MITSUBISHI ELECTRIC

GOT1000

GT1020/GT1030 to FX Connection

Start-up Guide

Art.-Nr.: xxxxxx
20 102008
Version A

MITSUBISHI ELECTRIC INDUSTRIAL AUTOMATION

About this Manual

The texts, illustrations, diagrams and examples in this manual are only intended as aids to help explain the functioning, operation, use and programming of the GOT1000 terminals in combination with an FX PLC.

If you have any questions regarding the installation and operation of the hardware described in this manual, please do not hesitate to contact your sales office or one of your Mitsubishi distribution partners.

CAUTION:

Do not attempt to install, operate, maintain or inspect the grafical operator terminal or the PLC until you have read through the correrponding instruction manual carefully and can use the equipment correctly. Do not use the PLC until you have a full knowledge of the equipment, safety information and instructions.

You can also obtain information and answers to frequently asked questions from our Mitsubishi website under www.mitsubishi-automation.com.

Manual References:

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

- GT10 User's Manual (JY997D24701)
- GT10 General Description (JY997D22901)
- RS-232 / USB Conversion Adapter User's Manual (JY997D23401)
- GOT1000 Series Connection Manual 1/3 (SH(NA)-080532ENG)

CAUTION:

This Start-up Guide includes a brief summary of the main specifications of the GOT1000 graphic operation terminals and the FX series of PLC, which should be sufficient to enable experienced users to install and configure the units. For further information on the operation terminals and the inverters please refer to the above mentioned manuals.

Please observe also the safety precautions given in the manuals mentioned above.

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1 Overview

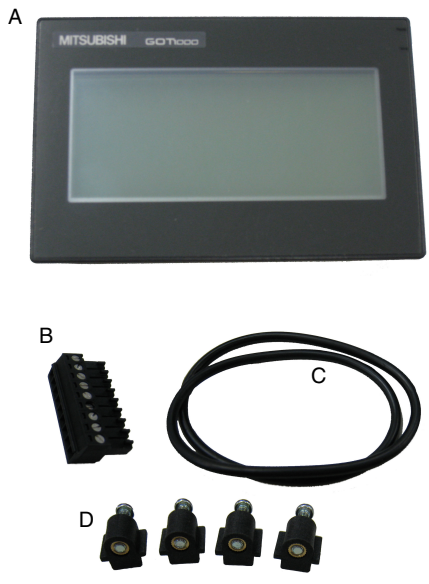
This document provides a simple guide and reference for setting up the GT1020 or GT1030 Graphic Operation Terminal (GOT) hardware and firmware for use with an FX Series PLC.

2 Hardware Introduction

The GT1020 and GT1030 are monochrome, 3-color backlight, two communication channel GOT1000 Series touch panel interfaces, and consist of the following models:

Model		Size	Backlight Colors	Comm. IF	Power
GT1020	-LBD	3.7” 160 x 64 dot	Green/Orange/Red	RS-422	24 V DC
	-LBD2			RS-232C	
	-LBDW		White/Pink/Red	RS-422	
	-LBDW2			RS-232C	
	-LBL		Green/Orange/Red	RS-422	5 V DC
	-LBLW		White/Pink/Red		
GT1030	-LBD	4.5” 288 x 96 dot	Green/Orange/Red	RS-422	24 V DC
	-LBD2			RS-232C	
	-LBDW		White/Pink/Red	RS-422	
	-LBDW2			RS-232C	

Tab. 1: *Specifications of the operator terminals*



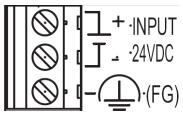
For new GT1020 and GT1030 units, included in the box should be the following items:

- (A) GT1020/GT1030
- (B) 1 PLC Communication Connector
- (C) 1 rubber Panel Mounting Packing
- (D) 4 Panel Mounting Brackets

3 Cabling

Power

All GT1020/GT1030 GOTs except for the GT1020-LBL and GT1020-LBLW (5V DC versions) require an external 24V DC power supply to be connected to the Power Terminal on the back of the GOT. The 5V DC versions are powered through the communication cables, described below.



5V DC version GT1020 GOTs

The GT1020-LBL and GT1020-LBLW are the only two 5V DC GOTs in the GOT1000 lineup. They are powered directly from the communication cable, and can only be connected with an FX Series PLC. Other PLCs and connectable products will not provide the necessary 5V DC power. The power terminals have been removed from the 5V DC versions.

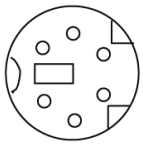
Communication

For the GT1020/GT1030 to communicate with an FX Series PLC, a dedicated communication cable is required to connect the provided PLC Communication Connector with the Programming Port (RS-422 8-pin Mini-DIN) or other communication channel of the FX (RS-422 8-pin Mini-DIN or RS-232C 9-pin D-sub). The cable names and length and specific wiring for each case are illustrated below:

Cable Name	Length	Applicable GOTs	FX Comm. Equipment
GT10-C10R4-8P①	1m	GT1020-LBD GT1020-LBDW GT1030-LBD GT1030-LBDW	Programming Port FX3U-422-BD FX2N-422-BD FX1N-422-BD
GT10-C30R4-8P①	3m		
GT10-C100R4-8P	10m		
GT10-C200R4-8P	20m		
GT10-C300R4-8P	30m		

Tab. 2: *Connection to an RS-422 FX communication channel*

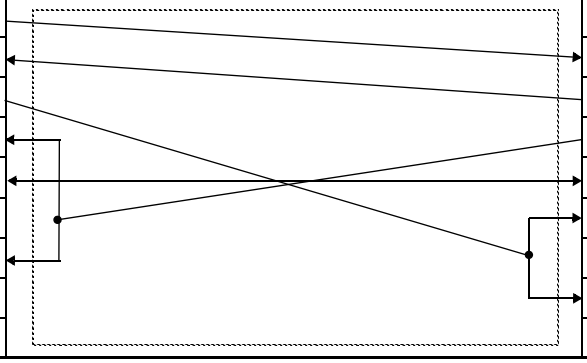
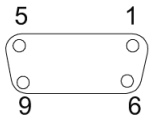
① Only the GT10-C10R4-8P and GT10-C30R4-8P apply to the GT1020-LBL and GT1020-LBLW GOTs (5V DC versions).

GOT Side (terminal block)		Cable connection	United wire color of GT10-C□□□R4-8P	PLC side
Signal name				Pin layout
24V products	5V products			
SDA			Brown	 MINI-DIN 8 Pin: male
SDB			Red	
RDA			Orange	
RDB			Yellow	
SG			Green	
RSA			Black	
RSB			White	
CSA	INPUT - 5VDC +			
CSB				

Cable Name	Applicable GOTs	FX Comm. Equipment
All RS-232C GT1020/GT1030-to-FX connection cables must be made by the user as described below.	GT1020-LBD2 GT1020-LBDW2 GT1030-LBD2 GT1030-LBDW2	FX3U-232-BD FX3U-232ADP(-MB)② FX2N-232-BD FX2NC-232ADP② FX1N-232-BD

Tab. 3: *Connection to an RS-232C FX communication channel*

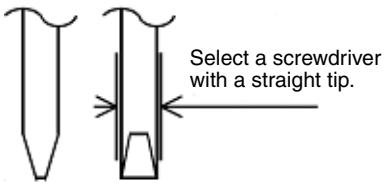
② Special Adapters require an additional FX**-CNV-BD or, for the FX3U only, a Communication Expansion Board.

GOT Side (terminal block)	Cable connection	FX PLC side (Dsub 9 pin)	
Signal name		PIN No.	Pin layout
SD		1	
RD		2	
ER		3	
DR		4	
SG		5	
RS		6	
CS		7	
NC		8	
NC		9	

D-SUB 9 pins: female

3.1 GOT Terminal

For all screw terminals on the GT1020/ GT1030, use a small flathead screwdriver to secure the wires within the PLC Communication Connector (recommended blade size and tightening torque: 0.4 x 2.5 mm and 0.22 to 0.25 N•m).



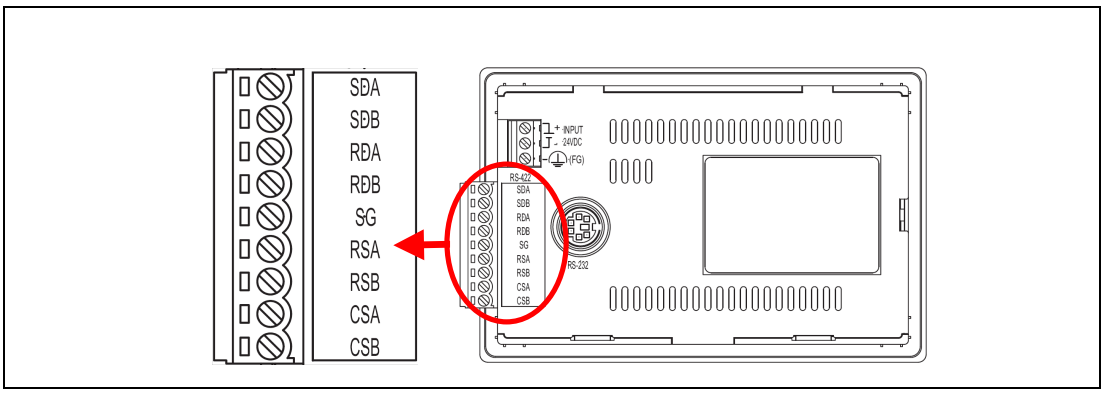


Fig. 1: *Terminal points in detail*

3.2 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.

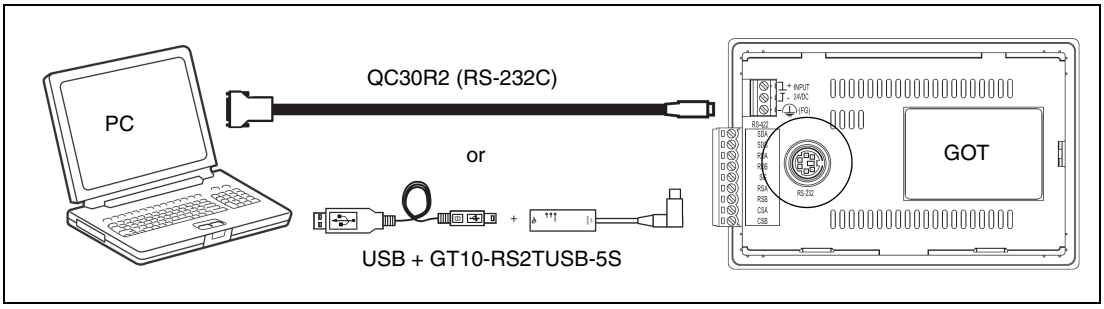


Fig. 2: *Connection diagram*

NOTE

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.

3.3 Example Connection Diagram

The GOT in the following figure is supplied from the 24V DC service power supply of the FX3U base unit.

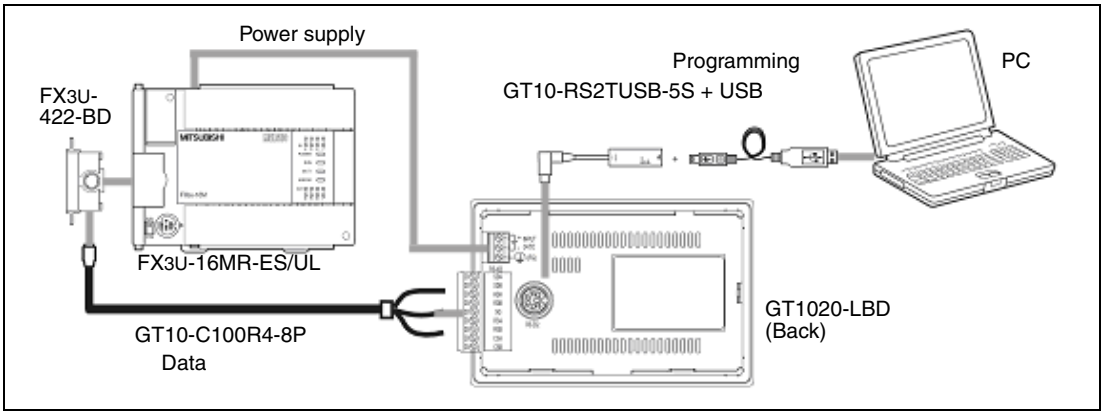


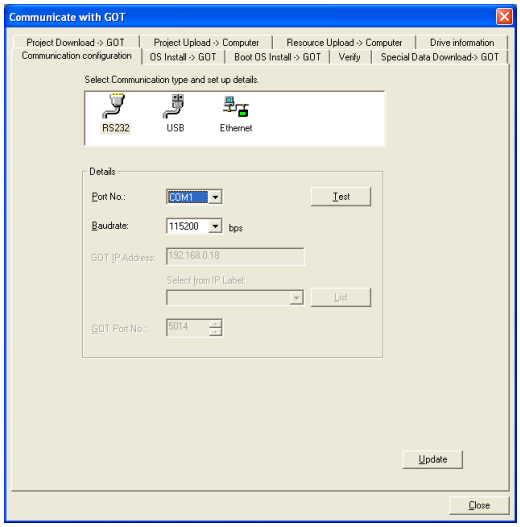
Fig. 3: *Example for the connection of a GT1020 to a FX3U PLC*

4 Firmware Updates

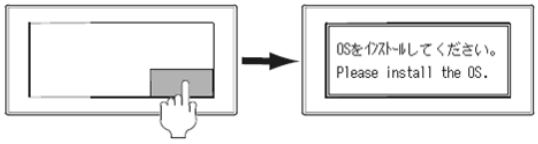
(Version 2.73 or later)

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 “MELSEC-FX” Controller 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.

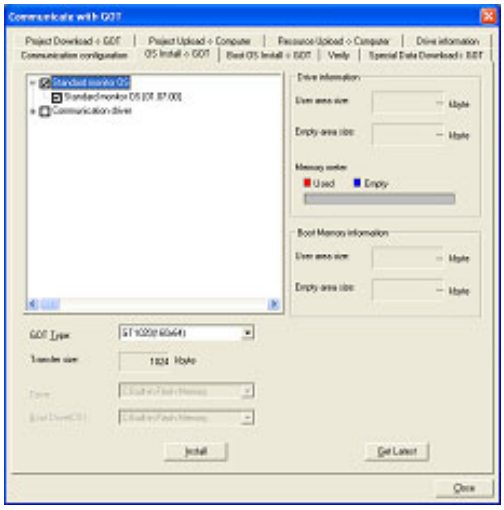
Go to the “Communication” menu and select “To/From GOT” to bring up the “Communicate with GOT” window. Go to the “Communication configuration” tab and select “RS232” and the corresponding “Port No.” that connects the PC to the GOT. With the GOT power ON, use the “Test” button to verify that the PC and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



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 to the right.

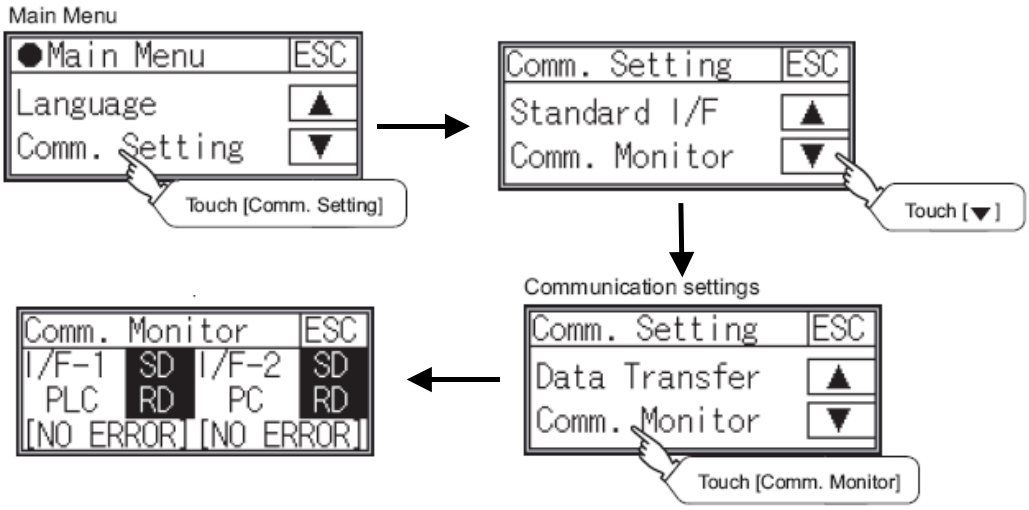


While the “Please install the OS” screen is displayed, go to the “OS Install -> GOT” tab in the “Communicate with GOT” window of GT Designer2 and select “Standard monitor OS” from the data selection tree. Use the “Install” button to initiate the data transfer and update the firmware. Once the firmware 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.



5 Confirm Communication

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



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