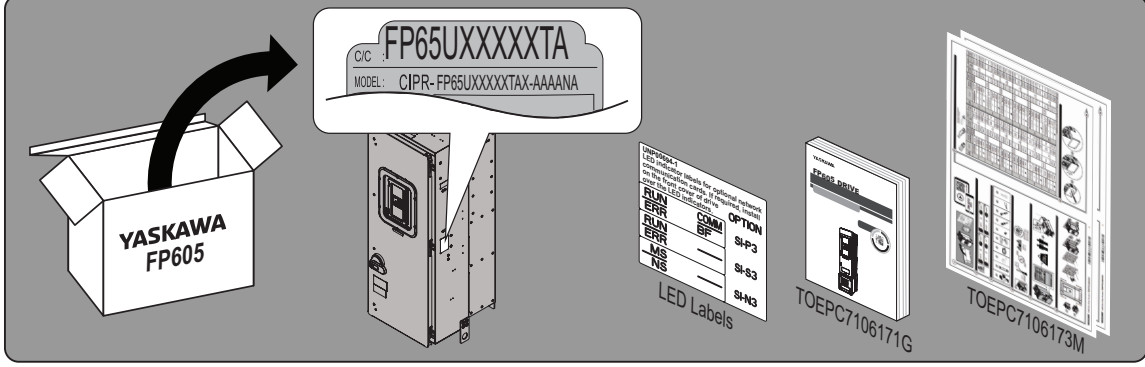
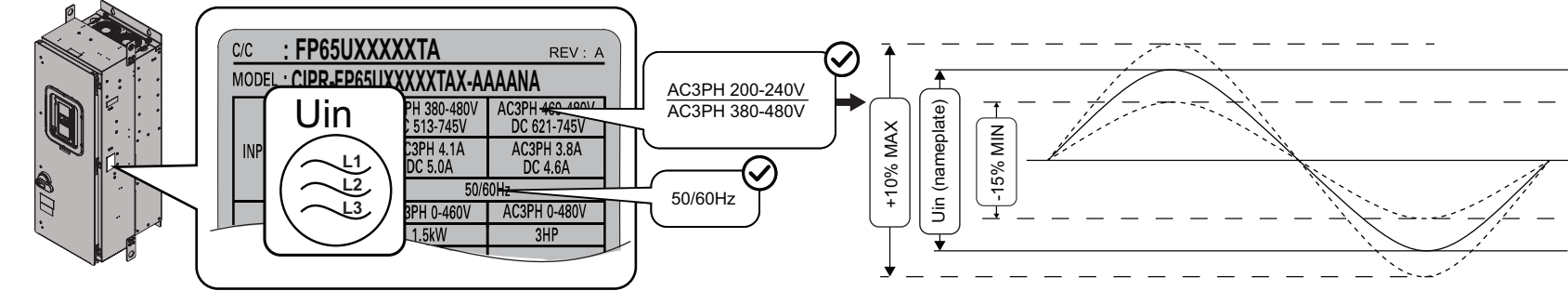
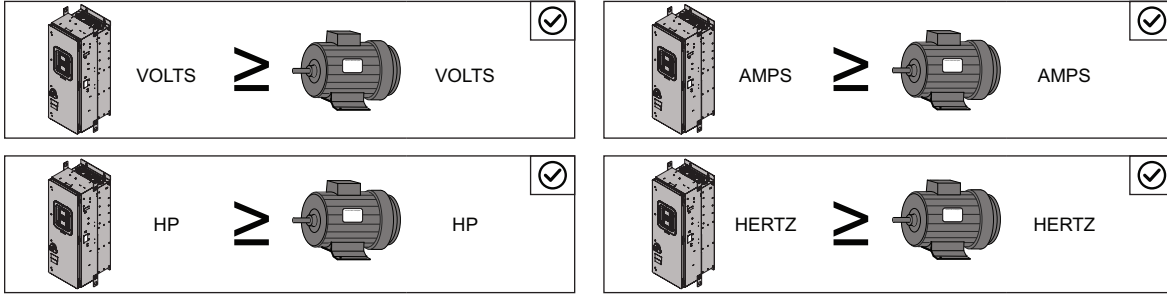


TOEPC7106173M

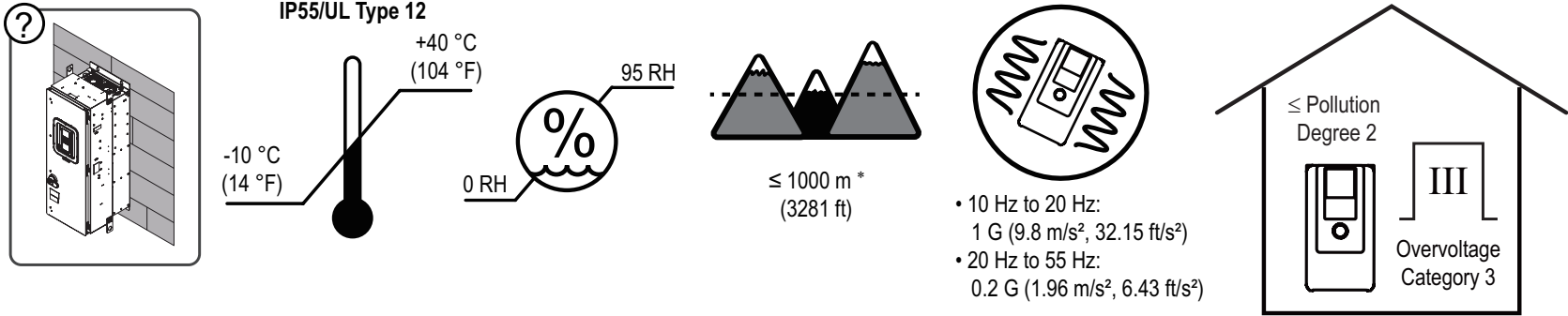


- Read and follow the safety and installation procedures in the Installation & Primary Operation (TOEPC7106171G) manual packaged with the drive.
- When you install an SI-P3, SI-S3, or SI-N3 communication option, you must also use the applicable LED label for your option. LED labels are included with the Installation & Primary Operation (TOEPC7106171G) manual.

1 Confirm the Drive and Motor Specifications

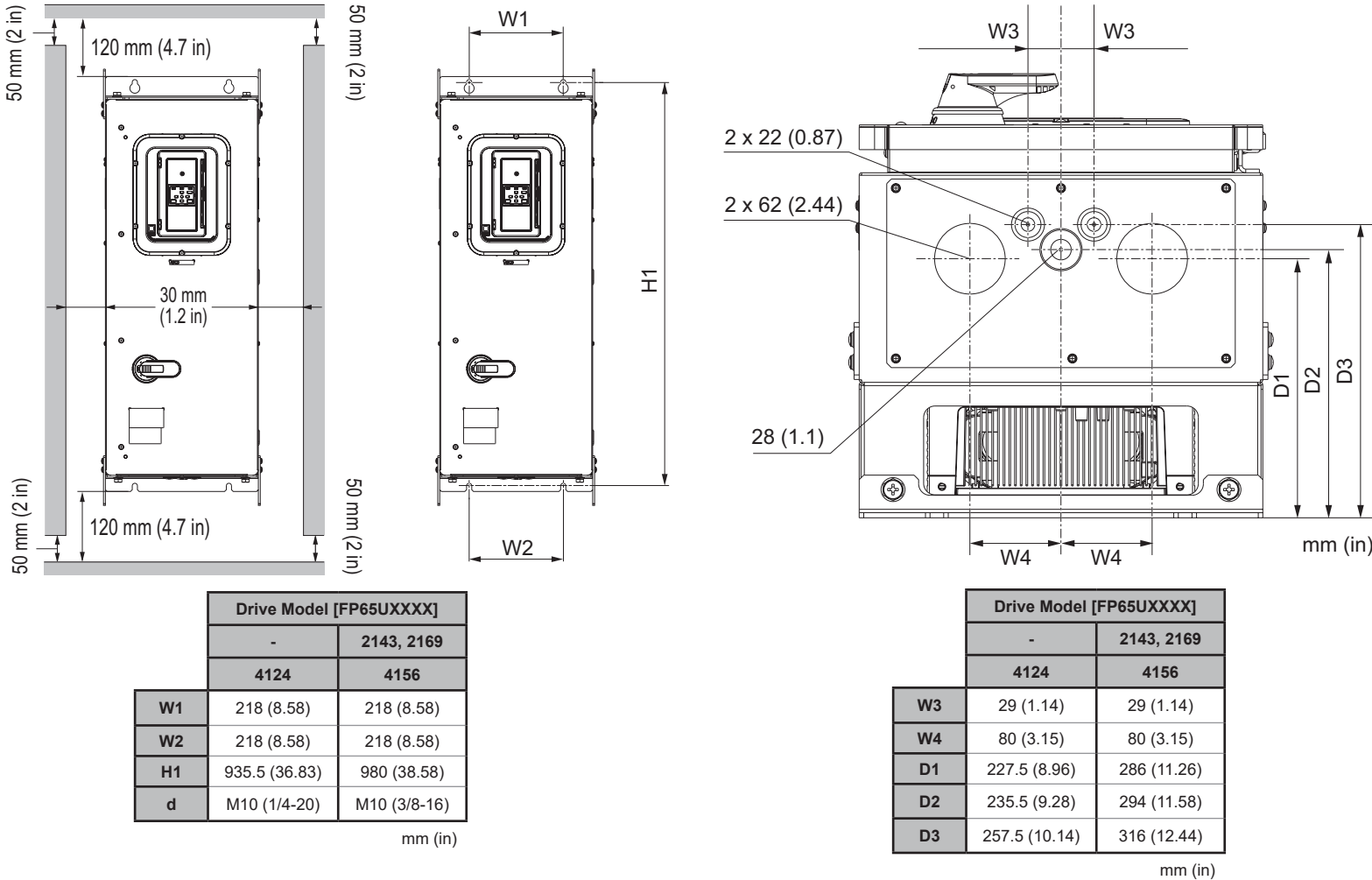


2 Confirm the Correct Drive Installation Environment

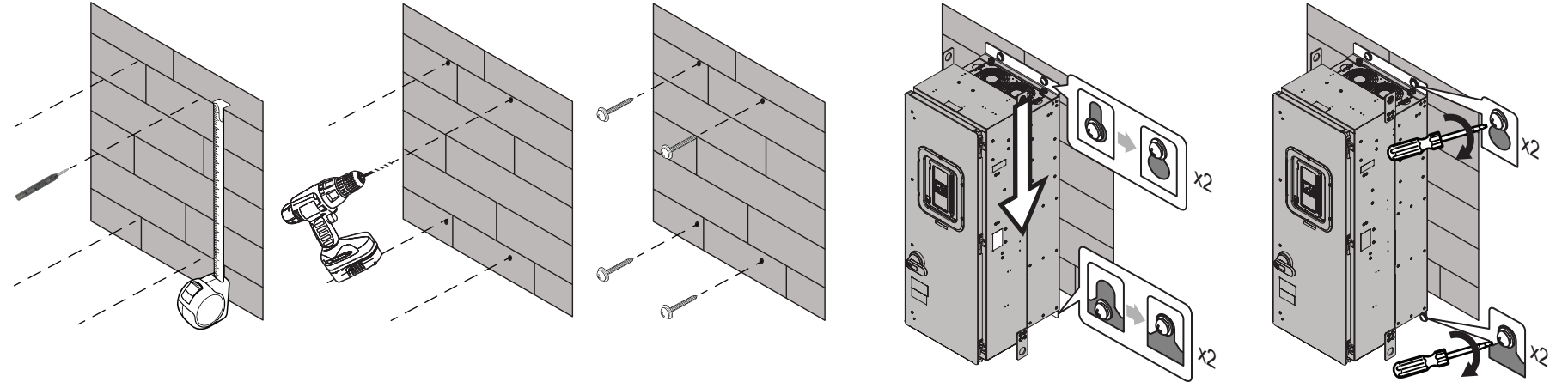


* Derate the output current by 1% for each 100 m (328 ft) to install the drive in altitudes between 1000 m to 4000 m (3281 ft to 13123 ft). Refer to the Technical Reference (SIEPC7106171F) for derating information.

3 Select the Correct Mounting Location and Position



4 Mount the Drive Vertically



When you use non-metric hardware to install the drive, use Type B narrow washers or equivalent and make sure that the size of the screw head and washer are applicable for your drive before installation.

5 Select the Motor and Power Wires, Crimp Terminals, and Branch Circuit Protection

240 V Wires and Crimp Terminals

Drive Model [FP65UXXXX]	Terminal ¹⁾	Wire Range AWG/kcmil (mm ²) ²⁾	Recommended Wire Gauge AWG/kcmil	PANDUIT Crimp Terminal Part Number ^{3) 4)}	Drive Model [FP65UXXXX]	Terminal ¹⁾	Wire Range AWG/kcmil (mm ²) ²⁾	Recommended Wire Gauge AWG/kcmil	PANDUIT Crimp Terminal Part Number ^{3) 4)}
2143	R/L1, S/L2, T/L3	4 - 4/0 (25 - 105)	2/0	LCA2/0-56-X	2169	R/L1, S/L2, T/L3	4 - 4/0 (25 - 105)	3/0	LCA3/0-56-X
	U/T1, V/T2, W/T3	6 - 4/0 (15 - 105)	3/0	LCA3/0-56-X		U/T1, V/T2, W/T3	6 - 4/0 (15 - 105)	4/0	LCA4/0-56-X
	⊕	6 - 4/0 (15 - 105)	4	LCA4-56-L		⊕	6 - 4/0 (15 - 105)	4	LCA4-56-L

480 V Wires and Crimp Terminals

Drive Model [FP65UXXXX]	Terminal ¹⁾	Wire Range AWG/kcmil (mm ²) ²⁾	Recommended Wire Gauge AWG/kcmil	PANDUIT Crimp Terminal Part Number ^{3) 4)}	Drive Model [FP65UXXXX]	Terminal ¹⁾	Wire Range AWG/kcmil (mm ²) ²⁾	Recommended Wire Gauge AWG/kcmil	PANDUIT Crimp Terminal Part Number ^{3) 4)}
4124	R/L1, S/L2, T/L3	4 - 2/0 (25 - 70)	1/0	LCA1/0-56-X	4156	R/L1, S/L2, T/L3	4 - 4/0 (25 - 105)	2/0	LCA2/0-56-X
	U/T1, V/T2, W/T3	8 - 2/0 (10 - 70)	2/0	LCA2/0-56-X		U/T1, V/T2, W/T3	6 - 4/0 (15 - 105)	3/0	LCA3/0-56-X
	⊕	8 - 2/0 (10 - 70)	4	LCA4-56-L		⊕	6 - 4/0 (15 - 105)	4	LCA4-56-L

- *1 You cannot use terminals - and +1 on IP55/UL Type 12 drives with Main Switch.
- *2 The metric wire gauge values are provided as reference information from equivalent AWG sizes and not exactly the same sizes as the AWG/kcmil value. Obey local safety regulations for wire sizes and make sure that the ferrule or crimp terminals are correct for your size.
- *3 For use with PANDUIT Corp. heat-shrinkable tubing HSTT series or an equivalent UL-recognized-heat shrinkable tubing rated 600 V minimum.
- *4 Refer to the Installation & Primary Operation (TOEPC7106171G) for possible PANDUIT Type P and Type S crimp terminal alternatives.

Required Short Circuit Protection

Install one of the types of short circuit protection devices listed here to comply with UL 61800-5-1.

240 V Required Short Circuit Protection

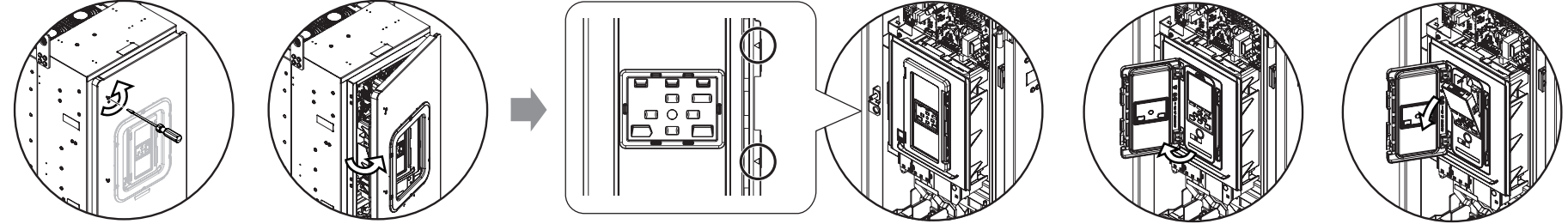
	Drive Model [FP65UXXXX]	
	2143	2169
Class J or T Fuse ^{*1 2)} Maximum Amps	250	250

480 V Required Short Circuit Protection

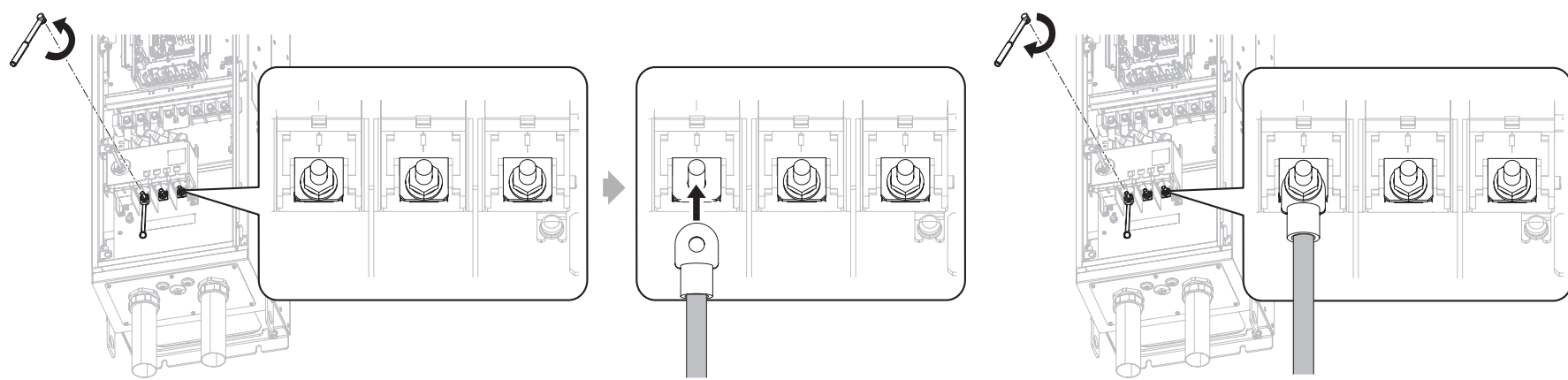
	Drive Model [FP65UXXXX]	
	4124	4156
Class J or T Fuse ^{*1 2)} Maximum Amps	200	250

- *1 Class T fuses are fast-acting (non-time-delay) only. Class J can be either time-delay or non-time-delay.
- *2 Protection device and drive permitted in same or separate enclosure.

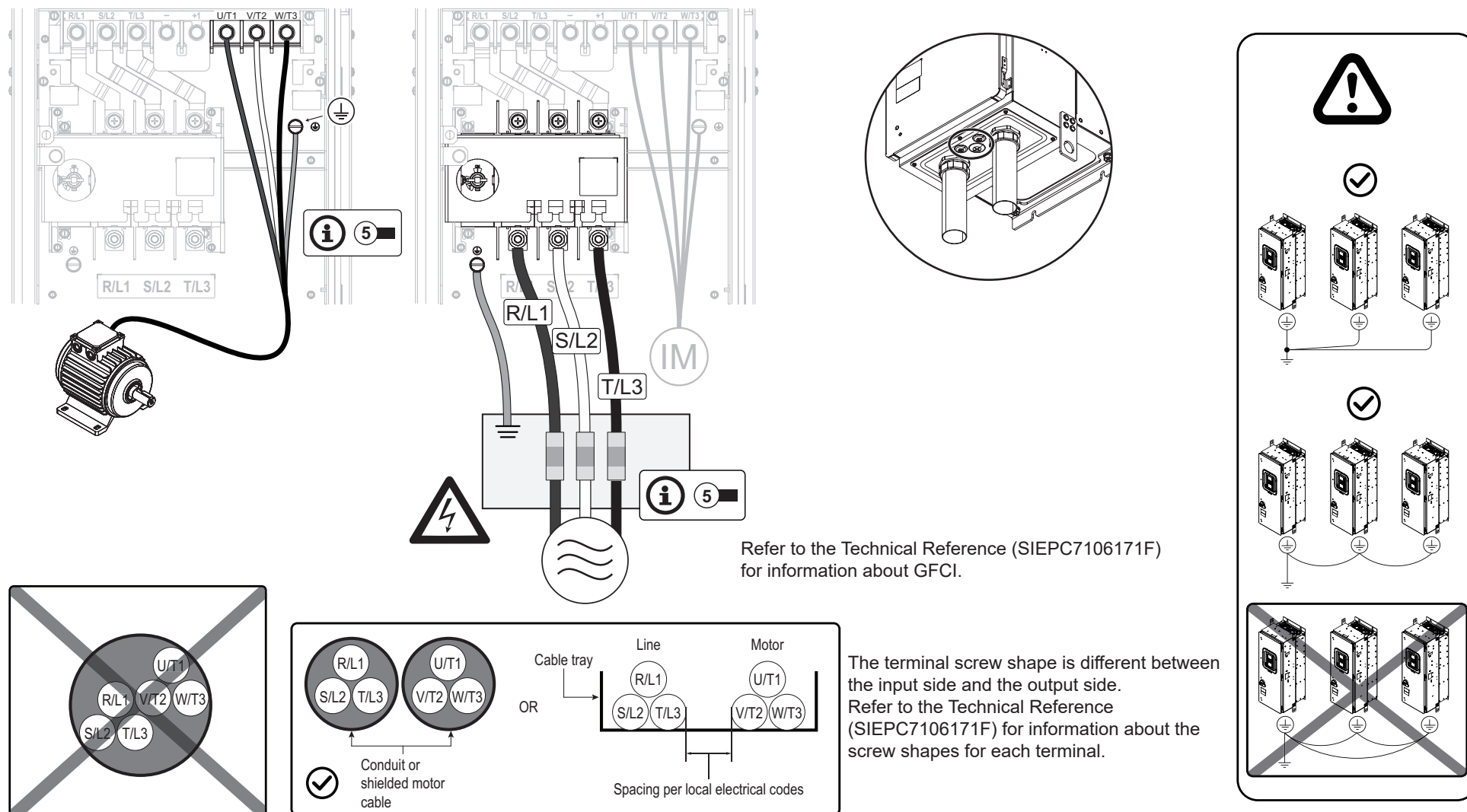
6 Open the Front Door and Remove the Keypad



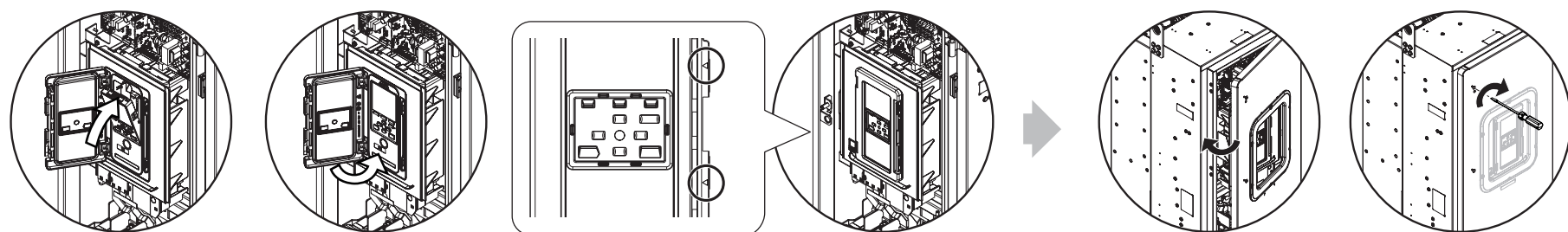
7 Remove Terminal Block Nut to Attach Crimp Terminals



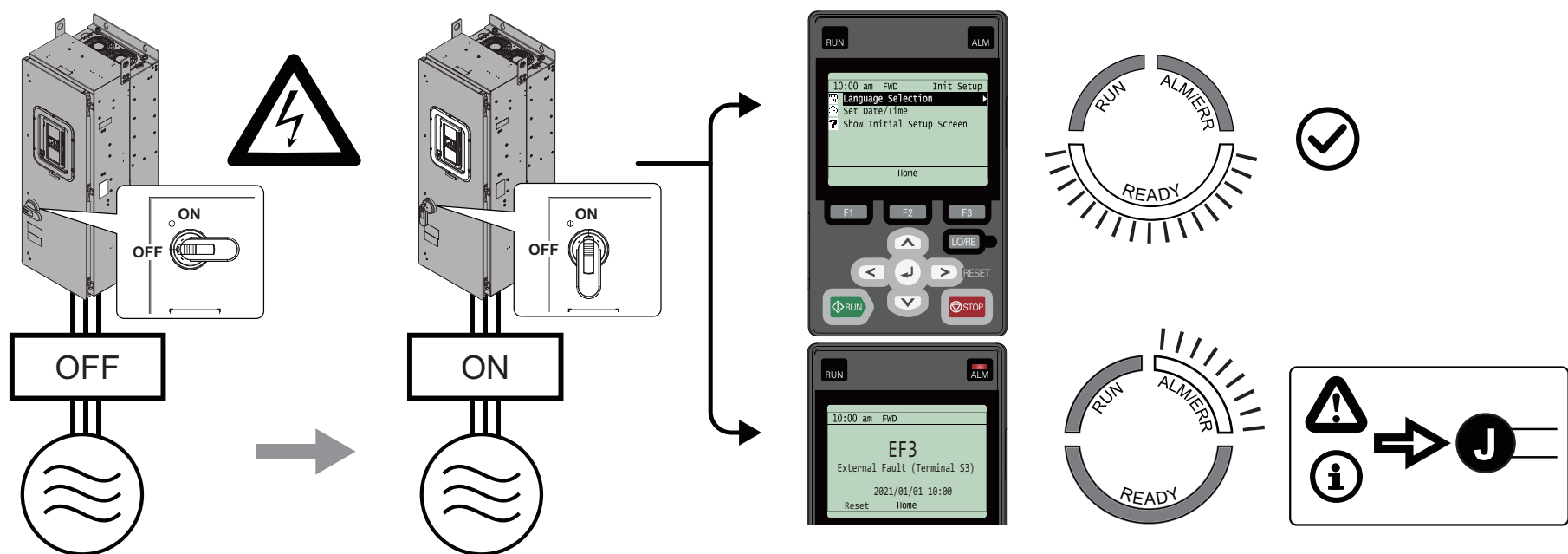
8 Install the Motor Wiring and Power Wiring



9 Install the Keypad and Front Cover



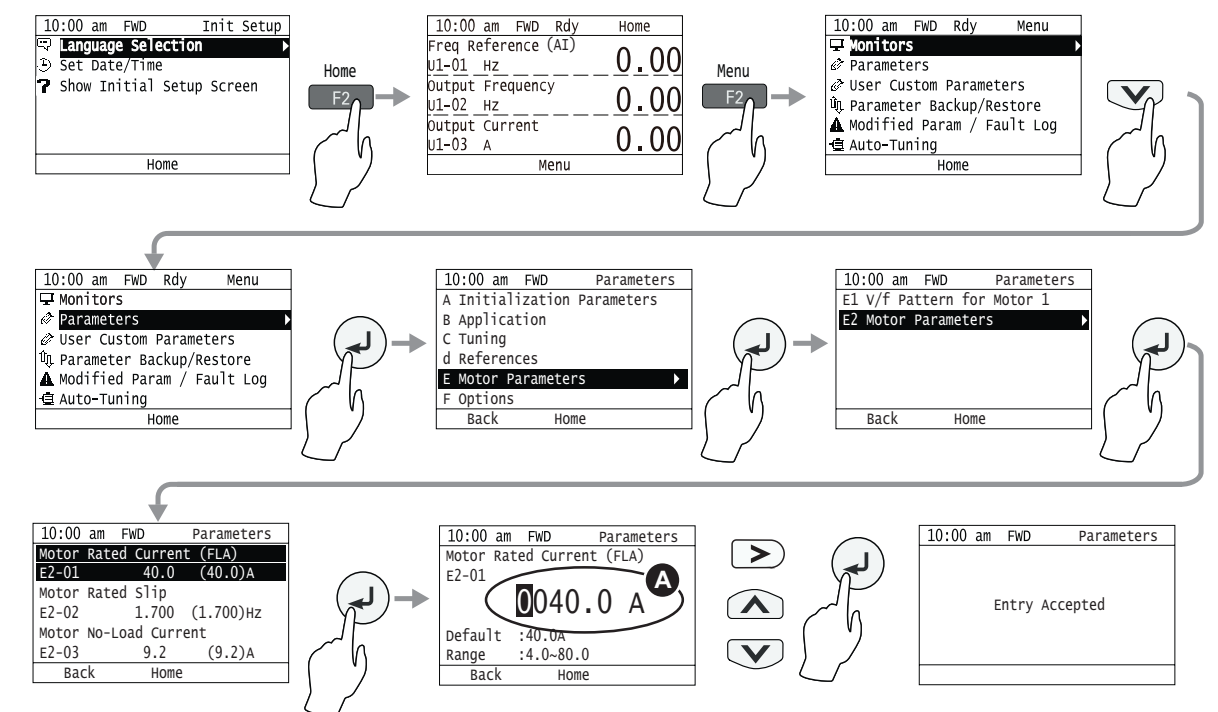
10 Energize the Drive and Confirm It Is Ready



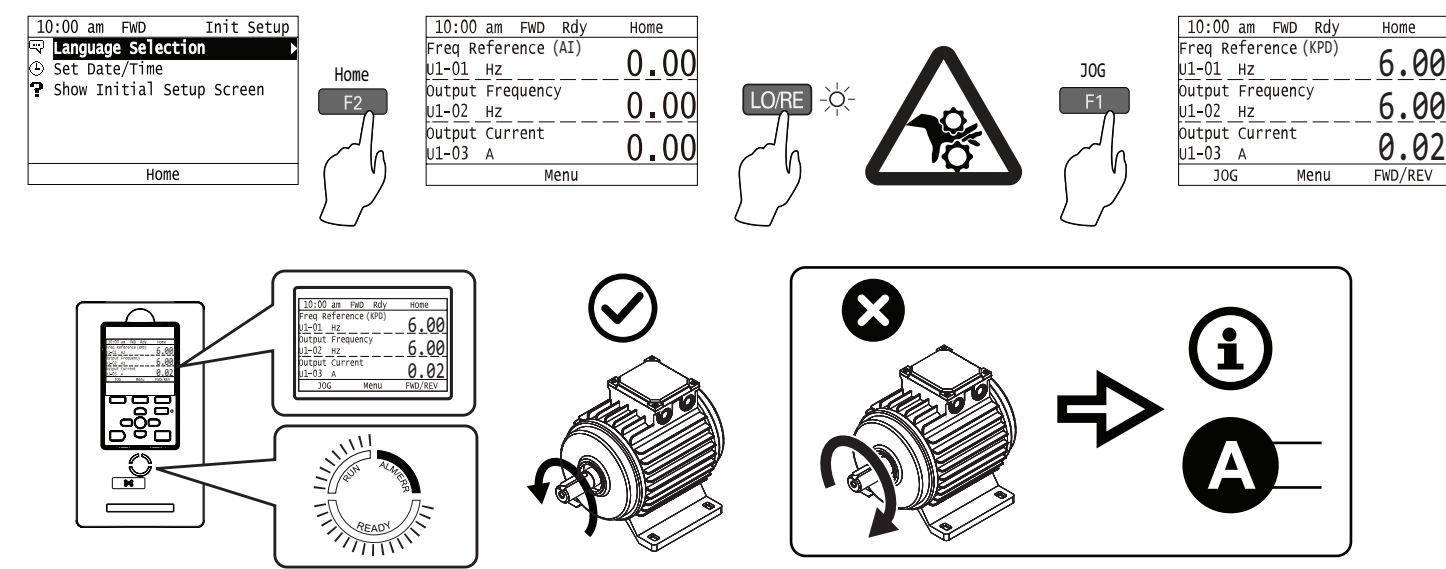
11 Set the Motor Rated Current (FLA) from the Motor Nameplate in E2-01

3 PHASE INVERTER DUTY AC INDUCTION MOTOR NAMEPLATE EXAMPLE

MODEL XX	123AAA123XX-X0	DES A	TYPE ABC INS X0
POLES X	ENC XXX CODE X	FL AMPS XX/XX	
VOLTS XXX	FL XXXX		
SF 1.0	DUTY CONT	MAX AMB °C XX	TEMP SENSORS T-STATS
SERIAL	N.L. AMPS XX.XXX		
MAX RPM 4200	S.E. BRG. 309	O.S.E. BRG. XXX	ROTOR WK² X.X
HZ	KW	RPM	TORQUE (LB FT)
1	-	0	XX.X
60	XX	XXXX	XX.X
120	XX	XXXX	XX.X
OHMS PH	R1: XXX	R2: XXX	X1: X.XX
			X2: X.XX
			XM: XX.X
P/N XXXXXXX			

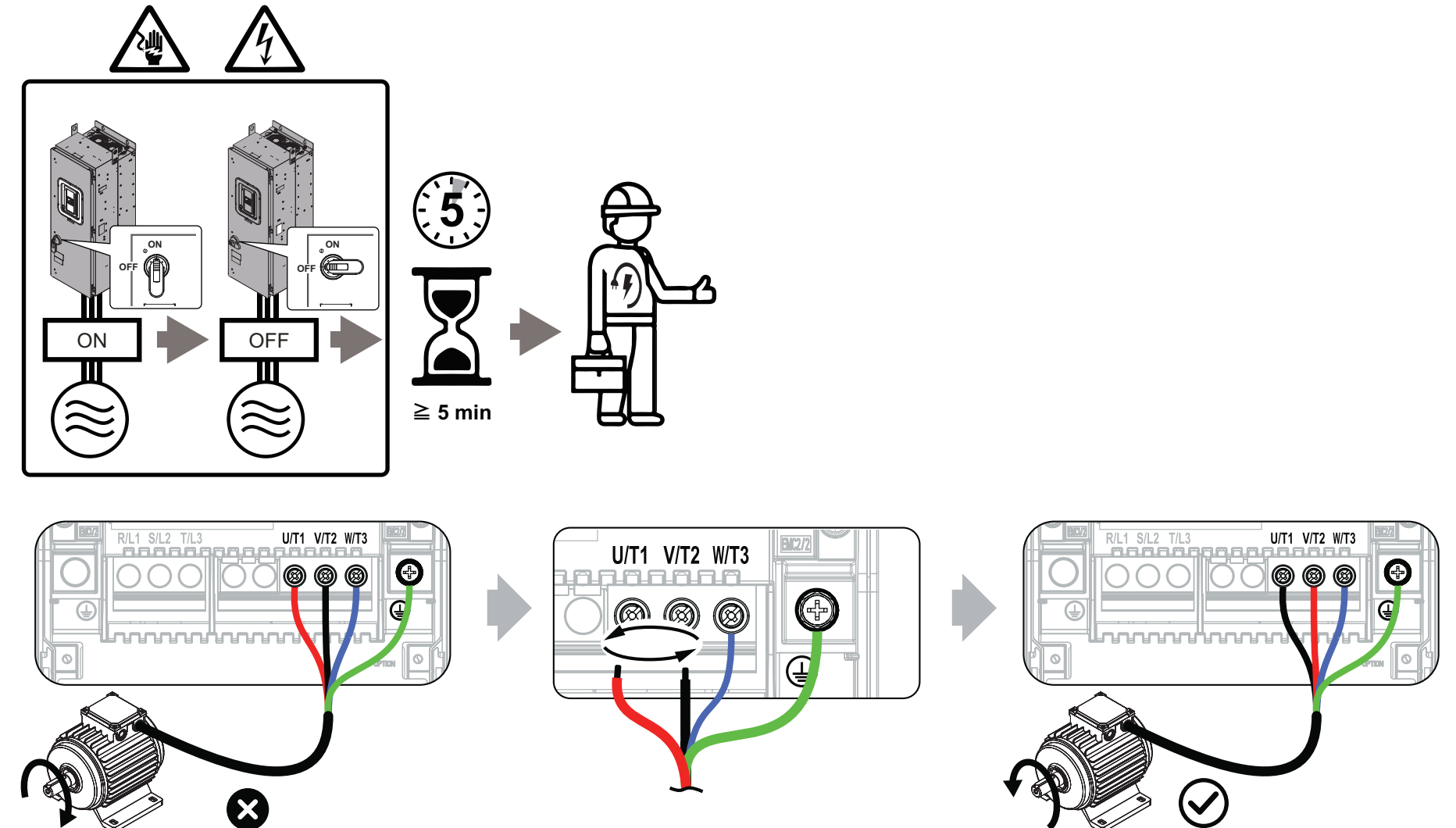


12 Set the Drive for LOCAL Control and Check the Motor Rotation Direction

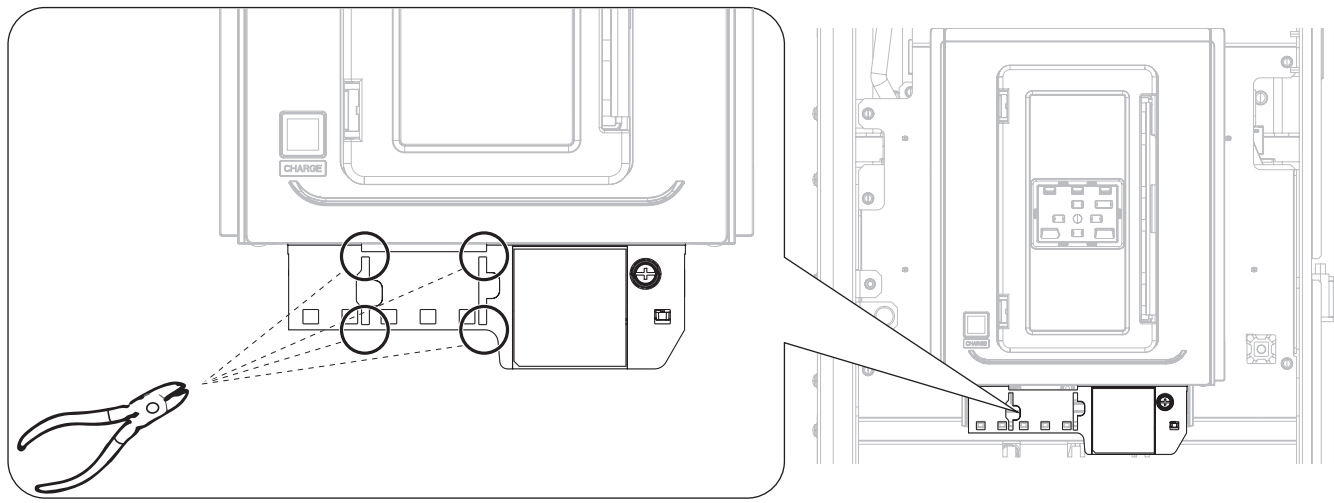


Additional Information for Installation and Primary Operation

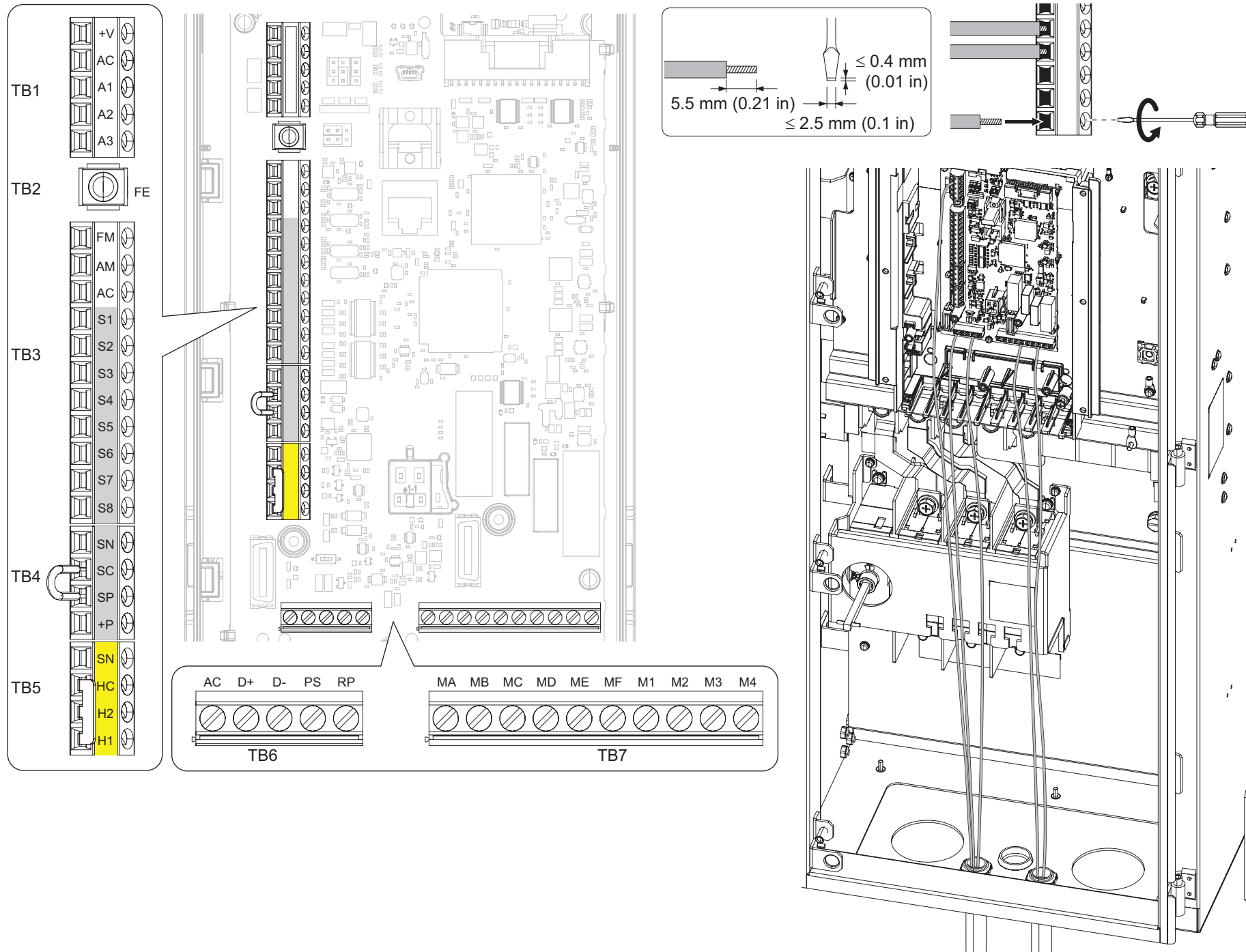
A If the Motor Does Not Rotate in the Correct Direction



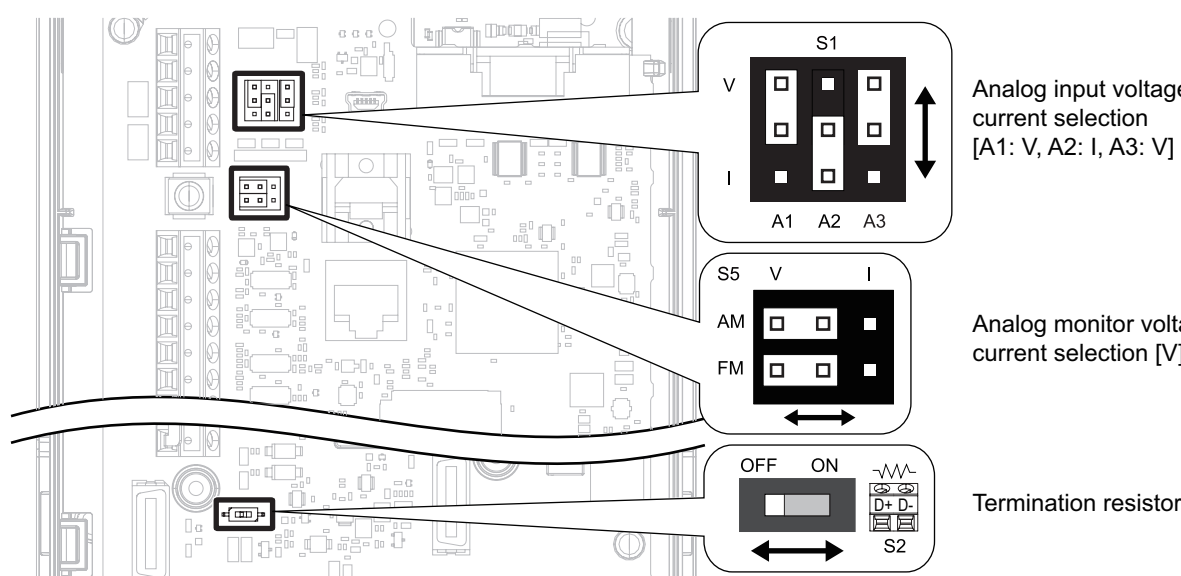
B To Install a DeviceNet Communication Option Card (SI-N3), Remove the Faceplate Cut Away Section



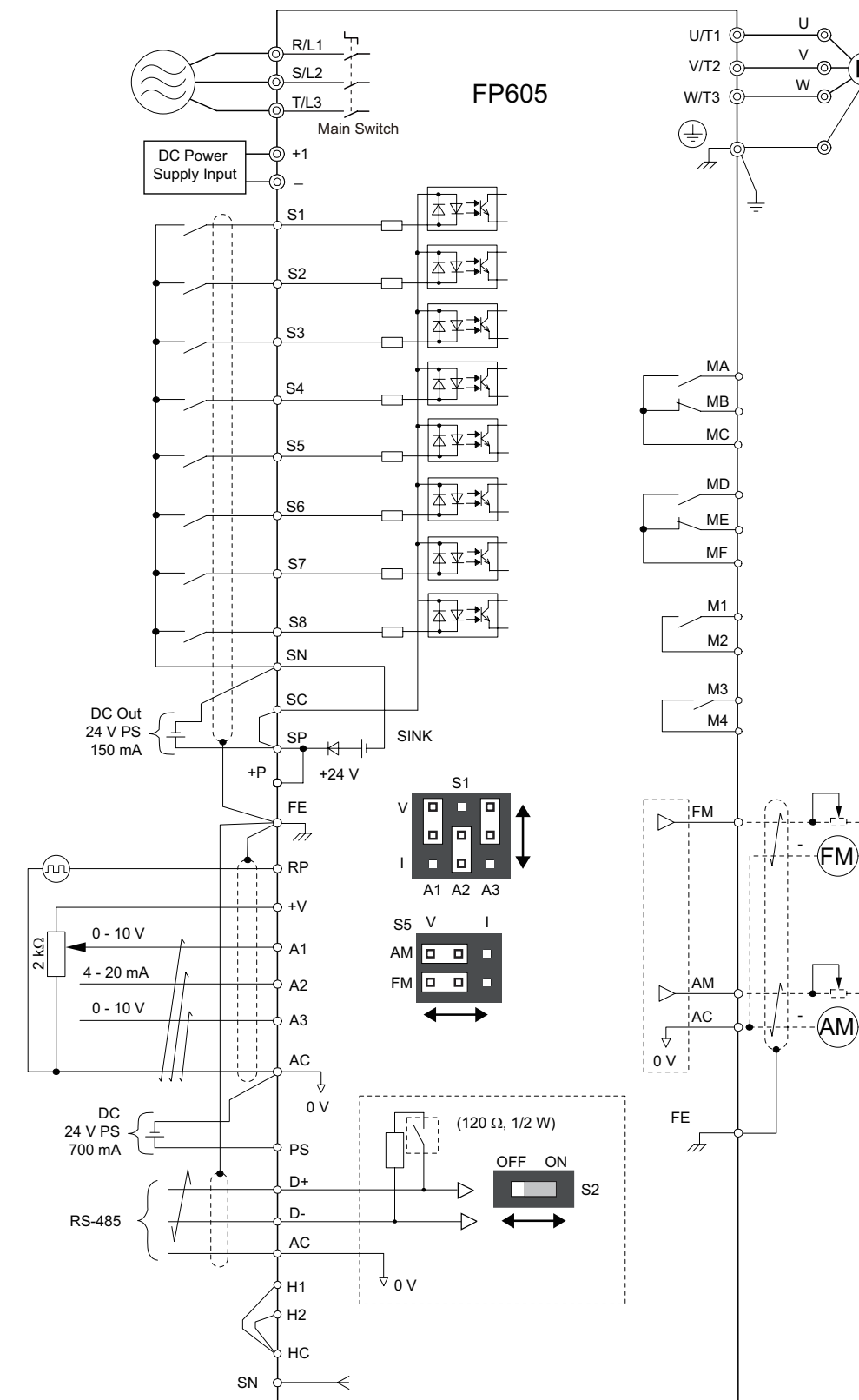
C Control Circuit Configuration and Accessibility



D Switches and Jumpers on the Control Board



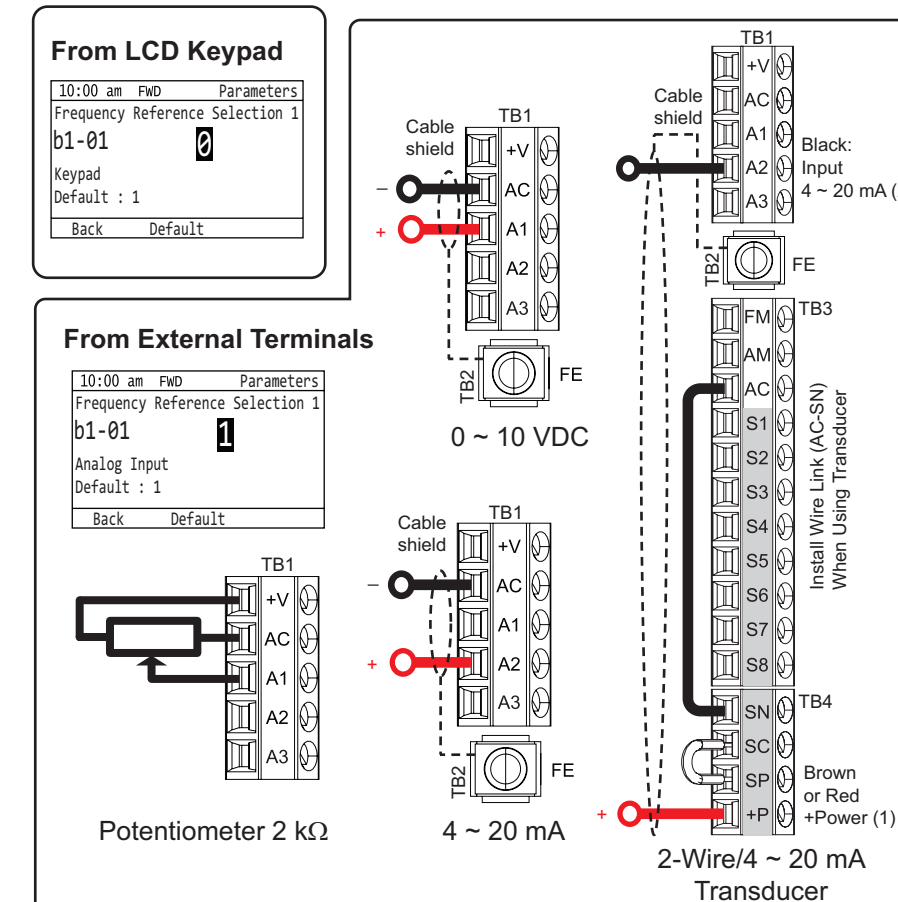
E Connection Diagram and Terminal Functions



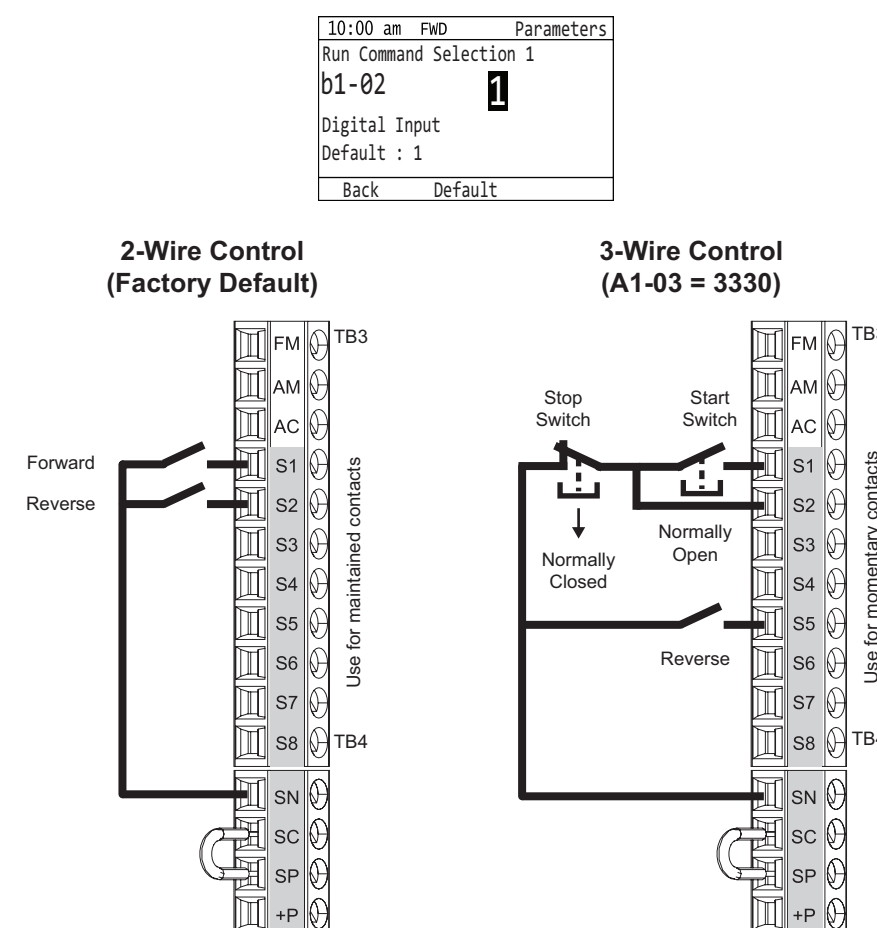
Terminal	Type	Signal Level	Default
S1	MFDI 1	Photocoupler 24 V, 6 mA Internal impedance: 4.7 kΩ	Forward RUN (2-Wire)
S2	MFDI 2		Reverse RUN (2-Wire)
S3	MFDI 3		External Fault (NO-Always-Coast)
S4	MFDI 4		Fault Reset
S5	MFDI 5		Multi-Step Speed Reference 1
S6	MFDI 6		Multi-Step Speed Reference 2
S7	MFDI 7		Jog Reference Selection
S8	MFDI 8		Baseblock Command (N.O.)
SN	MFDI power 0 V	24 V, 150 mA maximum	-
SC	MFDI common		-
SP	MFDI power +24 VDC		-
H1	Safe disable input 1	Photocoupler 24 V, 6 mA Internal impedance: 4.7 kΩ	-
H2	Safe disable input 2		-
HC	Safe disable common		-
RP	Multi-function pulse train input	• Response frequency: 0 Hz ~ 32 Hz • H level duty: 30% ~ 70% • H level voltage: 3.5 V ~ 13.2 V • L level voltage: 0.0 V ~ 0.8 V • Input impedance: 3 kΩ	-
+V	Frequency setting power supply	10.5 V (20 mA maximum)	-
A1	MFAI 1	0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω)	Master frequency reference
A2	MFAI 2		Combined w/A1
A3	MFAI 3		Auxiliary frequency reference 1
AC	Common	0 V	-
FE	Connect shielded cable	-	-
MA	Fault relay out	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Fault
MB	Fault relay out	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Fault
MC	Common		-
MD	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Speed agree 1
ME	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Speed agree 1
MF	Common		
M1	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	During run
M2	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Zero speed
M3	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Zero speed
M4	MFDO	30 VDC, 10 mA ~ 2 A 250 VAC, 10 mA ~ 2 A Minimum load: 5 V, 10 mA	Zero speed
FM	MFAO 1	0 V ~ +10 V/0% ~ 100% 4 mA ~ 20 mA	Output frequency
AM	MFAO 2	0 V ~ +10 V/0% ~ 100% 4 mA ~ 20 mA	Output current
AC	Common	0 V	-
+P	External power supply	24 V (150 mA maximum)	-
PS	External 24 V PS input	21.6 VDC ~ 26.4 VDC, 700 mA	-
AC	External 24 V PS ground	0 V	-
D+	Communication +	MEMOBUS/Modbus 115.2 kbps maximum	-
D-	Communication -	MEMOBUS/Modbus 115.2 kbps maximum	-
AC	Common	0 V	-

MFDI: Multi-Function Digital Input
MFAI: Multi-Function Analog Input
MFDO: Multi-Function Digital Output
MFAO: Multi-Function Analog Output

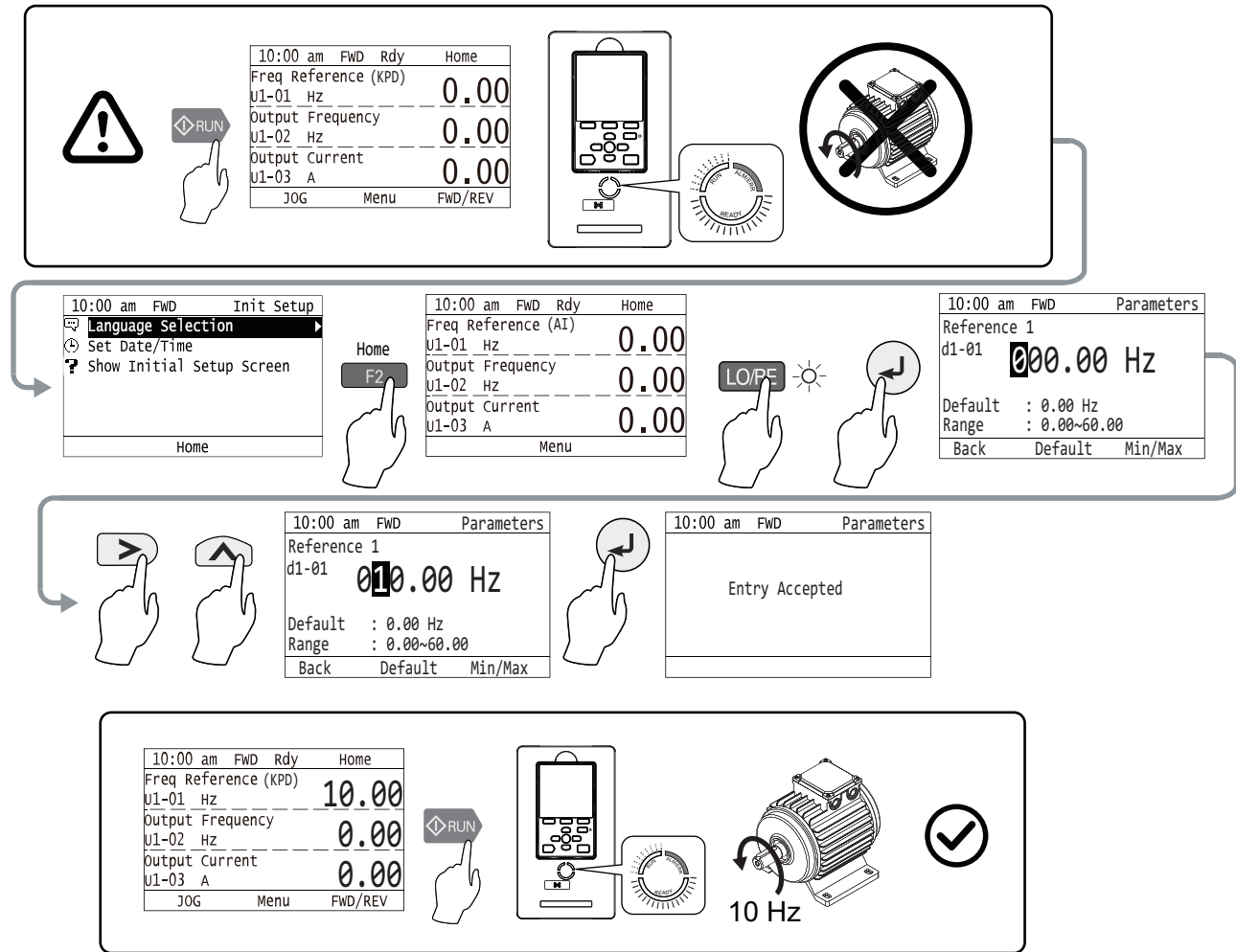
F Set Frequency Reference Source



G Set Start/Stop Control Method from External Terminals



H If You Push the RUN Button but the Motor Does Not Spin



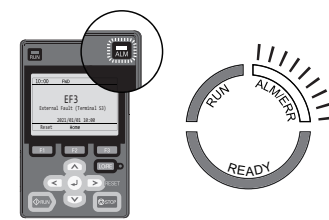
I Parameter Groups

A: Initialization Parameters		d: Reference Settings		H: Terminal Functions		n: Special Adjustment		U: Monitors	
A1	Initialization	d1	Frequency Reference	H1	Digital Inputs	n1	Hunting Prevention	U1	Operation Status Monitors
A2	User Parameters	d2	Reference Limits	H2	Digital Outputs	n3	High Slip/Overexcite Braking	U2	Fault Trace
b: Application		d3	Jump Frequency	H3	Analog Inputs	n7	EZ Drive	U3	Fault History
b1	Operation Mode Selection	d4	Frequency Ref Up/Down & Hold	H4	Analog Outputs	n8	PM Motor Control Tuning	U4	Maintenance Monitors
b2	DC Injection Braking and Short Circuit Braking	d6	Field Weakening	H5	Modbus Communication	o: Keypad-Related Settings		U5	PID Monitors
b3	Speed Search	d7	Offset Frequency	H6	Pulse Train Input	o1	Keypad Display	U6	Operation Status Monitors
b4	Timer Function	E: Motor Parameters		H7	Virtual Inputs/Outputs	o2	Keypad Operation	UA	Network Multiplexing
b5	PID Control	E1	V/f Pattern for Motor 1	L: Protection Functions		o3	Copy Keypad Function	Y: Application Features	
b6	Dwell Function	E2	Motor Parameters	L1	Motor Protection	o4	Maintenance Monitors	Y1	Application Basics
b8	Energy Saving	E3	V/f Pattern for Motor 2	L2	Power Loss Ride Through	o5	Log Function	Y2	PID Sleep and Protection
C: Tuning		E4	Motor 2 Parameters	L3	Stall Prevention	S: Special Applications		Y3	Contactor Multiplex
C1	Accel & Decel Time	E5	PM Motor Settings	L4	Speed Detection	S1	Dynamic Noise Control	Y4	Application Advanced
C2	S-Curve Characteristics	E9	Motor Setting	L5	Fault Restart	S3	PI2 Control	Y8	De-Scale/De-Rag
C3	Slip Compensation	F: Options		L6	Torque Detection	S6	Protection	YA	Preset Setpoint
C4	Torque Compensation	F2	Analog Input Option	L7	Torque Limit	YC Foldback Features			
C5	Auto Speed Regulator (ASR)	F3	Digital Input Option	L8	Drive Protection	YF PI Auxiliary Control			
C6	Carrier Frequency	F4	Analog Monitor Option	L9	Drive Protection 2				
		F5	Digital Output Option						
		F6	Communication Options						
		F7	Ethernet Options						

Frequently Used Parameters

Parameter Number Name	Default Description	Parameter Number Name	Default Description	Parameter Number Name	Default Description
A1-06 Application Preset	0 No preset	b5-03 Integral Time (I)	1.0 s	d2-02 Frequency Reference Lower Limit	0.0%
b1-01 Frequency Reference Selection 1	1 Analog Input	b5-05 Derivative Time (D)	0.00 s	E1-01 Input AC Supply Voltage	-
b1-02 Run Command Selection 1	1 Digital Input	C1-01 Acceleration Time 1	10.0 s	E2-01 Motor Rated Current (FLA)	-
b1-03 Stopping Method Selection	1 Coast to Stop	C1-02 Deceleration Time 1	10.0 s	H3-09 Terminal A2 Signal Level Select	2 4 to 20 mA
b5-01 PID Mode Setting	0 Disabled	d2-01 Frequency Reference Upper Limit	100.0%	H3-10 Terminal A2 Function Selection	0 Frequency Reference
b5-02 Proportional Gain (P)	1.00				

J Troubleshooting Resources for Drive Faults and Alarms



Resource	Choose This When:	URL	QR Code
Installation & Primary Operation	You have access to the paper copy of the manual that was packaged with the drive. This manual lists all drive faults and alarms, and offers a selection of causes and solutions.	https://www.yaskawa.com/toepc7106171g	 PDF download
DriveWizard Mobile App	You want to use your smartphone or tablet and use the embedded help to look up the full complement of causes and solutions to all drive faults and alarms.	https://www.yaskawa.com/dwm	 App download
Maintenance & Troubleshooting Manual	You want to download a PDF of the manual to your smartphone or tablet. This manual lists the full complement of causes and solutions to all drive faults and alarms and also includes detailed information about drive maintenance, wiring, and programming.	https://www.yaskawa.com/toeipyafp6001	 PDF download

K Additional Resources



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Headquarters Address:

YASKAWA AMERICA, INC.
2121 Norman Drive South
Waukegan, IL 60085
USA