MITSUBISHI

Relay Terminal Module

User's Manual
(Hardware)

A6TE2-16SRN

Thank you for buying the Mitsubishi general-purpose programmable logic controller MELSEC-A Series

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

MODEL	A6TE2-16SRN-U-E
MODEL CODE	13JL53
IB (NA)66833-C (0007) MEE	

● SAFETY PRECAUTIONS ●

(Always read these instructions 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 instructions given in this manual are concerned with this product For the safety instructions of the programmable controller system, please read the CPU module user's manual

In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

⚠DANGER	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 consequence 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]

⚠DANGER

- Install a safety circuit external to the PLC that keeps the entire system safe even when there are problems with the external power supply or the PLC main module An accident may occur by a false output or a malfunction
  Output could be left ON or OFF when there is trouble in the output module's relay or transistor So build an external monitoring circuit that will monitor any signal output that could cause serious trouble
- In an output module, build a safety circuit such as a fuse externally of the module, because there is a possibility of fire or smoke in the case when overcurrent exceeding the rating flows continuously for a prolonged time due to shorted load.

⚠CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other. They should be installed 100mm (3 9 in) or more from each other Not doing so could result in noise that would cause malfunction.

[INSTALLATION PRECAUTIONS]

⚠CAUTION

- Use the module in the environment given in the general specifications of CPU module user's manual
  Using the PLC outside the range of the general specifications may result in electric shock, fire or malfunction, or may damage the product
- Load a cable by inserting to a module connector until a clicking sound comes Check any looseness after the loading False connection may cause a mis-input or mis-output
- Load a module by pressing against the DIN rail until a clicking sound comes Check any looseness after the loading Improper installation may cause the module to fall out, resulting in breakdowns
- Do not directly touch the module's conductive parts or electronic components Doing so could cause malfunction or trouble in the module.

[WIRING PRECAUTIONS]

⚠DANGER

- Before beginning any installation or wiring work, make sure all phases of the power supply have been obstructed from the outside
  Failure to completely shut off the power supply phases may cause electric shock and /or damage to the module
- When turning on the power or operating the module after installation or wiring work, be sure the module's terminal covers are correctly attached
  Failure to attach the terminal covers may result in electric shock.

⚠CAUTION

- When wiring the PLC, check the rated voltage and terminal layout of the wiring, and make sure the wiring is done correctly Connecting a power supply that differs from the rated voltage or wiring it incorrectly may cause fire or failure
- Tighten the terminal screws with the specified torque If the terminal screws are loose, it may result in short circuits, fire or malfunction Tightening the screws too far may cause damage to the screw and /or the module, resulting in short circuits, fire or malfunction
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module Such debris could cause fire, failure or malfunction
- Be sure to fix communication cables and power cables leading from the module by placing them in the duct or clamping them Cables not placed in the duct or without clamping may hang or shirt, allowing them to be accidentally pulled, which may result in a module malfunction and cable damage.

[STARTING AND MAINTENANCE PRECAUTIONS]

⚠DANGER

- Do not touch the terminals while the power is on Doing so may cause electric shock or malfunction
- Make sure to switch all phases of the external power supply off before cleaning or retightening terminal screws If you do not switch off the external power supply, it will cause electric shock.

⚠CAUTION

- Do not disassemble or modify the modules Doing so could cause failure, malfunction, injury or fire
- When detaching the communication cable or power cable from the module, do not pull the cable portion For cables with connectors, hold the connector at the junction to the module, then detach it For cables without connectors, first loosen the screw at the junction, then detach the cable
  Pulling the cable portion while it is connected to the module may cause a malfunction or damage to the module and cable.

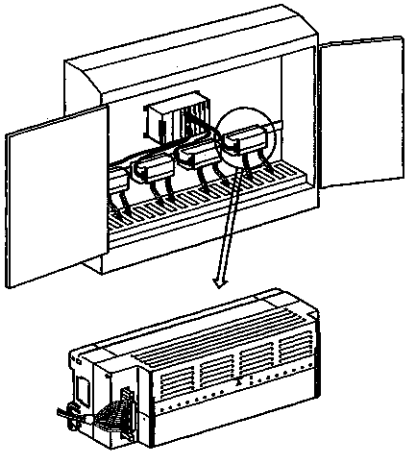
[DISPOSAL PRECAUTIONS]

⚠DANGER

- When disposing of this product, treat it as industrial waste.

1. OVERVIEW

This User's Manual explains the specifications and part identification of A6TE2-16SRN Relay Terminal Module (abbreviated as A6TE2-16SRN hereafter)
The A6TE2-16SRN is used in place of a joint terminal block and in-panel relay It reduces wiring work processes for the programmable controller, joint terminal block and in-panel relay



A6TE2-16SRN

2. Performance Specifications

Item		Specifications
Number of output		16 points
Isolation method		Relay insulation
Rated switching voltage/current		24VDC 2A (resistive load) per point, 8A per common 240VAC 2A (COS ϕ=1) per point
Minimum switching load		5VDC 1mA
Maximum switching load		264VAC 125VDC
Response time	OFF→ON	10ms or below (excluding delay of the PC output module)
	ON→OFF	12ms or below (excluding delay of the PC output module)
Life	Mechanical	Over 20 million times
	(*1) Electrical	Rated switching voltage/current load Over 100 thousand times
		200VAC 1 5A, 240VAC 1A(COSϕ=0 7) Over 100 thousand times
		200VAC 1A, 240VAC 0 5A(COSϕ=0 35): Over 100 thousand times
		24VDC 1A, 100VDC 0 1A(L/Rϕ=7ms): Over 100 thousand times
Maximum switching frequency (*2)		3,600 times per hour
Noise suppression		None
Fuse		None
Common wiring system		8 points 1 common (common terminals: TB19, TB21)
Operation indication		ON display (LED)
External wiring system		38-point terminal block connector (M3 screw)
Applicable wire size		0 75 to 1 25 mm², max 2 wires per point (Applicable tightening torque 60 to 100N cm)
Applicable solderless terminal		1 25-3 1 25-MS3 1 25-B3A 1 25-C3A V1.25-3 V1.25-MS3 V1.25-B3A max. 2 wires per point
Applicable DIN rail		TH35-7.5Fe. TH35-7.5Al
Accessory item		Relay removal tool (RV9Z-T01)
External supply power	Voltage	24VDC ± 10% ripple voltage, 4VP-P or less
	Current(mA)	350 (TYP 24VDC, all points OFF)
Internal current consumption (5VDC)		-
Weight		0.35 kg
Relays for replacement		RV3T-3G24 (made by Izumi Electric, Inc user arranged item) Izumi Electric, Inc Tokyo Branch, Telephone: (03)5782-7680 Chubu Branch, Telephone: (052)732-2712 Kansai Branch, Telephone. (06)6300-5511
Remark		24VDC, connector (40-pin, made by Fujitsu) For a sink tank type output, use 2-wire terminal block.

1) The A6TE2-16SRN can be used in combination with sink type output modules having the following connectors (only Fujitsu 40-pin).

Classification	Applicable Models
Q series	QY41P, QY42P, QH42P
AnS series	A1SY41, A1SY42, A1SH42, A1SH42-S1
A series	AY42, AY42-S1, AY42-S2, AY42-S3, AY42-S4, AH42
CC-Link	AJ65SBTCF1-32T, AJ65BTC1-32T
MELSECNET-MINI	AJ35TC1-32T

2) One cable (separate arrangement; see Figure 4 2) and two relay terminal modules can share 32 points (one connector)
3) By using the dedicated cable, it is possible to install the relay terminal module in a position of maximum 10 m (32 8 feet)
4) There are five types of dedicated cables, each having different cable length
5) Because it is a socket-type relay, each relay can be replaced individually as necessary.
   - The relay has a structure that allows secure installation and prevents drop-offs due to vibration, etc
   - It is supplied with a relay removal tool
6) Because it can be replaced by a relay output, it can be used either for AC or DC with larger current capacity
7) Self-up screws are adopted so that the terminal screws do not fall off
8) Wiring works have been simplified by the indication on the symbol sheet of the relay terminal module
9) Only a DIN rail can be installed
10) 2-wire load can be connected

*1 See Figure 2 1 for details
*2: For the maximum switching frequency when load L is driven, set ON for 1 second or longer and OFF for 1 second or longer

REMARK

1) See the User's Manual of the PLC CPU for the general specification

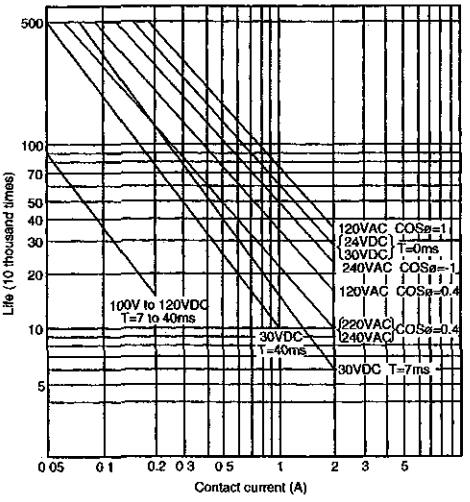
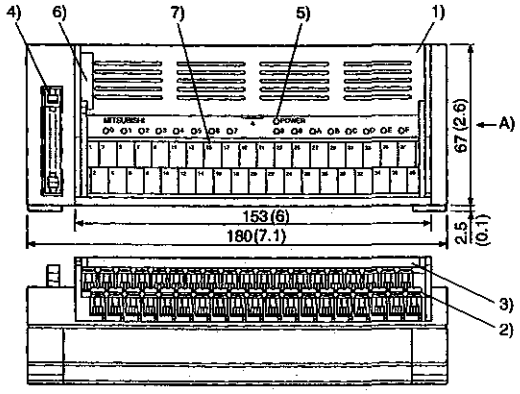
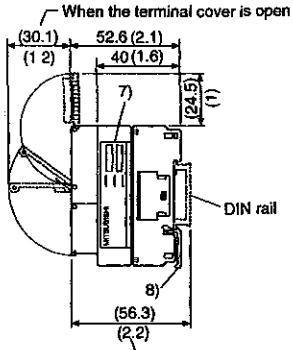


Figure 2 1 Electrical Life Curve of a Relay

2) Do not use A6TE2-16SRN under pressure higher than the atmospheric pressure of 0m (0ft) altitude Doing so can cause a malfunction
When using A6TE2-16SRN under pressure, please consult your sales representative

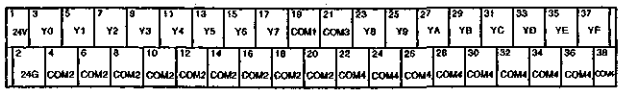
3. Part Identification and External Dimensions





View from A)

(Unit:mm(in))



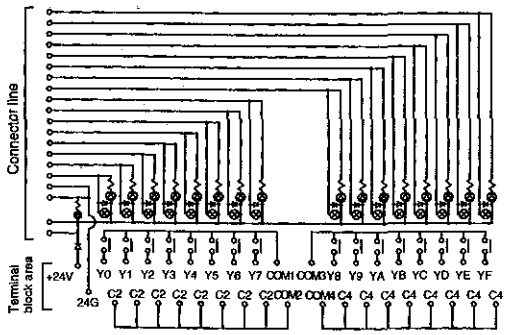
7) Rear of the symbol sheet

Number	Name
1)	Cover
2)	Terminal block
3)	Terminal cover
4)	Connector
5)	LED (For output confirmation)
6)	Relay removal tool
7)	Symbol sheet
8)	Hook (used for removing DIN rail)

4. Wiring

4 1 Wiring

Use the connection cables descried in Section 4 2, and wire them as shown in Figure 4 1



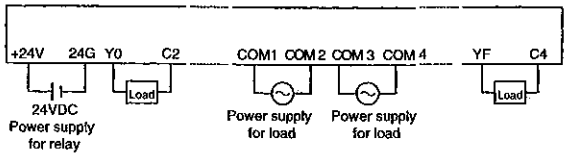


Figure 4 1 Wiring Diagram

4 2 Connection Cable

The following displays the connection cables that can be used for wiring of A6TE2-16SRN

Type	Cable length L
AC06TE	0.6m (2ft)
AC10TE	1m (3.2ft)
AC30TE	3m (9.8ft)
AC50TE	5m (16.4ft)
AC100TE	10m (32.8ft)

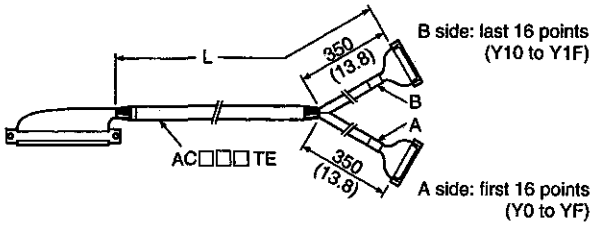


Figure 4 2 Connection Cable

(Unit : mm (in))

5. Installation

5 1 Installation Orientation

Figure 5 1 shows the orientation of installation

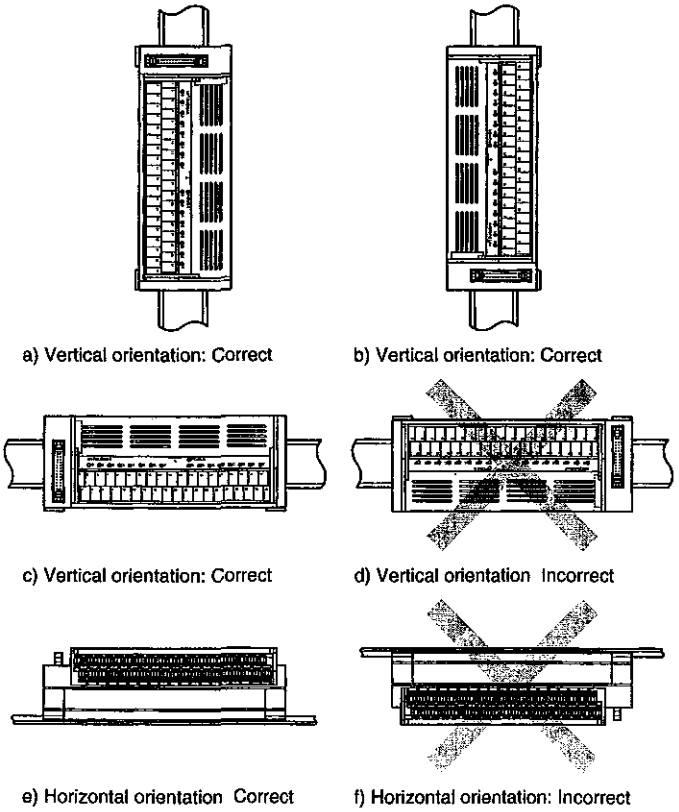


Figure 5 1 Installation Orientation (Horizontal view)

Point

Confirm that the relay is securely installed before turning on the power supply for the first time after shipment.

5 2 Replacing the Relay

The relay is replaced in the following manner

1) Open the top cover of the module
2) Pull out the red relay removal tool at the left end
3) Insert the relay removal tool from top of the relay and pull out the relay

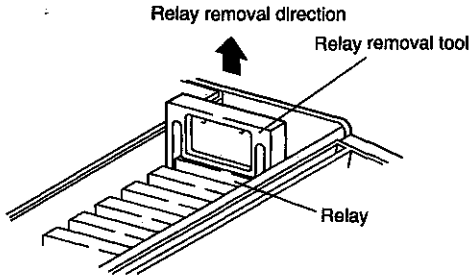


Figure 5 2 Relay Removal Procedure

4) Mount a new relay from the upper direction, taking note of the relay installation direction
5) After confirming that the relay is firmly connected and there is no bent in its lead, turn on the power supply

6. Precautionary Items for Relay Replacement

When the A6TE2-16SRN relay is replaced, always use a relay that is compatible with the A6TE2-16SRN

The following table shows the relationship between the relay terminal module types and applicable relays for replacement

Relay terminal module	Relay for replacement (O: usable, x: unusable)		
	New type replacement relay	New type replacement relay (with an adapter)	Existing replacement relay
	RV3T-3G24	RV3T-3G24MA	RV3S-3B24S
A6TE2-16SRN	O	×	×
A6TE2-16SR *1	×	O	O

*1:Conventional relay terminal module

5.3 Installation and Removal to/from a DIN Rail

1) Installation to a DIN Rail
   a) Insert the top of the DIN rail to the upper side of the groove for the DIN rail
   b) Fix the module to the DIN rail by pressing against the rail

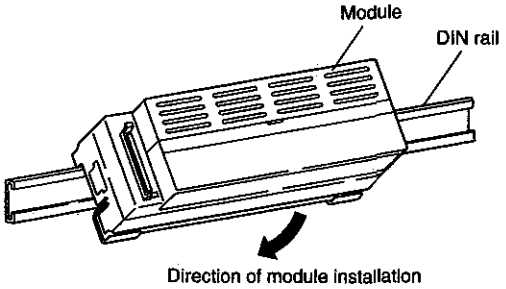


Figure 5 3 Installation Procedure to a DIN Rail

2) Removal from a DIN Rail
   a) Pull down the hook at the bottom of the module with a flat blade screwdriver
   b) Pull the module forward while the hook is pulled down, then remove the module from the DIN rail

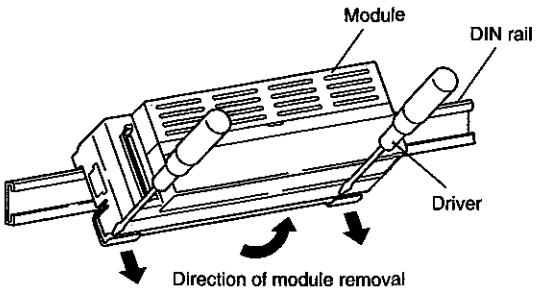


Figure 5 4 Removal Procedure from a DIN Rail

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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