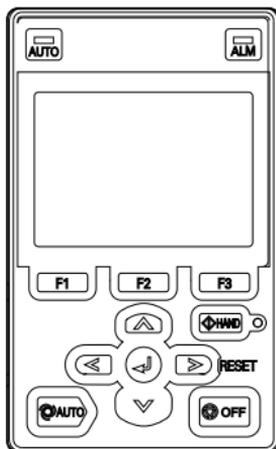


## YASKAWA AC Drive Option HOA Keypad Installation Manual

Type: JVOP-KPLCB04AxB

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.



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# 1 Preface and Safety

## ◆ Applicable Documentation

Document	Description
YASKAWA AC Drive Option HOA Keypad Installation Manual	Read this manual first. The manual contains basic information required to install and wire the keypad. This manual is packaged with the keypad.
YASKAWA AC Drive Manuals	Refer to the manuals for the drive to which you are installing this product for information about drive settings. The manuals provide detailed information on basic installation, wiring, operation procedures, functions, troubleshooting, and maintenance. The manuals also include important information about parameter settings and tuning the drive. This manuals can be downloaded from Yaskawa's product and technical information websites printed on the back cover.

### Note:

This manual shows typical examples. Different drive models can have different functions. Refer to the drive manuals for more information.

## ◆ Glossary

- Drive:
  - YASKAWA AC Drive HV600
- Keypad: YASKAWA AC Drive Option HOA Keypad

## ◆ Registered Trademarks

- Company names and product names mentioned in this manual are trademarks of those companies.

## ◆ Supplemental Safety Information

Read and understand this manual before you install, operate, or do maintenance on the option. Use this option as specified by this manual and local codes.

The symbol marks in this section identify safety messages in this manual. If you do not obey these safety messages, the hazards can cause serious injury, death, or damage to the products and related equipment and systems.

**▲ DANGER** *This signal word identifies a hazard that will cause serious injury or death if you do not prevent it.*

**▲ WARNING** *This signal word identifies a hazard that can cause death or serious injuries if you do not prevent it.*

**▲ CAUTION** *Identifies a hazardous situation, which, if not avoided, can cause minor or moderate injury.*

**NOTICE** *This signal word identifies a property damage message that is not related to personal injury.*

## ■ General Safety

### General Precautions

- The figures in this manual can possibly include options and drives without covers or safety shields to show detail. Install missing covers or safety shields before you operate the drive. Use the option only as specified by the instructions in this manual.
- The diagrams in this manual are only examples and are not always related to all the products included in this manual.
- Yaskawa can change the products and specifications in this manual or the content and presentation of the manual without notice to improve the product and/or the manual.
- If you damage or lose manuals, contact a Yaskawa representative or the nearest Yaskawa sales office shown on the rear cover of the manual, and tell them the document number on the front cover to order new copies.

**▲ DANGER** *Do not ignore the safety messages in this manual. If you ignore the safety messages in this manual, it will cause serious injury or death. The manufacturer is not responsible for injuries or damage to equipment.*

## 2 Overview

Connect the keypad option to the drive to do these basic operations:

- Read and modify drive parameter settings
- Back up, restore, and verify drive parameters
- Operate and stop the drive
- Monitor drive operation status

### ◆ Compatible Products

Product Series	Drive Software Version */
HV600	All

\*1 Refer to "PRG" on the drive nameplate for the software version number.

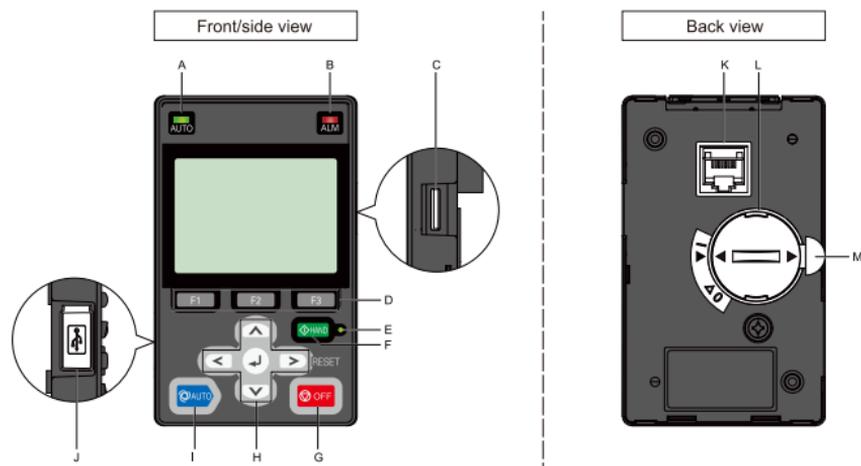
## 3 Receiving

1. Make sure that the keypad is not damaged and no parts are missing.  
Immediately contact the shipping company if the option or other parts are damaged. The Yaskawa warranty does not cover damage from shipping.
2. Make sure that the model number on the option nameplate and the model shown in the purchase order are the same.  
Immediately contact the distributor where you purchased the option or the Yaskawa sales office about problems with the option.

### ◆ Option Package Contents

Option Contents	Quantity
HOA Keypad	1
Installation Manual	1

## 4 Keypad: Names and Functions



**Figure 4.1 Keypad**

Table 4.1 Keypad: Names and Functions

No.	Name	Function
A	AUTO LED <sup>*1</sup> 	Illuminates to show that the drive is in AUTO Mode.
B	ALM LED 	Illuminates when the drive detects a fault. Flashes when the drive detects: <ul style="list-style-type: none"> <li>• An alarm</li> <li>• An oPE parameter setting error</li> <li>• A fault or alarm during Auto-Tuning</li> </ul> The LED turns off when there are no drive faults or alarms.
C	microSD Card Insertion Slot	The insertion point for a microSD card.
D	Function Keys (F1, F2, F3) 	The menu shown on the keypad sets the functions for function keys. The name of each function is in the lower half of the display window.
E	HAND LED <sup>*1</sup> 	Illuminates to show that the drive is in HAND Mode.
F	HAND Key 	Sets drive operation to HAND Mode. The drive uses the S5-01 [HAND Frequency Reference Selection] setting.
G	OFF Key 	Stops drive operation. <b>Note:</b> The OFF key has highest priority. Push  to stop the motor even when a Run command is active at an external Run command source. Set o2-02 = 0 [STOP Key Function Selection = Disabled] to disable  priority.

## 4 Keypad: Names and Functions

No.	Name	Function
H	Left Arrow Key 	Moves the cursor to the left.
	Up Arrow Key/ Down Arrow Key  / 	<ul style="list-style-type: none"> <li>• Scrolls up or down to display the next item or the previous item.</li> <li>• Selects parameter numbers, and increments or decrements setting values.</li> </ul>
	Right Arrow Key (RESET) 	<ul style="list-style-type: none"> <li>• Moves the cursor to the right.</li> <li>• Continues to the next screen.</li> <li>• Clears drive faults.</li> </ul>
	ENTER Key 	<ul style="list-style-type: none"> <li>• Enters parameter values and settings.</li> <li>• Selects menu items to move the user between keypad displays.</li> <li>• Selects each mode, parameter, and set value.</li> </ul>
I	AUTO Key 	Sets drive operation to AUTO Mode. The drive uses the <i>b1-01 [Frequency Reference Selection 1]</i> and <i>b1-02 [Run Command Selection 1]</i> settings. <b>Note:</b> Push  on the keypad to set the drive to HAND Mode before you use the keypad to operate the motor.
J	USB Terminal	Insertion point for a mini USB cable. Uses a USB cable (USB standard 2.0, type A - mini-B) to connect the keypad to a PC.
K	RJ-45 Connector	Uses an RJ-45 8-pin straight through UTP CAT5e extension cable or keypad connector to connect to the drive.

No.	Name	Function
L	Clock Battery Cover	<p>Cover for the clock battery.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>The battery included with the keypad is for operation check. It may be exhausted earlier than the expected battery life described in the manual.</li> <li>Refer to “Maintenance &amp; Troubleshooting Manual (TOEPYAIHV6001)” for more information about replacement procedure.</li> </ul> <p>To replace the battery, use a Hitachi Maxell “CR2016 Lithium Manganese Dioxide Lithium Battery” or an equivalent battery with these properties:</p> <ul style="list-style-type: none"> <li>Nominal voltage: 3 V</li> <li>Operating temperature range: -20 °C to +85 °C (-4 °F to +185 °F)</li> </ul>
M	Insulation Sheet	An insulating sheet is attached to the keypad battery to prevent battery drain. Remove the insulation sheet before you use the keypad for the first time.

\*1 Refer to *AUTO LED and HAND LED Indications on page 11* for more information about AUTO LED and HAND LED indications.

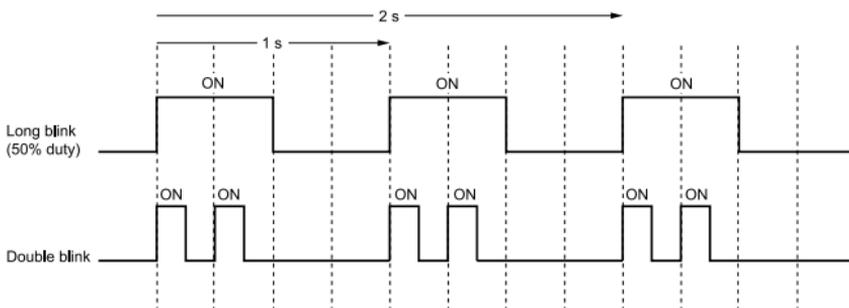
## ◆ AUTO LED and HAND LED Indications

Table 4.2 AUTO LED and HAND LED Indications

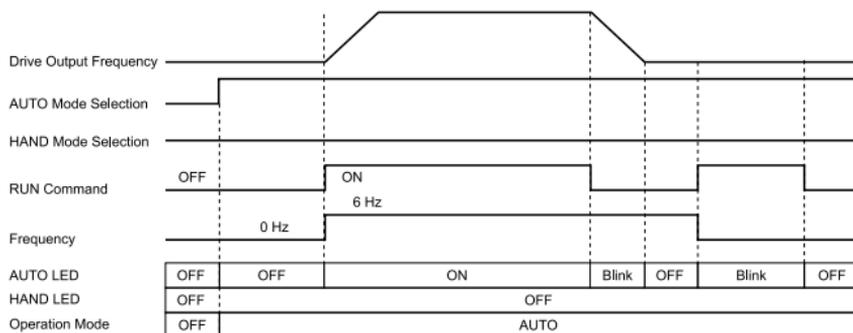
AUTO LED 	HAND LED 	Status
OFF	OFF	OFF Mode
OFF	ON	HAND Mode
OFF	Long blink (50% duty)	<p>HAND Mode</p> <ul style="list-style-type: none"> <li>When the Frequency Reference is 0 or during deceleration</li> <li>During PI Sleep</li> </ul>
OFF	Double blink	HAND Mode

## 4 Keypad: Names and Functions

<b>AUTO LED</b> 	<b>HAND LED</b> 	<b>Status</b>
		When you clear the Run command and enter the Run command again during the time set in C1-02 [Deceleration Time 1]
ON	OFF	AUTO Mode
Long blink (50% duty)	OFF	AUTO Mode <ul style="list-style-type: none"> <li>• When the Frequency Reference is 0 or during deceleration</li> <li>• During PI Sleep</li> </ul>
Double blink	OFF	AUTO Mode When an MFDI sends a Fast Stop signal to stop the drive



**Figure 4.2 AUTO LED and HAND LED Timing Status**



**Figure 4.3 LEDs and Drive Operation in AUTO and HAND Modes**

## 5 Installation Procedure

### ◆ Section Safety

**NOTICE** *Damage to Equipment. Correctly connect all pins and connectors. If the pins and connectors are incorrect, it can cause damage to equipment and incorrect operation.*

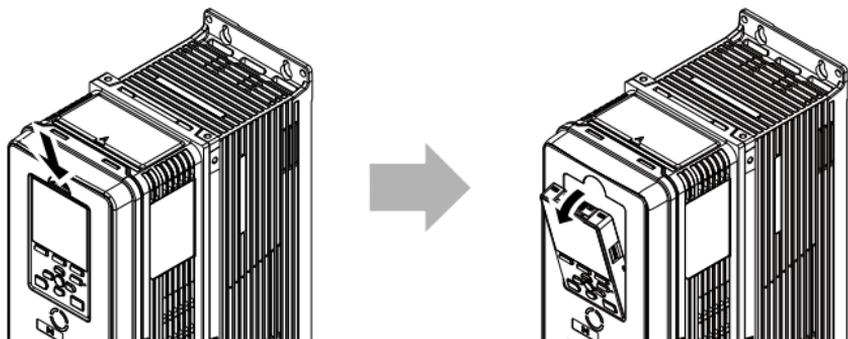
**NOTICE** *Damage to Equipment. Do not bend the communication cables more than the bend radius specifications. If you bend the cables too much, it can break the wires and loosen connections.*

#### Note:

Use Yaskawa connection cables or recommended cables only. Incorrect cables can cause the drive or option to function incorrectly.

### ◆ Remove the Keypad

Push down the tab on the top of the keypad, then pull the keypad forward to remove it from the drive.

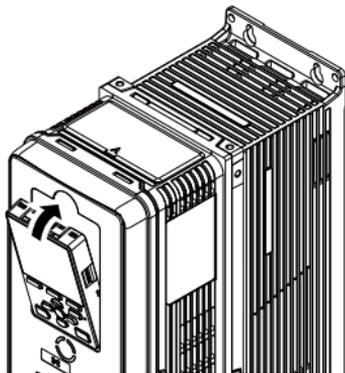


**Figure 5.1 Remove the Keypad**

---

### ◆ Reattach the Keypad

Put the bottom of the keypad into position first, then carefully push on the top of the keypad until the hook clicks into place.



**Figure 5.2 Reattach the Keypad**

---

### ◆ Connect the Keypad from a Remote Location

Use the information in [Table 5.1](#) to install the keypad in the best location for your application.

**Table 5.1 Keypad Installation Method**

Installation Method	Features	Necessary Tools and Installation Support Sets
Outside of the control panel	Simplified installation is possible. Separate installation support sets are not necessary.	Phillips screwdriver #2 (M3)
Inside of the control panel	Keypad does not extend farther than the front of the control panel.	<ul style="list-style-type: none"> <li>• Phillips screwdriver #2 (M3, M4)</li> <li>• Installation support set A (for mounting with screws, model: 900-192-933-001)</li> </ul>
		<ul style="list-style-type: none"> <li>• Phillips screwdriver #2 (M3)</li> <li>• Wrench (M4)</li> <li>• Installation support set B (for mounting with nut clamp, model: 900-192-933-002)</li> </ul>

**Note:**

Installation support sets are sold separately. If there are weld studs inside the control panel, use installation support set B. Contact Yaskawa or your nearest sales representative to make an order.

**NOTICE**

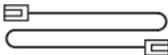
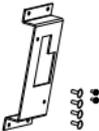
*Do not let unwanted objects, for example metal shavings or wire clippings, fall into the drive during drive installation. Put a temporary cover over the drive during installation. Remove the temporary cover before start-up. Unwanted objects inside of the drive can cause damage to the drive.*

**■ Optional Items**

The optional extension cable and installation support set are necessary for Internal/Flush-Mount installation.

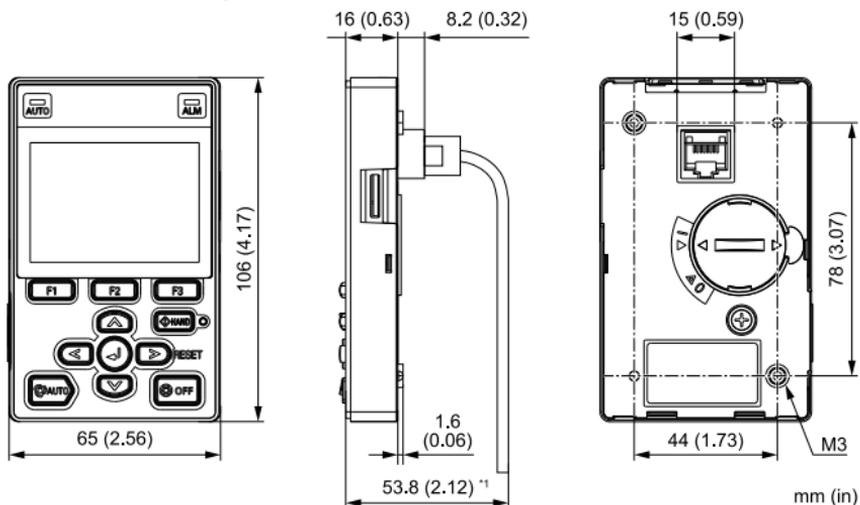
Contact Yaskawa or your nearest sales representative to order optional items.

## 5 Installation Procedure

Item	Part Number	Notes
Extension cable (1 m (3.3 ft)) 	WV001 *1	Connects the keypad for remote operation. <ul style="list-style-type: none"> <li>• RJ-45 8-pin straight through</li> <li>• UTP CAT5e cable (1 m (3.3 ft)/3 m (9.8 ft))</li> </ul>
Extension cable (3 m (9.8 ft)) 	WV003 *1	<div style="background-color: #0070C0; color: white; padding: 2px;"><b>NOTICE</b></div> <i>Damage to Equipment. Do not use this cable to connect the drive to a PC. Failure to obey will cause damage to the PC.</i>
Installation support set A (screw clamp) 	900-192-933-001	Encloses the keypad in the panel. <ul style="list-style-type: none"> <li>• M3 screws: 6 mm (0.24 in) depth Phillips recessed pan head machine screws (2)</li> <li>• M4 screws: 10 mm (0.39 in) depth Phillips truss head screws (4) (for panel thickness of 1 to 1.6 mm (0.04 to 0.06 in))</li> </ul>
Installation support set B (nut clamp) 	900-192-933-002	Encloses the keypad in the panel. When there are weld studs on the interior of the control panel, use the installation support set B (nut clamp). <ul style="list-style-type: none"> <li>• M3 screws: 6 mm (0.24 in) depth Phillips recessed pan head machine screws (2)</li> </ul>

\*1 Part numbers for the U.S.A. are UWR0051 and UWR0052. Contact Yaskawa or your nearest sales representative for more information.

## External Keypad Dimensions



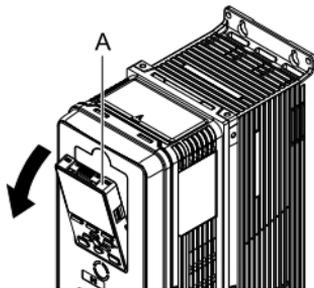
**Figure 5.3 Exterior and Mounting Dimensions**

\*1 Minimum bending radius

**NOTICE** *Damage to Equipment. Do not bend the communication cables more than the bend radius specifications. If you bend the cables too much, it can break the wires and loosen connections.*



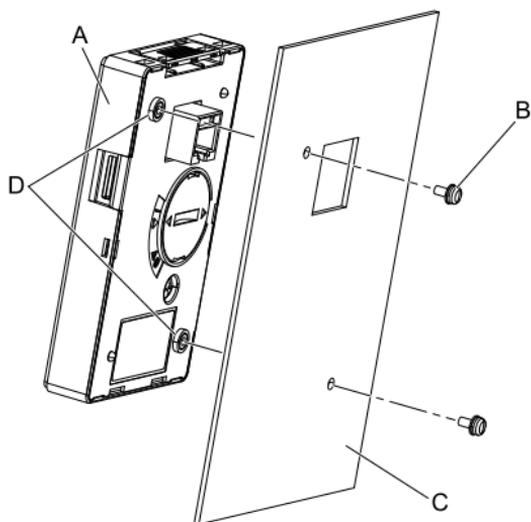
2. Remove the keypad from the drive.



**A - Keypad**

### **Figure 5.5 Remove the Keypad**

3. Put the keypad on the outside of the control panel.  
Use M3 screws (6 mm (0.24 in) depth cross-recessed pan head screws) to attach the keypad from the inside.  
Tighten the screws to a tightening torque of 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb).



**A - Keypad**

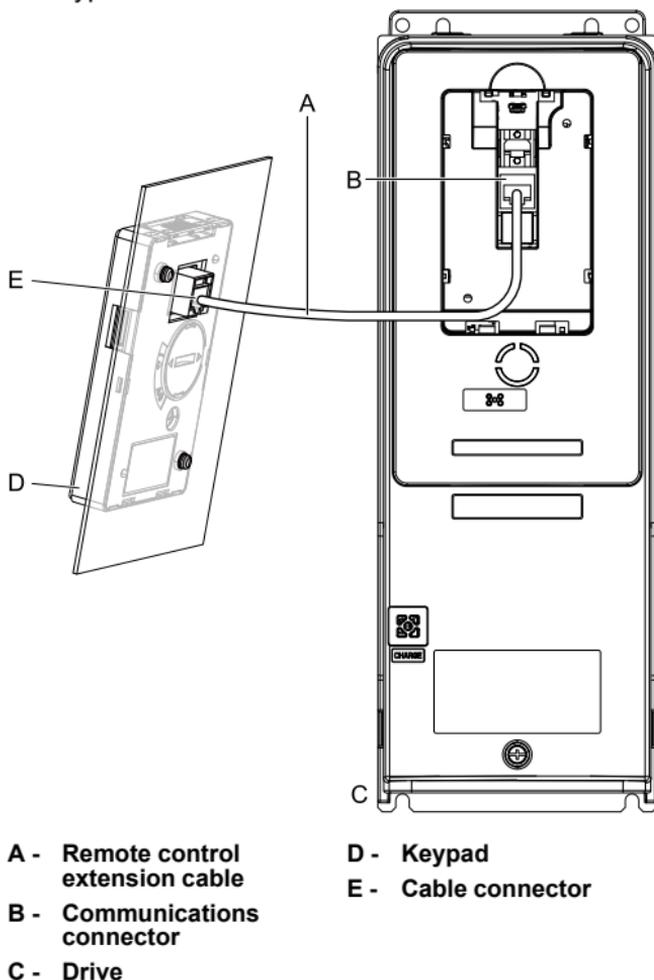
**B - M3 screws**

**C - Enclosure panel**

**D - Screw mounting hole**

**Figure 5.6 Mount to the Outside of Control Panel**

4. Use the remote control extension cable to connect the keypad to the drive.



**Figure 5.7 Use the Remote Control Extension Cable to Connect the Drive to the Keypad**

#### Install to the Inside of a Control Panel

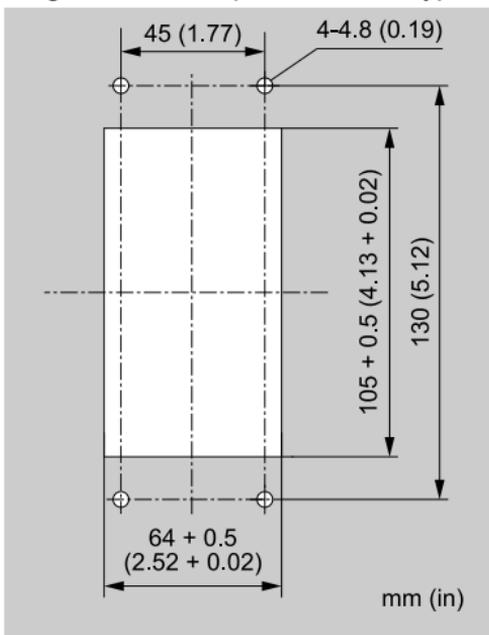
To attach the keypad inside of the control panel, you must purchase an installation support set, which is sold separately. Contact

Yaskawa or your nearest sales representative to order mounting brackets and mounting hardware.

**Note:**

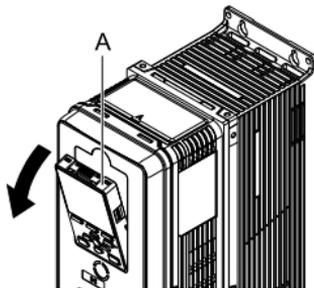
- The installation procedure and panel cut-out dimensions are the same for mounting brackets A and B.
- Use a gasket between the control panel and the keypad in environments with a large quantity of dust or other unwanted airborne material.

1. Use the panel cut-out dimensions in [Figure 5.8](#) to cut an opening in the control panel for the keypad.



**Figure 5.8 Panel Cut-Out Dimensions to Attach Inside Control Panel**

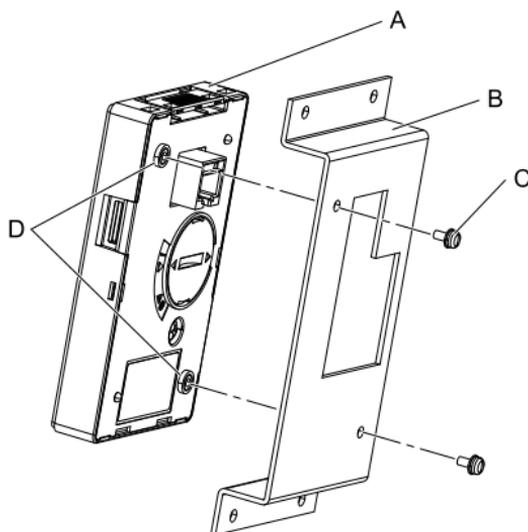
2. Remove the keypad from the drive.



**A - Keypad**

### **Figure 5.9 Remove the Keypad**

3. Use the screws supplied with the mounting bracket, and attach the keypad to the mounting bracket.  
Use the screws supplied with the installation support set, and tighten them to a tightening torque of 0.49 to 0.73 N·m (4.34 to 6.46 in·lb).



**A - Keypad**

**C - M3 screws**

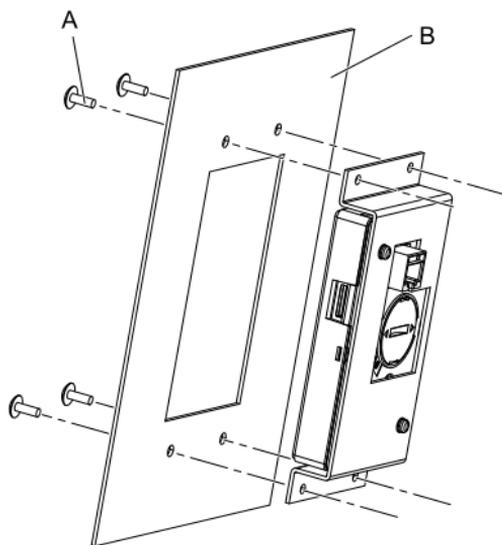
**B - Mounting bracket A**

**D - Screw mounting hole**

**Figure 5.10 Attach Keypad to Mounting Bracket**

4. Position the mounting bracket to which the keypad has been attached in the control panel, and use the screws to mount it from the outside.

Tighten the screws to a tightening torque of 0.98 to 1.33 N·m (8.67 to 11.77 in·lb).

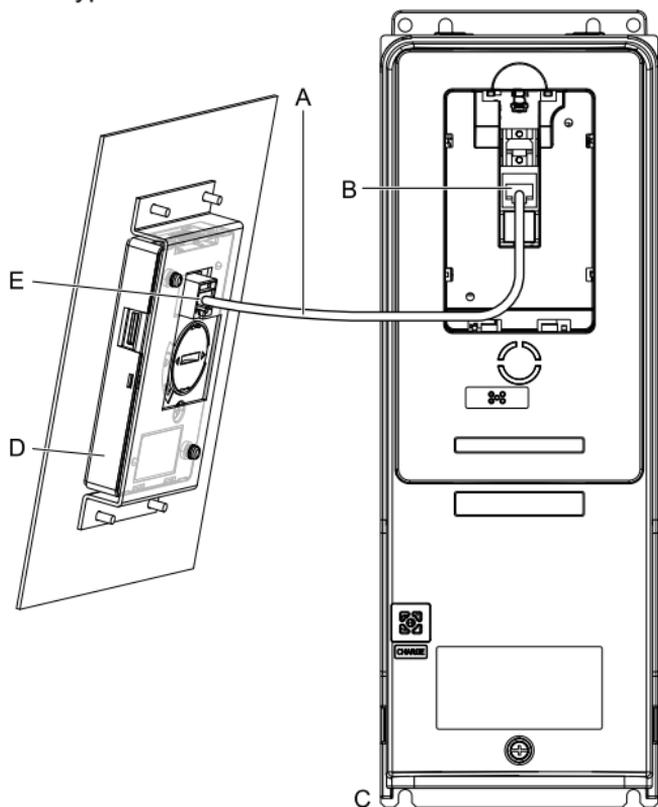


A - M4 screw

B - Enclosure panel

**Figure 5.11 Mount Mounting Bracket to the Interior of the Control Panel**

5. Use the remote control extension cable to connect the keypad to the drive.



A - Remote control extension cable

B - Communications connector

C - Drive

D - Keypad

E - Cable connector

**Figure 5.12 Use the Remote Control Extension Cable to Connect the Drive to the Keypad**

## ◆ Replace the Keypad Battery

When the keypad battery is expired, the date and time go back to the default settings. Use this procedure to replace the battery.

**⚠ WARNING** *Fire Hazard. Handle keypad batteries properly. Do not charge the battery or disassemble the keypad. If the battery explodes, it can cause a fire.*

To replace the battery, use a Hitachi Maxell “CR2016 Lithium Manganese Dioxide Lithium Battery” or an equivalent battery with these properties:

- Nominal voltage: 3 V
- Operating temperature range: -20 °C to + 85°C (-4 °F to +185 ° F)

**⚠ WARNING** *Fire Hazard. Do not disassemble batteries. Do not expose batteries to heat or fire. If the battery explodes, it can cause a fire.*

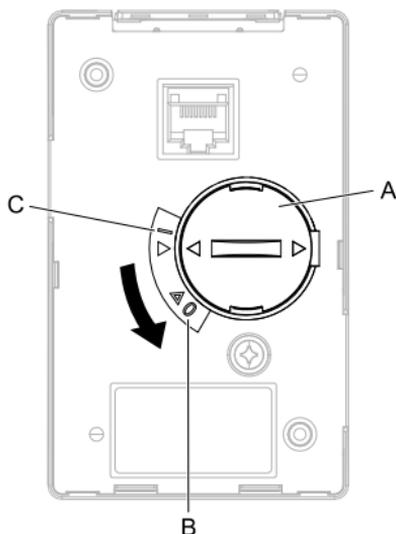
**NOTICE** *Damage to Equipment. The keypad battery stays in use after you de-energize the drive. When you will keep the drive de-energized for long periods of time, remove the battery from the keypad. When the expected life of the battery is complete, replace the battery immediately. A dead battery in the keypad can leak and cause damage to the keypad and drive.*

The performance life estimate of a new battery is:

- Ambient temperature 20 °C (68 °F): 5 years
- Ambient temperature -10 °C to +50 °C (14 °F to 122 °F): 3.5 years

1. De-energize the drive and remove the keypad.

2. Use a slotted screwdriver or other tool to turn the battery cover counterclockwise and remove the cover.



**A - Battery cover**

**C - Closed**

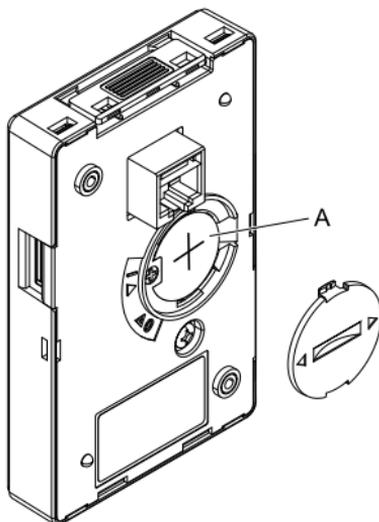
**B - Opened**

**Figure 5.13 Remove the Battery Cover**

3. Remove the used battery from the keypad.
4. Insert the new battery.

**Note:**

- The battery cover side is the positive pole. Make sure that the polarity is correct when you put the battery in the keypad.
- Discard the used battery as specified by local regulations.

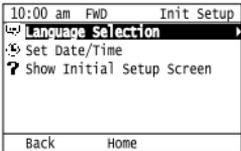
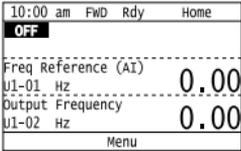
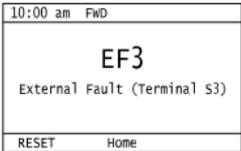
**A - Battery****Figure 5.14 Insert the New Battery**

5. Put the battery cover on the keypad and use a slotted screwdriver to turn the battery cover clockwise to close it.
6. Install the keypad on the drive.

**6 Check after Energizing the Drive**

Examine the items in [Table 6.1](#) after you energize the drive. The keypad will show these screens depending on the drive status.

Table 6.1 Display Status after Energizing the Drive

Status	Display	Description
During Usual Operation	 <p>Initial Setup Screen or</p>  <p>HOME Screen</p>	<ul style="list-style-type: none"> <li>The data display area will show the Initial Setup screen or the HOME screen</li> <li>Energize the drive with factory defaults to show the Initial Setup screen. Select [No] from the [Show Initial Setup Screen] settings to show the HOME screen without showing the Initial Setup screen.</li> </ul>
When the Drive Detects a Fault		<p>The display changes depending on the fault. Refer to “Troubleshooting” to remove the cause of the fault.  will illuminate.</p> <p><b>Note:</b></p> <p>If the screen shows a different screen, do these steps to show the fault content again:</p> <ol style="list-style-type: none"> <li>Push  from the HOME screen.</li> <li>Push  (Home) from a different screen than the HOME screen.</li> </ol>

**Note:**

Make sure that you use a keypad with FLASH number 1004 or later. Keypads with FLASH numbers 1003 and earlier will not show characters correctly.

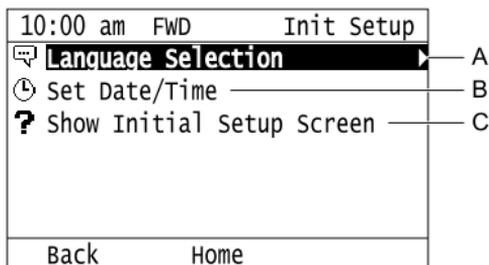
## ◆ Make the Initial Settings

The keypad will show the Initial Setup screen when you energize the drive for the first time. You can set the date and time or the language to show on the keypad.

### Note:

If the keypad does not show the Initial Setup screen, select [Initial Setup] from the Main Menu to show the Initial Setup screen.

### 1. Make the initial settings for each item.



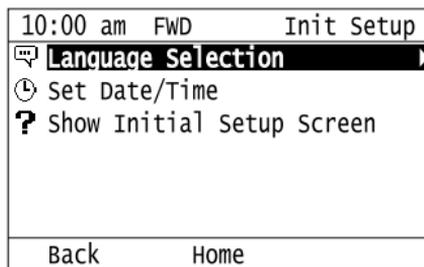
- A - Language Selection**      **C - Show Initial Setup Screen**  
**B - Set Date/Time**

### Note:

If you select [Yes] from the [Show Initial Setup Screen] setting, the keypad will show the Initial Setup screen each time the drive is energized.

If you select [NO], the keypad will not show the Initial Setup screen each time the drive is energized, starting with the next time.

### 2. Push **F2** (Home).



The display shows the HOME screen.

## ◆ Home Screen Display Selection

This section gives information about the functions that you can control from the HOME screen and the content shown on the HOME screen.

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
Freq Reference (AI)			0.00
U1-01	Hz		
Output Frequency			0.00
U1-02	Hz		
Menu			

## ■ View Monitors Shown in Home Screen

This figure shows monitor data in the data display area of the HOME screen.

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
Freq Reference (AI)			0.00
U1-01	Hz		
Output Frequency			0.00
U1-02	Hz		
Menu			

— Monitor

- To change what the screen shows, change the setting for *o1-40* [*Home display selection*].
- When *o1-40* [*Home display selection*] is set to “Custom Monitor”, and there is more than one screen, use  or  to switch between screens.

## ■ Show the Standard Monitor

Push  to show the standard monitor (*Ux-xx*). Push  (HOME) to go back to the HOME screen.

**Note:**

When a fault, minor fault, or an error occurs, push  to show the content of the fault. Push  again to show the standard monitor (*Ux-xx*).

## ■ Change the Frequency Reference Value

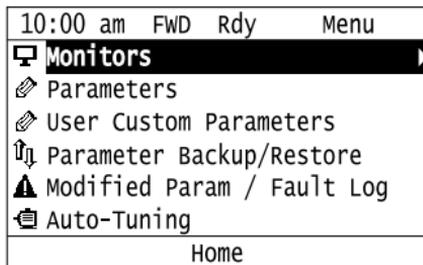
1. Push  to access the screen to change the frequency.
2. Push  or  to select the digit, then push  or  to change the value.
3. Push  to keep the changes.

**Note:**

The HOME screen must show *UI-01 [Frequency Reference]* or you must set *b1-01 = 0 [Frequency Reference Selection 1 = Keypad]* to use this function.

## ■ Show the Main Menu

Push  to show the main menu. Push  (HOME) to go back to the HOME screen.



## ◆ Show the Monitors

This section shows how to show the standard monitors (*Ux-xx*).

1. Push  (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

## 6 Check after Energizing the Drive

- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am FWD Rdy Home	
<b>OFF</b>	
-----	
Freq Reference (AI)	0.00
U1-01 Hz	
Output Frequency	0.00
U1-02 Hz	
Menu	

3. Push  or  to select [Monitors], then push .

10:00 am FWD Rdy Menu
 <b>Monitors</b>
 Parameters
 User Custom Parameters
 Parameter Backup/Restore
 Modified Param / Fault Log
 Auto-Tuning
Home

4. Push  or  to select [Standard Monitor], then push .

10:00 am FWD Rdy Monitor
<b>Standard Monitor</b>
Custom Monitor
Bar Graph
Analog Gauge
Trend Plot
Back Home

5. Push  or  to select the monitor group, then push .

10:00 am	FWD	Rdy	Monitor
U1			Operation Status Monitors ▶
U2			Fault Trace
U3			Fault History
U4			Maintenance Monitors
U5			PID Monitors
U6			Operation Status Monitors
Back		Home	

6. Push  or  to change the monitor number to show the monitor item.

**Note:**

Push  to return to the previous page.

10:00 am	FWD	Rdy	Monitor
Terminal A1 Level			0.00
U1-13 %			0.00
Terminal A2 Level			0.00
U1-14 %			0.00
SFS Output Frequency			0.00
U1-16 %			0.00
Home			

## ◆ Change Parameter Settings

This example shows how to change the setting value for *C1-01* [*Acceleration Time 1*]. Do the steps in this procedure to set parameters for the application.

1. Push  (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.
- If [Home] is not shown above the , push  (Back).

2. Push **F2** (Menu).

10:00 am FWD Rdy	Home
<b>OFF</b>	
-----	
Freq Reference (AI)	0.00
U1-01 Hz	
Output Frequency	0.00
U1-02 Hz	
Menu	

3. Push  or  to select [Parameters], then push .

10:00 am FWD	Menu
 Monitors	
 <b>Parameters</b>	
 User Custom Parameters	
 Parameter Backup/Restore	
 Modified Param / Fault Log	
 Auto-Tuning	
Home	

4. Push  or  to select [C Tuning], then push .

10:00 am FWD	Parameters
A Initialization Parameters	
b Application	
<b>C Tuning</b>	
d References	
E Motor Parameters	
F Options	
Back	Home

5. Push  or  to select [C1 Accel & Decel Time], then push .

10:00 am	FWD	Parameters
<b>C1 Accel &amp; Decel Time</b>		
C2 S-Curve Characteristics		
C3 Slip Compensation		
C4 Torque Compensation		
C6 Carrier Frequency		
Back		Home

6. Push  or  to select C1-01, then push .

10:00 am	FWD	Parameters
<b>Acceleration Time 1</b>		
<b>C1-01</b>	<b>30.0</b>	<b>(30.0)sec</b>
Deceleration Time 1		
C1-02	30.0	(30.0)sec
Acceleration Time 2		
C1-03	30.0	(30.0)sec
Back		Home

7. Push  or  to select the specified digit, then push  or  to select the correct number.

10:00 am	FWD	Parameters
Acceleration Time 1		
C1-01		
	<b>00</b>	<b>30.0 sec</b>
Default : 30.0sec		
Range : 0.1~6000.0		
Back	Default	Min/Max

- Push  [Default] to set the parameters to factory defaults.

- Push **F3** [Min/Max] to show the minimum value or the maximum value on the display.

8. Push  to keep the changes.

10:00 am	FWD	Parameters
Acceleration Time 1		
C1-01		
0020.0 sec		
Default : 30.0sec		
Range : 0.1~6000.0		
Back	Default	Min/Max

9. Continue to change parameters, then push **F1** [Back], **F2** [Home] to go back to the home screen after you change all the applicable parameters.

---

### ◆ Save a Backup of Parameters

You can save a backup of the drive parameters to the keypad. The keypad can store parameter setting values for a maximum of four drives in different storage areas. Backups of the parameter settings can save time when you set parameters after you replace a drive. When you set up more than one drive, you can copy the parameter settings from a drive that completed a test run to the other drives.

**Note:**

- Stop the motor before you back up parameters.
- The drive will not accept a Run command while it makes a backup.
- The DriveWorksEZ PC software password is necessary to back up *qx-xx* [DriveWorksEZ Parameter] and *rx-xx* [DWEZ Connection Parameter]. If you enter an incorrect password, the drive detects *PWEr* [DWEZ Password Mismatch].

1. Push **F2** (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
-----			
Freq Reference (AI)		0.00	
U1-01	Hz		
Output Frequency		0.00	
U1-02	Hz		
Menu			

3. Push  or  to select [Parameter Backup/Restore], then push .

10:00 am	FWD	Menu
	Monitors	
	Parameters	
	User Custom Parameters	
	<b>Parameter Backup/Restore</b>	
	Modified Param / Fault Log	
	Auto-Tuning	
Home		

4. Push  or  to select the items to back up, then push .

10:00 am	FWD	Backup
Select Items to Backup/Restore		
<b>Standard Parameters</b>		
Back	Home	

5. Push  or  to select [Backup (drive → keypad)], then push .

10:00 am	FWD	Backup
Select Desired Action		
<b>Backup (drive → keypad)</b> ▶		
Restore (keypad → drive)		
Verify (check for mismatch)		
Erase (backup data of keypad)		
Back	Home	

6. Push  or  to select a memory location, then push .

10:00 am	FWD	Backup
Select Backup/Restore Location		
<b>#1 No Data</b> ▶		
#2 No Data		
#3 No Data		
#4 No Data		
Back	Home	

The keypad shows “End” when the backup procedure completes successfully.

---

### ◆ Write Backed-up Parameters to the Drive

You can back up parameters on the keypad and write them to different drives.

**Note:**

- Always stop the drive before you start to restore the parameter backups.
- The drive will not accept a Run command while it restores parameters.

1. Push **F2** (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.
- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
-----			
Freq Reference (AI)			0.00
U1-01	Hz		
-----			
Output Frequency			0.00
U1-02	Hz		
-----			
Menu			

3. Push  or  to select [Parameter Backup/Restore], then push .

10:00 am	FWD	Menu
 Monitors		
 Parameters		
 User Custom Parameters		
 <b>Parameter Backup/Restore</b> ▶		
 Modified Param / Fault Log		
 Auto-Tuning		
-----		
Home		

4. Push  or  to select the item to restore, then push .

10:00 am	FWD	Backup
Select Items to Backup/Restore		
<b>Standard Parameters</b> ▶		
Back	Home	

5. Push  or  to select [Restore (keypad → drive)], then push .

10:00 am	FWD	Backup
Select Desired Action		
Backup (drive → keypad)		
<b>Restore (keypad → drive)</b> ▶		
Verify (check for mismatch)		
Erase (backup data of keypad)		
Back	Home	

6. Push  or  to select the backed-up parameter data, then push .

10:00 am	FWD	Backup
Select Backup/Restore Location		
<b>#1 2020/01/01 13:00 0-65</b> ▶		
#2 No Data		
#3 No Data		
#4 No Data		
Back	Home	

The keypad will show the “End” message when the write process is complete.

**Note:**

Different settings and conditions will change the keypad display.

		A	B	C
	10:00 am FWD			Backup
	Select Backup/Restore			Location
	#1 2020/01/01 14:10	0-65		▶
F	#2 2020/01/01 02:10pm	5-65	*	
E	#3 ---/--/-- --:--	8-65	*	
D	#4 No Data			
	Back	Home		

- |                                                                                                                                                                                   |                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <p>A - A1-02 [Control Method Selection] settings</p> <p>B - o2-04 [Drive Model (KVA) Selection] settings (2 or 3 digits)</p> <p>C - Presence of DriveWorksEZ parameter backup</p> | <p>D - Parameter backup data is not registered</p> <p>E - Backup data does not contain the date information</p> <p>F - Backup date</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|

## ◆ Verify Keypad Parameters and Drive Parameters

This procedure verifies that the parameter setting values that were backed up in the keypad agree with the parameter setting values in the drive.

**Note:**

- Always stop the drive before you start to verify the parameters.
- The drive will not accept a Run command while it verifies parameters.

1. Push **F2** (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.
- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
-----			
Freq Reference (AI)		0.00	
U1-01	Hz		
Output Frequency		0.00	
U1-02	Hz		
Menu			

3. Push  or  to select [Parameter Backup/Restore], then push .

10:00 am	FWD	Menu
 Monitors		
 Parameters		
 User Custom Parameters		
 <b>Parameter Backup/Restore</b>	▶	
 Modified Param / Fault Log		
 Auto-Tuning		
Home		

4. Push  or  to select the item to verify, then push .

10:00 am	FWD	Backup
Select Items to Backup/Restore		
<b>Standard Parameters</b>		
▶		
Back	Home	

5. Push  or  to select [Verify (drive → keypad)], then push .

10:00 am	FWD	Backup
Select desired action.		
Backup (drive → keypad)		
Restore (keypad → drive)		
<b>Verify (check for mismatch) ▶</b>		
Erase (backup data of keypad)		
Back	Home	

6. Push  or  to select the data to verify, then push .

10:00 am	FWD	Backup
Select Backup/Restore Location		
#1	2020/01/01 13:00	0-65 ▶
#2	No Data	
#3	No Data	
#4	No Data	
Back	Home	

The keypad shows “End” when the parameter settings backed up in the keypad agree with the parameter settings copied to the drive.

**Note:**

The keypad shows *vFyE [Parameters do not Match]* when the parameter settings backed up in the keypad do not agree with the parameter settings copied to the drive. Push one of the keys to return to the screen in Step 6.

## ◆ Delete Parameters Backed Up to the Keypad

This procedure deletes the parameters that were backed up to the keypad.

1. Push **F2** (Home) to show the HOME screen.

**Note:**

- When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.
- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am FWD Rdy	Home
<b>OFF</b>	
-----	
Freq Reference (AI)	0.00
U1-01 Hz	
Output Frequency	0.00
U1-02 Hz	
Menu	

3. Push  or  to select [Parameter Backup/Restore], then push .

10:00 am FWD	Menu
 Monitors	
 Parameters	
 User Custom Parameters	
 <b>Parameter Backup/Restore</b> ▶	
 Modified Param / Fault Log	
 Auto-Tuning	
Home	

4. Push  or  to select the item to verify, then push .

10:00 am	FWD	Backup
Select Items to Backup/Restore		
<b>Standard Parameters</b> ▶		
Back	Home	

5. Push  or  to select [Delete (keypad)], then push .

10:00 am	FWD	Backup
Select desired action.		
-----		
Backup (drive → keypad)		
Restore (keypad → drive)		
Verify (check for mismatch)		
<b>Erase (backup data of keypad)</b> ▶		
Back	Home	

6. Push  or  to select the data to delete, then push .

10:00 am	FWD	Backup
Select Backup/Restore Location		
<b>#1 2020/01/01 14:10 0-65</b> ▶		
#2 2020/01/01 02:10pm 5-65		
#3 ----/--/-- --:-- 8-65		
#4 No Data		
Back	Home	

The keypad will show the “End” message when the write process is complete.

## ◆ Check Modified Parameters

This procedure will show all parameters that are not at their default values. This helps find settings have been changed, and is very useful when you replace a drive. This lets you quickly access and re-edit changed parameters. The keypad will show “0 Parameters” when all parameters are at their default values.

1. Push **F2** (Home) to show the HOME screen.

### Note:

- The keypad will show [Home] in the top right corner when the HOME screen is active.
- If [Home] is not shown on **F2**, push **F1** (Back) to show [Home] on **F2**.

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
-----			
Freq Reference (AI)		0.00	
U1-01	Hz		
Output Frequency		0.00	
U1-02	Hz		
Menu			

3. Push  or  to select [Modified Param / Fault Log], then push .

10:00 am	FWD	Menu
 Monitors		
 Parameters		
 User Custom Parameters		
 Parameter Backup/Restore		
 <b>Modified Param / Fault Log</b> ▶		
 Auto-Tuning		
Home		

4. Push  or  to select [Modified Parameters], then push .

10:00 am	FWD	History
	<b>Modified Parameters</b>	
	Fault Log	
Back	Home	

5. Push .

10:00 am	FWD	Modified
User Modified Parameters		
<b>Standard:</b>	<b>2 Parameters Modified</b>	
Back	Home	

6. Push  or  to show the parameter to check.

10:00 am	FWD	Modified
<b>Acceleration Time 1</b>		
<b>c1-01</b>	<b>20.0</b>	<b>(30.0)sec</b>
Motor Rated Current (FLA)		
E2-01	97.2	(77.0)A
Back	Home	

7. To re-edit a parameter, push  or , select the parameter to edit, then push .

10:00 am	FWD	Modified
Acceleration Time 1		
C1-01	20.0	(30.0)sec
Motor Rated Current (FLA)		
E2-01	97.2	(77.0)A
Back	Home	

8. Push  or  to select the digit, then push  or  to change the value.

10:00 am	FWD	Parameters
Acceleration Time 1		
C1-01	<b>0</b> 020.0	sec
Default : 30.0sec		
Range : 0.1~6000.0		
Back	Default	Min/Max

9. When you are done changing the value, push .

10:00 am	FWD	Parameters
Acceleration Time 1		
C1-01	00 <b>1</b> 0.0	sec
Default : 30.0sec		
Range : 0.1~6000.0		
Back	Default	Min/Max

The parameter revision procedure is complete.

## ◆ Set Backlight to Automatically Turn OFF

You can set the backlight of the keypad screen to automatically turn OFF after a set length of time since the last key operation on the keypad. The procedure in this section shows how to turn ON and turn OFF the backlight.

1. Push **F2** (Home) to show the HOME screen.

**Note:**

- The keypad will show [Home] in the top right corner when the HOME screen is active.
- If [Home] is not shown on **F2**, push **F1** (Back) to show [Home] on **F2**.

2. Push **F2** (Menu).

10:00 am FWD Rdy	Home
<b>OFF</b>	
-----	
Freq Reference (AI)	0.00
U1-01 Hz	
Output Frequency	0.00
U1-02 Hz	
Menu	

3. Push  or  to select [Diagnostic Tools], then push .

10:00 am FWD	Menu
 User Custom Parameters	
 Parameter Backup/Restore	
 Modified Param / Fault Log	
 Auto-Tuning	
 Initial Setup	
 <b>Diagnostic Tools</b>	
Home	

4. Push  or  to select [Backlight], then push .

10:00 am	FWD	Tools
Data Logger		
<b>Backlight</b> ▶		
Drive Information		
Back	Home	Setup

5. Push  or  to select [ON] or [OFF], then push .

10:00 am	FWD	Tools
LCD backlight ON/OFF Selection		
OFF		
<b>ON</b>		
Back	Home	

- [ON]: Backlight is always ON
- [OFF]: Backlight turns OFF after set length of time.

6. Push  (Setup).

10:00 am	FWD	Tools
Data Logger		
<b>Backlight</b> ▶		
Drive Information		
Back	Home	Setup

7. Push .

10:00 am	FWD	Setup
Energy Saving		
<b>LCD Backlight Off-Delay</b>		
<b>01-38</b>	<b>60</b>	<b>(60)sec</b>
Back	Home	

8. Push  or  to select the digit, then push  or  to change the value.

10:00 am	FWD	Parameters
LCD Backlight Off-Delay		
01-38		
	<b>060</b>	sec
Default : 60sec		
Range : 10~300		
Back	Default	Min/Max

9. When you are done changing the value, push .

10:00 am	FWD	Parameters
LCD Backlight Off-Delay		
01-38		
	<b>030</b>	sec
Default : 60sec		
Range : 10~300		
Back	Default	Min/Max

The procedure to set the backlight to turn OFF automatically is complete.

## ◆ Show Information about the Drive

The procedure in this section shows how to show the drive model, maximum applicable motor output, rated output current, software version, and the serial number on the keypad.

1. Push **F2** (Home) to show the HOME screen.

### Note:

- The keypad will show [Home] in the top right corner when the HOME screen is active.
- If [Home] is not shown on **F2**, push **F1** (Back) to show [Home] on **F2**.

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
<b>OFF</b>			
-----			
Freq Reference (AI)			0.00
U1-01	Hz		
Output Frequency			0.00
U1-02	Hz		
-----			
Menu			

3. Push  or  to select [Diagnostic Tools], then push .

10:00 am	FWD	Menu
	User Custom Parameters	
	Parameter Backup/Restore	
	Modified Param / Fault Log	
	Auto-Tuning	
	Initial Setup	
	<b>Diagnostic Tools</b>	
-----		
Home		

4. Push  or  to select [Drive Information], then push .

10:00 am	FWD	Tools
Data Logger		
Backlight		
<b>Drive Information</b> ▶		
Back	Home	

The keypad will show the drive information.

10:00 am	FWD	Tools
HV600 ————— A		
200V, 3.0HP ————— B		
10.60A ————— C		
<VSEA01010> ————— D		
S/N: J0065F575310100 ————— E		
Back	Home	

- A - Drive Series**                      **D - Drive Software Version**  
**B - Maximum Applicable Motor Output**      **E - Serial Number**  
**C - Rated Output Current**

## 7 Fault Diagnostics and Measures

### ◆ Fault Display

If a drive fault occurs when the keypad is connected to the drive, the keypad will show the fault code.

This section shows fault codes related to the keypad. For information about fault codes that are not in this table, refer to the instruction manual for the drive.

Code	Name	Causes	Possible Solutions
bAT	Keypad Battery Low Voltage	The keypad battery voltage is low.	Replace the keypad battery.
CPF00	Control Circuit Error	Communication with the keypad is not possible seven seconds after power is turned on.	Refer to the following causes and solutions.
		Keypad cable connector is not connected properly	<ul style="list-style-type: none"> <li>Remove the keypad and connect it again.</li> <li>Replace the cable if damaged.</li> </ul>
		Faulty keypad	Replace the keypad.
		Drive control circuit error	<ul style="list-style-type: none"> <li>Re-energize the drive.</li> <li>Replace the drive.</li> </ul>
CPF01	Control Circuit Error	After start of communication with the keypad, a communication error occurred for approximately five seconds.	Refer to the following causes and solutions.
		Keypad cable connector is not connected properly	Remove the keypad and connect it again.
		Faulty keypad	Replace the keypad.
		Drive control circuit error	<ul style="list-style-type: none"> <li>Re-energize the drive.</li> <li>Replace the drive.</li> </ul>
oPr	Keypad Connection Fault	The keypad is not securely connected to the connector on the drive.	Examine the connection between the keypad and the drive.
		The connection cable between the drive and the keypad is disconnected.	<ul style="list-style-type: none"> <li>Remove the keypad and then reconnect it.</li> <li>Replace the cable if damaged.</li> </ul>

Code	Name	Causes	Possible Solutions
TiM	Keypad Time Not Set	There is a battery in the keypad, but you have not set the date and time.	Use the keypad to set the date and time.
-	- (No Error Message)	The cable is not securely connected.	Make sure that the cable is securely connected.
		The connection cable between the drive and the keypad is disconnected.	Replace the cable if damaged.
		Faulty keypad	Replace the keypad.

## 8 Disposal Instructions

Correctly discard these parts and materials as specified by regional, local, and municipal laws and regulations for this product:

- Battery
- microSD card

**⚠ CAUTION** *Fire Hazard. Put electrical tape fully around the battery before you discard it. If you do not correctly discard the battery, it can cause a fire.*

**Note:**

- Remove the battery and microSD card from the keypad.
- You cannot recycle the battery. Discard used batteries as specified by the battery manufacturer.
- Customers are responsible for microSD card data protection. PC functions that format and delete the data may not be sufficient to fully erase the microSD card data. Yaskawa recommends that customers physically destroy the microSD card in a shredder or use data wipe software to fully erase the card.

## ◆ WEEE Directive



The wheeled bin symbol on this product, its manual, or its packaging identifies that you must recycle it at the end of its product life.

You must discard the product at an applicable collection point for electrical and electronic equipment (EEE). Do not discard the product with usual waste.

## 9 Specification

**Table 9.1 Option Hardware Specifications (Common)**

Item	Description
Model	JVOP-KPLCB04AxB
Port	RJ-45
Power Supply	Supply from drive (DC +5 V $\pm$ 5%)
Operating Ambient Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Operating Ambient Humidity	95% RH or less (no condensation)
Storage Ambient Temperature	-20 °C to +70 °C (-4 °F to +158 °F) (short-term storage temperature during transport)
Area of Use	Indoor (the area without corrosive gas, or dust)

Item	Description
Altitude	1000 m (3281 ft) maximum
Vibration	10 to under 20 Hz: 1 G (9.8 m/s <sup>2</sup> ) 20 to under 55 Hz: 0.6 G (5.9 m/s <sup>2</sup> )
Approximately Number of Parameter Reads	100,000 or less

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## Revision History

Date of Publication	Revision Number	Section	Revised Content
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# YASKAWA AC Drive Option HOA Keypad Installation Manual

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YASKAWA ELECTRIC CORPORATION

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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