



GT25 Open Frame Model General Description

GOT251F-STNA GOT251F-VTNA GOT2510F-VTNA GOT2510F-VTND
GOT2508F-VTNA GOT2508F-VTND

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

Prior to use, please read both this manual and the detailed manual thoroughly to fully understand the product.

MODEL	GT25F-U-GD-E
Model code	1D7MQ5
IB(NA)-0800553ENG-G(2109)MEE	

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● SAFETY PRECAUTIONS ●

(Always read these precautions before using this equipment.) 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.

Note that the **CAUTION** level may lead to a serious accident according to the circumstances.

Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[DESIGN PRECAUTIONS]

● WARNING

● Some failures of the GOT, communication unit or cable may keep the outputs on or off. Some failures of a touch panel may cause malfunction of the input objects such as a touch switch.

An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.

● Never 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.

Failing to do so may cause an accident due to false output or malfunction.

● The GOT backlight failure disables the operation on the touch switch(s). When the GOT's backlight has a failure, the POWER LED blinks (orange/blue) and the screen of the GOT is dark. In such a case, the input by the touch switch(s) is disabled.

● The display section of the GOT is an analog-resistive type touch panel. Do not touch two points or more simultaneously on the display section.

Doing so may cause a touch switch near the touched points to operate unexpectedly, or may cause an accident due to an incorrect output or malfunction.

● When programs or parameters of the controller (such as a PLC) that is controlled by the GOT are changed, be sure to reset the GOT, or turn on the unit again after shutting off the power as soon as possible.

Not doing so can cause an accident due to false output or malfunction.

● If a communication fault (including cable disconnection) occurs during operation, the GOT will stop communicating with the GOT and the system becomes inoperable.

For bus connection: The PLC CPU becomes faulty and the GOT becomes inoperable.

For wireless LAN bus connection: The GOT becomes inoperable.

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.

● To mount the GOT, the mounting unit (option) and mounting screws must be used.

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Not doing so can cause an accident due to false output or malfunction.

● If a communication fault (including cable disconnection) occurs during operation, the GOT will stop

4. EMC AND LOW VOLTAGE DIRECTIVE

For electromagnetic compatibility (EMC) and electrical safety, regulatory standards are established in each country. Especially, for the products to be sold in European countries, conformance to the EMC Directive, which is one of the European Directives, has been mandatory as the EMC standards since 1996. In addition, conformance to the Low Voltage Directive, another European Directive, has also been mandatory as the electrical safety standards since 1997.

In European countries, if a product meets the requirements of the EMC Directive or the Low Voltage Directive, the product's manufacturer must declare conformity of the product and affix the CE mark to the product. In some countries or regions other than European countries, the product's manufacturer also must declare conformity of the product and affix a designated mark to the product (example: UKCA mark in the UK).

• Authorized representative in the UK and the EU
The authorized representative in the EU and the UK is shown below.
Name : Mitsubishi Electric Europe BV

Address : Mitsubishi-Electric-Plate 1, 40882 Ratingen, Germany
This section describes the EMC Directive and Low Voltage Directive as examples for conformance to EMC and electrical safety standards. EMC and electrical safety standards in each country are stipulated to be consistent with the corresponding international standards. When the requirements are consistent with the same standards, common measures are taken to conform to the standards in different countries. For the EMC Directive, regulatory compliance with equivalent EMC standards are required for example in the UK and Korea. For the Low Voltage Directive, regulatory compliance with equivalent electrical safety standards are required for example in the UK.

4.1 Requirements to Meet EMC Directive

EMC Directives are those which require "any strong electromagnetic force is not output to the external." Emission (electromagnetic interference)" and "It is not influenced by the electromagnetic wave from the external: Immunity (electromagnetic sensitivity)". Items 4.1.1 through 4.1.3 summarize the precautions to use GOT and configure the mechanical unit in order to match the EMC directives. Though the data described herein are produced with our best on the basis of the requirement items and standards of the restrictions gathered by Mitsubishi Electric, they do not completely guarantee that all mechanical unit manufactured according to the data do not always match the above.

4.1.1 EMC directive

The standards of the EMC Directive are shown below.

Applied standard	Test standard	Test details	Standard value
CISPR16-2-3 Radiated noise ¹	Electromagnetic emissions from the product are measured.	30M-230MHz QP: 30dB _μ V/m(30m in measurement range) ^{2,3} 230M-1000MHz QP: 37dB _μ V/m(30m in measurement range) ^{2,3}	
CISPR16-2-1 Conducted noise ¹	Electromagnetic emissions from the power line is measured.	150K-500MHz QP: 79dB _μ Mean: 66dB ² 500K-30MHz QP: 73dB _μ Mean: 60dB ²	
IEC61000-4-2 Electrostatic immunity ¹	Immunity test in which static electricity is applied to the cabinet of the equipment.	±4kV Contact discharge ±8kV Air discharge	
IEC61000-4-3 Radiated electromagnetic field AM modulation	Immunity test in which field is irradiated to the product.	80-1000MHz: 10V/m 1.4-2.6GHz: 3V/m 2.0-2.7GHz: 1V/m 80%AM modulation@1kHz	
IEC61000-4-4 Fast transient burst noise ¹	Immunity test in which burst noise is applied to the power line and signal lines.	Power line: 2kV Digital I/O: 1kV Analog I/O: 1kV Signal lines: 1kV	
IEC61000-4-5 Surge immunity ¹	Immunity test in which lightning surge is applied to the product.	AC power type Power line (between line and ground): ±2kV Power line (between lines): ±1kV Data communication port: ±1kV DC power type Power line (between line and ground): ±0.5kV Power line (between lines): ±0.5kV Data communication port: ±1kV	
IEC61000-4-6 Conducted RF immunity ¹	Immunity test in which a noise is induced on the power and signal lines is applied.	Power line: 10V Data communication port: 10V	

Applied standard	Test standard	Test details	Standard value
EN61131-2 : 2007	IEC61000-4-8 Power supply frequency magnetic field immunity	Test for checking normal operations under the circumstances exposed to the electromagnetic field noise of the power supply frequency (50/60Hz).	30 A/m
	IEC61000-4-11 Instantaneous power failure and voltage dips immunity	Test for checking normal operations at instantaneous power failure.	AC power type 0.5 cycle 0% (interval 1 to 10s) 250/300 cycle 0% 10/12 cycle 40% 25/30 cycle 70%

*1: The GOT is an open type device (device installed to another device) and must be installed in a conductive control panel.
The following test items are conducted in the condition where the GOT is installed on the conductive control panel and combined with the Mitsubishi Electric PLC.
*2: QP (Quasi-Peak): Quasi-peak value, Mean: Average value
*3: The above test items are conducted in the following conditions.
30M-230MHz QP: 40dB_μV/m (10m in measurement range)
230M-1000MHz QP: 47dB_μV/m (10m in measurement range)

4.1.2 Control panel

The GOT is an open type device (device installed to another device) and must be installed in a conductive control panel.

It not only assure the safety but also has a large effect to shut down the noise generated from GOT, on the control panel.

(1) Control Panel

- (a) The control panel must be conductive.
- (b) When fixing a top or bottom plate of the control panel with bolts, do not coat the plate and bolt surfaces so that they will come into contact.
- And connect the door and box using a thick grounding cable in order to ensure the low impedance under high frequency.
- (c) When using an inner plate to ensure electric conductivity with the control panel, do not coat the fixing bolt area of the inner plate and control panel to ensure conductivity in the largest area as possible.

(d) Ground the control panel using a thick grounding cable in order to ensure the low impedance under high frequency.

(e) The diameter of cable holes in the control panel must be 10cm (3.94in.). In order to reduce the chance of radio waves leaking out, ensure that the space between the control panel and its door is small as possible.

Paste the EMI gasket directly on the painted surface to seal the space so that the leak of electric wave can be suppressed. Our test has been carried out on a panel having the damping characteristics of 37dB max. and 30dB mean (measured by 3m method with 30 to 300MHz).

(2) Connection of power and ground wires

Ground and power supply wires for the GOT must be connected as described below.

(a) Provide a grounding point near the GOT. Short-circuit the LG and FG terminals of the GOT (LG: line ground, FG: frame ground) and ground them with the thickest and shortest wire possible (The wire length must be 30cm (11.81in.) or shorter.)

The LG and FG terminals function is to pass the noise generated in the PC system to the ground, so an impedance that is as low as possible must be ensured. As the wires are used to relieve the noise, the wire itself carries a large noise content and thus short wiring means that the wire is prevented from acting as an antenna.

(b) Note! A long conductor will become a more efficient antenna at high frequency.

(b) The earth wire led from the earthing point must be twisted with the power supply wires.

By twisting with the earthing wire, noise flowing from the power supply wires can be relieved to the earthing. However, if a filter is installed on the power supply wires, the wires and the earthing wire may not need to be twisted.

4.1.3 Noise filter (power supply line filter)

The noise filter (power supply line filter) is a device effective to reduce conducted noise. Except some models, installation of a noise filter onto the power supply lines is not necessary. However conducted noise can be reduced if it is installed. (The noise filter is generally effective for reducing conducted noise in the band of 10MHz or less.) Usage of the following filters is recommended.

Model name	FN343-3/05	FN660-6/06	RSHN-2003
Manufacturer	SCHAFFNER	SCHAFFNER	TDK
Rated current	3A	6A	3A
Rated voltage	250V		

The precautions required when installing a noise filter are described below.

(1) Do not install the input and output cables of the noise filter together to prevent the output side noise will be induced into the input side cable where noise has been eliminated by the noise filter.

Input side (power supply side)

Induction

Output side (device side)

Filter

Input side (power supply side)

Induction

Output side (device side)

Filter

• Separating the input and output cables together will cause noise induction.

(2) Connect the noise filter's ground terminal to the control panel with the shortest cable as possible (approx. 10cm (3.94 in.) or less).

4.2 Requirements for Compliance with the Low Voltage Directive

The Low Voltage Directive requires each device which operates with power supply ranging from 50VAC to 1000V and 75VDC to 1500V to satisfy necessary safety items.

In the Sections from 4.2.1 to 4.2.4, cautions on installation and wiring of the GOT to conform to the Low Voltage Directive are described. We have put the maximum effort to develop this material based on the requirements and standards of the Directive that we have collected. However, compatibility of the devices which are fabricated according to the contents of this manual to the above Directive is not guaranteed. Each manufacturer who fabricates such device should make the final judgement about the application method of the Low Voltage Directive and the product compatibility.

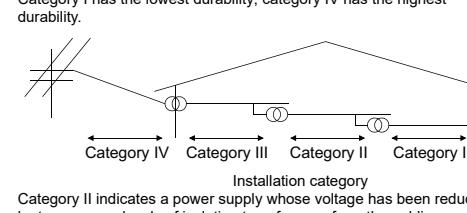
4.2.1 Standard subject to GOT

Standard applied to GOT : EN61131-2 Programmable controllers - Equipment requirements and tests

4.2.2 Power supply

The insulation specification of the GOT was designed assuming installation category II. Be sure to use the installation category II power supply to the GOT.

The installation category indicates the durability level against surge voltage generated by lightning strike. Category I has the lowest durability; category IV has the highest durability.



Category II indicates a power supply whose voltage has been reduced by two or more levels of isolating transformers from the public power distribution.

4.2.3 Control panel

Because the GOT is open type equipment (device designed to be stored within another device), be sure to use it only when installed in a control panel.

(1) Shock Protection

In order to prevent those who are unfamiliar with power facility, e.g., an operator, from getting a shock, make sure to take the following measures on the control panel.

(a) Store the GOT within the control panel locked, and allow only those who are familiar with power facility to unlock the panel.

(b) Build the structure in order that the power supply will be shut off when the control panel is opened.

(2) Dustproof and waterproof features

The control panel also provides protection from dust, water and other substances. Insufficient ingress protection may lower the insulation withstand voltage, resulting in insulation destruction.

The insulation in the GOT is designed to cope with the pollution level 2, so use in an environment with pollution level 2 or better.

Pollution level 1: An environment where the air is dry and conductive dust does not exist.

Pollution level 2: An environment where conductive dust does not usually exist, but occasional temporary conductivity occurs due to the accumulated dust.

Generally, this is the level for inside the control panel equivalent a control room or on the floor of a typical factory.

Pollution level 3: An environment where conductive dust exists and conductivity may be generated due to the accumulated dust.

An environment for a typical factory floor.

Pollution level 4: Continuous conductivity may occur due to rain, snow, etc. An outdoor environment.

4.2.4 Grounding

The following are applicable ground terminals. Use them in the grounded state.

Be sure to ground the GOT for ensuring the safety and complying with the EMC Directive.

Functional grounding : Improves the noise resistance.

4.2.5 External wiring

(1) External devices

When a device with a hazardous voltage circuit is externally connected to the GOT, select a model which complies with the Low Voltage Directive's requirements for isolation between the primary and secondary circuits.

(2) Insulation requirements

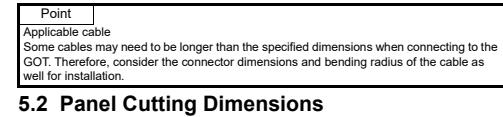
Dielectric withstand voltages are shown in the following table. Reinforced Insulation Withstand Voltage (Installation Category II, source : IEC664)

Rated voltage of hazardous voltage area	Surge withstand voltage (1.2/50/μs)
150VAC or below	2500V
300VAC or below	4000V

5. INSTALLATION

5.1 Control Panel Inside Dimensions for Mounting GOT

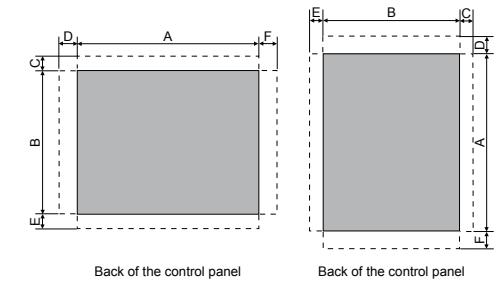
Install the GOT on the control panel out of the way for the equipment inside the control panel. Do not install the GOT and the unit in prohibited areas for the installation.



Point
Applicable cable
Some cables may need to be longer than the specified dimensions when connecting to the GOT. Therefore, consider the connector dimensions and bending radius of the cable as well for installation.

5.2 Panel Cutting Dimensions

Open an installation hole on the control panel with the dimensions as shown below.



*1: This value is for use of the coaxial cable 3C-2V (JIS C 3501). For specifications of the cable, refer to the GOT2000 Series Connection Manual for a controller used.

*2: This value differs depending on the cable used.

*3: When opening or closing the battery cover, 72(2.83) or more

5.5 Control Panel Inside Temperature and Installation Angle

When installing the GOT to a panel, set the display section as shown below. Using the GOT with the installation angle other than the following deteriorates the GOT earlier.

Installing the GOT horizontally
When installing the GOT with the installation angle between 60 to 105 °, the temperature inside the control panel must be within 55 °C.

When installing the GOT with the installation angle other than between 60 to 10

5. INSTALLATION

5.1 Dimensions intérieures du tableau de commande pour le montage du GOT

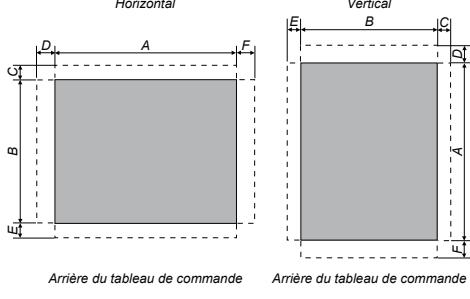
Installez le GOT sur le tableau de commande en laissant de l'espace pour le dispositif à l'intérieur du tableau de commande. N'installez pas le GOT et le module dans des zones où l'installation est interdite.

Point

Certains câbles peuvent être plus longs que les dimensions spécifiées lors de la connexion au GOT. Par conséquent, prenez également en compte les dimensions du connecteur et le rayon de courbure du câble pour l'installation.

5.2 Cotes de découpe du panneau

Ouvrez un orifice d'installation sur le tableau de commande avec les cotes indiquées ci-dessous.



Les cotes C à F indiquent les mesures d'installation des raccords sur le tableau de commande.

De plus, installez les goujons sur le tableau de commande.

Pour plus d'informations sur l'installation des goujons, voir ce qui suit.

5.3 Goujon

5.3.1 Spécifications des goujons

Utilisez les goujons qui répondent aux spécifications suivantes.

Diamètre	Longueur
M4	10 mm (0,39 pouce) ou plus

Les goujons sur le tableau de commande doivent avoir une résistance suffisante pour supporter un couple de serrage de 0,9 N·m ou plus.

Assurez-vous qu'aucune matière étrangère, comme des déchets de soudure, ne se colle sur la base des goujons.

Serrez les écrous sur les goujons dans la plage de couple de serrage spécifiée (entre 0,8 et 0,9 N·m) avec une clé pour écrous M4.

5.3.2 Distance entre les goujons

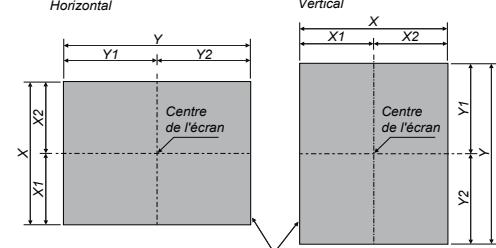
Pour monter le GOT sur le tableau de commande, des goujons sont nécessaires.

Alignez les goujons avec les orifices d'installation des raccords, et installez les goujons.

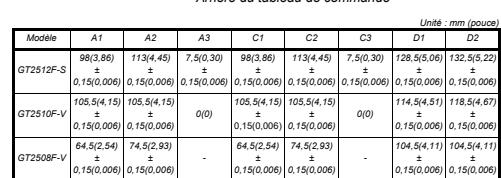
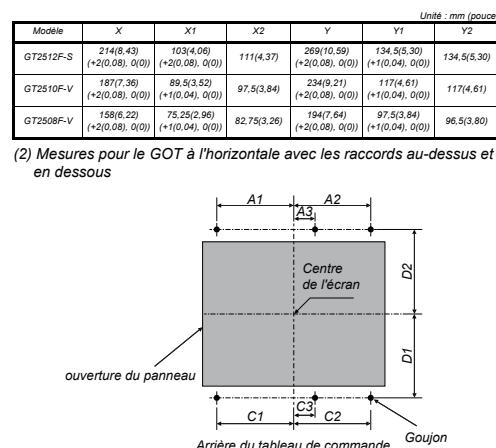
Les raccords doivent être installés au-dessus et en dessous, ou à droite et à gauche du GOT.

Pour GT2512F, il vous est conseillé d'installer les raccords sur les côtés longs du GOT.

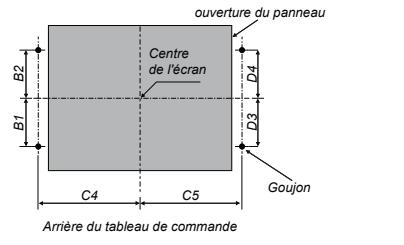
(1) Mesures basées sur le centre de l'écran



(2) Mesures pour le GOT à l'horizontale avec les raccords au-dessus et en dessous



(3) Mesures pour le GOT à l'horizontale avec les raccords à droite et à gauche



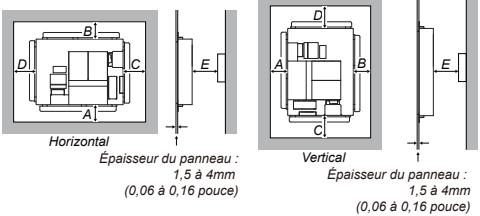
5.4 Position de montage

Lors du montage du GOT, laissez les espaces suivants pour les autres structures et dispositifs. Certains câbles peuvent être plus longs que les dimensions spécifiées lors de la connexion au GOT.

Par conséquent, prenez également en compte les dimensions du connecteur et le rayon de courbure du câble pour l'installation.

Pour connaître l'espace à laisser pour les câbles sous le GOT, référez-vous au manuel GOT2000 Series User's Manual (Hardware).

Pour l'installation à la verticale, installez le GOT de sorte que la flèche d'installation à la verticale imprimée sur la face arrière du GOT pointe vers le haut.



Laissez les espaces entre le GOT et les autres dispositifs en fonction des dimensions contenues dans le tableau suivant. Les valeurs entre parenthèses s'appliquent au cas où aucun dispositif générant des émissions sonores (comme un contacteur) ou de la chaleur n'est installé près du GOT.

Toutefois, maintenez la température ambiante du GOT à 55°C ou moins.

Unité : mm (pouce)

Article	GT2512F-S	GT2510F-V	GT2508F-V
GOT uniquement	58(2,28) ou plus [28(1,10) ou plus]	58(2,28) ou plus [39(1,54) ou plus]	
Unité de communication Ethernet encastrée	58(2,28) ou plus [28(1,10) ou plus]		
Unité de connexion de bus encastrée	58(2,28) ou plus [28(1,10) ou plus]	33(1,30) ou plus [39(1,54) ou plus]	
Unité de connexion série encastrée	58(2,28) ou plus [28(1,10) ou plus]		
Module de communication CC-Link (J15-J61BT13) encastré	58(2,28) ou plus [28(1,10) ou plus]		
Module de communication MELSCONET/H (coaxial) encastré ¹	58(2,28) ou plus [48(1,89) ou plus]	58(2,28) ou plus [55(2,17) ou plus]	77 (3,03) ou plus
Module de communication MELSCONET/H (optique) encastré ²	58(2,28) ou plus [28(1,10) ou plus]		
Module de communication réseau de contrôleur CC-Link IE encastré	58(2,28) ou plus [28(1,10) ou plus]		
Module de communication réseau de champ CC-Link IE encastré	58(2,28) ou plus [28(1,10) ou plus]		
Imprimante encastrée	58(2,28) ou plus [28(1,10) ou plus]		
Module d'E/S externe encastré	58(2,28) ou plus [28(1,10) ou plus]		
Module de sortie acoustique encastré	58(2,28) ou plus [28(1,10) ou plus]		
Horizontal: 88 (3,46) ou plus [28(1,10) ou plus]			
Vertical: 58 (2,28) ou plus [28(1,10) ou plus]			
Quand la carte SD est utilisée	58(2,28) ou plus [28(1,10) ou plus]	58(2,28) ou plus [28(1,10) ou plus]	
Quand la carte SD n'est pas utilisée	58(2,28) ou plus [28(1,10) ou plus]		
Horizontal: 58(2,28) ou plus [28(1,10) ou plus]			
Vertical: 88 (3,46) ou plus [28(1,10) ou plus]			
D	100 (3,94) ou plus [20 (0,79) ou plus]		

¹: Cette valeur est utilisée pour le câble coaxial 3C-2V (JIS C 3501).

Pour connaître les spécifications du câble, référez-vous au manuel GOT2000 Series Connection Manual for a controller used.

²: Cette valeur diffère selon le câble utilisé.

³: Pour ouvrir ou fermer le couvercle de la batterie : 72 (2,83) ou plus

5.5 Température intérieure et angle d'installation du tableau de commande

Lors de l'installation du GOT sur un panneau, réglez la zone d'affichage comme indiqué ci-dessous.

Si l'angle d'installation est différent de celui indiqué, le GOT se détériore plus tôt.

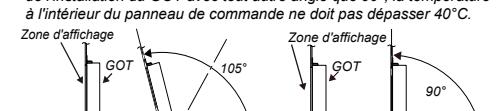
Installation du GOT à l'horizontale

Lors de l'installation du GOT avec un angle d'installation compris entre 60 et 105°, la température à l'intérieur du tableau de commande doit être d'environ 55°C. Lors de l'installation du GOT avec un angle d'installation non compris entre 60 et 105°, la température à l'intérieur du panneau de commande ne doit pas dépasser 40°C.

Installation du GOT à la verticale

Lors de l'installation du GOT avec un angle de 90°, la température à l'intérieur du panneau de commande ne doit pas dépasser 55°C. Lors de l'installation du GOT avec tout autre angle que 90°, la température à l'intérieur du panneau de commande ne doit pas dépasser 40°C.

Zone d'affichage



5.6 Installation du GOT

Pour serrer les raccords sur le tableau de commande, des goujons sont nécessaires.

1) Installez les raccords fournis sur le GOT avec des vis.

2) Alignez les orifices d'installation des raccords avec les goujons, et insérez les goujons dans les orifices.

Pour des détails sur les instructions d'installation du GOT, référez-vous au manuel GOT2000 Series User's Manual (Hardware).

6. MAINTENANCE AND INSPECTION

Refer to the GOT2000 Series User's Manual (Hardware) for maintenance and inspection for the GOT.

Warranty

Mitsubishi Electric will not be held liable for damage caused by factors found not to be the cause of Mitsubishi Electric; machine damage or lost profits caused by faults in the Mitsubishi Electric products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi Electric; damages to products other than Mitsubishi Electric products; and to other duties.

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.

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