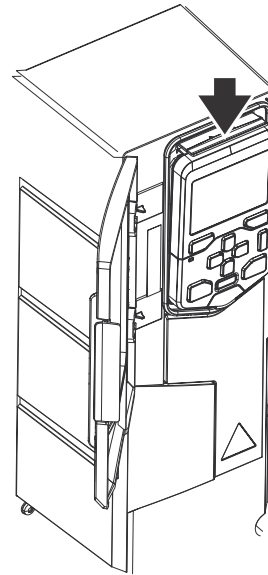


Fig. 78 — Insert Keypad in Slot

Download All Parameters From Backup

To download all parameters from the control panel to the VFD, perform the following procedure:

1. Install the control panel with the correct parameters onto the VFD.
2. Select MENU (Press ). The Main menu will be displayed.
3. Use the UP or DOWN keys to highlight BACKUPS on the display screen and press SEL (Press ).
4. Use the UP or DOWN keys to highlight the backup file and press SEL (Press ).
5. The text “Restoring Parameters” will be displayed with a progress indicator. To stop the process, select CANCEL (Press ).
6. When the download is complete, the text “Parameter download successful” will be displayed.
7. The display will then return to the PAR BACKUP menu. Select BACK (Press ). To return to the main menu.
8. The control panel can now be disconnected from the drive.

CLOCK SET MODE

Use the clock set mode to set the date and time for the internal clock of the VFD. In order to use the timer functions of the VFD control, the internal clock must be set. The date is used to determine weekdays and is visible in the fault logs.

To set the clock, perform the following procedure:

1. Select MENU (Press ). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PRIMARY SETT. on the display screen and press ENTER (Press ). The Sub list will be displayed.
3. Use the UP or DOWN keys to highlight Clock, region, display and press SEL (Press ). This parameter is used to display or hide the clock on the screen. Use the UP or DOWN keys to change the parameter setting. Press OK (Press ). To save the configuration and return to the Sub list menu.
4. Use the UP or DOWN keys to highlight SET TIME and press SEL (Press ). Use the UP or DOWN keys to change the hours and minutes. Press OK (Press ). To save the configuration and return to the Clock Set menu.

5. Use the UP or DOWN keys to highlight TIME FORMAT and press SEL (Press ). Use the UP or DOWN keys to change the parameter setting. Press OK (Press ) to save the configuration and return to the Clock Set menu.
6. Use the UP or DOWN keys to highlight SET DATE and press SEL (Press ). Use the UP or DOWN keys to change the day, month, and year. Press OK (Press ) to save the configuration and return to the Clock Set menu.
7. Use the UP or DOWN keys to highlight DATE FORMAT and press SEL (Press ). Use the UP or DOWN keys to change the parameter setting. Press OK (Press ) to save the configuration and return to the Clock Set menu.
8. Press BACK (Press ) twice to return to the main menu.

I/O SETTINGS MODE

Use the I/O Settings mode to view and edit the I/O settings.

To configure the I/O settings, perform the following procedure:

1. Select MENU (Press ). The Main menu will be displayed.
2. Use the UP or DOWN keys to highlight PRIMARY SETT. on the display screen and press SEL (Press ). The Sub list will be displayed.
3. Use the UP or DOWN keys to highlight ADVANCED OPTIONS/FUNCTIONS. on the display screen and press SEL (Press ). The Sub list will be displayed.
4. Use the UP or DOWN keys to highlight I/O SETTINGS on the display screen and press SEL (Press ). The I/O Settings parameter list will be displayed.
5. Use the UP or DOWN keys to highlight the desired I/O setting and press SEL (Press ).
6. Use the UP or DOWN keys to select the parameter to view. Press OK (Press ).
7. Use the UP or DOWN keys to change the parameter setting. Press SAVE (Press ). to save the configuration. Press CANCEL (SOFT KEY 1) to keep the previous value. Any modifications that are not saved will not be changed.
8. Press BACK (Press ) twice to return to the main menu.

ACH580/ACH180 VFD Diagnostics

The drive detects error situations and reports them using:

- Status LED on the control panel
- Control panel display
- The Fault Word and Alarm Word parameter bits

The form of the display depends on the severity of the error. The user can specify the severity for many errors by directing the drive to ignore the error situation, report the situation as an alarm, or report the situation as a fault.

FAULTS (RED LED LIT)

The VFD signals that it has detected a severe error, or fault, by:

- Enabling the red LED on the drive (LED is either steady or flashing)
- Setting an appropriate bit in a Fault Word parameter
- Overriding the control panel display with the display of a fault code
- Stopping the motor (if it was on)

The fault code on the control panel display is temporary. Pressing the MENU, (Press ). buttons removes the fault message. The message reappears after a few seconds if the control panel is not touched, and the fault is still active. See Table 35 for a list of fault codes.

ALARMS (GREEN LED FLASHING)

For less severe errors, called alarms, the diagnostic display is advisory. For these situations, the drive is simply reporting that it had detected something unusual. In these situations, the drive:

- Flashes the green LED on the drive (does not apply to alarms that arise from control panel operation errors)
- Sets an appropriate bit in an Alarm Word parameter
- Overrides the control panel display with the display of an alarm code and/or name

Alarm messages disappear from the control panel display after a few seconds. The message returns periodically as long as the alarm condition exists. See Table 35 for a list of alarm codes.

CORRECTING FAULTS

The recommended corrective action for faults is shown in Table 35. The VFD can also be reset to remove the fault. If an external source for a start command is selected and is active, the VFD may start immediately after fault reset.

To reset a fault indicated by a flashing red LED, turn off the power for 5 minutes. To reset a fault indicated by a red LED (not flashing), press RESET from the control panel or turn off the power for 5 minutes. Depending on the value of parameter, digital input or serial communication could also be used to reset the drive. When the fault has been corrected, the motor can be started.

CORRECTING ALARMS

To correct alarms, first determine if the alarm requires any corrective action (action is not always required). Use Table 35 to find and address the root cause of the problem.

If diagnostics troubleshooting has determined that the drive is defective during the warranty period, contact Carrier.

Table 35 — Fault and Alarm Codes for ACH580/ACH180 VFD

CODE (HEX)	WARNING / AUX. CODE	CAUSE	WHAT TO DO
A2B1	Overcurrent	Output current has exceeded internal fault limit. In addition to an actual overcurrent situation, this warning may also be caused by an earth fault or supply phase loss.	Check motor load. Check acceleration times in parameter group 23 Speed reference ramp (speed control) or 28 Frequency reference chain (frequency control). Also check parameters 46.01 Speed scaling, 46.02 Frequency scaling and 46.03 Torque scaling. Check motor and motor cable (including phasing and delta/star connection). Check for an earth fault in motor or motor cables by measuring the insulation resistances of motor and motor cable. See chapter Electrical installation, section Checking the insulation of the assembly in the Hardware manual of the drive. Check there are no contactors opening and closing in motor cable. Check that the start-up data in parameter group 99 Motor data corresponds to the motor rating plate. Check that there are no power factor correction capacitors or surge absorbers in motor cable.
A2B3	Earth Leakage	Drive has detected load unbalance typically due to earth fault in motor or motor cable.	Check there are no power factor correction capacitors or surge absorbers in motor cable. Check for an earth fault in motor or motor cables by measuring the insulation resistances of motor and motor cable. See chapter Electrical installation, section Checking the insulation of the assembly in the Hardware manual of the drive. If an earth fault is found, fix or change the motor cable and/or motor. If no earth fault can be detected, contact your local Carrier representative.
A2B4	Short Circuit	Short-circuit in motor cable(s) or motor.	Check motor and motor cable for cabling errors. Check motor and motor cable (including phasing and delta/star connection). Check for an earth fault in motor or motor cables by measuring the insulation resistances of motor and motor cable. See chapter Electrical installation, section Checking the insulation of the assembly in the Hardware manual of the drive. Check there are no power factor correction capacitors or surge absorbers in motor cable.
A6A4	Motor Nominal Value	The motor parameters are set incorrectly.	Check the auxiliary code. See actions for each code below.
	Motor Nominal Value 0001	The drive is not dimensioned correctly.	Check the auxiliary code. See actions for each code below. Check the settings of the motor configuration parameters in groups 98 and 99. Check that the drive is sized correctly for the motor.
	Motor Nominal Value / 0002	Synchronous and nominal speeds differ too much.	Check the settings of the motor configuration parameters in groups 98 and 99.
	Motor Nominal Value / 0003	Nominal speed is higher than synchronous speed with 1 pole pair.	
	Motor Nominal Value / 0004	Nominal current is outside limits.	
	Motor Nominal Value / 0005	Nominal voltage is outside limits.	
	Motor Nominal Value / 0006	Mechanical nominal power is higher than electrical active power	
	Motor Nominal Value / 0007	Nominal power not consistent with nominal speed and torque	
A780	Motor Stall Programmable Warning: 31.24 Stall Function	Motor is operating in stall region because of, for example, excessive load or insufficient motor power.	Check motor load and drive ratings. Check fault function parameters.
A783	Motor Overload	Motor current is too high.	Check for overloaded motor. Adjust the parameters used for the motor overload function (35.51...35.53) and 35.55...35.56.
A784	Motor Disconnect	All three output phases are disconnected from motor.	Check that switches between drive and motor are closed. Check that all cables between drive and motor are connected and secured. If no issue was detected and drive output was actually connected to motor, contact Carrier.
A7AB	Extension I/o Configuration Failure	Installed extension module is not the same as configured.	Check that the installed extension module (shown by parameter 15.02 Detected extension module) is the same as selected by parameter 15.01 Extension module type.
A7C1	FBAA Communication Programmable Warning: 50.02 FBAA Comm Loss Function	Cyclical communication between drive and fieldbus adapter module A or between PLC and fieldbus adapter module A is lost.	Check status of fieldbus communication. See user documentation of fieldbus interface. Check settings of parameter groups 50 Fieldbus adapter (FBA), 51 FBA A settings, 52 FBA A data in and 53 FBA A data out. Check cable connections. Check if communication master is able to communicate.
A7CE	EFB Comm Loss Programmable Warning: 58.14 Communication Loss Action	Communication break in embedded fieldbus (EFB) communication.	Check the status of the fieldbus master (online/offline/error etc.). Check cable connections to the EIA-485/X5 terminals 29, 30 and 31 on the control unit.
A7EE	Panel Loss Programmable Warning: 49.05 Communication Loss Action	Control panel or PC tool selected as active control location for drive has ceased communicating.	Check PC tool or control panel connection. Check control panel connector. Check mounting platform if being used. Disconnect and reconnect the control panel.
A88F	Cooling Fan	Maintenance timer limit exceeded.	Consider changing the cooling fan. Parameter 05.04 Fan on-time counter shows the running time of the cooling fan.

Table 35 — Fault and Alarm Codes for ACH580/ACH180 VFD (cont)

CODE (HEX)	WARNING / AUX. CODE	CAUSE	WHAT TO DO
AFAA	Auto Reset	A fault is about to be auto reset.	Informative warning. See the settings in parameter group 31 Fault functions.
AFE1	Emergency Stop (Off2)	Drive has received an emergency stop (mode selection off2) command.	Check that it is safe to continue operation. Then return emergency stop push button to normal position. Restart drive. If the emergency stop was unintentional, check the source selected by parameter 21.05 Emergency stop source.
AFE2	Emergency Stop (Off 1 Or Off3)	Drive has received an emergency stop (mode selection off1 or off3) command.	Check that it is safe to continue operation. Then return emergency stop push button to normal position. Restart drive. If the emergency stop was unintentional, check the source selected by parameter 21.05 Emergency stop source. Informative warning. See parameter 21.22 Start delay.
AFE9	Start Delay	The start delay is active and the drive will start the motor after a predefined delay.	Check that it is safe to continue operation. Then return emergency stop push button to normal position. Restart drive. If the emergency stop was unintentional, check the source selected by parameter 21.05 Emergency stop source.
AFED	Run Permissive	Run permissive is keeping the drive from running the motor.	Informative warning. See parameter 21.22 Start delay. Check the setting of (and source selected by) parameter 20.40 Run permissive.
AFEE	Start Interlock 1	Start interlock 1 is keeping the drive from starting.	Check the signal source selected for parameter 20.41 Start interlock 1.
AFEF	Start Interlock 2	Start interlock 2 is keeping the drive from starting.	Check the signal source selected for parameter 20.42 Start interlock 2.
AFF0	Start Interlock 3	Start interlock 3 is keeping the drive from starting.	Check the signal source selected for parameter 20.43 Start interlock 3.
AFF1	Start Interlock 4	Start interlock 4 is keeping the drive from starting.	Check the signal source selected for parameter 20.44 Start interlock 4.
AFF2	Run Permissive Forced Warning	A forced DI is used as a source for parameter 20.40 Run permissive.	If 20.40 Run permissive uses DIx as the source, check if the bit corresponding to DIx in parameter 10.03 DI force selection is 1.
AFF3	Start Interlock Forced Warning	One or more forced DIs is used as a source for one or more of parameters 20.41 Start interlock 1 ... 20.44 Start interlock 4.	Check all parameters 20.41 Start interlock 1 ... 20.44 Start interlock 4. If any of these parameters uses DIx as the source, check if the bit corresponding to DIx in parameter 10.03 DI force selection is 1.
AFF5	Override New Start Required	The Safe torque off function was active and has been reset while in Override.	A new start signal is required to start the drive again.
AFF6	Identification Run	Motor ID run will occur at next start.	Informative warning.
AFF8	Motor Heating Active	Pre-heating is being performed	Informative warning. Motor pre-heating is active. Current specified by parameter 21.16 Preheating current is being passed through the motor.
AFFE	Override Active	Drive is in Override mode.	Informative warning.
B5A2	Power Applied	The drive was powered up or the control board was rebooted successfully.	Informative event.
B681	Hand Mode Selected	The drive was placed in Hand mode.	Informative event. Check the control panel to ensure that the current control location is correct.
B682	Off Mode Selected	The drive was placed in Off mode.	Informative event. Check the control panel to ensure that the current control location is correct.
B683	Auto Mode Selected	The drive was placed in Auto mode.	Informative event. Check the control panel to ensure that the current control location is correct.
2310	Overcurrent	Output current has exceeded internal fault limit. In addition to an actual overcurrent situation, this fault may also be caused by an earth fault or supply phase loss.	Check motor load. Check acceleration times in parameter group 23 Speed reference ramp (speed control) or 28 Frequency reference chain (frequency control). Also check parameters 46.01 Speed scaling, 46.02 Frequency scaling and 46.03 Torque scaling. Check motor and motor cable (including phasing and delta/star connection). Check there are no contactors opening and closing in motor cable. Check that the start-up data in parameter group 99 corresponds to the motor rating plate. Check that there are no power factor correction capacitors or surge absorbers in motor cable. Check for an earth fault in motor or motor cables by measuring the insulation resistances of motor and motor cable. See chapter Electrical installation, section Checking the insulation of the assembly in the Hardware manual of the drive.
FF61	ID Run	Motor ID run was not completed successfully.	Check safety circuit connections. For more information, see chapter The Safe torque off function in the Hardware manual of the drive and description of parameter 31.22 STO indication run/stop. Check the value of parameter 95.04 Control board supply. Check the nominal motor values in parameter group 99 Motor data. Check that no external control system is connected to the drive. Cycle the power to the drive (and its control unit, if powered separately). Check that no operation limits prevent the completion of the ID run. Restore parameters to default settings and try again. Check that the motor shaft is not locked. Check the auxiliary code. See actions for each code below.

ACH580, ACH550 AND ACH320 KEYPADS

Control Panel Cleaning

Use a soft damp cloth to clean the control panel. Avoid harsh cleaners which could scratch the display window.

Battery Replacement

A battery is only used in assistant control panels that have the clock function available and enabled. The battery keeps the clock

operating in memory during power interruptions. The expected life for the battery is greater than ten years. To remove the battery, use a coin to rotate the battery holder on the back of the control panel. Replace the battery with type CR2032.

VFD Remote Keypad Parameters

See Tables 36-42.

Table 36 — ACH550/580 VFD Parameters — 48/50TC 07-14, 50TCQ 07-12, 48/50HC 07-12 and 50HCQ 08-09

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	MOTOR PART NUMBER	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	MOTOR NOM. FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10	CONST SPEED SEL 1201 / 28.22
HK30WA364	HK30WA302	HK30WB303	1.7 Hp 230-v	HD56FR233	230	5.8	60 Hz	1,725	1.7	DI2, 3 / DI2
HK30WA356	HK30WA318	HK30WB319	1.7 Hp 460-v	HD56FR463	460	2.9	60 Hz	1,725	1.7	DI2, 3 / DI2
HK30WA366	HK30WA332	HK30WB339	1.7 Hp 575-v	HD56FR579	575	3.1	60 Hz	1,725	1.7	DI2, 3 / DI2
HK30WA352	HK30WA303	HK30WB304	2.4 Hp 230-v	HD56FE653	230	7.9	60 Hz	1,725	2.4	DI2, 3 / DI2
HK30WA356	HK30WA318	HK30WB319	2.4 Hp 460-v	HD56FE653	460	4.0	60 Hz	1,725	2.4	DI2, 3 / DI2
HK30WA360	HK30WA333	HK30WB340	2.4 Hp 575-v	HD56FE577	575	3.4	60 Hz	1,725	2.4	DI2, 3 / DI2
HK30WA352	HK30WA303	HK30WB304	2.9 Hp 230-v	HD58FE654	230	9.2	60 Hz	1,725	2.9	DI2, 3 / DI2
HK30WA356	HK30WA318	HK30WB319	2.9 Hp 460-v	HD58FE654	460	4.6	60 Hz	1,725	2.9	DI2, 3 / DI2
HK30WA353	HK30WA304	HK30WB305	3.7 Hp 230-v	HD60FE656	230	11.2	60 Hz	1,725	3.7	DI2, 3 / DI2
HK30WA357	HK30WA319	HK30WB321	3.7 Hp 460-v	HD60FE656	460	5.6	60 Hz	1,725	3.7	DI2, 3 / DI2
HK30WA361	HK30WA334	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.2	60 Hz	1,725	3.7	DI2, 3 / DI2
HK30WA354	HK30WA305	HK30WB306	5.3 Hp 230-v	HD60FK658	230	13.0	60 Hz	1,740	5.3	DI2, 3 / DI2
HK30WA358	HK30WA320	HK30WB321	5.3 Hp 460-v	HD60FK658	460	6.4	60 Hz	1,740	5.3	DI2, 3 / DI2
HK30WA362	HK30WA335	HK30WB342	5.3 Hp 575-v	HD60FE576	575	5.4	60 Hz	1,725	5.3	DI2, 3 / DI2

Table 36 — ACH550/580 VFD Parameters — 48/50TC 07-14, 50TCQ 07-12, 48/50HC 07-12 and 50HCQ 08-09 (cont)

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28	RELAY OUT 3 1403 / 10.30	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13
HK30WA364	HK30WA302	HK30WB303	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	6.7	0 Hz
HK30WA356	HK30WA318	HK30WB319	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	3.3	0 Hz
HK30WA366	HK30WA332	HK30WB339	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	3.6	0 Hz
HK30WA352	HK30WA303	HK30WB304	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	9.1	0 Hz
HK30WA356	HK30WA318	HK30WB319	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	4.6	0 Hz
HK30WA360	HK30WA333	HK30WB340	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	3.9	0 Hz
HK30WA352	HK30WA303	HK30WB304	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	10.6	0 Hz
HK30WA356	HK30WA318	HK30WB319	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	5.3	0 Hz
HK30WA353	HK30WA304	HK30WB305	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	12.9	0 Hz
HK30WA357	HK30WA319	HK30WB321	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	6.4	0 Hz
HK30WA361	HK30WA334	HK30WB341	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	4.8	0 Hz
HK30WA354	HK30WA305	HK30WB306	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	15.0	0 Hz
HK30WA358	HK30WA320	HK30WB321	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	7.4	0 Hz
HK30WA362	HK30WA335	HK30WB342	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz	FLT / (14) Fault	6.2	0 Hz

Table 36 — ACH550/580 VFD Parameters — 48/50TC 07-14, 50TCQ 07-12, 48/50HC 07-12 and 50HCQ 08-09 (cont)

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL / DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA364	HK30WA302	HK30WB303	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB319	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA366	HK30WA332	HK30WB339	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA352	HK30WA303	HK30WB304	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB319	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA360	HK30WA333	HK30WB340	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA352	HK30WA303	HK30WB304	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB319	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA353	HK30WA304	HK30WB305	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357	HK30WA319	HK30WB321	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA334	HK30WB341	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB321	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.

Table 37 — ACH550/580 VFD Parameters — 48/50TC 16, 50TCQ 14, 48/50HC 14 and 50HCQ 12

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	MOTOR PART NUMBER	VOLTAGE 9905 / 99.07	NOM AMPS 9906 / 99.06	MOTOR NOM FREQ 9907 / 99.08	NOM RPM 9908 / 99.09	NOM HP 9909 / 99.10	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28
HK30WA352	HK30WA303	HK30WB304	2.4 Hp 230-v	HD56FE653	230	7.9	60 Hz	1,725	2.4	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA356	HK30WA318	HK30WB319	2.4 Hp 460-v	HD56FE653	460	4.0	60 Hz	1,725	2.4	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA360	HK30WA333	HK30WB340	2.4 Hp 575-v	HD56FE577	575	3.4	60 Hz	1,725	2.4	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA352	HK30WA303	HK30WB304	2.9 Hp 230-v	HD58FE654	230	9.2	60 Hz	1,725	2.9	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA356	HK30WA318	HK30WB319	2.9 Hp 460-v	HD58FE654	460	4.6	60 Hz	1,725	2.9	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA353	HK30WA304	HK30WB305	3.7 Hp 230-v	HD60FE656	230	11.2	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA357	HK30WA319	HK30WB321	3.7 Hp 460-v	HD60FE656	460	5.6	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA334	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.2	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	HD60FL657	230	16.7	60 Hz	1,745	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB321	5.0 Hp 460-v	HD60FL657	460	8.4	60 Hz	1,745	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	HD60FL575	575	5.1	60 Hz	1,725	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	HD60FK657	230	14.7	60 Hz	1,760	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB321	5.0 Hp 460-v	HD60FK657	460	6.8	60 Hz	1,760	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	HD60FL576	575	5.4	60 Hz	1,745	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz

Table 37 — ACH550/580 VFD Parameters — 48/50TC 16, 50TCQ 14, 48/50HC 14 and 50HCQ 12 (cont)

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	RELAY OUT 3 1403 / 10.30	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/ DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA352	HK30WA303	HK30WB304	2.4 Hp 230-v	FLT / (14) Fault	3.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB319	2.4 Hp 460-v	FLT / (14) Fault	10.6	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA360	HK30WA333	HK30WB340	2.4 Hp 575-v	FLT / (14) Fault	5.3	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA352	HK30WA303	HK30WB304	2.9 Hp 230-v	FLT / (14) Fault	12.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB319	2.9 Hp 460-v	FLT / (14) Fault	6.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA353	HK30WA304	HK30WB305	3.7 Hp 230-v	FLT / (14) Fault	4.8	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357	HK30WA319	HK30WB321	3.7 Hp 460-v	FLT / (14) Fault	19.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA334	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	9.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	FLT / (14) Fault	5.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB321	5.0 Hp 460-v	FLT / (14) Fault	16.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	FLT / (14) Fault	7.8	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	FLT / (14) Fault	6.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB321	5.0 Hp 460-v	FLT / (14) Fault	3.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	FLT / (14) Fault	10.6	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.

Table 38 — ACH550/580 VFD Parameters — 48/50TC17-30, 50TCQ 17-24 and 48/50HC 17-28

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	MOTOR PART NUMBER	VOLTAGE 9905 / 99.07	NOM AMPS 9906 / 99.06	MOTOR NOM FREQ 9907 / 99.08	NOM RPM 9908 / 99.09	NOM HP 9909 / 99.10	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28
HK30WA352	HK30WA303	HK30WB304	2.9 Hp 230-v	HD58FE654	230	9.2	60 Hz	1,725	2.9	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA356	HK30WA318	HK30WB320	2.9 Hp 460-v	HD58FE654	460	4.6	60 Hz	1,725	2.9	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA353	HK30WA304	HK30WB305	3.7 Hp 230-v	HD60FE656	230	11.2	60 Hz	1,725	3.7	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA357	HK30WA319	HK30WB321	3.7 Hp 460-v	HD60FE656	460	5.6	60 Hz	1,725	3.7	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA334	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.2	60 Hz	1,725	3.7	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	HD60FK657	230	14.7	60 Hz	1,760	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB322	5.0 Hp 460-v	HD60FK657	460	6.8	60 Hz	1,760	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	HD60FL576	575	5.4	60 Hz	1,745	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	7.5 Hp 230-v	HD62FK654	230	23.5	60 Hz	1,760	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB322	7.5 Hp 460-v	HD62FK654	460	11.9	60 Hz	1,760	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	7.5 Hp 575-v	HD62FL576	575	9.0	60 Hz	1,750	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	HD60FL650	230	16.7	60 Hz	1,740	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB322	5.0 Hp 460-v	HD60FL650	460	8.4	60 Hz	1,740	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	HD60FL575	575	5.1	60 Hz	1,725	5.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	5.3 Hp 230-v	HD60FK658	230	13.0	60 Hz	1,740	5.3	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB322	5.3 Hp 460-v	HD60FK658	460	6.4	60 Hz	1,740	5.3	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	5.3 Hp 575-v	HD60FE576	575	5.4	60 Hz	1,725	5.3	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA354	HK30WA305	HK30WB306	7.5 Hp 230-v	HD62FL650	230	22.9	60 Hz	1,745	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA358	HK30WA320	HK30WB322	7.5 Hp 460-v	HD62FL650	460	11.5	60 Hz	1,745	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA335	HK30WB342	7.5 Hp 575-v	HD62FL575	575	8.1	60 Hz	1,745	7.5	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA355	HK30WA306	HK30WB307	10.0 Hp 230-v	HD64FK654	230	28.0	60 Hz	1,755	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA359	HK30WA321	HK30WB323	10.0 Hp 460-v	HD64FK654	460	12.6	60 Hz	1,755	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA363	HK30WA336	HK30WB343	10.0 Hp 575-v	HD64FL576	575	11.0	60 Hz	1,755	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA355	HK30WA306	HK30WB307	10.0 Hp 230-v	HD64FL650	230	30.8	60 Hz	1,745	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA359	HK30WA321	HK30WB323	10.0 Hp 460-v	HD64FL650	460	15.4	60 Hz	1,745	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz
HK30WA363	HK30WA336	HK30WB343	10.0 Hp 575-v	HD64FL575	575	11.0	60 Hz	1,740	10.0	D12, 3 / D12	D12, 3 / D13	40 Hz	60 Hz	60 Hz

Table 38 — ACH550/580 VFD Parameters — 48/50TC17-30, 50TCQ 17-24 and 48/50HC 17-28 (cont)

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	RELAY OUT 3 1403 / 10.3	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/ DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA352	HK30WA303	HK30WB304	2.9 Hp 230-v	FLT / (14) Fault	10.6	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA356	HK30WA318	HK30WB320	2.9 Hp 460-v	FLT / (14) Fault	5.3	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA353	HK30WA304	HK30WB305	3.7 Hp 230-v	FLT / (14) Fault	12.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA357	HK30WA319	HK30WB321	3.7 Hp 460-v	FLT / (14) Fault	6.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA334	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	4.8	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	FLT / (14) Fault	16.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB322	5.0 Hp 460-v	FLT / (14) Fault	7.8	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	FLT / (14) Fault	6.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	7.5 Hp 230-v	FLT / (14) Fault	27.0	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB322	7.5 Hp 460-v	FLT / (14) Fault	13.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	7.5 Hp 575-v	FLT / (14) Fault	10.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	5.0 Hp 230-v	FLT / (14) Fault	19.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB322	5.0 Hp 460-v	FLT / (14) Fault	9.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	5.0 Hp 575-v	FLT / (14) Fault	5.9	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	5.3 Hp 230-v	FLT / (14) Fault	15.0	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB322	5.3 Hp 460-v	FLT / (14) Fault	7.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	5.3 Hp 575-v	FLT / (14) Fault	6.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA354	HK30WA305	HK30WB306	7.5 Hp 230-v	FLT / (14) Fault	26.3	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA358	HK30WA320	HK30WB322	7.5 Hp 460-v	FLT / (14) Fault	13.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA335	HK30WB342	7.5 Hp 575-v	FLT / (14) Fault	9.3	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA355	HK30WA306	HK30WB307	10.0 Hp 230-v	FLT / (14) Fault	32.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA359	HK30WA321	HK30WB323	10.0 Hp 460-v	FLT / (14) Fault	14.5	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA363	HK30WA336	HK30WB343	10.0 Hp 575-v	FLT / (14) Fault	12.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA355	HK30WA306	HK30WB307	10.0 Hp 230-v	FLT / (14) Fault	35.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA359	HK30WA321	HK30WB323	10.0 Hp 460-v	FLT / (14) Fault	17.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA363	HK30WA336	HK30WB343	10.0 Hp 575-v	FLT / (14) Fault	12.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.

Table 39 — ACH550/580 VFD Parameters — 40RUA 07-30, 40RUS 08-30 and 40RUQ 07-25

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	MOTOR PART NUMBER	VOLT 9905 / 99.07	NOM AMPS 9906 / 99.06	MOTOR NOM FREQ 9907 / 99.08	NOM RPM 9908 / 99.09	NOM HP 9909 / 99.10	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	CONST SPEED 3 1204 / 28.28
HK30WA360	HK30WA360	HK30WB340	1.7 Hp 575-v	HD56FR579	575	2.8	60 Hz	1,725	1.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA360	HK30WA360	HK30WB340	2.4 Hp 575-v	HD56FE577	575	3.8	60 Hz	1,725	2.4	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.9	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.5	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA362	HK30WB342	5.0 Hp 575-v	HD60FK577	575	8.0	60 Hz	1,725	5.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA362	HK30WA362	HK30WB342	7.5 Hp 575-v	HD62FL576	575	9.0	60 Hz	1,725	7.5	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA363	HK30WA363	HK30WB343	10.0 Hp 575-v	HD64FL576	575	11.0	60 Hz	1,725	10.0	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA360	HK30WA360	HK30WB340	1.7 Hp 575-v	HD56FR579	575	2.8	60 Hz	1,725	1.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA360	HK30WA360	HK30WB340	2.4 Hp 575-v	HD56FE577	575	3.8	60 Hz	1,725	2.4	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.9	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	HD58FE577	575	4.5	60 Hz	1,725	3.7	DI2, 3 / DI2	DI2, 3 / DI3	40 Hz	60 Hz	60 Hz

Table 39 — ACH550/580 VFD Parameters — 40RUA 07-30, 40RUS 08-30 and 40RUQ 07-25 (cont)

VFD PART NUMBER	ACH550 REPLACEMENT COMPONENT PART NUMBER	ACH580 REPLACEMENT COMPONENT PART NUMBER	DESC	RELAY OUT 3 1403 / 10.30	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/ DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 203 / 28.73
HK30WA360	HK30WA360	HK30WB340	1.7 Hp 575-v	FLT / (14) Fault	3.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA360	HK30WA360	HK30WB340	2.4 Hp 575-v	FLT / (14) Fault	4.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	5.6	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	5.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA362	HK30WB342	5.0 Hp 575-v	FLT / (14) Fault	9.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA362	HK30WA362	HK30WB342	7.5 Hp 575-v	FLT / (14) Fault	10.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA363	HK30WA363	HK30WB343	10.0 Hp 575-v	FLT / (14) Fault	12.7	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA360	HK30WA360	HK30WB340	1.7 Hp 575-v	FLT / (14) Fault	3.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA360	HK30WA360	HK30WB340	2.4 Hp 575-v	FLT / (14) Fault	4.4	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	5.6	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.
HK30WA361	HK30WA361	HK30WB341	3.7 Hp 575-v	FLT / (14) Fault	5.2	0 Hz	60 Hz	4 kHz	Auto / Automatic	Ramp	Not Sel / 0	30 sec.	30 sec.

Table 40 — ACS320/ACH180 VFD Parameters — 48/50TC07-16 and 50TCQ07-14 (208/230-v and 460-v units only)

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	DESCRIPTION	MOTOR PART NUMBER	VOLT 9905 / 99.07	NOM. AMPS 9906 / 99.06	MOTOR NOM. FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10
HK30WA523	HK30WA506	HK30WB505	SRT 1.7 Hp 230-v	HD56FR233	230	5.6	60 Hz	1,725	1.7
HK30WA530	HK30WA512	HK30WB510	SRT 1.7 Hp 460-v	HD56FR463	460	2.9	60 Hz	1,725	1.7
HK30WA523	HK30WA506	HK30WB505	SRT 2.4 Hp 230-v	HD56FE653	230	6.6	60 Hz	1,725	2.4
HK30WA530	HK30WA512	HK30WB510	SRT 2.4 Hp 460-v	HD56FE653	460	3.3	60 Hz	1,725	2.4
HK30WA523	HK30WA506	HK30WB505	SRT 2.9 Hp 230-v	HD58FE654	230	7.6	60 Hz	1,725	2.9
HK30WA530	HK30WA512	HK30WB510	SRT 2.9 Hp 460-v	HD58FE654	460	3.8	60 Hz	1,725	2.9
HK30WA523	HK30WA506	HK30WB505	SRT 3.7 Hp 230-v	HD60FE656	230	9.2	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	SRT 3.7 Hp 460-v	HD60FE656	460	4.6	60 Hz	1,725	3.7
HK30WA524	HK30WA507	HK30WB507	SRT 5.3 Hp 230-v	HD60FK658	230	14.0	60 Hz	1,740	5.3
HK30WA532	HK30WA514	HK30WB512	SRT 5.3 Hp 460-v	HD60FK658	460	7.0	60 Hz	1,740	5.3
HK30WA523	HK30WA506	HK30WB505	SRT 2.9 Hp 230-v	HD58FE654	230	7.6	60 Hz	1,725	2.9
HK30WA530	HK30WA512	HK30WB510	SRT 2.9 Hp 460-v	HD58FE654	460	3.8	60 Hz	1,725	2.9
HK30WA523	HK30WA506	HK30WB505	SRT 3.7 Hp 230-v	HD60FE656	230	9.2	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	SRT 3.7 Hp 460-v	HD60FE656	460	4.6	60 Hz	1,725	3.7
HK30WA524	HK30WA507	HK30WB507	SRT 5.0 Hp 230-v	HD60FK657	230	13.6	60 Hz	1,760	5.0
HK30WA532	HK30WA514	HK30WB512	SRT 5.0 Hp 460-v	HD60FK657	460	6.8	60 Hz	1,760	5.0

Table 40 — ACS320/ACH180 VFD Parameters — 48/50TC07-16 and 50TCQ07-14 (208/230-v and 460-v units only) (cont)

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	RELAY OUT 1 1401 / 10.24	MAX AMPS 2003 / 30.17
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	5.6
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	2.9
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.3
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.1
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	9.5
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.8
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	11.5
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	5.8
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	17.5
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.8
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	9.5
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.8
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	11.5
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	5.8
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	17.0
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.5

Table 40 — ACS320/ACH180 VFD Parameters — 48/50TC07-16 and 50TCQ07-14 (208/230-v and 460-v units only) (cont)

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	MIN FREQ 2007 / 30.13	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/ DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	0 Hz	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	Not Sel / (0)	30 sec.	30 sec.

**Table 41 — ACS320/ACH180 VFD Parameters —
48/50TC17-30 and 50TCQ17-24 (208/230-v and 460-v units only)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	DESCRIPTION	MOTOR PART NUMBER	VOLTAGE 9905 / 99.07	NOM. AMPS 9906 / 99.06	MOTOR NOM. FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10
HK30WA523	HK30WA506	HK30WB505	MRT 2.9 Hp 230-v	HD58FE654	230	7.8	60 Hz	1,735	2.9
HK30WA530	HK30WA512	HK30WB510	MRT 2.9 Hp 460-v	HD58FE654	460	3.8	60 Hz	1,735	2.9
HK30WA523	HK30WA506	HK30WB505	MRT 3.7 Hp 230-v	HD60FE656	230	9.8	60 Hz	1,750	3.7
HK30WA534	HK30WA517	HK30WB511	MRT 3.7 Hp 460-v	HD60FE656	460	4.9	60 Hz	1,750	3.7
HK30WA524	HK30WA507	HK30WB507	MRT 5.0 Hp 230-v	HD60FK657	230	20.4	60 Hz	1,760	5.0
HK30WA532	HK30WA514	HK30WB512	MRT 5.0 Hp 460-v	HD60FK657	460	10.2	60 Hz	1,760	5.0
HK30WA524	HK30WA507	HK30WB507	MRT 7.5 Hp 230-v	HD62FK654	230	28.5	60 Hz	1,760	7.5
HK30WA532	HK30WA514	HK30WB512	MRT 7.5 Hp 460-v	HD62FK654	460	14.3	60 Hz	1,760	7.5
HK30WA524	HK30WA507	HK30WB507	MRT 5.3 Hp 230-v	HD60FK658	230	12.7	60 Hz	1,740	5.3
HK30WA532	HK30WA514	HK30WB512	MRT 5.3 Hp 460-v	HD60FK658	460	6.4	60 Hz	1,740	5.3
HK30WA525	HK30WA508	HK30WB507	MRT 10.0 Hp 230-v	HD64FK654	230	30.4	60 Hz	1,755	10.0
HK30WA533	HK30WA515	HK30WB513	MRT 10.0 Hp 460-v	HD64FK654	460	15.2	60 Hz	1,755	10.0

**Table 41 — ACS320/ACH180 VFD Parameters —
48/50TC17-30 and 50TCQ17-24 (208/230-v and 460-v units only) (cont)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	RELAY OUT 1 1401 / 10.24	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	7.8	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	3.8	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	9.8	0 Hz
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.9	0 Hz
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	20.4	0 Hz
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	10.2	0 Hz
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	28.5	0 Hz
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	14.3	0 Hz
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	12.7	0 Hz
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	6.4	0 Hz
HK30WA525	HK30WA508	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	30.4	0 Hz
HK30WA533	HK30WA515	HK30WB513	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	15.2	0 Hz

**Table 41 — ACS320/ACH180 VFD Parameters —
48/50TC17-30 and 50TCQ17-24 (208/230V and 460V units only) (cont)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA525	HK30WA508	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA533	HK30WA515	HK30WB513	60 Hz	4 kHz / (4)	(1) Auto / (2)	Ramp / (1)	(0) Not Sel / (0)	30 sec.	30 sec.

**Table 42 — ACS320/ACH180 VFD Parameters —
40RU (208/230-v and 460-v units only)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	DESCRIPTION	MOTOR PART NUMBER	VOLTAGE 9905 / 99.07	NOM AMPS 9906 / 99.06	MOTOR NOM FREQ 9907 / 99.08	NOM. RPM 9908 / 99.09	NOM. HP 9909 / 99.10
HK30WA523	HK30WA506	HK30WB505	1.7 Hp 230-v	HD56FR233	230	5.8	60 Hz	1,725	1.7
HK30WA530	HK30WA512	HK30WB510	1.7 Hp 460-v	HD56FR463	460	2.9	60 Hz	1,725	1.7
HK30WA523	HK30WA506	HK30WB505	2.4 Hp 230-v	HD56FE653	230	7.1	60 Hz	1,725	2.4
HK30WA530	HK30WA512	HK30WB510	2.4 Hp 460-v	HD56FE653	460	3.4	60 Hz	1,725	2.4
HK30WA523	HK30WA506	HK30WB505	2.9 Hp 230-v	HD58FE654	230	8.6	60 Hz	1,725	2.9
HK30WA530	HK30WA512	HK30WB510	2.9 Hp 460-v	HD58FE654	460	3.8	60 Hz	1,725	2.9
HK30WA523	HK30WA506	HK30WB505	3.7 Hp230V	HD60FE656	230	10.8	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	3.7 Hp460-v	HD60FE656	460	4.9	60 Hz	1,725	3.7
HK30WA523	HK30WA506	HK30WB505	3.7 Hp 230-v	HD58FR236	230	10.2	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	3.7 Hp 460-v	HD58FR236	460	4.8	60 Hz	1,725	3.7
HK30WA524	HK30WA507	HK30WB507	5.0 Hp 230-v	HD60FK657	230	17.0	60 Hz	1,760	5.0
HK30WA532	HK30WA514	HK30WB512	5.0 Hp 460-v	HD60FK657	460	7.6	60 Hz	1,760	5.0
HK30WA524	HK30WA507	HK30WB507	7.5 Hp 230-v	HD62FK654	230	21.5	60 Hz	1,760	7.5
HK30WA532	HK30WA514	HK30WB512	7.5 Hp 460-v	HD62FK654	460	14.3	60 Hz	1,760	7.5
HK30WA525	HK30WA508	HK30WB507	10 Hp 230-v	HD64FK654	230	28.0	60 Hz	1,755	10.0
HK30WA533	HK30WA515	HK30WB513	10 Hp 460-v	HD64FK654	460	15.2	60 Hz	1,755	10.0
HK30WA523	HK30WA506	HK30WB505	1.7 Hp 230-v	HD56FR233	230	5.8	60Hz	1,725	1.7
HK30WA530	HK30WA512	HK30WB510	1.7 Hp 460-v	HD56FR463	460	2.9	60 Hz	1,725	1.7
HK30WA523	HK30WA506	HK30WB505	2.4 Hp 230-v	HD56FE653	230	7.1	60 Hz	1,725	2.4
HK30WA530	HK30WA512	HK30WB510	2.4 Hp 460-v	HD56FE653	460	3.4	60 Hz	1,725	2.4
HK30WA523	HK30WA506	HK30WB505	3.7 Hp 230-v	HD60FE656	230	10.8	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	3.7 Hp 460-v	HD60FE656	460	4.9	60 Hz	1,725	3.7
HK30WA523	HK30WA506	HK30WB505	3.7 Hp 230-v	HD58FR236	230	10.2	60 Hz	1,725	3.7
HK30WA534	HK30WA517	HK30WB511	3.7 Hp 460-v	HD58FR236	460	4.8	60 Hz	1,725	3.7

**Table 42 — ACS320/ACH180 VFD Parameters —
40RU (208/230-v and 460-v units only) (cont)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	CONST SPEED SEL 1201 / 28.22	CONST SPEED SEL 1201 / 28.23	CONST SPEED 1 1202 / 28.26	CONST SPEED 2 1203 / 28.27	RELAY OUT 1 1401 / 10.24	MAX AMPS 2003 / 30.17	MIN FREQ 2007 / 30.13
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	6.5	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	3.4	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.3	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.1	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	9.5	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.8	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	11.5	0 Hz
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	5.8	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	13.3	0 Hz
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	6.6	0 Hz
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	17.0	0 Hz
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.5	0 Hz
HK30WA524	HK30WA507	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	24.8	0 Hz
HK30WA532	HK30WA514	HK30WB512	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	12.4	0 Hz
HK30WA525	HK30WA508	HK30WB507	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	33.5	0 Hz
HK30WA533	HK30WA515	HK30WB513	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	16.8	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	6.5	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	3.4	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	8.3	0 Hz
HK30WA530	HK30WA512	HK30WB510	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	4.1	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	11.5	0 Hz
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	5.8	0 Hz
HK30WA523	HK30WA506	HK30WB505	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	13.3	0 Hz
HK30WA534	HK30WA517	HK30WB511	DI2,3 / (3)	DI2,3 / (4)	40 Hz	60 Hz	16 FLT / (16)	6.6	0 Hz

**Table 42 — ACS320/ACH180 VFD Parameters —
40RU (208/230-v and 460-v units only) (cont)**

VFD PART NUMBER	ACS320 REPLACEMENT COMPONENT PART NUMBER	ACH180 REPLACEMENT COMPONENT PART NUMBER	MAX FREQ 2008 / 30.14	SWITCH FREQ 2606 / 97.01	START FCN 2101 / 21.19	STOP FCN 2102 / 21.03	ACCEL/ DECEL 2201 / 28.71	ACCEL 2202 / 28.72	DECEL 2203 / 28.73
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA524	HK30WA507	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA532	HK30WA514	HK30WB512	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA525	HK30WA508	HK30WB507	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA533	HK30WA515	HK30WB513	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA530	HK30WA512	HK30WB510	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA523	HK30WA506	HK30WB505	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.
HK30WA534	HK30WA517	HK30WB511	60 Hz	4 kHz / (4)	(1) Auto / (2)	(1) Coast / (0)	(0) Not Sel / (0)	30 sec.	30 sec.