

GOT-F900

F920GOT-BBD5-K-E
F920GOT-BBD-K-E

Installation Manual

JY997D02201G

This manual contains text, diagrams and explanations which will guide the reader in the correct installation, safe use and operation of the F920GOT-BBD5-K-E, F920GOT-BBD-K-E and should be read and understood before attempting to install or use the unit. Further information can be found in the associated manuals list below. Specifications are subject to change without notice

Guidelines for the Safety of the User and Protection of the F920GOT-BBD5-K-E, F920GOT-BBD-K-E

This manual has been written to be used by trained and competent personnel. The definition of such a person or persons is as follows:

- Any engineer using the product associated with this manual, should be of a competent nature, trained and qualified to the local and national standards. These engineers should be fully aware of all aspects of safety with regards to automated equipment.
- Any commissioning or service engineer must be of a competent nature, trained and qualified to the local and national standards.
- All operators of the completed equipment (see note) should be trained to use that product in a safe manner in compliance to established safety practices.

Note: The term 'completed equipment' refers to a third party constructed device which contains or uses the product associated with this manual.

Note's on the Symbols Used in this Manual

At various times through out this manual certain symbols will be used to highlight points of information which are intended to ensure the users personal safety and protect the integrity of equipment.



- 1) Indicates that the identified danger **WILL** cause physical and property damage.



- 2) Indicates that the identified danger could **POSSIBLY** cause physical and property damage.

- Under no circumstances will Mitsubishi Electric be liable or responsible for any consequential damage that may arise as a result of the installation or use of this equipment.
- All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- Please contact a Mitsubishi Electric distributor for more information concerning applications in life critical situations or high reliability.

Associated Manuals

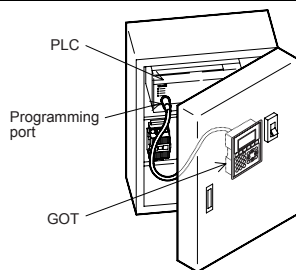
	Manual Name	Manual Number	Description
○	F920GOT-BBD5-K-E, F920GOT-BBD-K-E Installation Manual	JY997D02201 (This manual)	Describes the hardware such as specifications, wiring and installation of the F920GOT-BBD5-K-E and F920GOT-BBD-K-E.
⊙	GOT-F900 OPERATION MANUAL (describes GT Designer2)	JY997D09101 (separate volume)	Describes the operation and use of the GOT-F900 Series graphic operation terminals and GT Designer2.
⊙	GOT-F900 Series Operation Manual	JY992D94701 (separate volume)	Describes the operation and use of the GOT-F900 Series graphic operation terminals, GT Designer and FX-PCS-DU/WIN-E.
⊙	GOT-F900 Series Hardware Manual (connection diagram)	JY992D94801 (separate volume)	Describes wiring and installation of the GOT-F900 Series graphic operation terminals.
○	SW□D5C-GOTR-PACK Operating Manual	(included with screen creation software)	Describes the operating procedures of the screen creation software. (See the HELP file in the software.)
○	GT Designer2 Version 1 Operating Manual	(PDF files on CD-ROM included with screen creation software)	Describes the operation method of GT Designer2 (SW□D5C-GTD2-J), data transfer to the GOT-900 Series, etc.
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○	FX-PCS-DU/WIN-E SOFTWARE MANUAL	JY992D68301 (included with screen creation software)	Describes the operation of FX-PCS-DU/WIN-E screen creation software.

- ⊙ Necessary manual
- Either manual is necessary.

Refer to the manual of the connected programmable controller for further details concerning that unit.

1. Introduction

- 1) The F920GOT-BBD5-K-E and F920GOT-BBD-K-E (hereafter called "GOT") are to be mounted on the face of a control or operations panel, and connected to the programming port (CPU port) of a PLC.
- 2) Various devices can be monitored and PLC data changed through the screens in the GOT.
- 3) Using PLC programming software, FX Series PLC user programming can be uploaded, downloaded and monitored via the GOT.
- 4) The F920GOT-BBD5-K-E is driven by 5V DC power supply (from the PLC through a communication cable). The F920GOT-BBD-K-E is driven by a 24V DC power supply.
- 5) The F920GOT-BBD5-K-E can be connected to the FX, A, QnA and Q Series PLC.
The F920GOT-BBD-K-E can be connected to the FX, A, QnA and Q Series PLC, PLC manufactured by another company and micro computer board.



For further details concerning applicable PLCs and connections to the PLC, refer to the GOT-F900 Series Hardware Manual (Connection Diagram) offered as a separate volume.

1.1 Product Lists

GOT Main Unit

Product Name	Model Name	Specifications
Graphic Operation Terminal	F920GOT-BBD5-K-E	Graphic operation terminal main unit
	F920GOT-BBD-K-E	Graphic operation terminal main unit

Optional communication cable

Product Name	Classification	Model Name	Specifications
PLC connection cable	F920GOT-BBD5-K-E	FX-50DU-CAB0	3m (9'10")
		FX-50DU-CAB0/EN	3m (9'10")
		FX-50DU-CAB0-1M	1m (3'3")
	F920GOT-BBD-K-E	FX-50DU-CAB0	3m (9'10")
		FX-50DU-CAB0/EN	3m (9'10")
		FX-50DU-CAB0-**M	Described on right
		FX-40U-CAB	3m (9'10")
		FX-40DU-CAB0-**M	Described on right
		QC30R2	3m (9'10")
Screen data transfer cable	F920GOT-BBD5-K-E and F920GOT-BBD-K-E	FX-232CAB-1	3m (9'10")

- In addition to the connections shown above, the F920GOT-BBD5-K-E can be connected to the A, QnA and Q Series PLC, and the F920GOT-BBD-K-E can be connected to via computer link to a PLC manufactured by Mitsubishi, PLC manufactured by another manufacturers and micro computer board.
For further details concerning connectable equipment and communication cables, refer to the GOT-F900 Series Hardware Manual [Connection] offered as a separate volume.

Optional screen creation software

Product Name	Model Name	Specifications
For F920GOT-BBD5-K-E and F920GOT-BBD-K-E	GT Designer 2 SW□D5C-GTD2-E (□ indicates the version.)	Software for GOT-F900 and GOT-A900 Series (for Windows) In F920GOT-BBD5-K-E, SW1D5C-GTD2-E Version 1.00A or later is available. In F920GOT-BBD-K-E, SW1D5C-GTD2-E Version 1.02C or later is available.
F920GOT-BBD5-K-E	GT Designer SW□D5C-GOTR-PACKE (□ indicates the version.)	Software for GOT-F900 and GOT-A900 Series (for Windows) SW5D5C-GOTR-PACKE SW5-26C version (Version 5.26C) or later
	FX-PCS-DU/WIN-E	Software for GOT-F900 Series (for Windows) SW0PC-FXDU/WIN-E Version 2.70 or later



Caution

During abnormal communication (including cable breakage) when monitoring within the GOT, communication between the GOT and programmable controller CPU is interrupted and it is impossible to operate keys or devices in the PLC via the GOT.
Communication and operation resumes when the GOT system is correctly configured.
DO NOT configure the emergency stop or safety features through the GOT, and be sure that there will be no adverse consequences in the event of a GOT - PLC communications malfunction.



Note

- Do not lay signal cables near high voltage power cables or allow them to share the same trunking duct. Otherwise effects of noise or surge induction are likely to occur. Keep a safe distance of more than 100 mm away from these wires.
- Operate switches on the panel by hand.
DO NOT use excessive force, or attempt to operate them with hard or pointed objects.
The tip of a screw driver, pen or similar objects for example may break the screen.

Connectable PLC units differ for the F920GOT-BBD5-K-E and the F920GOT-BBD-K-E.
Further information can be found in GOT-F900 series Hardware Manual [Connection].

1.2 Dimensions and Each Part Name [Both F920GOT-BBD5-K-E and F920GOT-BBD-K-E (Power terminals is excluded).]

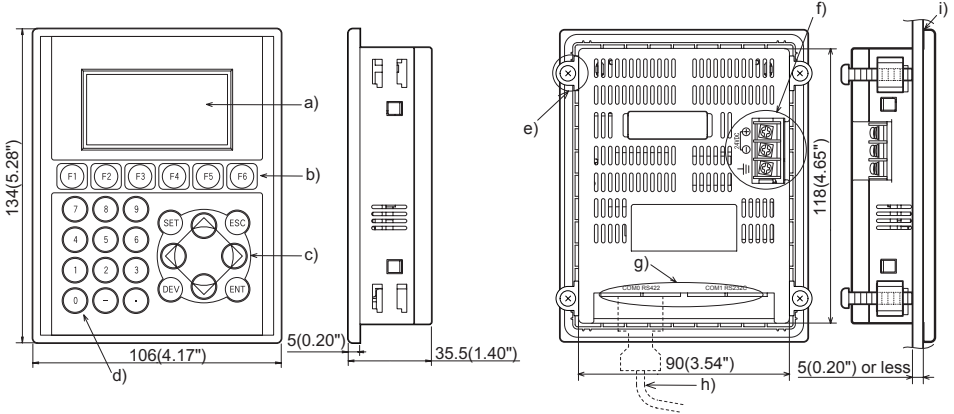
Dimensions: mm (inches)

Mass (Weight): 0.3 kg (0.66 lbs)

Accessory: Mounting brackets, Tightening bolt (M4, 4 bolts), Packing seal for dust and water resistance

Front panel

Rear panel (with mounting bracket and tightening bolt)



- 1) Front panel
 - a) Display
 - b) Function keys
 - c) Cursor keys
 - d) 0 to 9 keys
- 2) Rear panel
 - e) Mounting bracket and tightening bolt (accessory)
 - f) Power terminals (Not provided for the F920GOT-BBD5-K-E)
 - g) Communication ports

Port	Description
COM0 RS-422	RS-422 port for connecting PLC (FX, A, QnA) <9-pin D-sub>
COM1 RS-232C	RS-232C port for connecting a personal computer or PLC (Q) <9-pin D-sub>

h) Communication cable (optional)

i) Packing seal (accessory)

2. Specifications

2.1 General Specifications (F920GOT-BBD5-K-E and F920GOT-BBD-K-E)

Item	Specifications
Operating Temperature	0 ~ 50 °C (32 ~ 122 °F)
Storage Temperature	-20 ~ 60 °C (-4 ~ 140 °F)
Humidity	35 ~ 85% Relative Humidity, No condensation
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)
Vibration Resistance - intermittent vibration	10 ~ 57 Hz: 0.075 mm Half Amplitude 57 ~ 150 Hz: 9.8 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min. in each direction)
Vibration Resistance - Continuous vibration	10 ~ 57 Hz: 0.035 mm Half Amplitude 57 ~ 150 Hz: 4.9 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Shock Resistance	147m/s ² Acceleration, 3 times in each direction X, Y, and Z
Noise Immunity	1000 Vp-p, 1μ second, 30 ~ 100 Hz, tested by noise simulator
Dielectric Withstand Voltage	500 V AC > 1 min, tested between power terminals and ground
Insulation Resistance	5 MΩ > at 500 V DC, tested between power terminals and ground
Protection	IP65f level (Front panel only)

2.2 Power Supply Specifications

Model Name	Specifications
F920GOT-BBD5-K-E	Supply voltage : 5V DC ±5% (supplied from PLC through communication cable) Current consumption : 220mA/5V DC while backlight is ON, 180mA/5V DC while backlight is OFF
F920GOT-BBD-K-E	Supply voltage : 24V DC+10%-15% (externally supplied through power terminals) Power ripple : 220 mV or less Current consumption : 80mA/24V DC while backlight is ON, 70mA/24V DC while backlight is OFF Fuse : Built-in (It cannot be replaced.) Allowable instantaneous power interruption: Less than 5 ms (Continuous operation is assured.) Grounding : Grounding resistance: 100Ω or less

2.3 Screen Hardware Specifications (F920GOT-BBD5-K-E and F920GOT-BBD-K-E)

Items		Specifications
Display Device		STN monochrome liquid crystal display
Resolution		128 × 64 (dot), 16 characters × 4 lines
Dot Pitch		0.47 mm (0.019") Horizontal × 0.47 mm (0.019") Vertical.
Effective Display Size		60 mm (2.36") × 30 mm (1.18") 3(2.64" inch) type
Number of Colors		2 colors (White and Blue)
Life of liquid crystal display		Approximately 50,000 hours (Operating temperature: 25 °C/77°F)
Backlight		LED (White and Red)
Keypad		26 keys (0 to 9 keys, Cursor keys, Function keys, SET key, DEV key, ESC key, ENT key)
Interface	RS-422	RS-422 (COM0)
	RS-232C	RS-232C (COM1)
Number of Screens		User screen: 500 screens or less System screen: Allocated screens No. 1001-1030.
User Memory		Flash memory 128 KB (built-in)

- Bright dots (always lit) and dark dots (unlit) may appear on a liquid crystal display panel. It is impossible to completely avoid this symptom, as the liquid crystal display comprises of a great number of display elements.
Flickers may be observed depending on the display color.
Please note that these dots appear due to its characteristic and are not caused by product defect.
- When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.

3. Installation



Note

- Do not mount the GOT in an environment that contains dust, corrosive soot, conductive dust, corrosive or flammable gas, or expose the unit to high temperatures, dew condensation, direct sunlight, rain and wind or impact and vibration.
If the GOT is used in such a place, electrical shock, fire, malfunction, damages or deterioration may occur.
- Never drop cutting chips or electric wire chips into the ventilation window of the GOT when drilling screw holes or performing wiring. Such chips may cause fire, failure or malfunction.
- Make sure that the power is turned off, before securely connecting any cables. Poor connection may cause malfunction.

The GOT is designed to be mounted in a panel. Install it using the following procedure:

The installation method and the dimensions required inside the panel are identical for the F920GOT-BBD5-K-E and F920GOT-BBD-K-E.

Illustrations of the F920GOT-BBD-K are used in the explanation for this manual.

1) Preparing the panel surface. (See Figure A)

On the panel surface, cut a rectangular mounting slot with the dimensions shown below.

A space of 10 mm is required for the right and left sides of the slot and inside the panel for metal fixtures as shown in "5) Inner panel installation dimensions".



Note

Make sure that the thickness of the panel surface is no more than 5 mm (0.20").

2) Inserting the GOT into the panel surface (See Figure B)

Attach the packing seal to the GOT, and insert the GOT from the front face of the panel surface.

- Packing seal
- GOT
- Mounting slot

3) Fixing the GOT (See Figure C)

Attach the hooks of the mounting brackets (supplied) in to the mounting holes of the GOT. Tighten mounting bolts (also supplied) until the GOT is securely fixed.

Fix mounting bolts in all four positions, right and left of the GOT.

- Clamping bolt
- Mounting bracket



Note

Tighten the clamping bolts with a torque of 0.18 to 0.22 N·m.

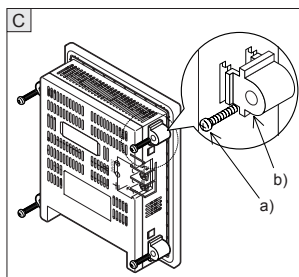
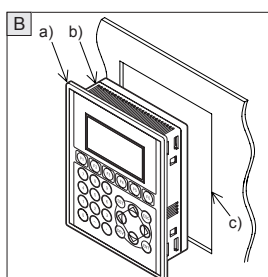
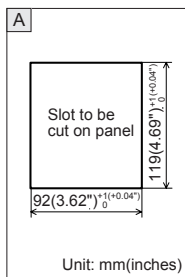
4) Peeling of the protective sheet

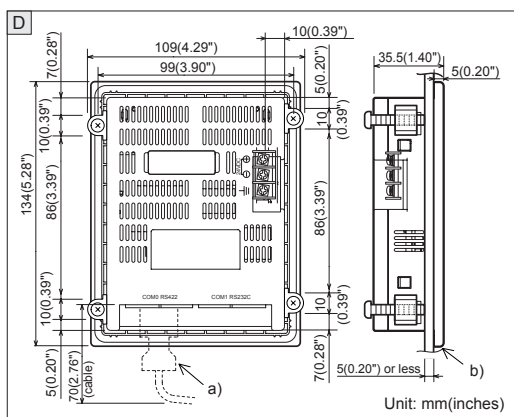
Peel off the protective sheet on the surface of the product before use.

5) Inner panel installation dimensions (See figure D).

When installing the GOT, make sure the inner dimensions shown below are available.

- PLC connection cable
- Packing seal





4. Power Supply Wiring (F920GOT-BBD-K-E)

Cautions

- Cut OFF all external phases of the power supply before installation or wiring to avoid electric shock or serious damage to the product.

Note

- Wire the DC power supply to the dedicated terminals as described in this manual. Wiring an AC power supply will cause serious damage to the product.
- Attach a 2A fuse to the 24V DC power supply. Correctly connect the + and - terminals of the DC power supply as described in this manual. Reverse connection of the power supply may cause failure.
- Perform grounding (resistance: 100Ω or less) with an electric wire of 1.25 mm² or more to the ground terminal of the GOT. Never perform common grounding of the GOT and a strong power system.

The power for the F920GOT-BBD-K-E is externally supplied through the power terminals provided on the rear face. (The power for the F920GOT-BBD5-K-E is supplied from the PLC through a communication cable.)

The power of the GOT is supplied from the PLC or an external power supply.

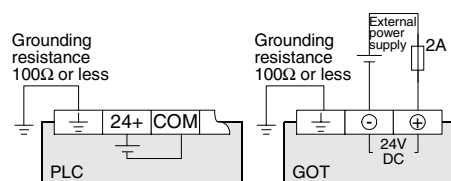
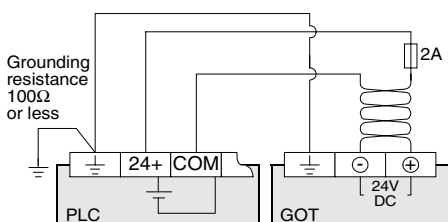
- Connection example

1) When supplying the power from the FX Series PLC

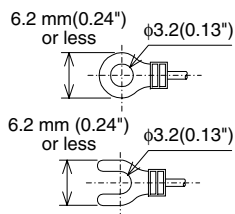
Connect the power terminals provided on the rear face of the GOT to the 24V DC service power supply of the PLC base or extension unit.

2) When supplying the power from an external power supply

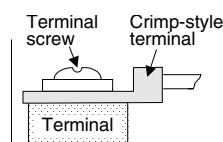
Connect the power terminals provided on the rear face of the GOT to the 24V DC terminals of the external power supply.



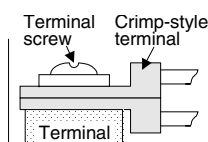
Crimp-style terminal



When wiring 1 wire per terminal



When wiring 2 wires per terminal



Cautions on connection

The current consumption of the GOT is 80mA/24V DC (while the backlight is ON). When supplying power from the 24V DC service power supply of the FX Series PLC main unit or extension unit, consider the capacity of the service power supply of the base or extension unit and the total current supplied to proximity switches, extension blocks and special blocks. If the total current including the power supplied to the GOT exceeds the capacity of the service power supply, supply the power to the GOT from the external power supply.

- Even if instantaneous power interruption of less than 5 ms occurs, the GOT continues to operate. When power interruption for a considerable period of time or voltage drop occurs, the GOT stops its operation. However, when the power supply is recovered, the GOT automatically restarts its operation. (The screen displayed just after recovery is determined by the working environment originally set.)
- When wiring the power supply, use electric wires of 0.75 mm² or more to avoid voltage drop. Use crimp-style terminals for M3, and securely tighten them with a tightening torque of 0.5 to 0.8 N·m to avoid troubles.

5. Maintenance

Cautions

Never disassemble or modify the GOT. Disassembly or modification may cause failure, malfunction or fire. For repair, please, contact a service representative.

Note

Make sure to turn OFF the power, before connecting/disconnecting cables. If you connect/disconnect cables while the power is turned on, failure or malfunction may be caused.

A backlight lithium battery is not supplied with the GOT. The Liquid Crystal Display has a service life of approximately 50,000 hours.

When repairing the Liquid Crystal Display, please, contact a service representative.

Notification of CE marking



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.

- This product is designed for use in industrial applications.
- Manufactured by: Mitsubishi Electric Corporation
2-7-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310 Japan
- Manufactured at: Mitsubishi Electric Corporation Himeji Works
840 Chiyoda-machi, Himeji, Hyogo 670-8677 Japan
- Authorized Representative in the European Community: Mitsubishi Electric Europe B.V.
Gothaer Str. 8, 40880 Ratingen, Germany

Type : Programmable Controller (Open Type Equipment)
 Models : MELSEC GOT series products, identified here, manufactured from
 December 1st, 2009 F920GOT-BBD5-K-E
 F920GOT-BBD-K-E

Standard		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 Regarding the Use of GOT Units

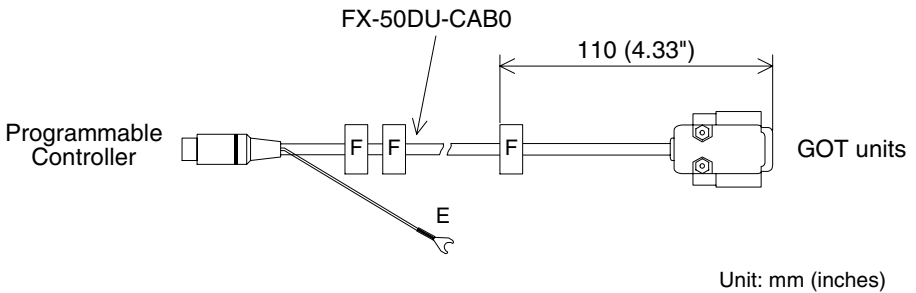
General notes on the use of Communication Cables

Any device which utilizes a data communication function is susceptible to the wider effects of local EMC noise. Therefore, when installing any communication cables care should always be taken with the routing and location of those cables. The GOT units identified on the previous page are compliant with the EMC requirement when the following communication cables are used:

GOT Units	Existing Cables	User Made Cables
F920GOT-BBD5-K-E F920GOT-BBD-K-E	FX-50DU-CAB0/EN and FX-50DU-CAB0 modified as shown in EX.1	This cable need to be independently tested by the user to demonstrate EMC compatibility when they are used with Mitsubishi GOT units and Programmable Controllers.

When using the FX-50DU-CAB0/EN cable the Earth Strap must be connected to a suitable earth point.

Ex. 1



E = Additional earth strap connected to the cables shield. Free end of the earth strap must be connected to an earth point.

F = Ferrite core
Ex. Tokin - ESD-R-17S or similar

Warranty

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss 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 the detailed warranty, refer to the GOT-F900 Series HARDWARE MANUAL [CONNECTION].

Manual number : JY997D02201

Manual revision : G

Date : Aug. 2010



HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
 HIMEJI WORKS : 840, CHIYODA CHO, HIMEJI, JAPAN

GOT-F900

F920GOT-BBD5-K-E
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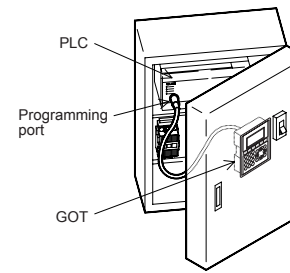
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- The F920GOT-BBD5-K-E can be connected to the FX, A, QnA and Q Series PLC.



The F920GOT-BBD-K-E can be connected to the FX, A, QnA and Q Series PLC, PLC manufactured by another company and micro computer board.

For further details concerning applicable PLCs and connections to the PLC, refer to the GOT-F900 Series Hardware Manual (Connection Diagram) offered as a separate volume.

1.1 Product Lists

GOT Main Unit

Product Name	Model Name	Specifications
Graphic Operation Terminal	F920GOT-BBD5-K-E	Graphic operation terminal main unit
	F920GOT-BBD-K-E	Graphic operation terminal main unit

Optional communication cable

Product Name	Classification	Model Name	Specifications		
PLC connection cable	F920GOT-BBD5-K-E	FX-50DU-CAB0	3m (9'10")	Communication cable (GOT ↔ CPU port in FX0s, FX1s, FX0N, FX1N, FX2N or FX2NC series PLC) Cable length is 3m (9' 10"). Use FX-50DU-CAB0/EN for compliance to EC EMC.	
		FX-50DU-CAB0/EN	3m (9'10")		
		FX-50DU-CAB0-1M	1m (3'3")		
	F920GOT-BBD-K-E	FX-50DU-CAB0	3m (9'10")	Communication cable (GOT ↔ CPU port in FX0s, FX1s, FX0N, FX1N, FX2N or FX2NC series PLC) (**M is cable length 1M:1m(3'3"), 10M:10m(32'9"), 20M:20m(65'7"), 30M:30m(98'5"). Use FX-50DU-CAB0/EN for compliance to EC EMC.	
		FX-50DU-CAB0-EN	3m (9'10")		
		FX-50DU-CAB0-**M	Described on right		
		FX-40U-CAB	3m (9'10")		Communication cable (GOT ↔ CPU port in A, QnA series PLC) (**M is cable length 10M:10m(32'9"), 20M:20m(65'7"), 30M:30m(98'5").
		FX-40DU-CAB0-**M	Described on right		
	QC30R2	3m (9'10")	Communication cable (GOT ↔ CPU port in Q series PLC)		
	Screen data transfer cable	F920GOT-BBD5-K-E and F920GOT-BBD-K-E	FX-232CAB-1	3m (9'10")	Data exchange cable (GOT ↔ Personal computer <9-pin D-sub>)

- In addition to the connections shown above, the F920GOT-BBD5-K-E can be connected to the A, QnA and Q Series PLC, and the F920GOT-BBD-K-E can be connected to via computer link to a PLC manufactured by Mitsubishi, PLC manufactured by another manufacturers and micro computer board.
For further details concerning connectable equipment and communication cables, refer to the GOT-F900 Series Hardware Manual [Connection] offered as a separate volume.

Optional screen creation software

Product Name	Model Name	Specifications
For F920GOT-BBD5-K-E and F920GOT-BBD-K-E	GT Designer 2 SW□D5C-GTD2-E (□ indicates the version.)	Software for GOT-F900 and GOT-A900 Series (for Windows) In F920GOT-BBD5-K-E, SW1D5C-GTD2-E Version 1.00A or later is available. In F920GOT-BBD-K-E, SW1D5C-GTD2-E Version 1.02C or later is available.
	GT Designer SW□D5C-GOTR-PACKE (□ indicates the version.)	Software for GOT-F900 and GOT-A900 Series (for Windows) SW5D5C-GOTR-PACK-E SW5-26C version (Version 5.26C) or later
F920GOT-BBD5-K-E	FX-PCS-DU/WIN-E	Software for GOT-F900 Series (for Windows) SW0PC-FXDU/WIN-E Version 2.70 or later



Caution

During abnormal communication (including cable breakage) when monitoring within the GOT, communication between the GOT and programmable controller CPU is interrupted and it is impossible to operate keys or devices in the PLC via the GOT.
Communication and operation resumes when the GOT system is correctly configured.
DO NOT configure the emergency stop or safety features through the GOT, and be sure that there will be no adverse consequences in the event of a GOT - PLC communications malfunction.



Note

- Do not lay signal cables near high voltage power cables or allow them to share the same trunking duct. Otherwise effects of noise or surge induction are likely to occur. Keep a safe distance of more than 100 mm away from these wires.
- Operate switches on the panel by hand.
DO NOT use excessive force, or attempt to operate them with hard or pointed objects.
The tip of a screw driver, pen or similar objects for example may break the screen.
Connectable PLC units differ for the F920GOT-BBD5-K-E and the F920GOT-BBD-K-E.
Further information can be found in GOT-F900 series Hardware Manual [Connection].

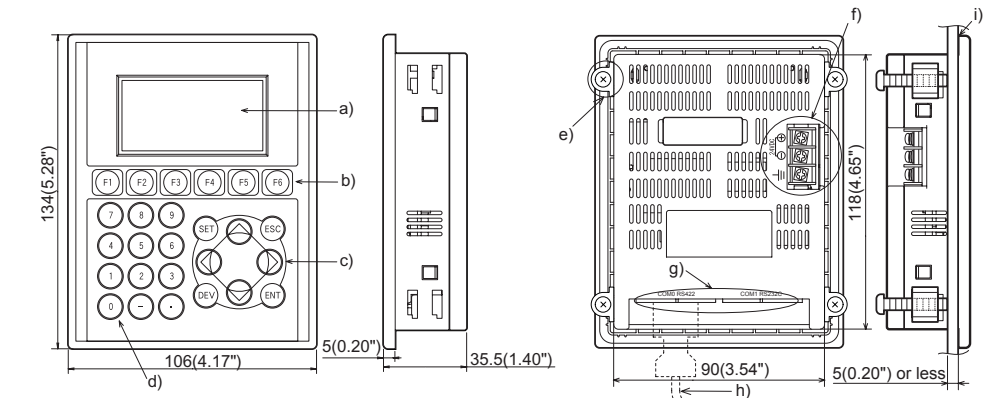
1.2 Dimensions and Each Part Name [Both F920GOT-BBD5-K-E and F920GOT-BBD-K-E (Power terminals is excluded).]

Dimensions: mm (inches) Mass (Weight): 0.3 kg (0.66 lbs)

Accessory: Mounting brackets, Tightening bolt (M4, 4 bolts), Packing seal for dust and water resistance

Front panel

Rear panel (with mounting bracket and tightening bolt)



- Front panel
 - Display
 - Function keys
 - Cursor keys
 - 0 to 9 keys
- Rear panel
 - Mounting bracket and tightening bolt (accessory)
 - Power terminals (Not provided for the F920GOT-BBD5-K-E)
 - Communication ports

Port	Description
COM0 RS-422	RS-422 port for connecting PLC (FX, A, QnA) <9-pin D-sub>
COM1 RS-232C	RS-232C port for connecting a personal computer or PLC (Q) <9-pin D-sub>

- Communication cable (optional)
- Packing seal (accessory)

2. Specifications

2.1 General Specifications (F920GOT-BBD5-K-E and F920GOT-BBD-K-E)

Item	Specifications
Operating Temperature	0 ~ 50 °C (32 ~ 122 °F)
Storage Temperature	-20 ~ 60 °C (-4 ~ 140 °F)
Humidity	35 ~ 85% Relative Humidity, No condensation
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)
Vibration Resistance - intermittent vibration	10 ~ 57 Hz: 0.075 mm Half Amplitude 57 ~ 150 Hz: 9.8 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min. in each direction)
Vibration Resistance - Continuous vibration	10 ~ 57 Hz: 0.035 mm Half Amplitude 57 ~ 150 Hz: 4.9 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Shock Resistance	147m/s ² Acceleration, 3 times in each direction X, Y, and Z
Noise Immunity	1000 Vp-p, 1μ second, 30 ~ 100 Hz, tested by noise simulator
Dielectric Withstand Voltage	500 V AC > 1 min, tested between power terminals and ground
Insulation Resistance	5 MΩ > at 500 V DC, tested between power terminals and ground
Protection	IP65f level (Front panel only)

2.2 Power Supply Specifications

Model Name	Specifications
F920GOT-BBD5-K-E	Supply voltage : 5V DC ±5% (supplied from PLC through communication cable)
	Current consumption : 220mA/5V DC while backlight is ON, 180mA/5V DC while backlight is OFF
F920GOT-BBD-K-E	Supply voltage : 24V DC+10%-15% (externally supplied through power terminals)
	Power ripple : 220 mV or less
	Current consumption : 80mA/24V DC while backlight is ON, 70mA/24V DC while backlight is OFF
	Fuse : Built-in (It cannot be replaced.)
	Allowable instantaneous power interruption: Less than 5 ms (Continuous operation is assured.)
Grounding : Grounding resistance: 100Ω or less	

2.3 Screen Hardware Specifications (F920GOT-BBD5-K-E and F920GOT-BBD-K-E)

Items	Specifications
Display Device	STN monochrome liquid crystal display
Resolution	128 × 64 (dot), 16 characters × 4 lines
Dot Pitch	0.47 mm (0.019") Horizontal × 0.47 mm (0.019") Vertical.
Effective Display Size	60 mm (2.36") × 30 mm (1.18") 3(2.64" inch) type
Number of Colors	2 colors (White and Blue)
Life of liquid crystal display	Approximately 50,000 hours (Operating temperature: 25 °C/77°F)
Backlight	LED (White and Red)
Keypad	26 keys (0 to 9 keys, Cursor keys, Function keys, SET key, DEV key, ESC key, ENT key)
Interface	RS-422 (COM0)
	RS-232C (COM1)
Number of Screens	User screen: 500 screens or less System screen: Allocated screens No. 1001-1030.
User Memory	Flash memory 128 KB (built-in)

- Bright dots (always lit) and dark dots (unlit) may appear on a liquid crystal display panel. It is impossible to completely avoid this symptom, as the liquid crystal display comprises of a great number of display elements. Flickers may be observed depending on the display color. Please note that these dots appear due to its characteristic and are not caused by product defect.
- When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.

3. Installation

- Note**
- Do not mount the GOT in an environment that contains dust, corrosive soot, conductive dust, corrosive or flammable gas, or expose the unit to high temperatures, dew condensation, direct sunlight, rain and wind or impact and vibration. If the GOT is used in such a place, electrical shock, fire, malfunction, damages or deterioration may occur.
 - Never drop cutting chips or electric wire chips into the ventilation window of the GOT when drilling screw holes or performing wiring. Such chips may cause fire, failure or malfunction.
 - Make sure that the power is turned off, before securely connecting any cables. Poor connection may cause malfunction.

The GOT is designed to be mounted in a panel. Install it using the following procedure:
The installation method and the dimensions required inside the panel are identical for the F920GOT-BBD5-K-E and F920GOT-BBD-K-E.

Illustrations of the F920GOT-BBD-K are used in the explanation for this manual.

- Preparing the panel surface. (See Figure A)
On the panel surface, cut a rectangular mounting slot with the dimensions shown below. A space of 10 mm is required for the right and left sides of the slot and inside the panel for metal fixtures as shown in "5) Inner panel installation dimensions".

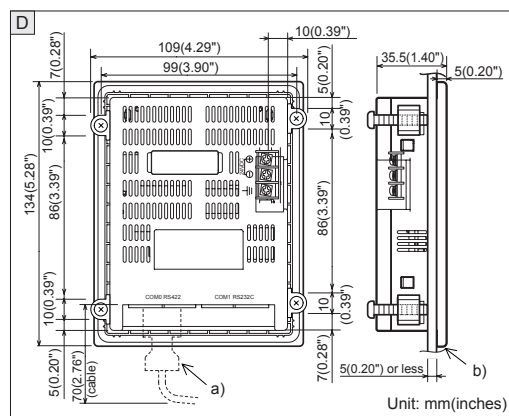
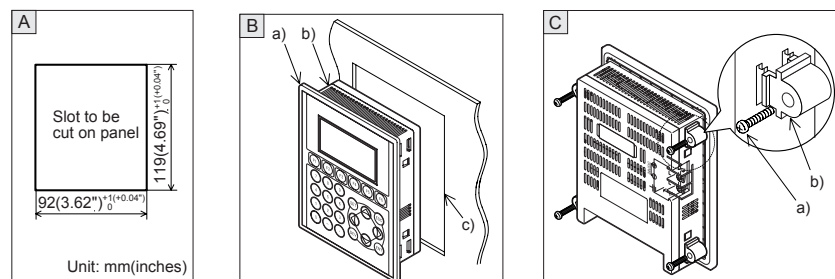
- Note**
- Make sure that the thickness of the panel surface is no more than 5 mm (0.20").

- Inserting the GOT into the panel surface (See Figure B)
Attach the packing seal to the GOT, and insert the GOT from the front face of the panel surface.

- Packing seal
 - GOT
 - Mounting slot
- Fixing the GOT (See Figure C)
Attach the hooks of the mounting brackets (supplied) in to the mounting holes of the GOT. Tighten mounting bolts (also supplied) until the GOT is securely fixed. Fix mounting bolts in all four positions, right and left of the GOT.
- Clamping bolt
 - Mounting bracket

- Note**
- Tighten the clamping bolts with a torque of 0.18 to 0.22 N·m.

- Peeling of the protective sheet
Peel off the protective sheet on the surface of the product before use.
 - Inner panel installation dimensions (See figure D).
When installing the GOT, make sure the inner dimensions shown below are available.
- PLC connection cable
 - Packing seal

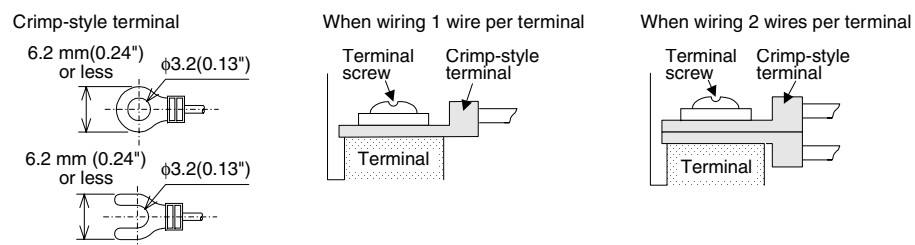
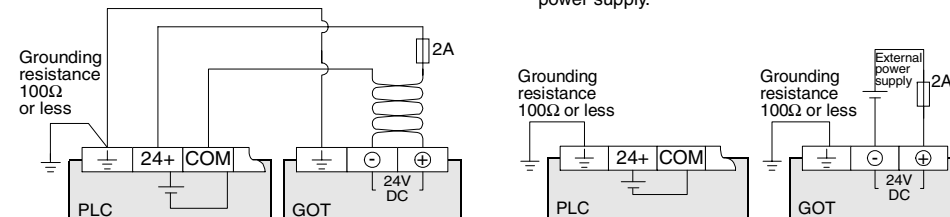


4. Power Supply Wiring (F920GOT-BBD-K-E)

- Cautions**
- Cut OFF all external phases of the power supply before installation or wiring to avoid electric shock or serious damage to the product.
- Note**
- Wire the DC power supply to the dedicated terminals as described in this manual. Wiring an AC power supply will cause serious damage to the product.
 - Attach a 2A fuse to the 24V DC power supply. Correctly connect the + and - terminals of the DC power supply as described in this manual. Reverse connection of the power supply may cause failure.
 - Perform grounding (resistance: 100Ω or less) with an electric wire of 1.25 mm² or more to the ground terminal of the GOT. Never perform common grounding of the GOT and a strong power system.

The power for the F920GOT-BBD-K-E is externally supplied through the power terminals provided on the rear face. (The power for the F920GOT-BBD5-K-E is supplied from the PLC through a communication cable.)
The power of the GOT is supplied from the PLC or an external power supply.

- Connection example
- When supplying the power from the FX Series PLC
Connect the power terminals provided on the rear face of the GOT to the 24V DC service power supply of the PLC base or extension unit.
 - When supplying the power from an external power supply
Connect the power terminals provided on the rear face of the GOT to the 24V DC terminals of the external power supply.



- Cautions on connection**
- The current consumption of the GOT is 80mA/24V DC (while the backlight is ON). When supplying power from the 24V DC service power supply of the FX Series PLC main unit or extension unit, consider the capacity of the service power supply of the base or extension unit and the total current supplied to proximity switches, extension blocks and special blocks. If the total current including the power supplied to the GOT exceeds the capacity of the service power supply, supply the power to the GOT from the external power supply.
- Even if instantaneous power interruption of less than 5 ms occurs, the GOT continues to operate. When power interruption for a considerable period of time or voltage drop occurs, the GOT stops its operation. However, when the power supply is recovered, the GOT automatically restarts its operation. (The screen displayed just after recovery is determined by the working environment originally set.)
 - When wiring the power supply, use electric wires of 0.75 mm² or more to avoid voltage drop. Use crimp-style terminals for M3, and securely tighten them with a tightening torque of 0.5 to 0.8 N·m to avoid troubles.

5. Maintenance

- Cautions**
- Never disassemble or modify the GOT. Disassembly or modification may cause failure, malfunction or fire. For repair, please, contact a service representative.
- Note**
- Make sure to turn OFF the power, before connecting/disconnecting cables. If you connect/disconnect cables while the power is turned on, failure or malfunction may be caused.

A backlight lithium battery is not supplied with the GOT. The Liquid Crystal Display has a service life of approximately 50,000 hours.
When repairing the Liquid Crystal Display, please, contact a service representative.

Notification of CE marking



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.

- This product is designed for use in industrial applications.
- Manufactured by: Mitsubishi Electric Corporation
2-7-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310 Japan
- Manufactured at: Mitsubishi Electric Corporation Himeji Works
840 Chiyoda-machi, Himeji, Hyogo 670-8677 Japan
- Authorized Representative in the European Community: Mitsubishi Electric Europe B.V.
Gothaer Str. 8, 40880 Ratingen, Germany

Type : Programmable Controller (Open Type Equipment)
Models : MELSEC GOT series products, identified here, manufactured from
December 1st, 2009 F920GOT-BBD5-K-E
F920GOT-BBD-K-E

Standard	Remark
EN61131-2 : 2007	EMI Compliance with all relevant aspects of the standard. (Radiated Emissions)
Programmable controllers - Equipment, requirement and tests	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.

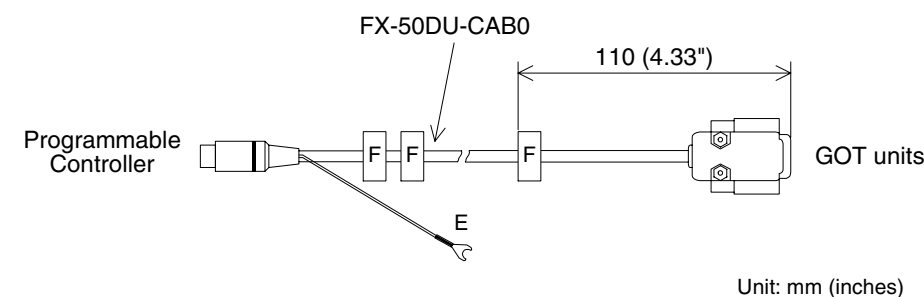
Notes Regarding the Use of GOT Units

General notes on the use of Communication Cables
Any device which utilizes a data communication function is susceptible to the wider effects of local EMC noise. Therefore, when installing any communication cables care should always be taken with the routing and location of those cables. The GOT units identified on the previous page are compliant with the EMC requirement when the following communication cables are used:

GOT Units	Existing Cables	User Made Cables
F920GOT-BBD5-K-E F920GOT-BBD-K-E	FX-50DU-CAB0/EN and FX-50DU-CAB0 modified as shown in EX.1	This cable need to be independently tested by the user to demonstrate EMC compatibility when they are used with Mitsubishi GOT units and Programmable Controllers.

When using the FX-50DU-CAB0/EN cable the Earth Strap must be connected to a suitable earth point.

Ex. 1



E = Additional earth strap connected to the cables shield. Free end of the earth strap must be connected to an earth point.

F = Ferrite core
Ex. Tokin - ESD-R-17S or similar

Warranty

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss 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 the detailed warranty, refer to the GOT-F900 Series HARDWARE MANUAL [CONNECTION].

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