ABB HVAC Drives

ACH400 Vertical Electronic Bypass to ACH550 E-Bypass, 1 - 25Hp @ 208V, 1 - 50Hp @ 480V (R1 ... R4 Frame Size Drives)

Retrofit Guide

ACH400 to ACH550
Drive Replacement Instructions

This guide takes a step by step approach to upgrading your HVAC Drive. When it is time to replace your ACH400 NEMA 1 drive with the newer ACH550 NEMA 1 drive, reusing the existing electronic bypass (e-bypass) can greatly increase the value to your company.

ABB offers this step by step guide to help you easily install an ACH550 drive while maintaining the existing bypass components.

The mounting and interconnection between the existing electronic bypass unit and the new drive are detailed with instructions and photos.

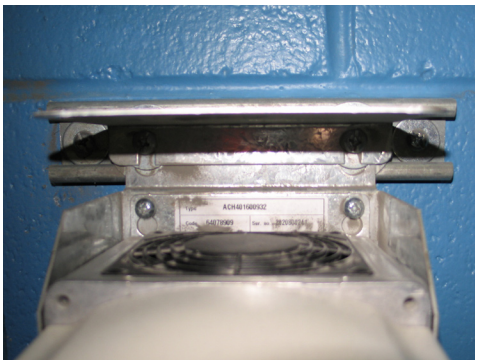
These instructions are written for qualified and competent electrical personnel with a familiarity of circuits up to 500V and AC drives. Only qualified personnel should attempt these procedures.

Contents

Follow the steps for easiest conversion.
Check off each step as you complete it.

Step 1: Verify that the correct replacement drive has been chosen.

- ☐ Locate the ACH400 Catalog Number at the top of the drive. Record the catalog # below.
  _____
- ☐ Use the Catalog Number Explanation Guide below to verify the correct selection for the new ACH550.
- ☐ Record the correct ACH550 Catalog Number here.
  _____
- ☐ Verify this Catalog number against the drive to be installed.



208-230V, 3-Phase							
Hp	Output Amps	Frame Size	ACH400 Catalog Number	ACH550 Catalog Number	Hp	Output Amps	Frame Size
				ACH550-UH-04A6-2	1	4.6	R1
				ACH550-UH-06A6-2	1.5	6.6	
				ACH550-UH-07A5-2	2	7.5	
3	10.6	R1	ACH40160042	ACH550-UH-012A-2	3	11.8	
5	16.7		ACH40160052	ACH550-UH-017A-2	5	16.7	
7.5	24.2	R2	ACH40160062	ACH550-UH-024A-2	7.5	24.2	R2
10/15	46.2	R3	ACH40160112	ACH550-UH-046A-2	15	46.2	R3
20	59.4		ACH40160162	ACH550-UH-059A-2	20	59.4	
25	74.8	R4	ACH40160202	ACH550-UH-075A-2	25	74.8	R4
380-480V, 3-Phase							
				ACH550-UH-03A3-4	1.5	3.3	R1
				ACH550-UH-04A1-4	2	4.1	
3	6.6	R1	ACH401600432	ACH550-UH-06A9-4	3	6.9	
5	8.8		ACH401600532	ACH550-UH-08A8-4	5	8.8	
7.5	11.6		ACH401600632	ACH550-UH-012A-4	7.5	11.9	
10	15.3	R2	ACH401600932	ACH550-UH-015A-4	10	15.4	R2
15	23		ACH401601132	ACH550-UH-023A-4	15	23	
20	30	R3	ACH401601632	ACH550-UH-031A-4	20	31	R3
25	38		ACH401602032	ACH550-UH-038A-4	25	38	
30	44	R4	ACH401602532	ACH550-UH-044A-4	30	44	R4
40	59		ACH401603032	ACH550-UH-059A-4	40	59	
50	72		ACH401604132	ACH550-UH-072A-4	50	72	

If it is still possible to power the existing unit, retrieve the programmed settings by performing Step 2. Otherwise, proceed to Step 3.

Step 2: Record existing parameter settings.

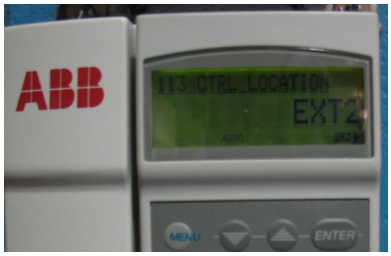
☐ With power applied to the existing unit, verify and record the parameter settings of the ACH400 in the table in the back of this document. Only those parameters that are no longer at Factory Default need be recorded.

Press the "Menu" key on the control panel. This brings you to the group level.

Press the "Enter" key to access the Parameter Level.

Press the "Down Arrow" key to move down the list of drive parameters.

The top of the screen will display the parameter number and name. The lower right area of the screen will display the currently programmed value for that parameter.



☐ Record the parameter values in the "ACH400" column of the chart at the back of this document.

Step 3: Deactivate the system

☐ Take all appropriate measures and steps to manually deactivate the system. These may include night setback, removing the run command from the drive, alarm disable, no calls or other actions. Properly shut down operation before moving to the next step.

Step 4: Remove and lockout all power from the ACH400.

☐ Turn off and lockout the branch breaker or disconnect feeding the drive system.

! **Warning!** Be sure to use the safety procedures for tagging and padlocking. These procedures may be issued by the Contractor or by the facility or both. Use the highest level of safety.

☐ Confirm that the correct circuit has been locked out. The drive should have no active displays or status lights. Turn the disconnect / circuit breaker handle on the bypass unit to "OFF".

! **Warning!** Dangerous voltages are present when input power is connected. Wait at least 5 minutes after disconnecting the supply before removing the cover.

Step 5: Remove the cover from the bypass unit.

R1 and R2 Frames:

☐ Loosen and remove the two screws on the bottom of the cover. Be certain not to drop the hardware into other electrical areas.

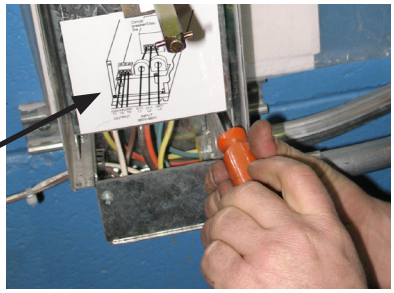
☐ Lift and remove the cover by swinging it out from the bottom and sliding the cover pins from the base slots. You may have to manipulate the disconnect / circuit breaker handle to release it from the shaft as you remove the cover.

R3 and R4 Frames:

☐ Loosen and remove all screws securing the cover to the base. Be certain not to drop the hardware into other electrical areas.

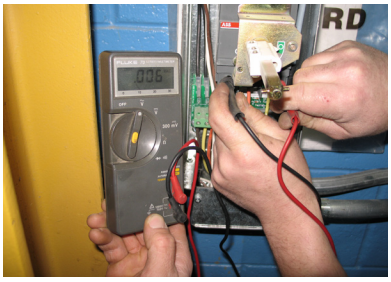
☐ Lift and remove the cover by swinging it out from the bottom. You may have to manipulate the disconnect / circuit breaker handle to release it from the shaft as you remove the cover.

Step 6: Verify removal of all dangerous voltages.



☐ If the metal option mounting bracket is present, carefully remove it. Remove and keep the two screws at the bottom of the shield. A magnetic screw driver is helpful for this step.

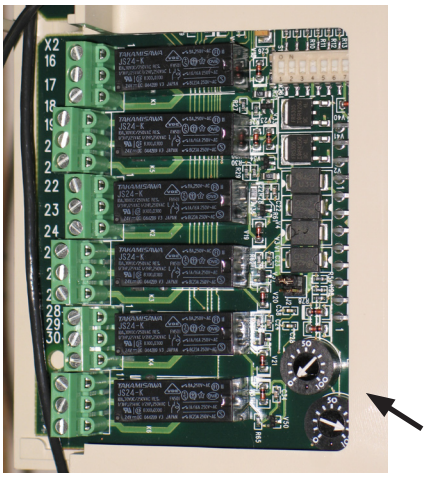
☐ Use an appropriate meter to verify the absence of AC line voltage on the load side of the main disconnect or circuit breaker.



! **Warning!** The main disconnect or circuit breaker for the unit is BOTTOM FEED.

! **Warning!** Even when power is removed as directed above, dangerous voltages from customer supplied external sources may be present, particularly on the relay outputs, Terminals 17 – 22. Measure the voltage at these terminals before continuing. If voltage is present, identify and disconnect the source.

Step 7: Verify the version of the bypass control board.



These instructions are written for those units that have the current version E-Bypass control board.

☐ If your control board has two potentiometers as show in this photograph, it is the current version.

☐ If your control board does not have two potentiometers as shown in this photograph, it is the older version. These instructions are NOT VALID for the older version E-Bypass control boards. If your board is the older version, an upgrade kit can be purchased separately.

Step 8: Remove the Control Panel from the drive.

☐ Swing the panel out from either the top or bottom and remove it from the connector.

Step 9: Remove the front cover from the drive.

- ☐ Insert a screwdriver into the slot and release the retaining lever.

Then swing the cover away from the drive and remove it.

- ☐ Use an appropriate meter to verify the absence of AC line voltage at the drive terminals (U1, V1,W1) and measure the DC voltage at terminals (Uc+, Uc-) before servicing the unit..

Step 10: Disconnect the Power Wiring.

- ☐ If wiring is not clearly marked (as shown in the picture at the right), use tags to identify each wire for later reconnection to the proper terminals.

- ☐ Disconnect ac input leads at terminals U1, V1 and W1. The picture to the right shows the R1 Frame terminal block. The location and layout of power terminals for R2, R3 and R4 frames are similar.

- ☐ Disconnect motor lead terminals U2, V2 and W2.
- ☐ Disconnect the green/yellow ground lead at terminal PE.

Step 11: Disconnect customer installed control wiring.

- ☐ You will need to know the type and level of signal produced and the scaling to system units (e.g. 4-20 mA for 0-2.5 In. of H_2O). Also note the terminals from which the wiring was disconnected. This will help when reconnecting wires. For example, if the two wires were connected to drive terminals 2 and 9, it indicates that the sensor is a "loop powered" sensor taking its power from the drive power supply. If however, the terminals used were terminals 2 and 3, it indicates a "non-loop powered" device.

! **Warning! Miswiring can occur if you identify the control wiring by its current terminal designation or the drive ID (DI1, AI2, etc.)**

Step 12: Disconnect factory installed control wiring.

- ☐ The multi-conductor cable that connects the drive to the bypass must be replaced. Verify the color code / terminal number match below and then disconnect and discard the cable. The wires are color coded (see table on next page) and do not require tagging. A new cable is provided for reinstallation in a later step.

Bypass Unit Terminal	Color	
Terminal 7	Green	
--		
Terminal 8	Blue	
Terminal 9	Violet	
--		
Terminal 10	Gray	
--		
--		
Terminal 14	Orange	
Terminal 13	Red	
--		
Terminal 11	White	
Terminal 12	Black	

Step 13: Remove the ACH400 drive. (R1 frame shown)

- ☐ Using a screwdriver with a blade length long enough to easily access the mounting screws, loosen (do not remove) the two bottom mounting screws.
- ☐ Completely remove the two top mounting screws. Be careful not to drop this hardware into other sections of the unit and remember to support the drive while screws are removed.
- ☐ Now remove the drive from the unit by lifting it up and out of the E-Bypass chassis.

Step 14: Clean up the installation area.

- ☐ Perform any general cleanup necessary. Use a brush, vacuum and other equipment to remove any dust and debris from the bypass unit, frame work and other areas.

Step 15: Prepare the new ACH550 for installation.

- ☐ Remove the ACH550 from its packaging.

  A separate internal package may contain a conduit box and will not be used for this installation

- ☐ Remove the control panel and set aside for future steps.

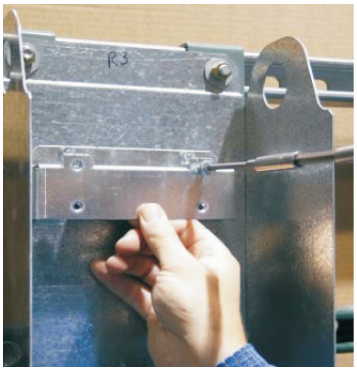
- ☐ Using a Phillips head screw driver, loosen the captive, gold-colored cover screw and lift the cover from the drive.

Step 16: Mount the new ACH550.

R1 and R2 Frame Sizes:

- ☐ Mount the ACH550 into the mounting channel by hooking the bottom mounting slots over the screws and then tilting the top back to the channel.
- ☐ Reinstall the top two mounting screws through the drive mounting feet. Slide the drive down as far as it will go.
- ☐ After all 4 screws are in place, tighten the top and bottom mounting screws.

R3 Frame Size:



- ☐ Attach the top adapter bracket to the back panel with two of the **existing drive mounting screws** as shown in the picture at the right. The adapter bracket has a lip and two (2) tabs that will point **up** when properly installed.

- ☐ Remove the two remaining bottom mounting screws and use them to attach the bottom adapter bracket to the back panel in the same manner. Both brackets should have the tabs and lip pointing upwards.

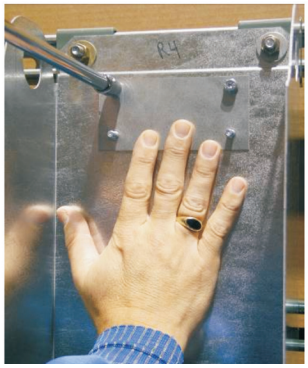
- ☐ Insert mounting screws bolts (provided in the kit) in the two (2) top holes of the top adapter plate.
- ☐ Insert mounting bolts in the bottom two (2) holes in the bottom adapter plate.

- ☐ Mount the ACH550 into the mounting channel by hooking the bottom mounting slots over the bolts and then tilting the top of the drive back into the channel. Lift the drive slightly to slip the top keyhole slots over the mounting screws, and then lower the drive fully.

- ☐ After the drive is in place, tighten all 4 mounting screws.

R4 Frame Size:

- ☐ Attach the top adapter plate to the back panel (using the two mounting screws that you removed) as shown. The studs will be at the bottom of the adapter plate.



- ☐ The two bottom mounting bolts should still be in place in the existing bottom mounting holes.

- ☐ Mount the ACH550 into the mounting channel by hooking the bottom mounting slots over the bolts and then tilting the top of the drive back into the channel.

  Lift the drive slightly to slip the top keyhole slots over the mounting studs, and then lower the drive fully.

- ☐ Place a nut loosely onto each of the two (2) studs.

- ☐ After the drive is positioned , tighten all 4 mounting screws/nuts.

Step 17: Reinstall the Power Wiring.

! **Important:** Be careful that no loose strands are created when inserting the wires into the terminal block.

☐ Reconnect ac input leads at terminals U1, V1 and W1.

☐ Reconnect motor leads at terminals U2, V2 and W2.

☐ Reconnect the green/yellow ground lead at terminal PE.

! **Important!** Because of the difference in ground terminal design, the green/yellow wire may have been stripped deeper than is necessary for the ACH550. It may be necessary to trim the end of the conductor for proper insertion into the new terminal.

Step 18: Reinstall the new control cable.

! **Important:** Be careful that no loose strands are created when inserting the wires into the terminal block.

☐ Locate the new control cable supplied with the new drive. This cable is a multi-conductor cable with a black sheath. The end for the bypass unit is labeled "2PCB.X2" and has the shorter wires extending.

☐ Reconnect the color coded wires on both ends according to the table below.

Bypass Unit Terminal	Color		ACH550 Terminals	X
Terminal 7	Green		Terminal 10 (+24V)	
--			Terminal 11 to Terminal 12	
Terminal 8	Blue		Terminal 13 (Dig In 1)	
Terminal 9	Violet		Terminal 14 (Dig In 2)	
--			Terminal 15 (Dig In 3)	
Terminal 10	Gray		Terminal 16 (Dig In 4)	
--			Terminal 17 (Dig In 5)	
--			Terminal 18 (Dig In 6)	
Terminal 14	Orange		Terminal 19 (RO1 Com)	
Terminal 13	Red		Terminal 20 (RO1 N.C.)	
--			Terminal 21 (RO1 N.O.)	
Terminal 11	White		Terminal 25 (RO3 Com)	
Terminal 12	Black		Terminal 26 (RO3 N.O.)	

☐ Tie wrap the cable and any other site-specific control wires to the top of the bypass unit as shown. Use only the tie slot shown (lower of the two). DO NOT wrap the cable to the top slot or cover interference may result.

Step 19: Reinstall the customer's control wires.

! **Important:** Be careful that no loose strands are created when inserting the wires into the terminal block.

☐ If the customer input signal is a speed reference, connect the wires to Analog Input 1, Terms. 2 and 3 and connect the shield to Term. 1.

☐ If the customer input signal is PI Loop feedback, connect the wires to Analog Input 2, Terms. 5 and 6 and connect the shield to Term. 1.

! **Important:** If the feedback device is "loop powered", make sure that the ground side of the feedback signal is also jumpered to the ground of the drive's 24V power supply at drive terminal 11.

☐ If additional signals were removed from control relays or other outputs, reconnect them to the correct terminals per the ACH550 User manual included with the new drive.

Step 20: Reinstall the ACH550 cover and Control Panel.

☐ Install the cover onto the ACH550.

☐ Tighten the gold colored cover screw.

☐ Reinstall the ACH550 Control Panel.

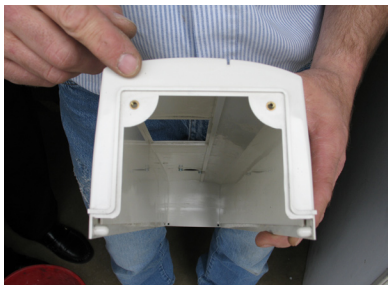
Step 21: Reinstall the option mounting bracket.

☐ If the metal bracket was removed in Step 6, reinstall the metal bracket and fasten it to the drive with the original 2 screws.

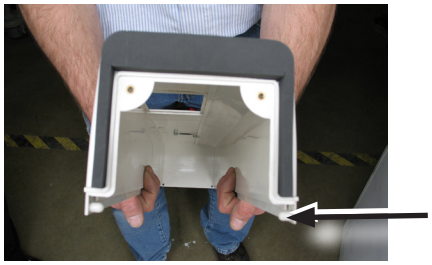
Step 22: Reinstall the bypass unit cover.

R1 and R2 Frame Sizes:

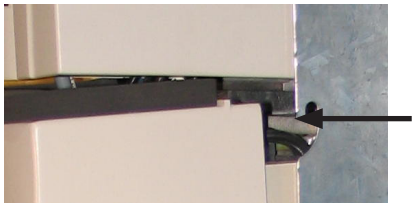
- ☐ Prepare the cover by cleaning any dust or oil from the top of the cover.



- ☐ Apply the supplied gasket to the top of the cover by removing the backing and placing the gasket as shown. Note the ridge on the cover molding. The gasket should fit tightly against this ridge. The gasket will extend past the front of the cover.



- ☐ Engage the pins on the top of the cover with the slots in the channel.

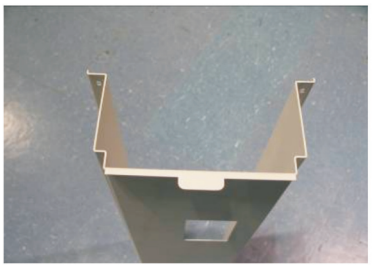


- ☐ Swing the bottom of the cover to the unit, aligning the disconnect switch handle with the disconnect mechanism. Make sure the handle is in the off position and move the handle as needed to engage the disconnect shaft.

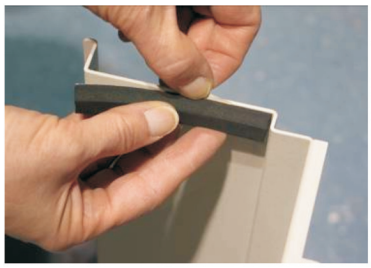
- ☐ Reinstall the cover screws on the bottom of the unit.

R3 and R4 Frame Sizes:

- ☐ Prepare the cover by cleaning any dust or oil from the top inside edge of the cover.



- ☐ Apply the supplied gasket material to the inside edges of the cover at the top by removing the backing and placing the gasket as shown. Note the top edge of the cover will match the edge of the gasket and the gasket will be snug against the inside bend of the cover.



- ☐ When finished, the gaskets will look as shown.

- ☐ Mount the cover onto the bypass unit by aligning the mounting holes. Make sure the disconnect handle is in the "Off" position and move the handle as needed to engage the disconnect shaft. The tab on the cover must also engage the bottom of the drive front cover.

- ☐ Reinstall the cover screws.

Step 23: Reapply power to the unit.

- ☐ First, remove the safety tagout/lockout from the feeder device. Be certain to follow all designated safety procedures.
- ☐ Close the branch device.
- ☐ Now turn the disconnect handle on the bypass unit to the "On" position.

Step 24: Verify that the signals and status are correct.

- ☐ Verify that the unit is powered. The Control Panel on the drive should be illuminated and status lights should appear on the bypass unit.
- ☐ Verify that the Control Panel green led is flashing and that the welcome screen is displayed on the unit. The welcome screen may be alternating with an Alarm 2021 (no enable) screen. This disabled condition will remain until programming selects the proper Macro for the drive.
- ☐ Verify that the bypass unit has a steady, illuminated, green "Ready" led.
- ☐ Verify that the bypass unit has a steady, illuminated, green "Enable" led. If this led is not illuminated, manually supply the enable signal from the system. This most likely requires reversal of one or more of the actions taken in Step 3.

Step 25: Adjust the new drive's programming.

- ☐ Press the "OK" button on the Control Panel to access the Start-Up Assistant. Press "Save" to accept "English" as the language. Select "Commission" and then press "Save".
- ☐ Enter the correct motor data as recorded in the ACH400 parameters from Step 2. These include Motor Volts, Motor Amps, Motor Frequency, Motor RPM and Motor Power.
- ☐ Select "E-BYPASS" as the macro and press "Save".
- ☐ Complete the rest of the remaining steps in the Start-Up Assistant, answering questions and selecting features based on your systems design.

Step 26: Test the unit

- ☐ Start the system and verify correct operation in both Hand and Auto Modes.

Step 27: Drive Replacement Complete!

Congratulations! If you followed these steps, your system is now running with the new ABB ACH550 drive.

Parameter Conversion List

	ACH400			ACH550		
Parameter Name	**Par #**	**HVAC Default**	**Actual Setting**	**Par #**	**Factory Default**	**Desired Setting**
LANGUAGE	9901	ENGLISH (AM)		9901	ENGLISH	
APPLIC MACRO	9902	HVAC		9902	HVAC DEFAULT	E-BYPASS
MOTOR CTRL MODE	9904	SCALAR: FREQ		9904	SCALAR: FREQ	
MOTOR NOM VOLT	9905	Drive Rating		9905	V	Motor NP Rating
MOTOR NOM CURR	9906	Drive Rating		9906	1.0*In A	Motor NP Rating
MOTOR NOM FREQ	9907	60 Hz		9907	60.0 Hz	Motor NP Rating
MOTOR NOM SPEED	9908	1750 rpm		9908	1700 rpm	Motor NP Rating
MOTOR NOM POWER	9909	Drive Rating		9909	1.0*Pn hp	Motor NP Rating
MOTOR COS PHI	9910	0.83				
EXT1 COMMANDS	1001	DI1		1001	DI1	
EXT2 COMMANDS	1002	NOT SEL		1002	DI1	
DIRECTION	1003	FORWARD		1003	FORWARD	
KEYPAD REF SEL	1101	REF1 (Hz)		1101	REF1(Hz/rpm)	
EXT1/EXT2 SEL	1102	EXT1		1102	EXT1	
REF1 SELECT	1103	AI1		1103	AI1	
REF 1 MIN	1104	0 Hz		1104	0.0 Hz	
REF 1 MAX	1105	60 Hz		1105	60.0 Hz	
REF2 SELECT	1106	KEYPAD		1106	PID1OUT	
REF 2 MIN	1107	0%		1107	0.0 %	
REF 2 MAX	1108	100%		1108	100.0 %	
CONST SPEED SEL	1201	DI3,4,5		1201	DI3	NOT SEL
CONST SPEED 1	1202	5.0 Hz		1202	6.0 Hz	
CONST SPEED 2	1203	10.0 Hz		1203	12.0 Hz	
CONST SPEED 3	1204	15.0 Hz		1204	18.0 Hz	
CONST SPEED 4	1205	20.0 Hz		1205	24.0 Hz	
CONST SPEED 5	1206	25.0 Hz		1206	30.0 Hz	
CONST SPEED 6	1207	40.0 Hz		1207	48.0 Hz	
CONST SPEED 7	1208	50.0 Hz		1208	60.0 Hz	
TIMED MODE SEL	NA	------	------	1209	CS1/2/3/4	
MINIMUM AI1	1301	0%		1301	20.0 %	
MAXIMUM AI1	1302	100%		1302	100.0 %	
FILTER AI1	1303	0.1 s		1303	0.1 s	5.0 s
MINIMUM AI2	1304	0%		1304	20.0 %	

	ACH400			ACH550		
Parameter Name	**Par #**	**HVAC Default**	**Actual Setting**	**Par #**	**Factory Default**	**Desired Setting**
MAXIMUM AI2	1305	100%		1305	100.0 %	
FILTER AI2	1306	0.1 s		1306	0.1 s	
RELAY OUTPUT 1	1401	FAULT (-1)		1401	READY	STARTED
RELAY OUTPUT 2 (3)	1402	RUN		1403	FAULT(-1)	FAULT(-1)
RO 1 ON DELAY	1403	0.0 s		1404	0.0 s	
RO 1 OFF DELAY	1404	0.0 s		1405	0.0 s	
RO 2 (3) ON DELAY	1405	0.0 s		1408	0.0 s	
RO 2 (3) OFF DELAY	1406	0.0 s		1409	0.0 s	
AO1 CONTENT	1501	103		1501	OUTPUT FREQ	
AO1 CONTENT MIN	1502	0.0 Hz		1502	0.0 Hz	
AO1 CONTENT MAX	1503	60.0 Hz		1503	60.0 Hz	
MINIMUM AO1	1504	4.0 mA		1504	4.0 mA	
MAXIMUM AO1	1505	20.0 mA		1505	20.0 mA	
FILTER AO1	1506	0.1 s		1506	0.1 s	
RUN ENABLE	1601	DI2		1601	DI2	
PARAMETER LOCK	1602	OPEN		1602	OPEN	
FAULT RESET SEL	1604	KEYPAD		1604	KEYPAD	
LOCAL LOCK	1605	OPEN		1606	NOT SEL	
PARAM SAVE	1607	DONE		1607	DONE	
MINIMUM SPEED				2001	0rpm	
MAXIMUM SPEED				2002	1800 rpm	
MAX CURRENT	2003	9.7 A		2003	1.1*In	
OVERVOLT CTRL	2005	ENABLE				
UNDERVOLT CTRL	2006	ENABLE (TIME)		2006	ENABLE(TIME)	
MINIMUM FREQ	2007	0 Hz		2007	0.0 Hz	
MAXIMUM FREQ	2008	60 Hz		2008	60.0 Hz	
START FUNCTION	2101	RAMP		2101	AUTO	
STOP FUNCTION	2102	COAST		2102	COAST	
TORQ BOOST CURR	2103	8.8 A		2110	100 %	
DC BRAKE TIME / STOP DC INJ TIME	2104	0.0 s		2107	0.0 s	
PREMAGM SEL	2105	NOT SEL				

	ACH400			ACH550		
Parameter Name	**Par #**	**HVAC Default**	**Actual Setting**	**Par #**	**Factory Default**	**Desired Setting**
DC MAGN TIME / PREMAGN MAX TIME	2106	2.0 s		2103	0.30 s	
START INHIBIT	2107	OFF		2108	OFF	
ACC/DEC 1/2 SEL	2201	NOT SEL		2201	NOT SEL	
ACCELER TIME 1	2202	30.0 s		2202	30.0 s	
DECELER TIME 1	2203	30.0 s		2203	30.0 s	
ACCELER TIME 2	2204	60.0 s		2205	60.0 s	
DECELER TIME 2	2205	60.0 s		2206	60.0 s	
RAMP SHAPE 1	2206	LINEAR		2204	LINEAR	
CRIT SPEED SEL CRIT FREQ SEL	2501	OFF		2501	OFF	
CRIT SPEED 1 LO CRIT FREQ 1 LO	2502	0 Hz		2502	0.0 Hz	
CRIT SPEED 1 HI CRIT FREQ 1 HI	2503	0 Hz		2503	0.0 Hz	
CRIT SPEED 2 LO CRIT FREQ 2 LO	2504	0 Hz		2504	0.0 Hz	
CRIT SPEED 2 HI CRIT FREQ 2 HI	2505	0 Hz		2505	0.0 Hz	
FLUX OPT ENABLE				2601	ON	------
FLUX BRAKING				2602	OFF	------
IR COMP VOLT IR COMPENSATION	2603	0 V		2603	0.0 V	
IR COMP FREQ IR COMP RANGE	2604	60 Hz		2604	80 %	
LOW NOISE SWITCHING FREQ	2605	OFF		2606	4 kHz	
U/F RATIO	2606	SQUARE		2605	SQUARED	
SLIP COMP RATIO	2607	0%		2608	0 %	
AI<MIN FUNCTION	3001	NOT SEL		3001	NOT SEL	
PANEL COMM ERR PANEL LOSS	3002	FAULT		3002	FAULT	
EXTERNAL FAULT 1	3003	NOT SEL		3003	NOT SEL	
MOT THERM PROT	3004	FAULT		3005	FAULT	
MOT THERM TIME	3005	1050 s		3006	1050 s	
MOT LOAD CURVE	3006	100%		3007	100 %	

	ACH400			ACH550		
Parameter Name	**Par #**	**HVAC Default**	**Actual Setting**	**Par #**	**Factory Default**	**Desired Setting**
ZERO SPEED LOAD	3007	70%		3008	70 %	
BREAK POINT FREQ	3008	15 Hz		3009	35 Hz	
STALL FUNCTION	3009	NOT SEL		3010	NOT SEL	
STALL CURRENT	3010	8.8 A		-----		
STALL FREQUENCY	3011	20.0 Hz		3011	20.0 Hz	
STALL TIME	3012	20 s		3012	20 s	
UNDERLOAD FUNC	3013	NOT SEL		3013	NOT SEL	
UNDERLOAD TIME	3014	20 s		3014	20 s	
UNDERLOAD CURVE	3015	1		3015	1	
NR OF TRIALS	3101	5		3101	5	
TRIAL TIME	3102	60.0 s		3102	30.0 s	
DELAY TIME	3103	6.0 s		3103	6.0 s	
AR OVERCURRENT	3104	DISABLE		3104	DISABLE	
AR OVERVOLTAGE	3105	ENABLE		3105	ENABLE	
AR UNDERVOLTAGE	3106	ENABLE		3106	ENABLE	
AR AI<MIN	3107	ENABLE		3107	ENABLE	
SUPERV 1 PARAM	3201	103		3201	103	
SUPERV 1 LIM LO	3202	0.0 Hz		3202	60.0 Hz	
SUPERV 1 LIM HI	3203	0.0 Hz		3203	60.0 Hz	
SUPERV 2 PARAM	3204	103		3204	104	
SUPERV 2 LIM LO	3205	0.0 Hz		3205	1.0*In A	
SUPERV 2 LIM HI	3206	0.0 Hz		3206	1.0*In A	
FW VERSION SW VERSION	3301			3301		
TEST DATE	3302	YY.WW		3303	0.00	
GAIN PID GAIN	4001	2.5		4001	2.5	
INTEGRATION TIME PID INTEG TIME	4002	3.0 s		4002	3.0 s	
DERIVATION TIME PID DERIV TIME	4003	0.0 s		4003	0.0 s	
PID DERIV FILTER	4004	1.0 s		4004	1.0 s	
ERROR VALUE INV	4005	NO		4005	NO	
FBK SEL ACTUAL VAL SEL	4006	ACT1		4014	ACT1	

	ACH400			ACH550		
Parameter Name	**Par #**	**HVAC Default**	**Actual Setting**	**Par #**	**Factory Default**	**Desired Setting**
ACT1 INPUT	4007	AI1		4016	AI2	
ACT2 INPUT	4008	AI2		4017	AI2	
ACT1 MINIMUM	4009	0%		4018	0 %	
ACT1 MAXIMUM	4010	100%		4019	100 %	
ACT2 MINIMUM	4011	0%		4020	0 %	
ACT2 MAXIMUM	4012	100%		4021	100 %	
PID SLEEP DELAY	4013	60.0 s		4024	60.0 s	
PID SLEEP LEVEL	4014	0.0 Hz		4023	0.0 Hz	
WAKE-UP DEV WAKE-UP LEVEL	4015	0.0%		4025	0.0%	
PID 1 PARAM SET	4016	SET 1		4027	SET 1	
WAKE-UP DELAY	4017	0.50 s		4026	0.50 s	
SLEEP SELECTION	4018	INTERNAL		4022	NOT SEL	
SET POINT SEL	4019	EXTERNAL		4010	KEYPAD	
INTERNAL SETPNT	4020	40.0%		4011	100.0 %	
GAIN PID GAIN	4101	2.5		4101	2.5	
INTEGRATION TIME PID INTEG TIME	4102	3.0 s		4102	3.0 s	
DERIVATION TIME PID DERIV TIME	4103	0.0 s		4103	0.0 s	
PID DERIV FILTER	4104	1.0 s		4104	1.0 s	
ERROR VALUE INV	4105	NO		4105	NO	
FBK SEL ACTUAL VAL SEL	4106	ACT1		4114	Act1	
ACT1 INPUT	4107	AI1		4116	AI2	
ACT2 INPUT	4108	AI2		4117	AI2	
ACT1 MINIMUM	4109	0%		4118	0 %	
ACT1 MAXIMUM	4110	100%		4119	100 %	
ACT2 MINIMUM	4111	0%		4120	0 %	
ACT2 MAXIMUM	4112	100%		4121	100 %	
SET POINT SEL	4119	EXTERNAL		4110	KEYPAD	
INTERNAL SETPNT	4120	40.0%		4111	40.0 %	

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