
Note: Do not use this document to operate the Unit.

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Manual abstract:

Q. @@@@@@77088 U.S.A. Tel: (1)800-395-4106/Fax: (1)713-849-4666 OMRON ASIA PACIFIC PTE. LTD. 83 Clemenceau Avenue, #11-01, UE Square, Singapore 239920 Note: Specifications subject to change without notice. Tel:(65)6835-3011/Fax: (65)6835-2711 Cat.No.I905-E1-05 Printed in Japan 0204-1M Contents Features Applications Nomenclature Using Digital Operator The frequency adjuster on the front panel makes it possible to easily adjust the speed of the motor.

The Inverter can be operated immediately after the power is turned ON. 2 4 6 8 11 14 22 27 28 29 34 47 List of Parameters Function of Each Parameter Specifications Dimensions Standard Connections Protective and Diagnostic Functions Options Inverter Models There has been a great demand for inverters that provide easier motor speed control. OMRON's simple, compact 3G3JV Series meets the demand. The 3G3JV Inverters provide versatile functions and ensure powerful performance. The front panel of the 3G3JV Inverter has a frequency adjuster that makes it possible to start the motor and easily control the motor speed.

The 3G3JV Inverters are easy to mount and operate and support a wide range of applications for efficient motor control. The 3G3JV Inverter performs versatile speed control, such as multi-step speed control up to a maximum of nine steps, acceleration and deceleration (UP/DOWN) control, and jog operations. Furthermore, the 3G3JV Inverter provides a variety of useful functions, including slip compensation, overtorque detection, and speed search functions. This catalog provides information for the selection of models, but does not provide operational precautions. For information on the operation of the 3G3JV Inverters and operational precautions, be sure to read the operation manual.

The cooling fan can be easily mounted or dismounted. The cooling fan can also be turned on only when the 3G3JV Inverter is in operation, prolonging the life of the fan. The 3G3JV Inverter incorporates main circuit terminals arranged in two rows on the top and bottom of the housing, making it possible to mount the 3G3JV Inverter like a contactor. The optional DIN Track Mounting Bracket makes it possible to easily mount a 3G3JV Inverter to a DIN track. The 3G3JV Inverters are compact and space-saving to mount easily into a panel. The 3G3JV Inverter supports a variety of I/O, such as analog inputs between 0 and 10V, 4 to 20 mA, or 0 to 20 mA, multifunction I/O, and analog monitor outputs. Multi-function inputs can set to either PNP or NPN, providing flexibility in input signals. Actual Size Three-phase 100 W at 200 V 68 x 128 x 78.5 mm (W x H x D) Standard models meet CE and UL/cUL standards. C 2 3 Conventional Systems Relay contact welding occurs, which may put the system and operators in danger.

Furthermore, the life of the system is comparatively short. The system employs a gearbox for speed control, the designing and Breaker adjustment of which require time and labor. To ensure the safety of the system, the system needs peripheral safety Open-phase detection devices, the wiring of which requires time and labor. The motor always rotates at top speed, consuming a high amount of power. A strong shock is produced when the motor is driven, which may cause loads to shift, deteriorate the quality of products, or put the system and operators in danger. Contactor Three-phase inductive motor 3G3JV Inverter Solutions A 3G3JV Inverter has no mechanical relay contacts and thus allows a safe, long-life system operation. A 3G3JV Inverter performs versatile speed control, such as multi-step speed control for up to nine steps, acceleration and deceleration (UP/DOWN) control, and jog operations. A 3G3JV Inverter provides a variety of protective functions, such as a highspeed current limit, ground fault protection, and undervoltage protection. A 3G3JV Inverter drives the motor at flexible speeds within the rated speed range of the motor, thus reducing motor power consumption. A 3G3JV Inverter provides soft-start and soft-stop functions, preventing loads from shifting and deterioration of product quality, while ensuring the safety of the system.

A 3G3JV Inverter provides soft-start and soft-stop functions to prevent loads from shifting. Furthermore, a 3G3JV Inverter performs flexible speed control of the conveyor up to nine steps. A 3G3JV Inverter performs flexible speed control of a compact agitator or separator. Breaker 3G3JV Inverter Gear box Starter Current leakage detection Three-phase inductive motor Conventional Systems A strong shock results at the moment the motor is driven, which may cause load shifting, deteriorates the quality of products, or puts the system and operators in danger. The capacity of the motor is small.

Therefore, the rotation speed of the motor will drop if a speed reducer is used for the maintenance of the torque. The rotation of the motor fluctuates. Failures in the motor are not detected by the host controller. The types of available motors are limited. 3G3JV Inverter Solutions A 3G3JV Inverter provides soft-start and soft-stop functions, preventing loads from shifting and deterioration of product quality while ensuring the safety of the system.

The 3G3JV Inverters are available up to a maximum motor capacity of 3.7 kW and ensure smooth rotation speed and torque in the motor. A three-phase motor has less speed fluctuation compared with a singlephase motor, ensuring the safe operation of the system. A 3G3JV Inverter can report errors in contact outputs or data to a host controller, such as a Programmable Controller. A wide range of motors is available. A 3G3JV Inverter provides optimum control of fan speed according to the room temperature. The 3G3JV Inverter has no mechanical relay contacts, ensuring the safety and reliability of the system compared with the ON/OFF control of contactors. Optimum control of fan speed also saves energy. A 3G3JV Inverter provides multi-step speed control to open and close an electric shutter safely and efficiently. The shutter opens quickly at a high speed, but closes at a medium-range speed while the system checks the safety of the operation and decelerates to low speed before it is fully closed to prevent people from being caught by the shutter.

Breaker Breaker 3G3JV Inverter Three-phase inductive motor Gear box Speed controller 4 5 Nomenclature Panel Top protection cover: Remove this cover when wiring the upper terminal block. Upper terminal block: A terminal block on the input side of the main circuit. Digital Operator: Used to set parameters, perform various monitoring, and start and stop the Inverter. ALARM indicator: RUN indicator: Displays the operating status of the Inverter. Alarm (Red): Lights when an error occurs. Flashes when a warning occurs. RUN (Green): Flashes when no RUN command is input during normal status. Lights when a RUN command is input during normal status. Optional cover: Remove this cover when setting the input method selector.

Front cover: Remove this cover when wiring the upper or lower terminal block.
Front cover mounting screw: A screw for fixing the front cover. Lower terminal blocks: A terminal block on the output side of the main circuit and a terminal block for the control circuit. Bottom protection cover: Remove this cover when wiring the lower terminal blocks. 6 Nomenclature Digital Operator Data display Indicators (Setting/Monitor item indicators) Keys FREQ adjuster Appearance Name Data display Frequency adjuster Function Displays relevant data items, such as frequency reference, output frequency, and parameter set values. Sets the frequency reference within a range between 0 Hz and the maximum frequency.
Frequency reference indicator Output frequency indicator Output current indicator Multi-function monitor indicator Forward/Reverse selection indicator Local/Remote selection indicator Parameter setting indicator Mode Key The frequency reference can be monitored or set while this indicator is lit. The output frequency of the Inverter can be monitored while this indicator is lit. The output current of the Inverter can be monitored while this indicator is lit. The values set in U01 through U10 are monitored while this indicator is lit. The direction of rotation can be selected while this indicator is lit when operating the Inverter with the RUN Key.
The operation of the Inverter through the Digital Operator or according to the set parameters is selectable while this indicator is lit. (See note 1.) The parameters in n01 through n79 can be set or monitored while this indicator is lit. (See note 2.) Switches the setting and monitor item indicators in sequence. Parameter being set will be canceled if this key is pressed before entering the setting. Increases multi-function monitor numbers, parameter numbers, and parameter set values. Decreases multi-function monitor numbers, parameter numbers, and parameter set values. Enters multi-function monitor numbers, parameter numbers, and internal data values after they are set or changed. Starts the Inverter running when the 3G3JV is in operation with the Digital Operator.

Stops the Inverter unless parameter n06 is set to disable the STOP Key. Used to reset the Inverter when an error occurs. (See note 3.) Increment Key Decrement Key Enter Key RUN Key STOP/RESET Key Note: 1. The status of the local/remote selection indicator can be only monitored while the Inverter is in operation. Any RUN command input is ignored while this indicator is lit. 2. While the Inverter is in operation, the parameters can be only monitored and only some parameters can be changed. Any RUN command input is ignored while the parameter setting indicator is lit. 3.
For safety reasons, the reset function cannot be used while an operation instruction (forward/reverse) is being input. Turn the operation instruction OFF before using this function. 7 Using Digital Operator Selecting Indicators Power ON represents a lit indicator. Frequency reference Output frequency Output current Parameter settings Parameter n01 Local/Remote selection Remote mode Direction of rotation Forward Multi-function monitor Frequency reference Parameter n02 Local mode Reverse Output frequency Other parameters Other monitor items Note: If the power is turned OFF with the FOUT or IOUT indicator lit, the same indicator will light when the power is turned ON again. In other cases, the FREF indicator will light when the power is turned ON. Example of Frequency Reference Settings Flashing Key sequence Indicator Display example Explanation Power ON Note If the FREF indicator has not been lit, press the Mode Key repeatedly until the FREF indicator is lit. Use the Increment or Decrement Key to set the frequency reference. The data display will flash while the frequency reference is set. (see note 1) Press the Enter Key so that the set value will be entered and the data display will be lit. (see note 1) Note: The Enter Key need not be pressed when performing the setting for n08.
The frequency reference will change when the set value is changed with the Increment or Decrement Key while the data display is continuously lit. 8 Using Digital Operator Example of Multi-function Display Frequency reference DC bus voltage Monitor data Complete Key sequence Indicator Display Power ON Explanation Press the Mode Key repeatedly until the MNTR indicator is lit. U01 will be displayed. Use the Increment or Decrement Key to select the monitor item to be displayed. Press the Enter Key so that the data of the selected monitor item will be displayed. The monitor number display will appear again by pressing the Mode Key. Status Monitor Item U01 U02 U03 U04 U05 U06 Display Frequency reference Output frequency Output current Output voltage DC bus voltage Input terminal status p Display unit Hz Hz A V V --Function Monitors the frequency reference. (Same as FREF) Monitors the output frequency. (Same as FOUT) Monitors the output current. (Same as IOUT) Monitors the internal output voltage reference value of the Inverter.

Monitors the DC voltage of the internal main circuit of the Inverter. Shows the ON/OFF status of inputs. : Input ON : No input U07 Output terminal p status --- Not used Hz 1V 0.1 Hz 1V 0 0 0 0 0 0 0 60.0 200 (see note 1) 60.0 1.5 12 (see note 1) 1.5 12 (see note 1) 10.0 10.0 10.
0 10.0 No No No No No No No No No No No No No No 14 14 14 14 14 14 14 14 14 14 14 14 14 14 n16 n17 n18 n19 n20 n21 n22 n23 n24 n25 n26 n27 n28 n29 Acceleration time: The time required to go from 0% to 100% of the maximum frequency. Deceleration time: The time required to go from 100% to 0% of the maximum frequency. Note The actual acceleration or deceleration time is ob obtained from the following formula. Acceleration/Deceleration time = (Acceleration/Deceleration time set value) × (Frequency reference value) ÷ (Max.
frequency) Used to set S-shape acceleration/deceleration characteristics. U Used to set internal frequency references. q y Note Frequency reference 1 is enabled in remote mode with n03 for frequency reference selection set to 1 1. Note These frequency references are selected with mul multi-step speed references (multi-function input). See the reference pages for the relationship between multi-step speed references and frequency references.
ences 0.0 to 999 0.1 s Yes Yes Yes Yes No No No No No No No No No No 15 15 15 15 15 15 15 15 15 15 15 15 15 15 0 to 3 00 0.0 to max. frequency f 1 0 0.1 Hz 0 6.0 0.0 0.0 0.0 0.

0 0.0 0.0 0.0 6.0 Used to set the inching frequency command. Note: 1. With 400-class Inverters, the default settings and maximum values setting ranges for n10, n13, and n15 are double those given in the table. 2. Values longer than 3 digits are rounded up to the next unit multiple. 11 List of Parameters Parameter No.
n30 n31 n32 Name Description Setting range 0 to 110 0 to 110 0.0 to 120% of rated output current 0 to 2 1 to 60 0, 1 Unit of setting (see note) 1% 1% 0.

1 A Default setting 100 0 Varies with the capacity. 0 8 0 Changes during operation No No No Reference page 16 16 16 Frequency reference upper limit Frequency reference lower limit Rated motor current Used to set the upper and lower frequency reference limits in percentage based on the maximum frequency as 100% 100%. Used to set the rated motor current for motor overload detection (OL1) based on the rated motor current.
Note Motor overload detection (OL1) is disabled by setting the parameter to 0.0. Used to set the motor overload detection (OL1) for the electronic thermal characteristics of the motor. Used to set the electric thermal characteristics of the motor to be connected in 1-minute increments. Used to operate the Cooling Fan of the Inverter while the Inverter is turned on or only while the Inverter is in operation.
Used to select the functions of multi-function input terminals S2 through S5. n33 n34 n35 Motor protection characteristics Motor protective time setting Cooling fan operation function Multi-function input 1 (Input terminal S2) Multi-function input 2 (Input terminal S3) Multi-function input 3 (Input terminal S4) Multi-function input 4 (Input terminal S5) Multi-function output (MA/MB and MC output terminals) Frequency reference gain Frequency reference bias Analog frequency reference filter time Analog monitor output Analog monitor output gain Carrier frequency selection Momentary power interruption compensation Fault retry 1 1 min 1 No No No 16 16 16 n36 n37 n38 n39 n40 2 to 22 0 to 22 2 to 22 2 to 34 1 1 1 1 1 2 5 3 6 1 No No No No No 16 16 16 16 17 Used to select the functions of multi-function output terminals. Used to the input characteristics of analog frequency references. 0 to 7, 10 to 17 0 to 255 99 to 99 n41 n42 n43 n44 n45 n46 1% 1% 0.01 s 1 0.01 1 100 0 0.10 0 1.00 Varies with the capacity. 0 Yes Yes No No Yes No 17 17 17 17 17 18 Used to set the digital filter with a first-order lag for analog frequency references to be input. Used to set the output frequency or current as a monitored item.

Used to set the output characteristics of analog monitor output. Used to set the carrier frequency. 0.00 to 2.00 0, 1 0.00 to 2.00 1 to 4, 7 to 9 0 to 2 n47 Used to specify the processing that is performed when a momentary power interruption occurs. Used to set the number of times the Inverter is reset and restarted automatically in the case the Inverter has an overvoltage fault, overcurrent fault, or ground fault. Used to set the frequency j p function. q y jump Note These values must satisfy the following condition: n49 y n50 1 No 18 n48 0 to 10 1 0 No 18 n49 n50 n51 n52 n53 n54 n55 Jump frequency 1 Jump frequency 2 Jump width DC control current Interruption DC control time Startup DC control time Stall prevention during deceleration Stall prevention level during acceleration Stall prevention level during operation Frequency detection level 0.
0 to 400 0.0 to 400 0.0 to 400 0 to 100 0.0 to 25.5 0.
0 to 25.5 0.1 Hz 0.1 Hz 0.1 Hz 1% 0.
1 s 0.1 s 1 0.0 0.0 0.0 50 0.5 0.0 0 No No No No No No No 18 18 18 18 18 18 18 Used to impose DC on the induction motor for braking U p C g tl control. Used to select a function to change the deceleration time of the motor automatically so that there will be no overvoltage imposed on the motor during deceleration. Used to select a function to stop the acceleration of the motor automatically for stall prevention during acceleration. Used to select a function to reduce the output frequency of the Inverter automatically for stall prevention during operation.

Used to set the frequency to be detected. 0, 1 n56 30 to 200 1% 170 No 19 n57 30 to 200 1% 160 No 19 n58 0.0 to 400 0.1 Hz 0.0 No 19 Note: Values longer than 3 digits are rounded up to the next unit multiple. 12 List of Parameters Parameter No. n59 Name Description Setting range 0 to 4 1 Unit of setting (see note) Default setting 0 Changes during operation No Reference page 19 Overtorque detection function selection Overtorque detection level Overtorque detection time UP/DOWN command frequency memory Torque compensation gain Motor rated slip Used to enable or disable overtorque detection and select the processing method after overtorque detection. Used to set overtorque detection level. Used to set the detection time of overtorque. Used to store the adjusted frequency reference with the UP/DOWN function.
Used to set the gain of the torque compensation function. Used to set the rated slip value of the motor in use. n60 n61 n62 30 to 200 0.1 to 10.0 0, 1 1% 0.
1 s 1 160 0.1 0 No No No 19 19 20 n63 n64 0.0 to 2.5 0.0 to 20.
0 0.1 0.1 Hz 1.0 Varies with the capacity. Varies with the capacity. 0.0 2.0 --0 Yes Yes 21 21 n65 Motor no-load current Slip compensation gain Slip compensation time constant OMRON's control reference use Low-speed carrier frequency reduction selection O OMRON's control O reference use f Error log Used to set the no-load current of the motor in use based on the rated motor current as 100%. Used to set the gain of the slip compensation function. Used for the response speed of the slip compensation function.

Do not change the set value. Used to select a function to reduce the carrier frequency when Inverter is at low speed. Do not change the set value. g Used to display the latest error recorded. 0 to 99 1% No 21 n66 n67 n68 to n74 n75 0.0 to 2.5 0.0 to 25.5 --0.1 0.
1 0.1 s --1 Yes No --No 21 21 ----- n76 n77 n78 ----- ----- ----- ----- ----- Display Note Note n79 Software number " " will be displayed if no error has been recorded. This parameter is monitored only. ---------- Used to display the software number of the Inverter for OMRON's control reference use. Note This parameter is monitored only.
Note: Values longer than 3 digits are rounded up to the next unit multiple. 13 Function of Each Parameter Note: The shaded values indicate default settings. Parameter Write-prohibit Selection/Parameter Initialization (n01) This parameter makes it possible to write-prohibit parameters, change the parameter set or displayed range, or initialize all parameters to default values. Value 0 1 6 8 9 Description Only n01 can be displayed and set. The n02 through n79 parameters can be displayed only.
The n01 through n79 parameters can be displayed and set. Only the error log memory is cleared. Enables the initialization of all parameters in 2-wire sequence so that the parameters will return to default values. Enables the initialization of all parameters in 3-wire sequence. Reverse Rotation-prohibit Selection (n05) Select the operation to be performed when the reverse rotation command is input. Value 0 1 Description Reverse rotation possible (command accepted) Reverse rotation prohibited (command not accepted) STOP/RESET Key Function Selection (n06) When parameter n02 is set to 1, set whether or not to use the STOP/RESET Key of the Digital Operator to stop the Inverter in remote mode.

The STOP/RESET Key is always enabled in local mode regardless of the setting in n02. Value 0 1 Description The STOP/RESET Key of the Digital Operator is enabled. The STOP/RESET Key of the Digital Operator is disabled. Operation Mode Selection (n02) Select the method of operation mode input to start or stop the Inverter in remote mode.

Value 0 1 Description The RUN and STOP/RESET Keys of the Digital Operator are enabled. Multi-function input in 2- or 3-wire sequence through the control circuit terminals is enabled. Frequency Reference Selection (n07) (Local Mode) Select the input method of frequency references in local mode. Value 0 1 Description The FREQ adjuster of the Digital Operator is enabled. Key sequences on the Digital Operator are enabled. Note: In local mode, RUN commands can be entered using the Digital Operator only. Frequency Reference Selection (n03) (Remote Mode) Select the method for inputting the frequency reference to the Inverter in remote mode. Value 0 1 2 3 4 Description The FREQ adjuster of the Digital Operator is enabled. Frequency reference 1 (n21) is enabled. The frequency reference control terminal (for 0- to 10-V input) is enabled.
The frequency reference control terminal (for 4- to 20-mA current input) is enabled. The frequency reference control terminal (for 0- to 20-mA current input) is enabled. Key Sequential Frequency Setting (n08) Select whether to enable the Enter Key when setting the frequency reference with the Increment and Decrement Keys on the Digital Operator. Value 0 1 Description The Enter Key is enabled. (The setting is made valid by pressing the Enter Key.
) The Enter Key is disabled. (The setting is directly treated as a frequency reference without the Enter Key being pressed.) V/f Pattern Settings (n09 to n15) Set the V/f pattern as the basic characteristic of the Inverter with output voltage per frequency set. Value n09 n10 n11 n12 n13 n14 n15 Name Maximum Frequency (FMAX) Maximum Voltage (VMAX) Maximum Voltage Frequency (FA) Middle Output Frequency (FB) Middle Output Frequency Voltage (VC) Minimum Output Frequency (FMIN) Minimum Output Frequency Voltage (VMIN) Setting range 50.0 to 400 1 to 255 0.
2 to 400 0.1 to 399 1 to 255 0.1 to 10.0 1 to 50 Unit of setting 0.1 Hz 1V 0.1 Hz 0.1 Hz 1V 0.1 Hz 1V Default settings 60.0 200 60.0 1.

5 12 1.5 12 Interruption Mode Selection (n04) Select the stopping method to be used when the STOP command is input. Value 0 1 Description Frequency deceleration stop (Decelerates to stop in preset time.) Free running (Output shut OFF by STOP command.) 14 Function of Each Parameter Note: For n09, n11, and n12, the unit of setting is as follows: Values will be set in 0.1-Hz increments if the frequency is less than 100 Hz and 1-Hz increments if the frequency is 100 Hz or greater. Output voltage (V) n10 Setting the Frequency References 1 to 8 and the Inching Frequency Command (n21 to n28 and n29) Set internal frequency references. Value Name Setting range 00 0.0 to max. frequency f Unit of setting 0 0.
1 Hz (see note (t 1) Default settings 6.0 0.0 0.0 0.0 0.
0 0.0 0.0 0.0 6.0 n21 n22 n23 n24 Frequency reference 1 Frequency reference 2 Frequency reference 3 Frequency reference 4 Frequency reference 5 Frequency reference 6 Frequency reference 7 Frequency reference 8 Inching frequency command n13 n25 n26 n27 n15 Frequency (Hz) Note: 1.
Set the parameters so that the following condition will be satisfied. n14 x n12 < n11 x n09 2. The value set in n13 will be ignored if parameters n14 and n12 are the same in value. n28 n29 Note: Acceleration/Deceleration Time Settings (n16 to n19) The acceleration time is the time required to go from 0% to 100% of the maximum frequency and the deceleration time is the time required to go from 100% to 0% of the maximum frequency. The actual acceleration or deceleration time is obtained from the following formula. Acceleration/Deceleration time = (Acceleration/Deceleration time set value) × (Frequency reference value) ÷ (Max. frequency) Value Name Setting range 00 0.0 to 999 Unit of setting 0 0.1 s Default settings 10.0 10.

0 10.0 10.0 1. Values will be set in 0.1-Hz increments if the frequency is less than 100 Hz and 1-Hz increments if the frequency is 100 Hz or over. 2. Frequency reference 1 is enabled with n03 for frequency reference selection set to 1. (Remote mode) 3. Frequency references 1 to 8 are enabled by setting multistep speed references 1, 2, and 3 in n36 to n39 for multi-function input. Refer to the following table for the relationship between multi-step speed references 1 to 3 and frequency references 1 to 8.
Multi-step speed reference 1 OFF ON OFF ON OFF ON OFF ON Multi-step speed reference 2 OFF OFF ON ON OFF OFF ON ON Multi-step speed reference 3 OFF OFF OFF OFF ON ON ON ON Frequency reference Frequency reference 1 Frequency reference 2 Frequency reference 3 Frequency reference 4 Frequency reference 5 Frequency reference 6 Frequency reference 7 Frequency reference 8 n16 n17 n18 n19 Acceleration time 1 Deceleration Time 1 Acceleration time 2 Deceleration Time 2 S-shape Acceleration/Deceleration Characteristic (n20) Any one of three S-shape acceleration/deceleration times (0.2, 0.5, and 1.0 s) is selectable. Value 0 1 2 3 Description No S-shape acceleration/deceleration characteristic (Trapezoidal acceleration/deceleration) S-shape acceleration/deceleration characteristic time is 0.
2 s S-shape acceleration/deceleration characteristic time is 0.5 s S-shape acceleration/deceleration characteristic time is 1.0 s Note: 1. "ON" and "OFF" represent "input ON" and "input OFF," respectively. 2.
Inching frequency commands take precedence over multistep speed references. Note: When the S-shape acceleration/deceleration characteristic time is set, the acceleration and deceleration times will be lengthened according to the S-shape at the beginning and end of acceleration/deceleration. 15 Function of Each Parameter Frequency Reference Upper and Lower Limit Settings (n30 and n31) Set the upper and lower frequency reference limits in percentage based on the maximum frequency as 100%. Value n30 n31 Name Frequency Reference Upper Limit Frequency Reference Lower Limit Setting range 0 to 110 0 to 110 Unit of setting 1% 1% Default settings 100 1 0 Cooling Fan Operation Function Selection (n35) This parameter is used to operate the cooling fan of the Inverter while the Inverter is turned on or only while the Inverter is in operation. Value 0 Description The fan rotates only while the RUN command is input and for 1 minute after the Inverter stops operating. The fan rotates while the Inverter is turned ON. Note: Note: If n31 is set to a value less than the minimum output frequency (FMIN) (n14), the Inverter will have no output when a frequency reference less than the minimum output frequency input is ON. 1. This parameter is available only if the Inverter incorporates a cooling fan. 2.

If the operation frequency of the Inverter is low, the life of the fan can be prolonged by setting the parameter to 0.

Multi-function Input Selection (n36 to n39) Select the functions of multi-function input terminals S2 to S5. Value n36 n37 n38 n39 Name Multi-function Input 1 (S2) Multi-function Input 2 (S3) Multi-function Input 3 (S4) Multi-function Input 4 (S5) Function Forward/Reverse rotation command Setting range 2 to 8, 10 to 22 0, 2 to 8, 10 to 22 2 to 8, 10 to 22 2 to 8, 10 to 22, 34 Unit of setting 1 1 1 1 Default settings 2 5 3 6 Rated Motor Current Setting (n32) Set the rated motor current as the reference value for motor overload detection (OL1). Note: 1. Setting 0.0 disables the motor overload detection (OL1) function. 2. The rated motor current value is factory-set for each Inverter according to the maximum applicable motor capacity. Name Rated Motor Current Setting range 0.0% to 120% (A) of rated output current of Inverter Unit of setting 0.

1 A Default settings Varies with the capacity. Value n32 Value 0 Description 3-wire sequence (to be set in n37 only) This setting overrides the n36 setting. S1: RUN input (RUN when ON) STOP input (STOP when OFF) Forward/Reverse rotation command (ON: Reverse) Motor Protection Characteristic Selection (n33) Set the motor overload detection (OL1) for the electronic thermal characteristics of the motor. Value 0 1 2 Description Protection characteristics for general-purpose induction motors Protection characteristics for Inverter-dedicated motors No protection 2 3 4 5 S2: S3: Reverse/Stop External fault (NO) External fault (NC) Fault reset Reverse rotation command (2-wire sequence) (ON: Reverse) ON: External fault OFF: External fault ON: Fault reset Note Disabled while RUN command is input Signals to select frequency references 1 to 8. Note: When connecting multiple motors to one Inverter, set 2 (equivalent to n32 = 0.

0). In addition, take overload prevention measures by mounting a thermal relay in each motor, for example. 6 Motor Protective Time Setting (n34) 7 Multi-step speed reference 1 Multi-step speed reference 2 Multi-step speed reference 3 Inching frequency command Acceleration/Deceleration time selection External base block command (NO) External base block command (NC) Search command (Searching starts from maximum frequency) Set the electronic thermal characteristics of the motor to be connected in 1-minute increments. Value n34 Name Motor Protective Time Setting Setting range 1 to 60 Unit of setting 1 min Default settings 8 8 10 11 ON: Inching frequency command ON: Acceleration/deceleration time 2 Note: 1. The default setting does not need any changes in normal operation.

2. To set the parameter according to the characteristics of the motor, confirm the thermal time constant with the motor manufacturer and set the parameter with some margin. In other words, set the value a little shorter than the thermal time constant. 3. To detect motor overloading more quickly, reduce the set value, provided that it does not cause any application problems. 12 13 14 ON: Output shut OFF (while motor coasting to a stop and "bb" flashing) OFF: Output shut OFF (with motor free running and "bb" flashing) ON: Speed search (Searching starts from n09) 16 Function of Each Parameter Value 15 Function Search command (Searching starts from preset frequency) Acceleration/Deceleration-prohibit command Local or remote selection Emergency stop fault (NO) Emergency stop alarm (NO) Emergency stop fault (NC) Emergency stop alarm (NC) Up or down command Description ON: Speed search (Searching starts from the frequency specified by n03.) 15 16 UV in progress Rotating in reverse direction Speed search in progress ON: Undervoltage being monitored (main circuit undervoltage UV or UV1 detected) ON: Rotating in reverse direction 16 ON: Acceleration/Deceleration is on hold 17 ON: Speed search in progress 17 19 ON: Local mode (operated with the Digital Operator) The Inverter stops according to the setting in n04 for interruption mode selection when the emergency stop input turns ON. Note NO: Emergency NO Emergenc stop with the conith con tact closed. NC: Emergency stop with the contact opened. Note Fault: Fault output is ON and reset with RESET input.

Alarm output is ON (no reset required). "STP" is displayed (lit with fault input ON and flashes with alarm input ON) Note: Use "operation in progress" or "frequency detection 1/2" for the timing of the external brake. Gain and Bias Settings (n41 and n42) Set the input characteristics of analog frequency references in n41 (for the frequency reference gain) and n42 (for the frequency reference bias). Set the frequency of maximum analog input (10 V or 20 mA) in n41 as percentage based on the maximum frequency as 100%. Set the frequency of minimum analog input (0 V, 0 mA, or 4 mA) in n42 as percentage based on the maximum frequency as 100%. Value n41 n42 Name Frequency Reference Gain Frequency Reference Bias Setting range 0 to 255 99 to 99 Unit of setting 1% 1% Default settings 100 0 20 21 22 Note 34 Up or down command (set in n39 only) This setting overrides the n38 setting. S4: Up command S5: Down command Multi-function Output Selection (n40) Select the functions of multi-function output terminals. Value Name Setting range 0 to 7, 10 to 17 1 Unit of setting Default settings 1 Analog Frequency Reference Filter Time Setting (n43) The digital filter with a first-order lag can be set for analog frequency references to be input. Value Name Analog Frequency Reference Filter Time Setting range 0.00 to 2.

00 Unit of setting 0.01 s Default settings 0.10 n40 Multi-function Output (MA/ MB and MC) Function Fault output Operation in progress Frequency detection Idling Frequency detection 1 Frequency detection 2 Overtorque being monitored (NO-contact output) Overtorque being monitored (NC-contact output) ((Not used)) Alarm output Base block in progress RUN mode Inverter ready Fault retry Function Value 0 1 2 3 4 5 6 Description ON: Fault output ON: Operation in progress ON: Frequency detection ON: Idling ON: Output frequency y frequency detection level (n58) ON: Output frequency x frequency detection level (n58) Output if any of the following parameter conditions is satisfied. · Overtorque detection function selection (n59) · Overtorque detection level (n60) · Overtorque detection time (n61) Note NO contact: ON with overtorque being detected; NC contact: OFF with overtorque being detected 0 1 n43 Analog Monitor Output Setting (n44) Set a monitored item for analog monitor output. Value Description Output frequency (Reference: 10 V at max. frequency) Output current (Reference: 10 V with rated output current) Note: The values in parentheses are applicable when n45 is set to 1.00. 7 Analog Monitor Output Gain Setting (n45) Set the output characteristics of analog monitor output. Value n45 Name Analog Monitor Output Gain Setting range 0.00 to 2.

00 Unit of setting 0.

01 Default settings 1.00 8 9 10 11 12 13 14 Value --ON: Alarm being detected (Nonfatal error) ON: Base block in progress ON: Local mode ON: Inverter ready to operate ON: Fault retry Description 17 Function of Each Parameter Carrier Frequency Selection (n46) Set the carrier frequency. Value 1 2 3 4 7 8 9 2.5 kHz 5.0 kHz 7.5 kHz 10.0 kHz 2.5 kHz (12×): 12 times as high as output frequency (between 1.0 and 2.

5 kHz) 2.5 kHz (24×): 24 times as high as output frequency (between 1.0 and 2.5 kHz) 2.5 kHz (36×): 36 times as high as output frequency (between 1.0 and 2.5 kHz) Description Output frequency n51 n50 n49 Reference frequency DC Control Functions (n52 to n54) Used to impose DC on the induction motor for braking control. Note: Normally, the factory setting need not be changed. Value Name Momentary Power Interruption Compensation (n47) The parameter specifies the processing that will be performed when a momentary power interruption occurs. Value 0 1 2 Disabled.
The Inverter will continue operating if power is restored within 0.5 s. The Inverter will restart when power is restored. Description Setting range 0 to 100 0.0 to 25.
5 0.0 to 25.5 Unit of setting 1% 0.1 s 0.1 s Default settings 50 0.
5 0.0 n52 n53 n54 DC Control Current Interruption DC Control Time Startup DC Control Time DC Control Current: Set this value in percentage based on the rated output current of the Inverter as 100%. Output frequency Fault Retry (n48) Set the number of times the Inverter is to be automatically reset and restarted when the Inverter has an overvoltage fault, overcurrent fault, or ground fault. Value Name Setting range 0 to 10 1 Unit of setting Default settings 0 FMIN (n14) Time n54 n53 n48 Fault Retry Frequency Jump Function (n49 to n51) Set the frequency jump function. Value n49 Name Jump Frequency 1 Setting range 0.0 to 400 Unit of setting 0.1 Hz (see note 1) 0.1 Hz (see note 1) 0.1 Hz Default settings 0.0 Stall Prevention during Deceleration (n55) Select a function to change the deceleration time of the motor automatically so that there will be no overvoltage imposed on the motor during deceleration.

Value 0 0.0 1 Description Stall prevention during deceleration No stall prevention during deceleration n50 Jump Frequency 2 0.0 to 400 n51 Jump Width 0.0 to 25.5 0.0 Output frequency Note: 1. Values will be set in 0.1-Hz increments if the frequency is less than 100 Hz and 1 Hz-increments if the frequency is 100 Hz or greater. 2. Make settings so that n49 y n50.
Deceleration time is controlled to prevent overvoltage. Time Deceleration time (Set value) 18 Function of Each Parameter Stall Prevention Level during Acceleration (n56) Set the operation level of a function to stop the acceleration of the motor automatically for stall prevention during acceleration. Set this value in percentage based on the rated output current of the Inverter as 100%. Value n56 Name Stall Prevention Level during Acceleration Setting range 30 to 200 Unit of setting 1% Default settings 170 2 Overtorque Detection Function Selection (n59 to n61) Set n59 to enable or disable overtorque detection and select the processing to be performed after overtorque detection. Value 0 1 Description Inverter does not monitor overtorque.
Inverter monitors overtorque only when speed is matched. It continues operation (issues warning) even after overtorque is detected. Inverter monitors overtorque only when speed is matched. It discontinues operation (through protective function) when overtorque is detected. Inverter always monitors overtorque during operation.
It continues operation (issues warning) even after overtorque is detected. Inverter always monitors overtorque during operation. It discontinues operation (through protective function) when overtorque is detected. Stall Prevention during Acceleration Output current n56 3 4 Time Output frequency The output frequency is controlled so that the Inverter will not stall. Time Set the overtorque detection level in n60 and the overtorque detection time in n61. Value Name Setting range 30 to 200 0.1 to 10.0 Unit of setting 1% 0.1 s Default settings 160 0.1 Stall Prevention Level during Operation (n57) Select the operation level of a function to reduce the output frequency of the Inverter automatically for stall prevention during operation.

Set this value in percentage based on the rated output current of the Inverter as 100%. Value n57 Name Stall Prevention Level during Operation Setting range 30 to 200 Unit of setting 1% Default settings 160 n60 n61 Overtorque Detection Level Overtorque Detection Time Note: 1. In n60, set the overtorque detection level in percentage based on the rated output current of the Inverter as 100%. 2. In n61, set the overtorque detection time in 0.1-s increments. See note. n60 Overtorque Detection Output current Stall Prevention during Operation Time Output current n57 Overtorque detection (NO) Time Output frequency The output frequency is controlled so that the Inverter will not stall. Time n61 Time Note: Overtorque detection will be canceled if the output current decreases from the detection level by approximately 5% of the Inverter rated current. Frequency Detection Level (n58) Set the frequency to be detected.
Note: When frequency detection 1 and 2 are to be output, n40 (multi-function output) must be set. Value n58 Name Frequency Detection Level Setting range 0.0 to 400 Unit of setting 0.1 Hz Default settings 0.0 19 Function of Each Parameter UP/DOWN Command Frequency Memory Selection (n62) Select whether to store the frequency reference adjusted with the UP/DOWN function.
Value 0 1 Description The frequency on hold is not retained. The frequency on hold for 5 s or more is retained. Use n62 (UP/DOWN command frequency memory) to set whether the frequency reference on hold is stored or not when an UP or DOWN command is sent to the multi-function input terminals. If n62 is set to 1, the output frequency held by the UP/DOWN function for 5 s or more will be stored in the memory. This value will be stored in memory even if power is interrupted.
When a RESET command is input, operation will start with this value as the frequency. If n62 is set to 0, the frequency will be cleared. If parameter initialization is performed (i.e.: n01 is set to 8 or 9), the stored frequency will be initialized. Note: If the UP/DOWN function is used in remote mode, frequency references can only be given with UP/DOWN commands and inching commands. Multi-step speed references will be invalid. The UP/DOWN function uses UP and DOWN commands to change frequency references. When using the UP/DOWN function, set multi-function input 4 (n39) to 34 (UP or DOWN command). The terminals for multifunction input 3 (S4) and multi-function input 4 (S5) will be set to function in the following way: Multiple-function input 3 (S4): UP command Multiple-function input 4 (S5): DOWN command Operation of UP/DOWN Function RUN command (Forward rotation) UP command (S4) Time Time DOWN command (S5) Time Output frequency Upper limit Lower limit Time Status Frequency detection Status U: UP (acceleration) D: DOWN (deceleration) H: Hold U1: Frequency acceleration restricted by upper limit.

D1: Frequency deceleration restricted by lower limit. Time 20 Function of Each Parameter Torque Compensation Gain (n63) Set the gain of the torque compensation function. Note: Normally, the factory setting need not be changed. Value n63 Name Torque Compensation Gain Setting range 0.0 to 2.5 Unit of setting 0.1 Default settings 1.0 Slip Compensation Functions (n64 to n67) In n64, set the rated slip value of the motor in use. In n65, set the no-load current of the motor in use based on the rated motor current as 100%. In n66, set the gain of the slip compensation function.
In n67, set the response speed of the slip compensation function. Value n64 n65 n66 n67 Name Motor Rated Slip Motor No-load Current Slip Compensation Gain Slip Compensation Time Constant Setting range 0.0 to 20.0 0 to 99 0.0 to 2.
5 0.0 to 25.5 Unit of setting 0.1 Hz 1% 0.1 0.
1 s Default settings Varies ith the with th capacity. 0.0 2.0 Note: If 0.0 is set for n66, the slip compensation function will be disabled. 21 Specifications Specifications 3p 3-phase 200-V 200 V AC models Model 3G3JVPower supply l Rated voltage and frequency Allowable voltage fluctuation Allowable frequency fluctuation Input power supply capacity (kVA) (see note 1) Heat radiation (W) (see note 2) Weight (kg) Cooling method Sg p Single-phase 200-V 200 V AC models Model 3G3JVPower supply l Rated voltage and frequency Allowable voltage fluctuation Allowable frequency fluctuation Input power supply capacity (kVA) (see note 1) Heat radiation (W) (see note 2) Weight (kg) Cooling method A2001 15% to 10% ±5% 0.4 13.0 0.5 0.9 18.

0 0.5 1.6 28.1 0.8 2.7 45.1 0.9 Cooling fan AB002 AB004 AB007 AB015 ----4.3 72.8 1.
3 5.9 94.8 1.5 9.3 149.
1 2.1 A2002 A2004 A2007 A2015 A2022 A2037 3-phase 200 to 230 V AC at 50/60 Hz Natural cooling AB001 15% to 10% ±5% 0.5 14.1 0.5 0.
9 20.0 0.5 1.6 31.9 0.9 Single-phase 200 to 240 V AC at 50/60 Hz 2.7 51.4 1.5 4.3 82.

8 1.5 Cooling fan ------- ------- Natural cooling Note: 1. The power supply capacity, is the capacity when the Inverter is operating at its rated output. The value will vary with the impedance at the input power supply side. (Because the power factor of the input power supply changes, the power factor will improve if an AC reactor is inserted.) The ratio with the rated current of the motor used and the rated output current of the Inverter will vary. 2. The "heat radiation" is the power consumed in the Inverter when it is operating at its rated output. Max. applicable motor capacity (kW) Output Op ifi ti specifications Rated output capacity (kW) Rated output current (A) Rated output voltage (V) Max.
output frequency C Control characteristics h t i ti Harmonic-current countermeasures Control method Carrier frequency Frequency control range Frequency precision (temperature characteristics) Frequency setting resolution Output frequency resolution Overload capacity External frequency set signal Acceleration/deceleration time Braking torque Voltage/frequency characteristics Protective functions f ti Motor protection Instantaneous overcurrent protection Overload protection Overvoltage protection Undervoltage protection Momentary power interruption compensation (selection) Cooling fin overheating Grounding protection Charge indicator (RUN indicator) 0.1 0.3 0.8 0.2 0.
6 1.6 0.4 1.1 3.0 0.
75 1.9 5.0 1.5 3.0 8.0 2.2 4.2 11.0 3.7 6.

7 17.5 3-phase 200 to 230 V AC (according to the input voltage) 400 Hz parameter setting DC reactor (option) connection possible Sine wave PWM (V/f control) 2.5 to 10.0 kHz (in vector control) 0.1 to 400 Hz Digital commands: ±0.01% (10°C to 50°C) Analog commands: ±0.5% (25°C ± 10°C) Digital commands: 0.1 Hz (less than 100 Hz) and 1 Hz (100 Hz or over) Analog commands: 0.06 Hz/60 Hz (equivalent to 1/1000) 0.01 Hz (calculated resolution) 150% of rated output current for 1 min Selectable with FREQ adjuster: 0 to 10 V DC (20 k), 4 to 20 mA (250), and 0 to 20 mA (250) 0.
0 to 999 s (Independent acceleration and deceleration time settings) Approx. 20% Set a user V/f pattern Protection by electronic thermal Stops at approx. 250% of rated output current Stops in 1 min at approximately 150% of rated output current Stops when main-circuit DC voltage is approximately 410 V Stops when main-circuit DC voltage is approximately 200 V (160 V for single-phase 200-V AC model) Stops for 15 ms or more. By setting the Inverter to momentary power interruption mode, operation can be continued if power is restored within approximately 0.5 s.
Detects at 110°C ± 10°C Protection at rated output current level Lit when the main circuit DC voltage is approximately 50 V or less. 22 Specifications Environment Location Ambient temperature Ambient humidity Ambient temperature Altitude Insulation resistance Vibration resistance Degree of protection @@(with no condensation) 20°C to 60°C 1,000 m max. 5 M min. @@between 10 to 20 Hz 2.0 m/s2 max.
between 20 and 50 Hz Panel-mounting models: Conforms to IP20 23 Specifications 3-phase 3p 400 V AC 400-V models Model 3G3JVPower supply l Rated voltage and frequency Allowable voltage fluctuation Allowable frequency fluctuation Input power supply capacity (kVA) (see note 1) Heat radiation (W) (see note 2) Weight (kg) Cooling method A4002 15% to 10% ±5% 1.3 23.1 1.0 Natural cooling 1.9 30.1 1.1 3.6 54.9 1.5 5.

1 75.7 1.5 Cooling fan 5.9 83.0 1.5 9.1 117.9 2.1 A4004 A4007 A4015 A4022 A4037 3-phase 380 to 460 V AC at 50/60 Hz Note: 1. The power supply capacity, is the capacity when the Inverter is operating at its rated output.
The value will vary with the impedance at the input power supply side. (Because the power factor of the input power supply changes, the power factor will improve if an AC reactor is inserted.) The ratio with the rated current of the motor used and the rated output current of the Inverter will vary. 2. The "heat radiation" is the power consumed in the Inverter when it is operating at its rated output.
Max. applicable motor capacity (kW) Op Output specifications ifi ti Rated output capacity (kW) Rated output current (A) Rated output voltage (V) Max. output frequency Control C h t i ti characteristics Harmonic-current countermeasures Control method Carrier frequency Frequency control range Frequency precision (temperature characteristics) Frequency setting resolution Output frequency resolution Overload capacity External frequency set signal Acceleration/deceleration time Braking torque Voltage/frequency characteristics Protective functions f ti Motor protection Instantaneous overcurrent protection Overload protection Overvoltage protection Undervoltage protection Momentary power interruption compensation (selection) Cooling fin overheating Grounding protection Charge indicator (RUN indicator) Environment Location Ambient temperature Ambient humidity Ambient temperature Altitude Insulation resistance Vibration resistance Degree of protection 0.2 0.9 1.
2 0.4 1.4 1.8 0.75 2.6 3.4 1.5 3.7 4.8 2.

2 4.2 5.5 3.7 6.6 8.6 3-phase 380 to 460 V AC (according to the input voltage) 400 Hz parameter setting DC reactor (option) connection possible Sine wave PWM (V/f control) 2.

5 to 10.0 kHz (in vector control) 0.1 to 400 Hz Digital commands: ±0.01% (10°C to 50°C) Analog commands: ±0.
5% (25°C ± 10°C) Digital commands: 0.1 Hz (less than 100 Hz) and 1 Hz (100 Hz or over) Analog commands: 0.06 Hz/60 Hz (equivalent to 1/1000) 0.01 Hz (calculated resolution) 150% of rated output current for 1 min Selectable with FREQ adjuster: 0 to 10 V DC (20 k), 4 to 20 mA (250), and 0 to 20 mA (250) 0.0 to 999 s (Independent acceleration and deceleration time settings) Approx.
20% Set a user V/f pattern Protection by electronic thermal Stops at approx. 250% of rated output current Stops in 1 min at approximately 150% of rated output current Stops when main-circuit DC voltage is approximately 820 V Stops when main-circuit DC voltage is approximately 400 V Stops for 15 ms or more. By setting the Inverter to momentary power interruption mode, operation can be continued if power is restored within approximately 0.5 s. Detects at 110°C ± 10°C Protection at rated output current level Lit when the main circuit DC voltage is approximately 50 V or less.
@@(with no condensation) 20°C to 60°C 1,000 m max. 5 M min. @@between 10 to 20 Hz 2.0 m/s2 max. @@3G3JV-A2j: Ground at a resistance of 100 or less. 3G3JV-ABj: Ground at a resistance of 100 or less. 3G3JV-A4j: Ground at a resistance of 10 or less. @@@@@@3-phase power supply output for driving motors. @@@@@@@Stops at OFF. @@a 30 V DC 1 A max.

@@at 0 to 10 V DC Note: 1. Functions in parentheses are default settings. 2. @@An external power supply is not required. @@@@0.5 Approx. 0.5 Approx. 0.8 Approx.
0.9 Approx. 0.5 Approx. 0.
5 Approx. @@1.3 Approx. 1.5 Approx.
1.5 Approx. 1.5 Approx. 1.0 Approx. 1.1 Approx. 1.5 Approx.

1.5 Approx. @@2.1 Approx. @@@@2. @@@@@@When the Inverter detects a fault, the fault code will be displayed on the Digital Operator, the fault contact output will operate, and the Inverter output will be shut off causing the motor to coast to a stop. The stopping method can be selected for some faults, and the selected stopping method will be used with these faults. If a fault has occurred, refer to the following table to identify and correct the cause of the fault. Use one of the following methods to reset the fault after restarting the Inverter. If the operation command is being input, however, the reset signal will be ignored.
Therefore, be sure to reset the fault with the operation command turned off. · Turn on the fault reset signal. A multi-function input (n36 to n39) must be set to 5 (Fault Reset). · Press the STOP/RESET Key on the Digital Operator. · Turn the main circuit power supply off and then on again.
Fault Displays and Processing Fault display %c Fault name and meaning Overcurrent (OC) The Inverter output current is as high as or higher than 200% of the rated output current. Probable cause and remedy · A short-circuit or ground fault has occurred and at the Inverter output. Check and correct the motor power cable. Reduce the V/f set voltage. Reduce the motor capacity to the maximum permissible motor capacity.
Rearrange the sequence so that the magnetic contactor will not open or close while the Inverter has current output. Replace the Inverter. Increase the deceleration time. Decrease the voltage so it will be within specifications. Suppress the overshooting as much as possible. · The V/f setting is incorrect. · The motor capacity is too large for the Inverter. · The magnetic contactor on the output side of the Inverter has been opened and closed. · The output circuit of the Inverter is damaged. %U Overvoltage (OV) The main circuit DC voltage has reached the overvoltage detection level (200-V models: 410 V DC min.

; 400-V models: 820 V DC min.). uU1 Main circuit undervoltage (UV1) The main circuit DC voltage has reached the undervoltage detection level (200 V DC for the 3G3JV-A2j, 160 V DC for the 3G3JV-ABj, and 400 V DC for the 3G3JV-A4j). · The deceleration time is too short. · The power supply voltage is too high. · There is excessive regenerative energy due to overshooting at the time of acceleration. · Power supply to the Inverter has phase loss, power input terminal screws are loose, or the power cable is disconnected. %h Radiation fin overheated (OH) The temperature of the radiation fins of the Inverter has reached 110_C ± 10_C. Check the above and take necessary countermeasures. Make sure that the power supply voltage is within specifications.
Use the momentary power interruption compensation (Set n47 so that the Inverter restarts after power is restored) Improve the power supply. Change the Inverter. Ventilate the Inverter or install a cooling unit. Reduce the load. Decrease the Inverter capacity.
Reduce the V/f set voltage. Increase the acceleration/deceleration time. Change the location of the Inverter to meet the installation conditions. Replace the cooling fan. · Incorrect power supply voltage · Momentary power interruption has occurred.
· The internal circuitry of the Inverter is damaged. · The ambient temperature is too high. · The load is excessive. · The V/f setting is incorrect. · The acceleration/deceleration time is too short. · The ventilation is obstructed. · The cooling fan of the Inverter does not work. 29 Protective and Diagnostic Functions Fault display %l1 Fault name and meaning Motor overload (OL1) The electric thermal relay actuated the motor overload protective function. · The load is excessive. Reduce the load.

Decrease the Inverter capacity. Reduce the V/f set voltage. Check the motor nameplate and set n11 to the rated frequency. Increase the acceleration/deceleration time. Check the motor nameplate and set n32 to the rated current. Disable the motor overload detection function and install an electronic thermal relay for each of the motors. The motor overload detection function is disabled by setting n32 to 0.0 or n33 to 2. Set n34 to 8 (the default value). Reduce the load.
Reduce the V/f set voltage. Increase the acceleration/deceleration time. Use an Inverter model with a higher capacity. Check the mechanical system and correct the cause of overtorque. Adjust the n60 and n61 parameters according to the mechanical system.
Increase the set values in n60 and n61. Probable cause and remedy · The V/f setting is incorrect. · The value in n11 for maximum voltage frequency is low. · The acceleration/deceleration time is too short. · The value in n32 for rated motor current is incorrect.
· The Inverter is driving more than one motor. · The motor protective time setting in n34 is short. %l2 Inverter overload (OL2) The electronic thermal relay has actuated the Inverter overload protective function. %l3 Overtorque detection (OL3) There has been a current or torque the same as or greater than the setting in n60 for overtorque detection level and that in n61 for overtorque detection time.

A fault has been detected with n59 for overtorque detection function selection set to 2 or 4. gf Ground fault (GF) The ground fault current at the output of the Inverter has exceeded the rated output current of the Inverter. efj External fault j (EFj) An external fault has been input from a multi-function input. A multi-function input 1, 2, 3, or 4 set to 3 or 4 has operated. The EF number indicates the number of the corresponding input (S2 to S5). f00 Digital Operator transmission fault 1 (F00) An initial memory fault has been detected f01 Digital Operator transmission fault 2 (F01) A ROM fault has been detected.

f04 Initial memory fault (F04) An error in the built-in EEPROM of the Inverter has been detected. f05 Analog-to-digital converter fault (F05) An analog-to-digital converter fault has been detected. f07 Digital Operator fault (F07) An error in the built-in control circuit of the Digital Operator has been detected. · The load is excessive. · The V/f setting is incorrect. · The acceleration/deceleration time is too short. · The Inverter capacity is insufficient. · The mechanical system is locked or has a failure. · The parameter settings were incorrect. · A ground fault has occurred at the Inverter output.
Check the connections between the Inverter and motor and reset the fault after correcting its cause. · An external fault was input from a multi-function input. Remove the cause of the external fault. Check and change the external fault input sequence including the input timing and NO or NC contact. · The sequence is incorrect.
· The internal circuitry of the Inverter has a fault. Turn the Inverter off and on. Replace the Inverter if the same fault occurs again. · The internal circuitry of the Inverter has a fault. Turn the Inverter off and on.
Replace the Inverter if the same fault occurs again. Initialize the Inverter with n01 set to 8 or 9 and turn the Inverter off and on. Replace the Inverter if the same fault occurs again. Turn the Inverter off and on. Replace the Inverter if the same fault occurs again. · The internal circuitry of the Inverter has a fault. · The internal circuitry of the Inverter has a fault. · The internal circuitry of the Digital Operator has a fault. Turn the Digital Operator off and on. Replace the Digital Operator if the same fault occurs again.

30 Protective and Diagnostic Functions Fault display ce Fault name and meaning Communications time-over (CE) Normal RS-422A/485 communications were not established within 2 s. The Inverter will detect this error if n68 (RS-422A/485 communications time-over detection selection) is set to 0, 1, or 2. Check and correct the line. Set the termination resistance of only the Inverter located at each end of the network to ON. Do not wire the communications line along with power lines in the same conduit. Use the twisted-pair shielded wire for the communications line, and ground it at the Master. Check and correct the program so that communications will be performed more than once every 2-s period. If the same error is detected as a result of a self-diagnostic test, change the Inverter. Remove the cause of the fault. Check and change the external fault input sequence including the input timing and NO or NC contact. Probable cause and remedy · A short-circuit, ground fault, or disconnection has occurred on the communications line. · The termination resistance setting is incorrect. · Noise influence. · Master's program error. · Communications circuit damage.
Emergency stop (STP) An emergency stop alarm is input to a multi-function input. (A multi-function input 1, 2, 3, or 4 set to 19 or 21 has operated.) OFF Power supply error · Insufficient power supply voltage · Control power supply fault · Hardware fault · An emergency stop alarm is input to a multi-function input. · The sequence is incorrect. · No power supply is provided.
Check and correct the power supply wire and voltage. Check and tighten the terminal screws. Replace the Inverter. · Terminal screws are loosened. · The Inverter is damaged. Warning Detection (Nonfatal Error) The warning detection is a type of Inverter protective function that does not operate the fault contact output and returns the Inverter to its original status once the cause of the error has been removed. The Digital Operator flashes and display the detail of the error. If a warning occurs, take appropriate countermeasures according to the table below. Note: Some warnings or some cases stop the operation of the Inverter as described in the table. Fault display uU (flashing) Warning name and Meaning Main Circuit Undervoltage (UV) The main circuit DC voltage has reached the undervoltage detection level (200 V DC for the 3G3JV-A2j, 160 V DC for the 3G3JV-ABj, and 400 V DC for the 3G3JV-A4j).

Main Circuit Overvoltage The main circuit DC voltage has reached the overvoltage detection level (200-V models: 410 V DC min.; 400-V models: 820 V DC min.). Radiation fin overheated (OH) The temperature of the radiation fins of the Inverter has reached 110_C ± 10_C. Communications standby (CAL) No normal DSR message has been received during RS-422A/4895 communications. The Inverter detects this warning only when RUN command selection (n02) is set to 2 or frequency reference selection (n03) is set to 6. Until the warning is reset, no input other than communications input will be ignored. Overtorque detection (OL3) There has been a current or torque the same as or greater than the setting in n60 for overtorque detection level and that in n61 for overtorque detection time. A fault has been detected with n59 for overtorque detection function selection set to 1 or 3. Probable cause and remedy · Power supply to the Inverter has phase loss, power input terminal screws are loose, or the power line is disconnected.
Check the above and take necessary countermeasures. Make sure that the power supply voltage is within specifications. · Incorrect power supply voltage · The power supply voltage is too high. Decrease the voltage so it will be within specifications. %U (flashing) %h (flashing) · The ambient temperature is too high. Ventilate the Inverter or install a cooling unit. cal (flashing) · A short-circuit, ground fault, or disconnection has occurred on the communications line. Check and correct the line. Set the termination resistance of only the Inverter located at each end of the network to ON. Check the start of communications and correct the program.
If a CAL or CE error is detected as a result of a self-diagnostic test, change the Inverter. Check the mechanical system and correct the cause of overtorque. Adjust the n60 and n61 parameters according to the mechanical system. Increase the set values in n60 and n61. · The termination resistance setting is incorrect.