YASKAWA

YASKAWA AC Drive 1000-Series Option

LCD Operator Installation Manual

Type JVOP-180

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

安川インバータ 1000シリーズ オプション **LCDオペレータ**

取扱説明書

形 式 JVOP-180

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1 Preface and Safety

Yaskawa manufactures products used as components in a wide variety of industrial systems and equipment. The selection and application of Yaskawa products remain the responsibility of the equipment manufacturer or end user. Yaskawa accepts no responsibility for the way its products are incorporated into the final system design. Under no circumstances should any Yaskawa product be incorporated into any product or design as the exclusive or sole safety control. Without exception, all controls should be designed to detect faults dynamically and fail safely under all circumstances. All systems or equipment designed to incorporate a product manufactured by Yaskawa must be supplied to the end user with appropriate warnings and instructions as to the safe use and operation of that part. Any warnings provided by Yaskawa must be promptly provided to the end user. Yaskawa offers an express warranty only as to the quality of its products in conforming to standards and specifications published in the Yaskawa manual. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS OFFERED. Yaskawa assumes no liability for any personal injury, property damage, losses, or claims arising from misapplication of its products.

Applicable Documentation

The following manuals are available for the JVOP-180 LCD Operator Option:

LCD Operator



Yaskawa AC Drive 1000-Series Option LCD Operator Installation Manual

Manual No: TOBP C730600 29

(this book)

Read this manual first.

The installation manual is packaged with the option and contains information required to install the option and set up related unit parameters.

Yaskawa Unit



Yaskawa AC Drive 1000-Series Quick Start Guide

Yaskawa AC Drive 1000-Series Technical Manual

YASKAWA D1000 Series **Power Regenerative Converter** Instruction Manual

YASKAWA R1000 Series **Power Regenerative Unit** Instruction Manual

The unit manuals cover basic installation, wiring, operation procedures, functions, troubleshooting, and maintenance information.

The manuals also include important information about parameter settings and unit tuning. Access these sites to obtain Yaskawa instruction manuals: U.S.: http://www.yaskawa.com

Europe: http://www.yaskawa.eu.com Japan: http://www.e-mechatronics.com

For questions, contact your local Yaskawa sales office or the nearest Yaskawa representative.

Check the option to make sure it is compatible with the A1000. The nameplate on the option must list software number PRG: 0101 or later for compatibility with A1000.

Terms

Note: Indicates a supplement or precaution that does not cause unit damage.

Indicates a unit feature or function that is only available in unit software version 1012 or ≥ PRG: 1012:

greater.

LED: Light emitting diode. LCD: Liquid crystal display.

Option: YASKAWA 1000-Series Option LCD Operator

Unit: YASKAWA AC Drive 1000-Series

> · YASKAWA D1000 Series Power Regenerative Converter · YASKAWA R1000 Series Power Regenerative Unit

1 Preface and Safety

YASKAWA AC Drive 1000-Series A1000 High Performance Vector Control Drive

YASKAWA AC Drive 1000-Series V1000 Compact Vector Control Drive

Converter: YASKAWA D1000 Series Power Regenerative Converter

Regenerative Unit: YASKAWA R1000 Series Power Regenerative Unit

Registered Trademarks

Company names and product names listed in this manual are the registered trademarks of those companies.

Supplemental Safety Information

Read and understand this manual before installing, operating or servicing this option. The option must be installed according to this manual and local codes.

The following conventions are used to indicate safety messages in this manual. Failure to heed these messages could result in serious or fatal injury or damage to the products or to related equipment and systems.

A DANGER

Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

A CAUTION

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates an equipment damage message.

■ General Safety

General Precautions

- The diagrams in this section may include options and units without covers or safety shields to illustrate details. Be sure to reinstall covers or shields before operating any devices. The option board should be used according to the instructions described in this manual.
- Any illustrations, photographs, or examples used in this manual are provided as
 examples only and may not apply to all products to which this manual is applicable.
- The products and specifications described in this manual or the content and presentation
 of the manual may be changed without notice to improve the product and/or the manual.
- When ordering a new copy of the manual due to damage or loss, contact your Yaskawa representative or the nearest Yaskawa sales office and provide the manual number shown on the front cover.

A DANGER

Heed the safety messages in this manual.

Failure to comply will result in death or serious injury.

The operating company is responsible for any injuries or equipment damage resulting from failure to heed the warnings in this manual.

NOTICE

Do not expose the unit to halogen group disinfectants.

Failure to comply may cause damage to the electrical components in the option.

Do not pack the unit in wooden materials that have been fumigated or sterilized.

Do not sterilize the entire package after the product is packed.

2 Product Overview

About This Product

The option provides an enhanced unit user interface that can operate the Yaskawa unit from up to 3 meters away. The option can display information in 13 languages, including English, Japanese, and Spanish. <1> <2> The option is an LCD display that simplifies the task of interfacing with the unit to perform these tasks:

- Read or modify unit parameters.
- Read and copy unit parameter settings to another Yaskawa unit.
- · Operate the unit.
- Monitor unit operation status.
- <1> Eight languages (English, Japanese, German, French, Italian, Spanish, Portuguese, Chinese) are available when using one of the following devices:
 - An A1000 with drive software version PRG: 1018 or later and option with software version PRG: 0101.
 - An A1000 with drive software version PRG: 1017 or later and option with software version PRG: 0101 or later.
 - A1000 models 4A0930 or 4A1200
 - V1000
- <2> Language support is limited to English, Japanese, and Chinese when using the option with software version PRG: 0101 in combination D1000 or R1000.

Note: Installing and connecting the option to a V1000 will cause the built-in LED operator on the drive to display a series of dots as shown in *Table 1*. This is normal operation. Additionally, when the option is connected, none of the keys on the built-in LED operator on the drive will work, except for the STOP key. To disable the STOP key on the built-in LED operator, set parameter o2-02 (STOP Key Function Selection) to 0 (Disabled).

Table 1 Built-in LED Display When Option is Connected to a V1000

Display	LED Display	Drive Status
ESC A GO	Illuminated	During Stop
A D	Flashing	During Run

◆ Applicable Models

The option can be used with the unit models in *Table 2*.

Table 2 Applicable Unit Models

Unit	Unit Software Version <1>
A1000	All versions
V1000	≥ PRG: 1012
D1000	All versions
R1000	All versions

<1> See "PRG" on the unit nameplate for software version number.

- Note: 1. Check the option to make sure it is compatible with the A1000. The nameplate on the option must list software version PRG: 0101 or later for compatibility with A1000.
 - To view information on the display in Czech, Russian, Turkish, Polish, or Greek, use option software version PRG: 0102 or later and A1000 drive software version PRG: 1018 or later. Those languages cannot be displayed on A1000 models 4A0930 or 4A1200.
 - Language support is limited to English, Japanese, and Chinese when using the option with software version PRG: 0101 in combination D1000 or R1000.

3 Receiving

Perform the following tasks after receiving the option:

- Inspect the option for damage.
 If the option appears damaged upon receipt, contact the shipper immediately.
- Verify receipt of the correct model by checking the model number printed on the Name plate of the option.
- If you have received the wrong model or the option does not function properly, contact your supplier.

Contents and Packaging

Table 3 Contents of Package

Description:	Option	Installation Manual	
-		MANUAL	
Quantity:	1	1	

Parts Sold Separately

Proper installation of the option requires a digital operator cable (sold separately). A communication cable may be purchased from Yaskawa or recommended LAN cables may be used.

Installation support kit A or B (sold separately) may also be required depending on the option installation method. Refer to *Table 4. Refer to Installing the Option on page 23* for more information regarding installation methods.

To order a communication or an installation support kit, contact Yaskawa directly or your nearest Yaskawa distributor.

Table 4 Item Names and Part Numbers (Sold Separately)

Item	Yaskawa Part Number	Notes	Page	
Digital Operator Cable 1 m (3 ft.) </td <td>WV001 Part number for the Americas: UWR0051</td> <td>Alternate cables (customer- supplied), RJ45 8-pin Straight Connector UTP Cat5e cable</td> <td>26</td>	WV001 Part number for the Americas: UWR0051	Alternate cables (customer- supplied), RJ45 8-pin Straight Connector UTP Cat5e cable	26	
Digital Operator Cable 3 m (10 ft.) </td <td>WV003 Part number for the Americas: UWR0052</td> <td>Alternate cables (customer- supplied), RJ45 8-pin Straight Connector UTP Cat5e cable</td> <td>26</td>	WV003 Part number for the Americas: UWR0052	Alternate cables (customer- supplied), RJ45 8-pin Straight Connector UTP Cat5e cable	26	
Installation Support Kit A	EZZ020642A	Sold Separately; For use with holes through the panel	25	
Installation Support Kit B <2>	EZZ020642B	Sold Separately; For use with panel-mounted threaded studs	25	

<1> Digital Operator Cable: Used to connect the digital operator to the drive (sold separately). <2> Use Installation Support Kit B when weld studs are on the back of the panel.

Tool Requirements

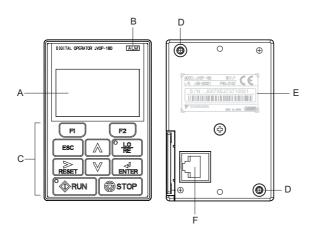
The tools listed in Table 5 are required to install the option on an enclosure panel door.

Table 5 Required Tools

Installation Location	Installation Support	Required Tools
External/Face Mount	=	Phillips screwdriver, M3
	Installation Support Kit A	Phillips screwdriver, M3, M4
Internal/Flush Mount	Installation Support Kit B	Phillips screwdriver, M3 Box end or adjustable wrench, M4

4 Option Components

♦ Option



A - LCD Display

B - ALARM (ALM) LED

C - Keys

D - Installation Mounting Holes

E - Nameplate <1>

F - Communication Cable Connector

<1> REV: Display option version; PRG: Language data.

Figure 1 Option Components

♦ Keys

Refer to Figure 2 and Table 6 for details on key names and functions.

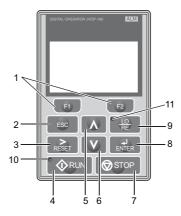


Figure 2 Keys

Table 6 Key Names and Functions

No.	Key	Name	Function
1	F1	Function Key (F1, F2)	The functions assigned to F1 and F2 vary depending on the menu that is currently displayed. The name of each function appears in the lower half of the display window.
	F2	` ' '	For a description of functions assigned to the F1 and F2 keys, <i>Refer to LCD Display on page 18</i> .
2	ESC	ESC Key	Returns to the previous display. Moves the cursor one space to the left. Pressing and holding this button will return to the following display: Drive: Frequency Reference Converter: DC Bus Voltage Reference Regenerative unit: DC Bus Voltage
3	RESET	RESET Key	 Moves the cursor to the right. Resets the unit to clear a fault situation.

4 Option Components

No.	Key	Name	Function	
4	RUN	RUN Key	Starts the unit and motor.	
5		Up Arrow Key	Scrolls up to display the next item, selects parameter numbers and increments setting values.	
6	V	Down Arrow Key	Scrolls down to display the previous item, selects parameter numbers and decrements setting values.	
7	⊘ STOP	STOP Key	Stops unit operation. Note: The STOP key can be enabled or disabled when operating from the external terminal or network communications by setting parameter o2-02.	
8	ENTER	ENTER Key	Enters parameter values and settings. Selects a menu item to move between displays.	
9	• <u>10</u> RE	Switches unit control between the operator (LOCAL) and an external source (REMOTE) for the Run command and frequency reference. LO/RE Selection Key Note: The LOCAL/REMOTE key is only effective when the unit is stopped in Drive Mode. As a safety precaution, it is possible to disable LO/RE Selection Key by setting parameter o2-01 (LOCAL/REMOTE Key Function Selection) to 0 (disabled).		
10	♦ RUN	RUN Light	Illuminated during an operation. Refer to Option LED Status Indicators on page 15 for details.	
11	10 RE	LO/RE Light	Illuminated while the option is selected to run the unit (LOCAL mode).	

Option LED Status Indicators

■ Connecting the Option to A1000 or V1000 Table 7 LED Status and Meaning

LED	Illuminated	Flashing <1>	Flashing Quickly <1>	Off
• <u>LO</u> RE	When the option is selected for Run command and frequency reference control (LOCAL).	-	-	When a device other than the option is selected for Run command and frequency reference control (REMOTE).
• RUN	During run.	During deceleration to stop. When a Run command is input and the frequency reference is 0 Hz.	command was	During stop.
Examples	• RUN	♦ RUN	♦ RUN	♦ RUN

<1> Refer to Figure 3 for the difference between "flashing" and "flashing quickly".

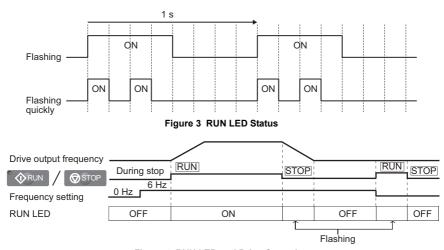


Figure 4 RUN LED and Drive Operation

■ Connecting the Option to D1000

Table 8 LED Status and Meaning

LED	Illuminated	Illuminated Flashing Quickly <1>	
LO RE	When the run command is selected from the LED operator (LOCAL).	-	When a device other than the option is selected for Run command and frequency reference control (REMOTE).
♦ RUN	During run.	During stop by External Fault digital input.	During stop.
Examples Pun		♦ RUN	♦ RUN

<1> Refer to Figure 5 for the difference between "flashing" and "flashing quickly".

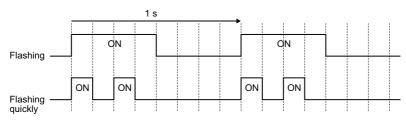


Figure 5 RUN LED Status

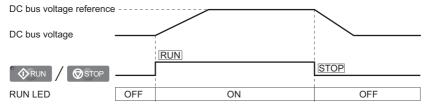


Figure 6 RUN LED and Converter Operation

■ Connecting the Option to R1000

Table 9 LED Status and Meaning

LED	Illuminated	Illuminated Flashing Quickly <1>	
LO RE	When the run command is selected from the LED operator (LOCAL).	_	When a device other than the option is selected for Run command and frequency reference control (REMOTE).
♦ RUN	During run.	During stop by External Fault digital input.	During stop.
Examples	RUN	♦ RUN	♦ RUN

<1> Refer to Figure 7 for the difference between "flashing" and "flashing quickly".

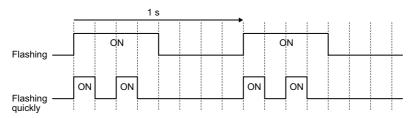


Figure 7 RUN LED Status



Figure 8 RUN LED and Regenerative Unit Operation

♦ LCD Display

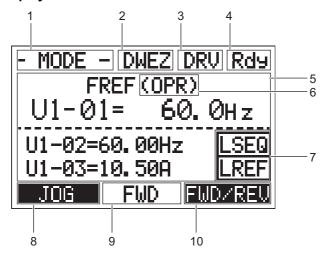


Figure 9 LCD Display

Table 10 Display and Contents

No.	Name	Display	Content
		MODE	Displayed when in Mode Selection.
		MONITR	Displayed when in Monitor Mode.
1	Operation Mode	VERIFY	Indicates the Verify Menu.
1	Menus	PRMSET	Displayed when in Parameter Setting Mode.
		A.TUNE	Displayed during Auto-Tuning.
	SETUP		Displayed when in Setup Mode.
2	DriveWorksEZ Function Selection <1>	DWEZ Displayed when the DriveWorksEZ is set to enable. (A1-07 = 1 or 2)	
3	Mada Dianlay Anaa	DRV	Displayed when in Drive Mode.
3	3 Mode Display Area PRG		Displayed when in Programming Mode.
4	Ready	Rdy	Indicates the unit is ready to run.
5	Data Display	_	Displays specific data and operation data.

No.	Name	Display	Content
			Displayed when the frequency reference is assigned to the option.
	Drive: Frequency Reference Assignment	AI	Displayed when the frequency reference is assigned to the Analog Input of the drive.
		COM	Displayed when the frequency reference is assigned to the MEMOBUS/ Modbus Communication Inputs of the drive.
		OP	Displayed when the frequency reference is assigned to an Option Unit of the drive.
		RP	Displayed when the frequency reference is assigned to the Pulse Train Input of the drive.
		OPR	Displayed when the voltage reference is assigned to the option.
		AI	Displayed when the voltage reference is assigned to the Analog Input of the converter.
6	Converter: Voltage Reference Assignment	COM	Displayed when the voltage reference is assigned to the MEMOBUS/ Modbus Communication Inputs of the converter.
	<2>	OP	Displayed when the voltage reference is assigned to an Option Unit of the converter.
		AUTO	Displayed when b1-18 is set to either 7 or 8 (input voltage based control 1 or 2).
	Regenerative Unit: Run Command Assignment	OPR	Displayed when the Run command is assigned to the option.
		AI	Displayed when the Run command is assigned to the Analog Input of the regenerative unit.
		COM	Displayed when the Run command is assigned to the MEMOBUS/Modbus Communication Inputs of the regenerative unit.
		OP	Displayed when the Run command is assigned to an Option Unit connected to the regenerative unit.
	LO/RE Display <3>	RSEQ	Displayed when the Run command is supplied from a remote source.
		LSEQ	Displayed when the Run command is supplied from the digital operator.
7		RREF	Drive: Displayed when the frequency reference is supplied from a remote source. Converter: Displayed when the voltage reference is supplied from a remote source. Regenerative unit: Displayed when the Run command is supplied from a remote source.
		LREF	Drive: Displayed when the frequency reference is supplied from the digital operator. Converter: Displayed when the voltage reference is supplied from the digital operator. Regenerative unit: Displayed when the Run command is supplied from the digital operator.

4 Option Components

No.	Name	Display	Content	
	Function Key 1 (F1)	JOG 	Pressing F1 executes the Jog function.	
		HELP	Pressing F1 displays the Help menu.	
8		←	Pressing F1 scrolls the cursor to the left.	
8			Pressing F1 will return to the following display:	
		HOME	Drive: Frequency Reference Converter: DC Bus Voltage Reference Regenerative unit: DC Bus Voltage	
				ESC
9	FWD/REV	FWD	Indicates forward motor operation.	
9	<1>	REV	Indicates reverse motor operation.	
	Function Key 2 (F2)	FWD/REV	Pressing F2 switches between forward and reverse.	
10		DATA	Pressing F2 scrolls to the next display.	
10		\rightarrow	Pressing F2 scrolls the cursor to the right.	
		RESET	Pressing F2 resets the existing unit fault or error.	

<1> Not available for the converter and regenerative unit.

<2> Displayed when in Frequency Reference, Voltage Reference, or Run Command Mode.
<3> Displayed when in Frequency Reference, Voltage Reference, or Run Command Mode and Monitor Mode.

♦ ALARM (ALM) LED Displays

Table 11 ALARM (ALM) LED Status and Contents

State	Content	Display
Illuminated	When the unit detects an alarm or error.	[ALM]
Flashing	When an alarm occurs. When oPE is detected. When a fault or error occurs during Auto-Tuning.	[ALM]
Off	Normal operation (no fault or alarm).	[ALM]

5 Installation Procedure

♦ Section Safety

NOTICE

Damage to Equipment

Use only Yaskawa connection cables or recommended cables.

Failure to comply may cause the unit or option to function incorrectly.

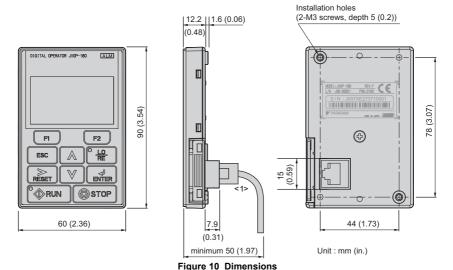
Properly connect the connectors.

Failure to comply may prevent proper operation and possibly damage equipment.

Do not exceed communication cable bend radius specifications.

Failure to comply may result in broken wires or loose connections.

Option Dimensions



<1>Use only Yaskawa cables or cables recommended by Yaskawa. Refer to *Item Names and Part Numbers (Sold Separately) on page 11*.

♦ Installing the Option

The option mounts to an enclosure two different ways:

- External/face-mount installs the operator outside the enclosure panel.
- Internal/flush-mount installs the operator inside the enclosure panel.

| External/Face-mount | Simplified installation with the option is mounted on the outside of the panel with two screws. | Requires purchase of separate items. Refer to Item Names and Part Numbers (Sold Separately) on page 11.

Table 12 Option Installation Methods

NOTICE: Prevent foreign matter such as metal shavings or wire clippings from falling into the unit during installation and project construction. Failure to comply could result in damage to the unit. Place a temporary cover the top of the unit during installation. Remove the temporary cover before startup, as the cover will reduce ventilation and cause the unit to overheat.

External/Face-mount Installation

- 1. Cut an opening in the enclosure panel for the option according to *Figure* 12.
- Position the option so the LCD display faces outwards, and mount it to the enclosure panel as shown in *Figure 11*.

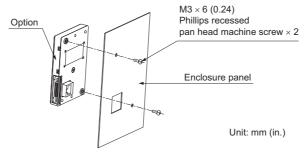


Figure 11 External/Face-mount Installation

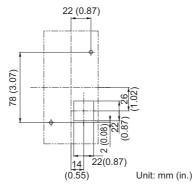


Figure 12 Panel Cut-out Dimensions (External/Face-mount Installation)

■ Internal/Flush-mount Installation

The internal flush-mount installation method requires an installation support that is purchased separately. *Refer to Item Names and Part Numbers (Sold Separately) on page 11* for information regarding the installation support and mounting hardware. *Figure 13* illustrates how to install Installation Support Kit A.

- 1. Cut an opening in the enclosure panel for the option according to Figure 14.
- **2.** Mount the option to the installation support (sold separately).
- **3.** Mount the installation support and option to the enclosure panel.

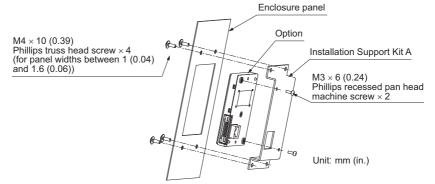


Figure 13 Internal/Flush Mount Installation

Note: For environments with a significant amount of dust or other airborne debris, use a gasket between the enclosure panel and the option.

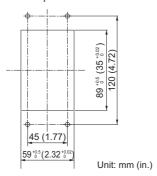


Figure 14 Panel Cut-out Dimensions (Internal/Flush-mount Installation)

Connecting the Option to the Unit

This section contains instructions for connecting the option to units.

■ Connecting the Option to V1000

Plug the customer-supplied communication cable into the communication cable connector of the option and the drive communications port as shown in *Figure 15*. Ensure both cable ends are firmly connected. *Refer to Item Names and Part Numbers (Sold Separately) on page 11* for information regarding recommended cables.

Refer to *Table 1* for built-in LED display behavior with a connected option.

- Note: 1. Use only Yaskawa recommended cables. Using a cable not specified may cause the option or drive to malfunction.
 - 2. The STOP key on the built-in LED operator of the drive is the only functional key on the drive when the option is connected and parameter b1-02 is set to 0 (LCD Operator or Option). Set parameter o2-02 (STOP Key Function Selection) to 0 (Disable) to disable the STOP key.

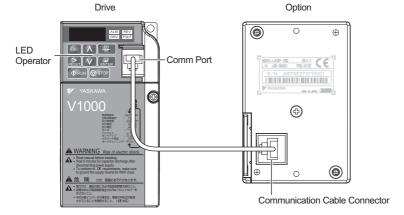


Figure 15 Communication Cable Connection

■ Connecting the Option to A1000, D1000, or R1000

Plug the customer-supplied communication cable into the communication cable connector of the option and the unit communications port as shown in *Figure 15*. Ensure both cable ends are firmly connected. *Refer to Item Names and Part Numbers (Sold Separately) on page 11* for information regarding recommended cables.

Note: Use only Yaskawa recommended cables. Using a cable not specified may cause the option or unit to malfunction.

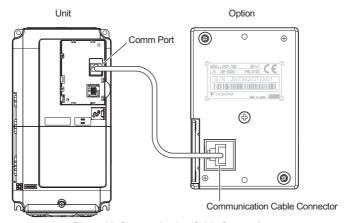


Figure 16 Communication Cable Connection

6 Basic Operation

- Connecting the Option to A1000 or V1000
- Menu Structure for Option

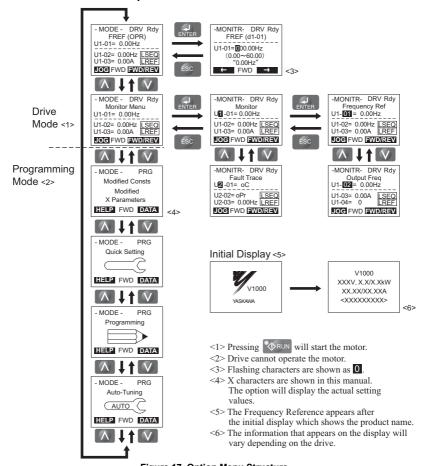


Figure 17 Option Menu Structure

■ Example: Basic Operation

The following procedures are examples of drive operation using the option.

Note: Actual LCD display data varies based on drive parameter settings.

Procedure Example: RUN/STOP

Note: If b1-01 is not set to 0 (Operator), press to set LOCAL.

	Procedure	LCD Display
1.	Apply main power to the drive. The Frequency Reference appears after the initial display on the option.	- MODE - DRV Rdy FREF (OPR) U1-01= 0.00Hz U1-02= 0.00Hz U1-03= 0.00A U1-03= 0.00A UREF
2.	Press to show the display for inputting the frequency reference. If b1-01 is not set to 0 (Operator), press to set LOCAL.	-MONITR- DRV Rdy FREF (d1-01) U1-01= 00.00Hz (0.00~60.00) "0.00Hz" — FWD →
3.	Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-MONITR- DRV Rdy FREF (d1-01) U1-01= 00₫ 00Hz (0.00~60.00) "0.00Hz" ← FWD →
4.	Press to set the output frequency.	Entry Accepted

6 Basic Operation

	Procedure	LCD Display
5.	Press RUN to start the motor. The motor should accelerate up to 6 Hz while the RUN LED is on.	-MONITR- DRV Rdy FREF (d1-01) U1-01= 003 00Hz (0.00~60.00) "0.00Hz" — FWD —
6.	Press STOP to stop the motor. The RUN LED will flash until the motor comes to a complete stop.	

Procedure Example: Viewing Monitors

Procedure	LCD Display
Frequency Reference display.	- MODE - DRV Rdy FREF(OPR) U1-01= 0.00Hz U1-02= 0.00Hz LSEQ U1-03= 0.00A LREF JOG FWD FWD/REV
2. Press until the Monitor Menu display appears.	- MODE - DRV Rdy Monitor Menu U1-01= 6.00Hz U1-02= 0.00Hz LSEQ U1-03= 0.00A LREF JOG FWD FWD/REV
3. Press to show the Monitor display.	-MONITR- DRV Rdy Monitor U1-01= 6.00Hz U1-02= 0.00Hz U1-03= 0.00A LREF UOG FWD FWD/REV
4. Press	-MONITR- DRV Rdy Last Fault U2-02= oPr U2-03= 0.00Hz LSEQ U2-04= 0.00Hz LREF UOG FWD FWD/REV

Procedure Example: Display Language Selection

The display language can be changed with parameter A1-00 (Select Language).

Procedure	LCD Display
1. Frequency Reference.	- MODE - DRV Rdy FREF(OPR) U1-01= 0.00Hz U1-02= 0.00Hz LSEQ U1-03= 0.00A LREF JOG FWD FWD/REV
2. Press	-MODE- PRG Programming HELP FWD DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization Δ1-00= 0 Select Language ← FWD →
4. Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG Select Language A1-00=
5. Press \tag{\text{\tint{\text{\tin}\text{\ti}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin}}\text{\texi}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}}}\\ \tittt{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\text{\text{\text{\text{\texi}\text{\text{\text{\text{\text{\ti}\tint{\text{\text{\text{\text{\texi}\tint{\text{\tiint{\text{\text{\text{\text{\text{\text{\texi}\text{\texit{\text{\tex{	PRMSET- PRG ゲンゴ (Language) A1-00= 1 *0* ニポンゴ (Japanese) "1" ← FWD →

6 Basic Operation

		Procedure	LCD Display
6.	Press ENTER	and the option will display Japanese.	カキコミ カンリョウ

Procedure Example: Setting Parameters

The example below explains how to change the Deceleration Time parameter C1-01 to 20.0 sec from the default setting of 10.0 sec.

	Procedure	LCD Display
1.	Frequency Reference display.	- MODE - DRV Rdy FREF(OPR) U1-01= 0.00Hz U1-02= 0.00Hz LSEQ U1-03= 0.00A LREF JOG FWD FWD/REV
2.	Press to select the Programming Mode.	-MODE- PRG Programming HELP FWD DATA
3.	Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language ← FWD →
4.	Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG

	Procedure	LCD Display
5.	Press F1 F2	-PRMSET- PRG
6.	Press to enter and store the new setting for C1-01.	Entry Accepted

Read/Copy Function Procedure

Read

Reads and saves parameter settings from the drive to the option.

Note: The option can perform the Read function an estimated 100,000 times.

Copy

Copies parameter settings from the option to another Yaskawa drive.

These parameters control the Copy function of the digital operator. The Copy function stores parameter settings into the memory of the digital operator to facilitate the transfer of those settings to other drives that are the same model, capacity, and same control mode setting.

Note: Parameter settings can only be copied to other drives that are the same model, capacity, and have the same control mode setting.

Verify

Verifies that parameter settings in the drive match the parameter settings saved to the option.

The following procedure is used to read parameters from the drive.

Note: Set parameter o3-02 (Read Allowable) to 1 (Enable) to read the parameter settings from the

drive.

Set parameter o3-02 to 0 (Disable) to protect the parameter settings in the option.

	Procedure	LCD Display
1.	Frequency Reference display.	- MODE - DRV Rdy FREF (OPR) U1-01= 6.00Hz U1-02= 0.00Hz U1-03= 0.00A LREF JOG FWD FWD/REV
2.	Press	-MODE- PRG Programming HELP FWD DATA
3.	Press to show the Initialization display.	-PRMSET- PRG Initialization Δ1-00= 0 Select Language ← FWD →

Procedure	LCD Display
4. Press F1 F2 \(\bigvee \text{to select o3-01 and press}\)	-PRMSET- PRG Copy Funtion Sel o3-01= 0 *0* COPY SELECT ← FWD →
5. Press	-PRMSET- PRG Copy Funtion Sel 03-01= 1 *0* INV→OP READ "0" ← FWD →
6. Press and the option will read the parameter settings from the drive.	READ INV→OP READING
7. Automatically return to the Copy Function Selection display.	End READ COMPLETE

Connecting the Option to D1000

Menu Structure for Option

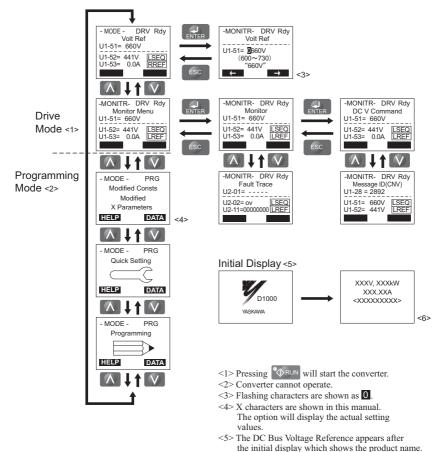


Figure 18 Option Menu Structure

<6> The information that appears on the display will vary depending on the converter.

■ Example: Basic Operation

The following procedures are examples of converter operation using the option.

Note: Actual LCD display data varies based on converter parameter settings.

Procedure Example: RUN/STOP

Note: If b1-18 is not set to 0 (Operator), press to set LOCAL.

	Procedure	LCD Display
1.	Apply main power to the converter. The DC Bus Voltage Reference appears after the initial display on the option.	- MODE - DRV Rdy Volt Ref U1-51= 0330V U1-52= 295V U1-53= 0.0A
2.	Press to show the display for inputting the DC Bus voltage reference. If b1-18 is not set to 0 (Operator), press to set LOCAL.	-MONITR- DRV Rdy Volt Ref
3.	Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-MONITR- DRV Rdy Volt Ref U1-51= 320V (300~360) "330V" →
4.	Press to set the output voltage.	Entry Accepted

	Procedure	LCD Display
5.	Press RUN to start the operation at the set voltage while the RUN LED is on.	- MODE - DRV Rdy Volt Ref U1-51= 320V U1-52= 320V U1-53= 5.0A LREF
6.	Press STOP to stop the operation. The RUN LED will be off when the converter comes to a complete stop.	

Procedure Example: Viewing Monitors

	Procedure	LCD Display
1.	DC Bus Voltage Reference display.	- MODE - DRV Rdy Volt Ref U1-51= 320V U1-52= 295V LSEQ U1-53= 0.0A LREF
2.	Press until the Monitor Menu display appears.	- MODE - DRV Rdy Monitor Menu U1-51= 320V U1-52= 295V U1-53= 0.0A
3.	Press ENTER to show the Monitor display.	-MONITR- DRV Rdy Monitor U1-51= 320V U1-52= 295V LSEQ U1-53= 0.0A LREF
4.	Press	-MONITR- DRV Rdy

Procedure Example: Display Language Selection

The display language can be changed with parameter A1-00 (Select Language).

Procedure	LCD Display
1. DC Bus Voltage Reference.	- MODE - DRV Rdy Volt Ref U1-51= 0330V U1-52= 295V U1-53= 0.0A
2. Press	-MODE- PRG Programming HELP DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization
4. Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG Select Language A1-00= ② *0* English "1"
5. Press \(\int \) to enter setting 1.	-PRMSET- PRG ゲンゴ (Language) A1-00= 1 *0* □ボンゴ (Japanese) "1"

		Procedure	LCD Display
6.	Press ENTER	and the option will display Japanese.	カキコミ カンリョウ

Procedure Example: Setting Parameters

The example below explains how to change the Deceleration Time parameter C1-20 to 20.0 sec from the default setting of 10.0 sec.

Procedure	LCD Display
DC Bus Voltage Reference display.	- MODE - DRV Rdy Volt Ref U1-51= 0330V U1-52= 295V U1-53= 0.0A
2. Press to select the Programming Mode.	-MODE- PRG Programming HELP DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language
4. Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG VRef Up Rate 1

	Procedure	LCD Display
5.	Press F1 F2	-PRMSET- PRG VRef Up Rate C1-20= 00 20.0sec (0.00~100.0) "10.0sec"
6.	Press to enter and store the new setting for C1-01.	Entry Accepted

Read/Copy Function Procedure

Read

Reads and saves parameter settings from the converter to the option.

Note: The option can perform the Read function an estimated 100,000 times.

Copy

Copies parameter settings from the option to another Yaskawa converter.

These parameters control the Copy function of the digital operator. The Copy function stores parameter settings into the memory of the digital operator to facilitate the transfer of those settings to other converters that are the same model, capacity, and same control mode setting.

Note: Parameter settings can only be copied to other converters that are the same model, capacity, and have the same control mode setting.

Verif

Verifies that parameter settings in the converter match the parameter settings saved to the option.

The following procedure is used to read parameters from the converter.

Note: Set parameter o3-02 (Read Allowable) to 1 (Enable) to read the parameter settings from the

converter.

Set parameter o3-02 to 0 (Disable) to protect the parameter settings in the option.

	Procedure	LCD Display
1.	DC Bus Voltage Reference display.	- MODE - DRV Rdy Volt Ref U1-51= 0330V U1-52= 295V
2.	Press to select the Programming Mode.	-MODE- PRG Programming HELP DATA
3.	Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language

	Procedure	LCD Display
4.	Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG Copy Funtion Sel o3-01= 0 *0* COPY SELECT
5.	Press to enter 1 (CNV> OP READ).	-PRMSET- PRG Copy Funtion Sel o3-01= 1 *0* CNV→OP READ "0" ← →
6.	Press and the option will read the parameter settings from the converter.	READ CNV→OP READING
7.	Automatically return to the Copy Function Selection display.	End READ COMPLETE

Connecting the Option to R1000

Menu Structure for Option

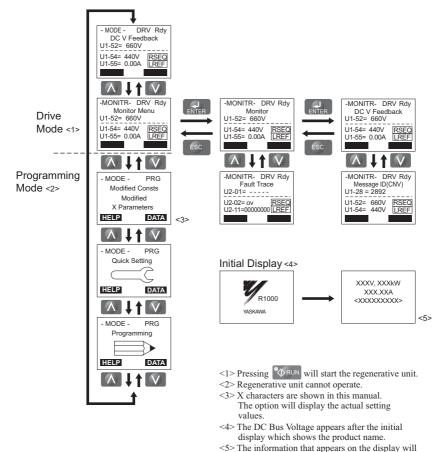


Figure 19 Option Menu Structure

vary depending on the regenerative unit. Note: Flashing characters are shown as **0**.

■ Example: Basic Operation

The following procedures are examples of regenerative unit operation using the option.

Note: Actual LCD display data varies based on regenerative unit parameter settings.

Procedure Example: RUN/STOP

Note: If b1-18 is not set to 0 (Operator), press



to set LOCAL.

Procedure Example: Viewing Monitors

	Procedure	LCD Display
1.	DC Bus Voltage display.	- MODE - DRV Rdy DC V Feedback U1-51= 320V U1-52= 295V U1-53= 0.0A
2.	Press until the Monitor Menu display appears.	- MODE - DRV Rdy Monitor Menu U1-51= 320V U1-52= 295V U1-53= 0.0A
3.	Press to show the Monitor display.	-MONITR- DRV Rdy Monitor U1-51= 320V U1-52= 295V U1-53= 0.0A LSEQ LREF
4.	Press \(\text{\text{N}} \) \(\text{\text{RESET}} \) to view the regenerative unit monitors.	-MONITR- DRV Rdy Last Fault U2-02= oPr U2-11= 0000000 [LSEQ U2-12= 0000000 LREF

Procedure Example: Display Language Selection

The display language can be changed with parameter A1-00 (Select Language).

Procedure	LCD Display
1. DC Bus Voltage.	- MODE - DRV Rdy DC V Feedback U1-51= 0330V U1-52= 295V LSEQ U1-53= 0.0A LREF
2. Press to select the Programming Mode.	-MODE- PRG Programming HELP DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language
4. Press F1 F2 \(\bigcap\) to select A1-00 and press \(\bigcap\).	-PRMSET- PRG Select Language A1-00= () *0* English "1"
5. Press to enter setting 1.	PRMSET- PRG ゲンゴ (Language) A1-00= 1 *0* 二ポンゴ (Japanese)

		Procedure	LCD Display
6.	Press ENTER	and the option will display Japanese.	カキコミ カンリョウ

Procedure Example: Setting Parameters

The example below explains how to change the Analog Output 1 Monitor Selection parameter H4-01 to 158 from the default setting of 157.

Procedure	LCD Display
1. DC Bus Voltage display.	- MODE - DRV Rdy DC V Feedback U1-51= 0330V U1-52= 295V U1-53= 0.0A LREF
2. Press to select the Programming Mode.	-MODE- PRG Programming HELP DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language
4. Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG Term FM FunSel

	Procedure	LCD Display
5.	Press F1 F2 \(\) to enter 158.	-PRMSET- PRG Term FM FunSel H4-01= 158*157* AC Frequency "157"
6.	Press to enter and store the new setting for C1-01.	Entry Accepted

Read/Copy Function Procedure

Read

Reads and saves parameter settings from the regenerative unit to the option.

Note: The option can perform the Read function an estimated 100,000 times.

Copy

Copies parameter settings from the option to another Yaskawa regenerative unit. These parameters control the Copy function of the digital operator. The Copy function stores parameter settings into the memory of the digital operator to facilitate the transfer of those settings to other regenerative units that are the same model, capacity, and same control mode setting.

Note: Parameter settings can only be copied to other regenerative units that are the same model, capacity, and have the same control mode setting.

Verif

Verifies that parameter settings in the regenerative unit match the parameter settings saved to the option.

The following procedure is used to read parameters from the regenerative unit.

Note: Set parameter o3-02 (Read Allowable) to 1 (Enable) to read the parameter settings from the regenerative unit.

Set parameter o3-02 to 0 (Disable) to protect the parameter settings in the option.

Procedure	LCD Display
DC Bus Voltage Reference display.	- MODE - DRV Rdy DC V Feedback U1-51= 0330V U1-52= 295V LSEQ U1-53= 0.0A LREF
2. Press to select the Programming Mode.	-MODE- PRG Programming HELP DATA
3. Press to show the Initialization display.	-PRMSET- PRG Initialization A1-00= 0 Select Language

Procedure	LCD Display
4. Press F1 F2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-PRMSET- PRG Copy Funtion Sel o3-01= 0 *0* COPY SELECT
5. Press to enter 1 (CNV> OP READ).	-PRMSET- PRG Copy Funtion Sel o3-01= 1 *0* CNV→OP READ "0" ← →
6. Press and the option will read the parameter settings from the converter.	READ CNV→OP READING
7. Automatically return to the Copy Function Selection display.	End READ COMPLETE

7 Related Parameters

Parameters related to the use of the option are listed in *Table 13*. Set these parameters as needed for the application.

Table 13 Related Parameters

		Unit				
No.	Name	A1000/ V1000	D1000	R1000	Description	Values
A1-00	Language Selection	YES	YES	YES	Language selection for the option. This parameter is not reset when the unit is initialized by parameter A1-03. 0: English 1: Japanese 2: German 3: French 4: Italian 5: Spanish 6: Portuguese 7: Chinese 8: Czech 9: Russian 10: Turkish 11: Polish 12: Greek Note: 1. To view information on the display in Czech (8), Russian (9), Turkish (10), Polish (11), or Greek (12), use option software version PRG: 0102 or later and A1000 drive software version PRG: 1018 or later. Those languages cannot be displayed on A1000 models 4A0930 or 4A1200. 2. When using an option with software version PRG: 0101 or later with a D1000 or R1000, only English (0), Japanese (1), and Chinese (7) are available. 3. When using an option with a V1000, only English (0), Japanese (1), German (2), French (3), Italian (4), Spanish (5), Portuguese (6), and Chinese (7) are available.	Default: 0 Range: 0 to 12

7 Related Parameters

		Unit				
No.	Name	A1000/ V1000	D1000	R1000	Description Value	Values
b1-01	Frequency Reference Selection 1	YES	N/A	N/A	Selects the source of the frequency reference. 0: Operator -Digital preset speed d1-01 to d1-17 1: Terminals - Analog input terminal A1 or A2 2: MEMOBUS/Modbus serial communications 3: Option PCB 4: Pulse Input (Terminal RP)	Default: 1 Range: 0 to 4
b1-02	Run Command Selection 1	YES	YES	YES	Selects the Run command input source. 0: Operator -RUN and STOP keys on the LCD Operator Option 1: Digital input terminals S1 to S7 2: MEMOBUS/Modbus serial communications 3: Option PCB	Default: 1 Range: 0 to 3
b1-15	Frequency Reference 2	YES	N/A	N/A	Selects the frequency reference input source. 0: Operator - Digital preset speed d1-01 to d1-17 1: Terminals - Analog input terminal A1 or A2 2: MEMOBUS/Modbus serial communications 3: Option PCB 4: Pulse Input (Terminal RP)	Default: 0 Range: 0 to 4
b1-16	Run Command Source 2	YES	N/A	N/A	Selects the Run command input source. 0: Operator - RUN and STOP keys on the LCD Operator Option 1: Digital input terminals S1 to S7 2: MEMOBUS/Modbus serial communications 3: Option PCB	Default: 0 Range: 0 to 3
b1-18	Voltage Reference Source	N/A	YES	N/A	Sets the input source for the DC bus voltage reference. 0: LED operator or LCD operator 1: Control circuit terminal (analog input) 2: MEMOBUS/Modbus communications 3: Option card 7: Input voltage based control 1 8: Input voltage based control 2	Default: 0 Range: 0 to 3, 7, 8
02-01	LOCAL/ REMOTE Key Function Selection	YES	YES	N/A	Enables/Disables the option LOCAL/ REMOTE key. 0: Disabled 1: Enabled	Default: 1 Range: 0, 1

			Unit				
No.	Name	A1000/ V1000	D1000	R1000	Description	Values	
02-02	STOP Key Function Selection	YES	YES	YES	Enables/Disables the operator panel STOP key when the unit is operated form external sources (not operator). 0: Disabled 1: Enabled	Default: 1 Range: 0, 1	
02-05	Frequency Reference Setting Method Selection	YES	N/A	N/A	Selects if the ENTER key press is required when inputting the frequency reference by the digital operator. 0: Data/Enter key must be pressed to enter a frequency reference. 1: Data/Enter key is not required. The frequency reference is adjusted by the up and down arrow keys.	Default: 0 Range: 0, 1	
02-06	Operation Selection when LCD Operator Option is Disconnected	YES	YES	YES	Sets unit action when the option is removed in LOCAL mode or with b1-02 = 0. 0: The drive, converter, or regenerative unit will continue operation. 1: The drive, converter, or regenerative unit will trigger a fault (oPr) and the motor will coast to stop.	Default: 0 Range: 0, 1	
03-01	Copy Function Selection	YES	YES	YES	This parameter controls the copying of parameters to and from the option. 0: COPY SELECT (no function) 1: All parameters are copied from the drive to the LCD Operator Option. 2: All parameters are copied from the LCD Operator Option to the drive, converter, or regenerative unit. 3: Parameter settings in the drive, converter, or regenerative unit are compared to those in the LCD Operator Option. Note: When using the copy function, the drive model number (o2-04), software number (U1-14), and control method (A1-02) must match or an error will occur.	Default: 0 Range: 0 to 3	
o3-02	Copy Allowable	YES	YES	YES	Enables or disables reading of unit parameter settings. 0: Disabled - Read not allowed 1: Enabled - Read allowed	Default: 0 Range: 0, 1	

8 Option Fault Diagnostics

Error Code and Connection Messages

Fault/Error code text will appear on the option display to indicate a specific fault. The fault codes in *Table 14* are displayed on the LED operator and/or the option displays. For information on the fault codes not listed in *Table 14*, refer to the unit manual.

When an option fault occurs, ensure that the communication cable is properly connected to the option and it is not loose.

Contact your nearest Yaskawa representative or sales department if the cable appears to be connect properly but still no message appears to indicate the error.

Note: If A1000, D1000, or R1000 is used, the fault codes are displayed on the option only.

Table 14 Fault/Error Code Displays

LCD Operator	LED Operator (V1000)	Description
<1>		Option is connected This is not an error message.
		This is not an error message. Occurs when the option is connected to the unit.
LCD Operator	LED Operator (V1000)	Description
CPF00		LCD Operator Option Communication Error 1
COM-ERR (OP&INV)		Occurs when the unit cannot communicate with the option within 5 seconds after the power is switched on.
Cau	se	Possible Solution
Communication cable be the unit is not properly c		Remove and reconnect the option.
Problem with the option.		Replace the option.
Problem with the control	circuit in the unit.	Cycle power to the unit. Replace the unit.
LCD Operator	LED Operator (V1000)	Description
CPF01		LCD Operator Option Communication Error 2
COM-ERR (OP&INV)	< <i>l</i> >	Occurs when the unit does not respond to the option for longer than 2 seconds.
Cau	se	Possible Solution
Connector on the option damaged.	cable is loose or	Remove and reconnect the option.
Problem with the option.		Replace the option.
Problem with the control	circuit in the unit.	Cycle power to the unit. Replace the unit.

LCD Operator	LED Operator (V1000)	Description
	oPr	LCD Operator Option Connection Fault
oPr Oper Disconnect	oPr	Data should appear on the LED operator. By reconnecting the option to the unit, data should also appear on option display. An oPr fault will occur when both of the following conditions are true: Output is interrupted when the option is disconnected (o $2-06=1$). The Run command is assigned to the option (b $1-02/b1-16=0$ and LOCAL is selected).
Cau	se	Possible Solution
Option is not properly co	onnected to the unit.	Check the connection between the option and the unit. Replace the cable if damaged. Turn off the unit input power and disconnect the option. Reconnect the option and reapply unit input power.

<1> Display will vary depending on operation status.

9 Specifications

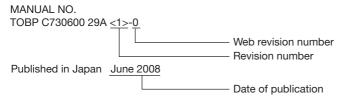
Table 15 Option Specifications

Model	JVOP-180			
Connector	RJ-45			
Power Supply	Powered from the unit (DC +5 V ±5%)			
Operating Temperature	-10 to +50°C (+14 to +122°F) < <i>I</i> >			
Humidity	up to 95% RH (no condensation)			
Storage Temperature	-20 to +60°C (-4 to +140°F) (allowed for short-term transport of the product)			
Area of Use	Indoor (free of corrosive gas, airborne particles, etc.)			
Altitude	Up to 1000 m (3280 ft.)			
Shock	10 to 20 Hz: 9.8 m/s ² 20 to 55 Hz: 5.9 m/s ²			
Read Function Limitation	Estimated 100,000 times			

<1> The LCD display may respond more slowly if the ambient temperature falls below freezing. Higher temperatures can also shorten the performance life of the LCD display.

10 Revision History

The revision dates and numbers of the revised manuals are given on the bottom of the back cover.



Date of Publication	Rev. No.	Web Rev. No.	Section	Revised Content		
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August 2025	<22>	0	Back cover	Revision: Address		
June 2025	<21>	0	-	Address in Japanese version.		
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April 2020	<19>	0	-	Address in Japanese version.		
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July 2016	<125	<13>	<12×	0	Front cover	Revision: Format
July 2016	<13>	U	Back cover	Revision: Address and format		
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			Back cover	Revision: Address		
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10 Revision History

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Assessed 2009	-25	-2>	~2>	<2>	0	All Chamtana	Revision: The title of the manual
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YASKAWA AC Drive 1000-Series Option

LCD Operator

Installation Manual

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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 Act 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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