

## Mitsubishi Graphic Operation Terminal GOT1000 Series

New Product Release

GRAPHIC OPERATION TERMINAL  
**GOT1000**

# GT16 Model 5.7-inch Type

GT1655-VTBD [New Release]

- ▶ User memory capacity: 15MB
- ▶ USB host and USB device
- ▶ Standard interface: Ethernet, RS-422/485, RS-232
- ▶ Multi-channel function: 4 channels
- ▶ LED backlight LCD, analog touch panel
- ▶ IP67f environmental protective structure



NEW



USB host & USB device

Refer to the back side for details on the supported software versions and specifications.

## Advanced New Functions

GT Works3 Version 1.28E

Check logging data with numerical values

GRAPHIC OPERATION TERMINAL GOT 1000

### GT 16 GT 15 Historical data list display

- Logging data collected using the logging function can be displayed in list format.
- By using the time being selected on the historical data list display, trend graphs of the same time can easily be searched and displayed.

Log the product A, B, and C production volume in a 5-minute cycle

Logging data
2010/11/22 09:55
2010/11/22 10:00
2010/11/22 10:05
2010/11/22 10:10
2010/11/22 10:15
⋮
2010/11/22 16:50

List display

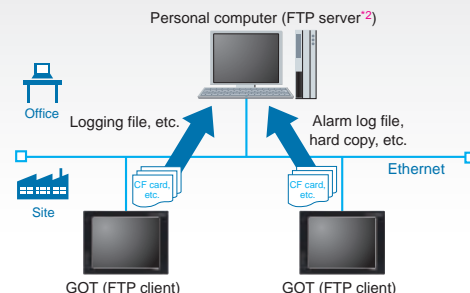
Production Volume				Cursor Display Position
Time	Product A	Product B	Product C	
09:55	50	49	52	10/11/22 10:05 50 52 53
10:00	51	51	55	
10:05	50	52	53	
10:10	52	53	54	
10:15	52	52	52	

Send files from GOT to personal computer

GRAPHIC OPERATION TERMINAL GOT 1000

### GT 16 GT 15 File transfer function (FTP client)

- With a few simple settings, files (alarm log files, hard copies, etc.) of resource data stored in the GOT's CF card and USB memory\*1 can be sent from the GOT to a personal computer.



\*1: USB memory is supported only by GT16.

\*2: Microsoft IIS (Internet Information Service) FTP servers are supported.

### GT Designer3 Simple Help Function

- Find the information you need easily! Press the F1 key to jump directly to help contents for the currently active dialog!

### Improved GT SoftGOT1000 functions

- MODBUS®/TCP connections are supported.
- Internal device interface functions can be used in the following environments.  
<Supported development environments> Microsoft® Visual C++®/Visual C#®/Visual Basic® included with Microsoft® Visual Studio 6.0/.NET (2002)/.NET 2003/2005/2008



# GT1655-VTBD Specifications

## General specifications

Item	Specification	
Operating ambient temperature	Display 0 to 50°C	
	Other than display 0 to 55°C	
Storage ambient temperature	-20°C to 60°C	
Operating ambient humidity	10 to 90%RH, no condensation	
Storage ambient humidity	10 to 90%RH, no condensation	
Vibration resistance	Conforming to JIS B 3502 and IEC 61131-2	
	Under intermittent vibration	Frequency 5 to 9Hz 9 to 150Hz Acceleration - 9.8m/s <sup>2</sup> Half amplitude 3.5mm
	Under continuous vibration	5 to 9Hz 9 to 150Hz - 4.9m/s <sup>2</sup> 1.75mm
	Sweep count	10 times each in X, Y and Z directions
Impact resistance	Conforming to JIS B 3502 and IEC 61131-2 (147m/s <sup>2</sup> , 3 times each in X, Y and Z directions)	
Operating atmosphere	No oily smoke, corrosive gas or combustible gas, less conductive dust, away from direct sunlight (the same in storage)	
Operating altitude <sup>2</sup>	2000m or less	
Installation location	In control panel	
Overvoltage category <sup>3</sup>	II or lower	
Contamination level <sup>4</sup>	2 or less	
Cooling method	Self-cooling	
Grounding	Type D grounding (100Ω or less). Connect to panel if unable to ground.	
Compliant standards	International Standards (UL/cUL, CE), Maritime Standards (ABS, BV, DNV, LR, NK, GL, RINA <sup>5</sup> )	

- \*1: Set the general specifications operating ambient temperature 5°C lower than the above maximum temperature when mounting the MELSECNET/H communication module (GT15-J71LP23-25, GT15-J71BR13) or CC-Link communication module (GT15-J61BT13).
- \*2: Do not operate or store the GOT unit in pressurized environments where the pressure exceeds 0m elevation atmospheric pressure, as this could result in abnormal operation. Do not pressurize inside the control panel for air purge cleaning. The pressure could raise the surface sheet, making the touch panel difficult to operate or causing the sheet to come off.
- \*3: Assuming that the device is connected at some point between a public power distribution network and local system equipment. Category II applies to devices that are supplied with power from fixed equipment. The surge withstand voltage is 2,500V for devices with ratings up to 300V.
- \*4: Indicator of degree of conductive substance generation in the environment in which the device is used. Contamination level 2 is an environment in which only non-conductive pollutants are generated, and in which under some conditions temporary conductivity could occur.
- \*5: Compliance with Maritime Standards (RINA) is scheduled in the near future.

Do not use or store the GOT under direct sun light or in an environment with excessively high temperature, dust, humidity or vibration.

## Performance specifications

Item	Specification	
Display <sup>1</sup>	Type	TFT color LCD (high-brightness, wide viewing angle)
	Screen size	5.7"
	Resolution	VGA: 640 x 480 [dots]
	Display size	115(W) x 86(H) [mm]
	No. of displayed characters	16-dot standard font: 40 chars. x 30 lines (2-byte) 12-dot standard font: 53 chars. x 40 lines (2-byte)
	Display colors	65,536 colors
	View angle <sup>2</sup>	Up/down/right/left: 80°
	Intensity	350 [cd/m <sup>2</sup> ]
	Intensity adjustment	8-step adjustment
	Life expectancy	Approx. 50,000 hours (operating ambient temperature: 25°C)
Backlight		LED (non-replaceable), with backlight OFF detection function. Backlight off time and screen save time can be set.
	Life expectancy <sup>3</sup>	Approx. 70,000 hours or more (Time for display intensity reaches 50% at operating ambient temperature of 25°C)
Touch panel <sup>4</sup>	Type	Analog resistive type
	Key size	Min. 2 x 2 [dots] (per key)
Memory <sup>7</sup>	No. of simultaneous touch points	Simultaneous touch prohibited <sup>5</sup> (1 point only)
	Life expectancy <sup>5</sup>	1,000,000 times or more (operating force 0.98N or less)
Built-in clock accuracy	C drive	15MB built-in flash memory (for saving project data and OS)
	Life expectancy (No. of writings)	100,000 times
Battery	Built-in clock accuracy	-3.61 to +2.16 seconds/day (operating ambient temperature: 25°C) <sup>6</sup>
		GT11-50BAT type lithium battery
Built-in interface	Backed-up data	Clock data, maintenance time notification data, system log data and SRAM user area (500KB)
	Life expectancy	Approx. 5 years (operating ambient temperature: 25°C)
	RS-232 <sup>9</sup>	RS-232, 1ch Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape: D-sub 9-pin (male) Application: Communication with connected devices, connection to personal computer (project data upload/download, OS installation, FA transparent function)
	RS-422/485	RS-422/485, 1ch Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape: 14-pin (female) Application: Communication with connected devices
	Ethernet	Data transfer system: 100BASE-TX, 10BASE-T, 1ch Connector shape: RJ-45 (modular jack) Application: Communication with connected devices, gateway function, connection to personal computer (project data upload/download, OS installation, FA transparent function, MES interface function)
	USB	USB (full-speed 12Mbps), host 1ch Connector shape: TYPE-A Application: USB mouse/keyboard connection, USB memory data transfer and storage When formatted to FAT16: Up to 2GB When formatted to FAT32: Up to 32GB <sup>11</sup>
	CF card	USB (full-speed 12Mbps), device 1ch Connector shape: Mini-B Application: Connection to personal computer (project data upload/download, OS installation, FA transparent function)
	Optional function board	Compact flash slot, 1ch Connector shape: TYPE I Application: Data transfer, data storage, GOT startup When formatted to FAT16: Up to 2GB When formatted to FAT32: Up to 32GB <sup>11</sup>
	Extension unit <sup>9</sup>	1ch for optional function board installation
	Buzzer output	1ch for communication unit/optional unit installation
Protective construction	Single tone (tone length adjustable) Front: IP67 <sup>10</sup> In panel: IP2X	
External dimensions	167(W) x 135(H) x 60(D) [mm]	
Panel cut dimensions	153(W) x 121(H) [mm]	
Weight (excl. mounting brackets)	1.0 [kg]	
Applicable software packages	GT Works3 Version 1.28E or later (GT Works2 / GT Designer2 are not supported.)	

The following functions cannot be used:  
 Multi-media function, video/RGB function, remote personal computer operation function (serial), ladder editor function, CNC monitor function, CNC data I/O function  
 The following communication units and optional units cannot be used:  
 GT15-RS2T4-9P, GT15-RS2T4-25P, GT15-75J71LP23-Z, GT15-75J71BR13-Z, GT15-75J61BT13-Z  
 GT16M-MMR, GT16M-V4, GT16M-R2, GT16M-V4R1, GT16M-ROUT

## Power supply specifications

Item	Specification
Input power supply voltage	24VDC(+25%, -20%)
Power consumption	16W or less
Consumption With backlight off	14W or less
Inrush current	67A or less (1ms, at max. load)
Permissible instantaneous failure time	Within 10ms
Noise resistance	Noise voltage 500Vp-p, noise width 1μs by noise simulator with noise frequency 25 to 60Hz
Withstand voltage	500VDC for 1 minute between power supply terminal and ground
Insulation resistance	10MΩ or higher with an insulation resistance tester (500VDC between power supply terminal and ground)
Applicable wire size	0.75 to 2 [mm <sup>2</sup> ]
Clamp terminal	Clamp terminals for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A
Tightening torque (terminal block's terminal screws)	0.5 to 0.8 [N·m]

## GOT main units

Model name	Screen size	Display
GT16	5.7" VGA [640 x 480 dots]	TFT color LCD (high brightness, wide viewing angle)

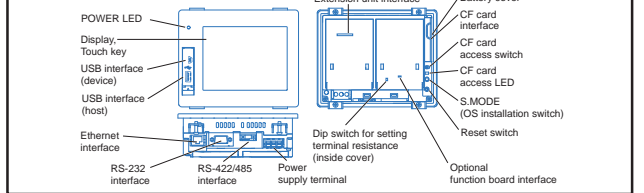
## Options

Product name	Model name	Specification
Protective sheet	GT16-50PSCB	Clear, 5 sheets
	GT16-50PSGB	Anti-glare, 5 sheets
	GT16-50PSCW	Clear (frame: white), 5 sheets
	GT16-50PSGW	Anti-glare (frame: white), 5 sheets
USB protective cover <sup>1</sup>	GT16-50PSCB-012	Clear, 5 sheets (for covering USB protective cover area)
	GT16-50UCOV	Protective cover for USB interface on main unit front panel (for replacement)
Oil resistant cover	GT16-50PCO	Oil resistant cover for 5.7" screen
Battery <sup>1</sup>	GT11-50BAT	Battery for backup of clock data, maintenance time notification data, system log data, SRAM user area (for replacement)

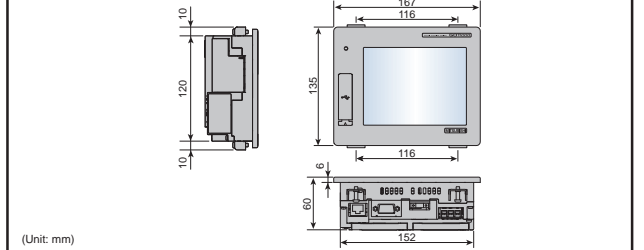
\*1: Mounted on or enclosed when GOT is purchased.

Use the above GT16 5.7" dedicated parts. The GT16-50PSC□□, GT11-50PS□□, GT11-50UCOV and GT05-50PCO components cannot be used with the GT1655-VTBD.

## Component names



## External dimensions



- \*1: On LCD screens, bright dots (permanently lit) and black dots (never lit) appear occasionally. Because the large number of display elements exist on an LCD screen, it is not possible to reduce appearance of the bright and black dots to zero. Note that the existence of bright and black dots is a standard characteristic of LCD screens, and it does not mean that the products are defective or damaged.
- \*2: LCD panels have characteristics of tone reversal. Note that even within the indicated view angles, the screen display may not be clear enough depending on the display color.
- \*3: Using the GOT screen save/backlight OFF functions prevents screen burn-in and extends backlight life.
- \*4: If necessary, use a stylus pen meeting the following specifications:  
 • Material: Polyacetal resin • Pen point radius: 0.8mm or more
- \*5: An analog resistive touch display is used. When two or more points on the screen are touched simultaneously, if a switch is located the middle of the pressed points, then the switch may be activated. Therefore, avoid touching multiple points on the screen simultaneously.
- \*6: The life is 100,000 times or more (operating force 0.98N or less) when using a stylus pen. Due to its structure, the touch panel is a consumable part. Depending on the usage methods and environment, it may reach its service life even before the listed life expectancy (number of times).
- \*7: The memory is ROM that permits overwriting of new data without having to delete the existing data.
- \*8: The error may increase when the operating ambient temperature is not 25°C.
- \*9: Where more than one extension unit, barcode reader, or RFID controller is used, the sum of their current consumptions should be within the current level which the GOT can supply. For the currents which the extension unit, barcode reader, and RFID controller consume and the current level which the GOT can supply, see the GOT1000 Series Connection Manual for GT Works3.
- \*10: When the USB protective cover is on, pressing firmly the portion marked "△" makes it conform to IP67. (The USB interface conforms to IP2X when a USB cable or a USB memory is connected.) However, this does not guarantee protection in all users' environments. The unit may not be used in an environment where it is exposed to splashing oil or chemicals for a long time or when it is soaked with oil mist.
- \*11: A USB memory and a CF card that store more than 2GB are available for the GT16 with the following versions of OSs installed:  
 • BootOS version: 05.09.00AF or later • Standard monitor OS version: 05.09.00 or later  
 With OSs earlier than the above versions, the GOT cannot correctly recognize the USB memory and the CF card that store more than 2GB. If the above versions of OSs are not installed, install the OSs on the GOT by using GT Designer3 with version 1.17T or later. GT Designer2 version □ is not compatible with a USB memory and a CF card that store more than 2GB.



HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
 NAGOYA WORKS: 1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN

USA ..... Tel: +1-847-478-2100  
 Brazil ..... Tel: +55-11-3146-2200  
 Germany ... Tel: +49-2102-486-0  
 UK ..... Tel: +44-1707-276100  
 Italy ..... Tel: +39-039-60531  
 Spain ..... Tel: +34-93-565-3131  
 France ..... Tel: +33-1-5568-5568

Czech Republic ... Tel: +420-251-551-470  
 Poland ..... Tel: +48-12-630-47-00  
 Russia ..... Tel: +7-812-633-3497  
 South Africa .... Tel: +27-11-928-2000  
 China ..... Tel: +86-21-2322-3030  
 Taiwan ..... Tel: +886-2-2299-2499  
 Korea ..... Tel: +82-2-3660-9552

Singapore .... Tel: +65-6470-2460  
 Thailand ..... Tel: +66-2-517-1326  
 Indonesia .... Tel: +62-21-663-0833  
 India ..... Tel: +91-20-2712-3130  
 Australia ..... Tel: +61-2-9684-7777

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