

YASKAWA

COPY UNIT FOR VS-616G5 INSTRUCTIONS

MODEL: JVOP-135

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.



YASKAWA

MANUAL No. TOE-C736-40.17

PREFACE

The Copy Unit (model JVOP-135), an option for VS-616G5, can read constants from the VS-616G5, store the constants, and then write the constants to another VS-616G5. The exclusive-use extension cable (W5101 or W5103) are required when using the copy unit.

Read these instructions thoroughly before operation.

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General Precautions

- Some drawings in this manual are shown with the protective cover or shields removed, in order to describe detail with more clarity. Make sure all covers and shields are replaced before operating this product.
- This manual may be modified when necessary because of improvement of the product, modification, or changes in specifications. Such modifications are denoted by a revised manual No.
- To order a copy of this manual, if your copy has been damaged or lost, contact your YASKAWA representative.
- YASKAWA is not responsible for any modification of the product made by the user, since that will void your guarantee.

NOTES FOR SAFE OPERATION

Read this instruction manual and the manuals for inverter unit thoroughly before installation, operation, maintenance or inspection of the copy unit. In this manual, NOTES FOR SAFE OPERATION are classified as "WARNING" or "CAUTION".


WARNING

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

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to personnel and damage to equipment.

It may also be used to alert against unsafe practices.

Even items described in  CAUTION may result in a vital accident in some situations. In either case, follow these important notes.

CONNECTION WITH INVERTER

WARNING

(Ref. page)

- Disconnect all power before removing digital operator (JVOP-130). Then wait for the time described on warning label of the inverter after the power supply is disconnected and all LEDs are extinguished. Failure to observe this warning can result in an electrical shock. 5

HOW TO OPERATE COPY UNIT

WARNING

(Ref. page)

- Always turn OFF the control circuit terminal FWD and REV run command signals before entering the copy mode. Otherwise, the inverter may run the motor uncontrolled. 7

CAUTION

(Ref. page)

- All the constants of the inverter have been preset at the factory. Do not write-in the constants unnecessarily. The inverter may be damaged. 8

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1 CONNECTION WITH INVERTER

The exclusive-use extension cable (W5101 or W5103) are required when using the copy unit.



WARNING

- Disconnect all power before removing digital operator (JVOP-130). Then wait for the time described on warning label of the inverter after the power supply is disconnected and all LEDs are extinguished.
Failure to observe this warning can result in an electrical shock.

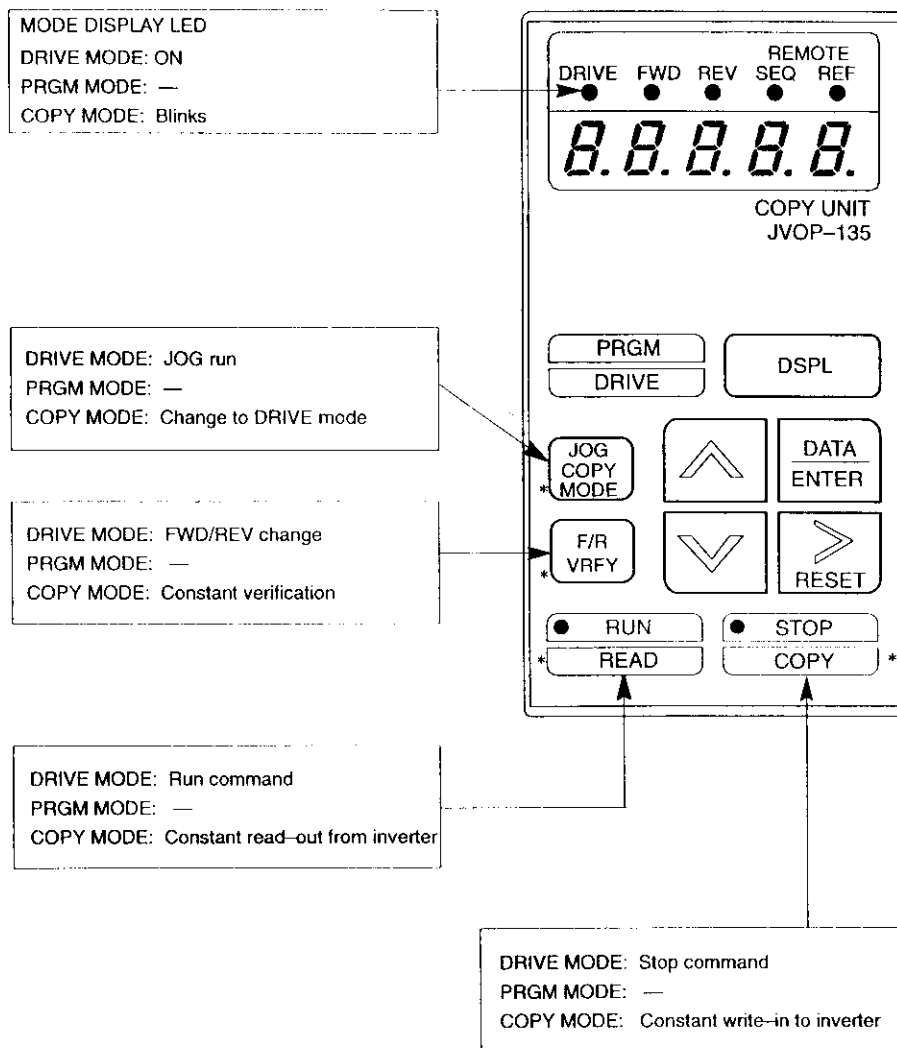
2 COPY UNIT SPECIFICATIONS

The followings show the copy unit specifications.

- (1) A backup power supply is not required because an E²PROM is used for data memory.
- (2) Can operate the inverter and monitor several items. For operation, set constant b1-02 to "0".
- (3) The copy function is possible only between VS-616G5 inverters of the same model and ratings. The function is disabled from the constant of VS-616G5 to the other inverter series (e.g. VS-616G3).
- (4) When the copy mode is selected, the following functions are available:
 - READ: Reads the constant settings from an inverter and stores them in the copy unit.
 - COPY: Writes stored constant settings into an inverter.
 - VRFY: Verifies constants between the inverter and copy unit.
- (5) The copy unit can store up to 1 set of constants for inverters.
- (6) The read prohibit switch on the back side of the copy unit can be used to prevent the changing of the data stored in the copy unit.
- (7) Constant settings can be written if the VS-616G5 inverter uses the same type of software. Different software constants cannot be written in.
Ex. Possible constant setting write-in
 - Standard software (S1040) ⇒ Standard software (S1041)
 - Crane use software (S5140) ⇒ Crane use software (S5141)Impossible constant setting write-in
 - Standard software (S1040) ⇒ Crane use software (S5140)

3 DESCRIPTION OF KEYS

The functions of keys change depending on the setting mode. Operate the copy unit after verifying the mode display LED as follows.




*Green key functions are enabled in the copy mode.

4 HOW TO OPERATE COPY UNIT

The copy unit will be in the drive mode when power is first applied to the inverter. This manual, only applies to the copy unit operation methods.



4.1 COPY MODE SELECTION

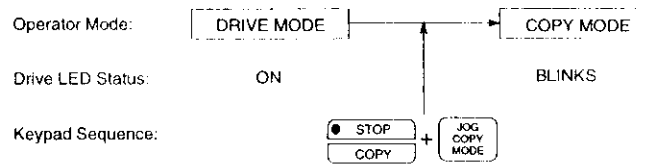







WARNING


- Always turn OFF the control circuit terminal FWD and REV run command signals before entering the copy mode. Otherwise, the inverter may run the motor uncontrolled.

The mode to operate the copy unit as a digital operator is called the drive mode, while the mode to read, write, and verify constants is called the copy mode.

The copy mode can be reached from the drive mode (when DRIVE LED is ON). The copy mode is enabled by depressing the  and  keys simultaneously. However, if the inverter has an E2PROM fault CPF03, the copy mode cannot be enabled. When the copy mode is enabled, the DRIVE LED will blink.



Description	Key Operation	Typical Display
· Displays drive mode.		
· Select copy mode.	 + 	 Blinks for one second.
· Displays copy mode.		


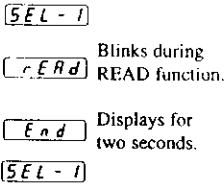
To return to the digital operator mode from the copy mode, depress the  key.

4.2 KEY OPERATION

(1) READ (Inverter → Copy Unit)

Constants are read from the inverter and stored in the E²PROM in the copy unit. When the read function is executed, the data which was stored in the copy unit are eliminated and the new constants are stored.

(Example) Storing Inverter Internal Constants in the Copy Unit.


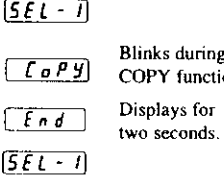
Description	Key Operation	Typical Display
· Displays copy mode. · Executes READ function. · Completes READ function. · Returns to copy mode display.	 Depress for two seconds.	

(2) COPY (Copy Unit → Inverter)

⚠ CAUTION
<ul style="list-style-type: none"> • All the constants of the inverter have been preset at the factory. Do not write in the constants unnecessarily. The inverter may be damaged.

Constants stored in the copy unit are copied to the inverter. The copy function is possible only between inverters of the same model and ratings.

(Example) Copy Constants Stored in the Copy Unit to Inverter.

Description	Key Operation	Typical Display
· Displays copy mode. · Executes COPY function. · Completes COPY function. · Returns to copy mode display.	 Depress for two seconds.	

(3) VRFY (Verification)

The copy unit's internal constants are verified (compared) with the inverter internal constants. The verification function is possible only between inverters of the same model and ratings. The verification function has modes VRFY 0 and 1.

(a) In the VRFY mode 0



When the constant data in the copy unit and the inverter are the same, the copy unit displays *vrFY* (blinking), *oE* (blinking), and then by depressing ENTER, returns to *SEL-1* display. When they are not the same, the copy unit displays *ng* (blinking).

(b) In the VRFY mode 1



When the constant data in the copy unit and the inverter are the same, the copy unit displays *vrFY* (blinking), and then *End*. When they are not the same, the copy unit displays the unmatched constant numbers.

VRFY mode 1 displays constants by reading from the inverter, so it requires a longer time than in VRFY mode 0.


(Example 1) Verify Constants Stored in Copy Unit with Inverter Internal Constants in VRFY mode 0.*

Description	Key Operation	Typical Display
· Displays copy mode.		<i>SEL-1</i>
· Executes VRFY function.	 Depress for two seconds.	<i>vrFY</i> Blinks during VRFY function.
· Displays NG when a constant is unmatched.		<i>ng</i> Displays NG blinking.
· Displays OK when all the constants are matched.		<i>oE</i> Displays OK blinking.
· Completes VRFY function.		<i>End</i> Displays for two seconds.
· Returns to copy mode display.		<i>SEL-1</i>


(Example 2) Verify Constants Stored in Copy Unit with Inverter Internal Constants in VRFY mode 1.*



Description	Key Operation	Typical Display
· Select copy mode.		<i>SEL-1</i> Blinks during VRFY function.
· Executes VRFY function	 Depress for two seconds.	<i>vrFY</i>
· Displays unmatched constant number.		<i>bl-01</i> Displays when a constant is unmatched. †
· Continues VRFY function.		<i>vrFY</i> Blinks during VRFY function.
· Completes VRFY function.		<i>End</i> Displays for two seconds.
· Returns to copy mode display.		<i>SEL-1</i>


















* Refer to par.4.2(4) "Memo Function" when selecting VRFY mode.





† By depressing the  key during unmatched constant number display, the VRFY mode function is canceled and the copy mode display is returned.

(4) Memo Function

When the  key is depressed while in the copy mode display, a 5-digit number (memo) is displayed. The user can set this number for identification purposes.


When the  key is depressed again, the voltage class and inverter capacity of the data are displayed. By depressing the  key again, the last 5 digits of the PROM number are displayed. When there is no data stored in the memory label, "na d R R" (NO DATA) is displayed.



Description	Key Operation	Typical Display
When data are stored in the memory:		
· Displays memo set by user.		 *
· Displays voltage class and inverter capacity.		 200V class 3-phase
· Displays PROM number.		 VSG101025
· Select VRFY mode.	  	 VRFY mode 0 †
· Returns to copy mode display.		
When there is no data stored in the memory:		
· Attempts to display memo.		 Blinks for three seconds.
· Returns to copy mode display.		

* 5 digits (00000 to 99999) can be set in copy mode by the user. During memo display, set the value by using the ,  or  key and depress the  key.

This value is stored in the E²PROM in the copy unit together with the constant data.

† Voltage class, inverter capacity.

Voltage class		Inverter capacity HP(kW)
2: 3-phase 200V		0P4: 0.5 (0.4)
4: 3-phase 400V		0P7: 1 (0.75)
		1P5: 2 (1.5)
		2P2: 3 (2.2)
		3P7: 5 (3.7)
		(P indicates a decimal point.)

‡ Select VRFY mode 0 (compares each block) or VRFY mode 1 (compares constant numbers) by using the ,  key. VRFY mode is initialized to 0 during READ function.

5 READ PROHIBIT SWITCH

A switch to prevent stored constants in the copy unit from being changed is provided on the back side of the copy unit. In the ON position, the constants data are protected. If the READ function is attempted with the switch in the ON position, an error message "PrEr" is displayed and blinks for three seconds.

6 LIST OF DISPLAY

Display	Description	Troubleshooting
SEL-1	Copy mode display	—
REAd	During READ function	—
CoPY	During COPY function	—
VRFY	During verification function	—
OK (VRFY OK)	Displays when the constant data in the copy unit and the inverter are the same in the VRFY mode 0.	—
NG (VRFY NG)	Diaplays when the constant data in the copy unit and the inverter are different in the VRFY mode 0.	—
noDATA (NO DATA)	No constant data stored in the copy mode are found.	Execute READ function.
PrEr (PROHIBIT SWITCH ERROR)	An attempt to read or verify was made when READ prohibit switch is ON.	Turn the switch to the OFF position to enable READ or VRFY function.
CRPEr (CAPACITY ERROR)	An attempt to copy or verify between different voltage classes or inverters was made.	Check inverter voltage class and maximum applicable motor output by using MEMO function.
CSEr (CHECK SUM ERROR)	A sum check error occurred.	Stored constants cannot be used. Re-try READ function.
E2PEr (E2PROM ERROR)	READ function was unsuccessful.	E2PROM error in the copy unit.
IFEr (I/F ERROR)	A communication error occurred with the inverter.	Check connection between the copy unit and the inverter.
CPYEr (COPY ERROR)	COPY function was unsuccessful.	Re-try COPY function. Check PROM No.
INvEr (INVERTER ERROR)	COPY function was unsuccessful.	Execute constant initialization in the program mode. If the same fault occurs again (E2PROM error), replace the inverter control board.
dErEr (DATA ERROR)	Constants that cannot be copied on E2PROM in the inverter.	Return the constant to the initialization and re-copy; change the constant after copying.

COPY UNIT FOR VS-616G5 INSTRUCTION MANUAL

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