

*5 For the GT1155-QSBDA, use GT Designer2 Version2 with the version 2.59M or later.

*6 For the GT1155-QSBDQ, when its hardware version is Z or earlier, the specifications of the liquid crystal display are as follows.
Left/Right: 55 degrees, Top: 65 degrees, Bottom: 70 degrees

For the GT1155-QSBDA, when its hardware version is X or earlier, the specifications of the liquid crystal display are as follows.
Left/Right: 55 degrees, Top: 65 degrees, Bottom: 70 degrees

3.3 Built-in Interface Specifications

Item	Specifications	
	GT1155-QTBDQ GT1155-QSBDQ GT1150-QLBDQ	GT1155-QTBDA GT1155-QSBDA GT1150-QLBDA
BUS	Bus interface for connecting to the QCPU (Q mode) and motion controller CPU (Q series) 1ch Application : For communicating with a programmable controller	-
RS-232	Conforming to serial RS232 standard, 1ch Transmission speed: 115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape : D-sub 9-pin (Male) Application : Bar code reader connection, Personal computer communication (Project data upload/download, OS installation, transparent function)	Bus interface for connecting to the QnACPU, ACPU, and motion controller CPU (A series) 1ch Application : For communicating with a programmable controller
USB	Conforming to serial USB (Full Speed 12Mbps) device, 1ch Application: Personal computer communication (Project data upload/download, OS installation, transparent function)	-
CF card	Conforming to PCMCIA, compact flash slot, 1ch Connector shape : Dedicated for TYPE I Application : Data transfer, data storage	-

3.4 Power Supply Specifications

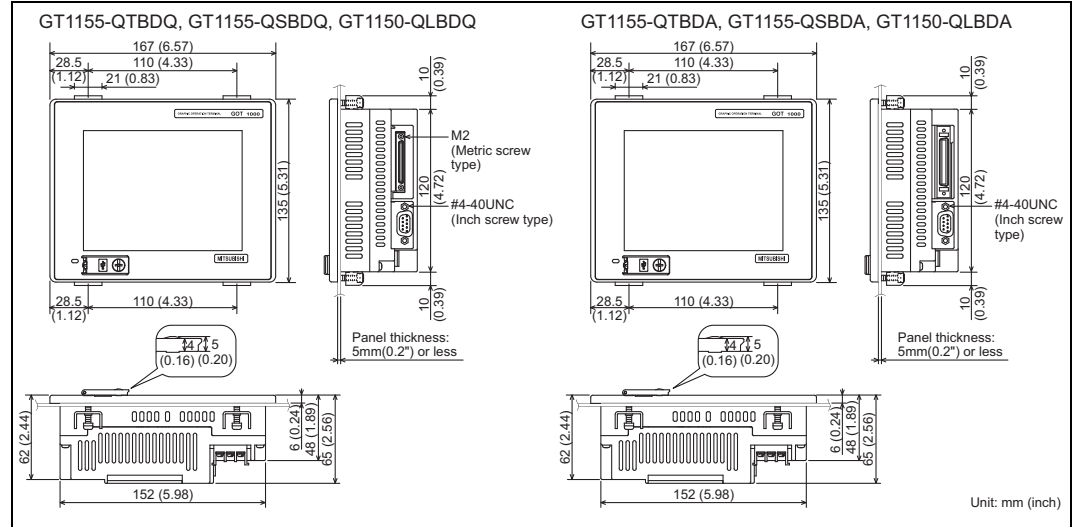
Item	Specifications		
	GT1155-QTBDQ GT1155-QTBDA	GT1155-QSBDQ GT1155-QSBDA	GT1150-QLBDQ GT1150-QLBDA
Input power supply voltage	24VDC (+10% -15%), ripple voltage 200mV or less		
Fuse (built-in, not exchangeable)	1.0A		
Power consumption	11.16W (465mA/24VDC) or less	9.72W (405mA/24VDC) or less	7.92W (330mA/24VDC) or less
At backlight off	5.04W (210mA/24VDC) or less		
Inrush current	26A or less (26.4V) 4ms		
Permissible instantaneous power failure time ¹	Within 10ms		
Noise immunity	Noise voltage: 500Vp-p, Noise width: 1μs (by noise simulator of 25to 60Hz noise frequency)		
Dielectric withstand voltage ²	500VAC for 1 minute (across power supply terminals and earth)		
Insulation resistance ²	10MΩ or larger by a 500VDC insulation resistance tester (across power supply terminals and earth)		
Applicable wire size	0.75 to 2[mm ²]		
Applicable solderless terminal	Solderless terminal for M3 screw RAV1.25-3, V2-N3A, FV2-N3A		
Applicable tightening torque (Terminal block terminal screw)	0.5 to 0.8[N·m]		

*1 The GOT continues to operate even upon 5ms or shorter instantaneous power failure.

The GOT stops operating if there is extended power failure or voltage drop, while it automatically resumes operation as soon as the power is restored.

*2 A surge absorber is connected between the power supply and earth terminal so that the GOT does not malfunction due to applied lightning surge noise. Values without a surge absorber are described for the dielectric withstand voltage and the insulation resistance.

3.5 External Dimensions



4. EMC AND LOW VOLTAGE DIRECTIVE

For the products sold in European countries, the conformance to the EMC Directive, which is one of the European Directives, has been a legal obligation since 1996. Also, conformance to the Low Voltage Directive, another European Directives, has been a legal obligation since 1997.

Manufacturers who recognize their products must conform to the EMC and Low Voltage Directive are required to declare that their products conform to these Directives and put a "CE mark" on their products.

4.1 Requirements for Conformance to EMC Directive

The EMC Directive specifies that products placed on the market must "be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)". The applicable products are requested to meet these requirements. The sections 4.1.1 through 4.1.3 summarize the precautions on conformance to the EMC Directive of the machinery constructed using the GOT. The details of these precautions has been prepared based on the requirements and the applicable standards control. However, we will not assure that the overall machinery manufactured according to these details conforms to the above-mentioned directives. The method of conformance to the EMC Directive and the judgment on whether or not the machinery conforms to the EMC Directive must be determined finally by the manufacturer of the machinery.

4.1.1 Standards applicable to the 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 (89/336/EEC) when used as directed by the appropriate documentation.
Type : Programmable Controller (Open Type Equipment)
Models : MELSEC GOT series products, identified here, manufactured from January 7th, 2008
GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA, GT1150-QLBDQ, GT1150-QLBDA (For this product see note under and

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

4.1.2 Control cabinet

The GOT is an open type device (device installed to another device) and must be installed in a conductive control panel or cabinet.
It not only assure the safety but also has a large effect to shut down the noise generated from GOT, on the control panel.

- Control cabinet
 - Use a conductive control cabinet.
 - When attaching the control cabinet's top plate or base plate, mask painting and weld so that good surface contact can be made between the cabinet and plate.
 - To ensure good electrical contact with the control cabinet, mask the paint on the installation bolts of the inner plate in the control cabinet so that contact between surfaces can be ensured over the widest possible area.
 - Earth the control cabinet with a thick wire so that a low impedance connection to ground can be ensured even at high frequencies. (22mm 2 wire or thicker is recommended.)
 - Holes made in the control cabinet must be 10 cm (3.94") diameter or less. If the holes are 10cm (3.94") or larger, radio frequency noise may be emitted. In addition, because radio waves leak through a clearance between the control panel door and the main unit, reduce the clearance as much as practicable. The leakage of radio waves can be suppressed by the direct application of an EMI gasket on the paint surface.

- Connection of power and ground wires

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

 - Provide an earthing point near the GOT. Earth the power supply's FG terminal (FG: Frame Ground) with the thickest and shortest wire possible. (The wire length must be 30cm (11.81") or shorter.) The FG terminal function is to pass the noise generated in the GOT 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. Note) A long conductor will become a more efficient antenna at high frequency.

- Electrical shock prevention

In order to such as the operators from electric shocks, the control box must have the following functions :

 - The control cabinet must be equipped with a lock so that only skilled or qualified personnel.
 - The control cabinet must be fitted with advice which automatically stops the power supply when the cabinet is opened.

- Dustproof and waterproof features

The control box also has the dustproof and waterproof functions. Insufficient dustproof and waterproof features lower the insulation withstand voltage, resulting in insulation destruction.
The insulation in our 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 box 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.

4.1.3 Grounding

It is necessary to use the GOT grounding terminal only when it is in the grounded condition.
Be sure to ground the grounding for the safety reasons and EMC Directives.
Functional grounding \perp : Improves the noise resistance.

4.2 Wiring Precautions the Part which Matches the EMC Directives

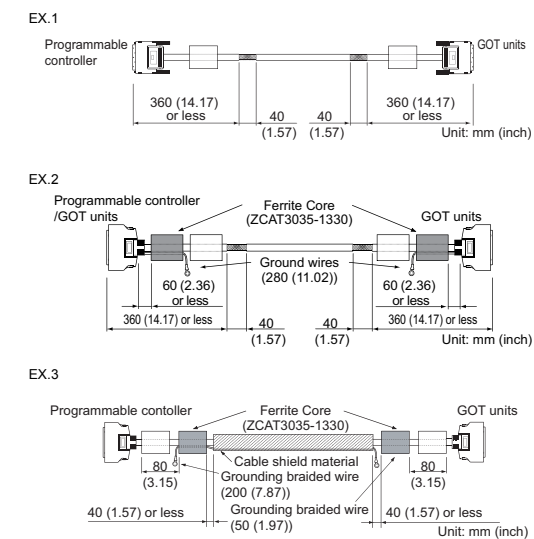
Connect and wire GOT equipment as instructed below.
If the GOT equipment is configured in a way that differs from the following instructions then the system will not comply with EMC directives.

4.2.1 About the cable used

Connect and wire GOT equipment as instructed below.
If the GOT equipment is configured in a way that differs from the following instructions then the system will not comply with EMC directives.
Bus connection cable
The following products are used in the EMC specification compatibility test conducted by Mitsubishi Electric Corporation.

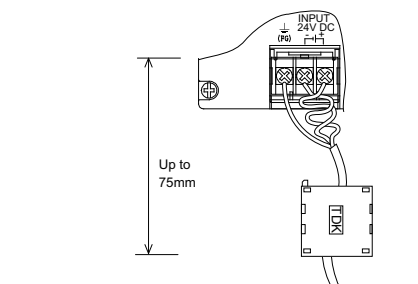
- ZCAT3035-1330 ferrite core manufactured by TDK corporation
- AD75CK-type cable clamp manufactured by MITSUBISHI
- Zipper tube SHNJ type manufactured by Zippertubing(Japan), Ltd.

GOT Unit	Existing Cables	User Made Cables
GT1155-QTBDQ, GT1155-QSBDQ, GT1150-QLBDQ	GT15-QC□B, GT15-QC□BS modified as shown in EX.1. Peel the sheath at both ends of the cable, and expose the shield braided wire for grounding. (For grounding with clamps, refer to Section 4.2.3.)	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-QnA series, and MELSEC-A series.
GT1155-QTBDA, GT1155-QSBDA, GT1150-QLBDA	GT15-C□BS, cGT15-C□EXSS-S1 modified as shown in EX.2. Peel the sheath at both ends of the cable, and expose the shield braided wire for grounding. (For grounding with clamps, refer to Section 4.2.3.) Other bus connection cables modified as shown in EX.3. Wind cable shield material around the cable, and pull out the grounding braided wire of the cable shield material. Attach the ferrite core to the cable in the specified position and insert the braided wire for grounding into the ferrite core.	



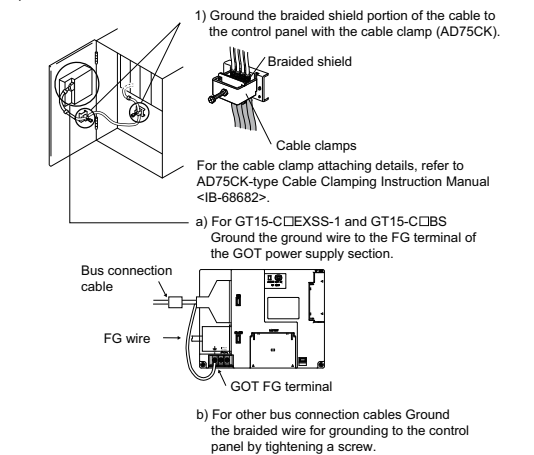
4.2.2 Method to connect the power wire and ground wire

1) GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA, GT1150-QLBDQ, GT1150-QLBDA
Twist the 24VDC cables to connect to the GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA, GT1150-QLBDQ, and GT1150-QLBDA. The ferrite filter is not required for the 24VDC cables. The GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA, GT1150-QLBDQ, and GT1150-QLBDA unit 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 GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA, GT1150-QLBDQ, and GT1150-QLBDA as possible (which should be within 75mm of the GOT terminal).



4.2.3 Grounding the cable

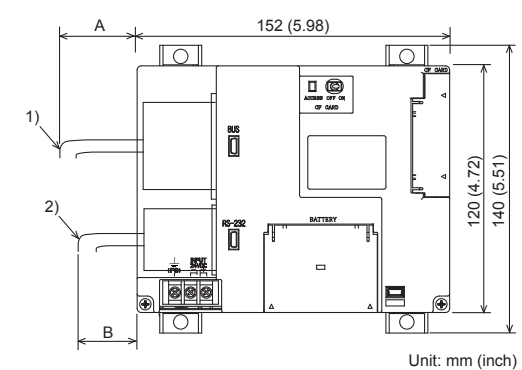
Use the bus connection cable to ground the cable and grounding wire to the control panel where the GOT and base unit are installed.



5. INSTALLATION

5.1 Control Panel Inside Dimensions for Mounting GOT

Mount the GOT onto the control panel while considering the following control panel inside dimensions.



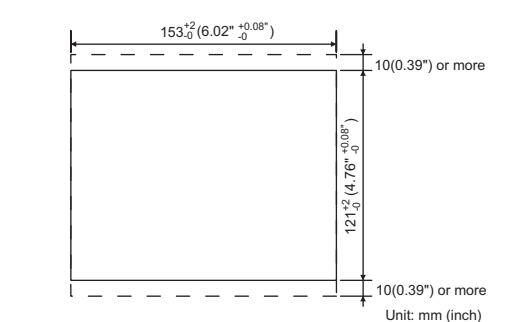
Model Name	A	B
GT1155-QTBDQ GT1155-QSBDQ GT1150-QLBDQ	56 (2.20)	40 (1.57)
GT1155-QTBDA GT1155-QSBDA GT1150-QLBDA	38 (1.50)	40 (1.57)

No	Name
1)	Bus connection cable
2)	Personal computer connection cable/bar code reader connection cable

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

Make holes in the panel according to the dimensions list below. Also, ensure 10mm spaces in upper and lower parts of the panel for mounting fixtures.



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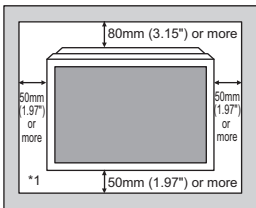
5.3 Mounting Position

When mounting the GOT, the clearances shown on the right must be left from a structure or the other device.

Secure 50mm (1.97") or more on the left, right and bottom sides of the GOT to structures or other devices.

Secure 80mm (3.15") or more on the top of the GOT from structures or other devices to allow good ventilation. If devices (such as a contactor) generating radiated noise or those generating heat are arranged around the GOT, secure 100mm (3.94") or more on the back panel.

When using the CF card, secure a sufficient distance on the left side to allow installation and removal of the CF card. [Securing 100mm (3.94") or more is recommended.]

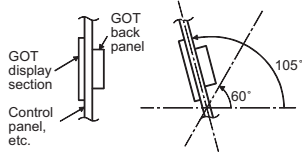


5.4 Control Panel Inside Temperature and Mounting Angle

When mounting the main unit to a control panel or similar, set the display section as shown below.

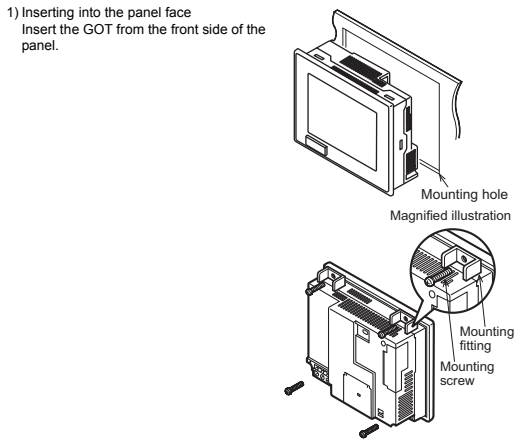
When the temperature inside the control panel is 40 to 55°C (Horizontal mount), 40 to 50°C (Vertical mount), the mounting angle should be in the range 60° to 105° degrees.

- The GOT will be deteriorated earlier if it is used at the mounting angle other than the above. Therefore, the temperature inside the control panel should be within 40°C.



5.5 Installation Procedure

The GOT is designed to be embedded into a panel. Mount the GOT by following the procedure below. For panel cutting dimensions, refer to Section 4.2. Note that the panel thickness should be within 5mm.



2) Fixing the GOT
Engage the hook of the mounting fitting (accessory) to the unit fixing hole of the GOT and tighten the screw until the GOT is fixed with the mounting bolt (accessory).

3) A protection film is attached on the display section of GOT prior to shipment. Remove the film when the installation is completed.

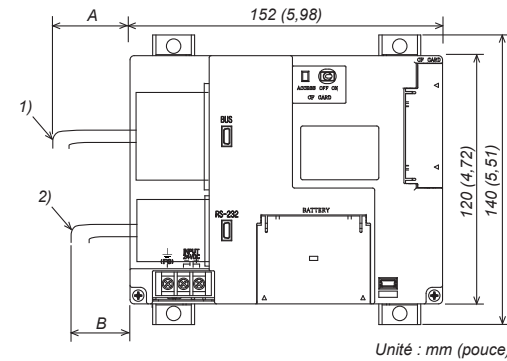
The GOT will be fixed in 4 upper/lower parts. Tighten the mounting screw with the specified torque. (Failure to do so may distort the panel and make a surface waviness on the protective sheet.)

5. INSTALLATION

5.1 Dimensions intérieures du tableau de commande pour le

montage du GOT

Montez le GOT sur le tableau de commande en tenant compte des dimensions intérieures du tableau de commande ci-dessous.



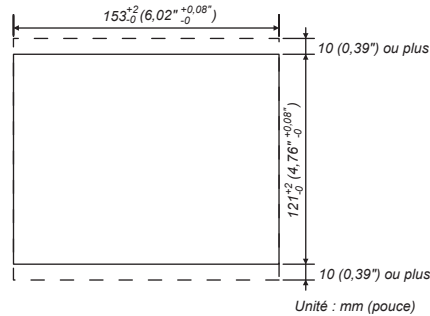
Nom du modèle	A	B
GT1155-QTBDQ GT1155-QSBDQ GT1150-QLBDQ	56 (2,20)	40 (1,57)
GT1155-QTBDA GT1155-QSBDA GT1150-QLBDA	38 (1,50)	40 (1,57)

N	Nom
1)	Câble de connexion du bus
2)	Câble de connexion de l'ordinateur individuel/câble de connexion du lecteur de code-barres

Câble applicable
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

Faites des trous dans le panneau en suivant les dimensions ci-dessous. Veillez à laisser des espaces de 10mm dans les parties supérieure et inférieure du panneau pour les fixations.



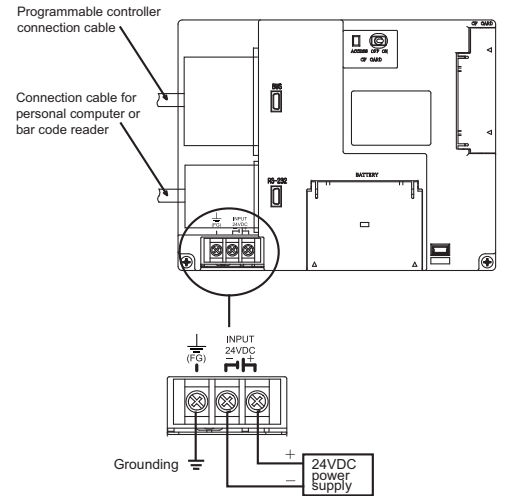
6. WIRING

6.1 Power Supply Wiring

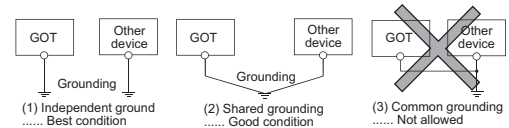
Connect the power terminal on the GOT rear face with the 24VDC terminal of the external power.

Use 0.75mm² or more cables so as not to produce voltage drops.

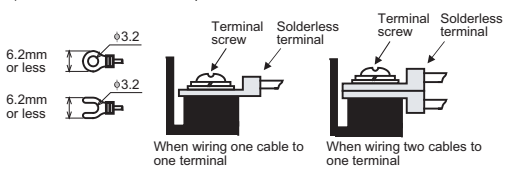
Use solderless terminals for M3 screws, and be sure to tighten the screws with a tightening torque of 0.5 to 0.8N·m.



- The independent grounding is basically required. Ground the GOT with a ground resistance of 100Ω or less.
- If the independent grounding is impossible, carry out the shared grounding as shown in fig.2) below.
- Use the cable of 2mm² or more for grounding. Set the grounding point closer to the GOT to make the grounding cable short as possible.



1) Recommended terminal shape



Applicable solderless terminal	RAV 1.25-3, V2-N3A and FV2-N3A
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7. MAINTENANCE AND INSPECTION

The GOT does not include consumable components that will cause the shorten life. However, note that battery life is 5 years and LCD life is 50,000 hours. The life of backlight in GT1155-QTBDQ, GT1155-QTBDA, GT1155-QSBDQ, GT1155-QSBDA is 75,000 hours and that in GT1150-QLBDQ, GT1150-QLBDA is 54,000 hours. It is recommended to replace the battery periodically. (For the replacement of the liquid crystal screen and backlight, please consult your nearest sales office or FA Center.)

7.1 Daily Inspection

No.	Inspection Item	Inspection Method	Criterion	Action	
1	GOT mounting status	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. → GT11 User's Manual

7.2 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	Make measurement with thermometer or hygrometer Measure corrosive gas	Display section 0 to 50°C Other portions 0 to 55°C 10 to 90%RH No corrosive gas	For use in control panel, temperature inside control panel is ambient temperature
		Ambient humidity			
		Atmosphere			
2	Power supply voltage check	24VDC Measure voltage across terminals.	20.4 to 26.4VDC	Change supply power	
3	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

7.3 Battery Replacement

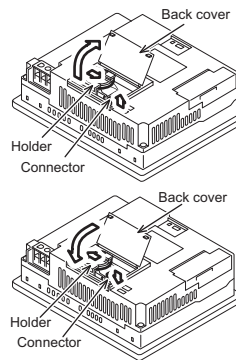
The battery backs up clock data, alarm history and recipe data. Screen data is stored in the flash memory and data is retained even if the battery is dead.

- Battery model name
GT11□□ is shipped with the following battery.

Product name	Model name
Battery	GT11-50BAT

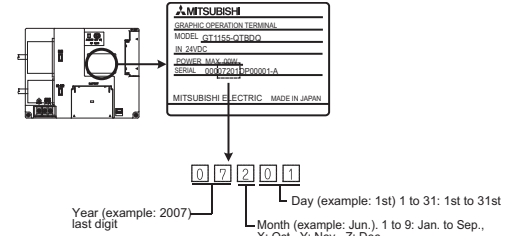
Battery replacement procedure

- Turn the GOT power off.
- Open the back cover of the GOT.
- Remove the old battery from the holder.
- Disconnect the old battery connector and insert the new battery connector within 30s. (Clock data, alarm history, and recipe data is retained by the GOT condenser for 30 seconds.)
- Insert the new battery into the holder and close the back cover.



How to confirm production year and month

The production year and month of the battery built in the purchased GOT can be confirmed by the production No. (serial No.) marked on the GOT main unit.



Battery life

Approximate battery life:
5 years (ambient temperature: 25°C) [Guaranteed for 1 year]
Battery replacement: In 4 to 5 years

Approximate life is 5 years, but life may be shorter depending on the ambient temperature, therefore, note that the battery must be replaced in 4 to 5 years. Make sure to purchase a new battery as needed as it self-discharges.

Battery status can be confirmed on a GOT utility screen. For details of battery status or how to output alarm, refer to the following: → GT11 User's Manual

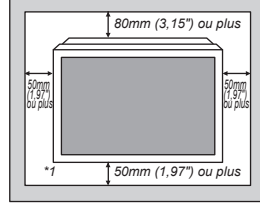
5.3 Position de montage

Lors du montage du GOT, il est nécessaire de laisser les espaces indiqués à droite pour une structure ou un autre dispositif. Laissez 50mm (1,97") ou plus sur les côtés gauche, droit et inférieur du GOT pour des structures ou d'autres dispositifs.

Laissez 80mm (3,15") ou plus sur le côté supérieur du GOT pour des structures ou d'autres dispositifs afin d'assurer une bonne ventilation.

Si des dispositifs (comme un contacteur) générant des émissions sonores ou de la chaleur sont placés autour du GOT, laissez 100mm (3,94") ou plus sur le panneau arrière.

Lors de l'utilisation de la carte CF, laissez une distance suffisante sur le côté gauche pour pouvoir insérer et retirer la carte CF. [Il est recommandé de laisser 100mm (3,94") ou plus.]

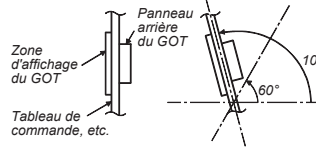


5.4 Température intérieure et angle de montage du tableau de commande

Lors du montage du châssis de base sur un tableau de commande ou autre, réglez la zone d'affichage comme indiqué ci-dessous.

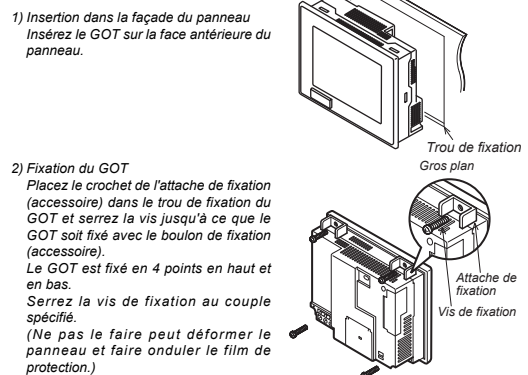
Lorsque la température à l'intérieur du tableau de commande est comprise entre 40 et 55°C (montage horizontal), 40 à 50°C (montage vertical), l'angle de montage doit être compris entre 60° et 105°.

- Si l'angle de montage est différent de celui indiqué, le GOT sera détérioré plus tôt. Par conséquent, la température à l'intérieur du tableau de commande doit être d'environ 40°C.



5.5 Procédure d'installation

Le GOT est conçu pour s'intégrer dans un panneau. Montez le GOT en suivant la procédure ci-dessous. Pour connaître les cotes de découpe du panneau, référez-vous à la section 5.2. Notez que l'épaisseur du panneau doit être d'environ 5mm.



3) Un film de protection est placé sur la zone d'affichage du GOT avant livraison. Retirez le film lorsque l'installation est terminée.

Warranty

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

Country/Region	Sales office/Tel
USA	Mitsubishi Electric Automation, Inc. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A. Tel: +1-847-478-2100
Brazil	Mitsubishi Electric do Brasil Comercio e Servicos Ltda. Avenida Adelfino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brasil CEP 06401-147 Tel: +55-11-4689-3000
Mexico	Mitsubishi Electric Automation, Inc. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo. Mexico, C.P.54030 Tel: +52-55-3667-7511
Germany	Mitsubishi Electric Europe B.V. German Branch Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany Tel: +49-2102-488-0
UK	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL 10 8XB, U.K. Tel: +44-107-28-8780
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