MITSUBISHI

A9GT-80V4R1 Type Video/RGB Hybrid Interface Module

User's Manual

(Hardware)

Thank you for buying the MELSEC-GOT Series

Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.

MODEL	A9GT-80V4R1-U-HW
MODEL CODE	1DM222
IB(NA)-0800226-C (0508)MEE	

Mitsubishi Graphics Operation Terminal

● SAFETY PRECAUTIONS ●

(Always read before starting use)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in the manual. Also pay careful attention to safety and handle the module properly.
These precautions apply only to the installation of Mitsubishi equipment and the wiring with the external device. Refer to the user's manual of the CPU module to be used for a description of the PLC system safety precautions.
These ● SAFETY PRECAUTIONS ● classify the safety precautions into two categories: "DANGER" and "CAUTION".

DANGER	Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.
CAUTION	Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.

Depending on circumstances, procedures indicated by CAUTION may also be linked to serious results.
In any case, it is important to follow the directions for usage.
Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTIONS]

DANGER

- Do not bundle control lines or communication wires together with main circuit or power lines, or lay them close to these lines.
  As a guide, separate the lines by a distance of at least 100 mm (3.94 inch) otherwise malfunctions may occur due to noise.

[INSTALLATION PRECAUTIONS]

DANGER

- Before mounting or dismounting this module to or from the GOT, always shut off GOT power externally in all phases.
  Not doing so can cause a module failure or malfunction.

CAUTION

- Use this module in the environment given in the general specifications of the GOT User's Manual.
  Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When installing this unit to the GOT, fit it to the connection interface of the GOT and tighten the mounting screws in the specified torque range.
  Undertightening can cause a drop, failure or malfunction.
  Overtightening can cause a drop, failure or malfunction due to GOT or screw damage.

[WIRING PRECAUTIONS]

DANGER

- Plug the cable into the connector of the connected module and tighten the mounting and terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.

[STARTUP AND MAINTENANCE PRECAUTIONS]

DANGER

- Before starting cleaning, always shut off GOT power externally in all phases.
  Not doing so can cause a module failure or malfunction.

[STARTUP AND MAINTENANCE PRECAUTIONS]

⚠CAUTION
● Do not disassemble or modify any module. This will cause failure, malfunction, injuries, or fire. ● Do not touch the conductive areas and electronic parts of this module directly. Doing so can cause a module malfunction or failure. ● Exercise care to avoid foreign matter such as chips and wire offcuts entering the module. Not doing so can cause a fire, failure or malfunction. ● Always secure the cables connected to the module, e.g. run them in conduits or clamp them. Not doing so can cause module or cable damage due to dangling, moved or accidentally pulled cables or can cause a malfunction due to a cable contact fault. ● Do not hold the cable part when unplugging any cable connected to the module. Doing so can cause module or cable damage or a malfunction due to a cable contact fault.

[DISPOSAL PRECAUTIONS]

⚠DANGER
● Dispose of this product as industrial waste.

Revisions

*The manual number is given on the bottom left of the back cover.

Print Date	*Manual Number	Revision
MAY, 2002	IB(NA)-0800226-A	First edition
MAY, 2002	IB(NA)-0800226-B	Partial correction Chapter3, Chapter4
AUG., 2005	IB(NA)-0800226-C	Partial correction Chapter1 MODEL CODE change Changed from 13JT90 to 1DM222.

CONTENTS

About the Manuals

The following manuals are related to this product.
Refer to the following list and request the required manuals.

Detailed Manuals

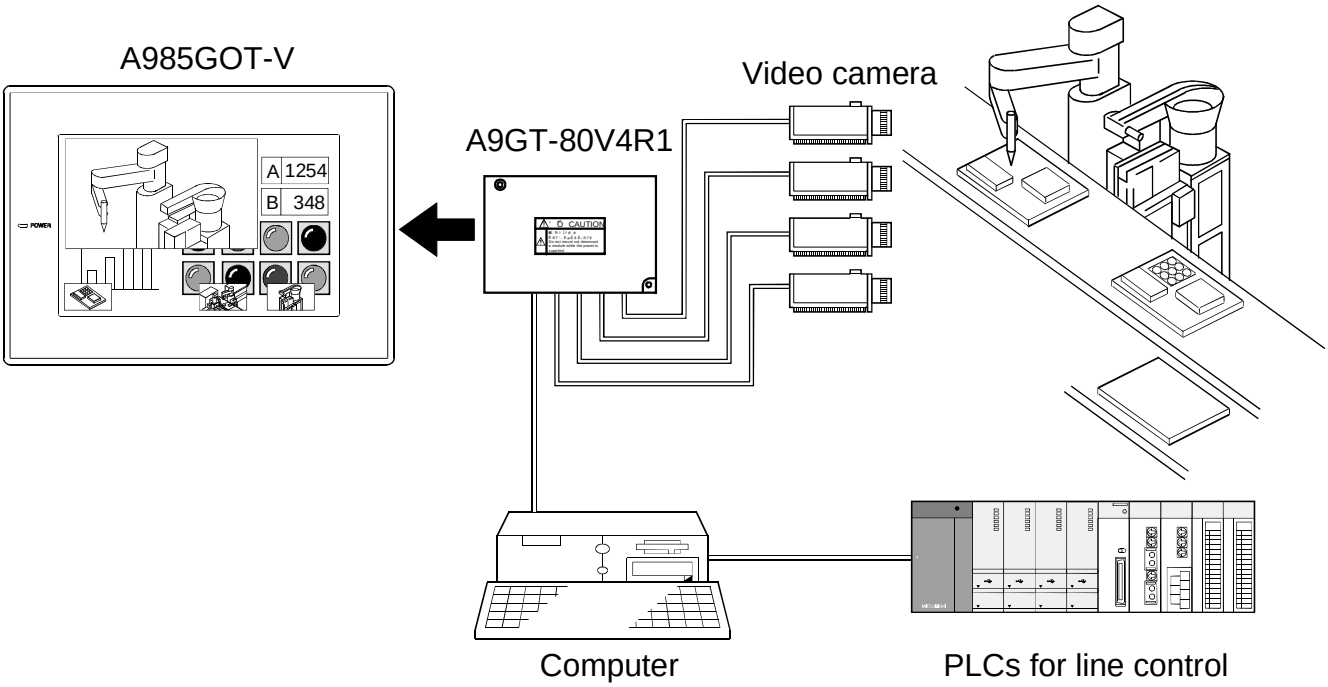
Manual name	Manual No. (Model code)
A985GOT/A975GOT/A970GOT/A960GOT User's Manual (Available as an Option)	SH-3311 (1DM098)

Related Manuals

For relevant manuals, refer to the PDF manual stored within the drawing software used.

1. Overview

This user's manual describes the A9GT-80V4R1 Type Video/RGB Hybrid Interface Module (referred to as the A9GT-80V4R1 hereinafter). The A9GT-80V4R1, when mounted together with the A985GOT-TBA-V or A985GOT-TBD-V (collectively referred to as the A985GOT-V hereinafter), can display images taken by video cameras as well as on your personal computer on the A985GOT-V monitor.



*1: When connecting with a personal computer, your computer's earth wire should be grounded.

*2: Several types of video cameras, when used with A9GT-801V4R1, may cause a PLC or GOT to malfunction due to the noise that comes through the power cables for the cameras.
Supply power to the cameras from different power supply for PLC or GOT. (Do not supply power to them from the same consent.)
Be sure to attach the following line filter to each of the camera power line, if it is impossible to supply power from different power supply.
Recommended line filter: ZHC2203-11 (TDK Corporation) or equivalent product.

*3: The CRT of the personal computer and the A985 GOT-V monitor cannot display the same image simultaneously.

*4: Both video images and PC screens cannot be displayed on the GOT at the same time.

The A9GT-80V4R1 can use the functions of both the conventional video input interface module (A9GT-80V4) and the RGB input interface module (A9GT-80R1). The following shows the comparison between the conventional and new models:

Item	Video window	RGB screen
A9GT-80V4R1	○	○
A9GT-80V4	○	×
A9GT-80R1	×	○

- A9GT-80V4R1 cannot be mounted to the GOT other than A985GOT-V.
- When using A985GOT-TBA-V, select the product with hardware version L (manufactured from January, 2002) or later.
- For details of the system configuration, refer to the GOT-A900 Series User's Manual (Connection System Manual).
- For details of the video input function and RGB input function, refer to the following manual.

  For GT Designer : GT Works Version□/GT Designer Version□ Reference Manual

  For GT Designer2 : GT Designer2 Version□ Reference Manual
- When the Video/RGB input interface unit is used, the following software package is required.

Type	Compatible software package	
	GT Works2 GT Designer2	GT Works GT Designer
A9GT-80V4R1	SW1D5C-GTWK2-E version A or later SW1D5C-GTD2-E version A or later	SW5D5C-GTWORKS-E version 26C or later SW5D5C-GOTR-PACKE version 26C or later

After opening the box, check that the following items are present.

Description	Quantity
A9GT-80V4R1	1

2. Specification

2.1 A9GT-80V4R1 specifications

Item			Specifications
Video input section	Video input system	Color	NTSC format, PAL format (interlaced format)
		Monochrome	EIA format, CCIR format (interlaced format)
	Number of video input channels		4 channel
	Input signal		IVp-p, 75Ω, composite signal
	Display size [dot's]		640x480 (possible to reduce to 320x240, 160x120) 720x480 (possible to reduce to 360x240, 180x120)
	Video external connection method		Coaxial cable
	Applicable wire size		75Ω coaxial shield cable
RGB input section	RGB input method (dot's)		Analog RGB (SVGA; 800x600, VGA; 640x480)
	Number of video input channels		1 channel
	Input image signal		1V-p, 75Ω
	Synchronizing signal		TTL, 1kΩ
	Display size [dot's]		800×600 (refresh rate 60, 72, 75 [Hz]) 640×480 (refresh rate 60, 72, 75, 85 [Hz]) *1
	RGB external connection method		D-Sub15 pin
	Applicable wire size		9-core combined cable (recommended)
Maximum cable length [m](feet)			According to the specifications of the personal computer/vision sensor/video camera to be used. *2
External dimensions			73(H)×105(W)×43(D) (Value for a single A9GT-80V4R1 module, not including the protruded section)
5 V DC internal current consumption [A](5VDC)			0.5 (Value for a single A9GT-80V4R1 module)
Weight [kg](lb)			0.2 (0.44) (Value for a single A9GT-80V4R1 module)

*1: If VGA (640 × 480 dots) is used, since the resolution differs from that of the A985GOT-V (800 × 600 dots), blank spaces will be displayed in black.

*2: The length of the cable differs according to the specifications of the personal computer/vision sensor/video camera to be used. Be sure to use the cable whose length is as specified for the PC/vision sensor/video camera to be used.

*3: Both video images and RGB screens cannot be displayed on the A985GOT-V at the same time.

2.2 Cable specifications

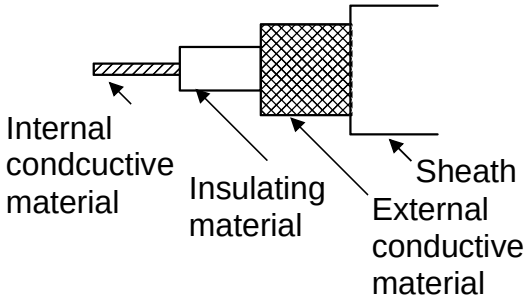
The cable specifications, connection drawings, and connectors used in the A9GT-80V4R1 are shown below:

2.2.1 Specifications of the cables (coaxial cables) used when displaying video images

(1) Coaxial cable

Use high frequency coaxial cable "3C-2V" "5C-2V" (conforms to JIS C 3501) for coaxial cable.

The following shows the coaxial cable specifications.

Item	3C-2V	5C-2V
Construction		
Cable diameter	5.4mm (0.21in)	7.4mm (0.29 in)
Allowable bending radius	22mm (0.87 in) or more	30mm (41.18 in) or more
Internal conductive material diameter	0.5mm (0.02 in) (Annealed copper wire)	0.8mm (0.03 in) (Annealed copper wire)
Insulation material diameter	3.1mm (0.12 in) (Polyethylene)	4.9mm (0.19 in) (Polyethylene)
External conductive material diameter	3.8mm (0.15 in) (Single annealed copper wire mesh)	5.6mm (0.22 in) (Single annealed copper wire mesh)
Applicable connector plug	Connector plug for 3C-2V (BNC-P-3-N1-CAU is recommended.)	Connector plug for 5C-2V (BNC-P-5-N1-CAU is recommended.)

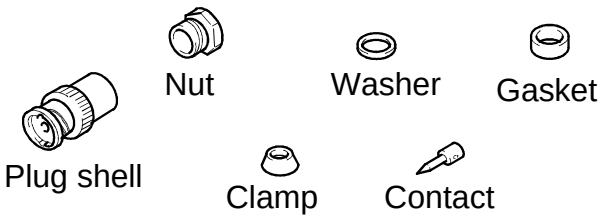
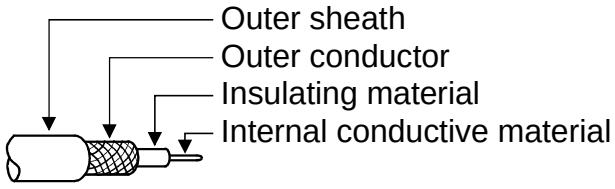
(2) Connector and connector cover

- GOT connector

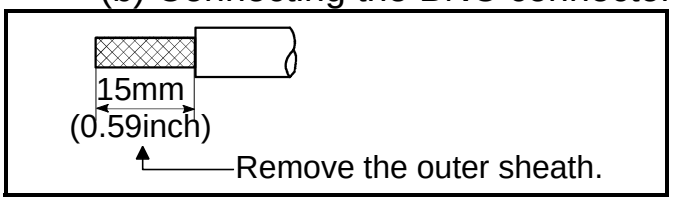
Use BNC connector for GOT side connector.

The following shows the connection method for BNC connector and coaxial cable.

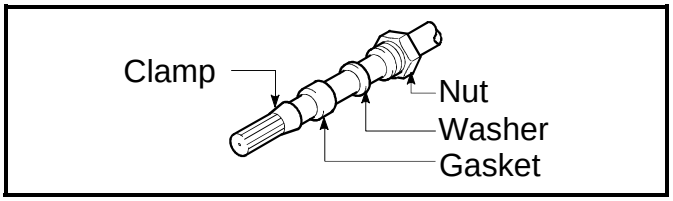
(a) Structure of BNC connector and the coaxial cable.

Parts of the BNC connector	Structure of the coaxial cable
	

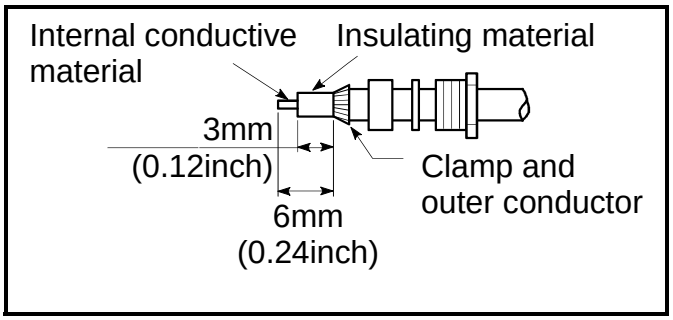
(b) Connecting the BNC connector with the coaxial cable.



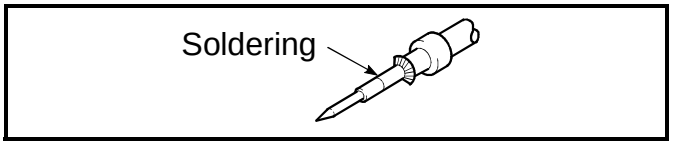
1) Remove the outer sheath of the end of the coaxial cable as shown below.



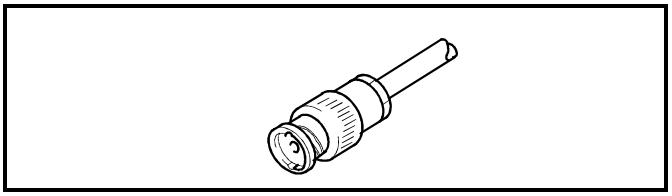
2) Slip a nut, a washer, a gasket, and a clamp on the coaxial cables as shown below, and loosen the outer conductor.



3) Cut the outer conductor, insulating material, and internal conductive material to specified dimensions shown below.
Cut the outer conductor and extended it over the end of the clamp.



4) Solder the contact to the tip of the internal conductive material.



5) Insert the contact assembly in the plug shell, and engage the plug shell with the nut.

*1: Soldered part must not have excess solder mound.
*2: The tail end of the contact must come into close contact with the cut end of the insulating material. The contact must not be cutting in the insulating material.
*3: Apply solder quickly so that the insulating material may not be deformed by heat.

- Connector at the video camera and vision sensor.
  Use the connector applicable to the video camera and vision sensor.

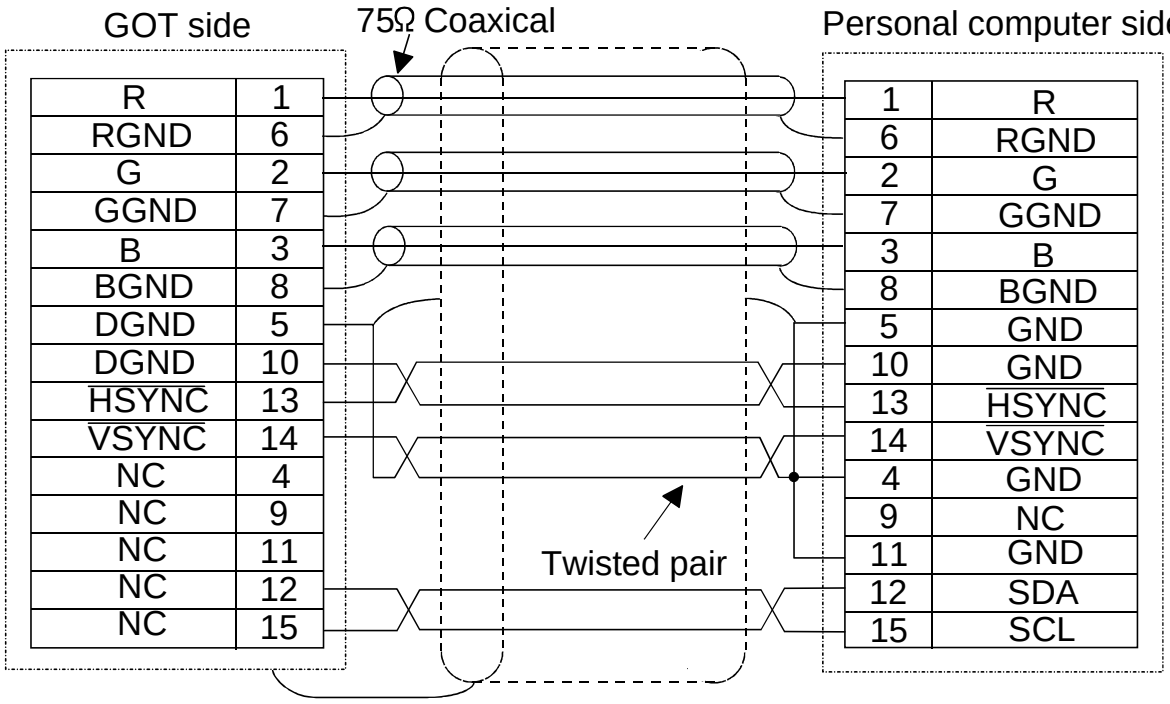
(3) Precautions for cable preparation
The length of the cable varies depending on the personal computer/vision sensor to be used.
Create within the range of personal computer/version sensor specifications.

2.2.2 Specifications of the cables (9-core combined cables) used when displaying RGB screens

(1) Cable specifications

Item	Specifications
Applicable cable	Equivalent to SP23-23352A UL20276-SB
Applicable wire size	9-core combined cable (recommended)

(2) Connection diagram



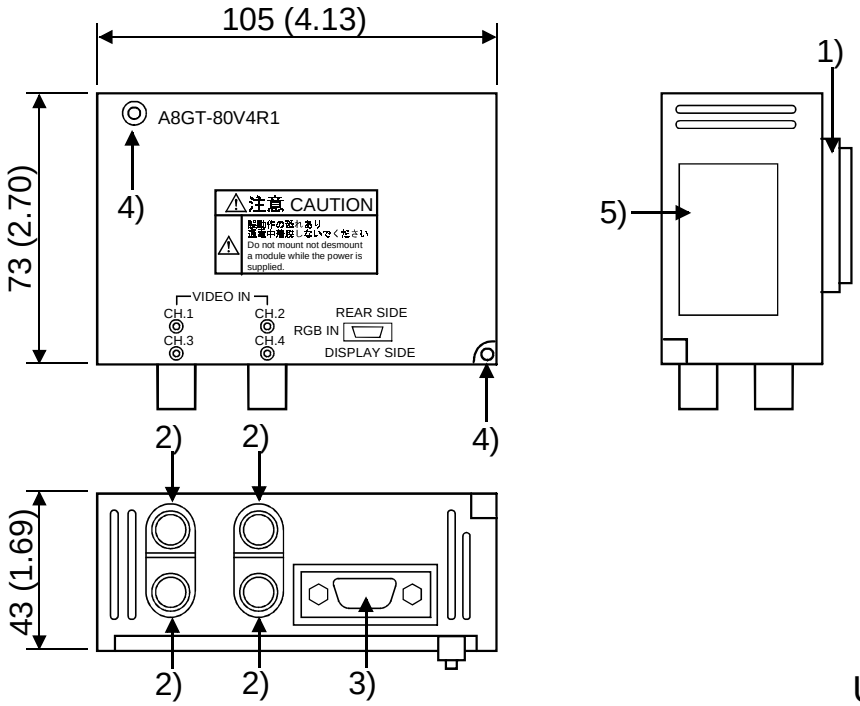
(3) Connector

- GOT connector
  Use the connector matching the following model for the GOT.
  15-pin D-sub (male) inch screw type
  Manufactured by DDK
  17HE-R13150-73MC2
- Connector at the personal computer/vision sensor
  Use the connector applicable to the personal computer/vision sensor.

(4) Precaution for cable creating

The length of the cable varies depending on the personal computer/vision sensor to be used.
Create within the range of personal computer/vision sensor specifications

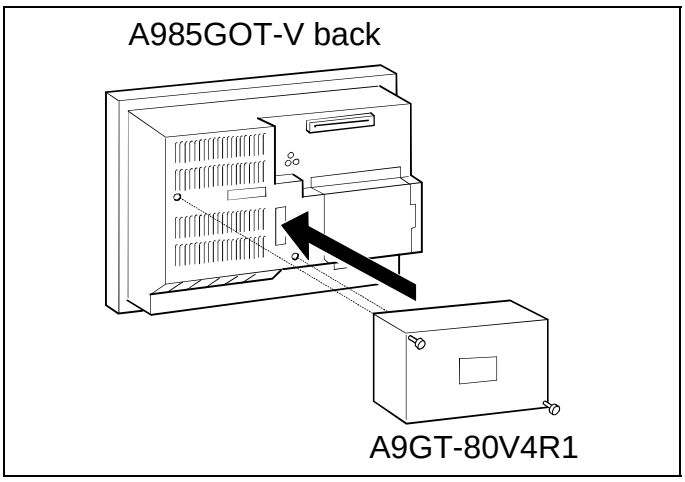
3. Name of the Part's and Outline Dimension Drawing



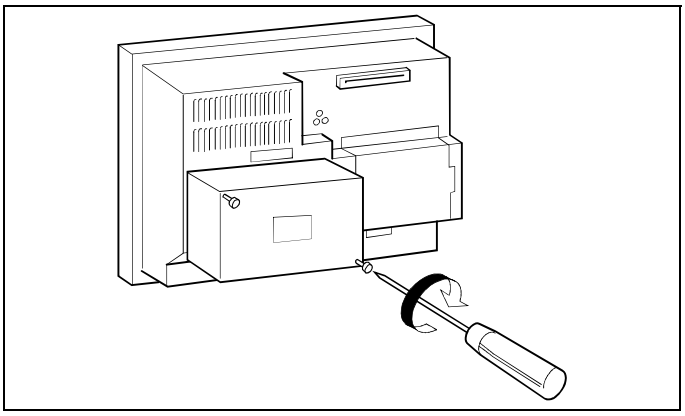
Unit: mm (inch)

No.	Name	Description
1)	Connector for connection	Connector for connection to the A985GOT-V
2)	Connector for video input	Connector for connecting a coaxial cable
3)	Connector for RGB input	Connector for connecting a 9-core combined cable
4)	Option module mounting screw	Mounting screw to the A985GOT-V
5)	Rating plate	-

4. Installation Procedure



(1) Insert the A9GT-80V4R1 connector into the option module interface at the back of A985GOT-V.



(2) Tighten the attachment screw to a point within the prescribed torque range of 39 to 59 N•cm.

To remove the unit, reverse the installation procedure.

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.

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