

GRAPHIC OPERATION TERMINAL

GOT1000

START-UP GUIDE

GT1020/GT1030-to-FR-S 500/(E) Inverter



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Ver. A

Overview:

This document provides a simple guide to setting up the GT1020 or GT1030 Graphic Operation Terminal (GOT) hardware and firmware for use with an FR-S 500/(E) Inverter.

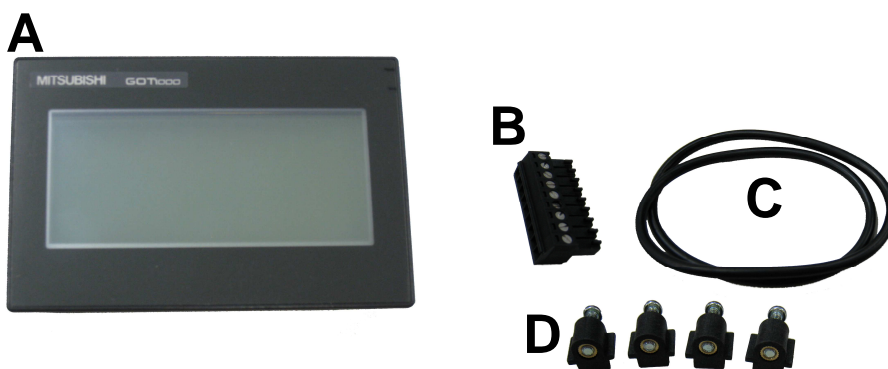
Hardware Introduction:

The GT1020 and GT1030 are monochrome, 3-color backlight, two communication channel GOT1000 Series touch panel interfaces used for capturing user input to a system.

It should be noted that not all products from the GT1020 or GT1030 range are compatible with a FREQROL inverter connection. Compatible products are identified in the table below:

Model	Size	Extension	Backlight Colors	Comm. IF	Power
GT1020	3.7" 160 x 64 dot	LBD	Green/Orange/Red	RS-422	24V DC
		LBDW	White/Pink/Red	RS-422	
GT1030	4.5" 288 x 96 dot	LBD	Green/Orange/Red	RS-422	24V DC
		LBDW	White/Pink/Red	RS-422	

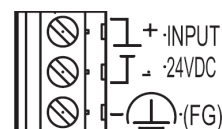
For new GT1020 and GT1030 units, included in the box should be the GT1020/GT1030 (A), 1 PLC Communication Connector (B), 1 rubber Panel Mounting Packing (C), and 4 Panel Mounting Brackets (D).



Cabling:

Power

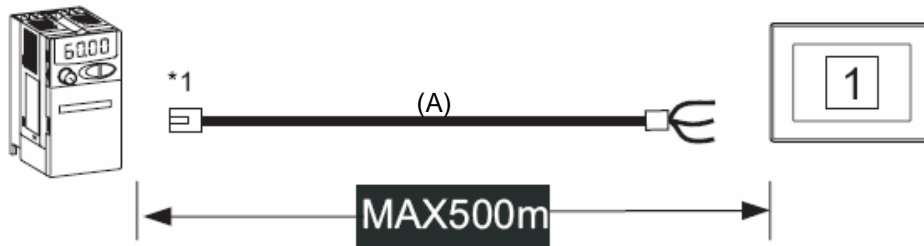
The applicable GT1020/GT1030 GOTs, require an external 24V DC power supply to be connected to the Power Terminal on the back of the GOT.



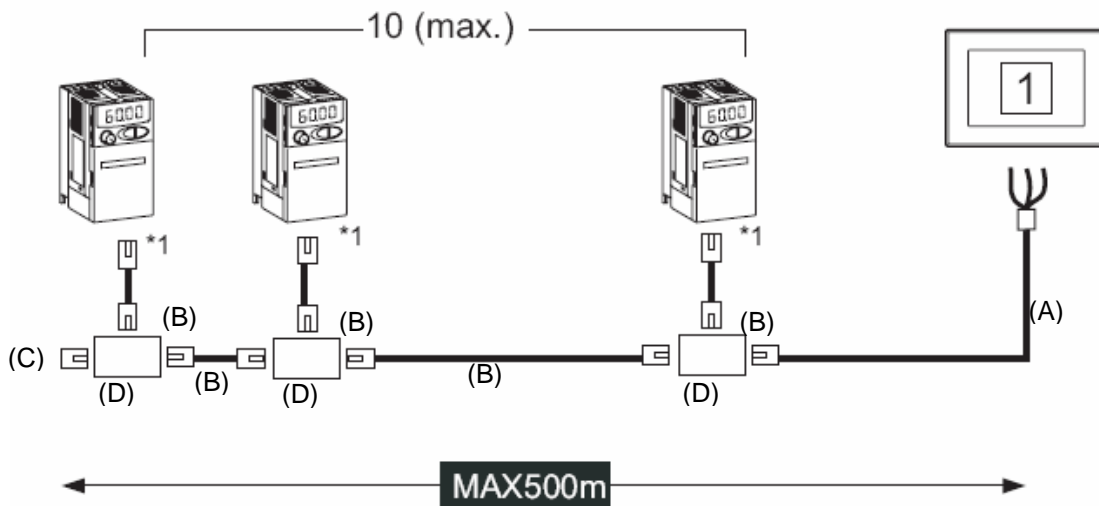
Communication

For the GT1020/GT1030 to communicate with the inverter, a communication cable is required. The type of cable used is dependent on the number of inverters used within the system, examples of which are illustrated below.

One inverter:

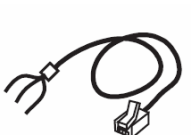
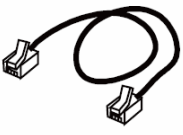




Multi-drop connection:



*1 Connect to the PU port of the inverter.

Key:

<p>(A)</p>  <p>RS-422 • Between inverter and GOT</p>	<p>(B)</p>  <p>RS-422 Between distributor and inverter or between distributors</p>	<p>(C)</p>  <p>RS-422 Mounting a terminating resistor</p>	<p>(D)</p>  <p>Distributor</p>
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* Cables to be made by user

** For direct wiring to RS-485 terminal blocks refer to respective product manual.

GOT → Inverter Wiring Diagrams

(A)

GOT side (terminal block)	Cable connection and signal direction	Inverter side or distributor side (Modular connector)		
Signal name		Pin No.	Signal name	Pin layout ^{*1}
SDA		3	RDA	
SDB		6	RDB	
RDA		5	SDA	
RDB		4	SDB	
SG		1	SG	
RSA		2	P5S	
RSB		7	SG	
CSA		8	P5S	
CSB				

(B)

Distributor side (Modular connector)			Cable connection and signal direction	inverter side or distributor side (Modular connector)		
Pin layout ^{*1}	Signal name	Pin No.		Pin No.	Signal name	Pin layout ^{*1}
	SDA	5		5	SDA	
	SDB	4		4	SDB	
	RDA	3		3	RDA	
	RDB	6		6	RDB	
	P5S	2		2	P5S	
	P5S	8		8	P5S	
	SG	1		1	SG	

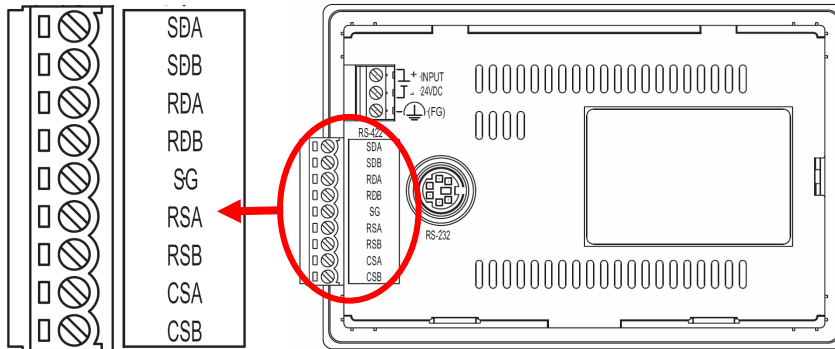
(C)

Distributor side			Cable connection and signal direction
Pin layout ^{*1}	Signal name	Pin No.	
	SDA	5	
	SDB	4	
	RDA	3	
	RDB	6	
	P5S	2	
	P5S	8	
	SG	1	

*1 The connector figure shows the engagement face.

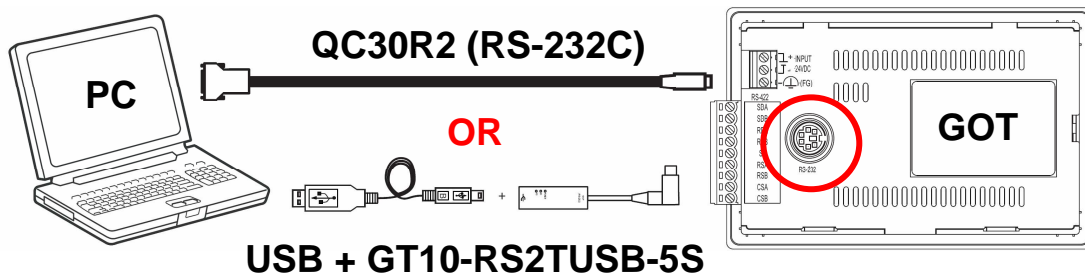
GOT Terminals

The GT1020/GT1030 is fitted with screw terminals, use a small flathead screwdriver to secure the wires within the PLC Communication Connector. Terminal points are illustrated below:



Programming Cables:

The GT1020 and GT1030 come pre-installed with an OS and FX communication driver, but without any project data. To download a project from a PC running GT Designer2 to the GOT, a programming cable is required that connects to the RS-232C 6-pin Mini-DIN port on the back of the GOT. It is recommended to use a shielded USB A-type to Mini-B type cable with a ferrite core paired with the GT10-RS2TUSB-5S, but any RS-232C programming cable for the Q-Series will also work fine. A diagram of both is shown below.



Note that using the GT10-RS2TUSB-5S will require a virtual USB COM port driver to be installed on the PC. The COM port number can be automatically or manually assigned so that it does not overlap with the existing COM port numbers assigned on that PC. When using a Q-Series programming cable, the COM port number already assigned to the RS-232C interface of the PC will have to be checked.

GT Designer 2

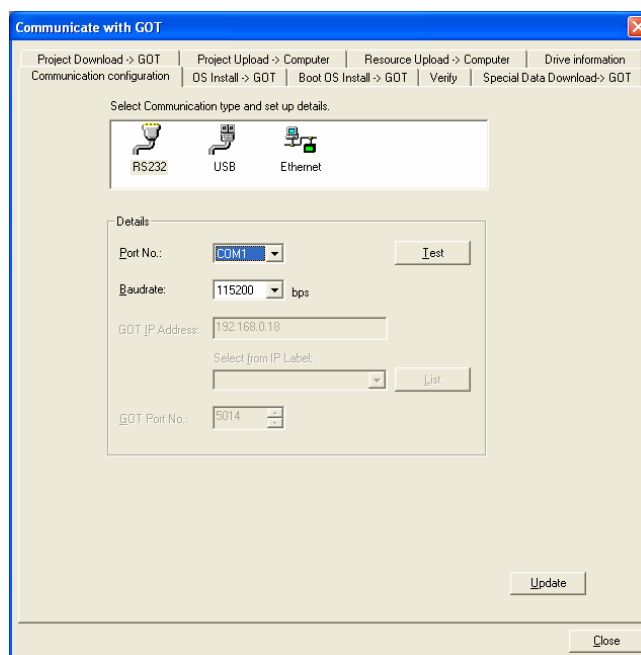
(Version 2.73 or later)

To make sure the GT1020/GT1030 GOT is able to use the latest functions and features, it is the responsibility of the user to check and update the firmware (Standard monitor OS) of the GOT.



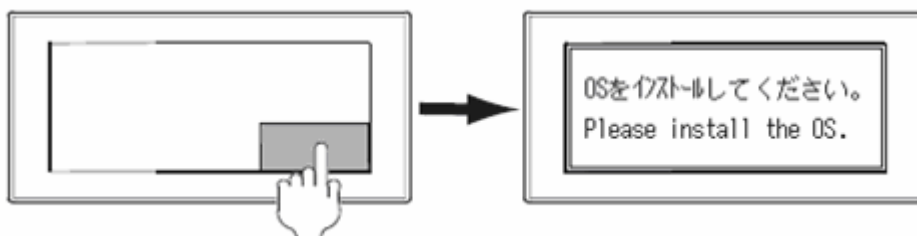
Launch the latest copy of GT Designer2 and start a new project for the corresponding GOT model (GT1020 or GT1030) with the “FREQR0L500/700” Inverter Type. Select “Yes” to set the Communication Setting and make sure the Standard I/F-1 CH No. is set to 1 before selecting “OK”. The “Screen Property” window that pops up for making a new screen can be either canceled or accepted for the following steps.

Go to the “Communication” menu and select “To/From GOT” to bring up the “Communicate with GOT” window. Go to the “Communication configuration” tab and select “RS232” and the corresponding “Port No.” that connects the PC to the GOT. With the GOT power ON, use the “Test” button to verify that the PC and GOT can communicate properly then turn the GOT power OFF.



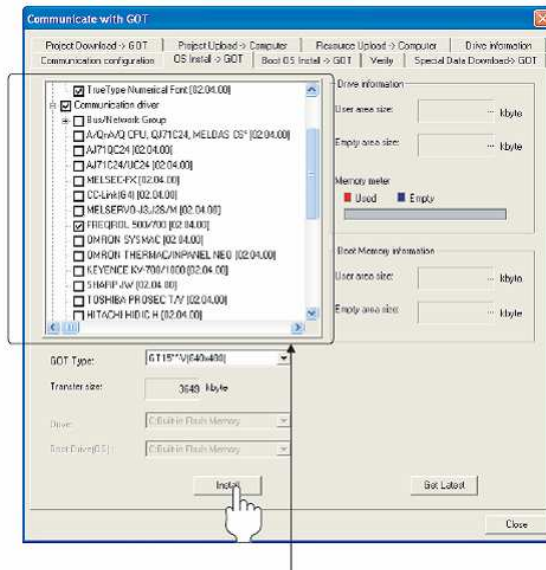
Installing OS and Communication Drivers

To access the OS installation mode of the GT1020/GT1030, switch the GOT power from OFF to ON, while holding the bottom right corner of the touch screen (in Horizontal layout), illustrated below:



While the “Please install the OS” screen is displayed, go to the “OS Install -> GOT” tab in the “Communicate with GOT” window of GT Designer2 and select “Standard monitor OS” and select ‘FREQR0L 500/700’ from the ‘Communication Driver’ menu. Use the “Install” button to initiate the data transfer and update the firmware. Once the firmware update has been

completed the GOT will automatically reboot and all features will be up to date. Note that new project data will need to be downloaded to the GOT.



Select the following under communication driver

Inverter Settings

When setting the inverter communication parameters it is important to reset the power afterwards so that the settings are saved to the inverter.

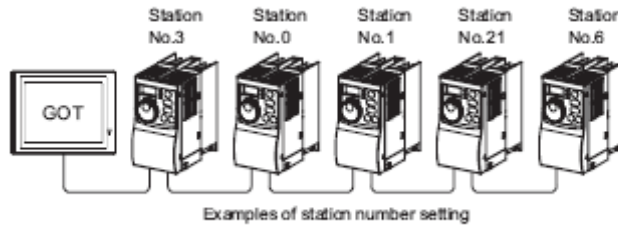
The parameters shown in the following table must be set using the PU (Parameter Unit). Set Pr.30 (Extended function selection) to 1 "With display" before making the parameter settings.

Note: Do not change these parameters, even though it is possible to monitor them through the GOT. If they are changed, communication with the GOT is disabled.

Setting item	Parameter	Set Value	Setting Contents
Communication Station number	n1	1-31	See following section
Communication Speed	n2	192	19200bps
Stop bit length	n3	10	Data length: 7bit Stop bit length: 1bit
Parity check presence/absence	n4	1	Odd
Number of Communication retries	n5	-	The inverter will not come to an alarm stop.
Communication check time interval	n6	-	Communication check suspension
Wait time setting	n7	0	0ms
CR/LF selection	n11	1	With CR, without LF
Protocol selection	-	-	-
Operation mode selection	Pr.79	0	External operation mode power on
Link start mode selection	n10	1	Computer link operation
EEPROM write selection	n12	0	Written to RAM and EEPROM

Station Setting

Set each station number while making sure that each station number is used only once. The station number can be set regardless of the cable connection order. Station numbers do not have to be consecutive. The setting of the Station number has to be between 0-31.



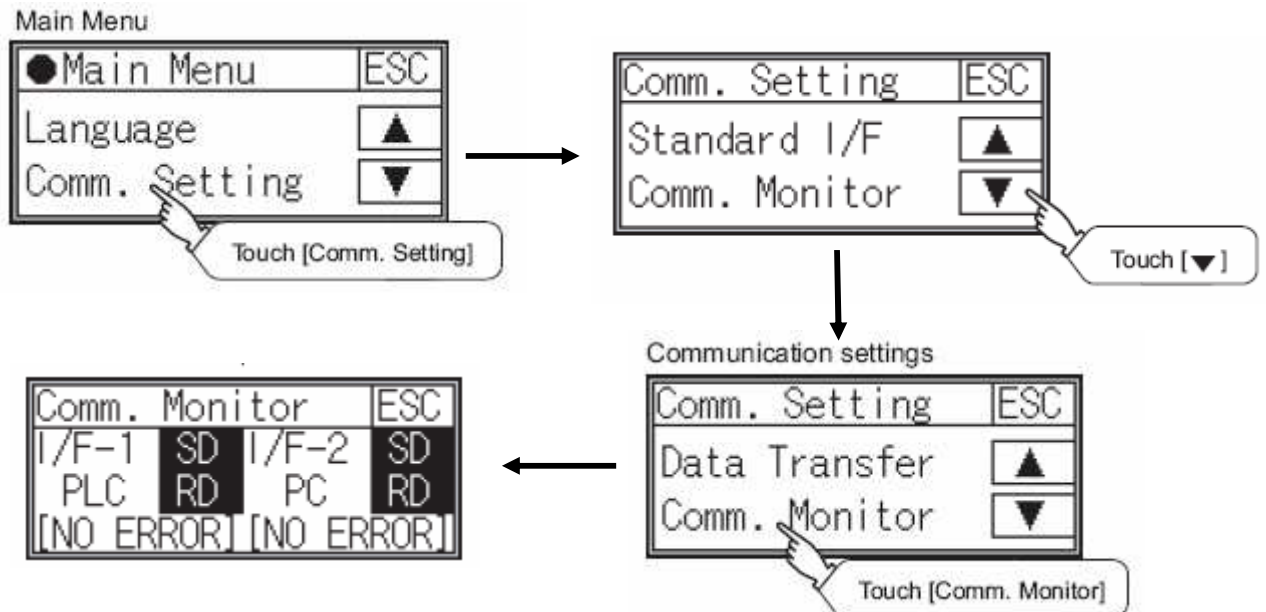
Indirect specification

When setting the station number indirectly, the station number of the inverter can be changed using the 16-bit GOT internal data register (GD10 to GD25). When specifying the station No. from 100 to 155 on GT Designer 2, the value within GD10 to GD25 is equal to the station No.

Specification station no.	Compatible Device	Setting range
100	GD10	0 to 31 If the associated device contains a value outside this range an error (dedicated device is out of range) will occur.
101	GD11	
102	GD12	
103	GD13	
104	GD14	
105	GD15	
106	GD16	
107	GD17	
108	GD18	
109	GD19	
110	GD20	
111	GD21	
112	GD22	
113	GD23	
114	GD24	
115	GD25	

Confirm Communication

The communication monitoring is a function that checks whether the GOT can communicate with the Inverter. If no error is shown, communication has been set up correctly.



Manual References:

Refer to the following manuals for more detailed explanations. For any further questions, please contact your local Mitsubishi Product Provider.

GOT1000 Series Connection Manual 3/3 (SH(NA)-080532ENG)

- Sections 32.1, 32.2, 32.3, 32.4, 32.5 & 32.6

FR-S 500, Frequency Inverter, Instruction Manual Detailed (IB(NA)-0600027-C)