



MITSUBISHI ELECTRIC

GT25 Handy GOT General Description

GT2505HS-VTBD

Thank you for choosing Mitsubishi Electric Graphic Operation Terminal (GOT).

MODEL	GT2505HS-V-U-GD-E
MODEL CODE	1D7MU3
IB(NA)-0800614ENG-B(2008)MEE	

This manual describes the part names, dimensions, mounting, and specifications of the product. Before use, read this manual and manuals of relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions. And, store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

Registration
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Safety Precaution (Read these precautions before using.)
 Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly. The precautions given in this manual are concerned with this product. In this manual, the safety precautions are ranked as "WARNING" and "CAUTION".

WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Depending on circumstances, procedures indicated by "CAUTION" may also be linked to serious results. In any case, it is important to follow the directions for usage.

DESIGN PRECAUTIONS **WARNING**

- Some failures of the GOT or cable may keep the outputs on or off. An external monitoring circuit should be provided to check for output signals which may lead to a serious accident. Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative. A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur. Not doing so can cause an accident due to false output or malfunction.
- Do not use the GOT as the warning device that may cause a serious accident. An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning. Failure to observe this instruction may result in an accident due to incorrect output or malfunction.
- Incorrect operation of the touch switch(es) may lead to a serious accident if the GOT backlight is gone out. When the GOT backlight goes out, the POWER LED flickers (blue/orange) and the display section turns black and causes the monitor screen to appear blank, while the input of the touch switch(es) remains active. This may confuse an operator in thinking that the GOT is in "screensaver" mode, who then tries to release the GOT from this mode by touching the display section, which may cause a touch switch to operate. Note that the following occurs on the GOT when the backlight goes out.
 - The POWER LED flickers (blue/orange) and the monitor screen appears blank

DESIGN PRECAUTIONS **WARNING**

- The display section is an analog-resistive type touch panel. If you touch the display section simultaneously in 2 points or more, the switch that is located around the center of the touched point, if any, may operate. Do not touch the display section in 2 points or more simultaneously. Doing so may cause an accident due to incorrect output or malfunction.
- When programs or parameters of the controller (such as a PLC) that is monitored by the GOT are changed, be sure to reset the GOT or shut off the power of the GOT at the same time. Not doing so can cause an accident due to false output or malfunction.
- When the security of the GOT and relevant information need to be protected against illegal access from an external device via the Internet, take measures at the user's discretion. Failure to do so may cause the configured information to be read out illegally.
- To maintain the security (confidentiality, integrity, and availability) of the GOT and the system against unauthorized access, DoS¹ attacks, computer viruses, and other cyberattacks from unreliable networks and devices via network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions. Mitsubishi Electric shall have no responsibility or liability for any problems involving GOT trouble and system trouble by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.
 - *1 DoS: A denial-of-service (DoS) attack disrupts services by overloading systems or exploiting vulnerabilities, resulting in a denial-of-service (DoS) state.

DESIGN PRECAUTIONS **CAUTION**

- Do not bundle the control and communication cables with main-circuit, power or other wiring. Run the above cables separately from such wiring and keep them a minimum of 100mm (3.94in.) apart. Not doing so may cause a malfunction.
- Do not press the GOT display section with a pointed material such as a pen or driver. Doing so can result in a damage or failure of the display section.
- When the GOT is connected to the Ethernet network, the available IP address is restricted according to the system configuration.
 - When multiple GOTs are connected to the Ethernet network:
 - Do not set the IP address (192.168.3.18) for the GOTs and the controllers in the network.
 - When a single GOT is connected to the Ethernet network:
 - Do not set the IP address (192.168.3.18) for the controllers except the GOT in the network.
 Doing so can cause the IP address duplication. The duplication can negatively affect the communication of the device with the IP address (192.168.3.18). The operation at the IP address duplication depends on the devices and the system.
- Turn on the controllers and the network devices to be ready for communication before they communicate with the GOT. Failure to do so can cause a communication error on the GOT.
- When the GOT is subject to shock or vibration, or some colors appear on the screen of the GOT, the screen of the GOT might flicker.

MOUNTING PRECAUTIONS **WARNING**

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT to/from the panel. Not doing so can cause the unit to fail or malfunction.
- Make sure to turn off the connector conversion box (GT11H-CNB-37S, GT16H-CNB-37S, or GT16H-CNB-42S) before connecting or disconnecting the GOT. Connecting or disconnecting the GOT with the power being turned on may result in damage to the unit or malfunctions.

MOUNTING PRECAUTIONS **CAUTION**

- Use the GOT in the environment that satisfies the general specifications described in this manual. Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- Remove the protective film of the GOT. When the user continues using the GOT with the protective film, the film may not be removed.
- Operate and store the GOT in environments without direct sunlight, high temperature, dust, humidity, and vibrations.
- Never drop cutting chips and electric wire chips into the ventilation window of the Handy GOT when you drill screw holes or perform wiring. Otherwise, fire, failure or malfunction may be caused.
- Connect connection cables securely to the specified connectors while the power is turned OFF. Imperfect connection may cause malfunction or failure.

WIRING PRECAUTIONS **WARNING**

- Be sure to shut off all phases of the external power supply used by the system before wiring. Failure to do so may result in an electric shock, product damage or malfunctions.
- Make sure to attach the back cover to the Handy GOT before turning on the power and starting operation after the installation or wiring work. Otherwise, electrical shock may be caused.
- Use a DC power supply for this product. The power supply in the specified range must be applied for the power supply, the operation switch, and the emergency stop switch. If they are connected to the power supply of the different specification, it may cause a fire or failure.
- Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product. Not doing so can cause a fire or failure.
- Please make sure to ground FG terminal of the GOT power supply section by applying 100 or less which is used exclusively for the GOT. Not doing so may cause an electric shock or malfunction.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the GOT. Not doing so can cause a fire, failure or malfunction.

WIRING PRECAUTIONS **CAUTION**

- When tightening the terminal screws, use a Phillips-head screwdriver No.2.
- Use applicable solderless terminals for terminal processing of a wire and tighten them with the specified torque. Not doing so can cause a fire, failure or malfunction.
- Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product. Not doing so can cause a fire or failure.
- Tighten the terminal screws of the GOT power supply section in the following specified torque range.
 - Specified torque range (0.5 N·m to 0.8 N·m)
 Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or the GOT.
- The cables connected to the unit must be run in ducts or clamped. Not doing so can cause the unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull the cable portion. Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Plug the communication cable into the connector of the connected unit and tighten the mounting and terminal screws in the specified torque range. Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

TEST OPERATION PRECAUTIONS **WARNING**

- Before performing the test operations of the user creation monitor screen (such as turning ON or OFF bit device, changing the word device current value, changing the settings or current values of the timer or counter, and changing the buffer memory current value), read through the manual carefully and make yourself familiar with the operation method. During test operation, never change the data of the devices which are used to perform significant operation for the system. False output or malfunction can cause an accident.

STARTUP/MAINTENANCE PRECAUTIONS **WARNING**

- When power is on, do not touch the terminals. Doing so can cause an electric shock or malfunction.
- Connect the battery correctly. Do not discharge, disassemble, heat, short, solder or throw the battery into the fire. Incorrect handling may cause the battery to generate heat, burst or take fire, resulting in injuries or fires.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases. Not switching the power off in all phases can cause a unit failure or malfunction. Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

STARTUP/MAINTENANCE PRECAUTIONS **CAUTION**

- Do not disassemble or modify the unit. Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the unit directly. Doing so can cause a unit malfunction or failure.
- Do not drop the module or subject it to strong shock. A module damage may result.

STARTUP/MAINTENANCE PRECAUTIONS **CAUTION**

- Do not drop or give an impact to the battery mounted to the unit. Doing so may damage the battery, causing the battery fluid to leak inside the battery. If the battery is dropped or given an impact, dispose of it without using.
- Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc. Not doing so can cause the unit to fail or malfunction.
- Replace battery with GT11-50BAT by Mitsubishi electric Co. only. Use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
- Before replacing the battery, shut off all phases of the external power supply. Not doing so can cause the unit to fail or malfunction by static electricity.

TOUCH PANEL PRECAUTIONS **CAUTION**

- For the analog-resistive film type touch panels, normally the adjustment is not required. However, the difference between a touched position and the object position may occur as the period of use elapses. When any difference between a touched position and the object position occurs, execute the touch panel calibration.
- When any difference between a touched position and the object position occurs, other object may be activated. This may cause an unexpected operation due to incorrect output or malfunction.

PRECAUTIONS WHEN THE DATA STORAGE IS IN USE **WARNING**

- If the SD card is removed from drive A of the GOT while being accessed by the GOT, the GOT may stop processing data for about 20 seconds. The GOT cannot be operated during this period. The functions that run in the background including a screen updating, alarm, logging, scripts, and others are also interrupted. Before removing the SD card, check the following items. Make sure to turn off the SD card access switch before removing the SD card. Not doing so may damage the SD card or files.

PRECAUTIONS WHEN THE DATA STORAGE IS IN USE **CAUTION**

- If the data storage is removed from the GOT while being accessed by the GOT, the data storage and files may be damaged. Before removing the data storage from the GOT, check the SD card access LED, system signal, or others to make sure that the data storage is not accessed.
- When inserting/removing a SD card into/from the GOT, turn the SD card access switch off in advance. Failure to do so may corrupt data within the SD card.
- Turning off the GOT while it accesses the SD card results in damage to the SD card and files.
- When inserting a SD card into the GOT, make sure to close the SD card cover. Failure to do so causes the data not to be read or written.
- When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out. Not doing so may cause the SD card to drop from the GOT, resulting in a failure or break.
- When inserting a USB device into a USB interface of the GOT, make sure to insert the device into the interface firmly. Not doing so may cause the USB device to drop from the GOT, resulting in a failure or break.
- Before removing the data storage from the GOT, follow the procedure for removal on the utility screen of the GOT. After the successful completion dialog is displayed, remove the USB device by hand carefully. Not doing so may cause the USB device to drop from the GOT, resulting in a failure or break.

PRECAUTIONS FOR USE **CAUTION**

- When you operate the Handy GOT while holding it, slide your hand through the hand strap on the back of the GOT to prevent falling. The hand strap length is adjustable.
- When you remove a cable from the Handy GOT, do not pull the cable portion. Doing so may damage the unit or cable, or cause a malfunction due to a cable connection fault.
- Do not drop or strike the Handy GOT. Doing so may damage the GOT.
- When you carry or operate the Handy GOT, hold its body. Carrying or operating the Handy GOT while holding its body may damage the unit or cable.
- Determine whether to use the emergency stop switch of the Handy GOT according to your risk assessment.
- If you use a parallel circuit (to avoid entering the emergency stop status while the Handy GOT is removed), the system may not conform to the safety standards. Check the safety standards required for your system before use.
- If the Handy GOT is exposed to any impact beyond the general specifications, chattering may occur in the emergency stop switch for its structural reasons. Check that your use conditions are proper.
- Do not touch the edges of the touch panel (display section) repeatedly. Doing so may result in a failure.

PRECAUTIONS FOR USE **CAUTION**

- Do not turn off the GOT while data is being written to the storage memory (ROM) or SD card. Doing so may corrupt the data, rendering the GOT inoperative.

PRECAUTIONS FOR REMOTE CONTROL **CAUTION**

- Remote control is available through a network by using GOT functions, including the SoftGOT-GOT link function, the remote personal computer operation function, the VNC server function, and the GOT Mobile function. If these functions are used to perform remote control of control equipment, the field operator may not notice the remote control, possibly leading to an accident. In addition, a communication delay or interruption may occur depending on the network environment, and remote control of control equipment cannot be performed normally in some cases. Before using the above functions to perform remote control, fully grasp the circumstances of the field site and ensure safety.

PRECAUTIONS FOR EXCLUSIVE AUTHORIZATION CONTROL **CAUTION**

- Make sure to fully understand the GOT network interaction function before using this function to control the authorization among pieces of equipment to prevent simultaneous operations. The exclusive authorization control of the GOT network interaction function can be enabled or disabled for each screen. (For all screens, the exclusive authorization control is disabled by default.) Properly determine the screens for which the exclusive authorization control is required, and set the control by screen. A screen for which the exclusive authorization control is disabled can be operated simultaneously from pieces of equipment. Make sure to determine the operation period for each operator, fully grasp the circumstances of the field site, and ensure safety to perform operations.

DISPOSAL PRECAUTIONS **CAUTION**

- When disposing of the product, handle it as industrial waste. When disposing of batteries, separate them from other wastes according to the local regulations. (For details of the battery directive in EU member states, refer GOT User's Manual.)

TRANSPORTATION PRECAUTIONS **CAUTION**

- When transporting lithium batteries, make sure to treat them based on the transport regulations. (Refer to User's Manual for details of the regulated models.)
- Before transporting the GOT, turn the GOT power on and check that the battery voltage status is normal on the Time setting & display screen (utilities screen). In addition, confirm that the adequate battery life remains on the rating plate. Transporting the GOT with the low battery voltage or the battery the reached battery life may destabilize the backup data unstable during transportation.
- When fumigants that contain halogen materials such as fluorine, chlorine, bromine, and iodine are used for disinfecting and protecting wooden packaging from insects, they cause malfunction when entering our products. Please take necessary precautions to ensure that remaining materials from fumigant do not enter our products, or treat packaging with methods other than fumigation (heat method). Additionally, disinfect and protect wood from insects before packing products.
- Make sure to transport the GOT main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices. Failure to do so may cause the unit to fail. Check if the unit operates correctly after transportation.

Certification of UL, cUL standards
 UL, cUL Standards are recognized in use by the following combination.
 • GT2505HS-VTBD
 • GT16H-CNB-42S^{*1}
 • External cable (GT14H-C30-42P, GT14H-C60-42P, GT14H-C100-42P)^{*2}
 • GT16H-CNB-37S
 • External cable (GT11H-C30-37P, GT11H-C60-37P, GT11H-C100-37P)^{*3}
 Cable must be properly installed and routed to ensure protection of the Cable.
^{*1} Hardware version D or later
^{*2} Version B or later
^{*3} Version D or later

General notes on power supply
 This equipment must be supplied by a UL Listed or Recognized 24 V dc rated power supply and UL Listed or Recognized fuse rated not higher than 4A, or a UL Listed Class 2 power supply.

Compliance with EC directive (CE Marking)
 This note does not guarantee that an entire mechanical module produced in accordance with the contents of this note will comply with the following standards. Compliance to EMC directive for the entire mechanical module should be checked by the user/manufacturer. For more details please contact the local Mitsubishi Electric sales site.

Attention
 • This product is designed for use in industrial applications.

Requirement for Compliance with EMC directive
 The following products have shown compliance through direct testing (to the identified standards) and design analysis (forming a technical construction file) to the European Directive for Electromagnetic Compatibility (2004/108/EC) when used as directed by the appropriate documentation.
 Type: Programmable Controller (Open Type Equipment)

Standard	EMC	Remark
EN61131-2 : 2007 Programmable controllers-Equipment, requirement and tests	EMI	Compliance with all relevant aspects of the standard. (Radiated Emissions)
	EMS	Compliance with all relevant aspects of the standard. (ESD, RF electromagnetic field, EFTB, Surge, RF conducted disturbances and Power frequency magnetic field)

For more details please contact the local Mitsubishi Electric sales site.

Notes for compliance to EMC regulation

1) General notes on the control panel
 Make sure to combine the GT2505HS-VTBD with the Connector Conversion Box to comply with the EMC directive. The Connector Conversion Box is an open type device (device installed to another device) and must be installed in a conductive control panel.

2) General notes on the use of communication cables
 • External cable
 - GT14H-C30-42P, GT14H-C60-42P, GT14H-C100-42P
 - GT11H-C30-37P, GT11H-C60-37P, GT11H-C100-37P (Ver.C or later)
 • Direct connection cable

Existing Cables	User Made Cables
GT01-C30R4-8P GT11H-C30R2-6P	The cable need to be independently tested by the user to demonstrate EMC compatibility when they are used with the GOT, the PLC of MELSEC-Q series, MELSEC-L series, MELSEC-QnA, MELSEC-A series and MELSEC-FX series.

- Ethernet connection cable
 Shielded twisted pair cable (STP)
- PLC manufacturer by other company), microcomputer, temperature controller, inverter, servo amplifier, CNC, MODBUS(R)/RTU or MODBUS(R)/TCP connection
 Produce the cable (RS-232 cable, RS-422 cable) for connecting the GOT to a controller with reference to the following manual.
 → GOT2000 Series Connection Manual for GT Works3 and a controller used

3) General notes on Power supply
 The Connector Conversion Box requires an additional ferrite filter to be attached to the 24V DC power supply cables. The filter should be attached in a similar manner as shown in the figure opposite, i.e. the power cables are wrapped around the filter. However, as with all EMC situations the more correctly applied precautions the better the systems Electro-magnetic Compatibility. The ferrite recommended is a TDK ZCAT3035-1330 or similar. The ferrite should be placed as near to the 24V DC terminals of the Connector Conversion Box as possible (which should be within 75mm of the GOT terminal).

Detailed Manual

Manual name	Manual Number(Model Code)
GOT2000 Series User's Manual (Hardware)	SH-081194ENG (1D7MJ5)
GOT2000 Series User's Manual (Utility)	SH-081195ENG (1D7MJ6)

For detailed manuals, refer to the PDF manuals stored in the DVD-ROM for the drawing software used.

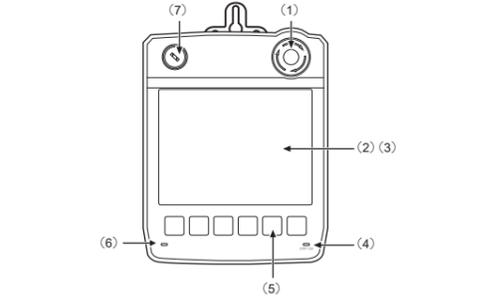
Relevant Manuals
 For relevant manuals, refer to the Help or the PDF manuals stored in the DVD-ROM for the drawing software used. The latest manuals are also available from MITSUBISHI ELECTRIC FA Global Website (<http://www.mitsubishielectric.com/fa/>).

Bundled Items

Product Name	Model Name	Specifications
GOT	GT2505HS-VTBD	[640 × 480 dots], TFT color (65536 colors), built-in battery

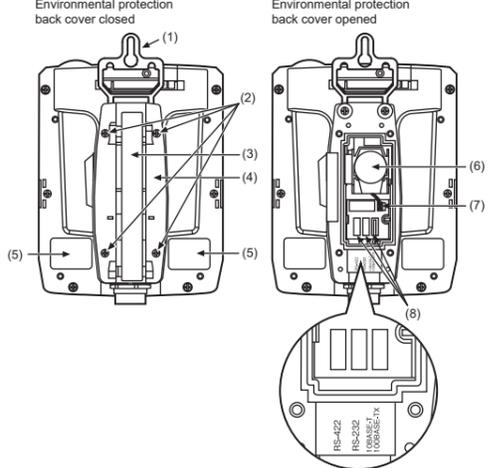
Bundled item	Quantity
GT25 Handy GOT General Description (This manual)	1
Selector switch keys	2

1. Part Name
1.1 Front Panel



No	Name	Specifications
(1)	Emergency stop switch	Switch for external direct wiring (independent contact)
(2)	Display section	Displays the utility screen and the user creation screen.
(3)	Touch panel	For touch switch operation on the utility screen and the user creation screen.
(4)	Display LED for grip switch	Display LED for grip switch (green) (lighting control from display section)
(5)	Operation switch (6 switches)	Switch for external direct wiring (independent contact)
(6)	POWER LED	Lit in blue: Power is correctly supplied. Lit in orange: Screen saving and backlight not lit. Blinks in orange/blue: Blown back light bulb. Not lit: Power is not supplied.
(7)	Keylock switch (2-position switch)	Switch for external direct wiring (independent contact)

1.2 Back Panel

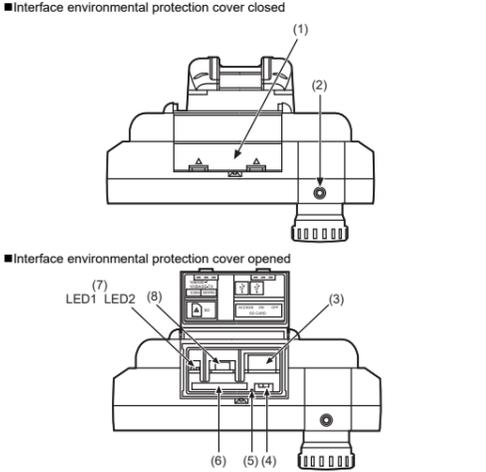


No	Name	Specifications
(1)	Hook for hanging on walls	Hook when the Handy GOT is used hanging on walls.
(2)	Environmental protection back cover screw	For opening and closing the environmental protection back cover (drop prevention screw)
(3)	Hand strap	Used to hold the Handy GOT in hand by putting a hand under the strap. Length adjustable.
(4)	Environmental protection back cover	Opened and closed when the PLC communication type is changed (Ethernet ↔ RS-422 ↔ RS-232, before shipping: Ethernet), or the battery is replaced.

No	Name	Specifications
(5)	Rating plate	-
(6)	Battery	Battery for backup of SRAM data, clock data, and system status log data.
(7)	Connector for battery connection	For battery connection
	RS-422 connector	Connector for PLC communication using RS-422 ^{*1}
(8)	RS-232 connector	Connector for PLC communication using RS-232 ^{*1}
	Ethernet connector	Connector for PLC communication using Ethernet ^{*1}

*1 Set either of the RS-422 connector, RS-232 connector, or Ethernet connector. The Ethernet connector is set at factory shipment.

1.3 Top Face (Interface)



No	Name	Specifications
(1)	Interface environmental protection cover	Opened and closed when the USB port is used or the SD card is inserted.
(2)	Emergency stop switch guard cover installing hole	Threaded hole for mounting the GT14H-50ESCOV type emergency stop switch guard (option) (M3)
(3)	USB interface (Host)	For data transfer, data storage (connector type: TYPE-A)
(4)	SD card access switch	Prohibits accessing the SD card removing the card from the Handy GOT. ON: SD card being accessed (SD card removal prohibited) OFF: SD card not accessed (SD card removal possible)
(5)	SD card access LED	Lit: SD card being accessed, Not lit: SD card is not accessed.
(6)	SD card interface	For installing the SD card to the GOT
(7)	Ethernet communication status LED	LED1: Turns on during data transfer/reception. LED2: Turns on during 100Mbps transmission.
(8)	USB interface (Device)	For PC connection (connector type: MINI-B)

2. Specifications

2.1 General Specifications

Item	Specifications																					
Operating ambient temperature	0°C to 40°C																					
Storage ambient temperature	-20°C to 60°C																					
Operating ambient humidity	10% RH to 90% RH, non-condensing																					
Storage ambient humidity	10% RH to 90% RH, non-condensing																					
Vibration resistance	<table border="1"> <thead> <tr> <th>Conforms to JIS B3502 and IEC61131-2</th> <th>Frequency</th> <th>Acceleration</th> <th>Half-amplitude</th> <th>Sweep Count</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Under intermittent vibration</td> <td>5 to 8.4Hz</td> <td>--</td> <td>3.5mm</td> <td rowspan="2">10 times each in X, Y and Z directions</td> </tr> <tr> <td>8.4 to 150Hz</td> <td>9.8m/s²</td> <td>--</td> </tr> <tr> <td rowspan="2">Under continuous vibration</td> <td>5 to 8.4Hz</td> <td>--</td> <td>1.75mm</td> <td rowspan="2">--</td> </tr> <tr> <td>8.4 to 150Hz</td> <td>4.9m/s²</td> <td>--</td> </tr> </tbody> </table>	Conforms to JIS B3502 and IEC61131-2	Frequency	Acceleration	Half-amplitude	Sweep Count	Under intermittent vibration	5 to 8.4Hz	--	3.5mm	10 times each in X, Y and Z directions	8.4 to 150Hz	9.8m/s ²	--	Under continuous vibration	5 to 8.4Hz	--	1.75mm	--	8.4 to 150Hz	4.9m/s ²	--
Conforms to JIS B3502 and IEC61131-2	Frequency	Acceleration	Half-amplitude	Sweep Count																		
Under intermittent vibration	5 to 8.4Hz	--	3.5mm	10 times each in X, Y and Z directions																		
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Under continuous vibration	5 to 8.4Hz	--	1.75mm	--																		
	8.4 to 150Hz	4.9m/s ²	--																			
Shock resistance	Conforms to JIS B3502, IEC 61131-2 (147 m/s ² , 3 times each in X, Y and Z directions)																					
Operating atmosphere	Must be free of lamp black, corrosive gas, flammable gas, or excessive amount of electroconductive dust particles and must be no direct sunlight. (Same as for saving)																					
Operating altitude ^{*1}	2000 m (6562 ft) max.																					
Overvoltage category ^{*2}	II or less																					
Pollution degree ^{*3}	2 or less																					
Cooling method	Self-cooling																					
Grounding	Grounding with a ground resistance of 100 Ω or less by using a ground cable that has a cross-sectional area of 2 mm ² or more. If impossible, connect the ground cable to the control panel.																					

*1 Do not use or store the GOT under pressure higher than the atmospheric pressure of altitude 0m (0ft.). Failure to observe this instruction may cause a malfunction. When the air inside the control panel is purged by pressurization, the surface sheet may be lifted by high pressure. As a result, the touch panel may be difficult to press, and the sheet may be peeled off.

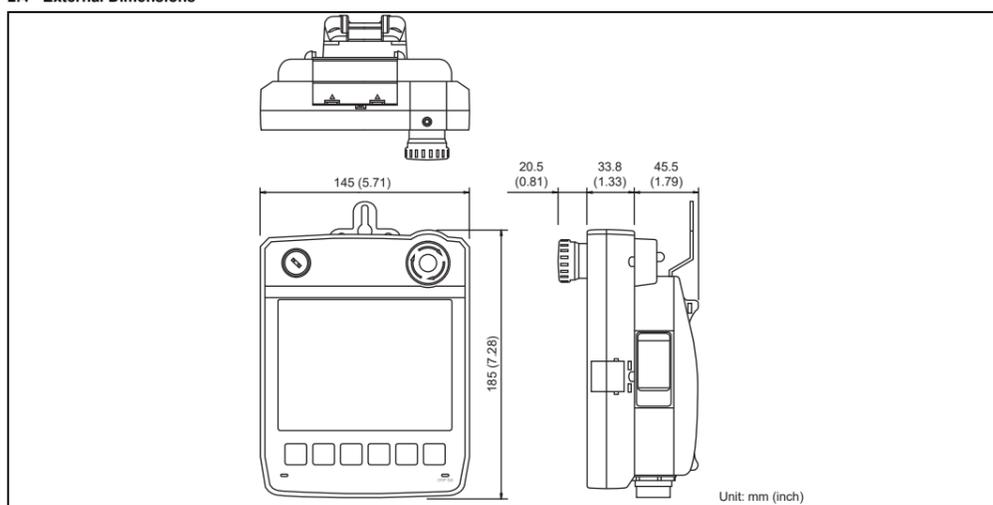
*2 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.

*3 This index indicates the degree to which conductive material is generated in the environment where the equipment is used. In pollution degree 2, only non-conductive pollution occurs but temporary conductivity may be produced due to condensation.

2.2 Performance Specifications

Item	Specifications																		
	GT2505HS-VTBD																		
Display section ^{*1,2}	<table border="1"> <thead> <tr> <th>Type</th> <td>TFT color liquid crystal display</td> </tr> <tr> <th>Screen size</th> <td>5.7"</td> </tr> <tr> <th>Resolution</th> <td>VGA: 640 × 480 dots</td> </tr> <tr> <th>Display size</th> <td>115.2(4.54) (W) × 86.4(3.40) (H) mm (inch)</td> </tr> <tr> <th>Display character</th> <td>16-dot standard font: 40 characters × 30 lines, 12-dot standard font: 53 characters × 40 lines</td> </tr> <tr> <th>Display color</th> <td>65536 colors</td> </tr> <tr> <th>Brightness adjustment</th> <td>32 levels</td> </tr> <tr> <th>Backlight</th> <td>LED (Not replaceable)</td> </tr> <tr> <th>Backlight life^{*4}</th> <td>Approximately 60000 hours (Operating ambient temperature: 25°C, display intensity: 50%)</td> </tr> </thead> </table>	Type	TFT color liquid crystal display	Screen size	5.7"	Resolution	VGA: 640 × 480 dots	Display size	115.2(4.54) (W) × 86.4(3.40) (H) mm (inch)	Display character	16-dot standard font: 40 characters × 30 lines, 12-dot standard font: 53 characters × 40 lines	Display color	65536 colors	Brightness adjustment	32 levels	Backlight	LED (Not replaceable)	Backlight life ^{*4}	Approximately 60000 hours (Operating ambient temperature: 25°C, display intensity: 50%)
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Buzzer output	Single tone (tone length adjustable)																		
Protective structure ^{*6}	IP65F ^{*6,8} (valid when the external cable is connected, except for the connector conversion box side)																		
External dimensions	145(5.70)(W)×185(7.27) (H)×79.3(3.12)(D)mm(inch) (Excluding projections such as the emergency stop switch)																		
Weight	0.79kg (GT25 Handy main unit only)																		
Compatible software package	GT Works3 Version1.195D or later																		
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2.4 External Dimensions



3. Maintenance and Inspection

The GOT does not include consumable components that will cause the shorten life. However, the battery, liquid crystal display screen and backlight have each life length. It is recommended to replace the battery periodically. (For the replacement of the liquid crystal screen, please consult your nearest sales office or FA Center.)

3.1 Daily Inspection

No.	Inspection Item	Inspection Method	Criterion	Action	
1	Installation status of GOT	Check for loose mounting screws.	Securely mounted	Retighten screws within the specified torque range.	
2	Connection status	Loose terminal screws	Retighten screws with screwdriver.	Not loose	Retighten terminal screws.
		Proximate solderless terminals	Visual check	Proper intervals	Correct.
		Loose connectors	Visual check	Not loose	Retighten connector fixing screws.
3	Usage status	Dirt on protection sheet	Visual check	Not outstanding	Replace with new one
		Foreign material attachment	Visual check	No foreign matter sticking	Remove clean

Refer to the following for the model names of the protection sheet or the replacement procedure.

→ GOT2000 Series User's Manual (Hardware)

3.2 Periodic Inspection

Yearly or half-yearly inspection items

The following inspection should also be performed when equipment has been moved or modified or the wiring changed.

No.	Inspection Item	Inspection Method	Criterion	Action	
1	Surrounding environment	Ambient temperature Ambient humidity Atmosphere	Make measurement with thermometer or hygrometer Measure corrosive gas	0 to 40°C 10 to 90%RH No corrosive gas	For use in control panel, temperature inside control panel is ambient temperature
2	Power supply voltage check		24V DC Measure voltage across terminals.	20.4 to 26.4V DC	Change supply power
3	Mounting status	Looseness Foreign material attachment	Move module. Visual check	Should be mounted firmly. No foreign matter sticking	Retighten screws. Remove, clean
4	Connection status	Loose terminal screws	Retighten screws with screwdriver.	Not loose	Retighten terminal screws.
		Proximate solderless terminals	Visual check	Proper intervals	Correct.
5	Battery	Loose connectors	Visual check	Not loose	Retighten connector fixing screws.
		Check GOT internal battery voltage status in [Time Setting & Display] of the Utility.		No alarm displayed	Replace with new battery when the current battery has reached the specified life span, even if battery voltage is not displayed.

3.3 Battery Replacement

The battery retains RAM data, clock data, and system status log data. Screen data is stored in the flash memory and data is retained even if the battery is dead.

- Battery model name
Handy GOT is shipped with the following battery.
Use it at replacement.

Product name	Model name
Battery	GT11-50BAT

Item	Specifications	
	GT2505HS-VTBD	
Switch	Keylock switch (2-position switch)	1 switch (single wiring) (IDEC AS6M-2KT1PB) 2-notch type (Manual stop at each position/A key can be inserted and removed on only the left side./On the right side, a key cannot be removed./Two keys are provided.) 2-position, Maximum rating 1A/24VDC (resistance load), Maximum rating 0.3A/24VDC (induction load), Life: 100,000 times
LED	POWER LED	1 LED Lit in blue: Power is correctly supplied. Lit in orange: Screen saving and backlight not lit. Blinks in orange/blue: Blown back light bulb. Not lit: Power is not supplied.
	LED for grip switch display	1 LED, green (lighting control from display unit part)
	SD card access LED	ON: SD card installed Blink: SD card accessed OFF: SD card not installed or SD card installed but removal possible
	Ethernet communication status LED	LED1: Turns on during data transfer/reception. LED2: Turns on during 100Mbps transmission.
User Memory	User memory capacity	Memory for storage (ROM): 32 MB Memory for operation (RAM): 80 MB
	Life (number of write times)	100000 times
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Operating ambient temperature of 25°C)
Built-in interface	RS-232 ^{*9}	1 channel Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape : Round type 32pins (Male)
	RS-422 ^{*9}	1 channel Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape : Round type 32pins (Male) Terminating resistor : 330Ω (Fixed)
	Ethernet ^{*9}	1 channel Data transfer method: 100BASE-TX, 10BASE-T Connector shape : Round type 32pins (Male)
	USB (Host)	1 channel (Top face) USB version: USB 2.0 (High-Speed 480 Mbps) Connector shape: USB-A
	USB (Device)	1 channel (Top face) USB version: USB 2.0 (High-Speed 480 Mbps) Connector shape: USB Mini-B
	SD card	1 channel, SDHC compliant (maximum 32GB)

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and dark dots cannot be reduced to zero.

*2 Flickering may occur due to vibration, shock, or the display colors.

*3 When a stylus is used, the touch panel has a life of 100 thousand touches.

The stylus must satisfy the following specifications.

- Material: Polyacetal resin
- Tip radius: 0.8 mm or more

*4 To prevent the display section from burning in and lengthen the backlight life, enable the screen save function and turn off the backlight.

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly. Do not touch two points or more simultaneously on the touch panel.

*6 Note that the structure does not guarantee protection in all users' environments. The protection is not applied when the interface environment protection cover or environment protection back cover is removed. The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*7 The minimum size of a key that can be arranged. To ensure safe use of the product, the following settings are recommended.

- Key size: 16 × 16 dots or larger
- Distance between keys: 16 dots or more

*8 The suffix "F" of IP65F is a symbol that indicates protection rate against oil. It is described in the Appendix of Japanese Industrial Standard JIS C 0920.

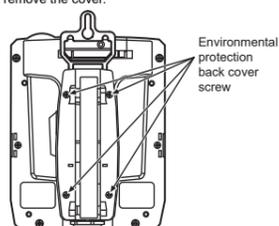
*9 Select either RS-232, RS-422 or Ethernet when used. The channel is set to Ethernet before shipping.

2.3 Power Supply Specifications

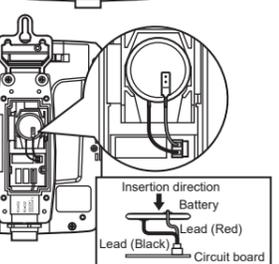
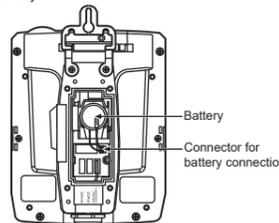
Item	Specifications
	GT2505HS-VTBD
Input power supply voltage	24V DC (+10% -15%)
Power consumption	8.4W or less
	At backlight off
Inrush current	30 A or less (2 ms, ambient temperature: 25 °C, under the maximum load)
Permissible instantaneous power failure time ^{*1}	Within 5ms
Noise immunity	Noise voltage: 1000Vp-p, Noise width: 1μs (by noise simulator of 30 to 100Hz noise frequency)
Dielectric withstand voltage	500 V DC for 1 minute across power supply terminals and earth
Insulation resistance	500 V DC across power supply terminals and earth, 10 MΩ or more by an insulation resistance tester

Battery replacement procedure

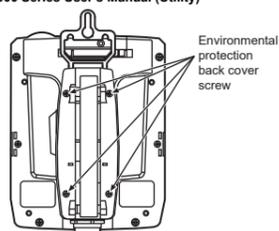
- After keeping the GOT turned ON more than 10 minutes, turn OFF the GOT. Perform steps 2) to 7) within five minutes after turning off the GOT.
- Loosen the environmental protection back cover screws at four points on GOT rear face to remove the cover.



- Remove the old battery from the holder and disconnect the connector.
- Insert the connector of the new battery.
- Install the battery to the GOT.



- Attach the environmental protection back cover and tighten the screws. Tightening torque: 0.36 to 0.48 N·m
- Turn the GOT power on.
- Check if the battery condition is normal with the utility. Refer to the following for the details of battery status display. → GOT2000 Series User's Manual (Utility)



- Battery life
Approximate battery life: 5 years (ambient temperature: 25°C)
Battery replacement: In 4 to 5 years
The battery is susceptible to natural discharge. Order one when necessary. Battery status can be confirmed on a GOT utility screen. For details of battery status or how to output alarm, refer to the following. → GOT2000 Series User's Manual (Hardware)

4. Precautions

4.1 Cautions on Using Emergency Stop Switch

- When using the emergency stop switch in the handy GOT, judge the validity to use the emergency stop switch in accordance with the risk assessment in your system.
- When using the parallel circuit (which disables the emergency stop status while the handy GOT is removed), the system may not conform to the safety standards. Check the safety standards required in the system, and then judge the validity to use the emergency stop switch.
- If a shock which exceeds the general specifications of the Handy GOT is applied, a chattering may occur in the emergency stop switch due to the structure of the switch. Check your usage condition and decide whether to use or not.

「电器电子产品有害物质限制使用标识要求」的表示方式



Note: This symbol mark is for China only.

含有有害6物质的名称, 含有量, 含有部品
本产品中所含有的有害6物质的名称, 含有量, 含有部品如下表所示。

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
显示器	○	○	○	○	○	○
GOT	×	○	○	○	○	○
外壳	○	○	○	○	○	○
印刷基板	×	○	○	○	○	○
电缆	×	○	○	○	○	○

本表格依据SJ/T 11364的规定编制。

○: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
×: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。

Referenced Standard: GB/T15969.2
(Requirement of Chinese standardized law)

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Regardless of the gratis warranty term, Mitsubishi Electric shall not be liable for compensation to:
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(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi Electric products.
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For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.
- This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.