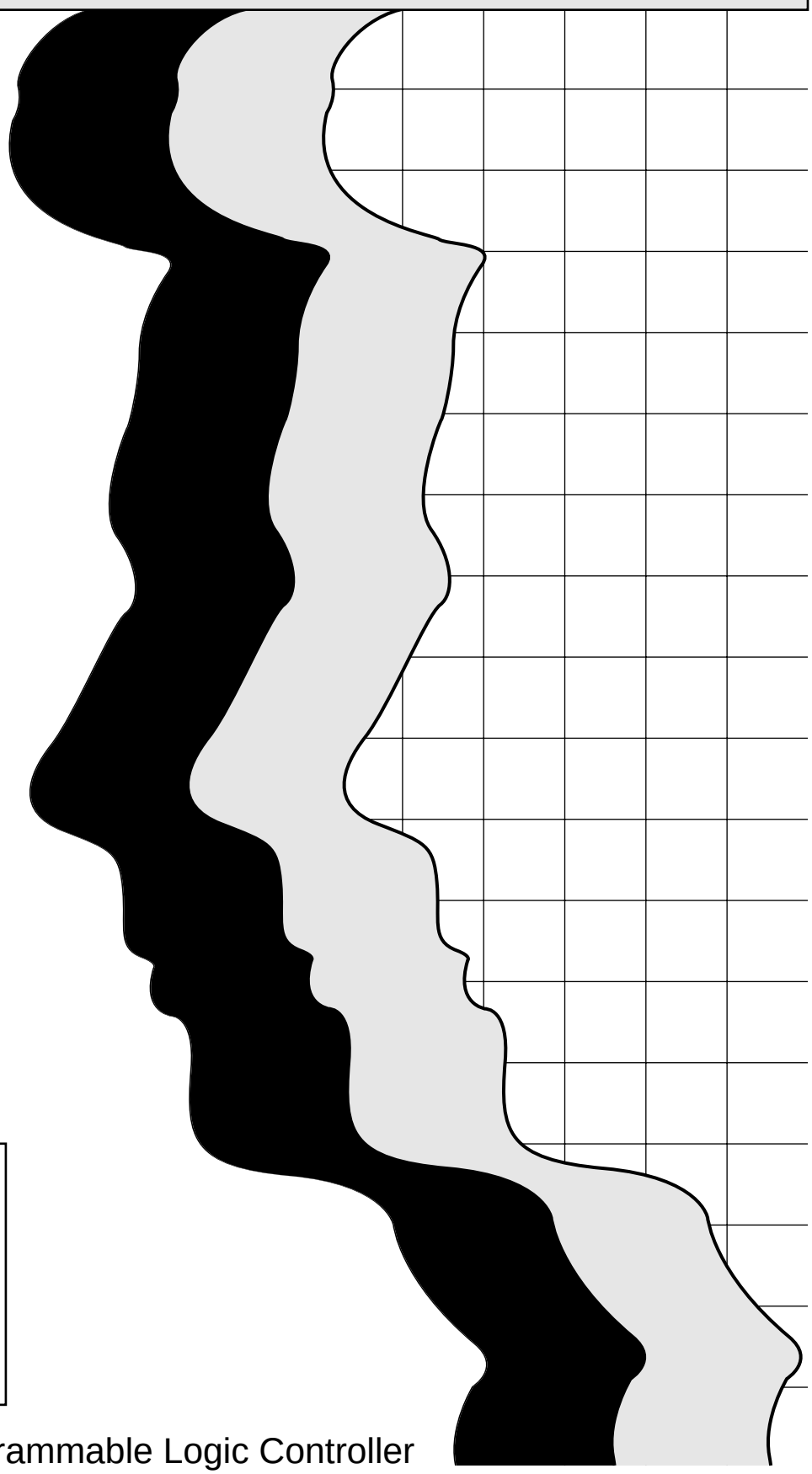
MITSUBISHI

A2C, MELSECNET/MINI-S3 I/O MODULE

User's Manual



MELSEC

Mitsubishi Programmable Logic Controller

● SAFETY PRECAUTIONS ●

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual. Also pay careful attention to safety and handle the module properly.

These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a descriprion of the PC system safty precautions.

These ● **SAFETY PRECAUTIONS** ● classifiy the safty 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 circumestances, procedures indicated by **CAUTION** may also be linked to serious results.

In many 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.

[System Design Precautions]

DANGER

- Safety circuits should be installed external to the programmable controller to ensure that the system as a whole will continue to operate safely in the event of an external power supply malfunction or a programmable controller failure. Erroneous outputs and operation could result in an accident.
  1) The following circuitry should be installed outside the programmable controller:
     Interlock circuitry for the emergency stop circuit protective circuit, and for reciprocal operations such as forward/reverse, etc., and interlock circuitry for upper/lower positioning limits, etc., to prevent machine damage.
  2) When the programmable controller detects an abnormal condition, processing is stopped and all outputs are switched OFF. This happens in the following cases:
     - When the power supply module's over-current or over-voltage protection device is activated.
     - When an error (watchdog timer error, etc.) is detected at the PC CPU by the self-diagnosis function.

     Some errors, such as input/output control errors, cannot be detected by the PC CPU, and there may be cases when all outputs are turned ON when such errors occur. In order to ensure that the machine operates safely in such cases, a failsafe circuit or mechanism should be provided outside the programmable controller. Refer to the CPU module user's manual for an example of such a failsafe circuit.
  3) Outputs may become stuck at ON or OFF due to an output module relay or transistor failure. An external circuit should therefore be provided to monitor output signals whose incorrect operation could cause serious accidents.

- If load current more than the rating or over-current due to a short circuit in the load has flowed in the output module for a long time, it may cause a fire and smoke. Provide an external safety device such as a fuse.

- A circuit should be installed which permits the external power supply to be switched ON only after the programmable controller power has been switched ON. Accidents caused by erroneous outputs and motion could result if the external power supply is switched ON first.

- When a data link communication error occurs, the status shown below will be established at the faulty station. In order to ensure that the system operates safely at such times, an interlock circuit should be provided in the sequence program (using the communication status information).
  Erroneous outputs and operation could result in an accident.
  1) The data link data which existed prior to the error will be held.
  2) All outputs will be switched OFF at MELSECNET (II, /B, /10) remote I/O stations.
  3) At the MELSECNET/MINI-S3 remote I/O stations, all outputs will be switched OFF or output statuses will be held, depending on the E.C. mode setting.

  For details on procedures for checking faulty stations, and for operation statuses when such errors occur, refer to the appropriate data link manual.

[System Design Precautions]

⚠ CAUTION

- 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, otherwise malfunctions may occur due to noise.

[Cautions on Mounting]

⚠ CAUTION

- Use the PC in an environment that conforms to the general specifications in the manual.
  Using the PC in environments outside the ranges stated in the general specifications will cause electric shock, fire, malfunction, or damage to/deterioration of the product.
- Make sure that the module fixing projection on the base of the module is properly engaged in the module fixing hole in the base unit before mounting the module.
  Failure to mount the module properly will result in malfunction or failure, or in the module falling.
- Do not directly touch the module's conductive parts or electronic components. Touching the conductive parts could cause an operation failure or give damage to the module.

[Cautions on Wiring]

DANGER

- Switch off the external power supply before staring installation and wiring work.
  Failure to do so could result in electrical shocks and equipment damage.
- After installation and wiring is completed, be sure to attach the terminal cover before switching the power ON and starting operation.
  Failure to do so could result in electrical shocks.

CAUTION

- Be sure to ground the FG and LG terminals, carrying out at least class 3 grounding work with a ground exclusive to the PC.
  Otherwise there will be a danger of electric shock and malfunctions.
- Carry out wiring to the PC correctly, checking the rated voltage and terminal arrangement of the product.
  Using a power supply that does not conform to the rated voltage, or carrying out wiring incorrectly, will cause fire or failure.
- Tighten the terminal screws to the stipulated torque.
  Loose screws will cause short circuits, fire, or malfunctions.
- Make sure that no foreign matter such as chips or wiring offcuts gets inside the module.
  It will cause fire, failure or malfunction.
- Connectors for external connections should be crimped, pressure welded, or soldered in the correct manner using the correct tools.
  A poor connection could cause shorts, fire, and erroneous operation.

[Cautions on Startup and Maintenance]

DANGER

- Do not touch terminals while the power is ON.
  Doing so could cause shock or erroneous operation.
- Switch off all phases of the externally supplied power used in the system when cleaning the module or retightening the terminal or module mounting screws.
  Not doing so could result in electric shock.
  Undertightening of terminal screws can cause a short circuit or malfunction.
  Overtightening of screws can cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.

CAUTION

- Do not disassemble or modify any module.
  This will cause failure, malfunction, injuries, or fire.
- Switch the power OFF before mounting or removing the module.
  Mounting or removing it with the power ON can cause failure or malfunction of the module.
- When replacing fuses, be sure to use the prescribed fuse. A fuse of the wrong capacity could cause a fire.

[Cautions on Disposal]

CAUTION

- 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
Apr., 1995	SH (NA) 3546-A	First edition
Jan., 1995	SH (NA) 3546-B	Model Addition AJ35TB3-8D, AJ35TB1A-8T, AJ35TB1A-8R, AJ35TB2-8T, AJ35TB2-8R AJ72T35 Part Correction Section 1.1, 1.2, 2.4.3, Chapter 3 Part Addition APP.1.3, 1.9 Correction made in Japanese version. No corresponding version of English manuals.
Apr., 1997	SH (NA) 3546-C	Addition A2CJCPU(S3) A2CJCPU(S3) Correction Section 4.4.11, Chapter 7, Section 8.2
June, 2000	SH (NA) 3546-D	Correction Section 3.6
June, 2003	SH (NA) 3546-E	Correction Section 12, 8.1
Jan., 2006	SH (NA) 3546-F	Correction SAFETY PRECAUTIONS, CONTENTS, Section 1.1, 1.3, 2.2, 2.3.3, 2.4.1, 2.4.5, Chapter 3, Section 3.3 to 3.19, 4.1, 4.3.1 to 4.3.8, 4.4.1 to 4.4.8, 5.2 to 5.16, 6.1, 7.2, 7.3, 8.1, 8.2, APP. 1.3 Delection Section 4.2.1 Addition Conformation to the EMC Directive and Low Voltage Instruction, Section 2.4.2, 2.5.6, 2.6, 2.7, 3.2 Changed item number Section 2.4.2 to 2.4.5 → Section 2.4.3 to 2.4.6 Section 2.5.6 → Section 2.5.7 Section 3.2 to 3.18 → Section 3.3 to 3.19

Japanese Manual Version SH (NA) 3506-F

INTRODUCTION

Thank you for choosing the Mitsubishi MELSEC-A Series of General Purpose Programmable Controllers. Please read this manual carefully so that the equipment is used to its optimum. A copy of this manual should be forwarded to the end User.

CONTENTS

About Manuals

Refer to the following manuals as required:

[Related manuals]

- **A2CCPU(P21/R21), A2CCPU-DC24V, A2CCPUC24(-PRF), A2CJCPU(S3) User's Manual (IB-66545)**

  Describes the system configuration, parformance specifications, functions, concept for I/O numbers, handling, wiring, and troubleshooting, for A2CCPU(P21/R21), A2CCPU-DC24V, A2CCPUC24(-PRF), and A2CJCPU.

- **MELSECNET/MINI-S3 master module type AJ71PT32-S3, AJ71T32-S3, A1SJ71PT32-P3, A1SJ71T32-S3 User's Manual (IB-66565)**

  Describes the system configuration, link processing method, buffer memory and I/O signal allocations, performance specifications, handling, wiring, and troubleshooting, for AJ71PT32-S3, AJ71T32-S3, A1SJ71PT32-S3 and A1SJ71T32-S3.

Conformation to the EMC Directive and Low Voltage Instruction

For details on making Mitsubishi PLC conform to the EMC directive and low voltage instruction when installing it in your product, please refer to Chapter 3, "EMC Directive and Low Voltage Instruction" of the PLC CPU User's Manual (Hardware).
The CE logo is printed on the rating plate on the main body of the PLC that conforms to the EMC directive and low voltage instruction.

1. GENERAL DESCRIPTION

This manual describes the specifications of the I/O units that can be used as remote stations in a MELSECNET/MINI-S3 data link system.

1.1 Types of Remote I/O Unit

(1) A2C I/O units

(a) These are compact I/O units measuring 170 mm (height) by 64 mm (width) by 80 mm (depth).

(b) They occupy two or four stations depending on the number of occupied points:

Unit with 16 I/O points..... 2 stations
Unit with 32 I/O points..... 4 stations

(c) They can be mounted in a panel by using screws or by fixing them to a DIN rail.

(d) They are for use exclusively in twisted-pair data links.

(2) Remote terminal block I/O units, remote connector I/O units

(a) These are downsized remote I/O units (standard terminal block type) measuring 55 mm (height) by 135 mm (width) by 55 mm (depth).

(b) They occupy one, two or four stations depending on the number of occupied points:

Unit with 8 I/O points..... 1 station
Unit with 16 I/O points..... 2 stations
Unit with 32 I/O points..... 4 stations

(c) Since a terminal block with a 2-wire type sensor is available for power supply connections, there is no need to use a relay terminal block, which saves space when making connections.

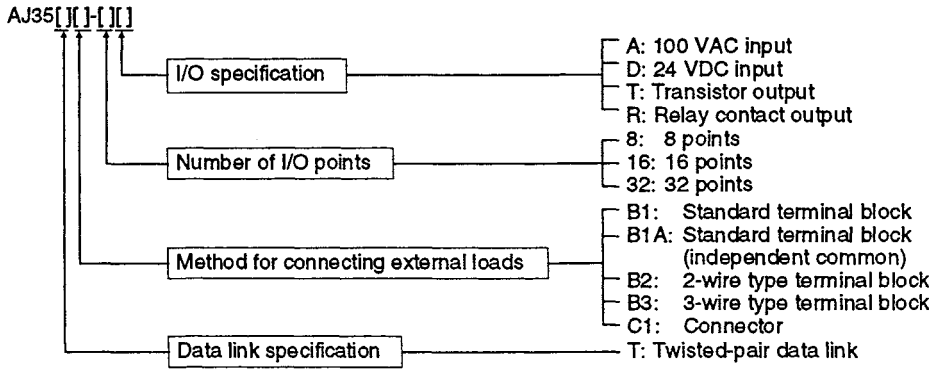
(d) Since self-up screws - which are designed not to fall out - are used as the terminal screws, they will not come out even when round solderless terminals are used for connections, which makes wiring work at the terminal block easier.

(e) These units can be mounted in a panel by using screws or by fixing them to a DIN rail.

(f) They are for use exclusively in twisted-pair data links.

REMARK

The meanings of the alphanumeric characters used in model names are indicated below:



(3) Stand-alone remote I/O unit

(a) Has a high-strength, drip-proof casing mode of diecast aluminum (in the case of 8-point units) or thick sheet metal (in the case of 16-point to 48-point units), allowing direct installation in machinery for use a cable junction box.

(b) The protection structure conforms to IP54G (JEM1030).

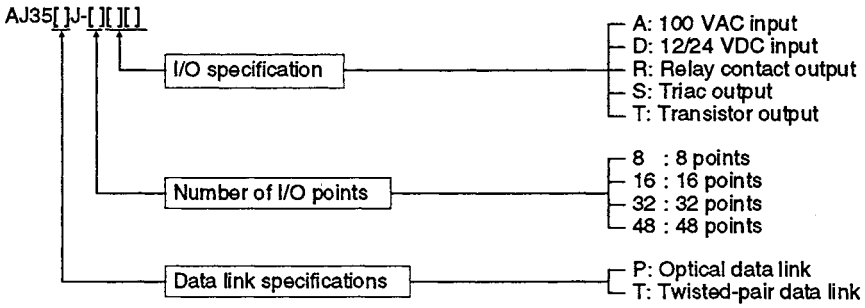
(c) One unit can handle 8 to 48 I/O points.

(d) Occupies between 1 and 4 stations.

(e) Units for use in optical data links and units for use in twisted-pair data links are available.

REMARK

The meanings of the alphanumeric characters used in stand-alone remote I/O unit model names are indicated below.



(4) Compact remote I/O unit

(a) Has the same dimensions as the compact type (A0J2) I/O units.

(b) Units available are 32-point dedicated input, 24-point dedicated output, and 28-point (16-point input, 12-point output) and 56-point (32-point input, 24-point output) compound I/O units.

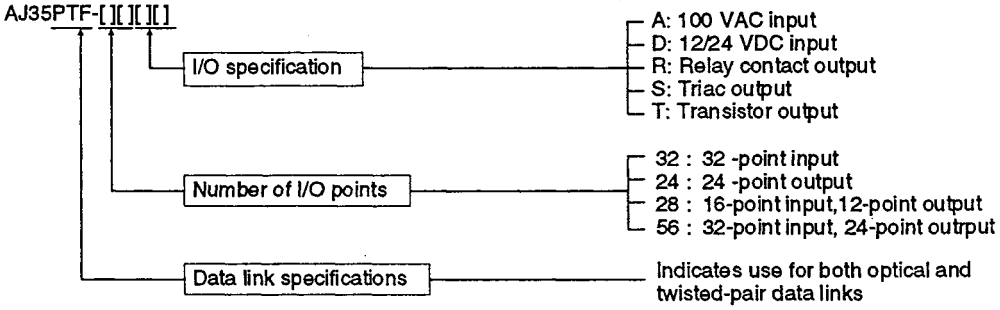
(c) Occupies 4 or 8 stations in accordance with the number of I/O points as indicated.

Unit with 32, 24 or 28 I/O points ..... 4 stations
Unit with 56 I/O points..... 8 stations

(d) Can be used for both optical and twisted-pair data links.
For example, data may be received through optical data link (cable connected to RD) and transmitted through twisted-pair data link (cable connected to SDA and SDB)

REMARK

The alphanumeric characters of the compact remote I/O unit indicate the following :



(5) Partial refresh type remote I/O unit (AJ35PTF-128DT)

(a) Has the same dimensions as the compact type (A0J2-E56[ ][ ]) I/O units.

(b) One unit has 64 points for DC inputs and 64 points for transistor outputs.

(c) Occupies four stations.

(d) Can be used in both optical data links and twisted-pair data links. For example, data may be received through an optical data link (cable connected to RD) and transmitted through a twisted-pair data link (cable connected to SDA and SDB).

(6) AJ72PT35/AJ72T35 data link module

(a) This module is loaded in the CPU slot of a main base unit to allow the use of A series building block type I/O unit at a remote I/O station. It does not permit the loading of special function modules.

(b) One module allows the use of up to 128 points.

(c) The number of occupied stations can be specified in units of 4 stations in the range 4 to 16.

(d) The AJ72PT35 type data link module is a remote I/O module that can be used in both optical data links and twisted pair data links.
For example, data may be received through an optical data link (cable connected to RD) and transmitted through a twisted-pair data link (cable connected to SDA and SDB).

(e) The AJ72T35 type data link module is a remote I/O module specifically intended for twisted pair data links.

POINT

A partial refresh type remote I/O unit (AJ35PTF-128DT) cannot be connected to the following models of PC CPU.

- A2CCPU(P21/R21)
- A2CCPU-DC24V
- A2CCPUC24(-PRF)
- A2CJCPU
- A52GCPU(T21B)

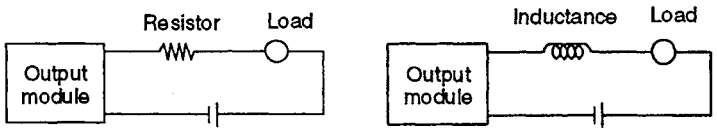
1.2 Notes on Selecting I/O Units

Notes on selecting remote I/O units that can be used in a MELSECNET/MINI-S3 data link system, and details on the specifications of these units, are presented below.

(1) It is recommended that the triac output unit be used with any load that is frequently opened and closed or with any coil load (e.g. electromagnet) that has a large capacity or a low power factor. (The contact output unit would be shortened in service life if used.)

(2) Any inductive L load driven by the output unit must be switched ON for more than 1 second and switched OFF for more than 1 second.

(3) A fault may occur due to rush current when a transistor output unit that a maximum load current (0.1 A, 0.3 A) is low is used with a load (e.g. timer, counter) which uses a DC/DC converter. To avoid this, a resistor or inductance must be connected to the load or the output unit that a maximum load current is high must be used.



(4) Any output unit with fuses may be protected by the fuses if it satisfies the following conditions. Otherwise an external fuse must be used.

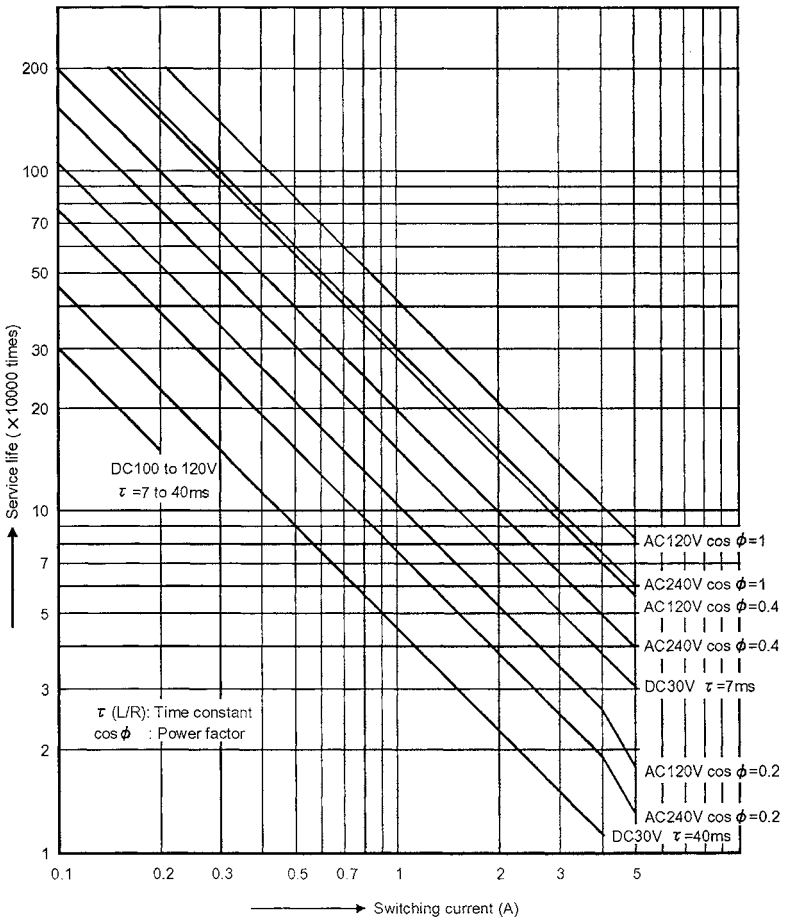
Item \ Load Voltage	12/24 VDC Load	100/200 VAC Load
Wiring length	Min. 3 m (118.1 inch)	Min. 3 m (118.1 inch)
Cable size	Max. 2 mm² (14 AWG)	Max. 2 mm² (14 AWG)
Short-circuit current	Max. 20 A	—
Transformer capacity	—	Max. 2 kVA

In this case, the output unit cannot be protected from overload. It is therefore recommended to use the following external fast-melting fuse.

Define HP or GP(DAITO CO. LTD.) fuse for AC.
Define MP fuse for DC.

(5) The relay life for relay output units is shown below.
Relay output units should be selected with reference to these characteristics and to the item (1) on the previous page.

(a) In the case of AX[ ]Y10C, AY13C or AJ35TB[ ][ ]-[ ][ ]R model.



Point

(1) When using the module for the application in which the relay contact is frequently switched, the relay life span should be considered. Therefore, it is recommended to use a triac output module.

(2) The relay life curve shows the value based on actual use, which is not guaranteed. Therefore, make sure to allow for a margin of error. The relay life span differs according to the specifications as follows:

Rated switching voltage, current load	100 thousand operations
200VAC 1.5A, 240VAC 1A (COSϕ=0.7)	100 thousand operations
200VAC 1A, 240VAC 0.5A (COSϕ=0.35)	100 thousand operations
24VDC 1A, 100VDC 0.1A (L/R=7ms)	100 thousand operations

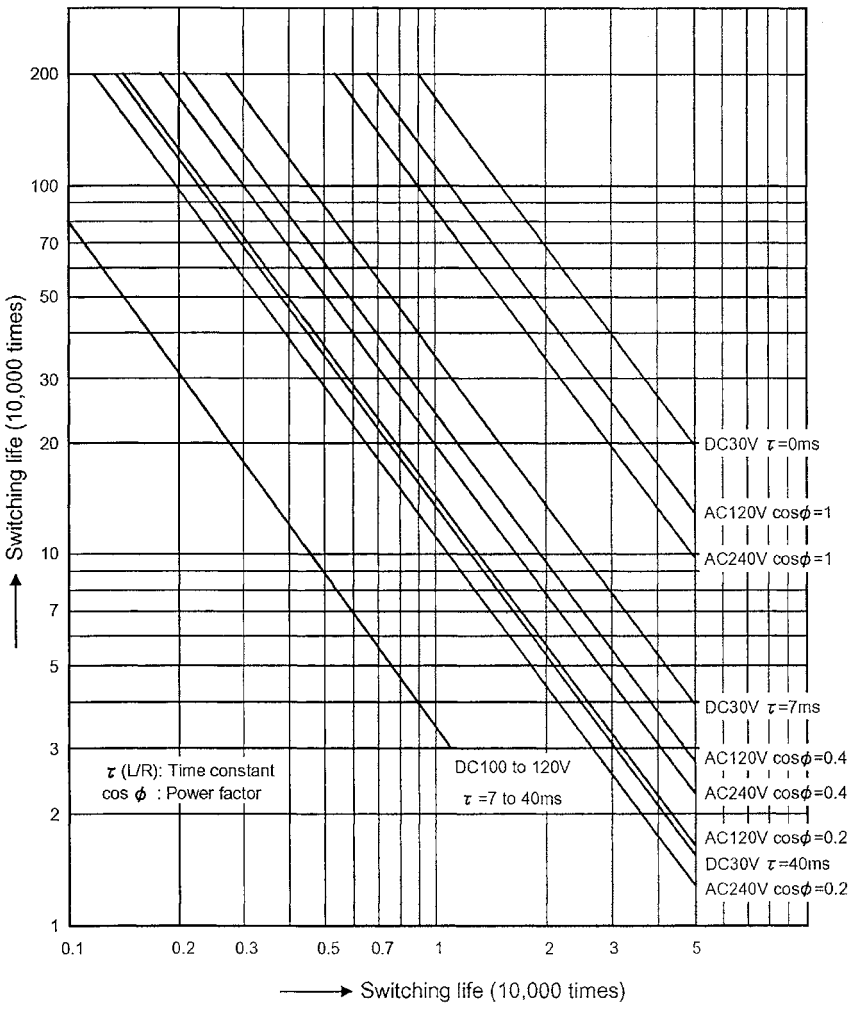
(3) Relay life is substantially affected by the load type and inrush current characteristics. The inrush current may cause the contact welding. Therefore, consideration should be given to it as well as constant current.

(a) Inductive load
When the inductive load such as electromagnetic contactor or solenoid is shut off, high counter-electromotive force is generated between the contacting materials to produce an arc discharge. Consideration should be made especially when the power factor is low, as it may decrease the life period. In addition, make sure to consider the contact melting, as the inrush current equivalent to 5 to 15 times of constant current flows when the module is powered on.

(b) Lamp load
Make sure to consider the contact melting, as the inrush current equivalent to 10 to 15 times of constant current flows in the lamp circuit.

(c) Capacitive load
Make sure to consider the contact melting when a device such as condenser is used in a load circuit, as the inrush current equivalent to 20 to 40 times of constant current may flow in the circuit. Also, pay full attention to the wire capacity if long length of wire is routed.

(b) In the case of AJ35P/TJ-8R, AJ35PTF-24R, 28[ ]R or 56[ ]R model.



Point

(1) When using the module for the application in which the relay contact is frequently switched, the relay life span should be considered. Therefore, it is recommended to use a triac output module.

(2) The relay life curve shows the value based on actual use, which is not guaranteed. Therefore, make sure to allow for a margin of error.
The relay life span differs according to the specifications as follows:

Rated switching voltage, current load	200 thousand operations
200VAC 1.5A, 240VAC 1A (COSϕ =0.7)	200 thousand operations
200VAC 0.75A, 240VAC 0.5A (COSϕ =0.35)	200 thousand operations
24VDC 1A, 100VDC 0.1A (L/R=7ms)	200 thousand operations

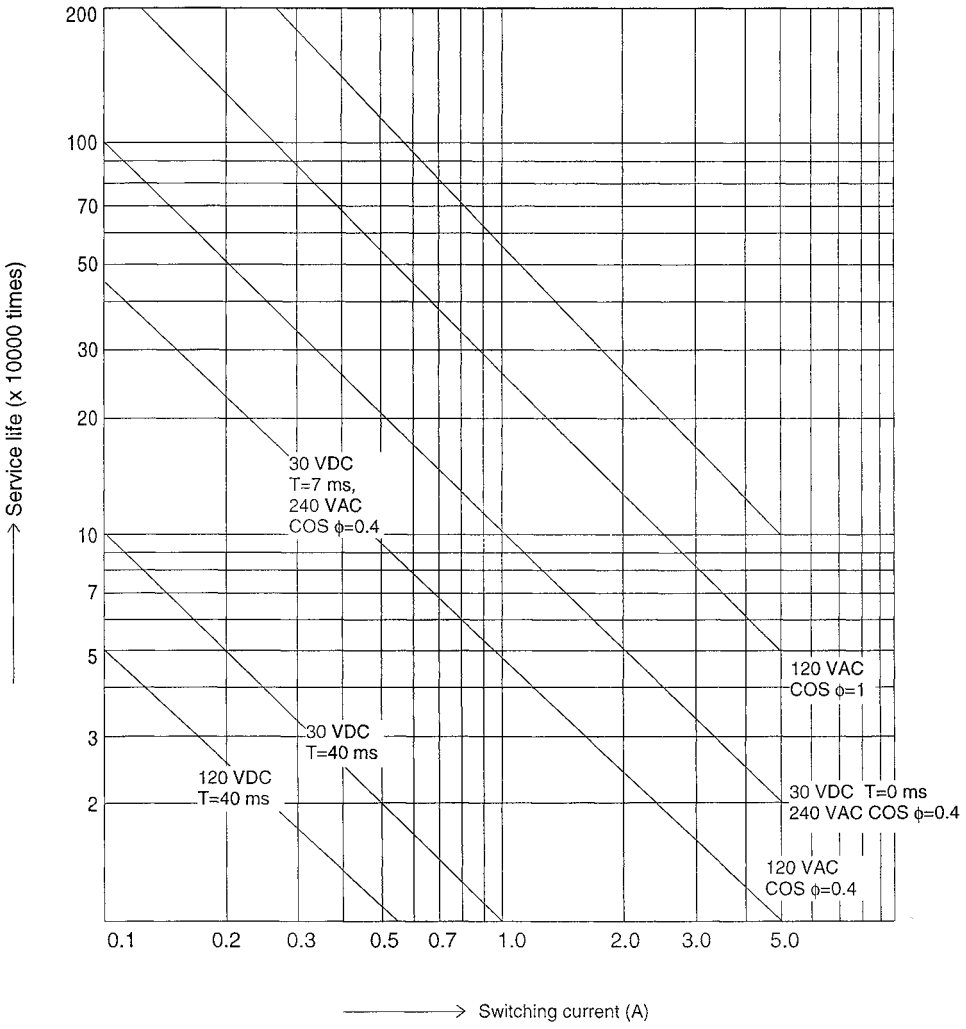
(3) Relay life is substantially affected by the load type and inrush current characteristics.
The inrush current may cause the contact welding.
Therefore, consideration should be given to it as well as constant current.

(a) Inductive load
When the inductive load such as electromagnetic contactor or solenoid is shut off, high counter-electromotive force is generated between the contacting materials to produce an arc discharge. Consideration should be made especially when the power factor is low, as it may decrease the life period.
In addition, make sure to consider the contact melting, as the inrush current equivalent to 5 to 15 times of constant current flows when the module is powered on.

(b) Lamp load
Make sure to consider the contact melting, as the inrush current equivalent to 10 to 15 times of constant current flows in the lamp circuit.

(c) Capacitive load
Make sure to consider the contact melting when a device such as condenser is used in a load circuit, as the inrush current equivalent to 20 to 40 times of constant current may flow in the circuit.
Also, pay full attention to the wire capacity if long length of wire is routed.

(c) In the case of AY15CEU or AX80Y14CEU model.



Point

(1) When using the module for the application in which the relay contact is frequently switched, the relay life span should be considered. Therefore, it is recommended to use a triac output module.

(2) The relay life curve shows the value based on actual use, which is not guaranteed. Therefore, make sure to allow for a margin of error.
The relay life span differs according to the specifications as follows:

Rated switching voltage, current load	200 thousand operations
200VAC 2A, 240VAC 1.8A (COS ϕ =0.7)	200 thousand operations
200VAC 1.1A, 240VAC 0.9A (COS ϕ=0.35)	200 thousand operations
24VDC 1.1A, 100VDC 0.1A (L/R=7ms)	200 thousand operations

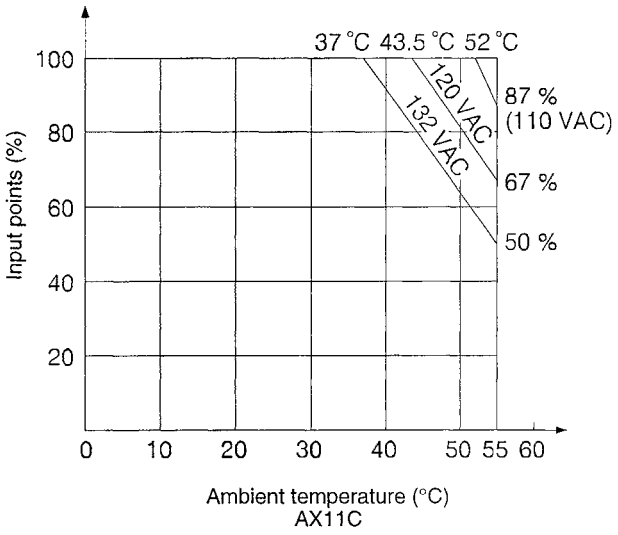
(3) Relay life is substantially affected by the load type and inrush current characteristics. The inrush current may cause the contact welding. Therefore, consideration should be given to it as well as constant current.

(a) Inductive load
When the inductive load such as electromagnetic contactor or solenoid is shut off, high counter-electromotive force is generated between the contacting materials to produce an arc discharge. Consideration should be made especially when the power factor is low, as it may decrease the life period. In addition, make sure to consider the contact melting, as the inrush current equivalent to 5 to 15 times of constant current flows when the module is powered on.

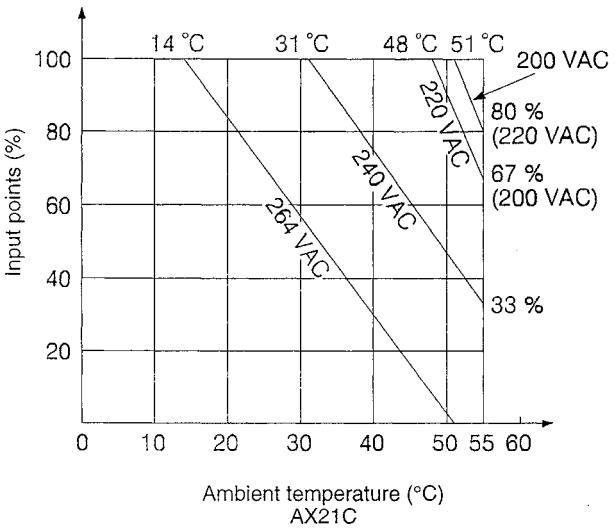
(b) Lamp load
Make sure to consider the contact melting, as the inrush current equivalent to 10 to 15 times of constant current flows in the lamp circuit.

(c) Capacitive load
Make sure to consider the contact melting when a device such as condenser is used in a load circuit, as the inrush current equivalent to 20 to 40 times of constant current may flow in the circuit. Also, pay full attention to the wire capacity if long length of wire is routed.

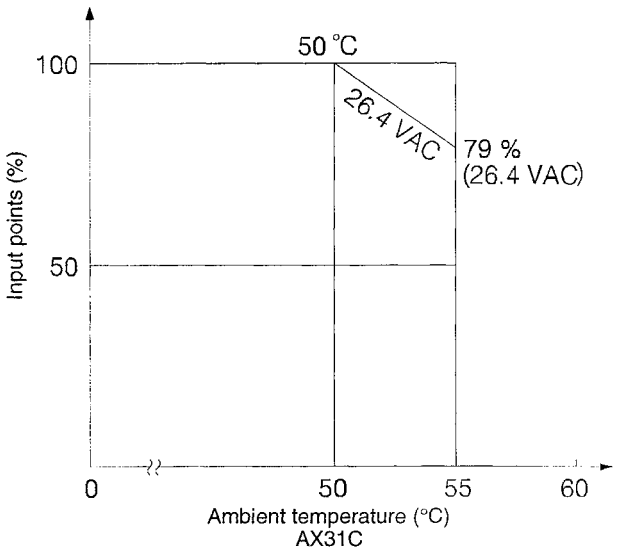
(6) The maximum number of input points which may be simultaneously ON in the AX[ ]C input unit varies with input voltage and ambient temperature as shown below. Select the number of simultaneous ON points referring to the figures shown below.



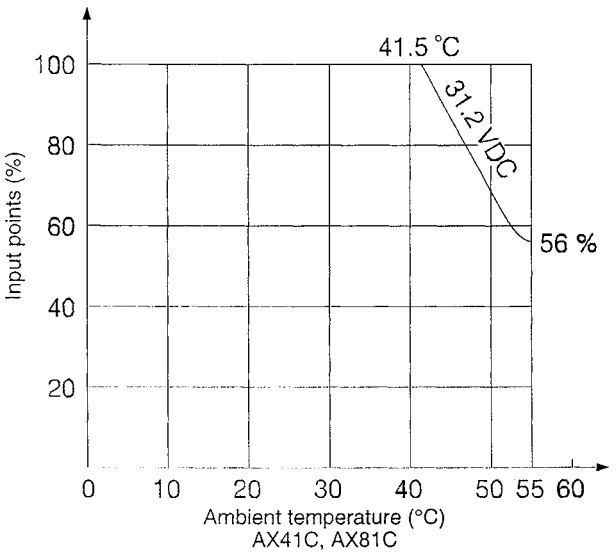
AX11C



AX21C

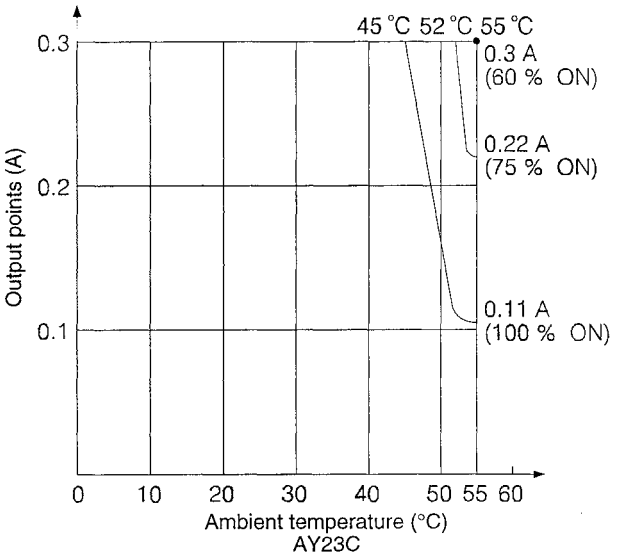


AX31C

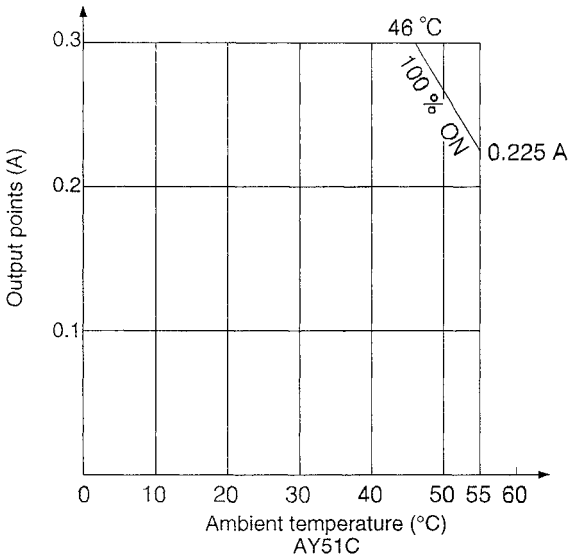


AX41C, AX81C

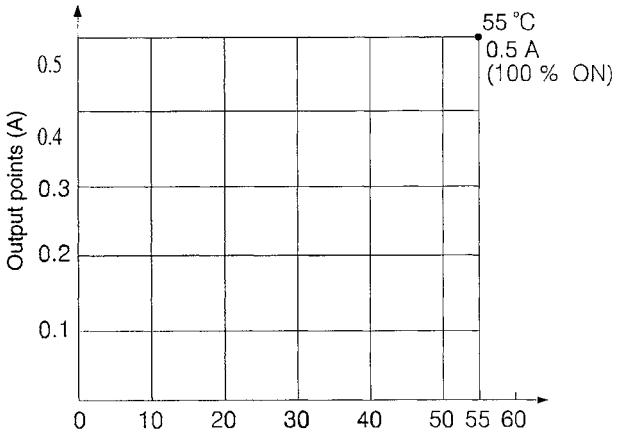
(7) The maximum number of output points which may be simultaeously ON in the AY[ ]C output unit varies with output current and ambient temperature as shown below. Select the number of simultaneous ON points referring to the figures shown below.



AY23C

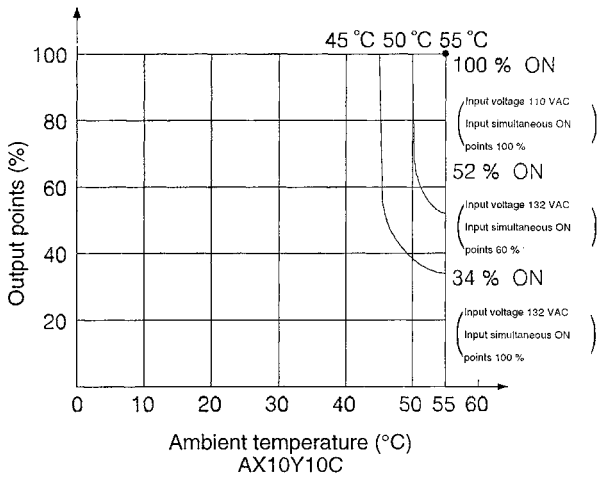


AY51C

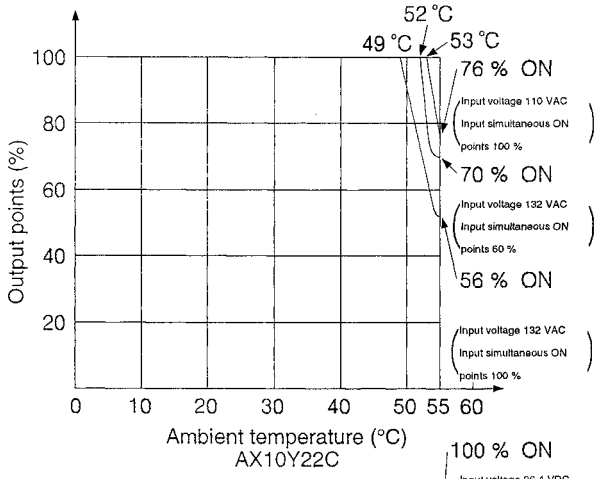


AY81C

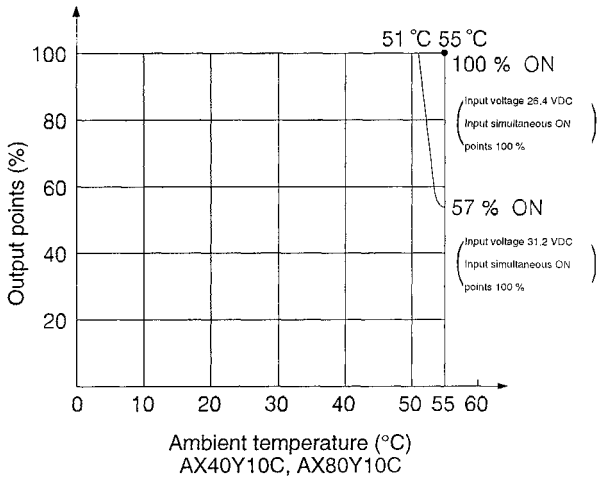
(8) The maximum number of output points which may be simultaneously ON in the AX[ ]Y[ ]C input/output unit varies with input voltage, output current per one point and ambient temperature as shown below. Select the number of simultaneous ON points referring to the figures shown below.



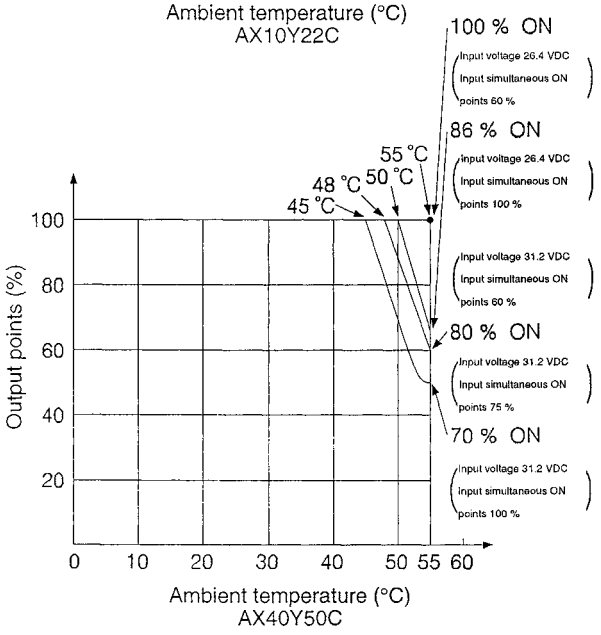
AX10Y10C



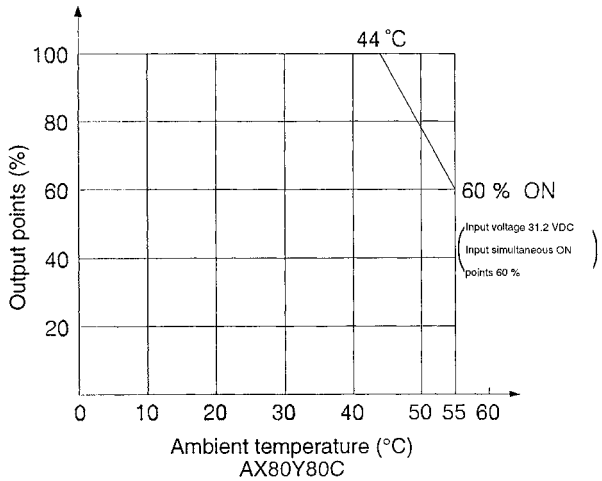
AX10Y22C



AX40Y10C, AX80Y10C



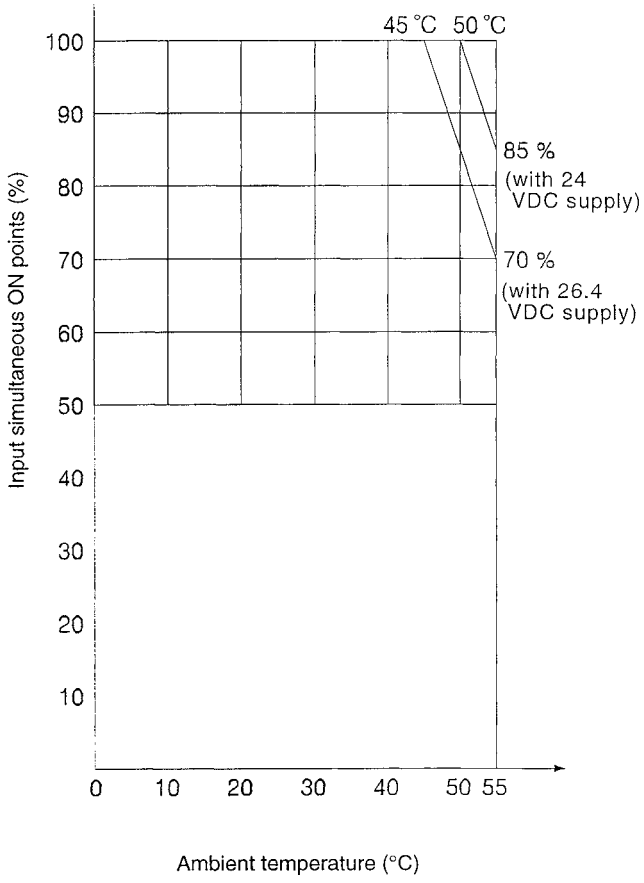
AX40Y50C



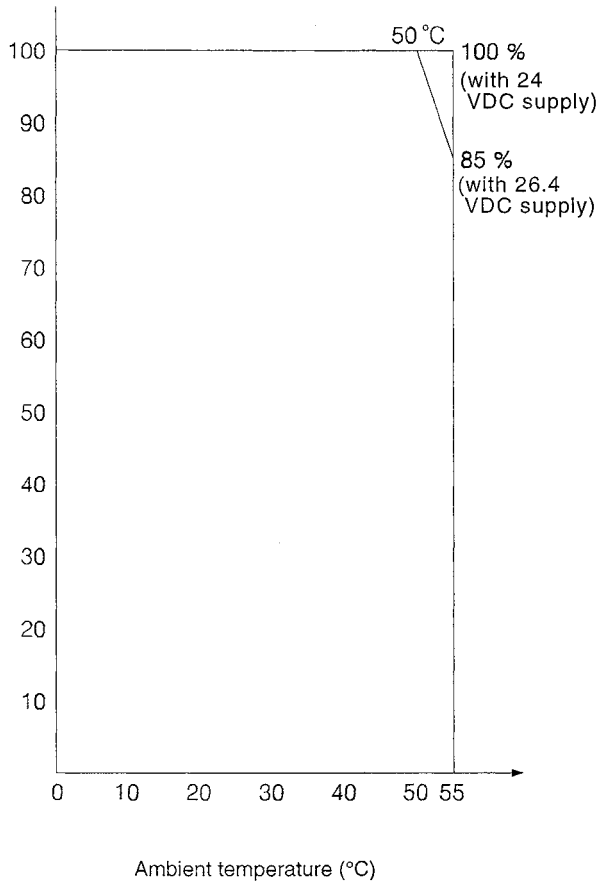
AX80Y80C

(9) The maximum number of input points which may be simultaneously ON in the AJ35TB1-16D and AJ35TC1-32D input units varies with input voltage and ambient temperature as shown below. Select the number of points simultaneously ON by reference to the diagrams below.

Derating curve for AJ35TB1-16D



Derating curve for AJ35TC1-32D

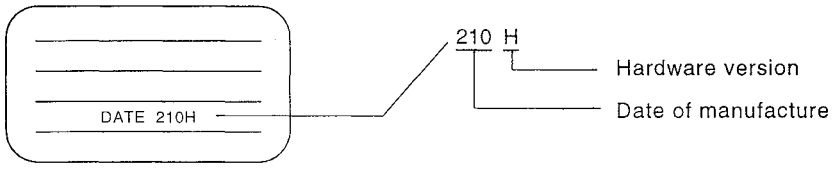


POINT

The following versions are applicable to the I/O modules in this manual.

Model Name	Applicable Version
AY13C	Version H or later
AX10Y10C	Version H or later
AX40Y10C	Version J or later
AX80Y10C	Version C or later

Rating plate



[Changed contents]

Item	Old Version	New Version
Rated switching current (current value per point)	24 VDC (resistance load) 240 VAC (cosϕ=1) / 0.5 A/point, 100 % simultaneous ON	24 VDC (resistance load) 240 VAC (cosϕ=1) / 2 A/point, 4 A/common
Electrical life	200 VAC 0.4 A 240 VAC 0.3 A (cosϕ = 0.7)	200 VAC 1.5 A 240 VAC 1 A (cosϕ = 0.7)
	200 VAC 0.14 A 240 VAC 0.12 A (cosϕ = 0.35)	200 VAC 1 A 240 VAC 0.5 A (cosϕ = 0.35)
Max. switching frequency	3500 times/hour	3600 times/hour

(10) The 40-pin connector included in the AJ35TC1-32□ is soldering type.
A 40-pin connector with pressure-welding or crimped type is also available.
User side shall prepare for tools of cramped or pressure type.

(a) Soldering-type 40-pin connector
Connector model name ..... A6CON1 (straight out type)
A6CON4 (straight out and diagonal out)

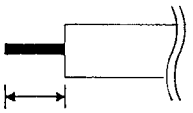
(b) Cramp-contact-type 40-pin connector
Connector model name ..... A6CON2 (straight out type)
Cramp tools ..... FUJITSU COMPONENT LIMITED
FCN-363-T005/H
Applicable cable size ..... AWG#24 to 28

(c) Pressure-displacement type 40-pin connector
Connector model name ..... A6CON3 (flat cable type)
Pressure-welding tools ..... FUJITSU COMPONENT LIMITED
FCN-367T-T012/H (locator plate)
FCN-707T-T001/H (cable cutter)
FCN-707T-T101/H (hand press)
Applicable cable size ..... AWG#28 (twisted wire)
AWG#30 (single wire)

(11) Precautions for handling the I/O modules compatible with A1SX□□EU, A1SY □□EU type marked CE and of when the connecting electric cable to the terminal block without using solder less terminals.

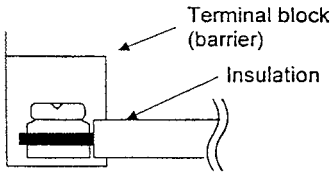
(a) Bare the end of insulated wires to expose about 6 to 8 mm of naked wire.

When making connections, ensure that bared wire does not project from the terminal block. If it does, it may close the gap to a distance shorter than that required for insulation between the terminals.



Bared length: 6 to 8 mm (0.24 to 0.31 in.)

Treatment of end of wire



Connection to the terminal block
(viewed from side)

(b) If twisted wire is used, make sure that is dose not unravel.

1.3 General Specifications

Common specifications for various modules to be used are shown.

Table 1.1 General specification

Item	Specifications					
Ambient operating temperature	0 to 55 °C					
Ambient storage temperature	-20 to 75 °C					
Ambient operating humidity	10 to 90 % RH, No-condensing					
Ambient storage humidity	10 to 90 % RH, No-condensing					
Vibration resistance	Conforming to JIS B 3501, IEC 1131-2		Frequency	Acceleration	Amplitude	No. of sweeps
		Under intermittent vibration	10 to 57Hz	———	0.075mm (0.003in.)	10 times each in X, Y, Z directions (for 80min.)
			57 to 150Hz	9.8m/s²{1 G}	———	
		Under continuous vibration	10 to 57Hz	———	00.35mm (0.001in.)	
			57 to 150Hz	4.9m/s²{1 G}	———	
Shock resistance	Conforming to JIS B 3501, IEC 1131-2 (147 m/s²{15G}, 3 times in each of 3 directions X Y Z)					
Operating ambience	No corrosive gases					
Operating elevation	2000m (6562ft.) max.					
Installation location	Control panel					
Over voltage category *1	II max.					
Pollution level *2	2 max.					

**1: This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.*

**2: This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.*

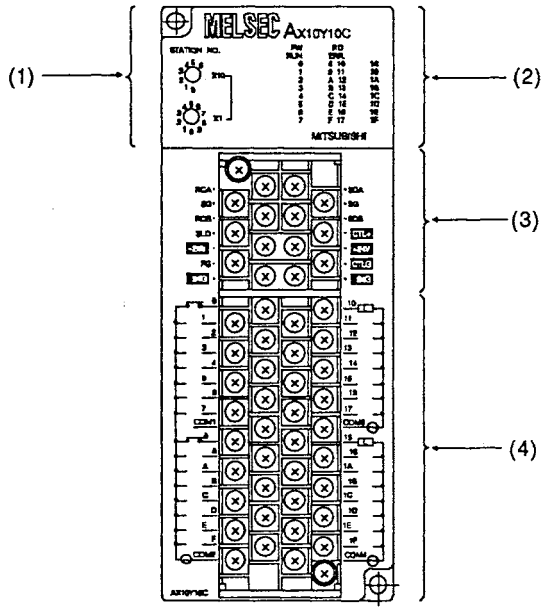
> ⚠ **CAUTION** Use the PLC under the environment specified in the user's manual.
> Otherwise, it may cause shocks, fires, malfunctions, product deterioration or damage.

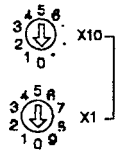
2. A2C I/O UNIT SPECIFICATIONS

The names of parts, and the specifications, of the A2C I/O unit are indicated below.

2.1 Part Identification

This section describes names of parts of the A2C I/O.



(1)	Station set switches STATION NO.  	• Used to set the station number of the A2C I/O between 01 and 64. • "X10" sets the figure of tens of the station number. • "X1" sets a figure between 0 and 9 of the station number.
(2)	Operating status indicator LEDs PW RUN 0 1 2 3 4 5 6 7 RD ERR. 8 10 9 11 A 12 B 13 C 14 D 15 E 16 F 17 18 19 1A 1B 1C 1D 1E 1F	See table below.
(3)	Terminal block for connecting twisted-pair cables	Terminal block to which the twisted-pair data link is connected. Connect twisted-pair cables when other stations are connected with twisted-pair cables. Read the A2CCPU User's Manual for connection and wiring.
(4)	Terminal block for input and output signals	Used to connect input and output signal lines. See Section 3 for wiring. Terminal screws: M3.5 × 7 Tightening torque: 8.5 (7.36) to 11.5 kg·cm (9.96 lb·inch)

LED Name	Indication	LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.	0 to 1F	Indicate the ON/OFF status of I/O signals.
RUN	Lights while data communication is being performed normally.		
RD	Flashes while data is being received.		
ERR.	Lights when a receive data error occurs; OFF during normal communication.		

2.2 Specifications Common to the A2C I/O Units

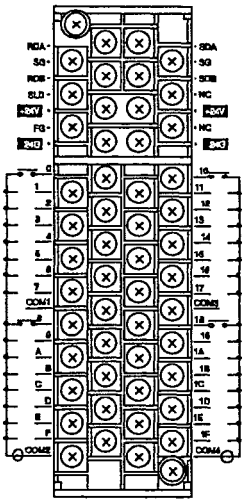
Table 2.1 shows the specifications common to the input units, output units and input/output units of the A2C I/O.

Table 2.1 A2C I/O Common Specifications

Item	Description
Indication	"ON" indication (LED)
External connection	50-point terminal block connector (M3.5 x 7 screws)
Applicable wire size	0.75 to 2 mm^2 (14 AWG) (tightening torque: 69 N·cm (7 kg·cm [6.07 lb·inch]))
Applicable solderless terminal	R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5

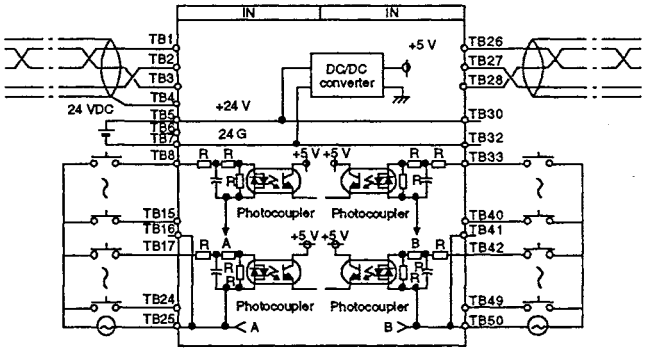
2.3 Input Units

2.3.1 Type AX11C 100 VAC input unit (32 points, 6 mA)

Specifications \ Type		AC Input Unit	Terminal Arrangement
		AX11C	
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		100 to 120 VAC 50/60 Hz	
Rated input current		Approx. 6 mA (100 VAC 60 Hz)	
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)	
Max. simultaneous ON input points		75 % simultaneously ON (at 110 VAC)	
Inrush current		Max. 200 mA, within 1 ms (132 VAC)	
ON voltage/ON current		80 VAC or higher/5 mA or higher	
OFF voltage/OFF current		30 VAC or lower/1 mA or higher	
Input impedance		Approx. 18 kΩ (60 Hz), Approx. 21 kΩ (50 Hz)	
Response time	OFF → ON	15 ms or less (100 VAC 60 Hz)	
	ON → OFF	30 ms or less (100 VAC 60 Hz)	
Common method		16 points/common (2 terminals)	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	56 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.62 (1.36)	

External Connection

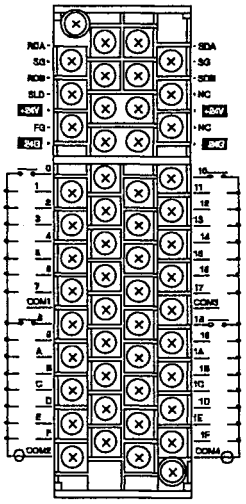
Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	X10
TB34	X11
TB35	X12
TB36	X13
TB37	X14
TB38	X15
TB39	X16
TB40	X17
TB41	COM3
TB42	X18
TB43	X19
TB44	X1A
TB45	X1B
TB46	X1C
TB47	X1D
TB48	X1E
TB49	X1F
TB50	COM4

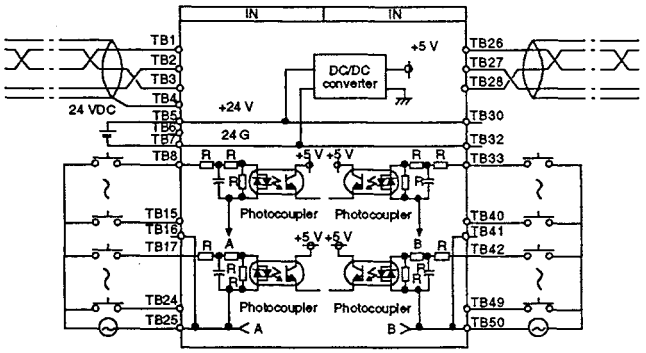
2.3.2 Type AX21C 200 VAC input module (32 points, 5 mA)

Specifications \ Type		AC Input Unit: AX21C	Terminal Arrangement
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		200 to 240 VAC 50/60 Hz	
Rated input current		Approx. 5 mA (200 VAC 60 Hz)	
Operating voltage range		170 to 264 VAC (50/60 Hz ±5 %)	
Max. simultaneous ON input points		80 % simultaneously ON (at 200 VAC and 60 Hz)	
Inrush current		Max. 500 mA, within 1 ms (264 VAC)	
ON voltage/ON current		80 VAC or higher/3 mA or higher	
OFF voltage/OFF current		30 VAC or lower/0.8 mA or higher	
Input impedance		Approx. 39 kΩ (60 Hz), Approx. 46 kΩ (50 Hz)	
Response time	OFF → ON	30 ms or less (200 VAC 60 Hz)	
	ON → OFF	55 ms or less (200 VAC 60 Hz)	
Common method		16 points/common (2 terminals)	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	58 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.65 (1.43)	



External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2

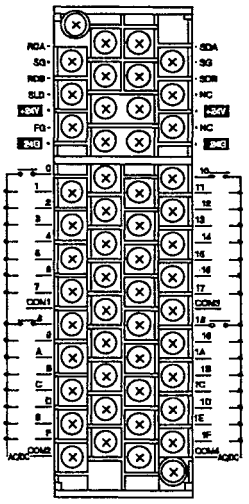


Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	X10
TB34	X11
TB35	X12
TB36	X13
TB37	X14
TB38	X15
TB39	X16
TB40	X17
TB41	COM3
TB42	X18
TB43	X19
TB44	X1A
TB45	X1B
TB46	X1C
TB47	X1D
TB48	X1E
TB49	X1F
TB50	COM4

* External wiring to input should be 50 m (164.04 ft.) or less.

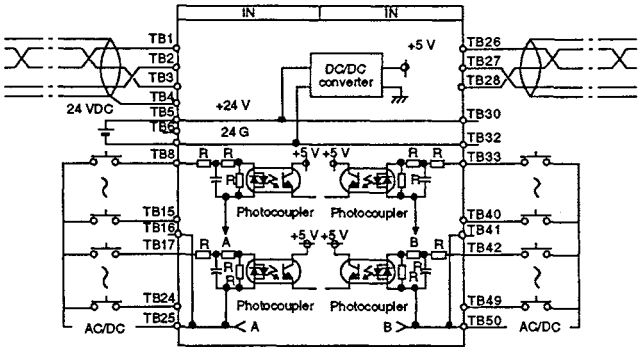
2.3.3 Type AX31C DC/AC input unit (32 points, 4 mA/8.5 mA)

Specifications \ Type		DC/AC Input Unit		Terminal Arrangement
		AX31C		
Number of input points		32 points		
Isolation method		Photocoupler		
Rated input voltage		12/24 VDC	12/24 VAC 50/60 Hz	
Rated input current		4 mA (12 VDC/VAC), 8.5 mA (24 VDC/VAC)		
Operating voltage range		10.2 to 26.4 VDC (ripple ratio :within 5 %)	10.2 to 26.4 VAC (50/60 Hz ±5 %)	
Max. simultaneous ON input points		70 % simultaneously ON (at 26.4 VAC)		
ON voltage/ON current		7 VDC/VAC or higher/2 mA or higher		
OFF voltage/OFF current		2.5 VDC/VAC or lower/0.7 mA or lower		
Input impedance		Approx. 2.7 kΩ		
Response time	OFF → ON	30 ms or less (12/24 VDC)	35 ms or less (12/24 VAC 60Hz)	
	ON → OFF	30 ms or less (12/24 VDC)	35 ms or less (12/24 VAC 60Hz)	
Common method		16 points/common (2 terminals)		
Number of stations occupied		4 stations		
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC		
	Current	58 mA or lower (at 24 V, TYP)		
Weight kg (lb)		0.62 (1.36)		



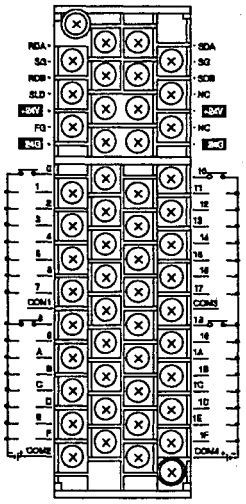
External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



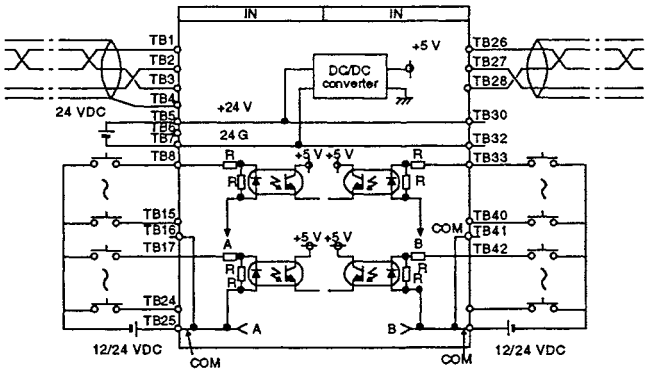
Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	X10
TB34	X11
TB35	X12
TB36	X13
TB37	X14
TB38	X15
TB39	X16
TB40	X17
TB41	COM3
TB42	X18
TB43	X19
TB44	X1A
TB45	X1B
TB46	X1C
TB47	X1D
TB48	X1E
TB49	X1F
TB50	COM4

2.3.4 Type AX41C 12/24 VDC input unit (sink type, 32 points, 3 mA/7 mA)

Specifications \ Type		DC Input Unit (Sink Type) AX41C		Terminal Arrangement
Number of input points		32 points		
Isolation method		Photocoupler		
Rated input voltage		12 VDC	24 VDC	
Rated input current		Approx. 3 mA	Approx. 7 mA	
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :within 5 %)		
Max. simultaneous ON input points		100 % simultaneously ON (at 26.4 VDC)		
ON voltage/ON current		8 V or higher/2 mA or higher		
OFF voltage/OFF current		4 V or lower/1 mA or higher		
Input resistance		Approx. 3.3 kΩ		
Response time	OFF → ON	10 ms or less (24 VDC)		
	ON → OFF	10 ms or less (24 VDC)		
Common method		16 points/common (2 terminals)		
Number of stations occupied		4 stations		
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC		
	Current	55 mA or lower (at 24 V, TYP)		
Weight kg (lb)		0.6 (1.32)		

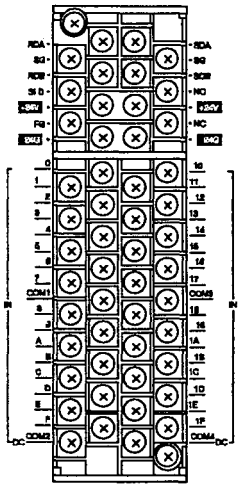
External Connections

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



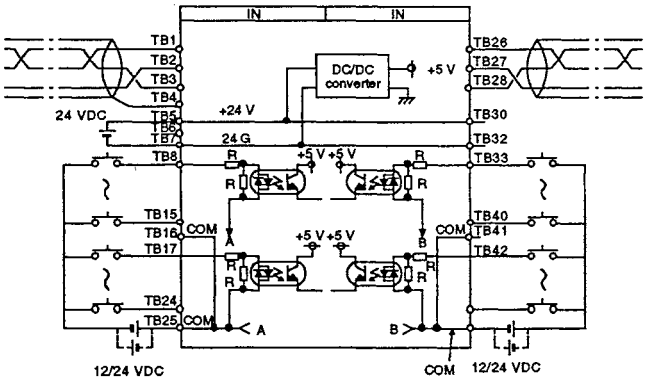
Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	X10
TB34	X11
TB35	X12
TB36	X13
TB37	X14
TB38	X15
TB39	X16
TB40	X17
TB41	COM3
TB42	X18
TB43	X19
TB44	X1A
TB45	X1B
TB46	X1C
TB47	X1D
TB48	X1E
TB49	X1F
TB50	COM4

2.3.5 Type AX81C 12/24 VDC input unit (sink/source type 32 points, 3 mA/7 mA)

Specifications \ Type		DC Input Unit (Sink/Source Type)		
		AX81C		Terminal Arrangement
Number of input points		32 points		
Isolation method		Photocoupler		
Rated input voltage		12 VDC	24 VDC	
Rated input current		Approx. 3 mA	Approx. 7 mA	
Operating voltage range		10.2 to 31.2 VDC (ripple ratio: within 5 %)		
Max. simultaneous ON input points		100 % simultaneously ON (at 26.4 VDC)		
ON voltage/ON current		8 V or higher/2 mA or higher		
OFF voltage/OFF current		4 V or lower/1 mA or higher		
Input resistance		Approx. 3.3 kΩ		
Response time	OFF → ON	10 ms or less (24 VDC)		
	ON → OFF	10 ms or less (24 VDC)		
Common method		16 points/common (2 terminals)		
Number of stations occupied		4 stations		
I/O unit power supply (+24 V, 24 G)	Voltage	15.6 to 31.2 VDC		
	Current	55 mA or lower (at 24 V, TYP)		
Weight kg (lb)		0.6 (1.32)		

External Connection

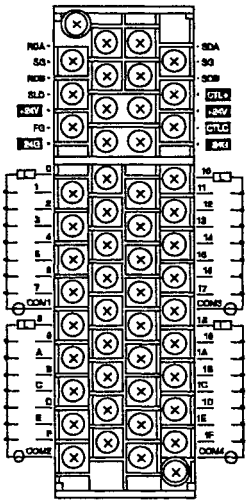
Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	X10
TB34	X11
TB35	X12
TB36	X13
TB37	X14
TB38	X15
TB39	X16
TB40	X17
TB41	COM3
TB42	X18
TB43	X19
TB44	X1A
TB45	X1B
TB46	X1C
TB47	X1D
TB48	X1E
TB49	X1F
TB50	COM4

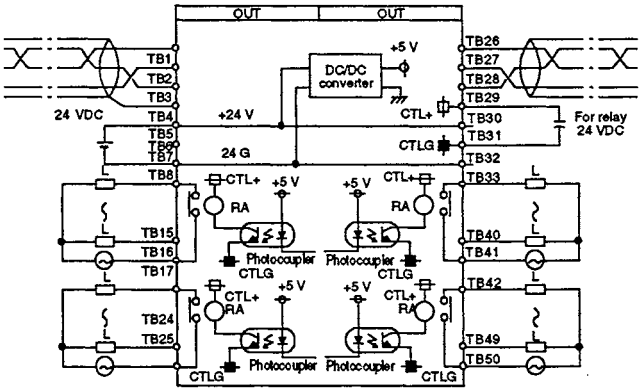
2.4 Output Units

2.4.1 Type AY13C contact output unit (24 VDC/100 to 240 VAC, 32 points, 2A)

Specifications \ Type		Contact Output Unit: AY13C	Terminal Arrangement
Number of output points		32 points	
Isolation method		Photocoupler	
Rated switching voltage/current *1		24 VDC (resistive load) / 1 point, 2 A 240 VAC (COSϕ = 1) / 4 A/common	
Min. switching load		5 VDC 1 mA	
Max. switching voltage		250 VAC 110 VDC	
Leakage current at OFF		0 mA	
Response time	OFF → ON	10 ms or less	
	ON → OFF	12 ms or less	
Service life	Mechanical	More than 20 million times	
	Electrical *1	Rated switching voltage/current: More than 100,000 times	
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 100,000 times	
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 100,000 times	
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 100,000 times	
Max. switching frequency *1		3600 times per hour	
External power supply (CTL+, CTLG terminal)*	Voltage	24 VDC ±10 %, Ripple ratio: 4 vp-p or less	
	Current	184 mA (24 VDC all points ON)	
Surge suppression		None	
Common method		8 points/common	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	90 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.7 (1.54)	

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM1
TB17	Y8
TB18	Y9
TB19	YA
TB20	YB
TB21	YC
TB22	YD
TB23	YE
TB24	YF
TB25	COM2



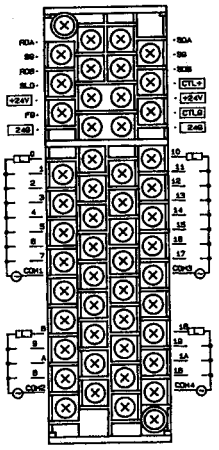
Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	T1F
TB50	COM4

* : Power supply for driving relay coil.
*1 : See Section 1.

2.4.2 Type AY15CEU contact output unit (24 VDC/100 to 240 VAC, 24 points, 2A)

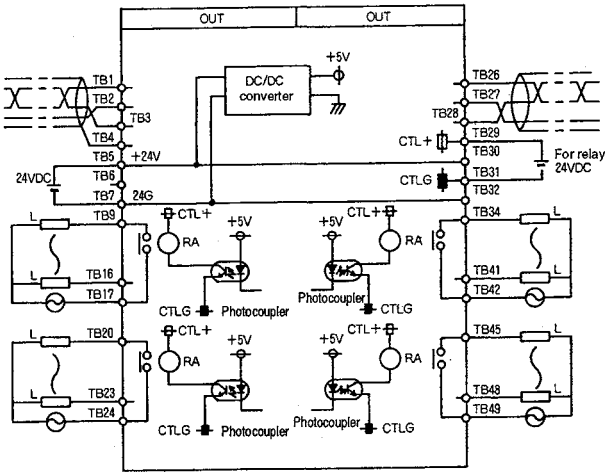
Specifications \ Type		Contact Output Unit: AY15CEU
Number of output points		24 points
Isolation method		Photocoupler
Rated switching voltage/current *1		24 VDC (resistive load) / 1 point, 2 A 240 VAC (COSϕ = 1) / 4 A/common
Min. switching load		5 VDC 10 mA
Max. switching voltage		264 VAC 125 VDC
Leakage current at OFF		0 mA
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical *1	Rated switching voltage/current: More than 200,000 times
		200 VAC 2 A, 240 VAC 1.8 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1.1 A, 240 VAC 0.9 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1.1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Max. switching frequency *1		3600 times per hour
External power supply (CTL+, CTLG terminal)*	Voltage	24 VDC ±10 %, Ripple ratio: 4 vp-p or less
	Current	230 mA (TYP. 24 VDC all points ON)
Surge suppression		None
Common method		8 points/common (Y00-Y07; TB17, Y10-Y17; TB42) 4 points/common (Y08-Y0B; TB24, Y18-Y1B; TB49)
External wiring system		50-point terminal block (M3.5 screw) including a part of transmission circuit
Applicable wire size		0.75 to 2mm² (AWG14 to AWG19) (applicable tightening torque 69 N.cm (7Kg.cm))
Applicable solderless terminal		RAV1.25 to 3.5, RAV2 to 3.5
Dielectric withstand voltage specification		(Between all AC external terminal and relay drive power supply: internal 5V circuit) / 2830VACrms/3 cycle (altitude 2000m)
		Relay drive power supply: internal 5V circuit / 500VDCrms/3 cycle (altitude 2000m)
Instruction resistance specification		10 or more Ω measured by insulation resistance tester
Noise immunity		IEC801-4: 1KV
Number of stations occupied		4 stations
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC
	Current	94 mA or lower (at 24 V, TYP)
Weight kg (lb)		0.75 (1.65)

Terminal Arrangement



External Connection

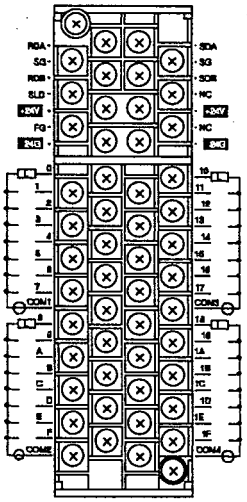
Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Vacant
TB9	Y0
TB10	Y1
TB11	Y2
TB12	Y3
TB13	Y4
TB14	Y5
TB15	Y6
TB16	Y7
TB17	COM1
TB18	Vacant
TB19	Vacant
TB20	Y8
TB21	Y9
TB22	YA
TB23	YB
TB24	COM2
TB25	Vacant



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Vacant
TB34	Y10
TB35	Y11
TB36	Y12
TB37	Y13
TB38	Y14
TB39	Y15
TB40	Y16
TB41	Y17
TB42	COM3
TB43	Vacant
TB44	Vacant
TB45	Y18
TB46	Y19
TB47	Y1A
TB48	Y1B
TB49	COM4
TB50	Vacant

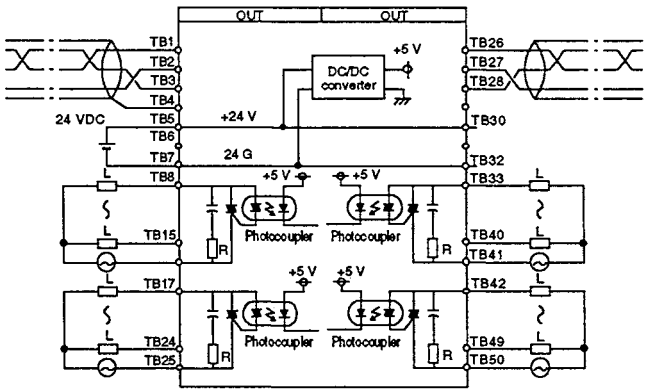
* : Power supply for driving relay coil.

2.4.3 *Type AY23C triac output unit (100 to 240 VAC, 32 points, 0.3 A)

Specifications \ Type		Triac Output Unit AY23C	Terminal Arrangement
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		100 to 240 VAC, 40 to 70 Hz	
Max. load voltage		264 VAC	
Max. load current		0.3 A/point (at 60 % simultaneously ON)	
Min. load voltage/current		18 VAC 10 mA, 100 VAC 10 mA, 240 VAC 10 mA	
Max. inrush current		20 A 10 ms or less	
Leakage current at OFF		Approx. 1.5 mA (120 VAC 60 Hz) Approx. 3.0 mA (240 VAC 60 Hz)	
Max. voltage drop at ON		1.5 V or lower (100 to 300 mA) 1.8 V or lower (50 to 100 mA) 2.5 V or lower (10 to 50 mA)	
Response time	OFF → ON	1 ms or less	
	ON → OFF	0.5 Hz + 1 ms or less	
Surge suppression		CR absorber (0.01 μ + 68 Ω)	
Common method		8 points/common	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	180 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.75 (1.65)	

External Connection

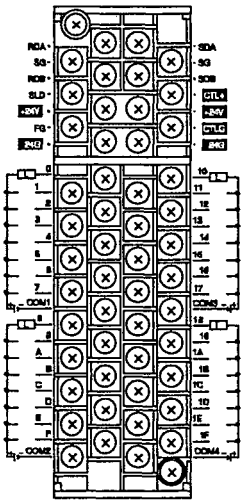
Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM1
TB17	Y8
TB18	Y9
TB19	YA
TB20	YB
TB21	YC
TB22	YD
TB23	YE
TB24	YF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

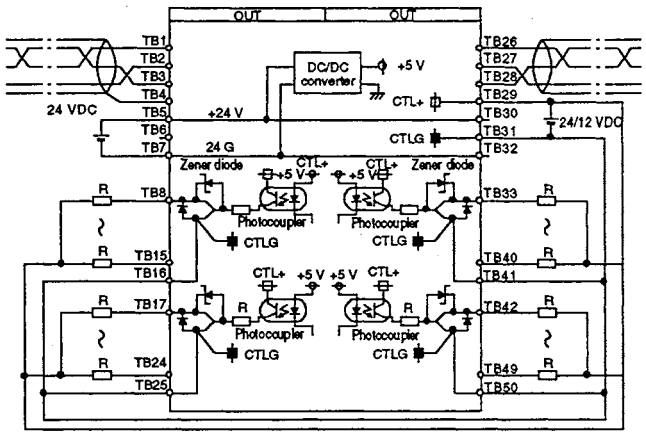
* : See Section 8.2, Example 4.

2.4.4 Type AY51C transistor output unit (12/24 VDC, 32 points, 0.3 A, sink type)

Specifications \ Type		Transistor Output Unit AY51C	Terminal Arrangement
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 VDC	
Operating load voltage range		10.2 to 31.2 VDC	
Max. load current		0.3 A/point (at 75 % simultaneously ON)	
Max. inrush current		1.2 A 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.9 V (TYP) 0.3 A, 1.5 V (MAX) 0.3 A	
Output form		Sink type	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistive load)	
External power supply (CTL+, CTLG terminal)	Voltage	12/24 VDC (10.2 to 31.2 VDC)	
	Current	64 mA (24 VDC)	
Surge suppression		Zener diode	
Common method		32 points/common (4 terminals)	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	93 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.7 (1.54)	

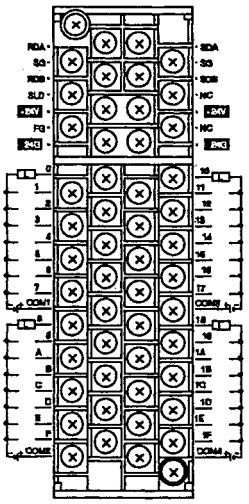
External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM1
TB17	Y8
TB18	Y9
TB19	YA
TB20	YB
TB21	YC
TB22	YD
TB23	YE
TB24	YF
TB25	COM2



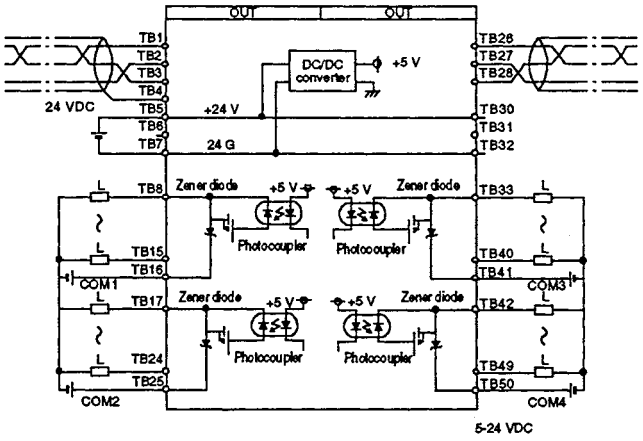
Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

2.4.5 Type AY61CE transistor output unit (5 to 24 VDC, 32 points, 2.0A, source type)

Specifications \ Type		Transistor Output Unit AY61CE	Terminal Arrangement
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		5/12/24 VDC	
Operating load voltage range		4.5 to 26.4 VDC	
Max. load current		2.0 A/point, 5 A/common	
Max. inrush current		8 A, 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.25 V (TYP), 2.0 A 0.4 V (MAX), 2.0 A	
Output form		Source type	
Response time	OFF → ON	2 ms or less	
	ON → OFF	10 ms or less (resistance load)	
Surge suppression		Zener diode	
Common method		8 points/common (4 terminals)	
Number of stations occupied		4 stations	
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	150 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.7 (1.54)	

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM1
TB17	Y8
TB18	Y9
TB19	YA
TB20	YB
TB21	YC
TB22	YD
TB23	YE
TB24	YF
TB25	COM2

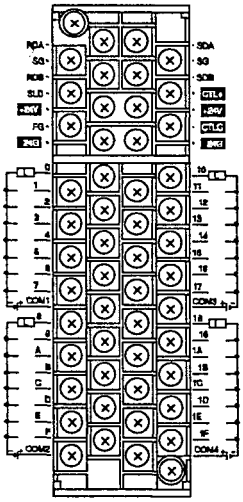


Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

2.4.6 Type AY81C transistor output unit (24 VDC, 32 points, 0.5 A, source type)

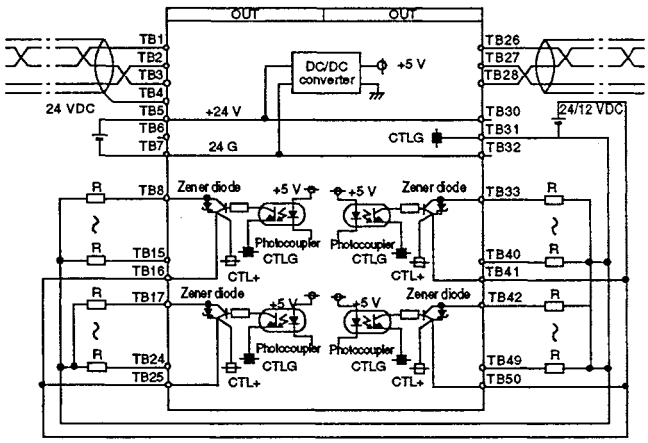
Specifications \ Type		Transistor Output Unit AY81C
Number of output points		32 points
Isolation method		Photocoupler
Rated load voltage		24 VDC
Operating load voltage range		21.6 to 26.4 VDC
Max. load current		0.5 A/point (at 60 % simultaneously ON)
Max. inrush current		2 A, 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP) 0.5 A, 1.5 V (MAX) 0.5 A
Output form		Source type
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
External power supply (CTL+, CTLG Terminal)	Voltage	24 VDC (21.6 to 26.4 VDC)
	Current	17 mA (at 24 V, TYP)
Surge suppression		Zener diode
Common method		32 points/common (4 terminals)
Number of stations occupied		4 stations
I/O unit power supply (+24 V, 24 G terminal)	Voltage	15.6 to 31.2 VDC
	Current	100 mA or lower (at 24 VDC, TYP)
Weight kg (lb)		0.7 (1.54)

Terminal Arrangement



External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM1
TB17	Y8
TB18	Y9
TB19	YA
TB20	YB
TB21	YC
TB22	YD
TB23	YE
TB24	YF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

2.5 I/O Units

2.5.1 Type AX10Y10C I/O unit (100 VAC, input: 16 points, relay output: 16 points)

Input Specifications		
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC 50/60 Hz
Rated input current		Approx. 6 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
ON voltage/ON current		80 VAC or higher/5 mA or higher
OFF voltage/OFF current		30 VAC or lower/1 mA or lower
Inrush current		Max. 200 mA, within 1 ms (132 VAC)
Input impedance		Approx. 18 kΩ (60 Hz), Approx. 21 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less
	ON → OFF	30 ms or less
Common method		16 points/common (2 terminals)
Max. simultaneous ON input points		100 % simultaneously ON (at 110 VAC)

Output Specifications		
Number of output points		16 points
Isolation method		Photocoupler
Rated switching voltage and current *1		24 VDC (resistive load) / 1 point 2 A 240 VAC (COSϕ=1) / 4 A/common,
Min. switching load		5 VDC 1 mA
Max. switching voltage		250 VAC 110 VDC
Max. switching frequency *1		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical *1	Rated switching voltage/current: More than 100,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 100,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 100,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 100,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
External power supply (CTL+, CTLG terminal)*	Voltage	24 VDC ±10 %, ripple ratio: 4 vp-p or less
	Current	92 mA (24 VDC all points ON)
Surge suppression		None
Common method		8 points/common

Number of stations occupied		4 stations
I/O unit power supply (+24 v, 24 G)	Voltage	15.6 to 31.2 VDC
	Current	74 mA or lower (at 24 V, TYP)
Weight kg (lb)		0.66 (1.45)

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
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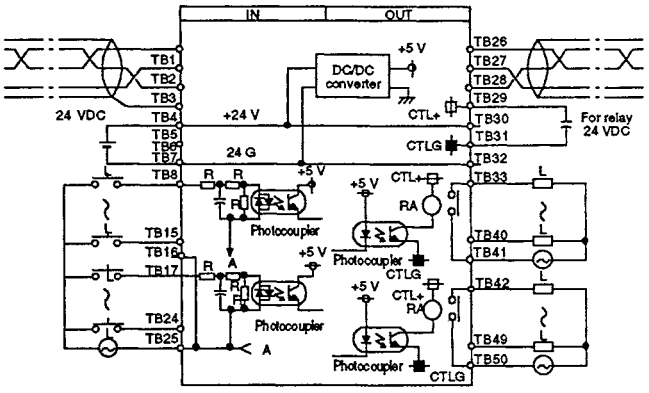
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

* : Power supply for driving relay coil.
*1: See Section 1.

2.5.2 Type AX40Y10C I/O unit (12/24 VDC, input: 16 points, relay output: 16 points)

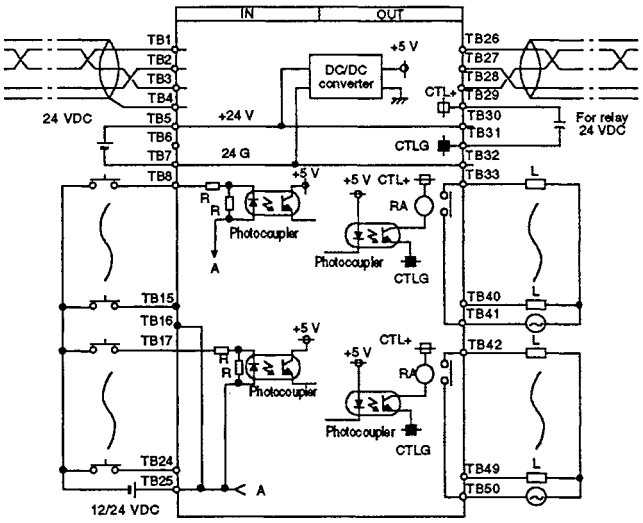
Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		Approx. 3 mA	Approx. 7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :within 5 %)	
ON voltage/ON current		8 VDC or higher/2 mA or higher	
OFF voltage/OFF current		4 VDC or lower/1 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Iuput form		Sink type	
Response time	OFF → ON	10 ms or less (24 VDC)	
	ON → OFF	10 ms or less (24 VDC)	
Common method		16 points/common (2 terminals)	
Max. simultaneous ON input points		100 % simultaneously ON (at 26.4 VDC)	

Output Specifications		
Number of output points		16 points
Isolation method		Photocoupler
Rated switching voltage/current *1		24 VDC (resistive load) 1 point 2 A 240 VAC (COSϕ=1) / 4 A/common,
Min. switching load		5 VDC 1 mA
Max. switching voltage		250 VAC 110 VDC
Max. switching frequency *1		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical *1	Rated switching voltage/current: More than 100,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 100,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 100,000 times
		24 VDC 1 A, 100 VDC 0.1 A(L/R = 7 ms): More than 100,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
External power supply (CTL+, CTLG terminal)*	Voltage	24 VDC ±10 %, ripple ratio: 4 vp-p or less
	Current	92 mA (24 VDC all points ON)
Surge suppression		None
Common method		8 points/common

Number of stations occupied		4 stations
I/O unit power supply (+24 v, 24 G)	Voltage	15.6 to 31.2 VDC
	Current	72 mA or lower (at 24 V, TYP)
Weight kg (lb)		0.65 (1.43)

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

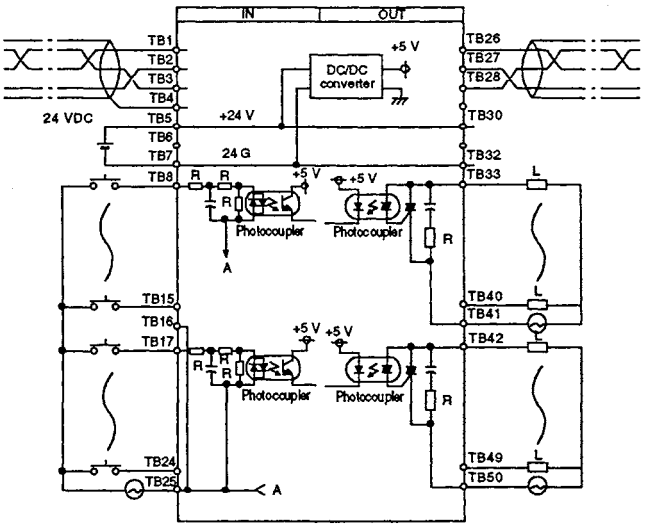
* : Power supply for driving relay coil.
*1: See Section 1.

2.5.3 Type AX10Y22C I/O unit (100 VAC, input: 16 points, *triac output: 16 points)

Input Specifications			Output Specifications		
Number of input points		16 points	Number of output points		16 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC, 50/60 Hz	Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Rated input current		Approx. 6 mA (100 VAC, 60 Hz)	Max. load voltage		264 VAC
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)	Max. load current		0.3 A/point (at 75 % simultaneously ON)
ON voltage/ON current		80 VAC or higher/5 mA or higher	Min. load current		18 VAC 10 mA, 100 VAC/240 VAC 10 mA
OFF voltage/OFF current		30 VAC or lower/1 mA or lower	Max. inrush current		20 A 10 ms or less
Inrush current		Max. 200 mA, within 1 ms (132 VAC)	Leakage current at OFF		Approx. 1.5 mA (120 VAC 60 Hz) Approx. 3.0 mA (240 VAC 60 Hz)
Input impedance		Approx. 18 kΩ (60 Hz), Approx. 21 kΩ (50 Hz)			
Response time	OFF → ON	15 ms or less (100 VAC 60 Hz)	Max. voltage drop at ON		1.5 V or lower (0.1 to 0.3 mA) 1.8 V or lower (50 to 100 mA) 2.5 V or lower (10 to 50 mA)
	ON → OFF	30 ms or less (100 VAC 60 Hz)			
Common method		16 points/common (2 terminals)	Response time	OFF → ON	1 ms or less
Max. simultaneous ON input points		100 % simultaneously ON (110 VAC)		ON → OFF	0.5 Hz + 1 ms or less
			Surge suppression		CR absorber (0.01 μF + 68 Ω)
			Common method		8 points/common
Number of stations occupied		4 stations			
I/O unit power supply (+24 v, 24 G)	Voltage	15.6 to 31.2 VDC			
	Current	116 mA or lower (at 24 V, TYP)			
Weight kg (lb)		0.68 (1.50)			

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	NC
TB30	+24V
TB31	NC
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

* : See section 8.2, Example 4.

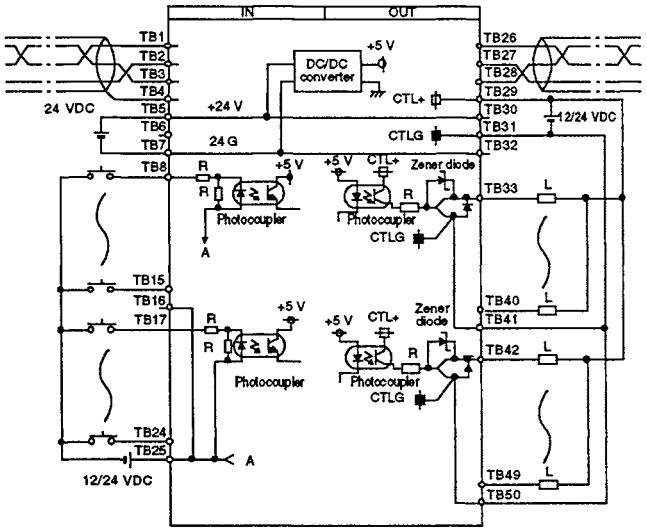
2.5.4 Type AX40Y50C I/O unit (12/24 VDC, input: 16 points, transistor output: 16 points)

Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :5 %)	
ON voltage/ON current		8 VDC or higher/2 mA or higher	
OFF voltage/OFF current		4 VDC or lower/1 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Iuput form		Sink type	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		16 points/common (2 terminals)	
Max. simultaneous ON input points		60 % simultaneously ON (at 26.4 VDC)	
Number of stations occupied		4 stations	
I/O unit power supply (+24 v, 24 G terminal)	Voltage	15.6 to 31.2 VDC	
	Current	74 mA or lower (at 24 V, TYP)	
Weight kg (lb)		0.65 (1.43)	

Output Specifications		
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.3 A/point (at 75 % simultaneously ON)
Max. inrush current		1.2 A 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP) 0.3 A, 1.5 V (MAX) 0.3 A
Output form		Sink type
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
External power supply (CTL+, CTLG terminal)	Voltage	12/24 VDC (10.2 to 31.2 VDC)
	Current	64 mA (24 VDC)
Surge suppression		Zener diode
Common method		16 points/common

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

2.5.5 Type AX80Y10C I/O unit (12/24 VDC, input: 16 points, relay output: 16 points)

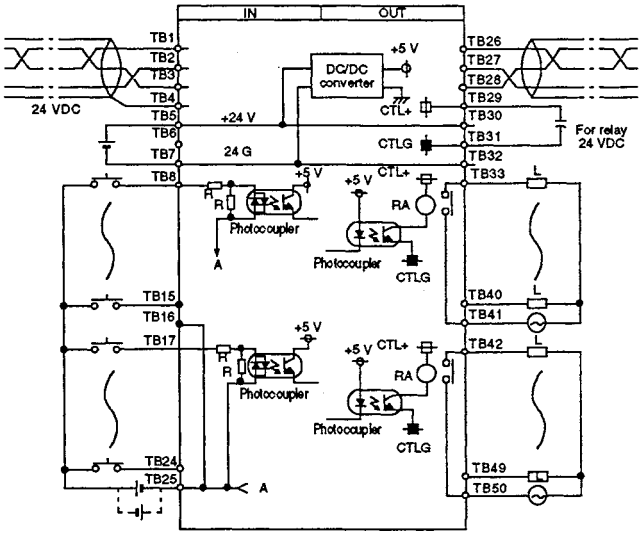
Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		Approx. 3 mA	Approx. 7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :within 5 %)	
ON voltage/ON current		8 VDC or higher/2 mA or higher	
OFF voltage/OFF current		4 VDC or lower/1 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Iuput form		Sink/source type	
Response time	OFF → ON	10 ms or less (24 VDC)	
	ON → OFF	10 ms or less (24 VDC)	
Common method		16 points/common (2 terminals)	
Max. simultaneous ON input points		100 % simultaneously ON (at 26.4 VAC)	

Output Specifications		
Number of output points		16 points
Isolation method		Photocoupler
Rated switching voltage/current *1		24 VDC (resistive load) / 1point 2 A 240 VAC (COSϕ=1) / 4 A/common,
Min. switching load		5 VDC/1 mA
Max. switching voltage		250 VAC, 110 VDC
Max. switching frequency *1		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical *1	Rated switching voltage/current: More than 100,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 100,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 100,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 100,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
External power supply (CTL+, CTLG terminal)*	Voltage	24 VDC ±10 %, ripple ratio: 4 Vp-p or less
	Current	92 mA (24 VDC all points ON)
Surge suppression		None
Common method		8 points/common

Number of stations occupied		4 stations
I/O unit power supply (+24 v, 24 G terminal)	Voltage	15.6 to 31.2 VDC
	Current	72 mA or lower (at 24 V, TYP)
Weight kg (lb)		0.65 (1.43)

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

* : Power supply for driving relay coil.
*1: See Section 1.

2.5.6 Type AX80Y14CEU I/O unit (12/24 VDC, input: 16 points, relay output: 12 points)

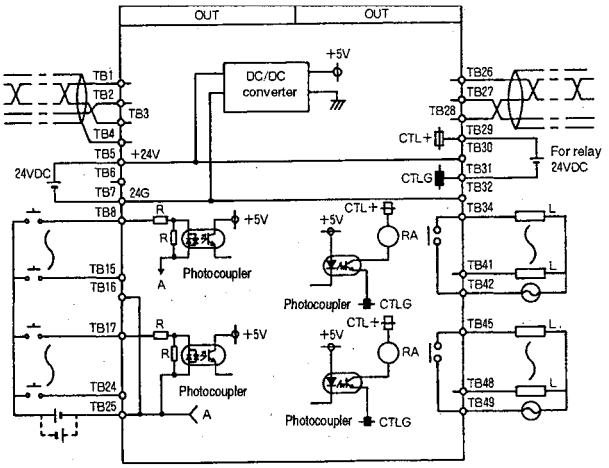
Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		Approx. 3 mA	Approx. 7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :within 5 %)	
ON voltage/ON current		8 VDC or higher/2 mA or higher	
OFF voltage/OFF current		4 VDC or lower/1 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Iuput form		Sink/source type	
Response time	OFF → ON	10 ms or less (24 VDC)	
	ON → OFF	10 ms or less (24 VDC)	
Common method		16 points/common (2 terminals: TB16, TB25)	
Max. simultaneous ON input points		60 % simultaneously ON (at 26.4 VAC)	

Output Specifications		
Number of output points		12 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC (resistive load) / 1point 2 A 240 VAC (COSϕ=1) / 5 A/common,
Min. switching load		5 VDC/10 mA
Max. switching voltage		264 VAC, 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current: More than 200,000 times
		200 VAC 1.5 A, 240 VAC 1.8 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1.1 A, 240 VAC 0.9 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1.1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
External power supply (CTL+, CTLG terminal)	Voltage	24 VDC ±10 %, ripple ratio: 4 Vp-p or less
	Current	118 mA (24 VDC all points ON)
Surge suppression		None
Common method		8 points/common (Y10-Y17): TB42 4 points/common (Y18-Y1B): TB49

External wiring system		50-point terminal block (M3.5 screw) including a part of transmission circuit
Applicable wire size		0.75 to 2mm² (AWG14 to AWG19) (applicable tightening torque 69 N·cm (7kg·cm))
Applicable solder less terminal		RAV1.25 to 3.5 RAV2 to 3.5
Dielectric withstand voltage specification		(Between all AC external terminal and relay drive power supply: internal 5V circuit) 2830VACrms/3 cycle (altitude 2000m)
		Relay drive power supply: internal 5V circuit 500VDCrms/3 cycle (altitude 2000m)
Insulation resistance specification		10 or more Ω measured by insulation resistance tester
Noise immunity		IEC801-4: 1KV
Number of stations occupied		4 stations
I/O unit power supply (+24 v, 24 G terminal)	Voltage	15.6 to 31.2 VDC
	Current	73 mA or lower (at 24 V, TYP)
Weight kg (lb)		0.65 (1.43)

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



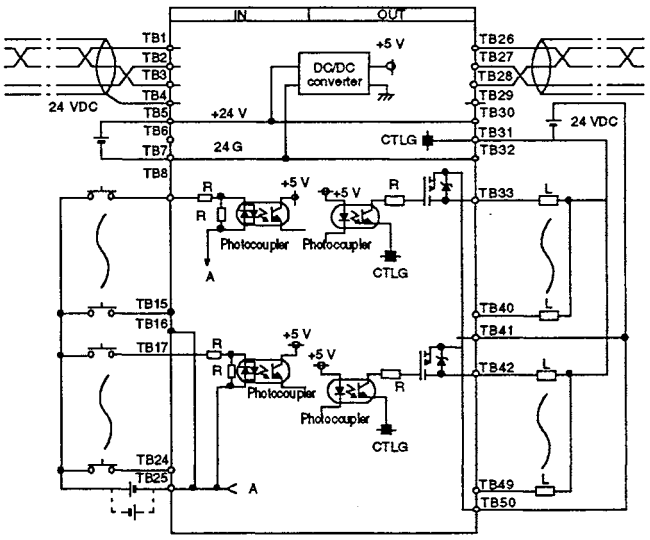
Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Vacant
TB34	Y10
TB35	Y11
TB36	Y12
TB37	Y13
TB38	Y14
TB39	Y15
TB40	Y16
TB41	Y17
TB42	COM2
TB43	Vacant
TB44	Vacant
TB45	Y18
TB46	Y19
TB47	Y1A
TB48	Y1B
TB49	COM3
TB50	Vacant

2.5.7 Type AX80Y80C I/O unit (12/24 VDC, input: 16 points, transistor output: 16 points)

Input Specifications				Output Specifications		
Number of input points		16 points		Number of output points		16 points
Isolation method		Photocoupler		Isolation method		Photocoupler
Rated input voltage		12 VDC	24 VDC	Rated load voltage		24 VDC
Rated input current		3 mA	7 mA	Operating load voltage range		21.6 to 26.4 VDC
Operating voltage range		10.2 to 31.2 VDC (ripple ratio :within 5 %)		Max. load current		0.5 A/point (at 60 % simultaneously ON)
ON voltage/ON current		8 VDC or higher/2 mA or higher		Max. inrush current		2 A 10 ms or less
OFF voltage/OFF current		4 VDC or lower/1 mA or lower		Leakage current at OFF		0.1 mA or lower
Input resistance		Approx. 3.3 kΩ		Max. voltage drop at ON		0.9 V (TYP) 0.5 A, 1.5 V (MAX) 0.5 A
Iuput form		Sink/source type				
Response time	OFF → ON	10 ms or less (24 VDC)		Output form		Source type
	ON → OFF	10 ms or less (24 VDC)		Response time	OFF → ON	2 ms or less
Common method		16 points/common (2 terminals)			ON → OFF	2 ms or less (resistive load)
Max. simultaneous ON input points		60 % simultaneously ON (at 26.4 VDC)		External power supply	Voltage	24 VDC (21.6 to 26.4 VDC)
					Current	10 mA (at 24 VDC)
				Surge suppression		Zener diode
				Common method		16 points/common
Number of stations occupied		4 stations				
I/O unit power supply (+24 v, 24 G terminal)	Voltage	15.6 to 31.2 VDC				
	Current	82 mA or lower (at 24 V, TYP)				
Weight kg (lb)		0.65 (1.43)				

External Connection

Terminal No.	Signal Name
TB1	RDA
TB2	SG
TB3	RDB
TB4	SLD
TB5	+24V
TB6	FG
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM1
TB17	X8
TB18	X9
TB19	XA
TB20	XB
TB21	XC
TB22	XD
TB23	XE
TB24	XF
TB25	COM2



Terminal No.	Signal Name
TB26	SDA
TB27	SG
TB28	SDB
TB29	CTL+
TB30	+24V
TB31	CTLG
TB32	24G
TB33	Y10
TB34	Y11
TB35	Y12
TB36	Y13
TB37	Y14
TB38	Y15
TB39	Y16
TB40	Y17
TB41	COM3
TB42	Y18
TB43	Y19
TB44	Y1A
TB45	Y1B
TB46	Y1C
TB47	Y1D
TB48	Y1E
TB49	Y1F
TB50	COM4

2.6 DIN Rail Mounting Adapter (A6DIN1C)

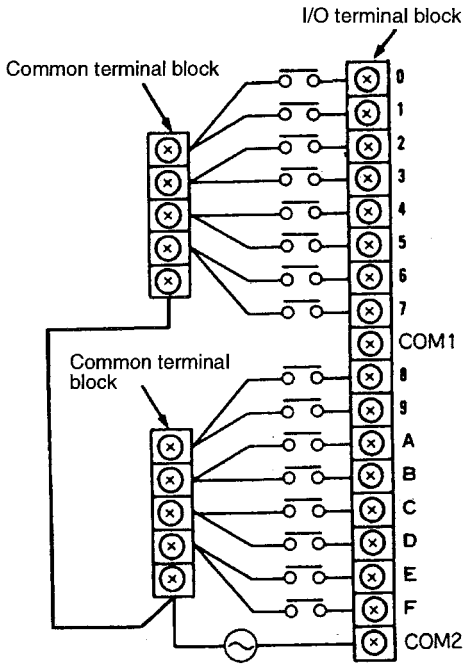
Item	Specifications
Applicable module to be mounted	A2CI/O module, A66PC type power supply module
External dimensions (mm)	174 x 68 x 10
Weight (kg)	0.06
Applicable DIN rail model name (JIS C 2812)	TH35 to 7.5Fe TH35 to 7.5Al TH35 to 15 Fe

2.7 Common Terminal Block (A2CCOM-TB)

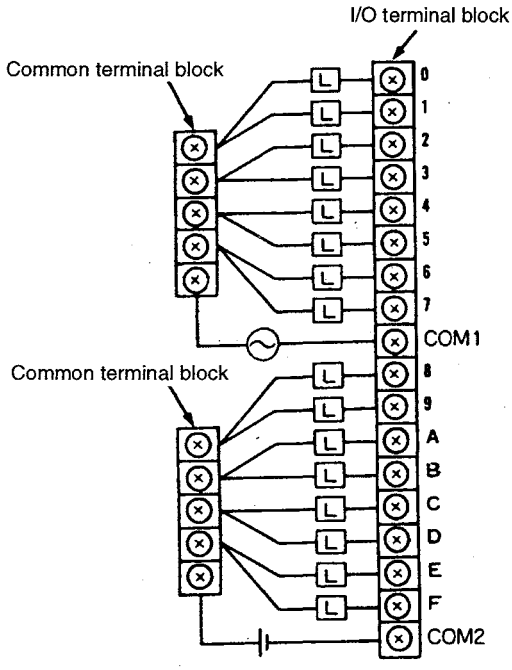
Item	Specifications
Applicable module to be mounted	A2CI/O module
External dimensions (mm)	125 x 54 x 13
Weight (kg)	0.12

[Example using A2CCOM-TB]

1) Example between A2CCOM-TB and input module AX11C



2) Example between A2CCOM-TB and output module AY13C



3. REMOTE TERMINAL BLOCK I/O UNIT, REMOTE CONNECTOR I/O UNIT SPECIFICATIONS

The part names for remote terminal block I/O module and remote connector I/O module, and specifications are explained.

3.1 Nomenclature

The name of the parts of the remote terminal block I/O unit and the remote connector I/O unit are indicated below.

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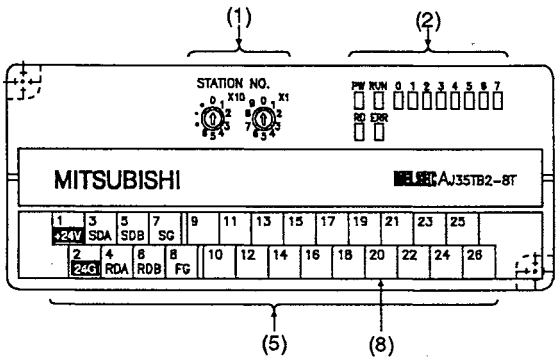

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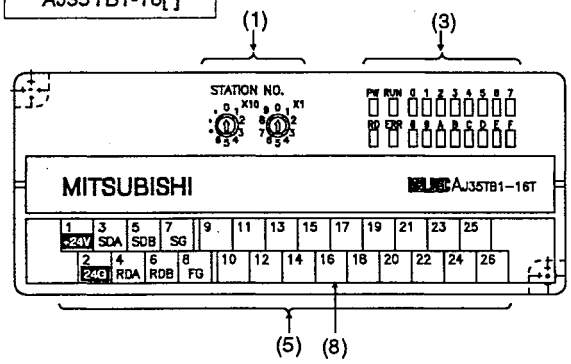

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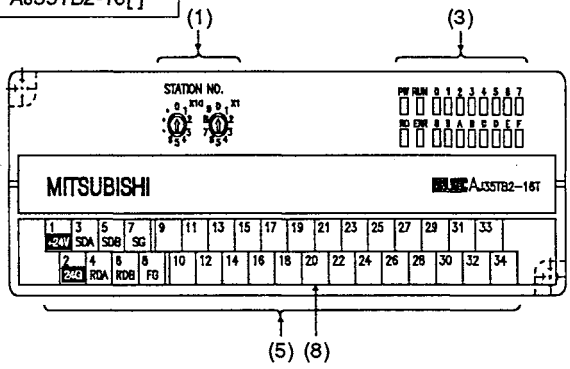
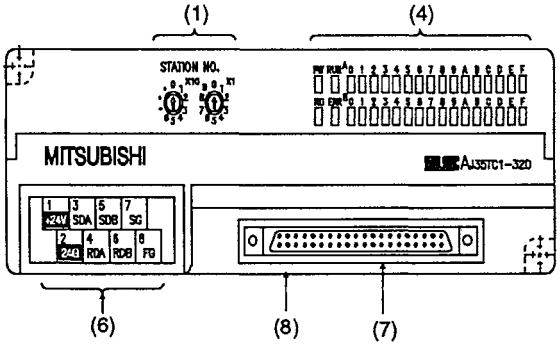
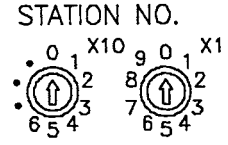
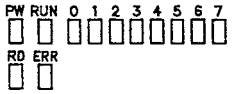


AJ35TC1-32[ ]



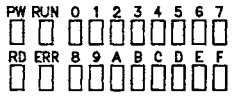
(1)	Station number setting switches 	• Used to set the station number of the remote terminal block I/O units and the remote connector I/O units in the range 1 and 64. • The "X10" switch is used to set the ten (10) digit of the station number. • "X1" switch is used to set the units (1) digit of the station number.

(2) Operating status indicator LEDs



LED Name	Indication	LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.	0 to 7	Indicate the ON/OFF status of I/O signals X/Y0 to 7.
RUN	Lights while data communication is being performed normally.		
RD	Flashes while data is being received.		
ERR.	Lights when a receive data error occurs; OFF during normal communication.		

(3) Operating status indicator LEDs



LED Name	Indication	LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.	0 to F	Indicate the ON/OFF status of I/O signals X/Y0 to F.
RUN	Lights while data communication is being performed normally.		
RD	Flashes while data is being received.		
ERR.	Lights when a receive data error occurs; OFF during normal communication.		

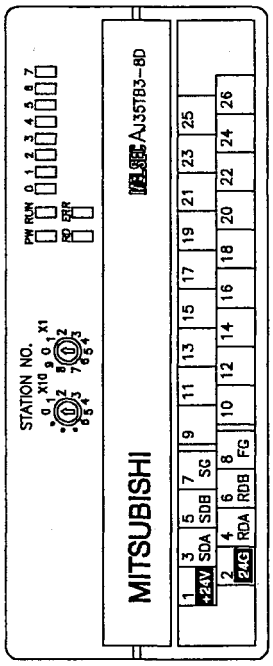
(4) Operating status indicator LEDs

LED Name	Indication	LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.	A0 to F	Indicate the ON/OFF status of I/O signals X/Y0 to F.
RUN	Lights while data communication is being performed normally.		
RD	Flashes while data is being received.	B0 to F	Indicate the ON/OFF status of I/O signals X/Y10 to 1F.
ERR.	Lights when a receive data error occurs; OFF during normal communication.		

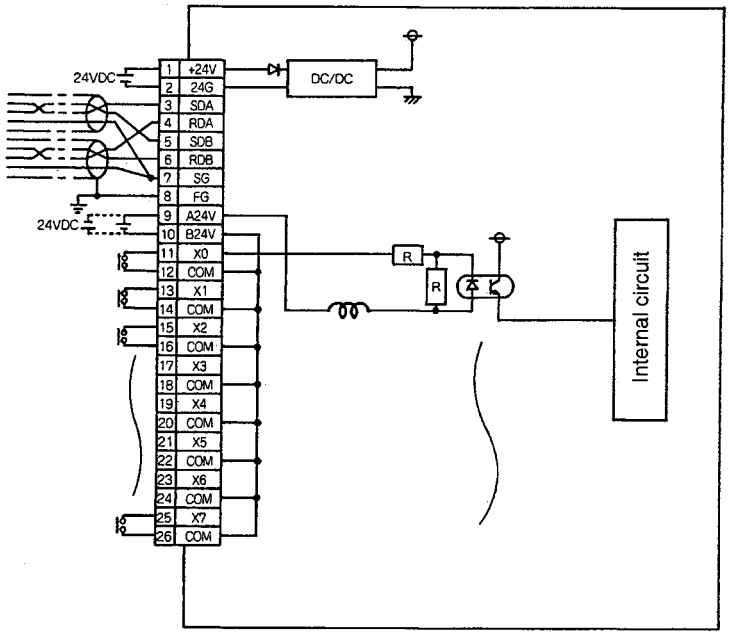
(5)	Terminal block	This terminal block serves to connect the I/O unit power supply, the twisted-pair data link cable, and the I/O signals.
(6)	Terminal block	This terminal block serves to connect the I/O unit power supply and the twisted-pair data link cable.
(7)	Connector	This connector is used to connect the I/O signal signals. AJ35TC1-32□ has a soldering type connector jack (A6CON1) included. If pressure-welding type is required, prepare it by user side referring section 1.2.
(8)	Hook for the DIN rail	This hook is used to install the DIN rail.

3.2 Type AJ35TB2-8D Input Unit

Specifications \ Type		DC Input Unit (Sink Type)	
		AJ35TB2-8D	Appearance
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 % (8 points) simultaneously ON	
ON voltage/ON current		14 VDC or higher/3.5 mA or higher	
OFF voltage/OFF current		6 VDC or less/1.7 mA or less	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		8 points/common (2 common terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws), including transmission circuit	
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm)	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	69 mA (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	



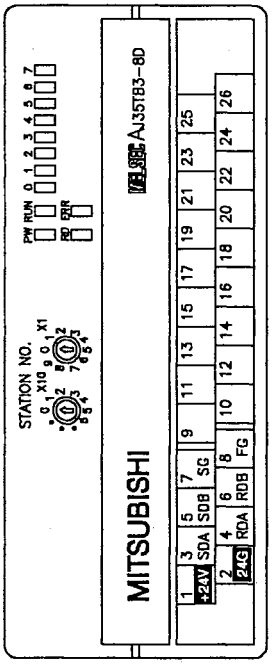
External Connection



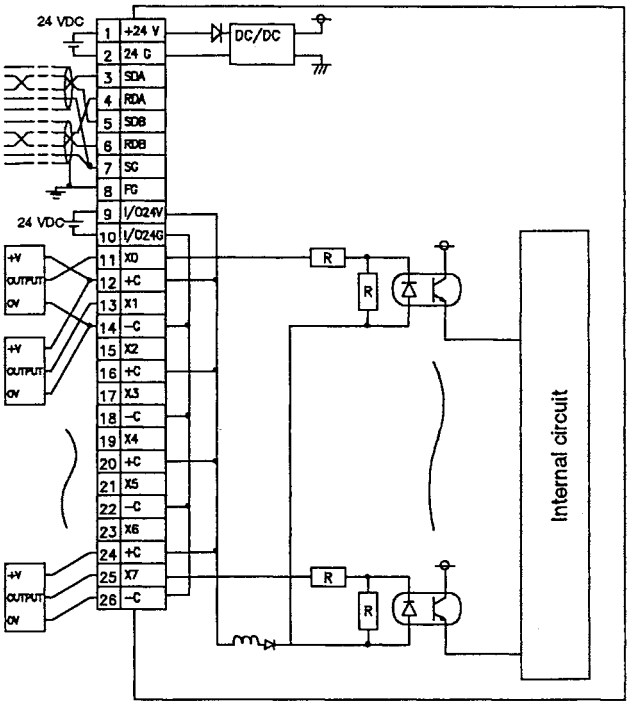
Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	A24V
TB10	B24G
TB11	X0
TB12	COM
TB13	X1
TB14	COM
TB15	X2
TB16	COM
TB17	X3
TB18	COM
TB19	X4
TB20	COM
TB21	X5
TB22	COM
TB23	X6
TB24	COM
TB25	X7
TB26	COM

3.3 Type AJ35TB3-8D Input Unit

Specifications \ Type		DC Input Unit (Sink Type)	Appearance
		AJ35TB3-8D	
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 % (8 points) simultaneously ON	
ON voltage/ON current		14 VDC or higher/3.5 mA or higher	
OFF voltage/OFF current		6 VDC or less/1.7 mA or less	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		2 commons for 8 points (+COM 4 terminals/ -COM 4 terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws), including transmission circuit	
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch]	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	69 mA (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	



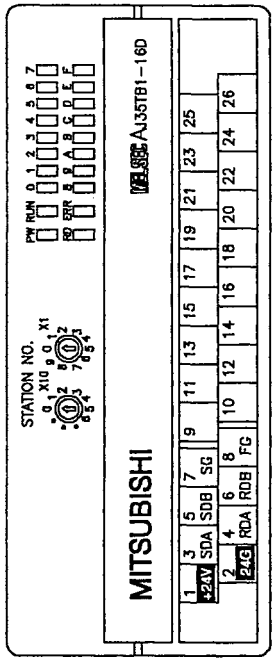
External Connection



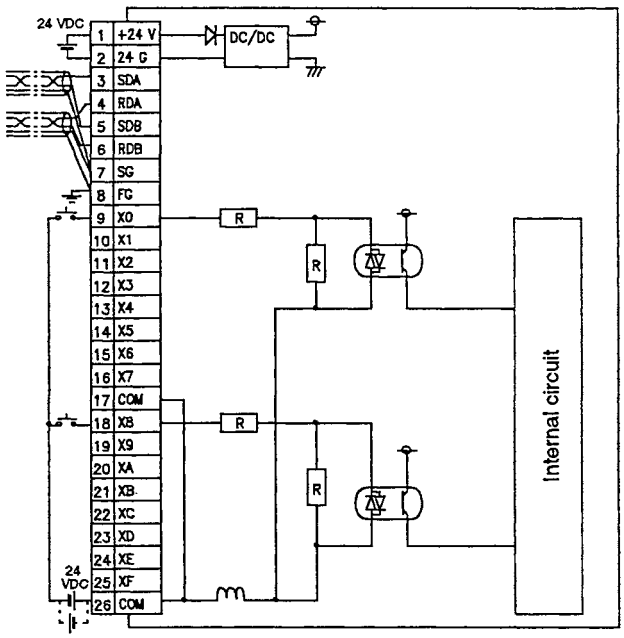
Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	I/O24V
TB10	I/O24G
TB11	X0
TB12	+COM
TB13	X1
TB14	-COM
TB15	X2
TB16	+COM
TB17	X3
TB18	-COM
TB19	X4
TB20	+COM
TB21	X5
TB22	-COM
TB23	X6
TB24	+COM
TB25	X7
TB26	-COM

3.4 Type AJ35TB1-16D Input Unit

Specifications \ Type		DC Input Unit (Sink/Source Common Type)	
		AJ35TB1-16D	Appearance
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		70 % simultaneously ON (at 26.4 VDC supply)	
ON voltage/ON current		14 VDC or higher/3.5 mA or higher	
OFF voltage/OFF current		6 VDC or less/1.7 mA or less	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		16 points/common (2 common terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws) including transmission circuit	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		2 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	45 mA or lower (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	



External Connection

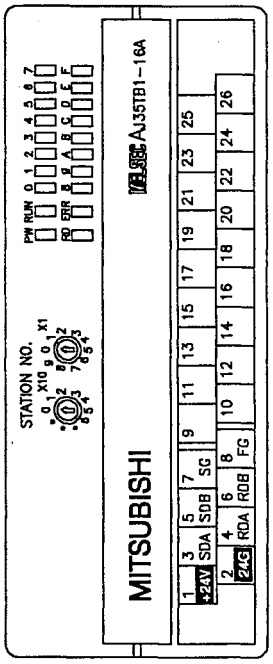


Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	X0
TB10	X1
TB11	X2
TB12	X3
TB13	X4
TB14	X5
TB15	X6
TB16	X7
TB17	COM
TB18	X8
TB19	X9
TB20	XA
TB21	XB
TB22	XC
TB23	XD
TB24	XE
TB25	XF
TB26	COM

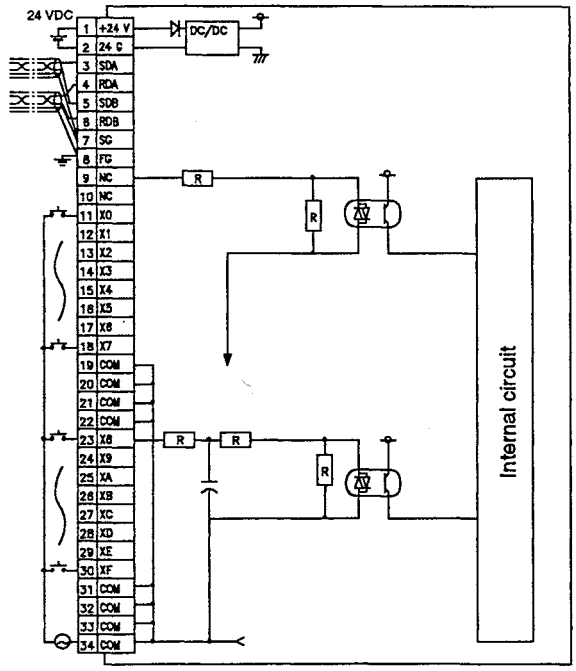
3.5 Type AJ35TB1-16A Input Unit

Specifications \ Type		AC Input Unit AJ35TB1-16A
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		100-120 VDC 50/60 Hz
Rated input current		Approx. 6 mA (100 VAC 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
Max. simultaneous ON input points		100 % simultaneously ON
ON voltage/ON current		80 VAC or higher/5 mA or higher
OFF voltage/OFF current		30 VAC or lower/1 mA or lower
Input resistance		Approx. 18 kΩ (60 Hz), Approx. 21 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less (100 VAC, 60 Hz))
	ON → OFF	30 ms or less (100 VAC, 60 Hz)
Common method		16points/common (8 common terminals)
Operation indication		ON indication (LED)
External wiring system		34-point terminal block (M3 screws) including transmission circuit
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Accessories		None
Number of stations occupied		2 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage :31.2 VDC)
	Current	50 mA or lower (at 24 VDC)
Weight kg (lb)		0.35 (0.77)

Appearance



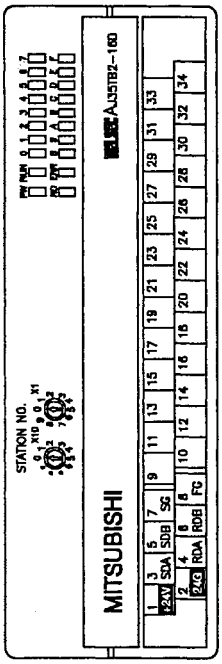
External Connection



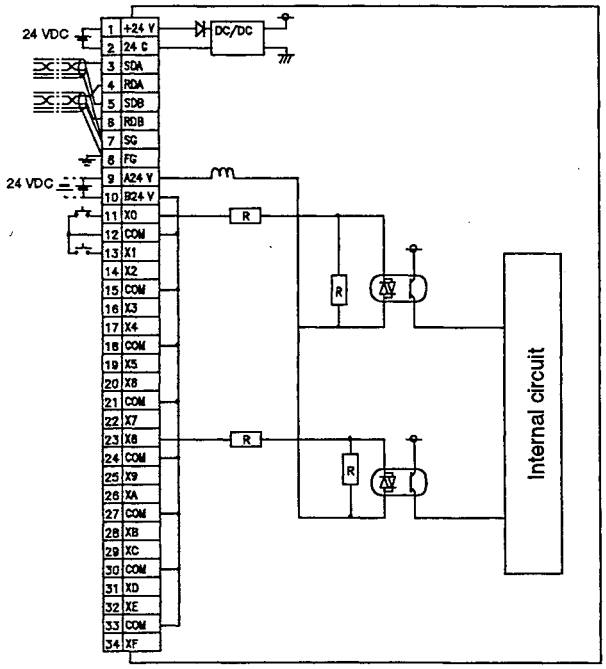
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	X7
TB2	24G	TB19	COM
TB3	SDA	TB20	COM
TB4	RDA	TB21	COM
TB5	SDB	TB22	COM
TB6	RDB	TB23	X8
TB7	SG	TB24	X9
TB8	FG	TB25	XA
TB9	NC	TB26	XB
TB10	NC	TN27	XC
TB11	X0	TB28	XD
TB12	X1	TB29	XE
TB13	X2	TB30	XF
TB14	X3	TB31	COM
TB15	X4	TB32	COM
TB16	X5	TB33	COM
TB17	X6	TB34	COM

3.6 Type AJ35TB2-16D Input Unit

Specifications \ Type		DC Input Unit (Sink/Source Common Type)	
		AJ35TB2-16D	Appearance
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 % simultaneously ON (at 26.4 VDC)	
ON voltage/ON current		14 VDC or higher/3.5 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.7 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		16points/common (2-wire terminal block, 8 common terminals)	
Operation indication		ON indication (LED)	
External wiring system		34-point terminal block connector (M3 screws) including transmission circuit	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		2 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	45 mA or lower (at 24 VDC)	
Weight kg (lb)		0.35 (0.77)	



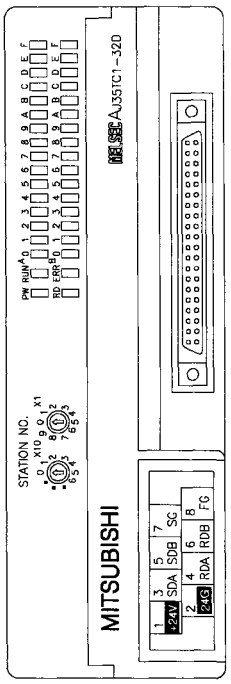
External Connection



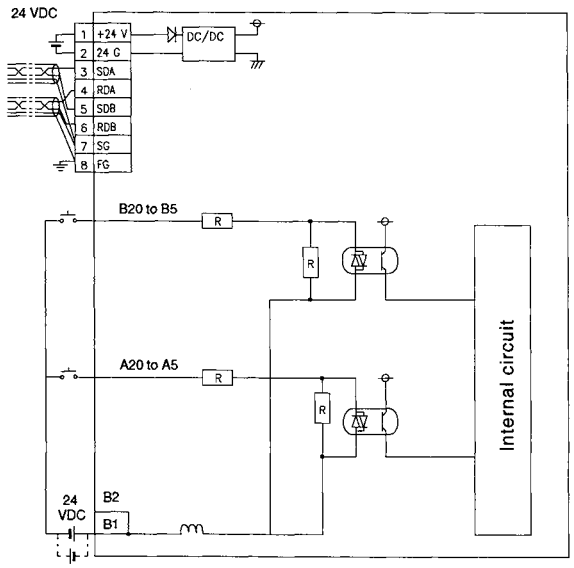
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	COM
TB2	24G	TB19	X5
TB3	SDA	TB20	X6
TB4	RDA	TB21	COM
TB5	SDB	TB22	X7
TB6	RDB	TB23	X8
TB7	SG	TB24	COM
TB8	FG	TB25	X9
TB9	A24V	TB26	XA
TB10	B24V	TN27	COM
TB11	X0	TB28	XB
TB12	COM	TB29	XC
TB13	X1	TB30	COM
TB14	X2	TB31	XD
TB15	COM	TB32	XE
TB16	X3	TB33	COM
TB17	X4	TB34	XF

3.7 Type AJ35TC1-32D Input Unit

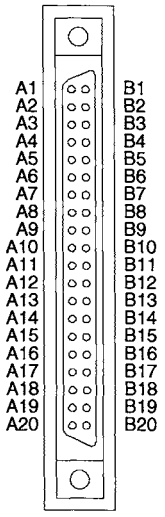
Specifications \ Type		DC Input Unit (Sink/Source Common Type)	
		AJ35TC1-32D	Appearance
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		85 % simultaneously ON (at 26.4 VDC)	
ON voltage/ON current		17.5 VDC or higher/3.5 mA or higher	
OFF voltage/OFF current		6 VDC or less/1.7 mA or less	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		32 points/common	
Operation indication		ON indecation (LED)	
External wiring system		40-pin connector	8-point terminal block
Applicable wire size		0.3 mm² (18 to 14 AWG)	0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])
Applicable solderless terminal (for connections to terminal block)		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		Soldering type connector for external wiring	
Number of stations occupied		4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage :31.2 VDC)	
	Current	55 mA or lower (at 24 VDC)	
Weight kg (lb)		0.25 (0.55)	



External Connection



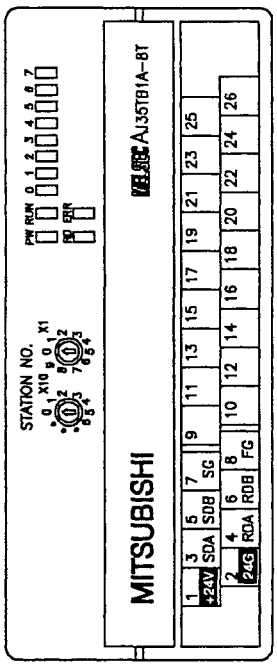
Pin Arrangement



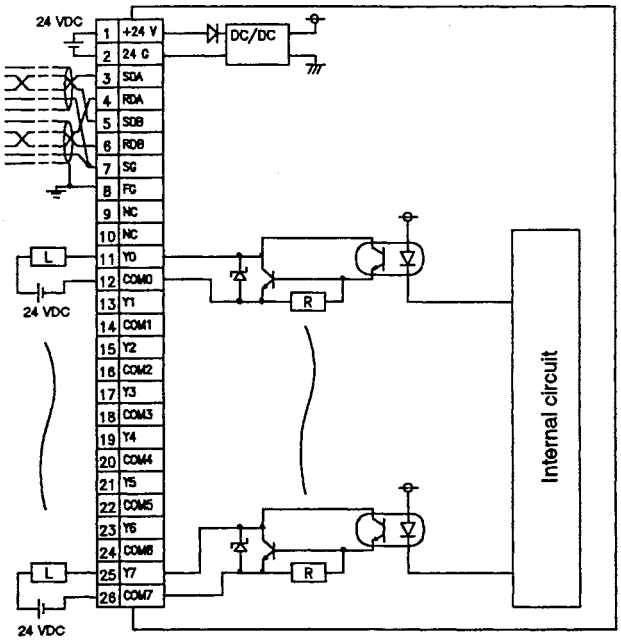
Front view

Pin No.	Signal Name	Pin No.	Signal Name
B20	X00	A20	X10
B19	X01	A19	X11
B18	X02	A18	X12
B17	X03	A17	X13
B16	X04	A16	X14
B15	X05	A15	X15
B14	X06	A14	X16
B13	X07	A13	X17
B12	X08	A12	X18
B11	X09	A11	X19
B10	X0A	A10	X1A
B9	X0B	A9	X1B
B8	X0C	A8	X1C
B7	X0D	A7	X1D
B6	X0E	A6	X1E
B5	X0F	A5	X1F
B4	Vacant	A4	Vacant
B3	Vacant	A3	Vacant
B2	COM	A2	Vacant
B1	COM	A1	Vacant

3.8 Type AJ35TB1A-8T Transistor Output Unit

Specifications \ Type		Transistor Output Unit (Sink Type)	
		AJ35TB1A-8T	Appearance
Number of output points		8 points	
Isolation method		Photocoupler	
Rated load voltage		24 VDC	
Operating load voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. load current		0.3 A/point	
Max. inrush current		1 A 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		1.5 VDC or lower (at 0.3 A)	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistance load)	
Surge suppression		Zener diode	
Common method		Independent common (8 terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws), including transmission circuit	
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch]	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	85 mA or lower (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	

External Connection

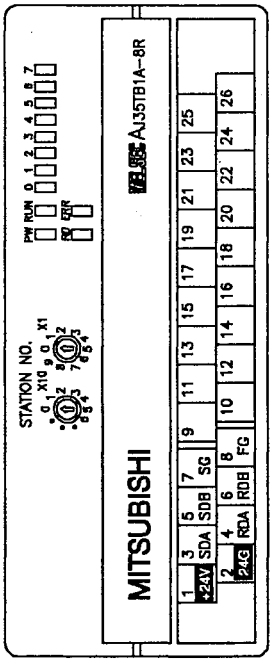


Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	NC
TB10	NC
TB11	Y0
TB12	COM0
TB13	Y1
TB14	COM1
TB15	Y2
TB16	COM2
TB17	Y3
TB18	COM3
TB19	Y4
TB20	COM4
TB21	Y5
TB22	COM5
TB23	Y6
TB24	COM6
TB25	Y7
TB26	COM7

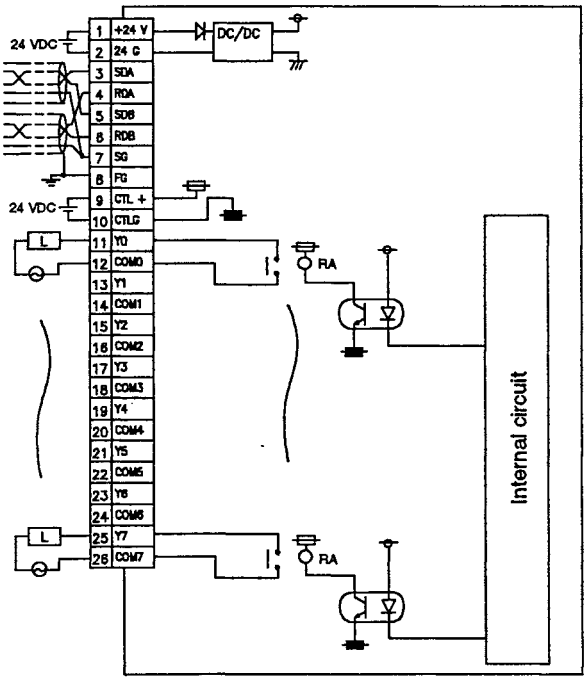
3.9 Type AJ35TB1A-8R Contact Output Unit

Specifications \ Type		Contact Output Unit AJ35TB1A-8R
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage/current		24 VDC (resistance load) 2 A/1 point 240 VAC (COSϕ = 1) 2 A/1 point
Min. switching load		5 VDC 1 mA
Max. switching voltage		250 VAC 110 VDC
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current load: More than 100,000 times
		200 VAC/1.5 A, 240 VAC/0.5 A (COSϕ = 0.7): More than 100,000 times
		200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 100,000 times
		24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 ms): More than 100,000 times
Max. switching frequency		3600 times/hour
External power supply (CTL + CTLG terminal)	Voltage	24 VDC ±10 %, ripple ratio: 4Vp-p or less
	Current	45 mA (24 VDC, all points ON)
Surge suppression		None
Common method		Independent common (8 terminals)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 screws) including transmission circuit
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch]
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Accessories		None
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)
	Current	70 mA or lower (at 24 VDC)
Weight kb (lb)		0.3 (0.66)

Appearance



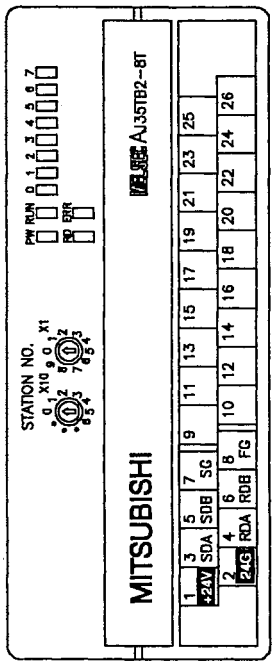
External Connection



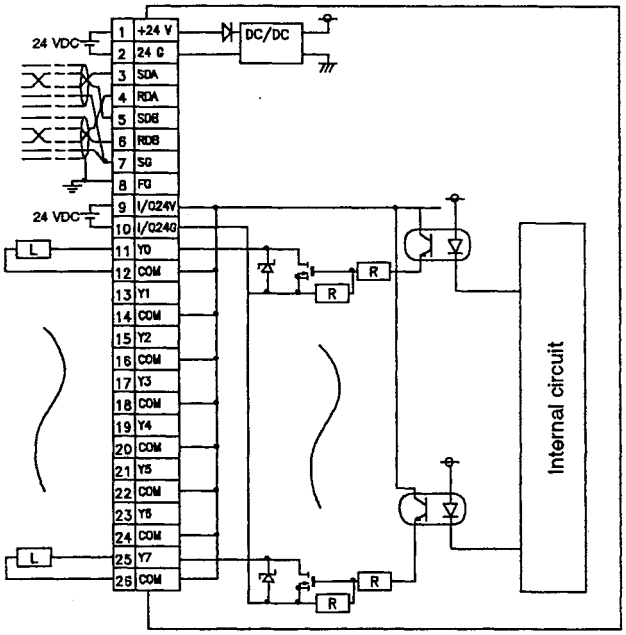
Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	CTL+
TB10	CTLG
TB11	Y0
TB12	COM0
TB13	Y1
TB14	COM1
TB15	Y2
TB16	COM2
TB17	Y3
TB18	COM3
TB19	Y4
TB20	COM4
TB21	Y5
TB22	COM5
TB23	Y6
TB24	COM6
TB25	Y7
TB26	COM7

3.10 Type AJ35TB2-8T Transistor Output Unit

Specifications \ Type		Transistor Output Unit (Sink Type)	
		AJ35TB2-8T	Appearance
Number of output points		8 points	
Isolation method		Photocoupler	
Rated load voltage		5/12/24 VDC	
Operating load voltage range		4.5 to 26.4 VDC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point	
Max. inrush current		2 A 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.2 VDC or lower (at 0.5 A)	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistance load)	
Surge suppression		Zener diode	
Common method		8 points per common (8 terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws), including transmission circuit	
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch]	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	70 mA or lower (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	



External Connection

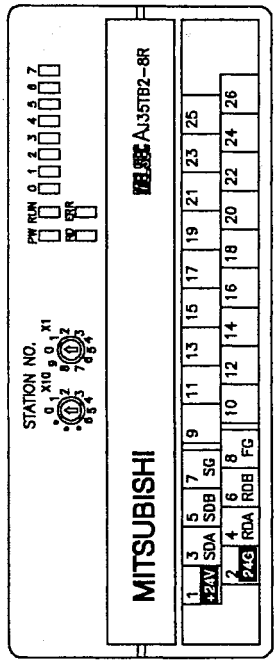


Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	I/O 24V
TB10	I/O 24G
TB11	Y0
TB12	COM
TB13	Y1
TB14	COM
TB15	Y2
TB16	COM
TB17	Y3
TB18	COM
TB19	Y4
TB20	COM
TB21	Y5
TB22	COM
TB23	Y6
TB24	COM
TB25	Y7
TB26	COM

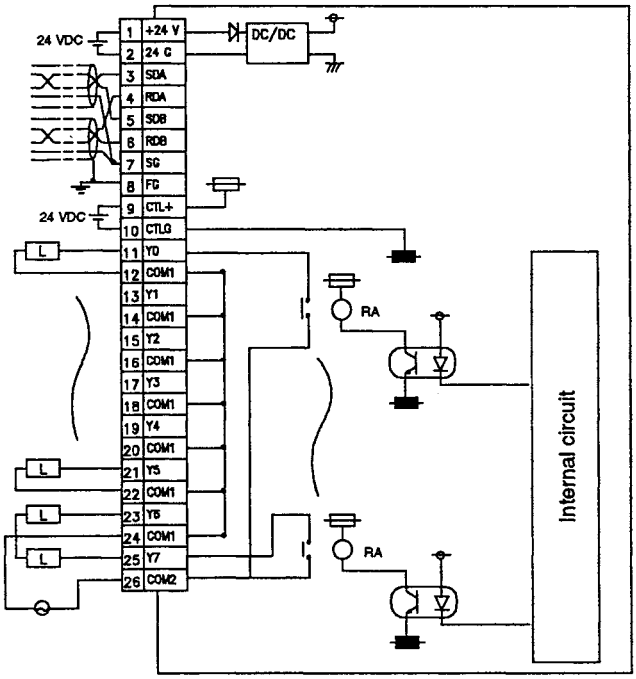
3.11 Type AJ35TB2-8R Contact Output Unit

Specifications \ Type		Contact Output Unit: AJ35TB2-8R
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage/current		24 VDC (resistance load) / 2 A/1 point 240 VAC (COSϕ = 1) / 5 A/1 common
Min. switching load		5 VDC 1 mA
Max. switching voltage		250 VAC 110 VDC
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current load: More than 100,000 times
		200 VAC/1.5 A, 240 VAC/1 A (COSϕ = 0.7): More than 100,000 times
		200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 100,000 times
		24 VDC/1 A, 110 VDC/0.1 A (L/R = 7 ms): More than 100,000 times
Max. switching frequency		3600 times/hour
External power supply (CTL + CTLG terminal)	Voltage	24 VDC ± 10%, ripple ratio: 4 Vp-p or less
	Current	45 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points per common (7 terminals)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 screws) including transmission circuit
Applicable wire size		0.75 to 2 mm² (applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch]
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Accessories		None
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)
	Current	70 mA or lower (at 24 VDC)
Weight kb (lb)		0.3 (0.66)

Appearance

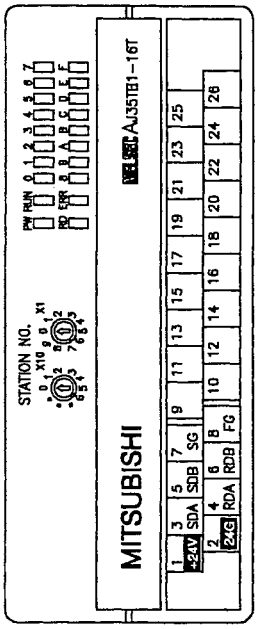


External Connection

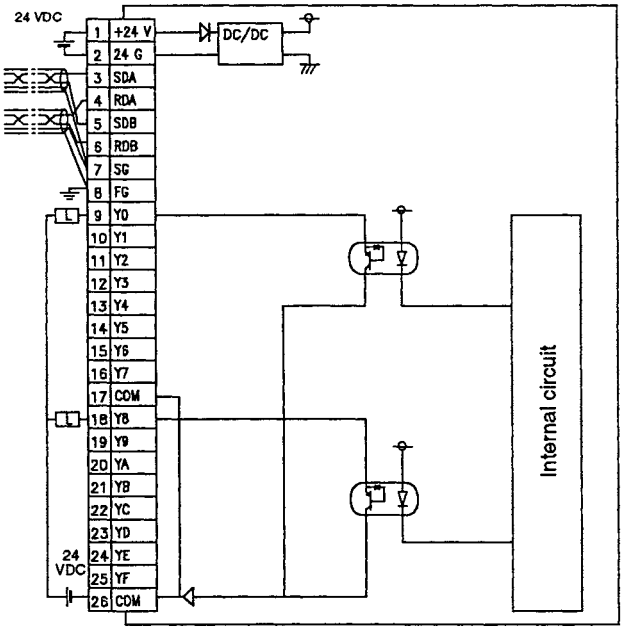


Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	CTL+
TB10	CTLG
TB11	Y0
TB12	COM1
TB13	Y1
TB14	COM1
TB15	Y2
TB16	COM1
TB17	Y3
TB18	COM1
TB19	Y4
TB20	COM1
TB21	Y5
TB22	COM1
TB23	Y6
TB24	COM1
TB25	Y7
TB26	COM2

3.12 Type AJ35TB1-16T Transistor Output Unit

Specifications \ Type		DC Input Unit (Sink/Source Common Type)	
		AJ35TB1-16T	Appearance
Number of intput points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 VDC	
Operating load voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point, 1.6 A/common	
Max. inrush current		0.4 A, 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		1.5 VDC or lower (at 0.1 A)	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistive load)	
Serge suppression		Zener diode	
Common method		16 points/common (2 common terminals)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 screws) including transmission circuit	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		None	
Number of stations occupied		2 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	130 mA or lower (at 24 VDC)	
Weight kg (lb)		0.3 (0.66)	

External Connection

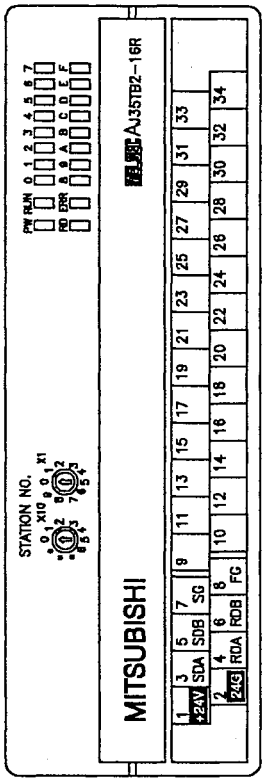


Terminal No.	Signal Name
TB1	+24V
TB2	24G
TB3	SDA
TB4	RDA
TB5	SDB
TB6	RDB
TB7	SG
TB8	FG
TB9	Y0
TB10	Y1
TB11	Y2
TB12	Y3
TB13	Y4
TB14	Y5
TB15	Y6
TB16	Y7
TB17	COM
TB18	Y8
TB19	Y9
TB20	YA
TB21	YB
TB22	YC
TB23	YD
TB24	YE
TB25	YF
TB26	COM

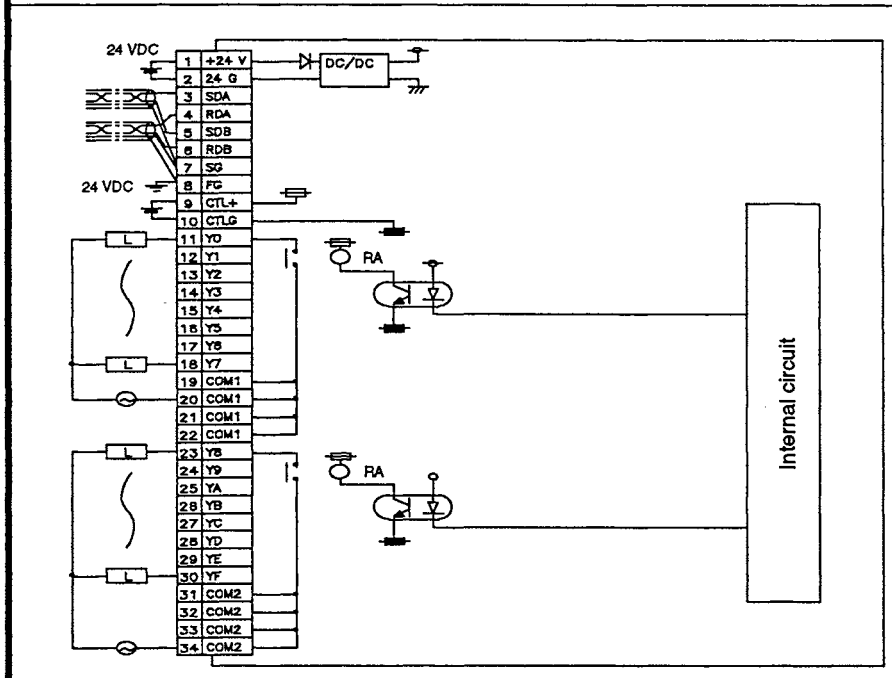
3.13 Type AJ35TB1-16R Contact Output Unit

Specifications \ Type		Contact Output AJ35TB1-16R
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage/current		24 VDC (resistive load) 2 A/point 240 VAC (COS ϕ = 1) 5 A/common
Min. switching load		5 VDC, 1 mA
Max. switching voltage		250 VAC, 110 VDC
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current load: More than 100,000 times
		200 VAC/1.5 A, 240 VAC/1 A (COS ϕ = 0.7): More than 100,000 times
		200 VAC/1 A, 240 VAC/0.5 A (COS ϕ = 0.35): More than 100,000 times
		24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 ms): More than 100,000 times
Max. switching frequency		3600 times/hour
External power supply (CTL+, CTLG terminal)	Voltage	24 VDC ±10%, ripple ratio: 4Vp-p or less
	Current	90 mA (TYP, 24 VDC all points ON)
Surge suppression		None
Common method		8 points/common
Operation indication		ON indication (LED)
External wiring system		34-point terminal block (M3 screws) including transmission circuit
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Accessories		None
Number of stations occupied		2 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)
	Current	75 mA or less (at 24 VDC)
Weight kg (lb)		0.35 (0.77)

Appearance



External Connection

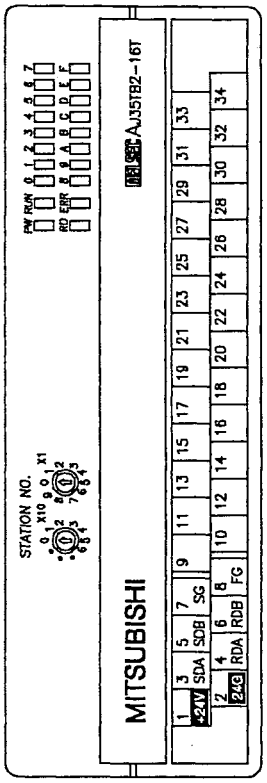


Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	Y7
TB2	24G	TB19	COM1
TB3	SDA	TB20	COM1
TB4	RDA	TB21	COM1
TB5	SDB	TB22	COM1
TB6	RDB	TB23	Y8
TB7	SG	TB24	Y9
TB8	FG	TB25	YA
TB9	CTL+	TB26	YB
TB10	CTLG	TB27	YC
TB11	Y0	TB28	YD
TB12	Y1	TB29	YE
TB13	Y2	TB30	YF
TB14	Y3	TB31	COM2
TB15	Y4	TB32	COM2
TB16	Y5	TB33	COM2
TB17	Y6	TB34	COM2

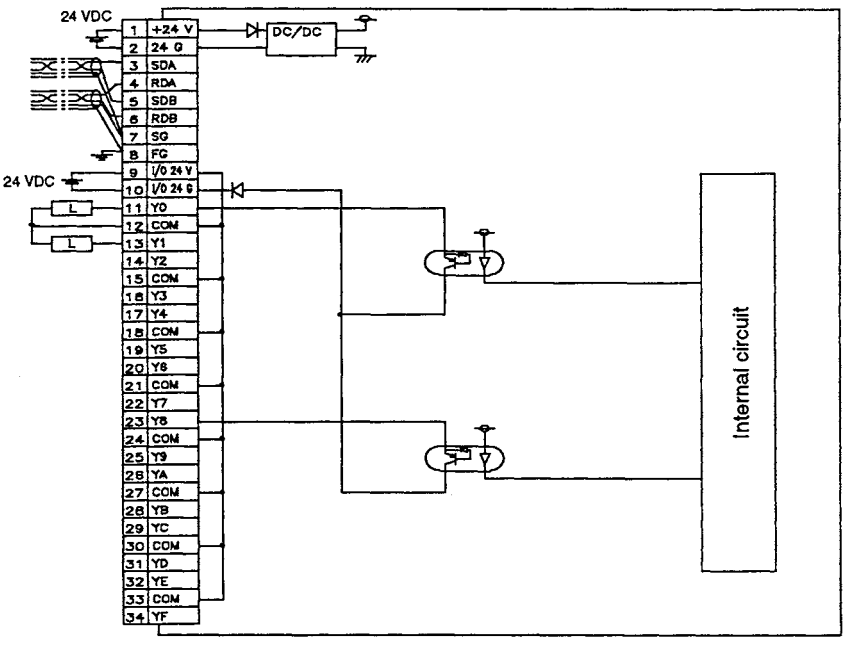
3.14 Type AJ35TB2-16T Transistor Output Unit

Specifications \ Type		Transistor Output Unit (Sink Type)
		AJ35TB2-16T
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		24 VDC
Operating load voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)
Max. load current		0.1 A/point, 1.6 A/common
Max. inrush current		0.4 A, 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		1.5 VDC or lower (at 0.1 A)
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Zener diode
Common method		16 points/common (2-wire terminal block, 8 common terminals)
Operation indication		ON indication (LED)
External wiring system		34-point terminal block connector (M3 screws) including transmission circuit
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Accessories		None
Number of stations occupied		2 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)
	Current	130 mA or lower (at 24 VDC supply)
Weight kg (lb)		0.35 (0.77)

Appearance



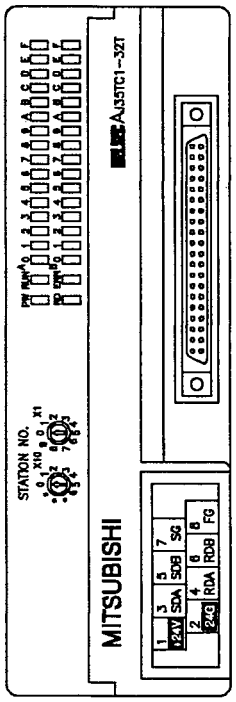
External Connection



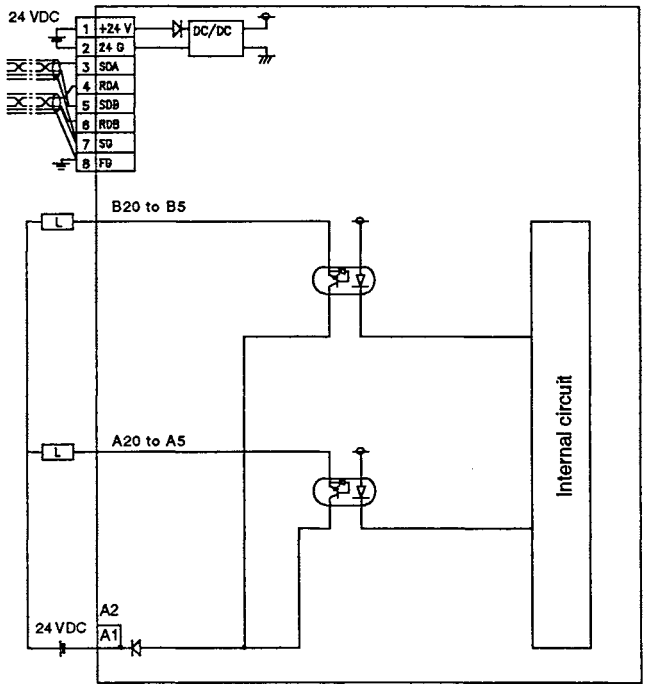
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	COM
TB2	24G	TB19	Y5
TB3	SDA	TB20	Y6
TB4	RDA	TB21	COM
TB5	SDB	TB22	Y7
TB6	RDB	TB23	Y8
TB7	SG	TB24	COM
TB8	FG	TB25	Y9
TB9	I/O 24V	TB26	YA
TB10	I/O 24G	TB27	COM
TB11	Y0	TB28	YB
TB12	COM	TB29	YC
TB13	Y1	TB30	COM
TB14	Y2	TB31	YD
TB15	COM	TB32	YE
TB16	Y3	TB33	COM
TB17	Y4	TB34	YF

3.15 Type AJ35TC1-32T Transistor Output Unit

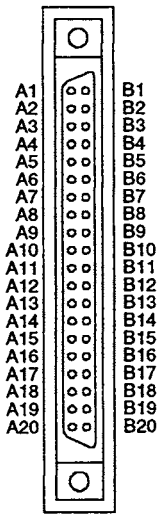
Specifications \ Type		Transistor Output Unit (Sink Type)	
		AJ35TC1-32T	Appearance
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		24 VDC	
Operating load voltage range		19.2 to 26.4 VDC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point, 2 A/common	
Max. inrush current		0.4 A, 10 ms or less	
Leakage current at OFF		0.1 mA or less	
Max. voltage drop at ON		1.5 VDC (MAX) (at 0.1 A)	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistive load)	
Surge suppression		Zener diode	
Common method		32 points/common	
Operation indication		ON indication (LED)	
External wiring system		40-pin connector	8-point terminal block
Applicable wire size		0.3 mm^2 (18 to 14 AWG)	0.75 to 2 mm^2 (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])
Applicable solderless terminals (for connections to terminal block)		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Accessories		Soldering type connector for external wiring	
Number of stations occupied		4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)	
	Current	55 mA or lower (at 24 VDC)	
Weight kg (lb)		0.25 (0.55)	



External Connection



Pin Arrangement

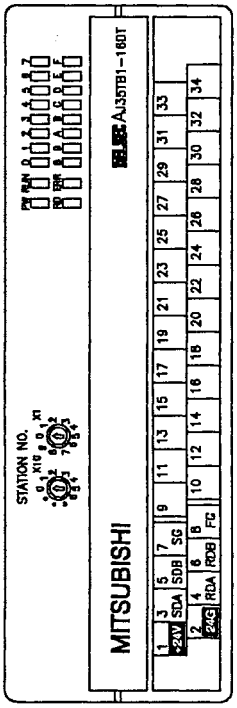


Front view

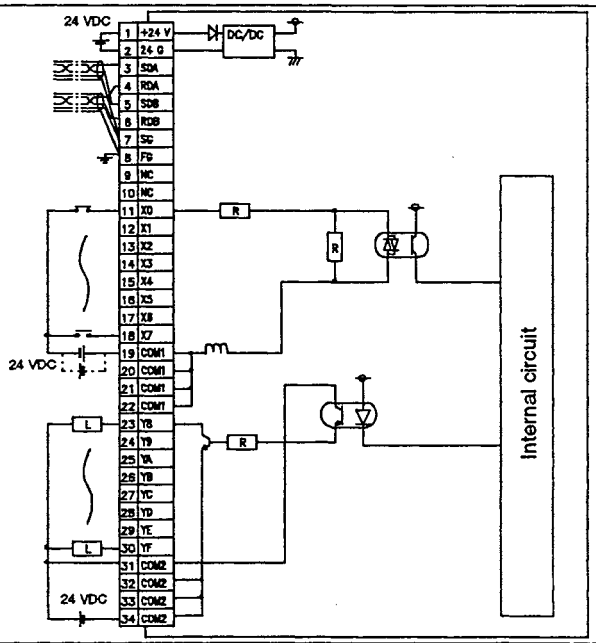
Pin No.	Signal Name	Pin No.	Signal Name
B20	Y00	A20	Y10
B19	Y01	A19	Y11
B18	Y02	A18	Y12
B17	Y03	A17	Y13
B16	Y04	A16	Y14
B15	Y05	A15	Y15
B14	Y06	A14	Y16
B13	Y07	A13	Y17
B12	Y08	A12	Y18
B11	Y09	A11	Y19
B10	Y0A	A10	Y1A
B9	Y0B	A9	Y1B
B8	Y0C	A8	Y1C
B7	Y0D	A7	Y1D
B6	Y0E	A6	Y1E
B5	Y0F	A5	Y1F
B4	Vacant	A4	Vacant
B3	Vacant	A3	Vacant
B2	Vacant	A2	COM
B1	Vacant	A1	COM

3.16 Type AJ35TB1-16DT I/O Unit

Specifications \ Type		DC Input/Output, Transistor Output Composite Unit			
		AJ35TB1-16DT			Appearance
Input Specifications			**Output Specifications**		
Number of input points		8 points	Number of output points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24 VDC	Rated load voltage		24 VDC
Rated input current		Approx. 7 mA	Oparating load voltage range		19.2 to 26.4 VDC (ripple ratio: within 5%)
Oparating voltage range		19.2 to 26.4 VDC (ripple ratio: within 5%)	Max. load voltage/ current		0.3 A/point 2.4 A/common
Max. simultaneous ON input points		100% simultaneously ON	Max. inrush current		3 A, 10 ms or lower
ON voltage/ON current		14 V or higher/ 3.5 mA or higher	Leakage current at OFF		0.1 mA or lower
OFF voltage/OFF current		6 V or lower/ 1.7 mA or less	Max. voltage drop at ON		1.5 V or lower (MAX) 0.3 A
Input resistance		Approx. 3.3 KΩ	Output form		Sink type
Response time	OFF → ON	10 ms or less	Response time	OFF → ON	2 ms or less
	ON → OFF	10 ms or less		ON → OFF	2 ms or less (resistive load)
Input form		Sink/source common type	Surge suppression		Zener diode
Common method		8 points/common	Common method		8 points/common
Operation indication		ON indication (LED)			
External wiring system		34-point terminal block (M3 screws) including transmission circuit			
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])			
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3			
Accessories		None			
Number of stations occupied		2 stations			
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)			
	Current	61 mA or lower (at 24 VDC)			
Weight kg (lb)		0.35 (0.77)			



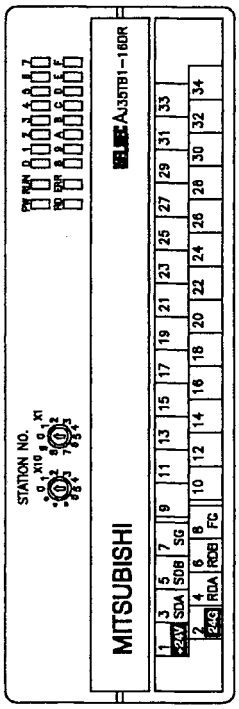
External Connection



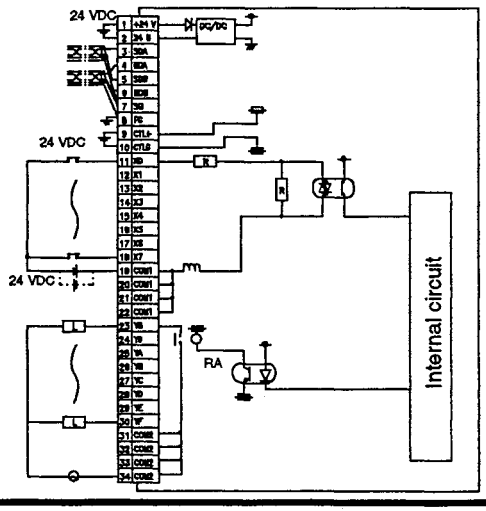
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	Y7
TB2	24G	TB19	COM1
TB3	SDA	TB20	COM1
TB4	RDA	TB21	COM1
TB5	SDB	TB22	COM1
TB6	RDB	TB23	Y8
TB7	SG	TB24	Y9
TB8	FG	TB25	YA
TB9	NC	TB26	YB
TB10	NC	TB27	YC
TB11	X0	TB28	YD
TB12	X1	TB29	YE
TB13	X2	TB30	YF
TB14	X3	TB31	CTL+
TB15	X4	TB32	COM2
TB16	X5	TB33	COM2
TB17	X6	TB34	COM2

3.17 Type AJ35TB1-16DR I/O Unit

Specifications \ Type	DC Input, Contact Output Composite Unit				
	AJ35TB1-16DR				Appearance
Input Specifications		**Output Specifications**			
Number of input points	8 points	Number of output points		8 points	
Isolation method	Photocoupler	Isolation method		Photocoupler	
Rated input voltage	24 VDC	Rated load voltage and current		24 VDC (resistive load) 240 VAC (COSϕ = 1) / 2 A/point 5 A/common	
Rated input current	Approx. 7 mA				
Oparating voltage range	19.2 to 26.4 VDC (ripple ratio: within 5%)				
Max. simultaneous ON input points	100% simultaneously ON	Min. switching load		5 VDC, 1 mA	
ON voltage/ON current	14 V or higher/ 3.5 mA or higher	Max. switching voltage		250 VAC, 110 VDC	
OFF voltage/OFF current	6 V or less/ 1.7 mA or less	Response time	OFF → ON	10 ms or less	
Input resistance	Approx 3.3 KΩ		ON → OFF	12 ms or less	
Response time OFF → ON	10 ms or less	Service life	Mechanical	More than 20 million times	
Response time ON → OFF	10 ms or less		Electrical	Rated switching voltage/current load: More than 100,000 times	
Input form	Sink/source common type			200 VAC/1.5 A, 240 VAC/1 A (COSϕ = 0.7): More than 100,000 times	
Common method	8 points/common			200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 100,000 times	
				24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 msec): More than 100,000 times	
		Max. switching frequency		3600 times/hour	
		External power supply (CTL+, CTLG terminal)	Voltage	24 VDC ±10%, ripple ratio: 4Vp-p or less	
			Current	45 mA (TYP, 24 VDC, all points ON)	
		Surge suppression		None	
		Common method		8 points/common	
Operation indication	ON indication (LED)				
External wiring system	34-point terminal block (M3 screws) including transmission circuit				
Applicable wire size	0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])				
Applicable solderless terminal	R1.25-3, R2-3 RAV1.25-3, RAV2-3				
Accessories	None				
Number of stations occupied	2 stations				
I/O unit power supply Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)				
I/O unit power supply Current	62 mA or lower (at 24 VDC)				
Weight kg (lb)	0.35 (0.77)				



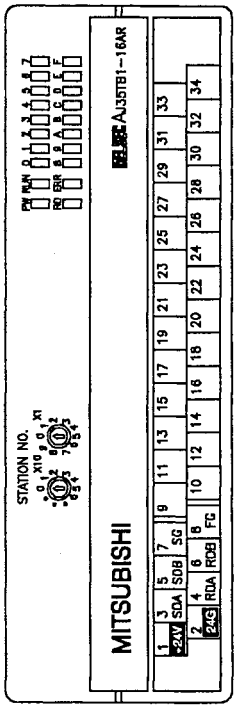
External Connection



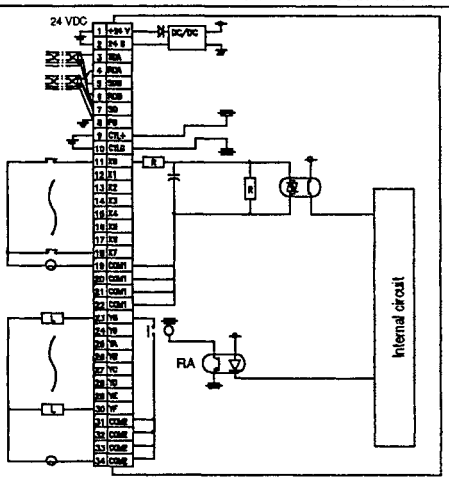
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	Y7
TB2	24G	TB19	COM1
TB3	SDA	TB20	COM1
TB4	RDA	TB21	COM1
TB5	SDB	TB22	COM1
TB6	RDB	TB23	Y8
TB7	SG	TB24	Y9
TB8	FG	TB25	YA
TB9	CTL+	TB26	YB
TB10	CTLG	TB27	YC
TB11	X0	TB28	YD
TB12	X1	TB29	YE
TB13	X2	TB30	YF
TB14	X3	TB31	COM2
TB15	X4	TB32	COM2
TB16	X5	TB33	COM2
TB17	X6	TB34	COM2

3.18 Type AJ35TB1-16AR I/O Unit

Specifications \ Type		AC Input, Contact Output Composite Unit			
		AJ35TB1-16AR			Appearance
Input Specifications			**Output Specifications**		
Number of input points		8 points	Number of input points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC, 50/60 Hz	Rated load voltage and current		24 VDC (resistive load) 240 VAC (COSϕ = 1)/2 A/point 5 A/common
Rated input current		Approx. 6 mA (100 VAC, 60 Hz)			
Oparating voltage range		85 to 132 VAC (50/60 Hz ±5%)			
Max. simultaneous ON input points		100% simultaneously ON	Min. switching load		5 VDC, 1 mA
ON voltage/ON current		80 VAC or higher/ 5 mA or higher	Max. switching voltage		250 VAC, 110 VDC
OFF voltage/OFF current		30 VAC or lower/1 mA or lower	Response time	OFF → ON	10 ms or less
Input resistance		Approx. 18 KΩ (60 Hz), Approx. 21 KΩ (50 Hz)		ON Ă OFF	12 ms or less
Response time	OFF → ON	15 ms or less (100 VAC 60Hz)	Service life	Mechanical	More than 20 million times
	ON → OFF	30 ms or less (100 VAC 60Hz)		Electrical	Rated switching voltage/current load: More than 100,000 times
Common method		8 points/common			200 VAC/1.5 A, 240 VAC/1 A (COSϕ = 0.7): More than 100,000 times
					200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 100,000 times
					24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 msec): More than 100,000 times
			Max. switching frequency		3600 times/hour
			External power supply (CTL+, CTLG terminal)	Voltage	24 VDC ±10%, ripple voltage 4vp-p max.
				Current	45 mA (TYP, 24 VDC, all points switched ON)
			Surge suppression		None
			Common method		8 points/common
Operation indication		ON indication (LED)			
External wiring system		34-point terminal block (M3 screws) including transmission circuit			
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])			
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3			
Accessories		None			
Number of stations occupied		2 stations			
I/O unit power supply	Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)			
	Current	62 mA or lower (at 24 VDC)			
Weight kg (lb)		0.35 (0.77)			



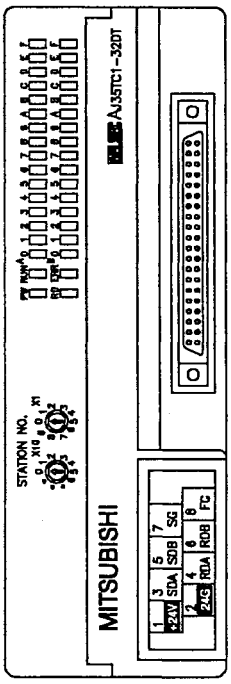
External Connection



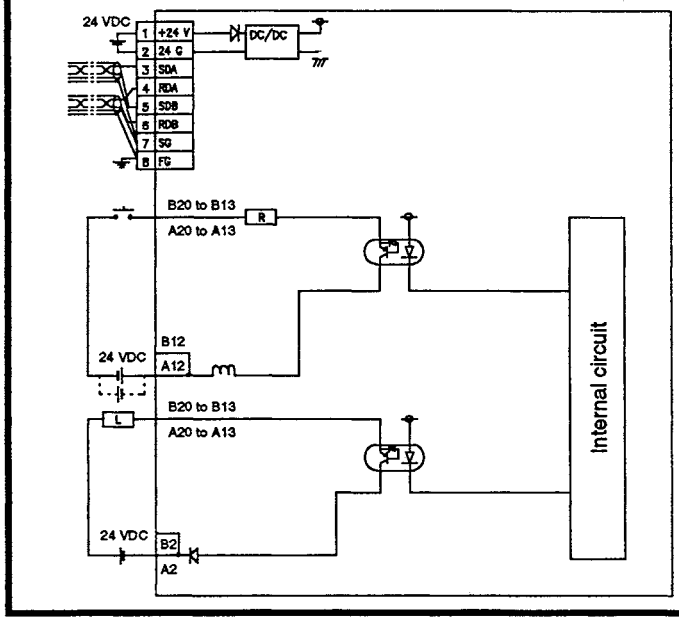
Terminal No.	Signal Name	Terminal No.	Signal Name
TB1	+24V	TB18	Y7
TB2	24G	TB19	COM1
TB3	SDA	TB20	COM1
TB4	RDA	TB21	COM1
TB5	SDB	TB22	COM1
TB6	RDB	TB23	Y8
TB7	SG	TB24	Y9
TB8	FG	TB25	YA
TB9	CTL+	TB26	YB
TB10	CTLG	TB27	YC
TB11	X0	TB28	YD
TB12	X1	TB29	YE
TB13	X2	TB30	YF
TB14	X3	TB31	COM2
TB15	X4	TB32	COM2
TB16	X5	TB33	COM2
TB17	X6	TB34	COM2

3.19 Type AJ35TC1-32DT I/O Unit

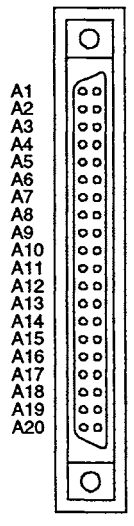
Specifications \ Type	DC Input (Sink/Source Common Type)/Transistor Output Composite Unit			
	AJ35TC1-32DT			Appearance
Input Specifications		**Output Specifications**		
Number of input points	16 points	Number of input points	16 points	
Isolation method	Photocoupler	Isolation method	Photocoupler	
Rated input voltage	24 VDC	Rated load voltage	24 VDC	
Rated input current	Approx. 5 mA	Oparating load voltage range	19.2 to 26.4 VDC (ripple ratio: within 5%)	
Oparating voltage range	19.2 to 26.4 VDC (ripple ratio: within 5 %)	Max. load current	0.1 A/point 1.6 A/common	
Max. simultaneous input points	100% simultaneously ON (at 26.4 VDC)	Max. inrush current	0.4 A, 10 ms or less	
ON voltage/ON current	17.5 VDC or higher/3.5 mA or higher	Leakage current (OFF)	0.1 mA or less	
OFF voltage/OFF current	6 VDC or lower/1.7 mA or lower	Max. voltage drop (ON)	1.5 VDC or less (0.1 A)	
Input resistance	Approx. 4.7 kΩ	Response time: OFF → ON	2 ms or less	
Response time: OFF → ON	10 ms or less	Response time: ON → OFF	2 ms or less (resistive load)	
Response time: ON → OFF	10 ms or less	Surge suppression	Zener diode	
Common method	16 points/common	Common method	16 points/common	
Operation indication	ON indication (LED)			
External wiring system	40-pin connector	8-point terminal block		
Applicable wire size	0.3 mm² (18 to 14 AWG)	0.75 to 2 mm² (18 to 14 AWG) (Applicable tightening torque: 49 to 78.4 N·cm (5 to 8 kg·cm) [4.33 to 6.93 lb·inch])		
Applicable solderless terminal (for connections to terminal block)	R1.25-3, R2-3 RAV1.25-3, RAV2-3			
Accessories	Solder type connector for external wiring			
Number of stations occupied	4 stations			
I/O unit power supply: Voltage	15.6 to 31.2 VDC (peak voltage: 31.2 VDC)			
I/O unit power supply: Current	137 mA or lower (at 24 VDC)			
Weight kg (lb)	0.25 (0.55)			



External Connection



Pin Arrangement



Front view

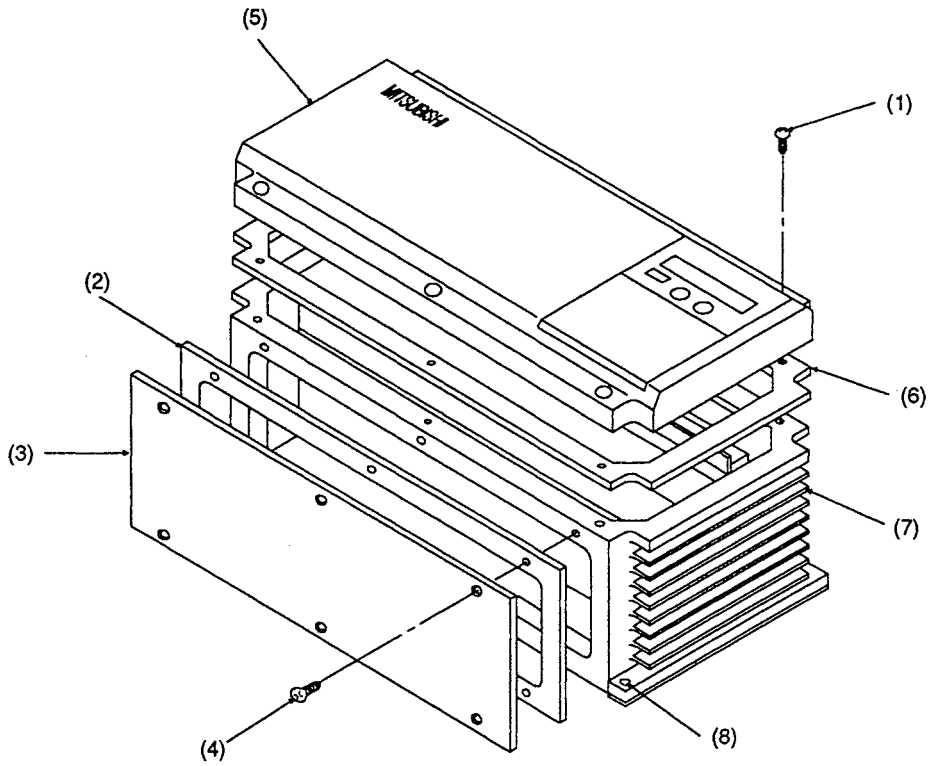
Pin No.	Signal Name	Pin No.	Signal Name
B20	X00	A20	X8
B19	X01	A19	X9
B18	X02	A18	XA
B17	X03	A17	XB
B16	X04	A16	XC
B15	X05	A15	XD
B14	X06	A14	XE
B13	X07	A13	XF
B12	COM1	A12	COM1
B11	Vacant	A11	Vacant
B10	Y10	A10	Y18
B9	Y11	A9	Y19
B8	Y12	A8	Y1A
B7	Y13	A7	Y1B
B6	Y14	A6	Y1C
B5	Y15	A5	Y1D
B4	Y16	A4	Y1E
B3	Y17	A3	Y1F
B2	COM2	A2	COM2
B1	Vacant	A1	Vacant

4. STAND-ALONE REMOTE I/O UNIT SPECIFICATIONS

This section describes the names of the parts, and the specifications, of the stand-alone remote I/O units.

4.1 Nomenclature (8-Point Unit)

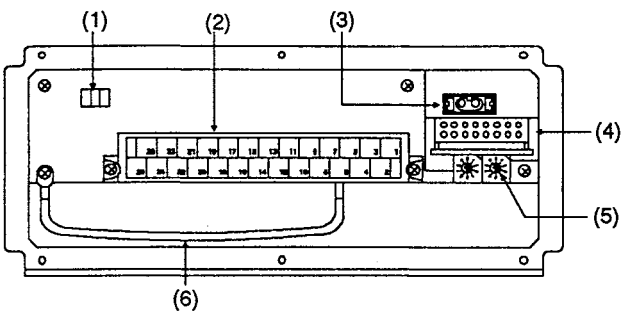
The names of the parts of a stand-alone remote I/O unit (8-point) are indicated below.



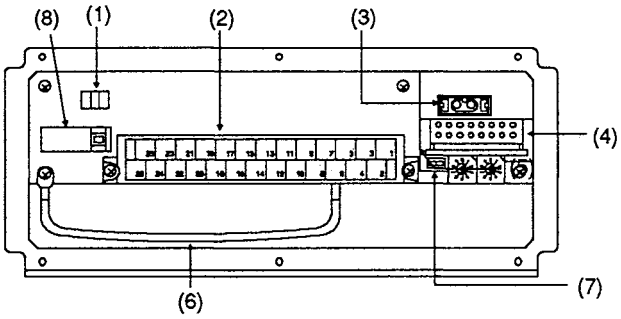
(1)	Cover fixing screw	M4 pan head screw x 10 Tightening torque: 78 to 108 N·cm [8 to 11 kg·cm] (6.93 to 9.53 lb·inch)
(2)	Panel packing	——
(3)	Panel	——
(4)	Panel fixing screw	M4 flat head screw x 8 Tightening torque: 78 to 108 N·cm [8 to 11 kg·cm] (6.93 to 9.53 lb·inch)
(5)	Cover	——
(6)	Cover packing	——
(7)	Case	——
(8)	Unit installation	Used to install the I/O unit to panel. For M4 screw Tightening torque :147 to 186 N·cm [15 to 19 kg·cm] (13.0 to 16.5 lb·inch)

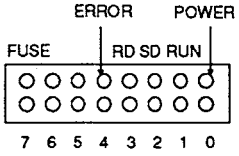
4.1.1 Internal view of model for optical data link

For use as input unit



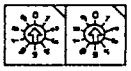
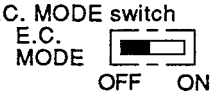
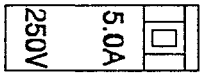
For use as output unit



(1)	Cable clamp 	For fixing the optical fiver cable
(2)	Terminal block	For connecting the power and I/O signal cables. For information concerning wiring, see Section 5.1. Terminal screws (M3 x 6) Tightening torque: 49 to 78 N·cm [5 to 8 kg·cm] (4.33 to 6.93 lb·inch)
(3)	Optical fiber cable connector SD (OUT) RD (IN)  Transmission terminal / Receive terminal	(IN) RD: Connected to (OUT) SD of the preceding station (OUT) SD: Connected to (IN) RD of the succeeding station For connection, see the MELSECNET/MINI-S3 master module User's Manual.
(4)	Operating status indicator LEDs  	See table below.

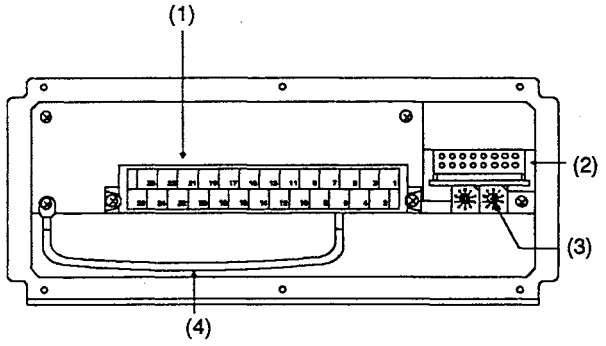
	LED	Indication	LED	Indication
	POWER	Lights when the power to the I/O unit is turned ON.	0	Indicates the ON/OFF status of I/O signals.
	RUN	Lights while data communication is being performed with the master station normally.	1	
	SD	Flashes while data is being transmitted.	2	
	RD	Flashes while data is being received.	3	
*1	ERROR	Lights while a receive data error occurs; OFF during normal communication.	4	
			5	
			6	
*2	FUSE	Lights when a fuse has blown.	7	

*1: Only remote output unit.
*2: Only remote output unit with a fuse.

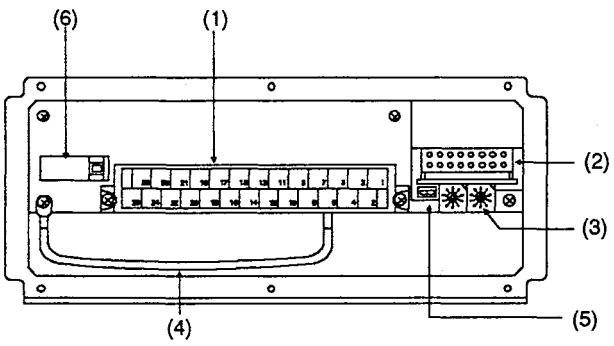
(5)	Station number setting switches  X10 X1	• Used to set the remote I/O station number in the range 1 to 64. • X10 : Ten (10) digit of a station number • X1 : Units (1) digit of a station mumber
(6)	FG wire	Connect ground wire from TB6. This also grounds the case.
(7)	E.C. MODE switch  	Used to set whether outputs are retained or switched OFF when I/O refresh is stopped.
(8)	Fuse  	For fuses used with individual modules, see the specifications of the corresponding unit. (When a fuse has blown, a white marking appears in the check opening.) MP-20 (2 A), MP-32 (3.2 A), HP-50 (5 A), GP 75 (7.5 A)

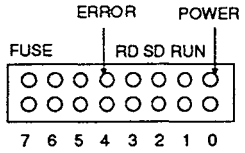
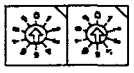
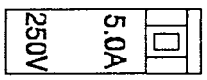
4.1.2 Internal views of model for twisted-pair data link

For use as input unit



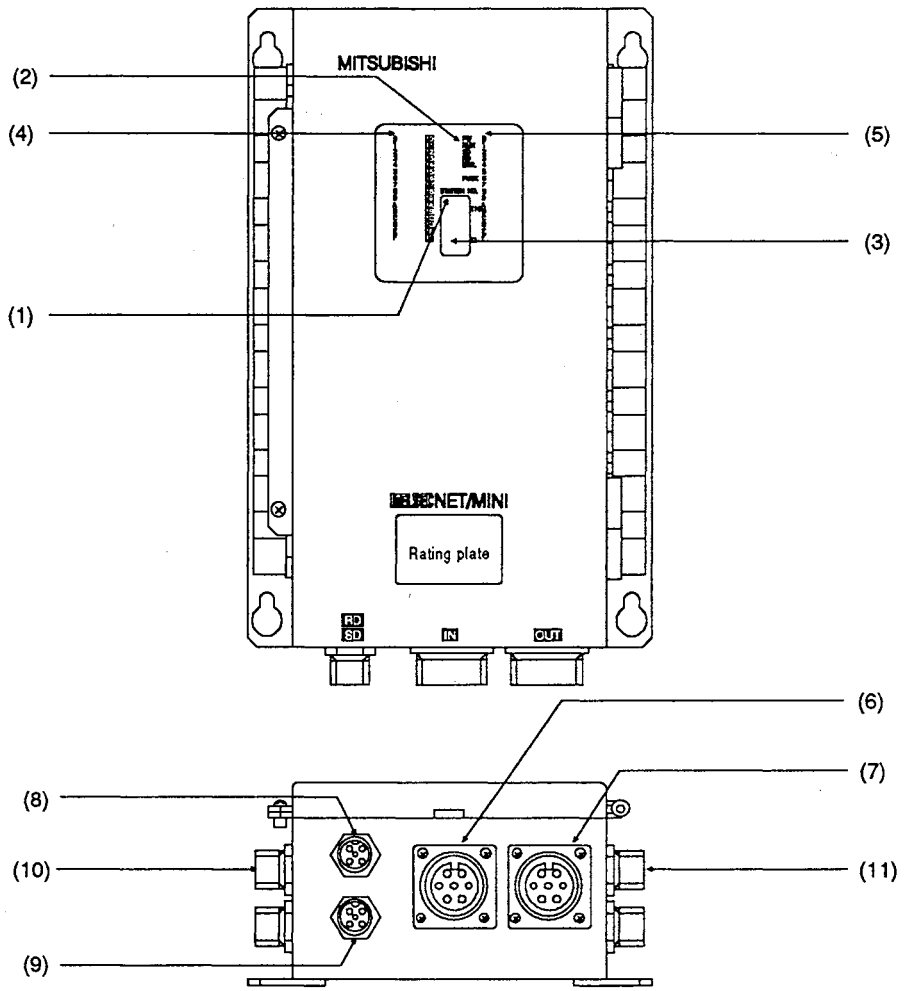
For use as output unit

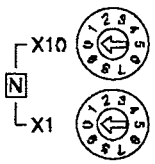
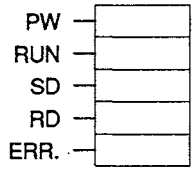


(1)	Terminal block	For connecting the power, twisted-pair link and I/O signal cables. • For information concerning the wiring of the power supply and signal cables, see the specifications of each unit. • For information concerning the wiring of the twisted-pair link cable, see MELSECNET/MINI-S3 master module User's Manual. Terminal screws (M3 x 6); tightening torque 49 to 78 N·cm [5 to 8 kg·cm] (4.33 to 6.93 lb·inch)
(2)	Operating status indicator LEDs 	See table below. *1: Only remote output unit. *2: Only remote output unit with a fuse.
(3)	Station number setting switches 	• Used to set the remote I/O station number in the range 1 to 64. • X10 : Ten (10) digit of a station number • X1 : Units (1) digit of a station mumber
(4)	FG wire	Connect ground wire from TB6. This also grounds the case.
(5)	E.C. MODE switch 	Used to set whether outputs are retained or switched OFF when I/O refresh is stopped.
(6)	Fuse 	For fuses used with individual modules, see the specifications of the corresponding unit. (When a fuse has blown, a white marking appears in the check opening.) MP-20 (2 A), MP-32 (3.2 A), HP-50 (5 A), GP 75 (7.5 A)

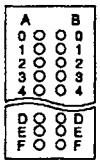
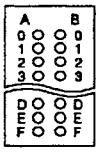
	LED	Indication	LED	Indication
	POWER	Lights when the power to the I/O unit is turned ON.	0	Indicates the ON/OFF status of I/O signals.
	RUN	Lights while data communication is being performed with the master station normally.	1	
	SD	Flashes while data is being transmitted.	2	
	RD	Flashes while data is being received.	3	
*1	ERROR	Lights while a receive data error occurs; OFF during normal communication.	4	
			5	
			6	
*2	FUSE	Lights when a fuse has blown.	7	

4.2 Nomenclature (16 to 48-Point Unit)



(1)	Station number setting switches 	• Used to set the remote I/O station number in the range 1 to ((64 – the number of stations occupied) + 1). • X10: Ten (10) digit of a station number • X1 : Units (1) digit of a station number
(2)	Operating status indicator LEDs 	

LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.
RUN	Lilghts while data communication is being performed with the master station normally.
SD	Flashes while data is being transmitted.
RD	Flashes while data is being received.
ERR.	Lights when a receive data error occurs; OFF during normal communication.

No.	Name	Description
(3)	E.C. MODE switch E.C.MODE OFF ON 	Used to set whether outputs are retained or switched OFF when I/O refresh is stopped.
(4)	Input indicator LEDs 	These are light-emitting diodes that indicate whether inputs are ON or OFF. When lit, an LED indicates that the corresponding input is ON.
(5)	Output indicator LEDs 	These are light-emitting diodes that indicate whether outputs are ON or OFF. When lit, an LED indicates that the corresponding output is ON.

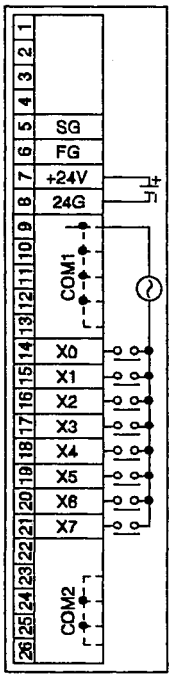
MEMO

4.3 Stand-Alone Remote I/O Units (For Use with Optical Data Links)

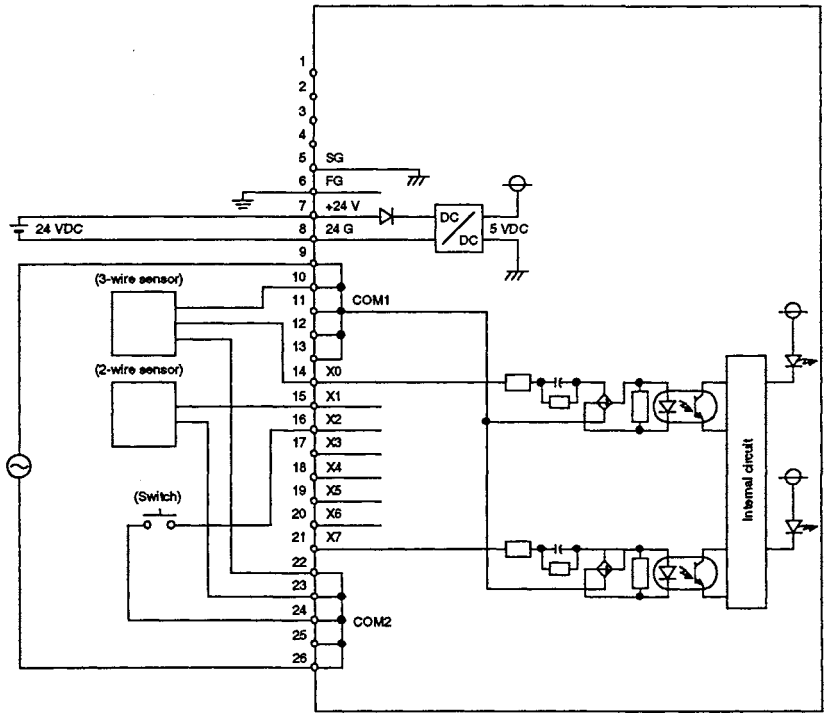
4.3.1 Type AJ35PJ-8A AC input unit

Specifications \ Type		AC Input Unit
		AJ35PJ-8A
Number of input points		8 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC, 50/60 Hz
Rated input current		10 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
Max. simultaneous ON input points		100 % (8 points) simultaneously ON
Inrush current		Max. 300 mA within 0.3 ms or less (132 VAC)
ON voltage/ON current		80 VAC or higher/6 mA or higher
OFF voltage/OFF current		40 VAC or lower/4 mA or lower
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less
	ON → OFF	25 ms or less
Common method		8 points/common (Common terminals: TB9 to TB13)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.04 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

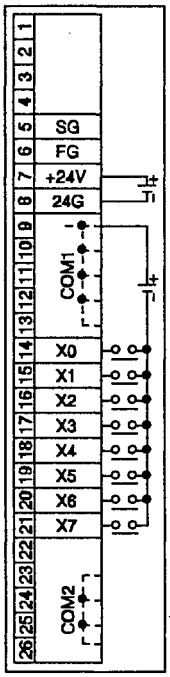


Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	COM1
TB10	COM1
TB11	COM1
TB12	COM1
TB13	COM1
TB14	X0
TB15	X1
TB16	X2
TB17	X3
TB18	X4
TB19	X5
TB20	X6
TB21	X7
TB22	COM2
TB23	COM2
TB24	COM2
TB25	COM2
TB26	COM2

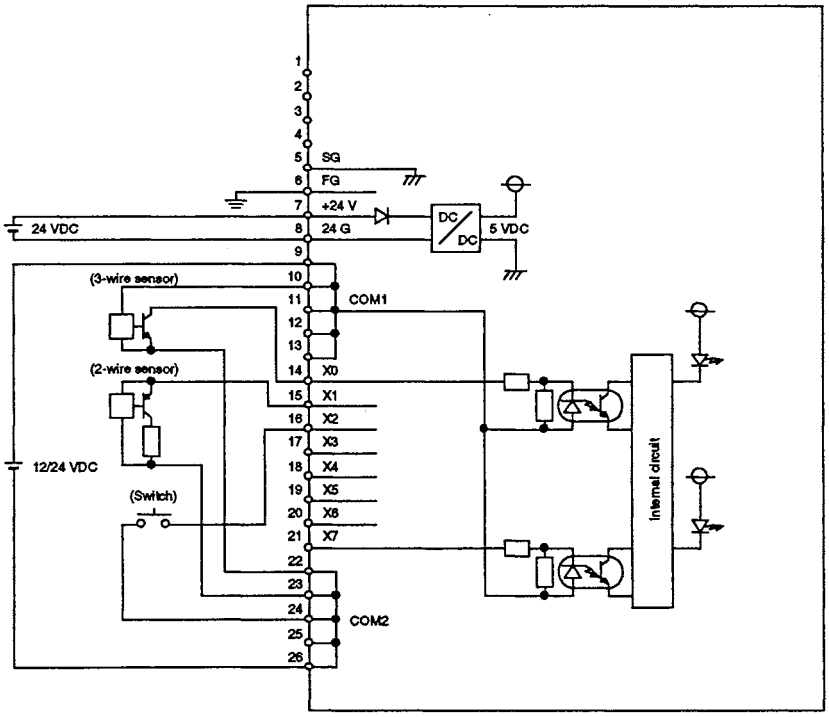
4.3.2 Type AJ35PJ-8D DC input unit

Specifications \ Type		DC Input Unit (Sink Type)	
		AJ35PJ-8D	
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		4 mA	10 mA
Operating voltage range		10.2 to 31.2 VDC (Ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 % (8 points) switched on simultaneously	
ON voltage/ON current		9.5 VDC min./3 mA min.	
OFF voltage/OFF current		6 VDC max./1.5 mA max.	
Input resistance		Approx. 2.4 kΩ	
Response time	OFF → ON	10 ms max.	
	ON → OFF	10 ms max.	
Common method		8 points/common (Common terminals: TB9 to TB13)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 x 6 screws)	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	0.04 A	
Weight kg (lb)		2.2 (4.84)	

Terminal Arrangement



External Connection

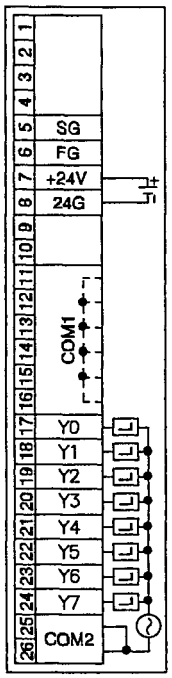


Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	COM1
TB10	COM1
TB11	COM1
TB12	COM1
TB13	COM1
TB14	X0
TB15	X1
TB16	X2
TB17	X3
TB18	X4
TB19	X5
TB20	X6
TB21	X7
TB22	COM2
TB23	COM2
TB24	COM2
TB25	COM2
TB26	COM2

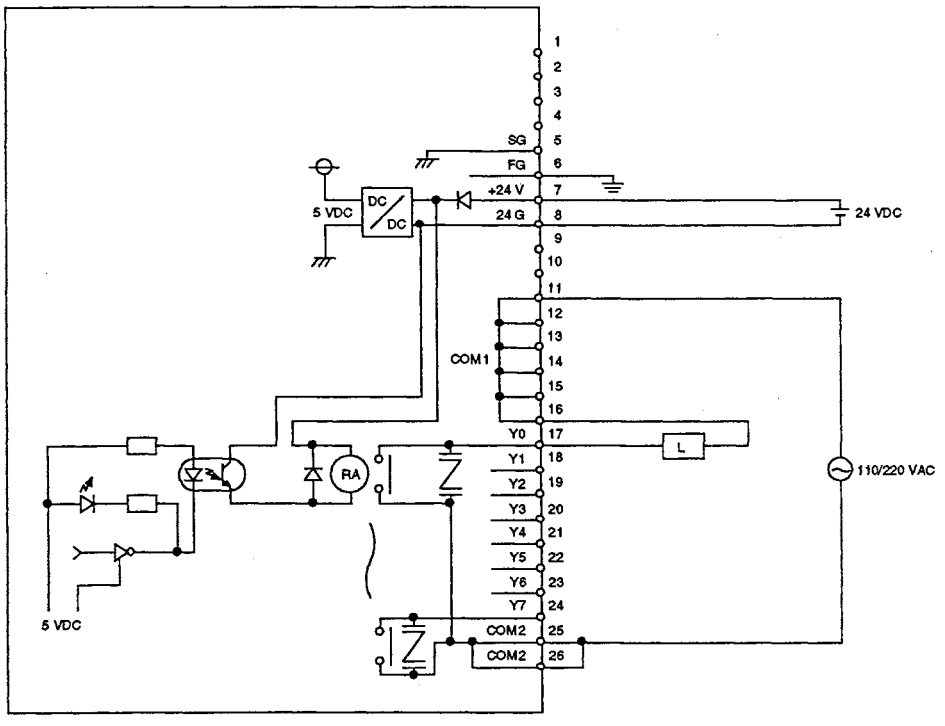
4.3.3 Type AJ35PJ-8R contact output unit

Specifications \ Type		Contact Output Unit: AJ35PJ-8R
Number of output points		8 points
Isolation method		Photocoupler
Rated switching voltage/ current		24 VDC, 2 A (resistive load) / 1 point, 8 A/common 240 VAC, 2A (COSϕ = 1)
Max. switching load		5 VDC, 1 mA
Max. switching voltage		250 VAC, 125 VDC
Leakage current at OFF		0.5 mA (120 VAC, 60 Hz), 1.0 mA (240 VAC, 60 Hz)
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current load: More than 200,000 times
		200 VAC/1.5 A, 240 VAC/1 A (COSϕ = 0.7): More than 200,000 times
		200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 200,000 times
		24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 ms): More than 200,000 times
Max. switching frequency		3600 times/hour
Surge suppression		Capacitive varistor (430 V)
Common method		8 points/common (Common terminals: TB25 to TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	20.4 to 31.2 VDC
	Current	0.13 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

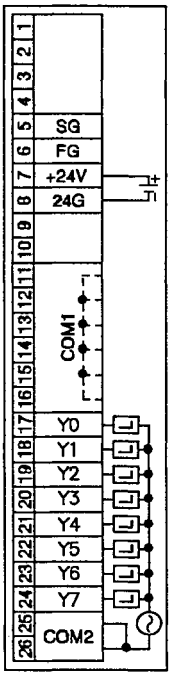


Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

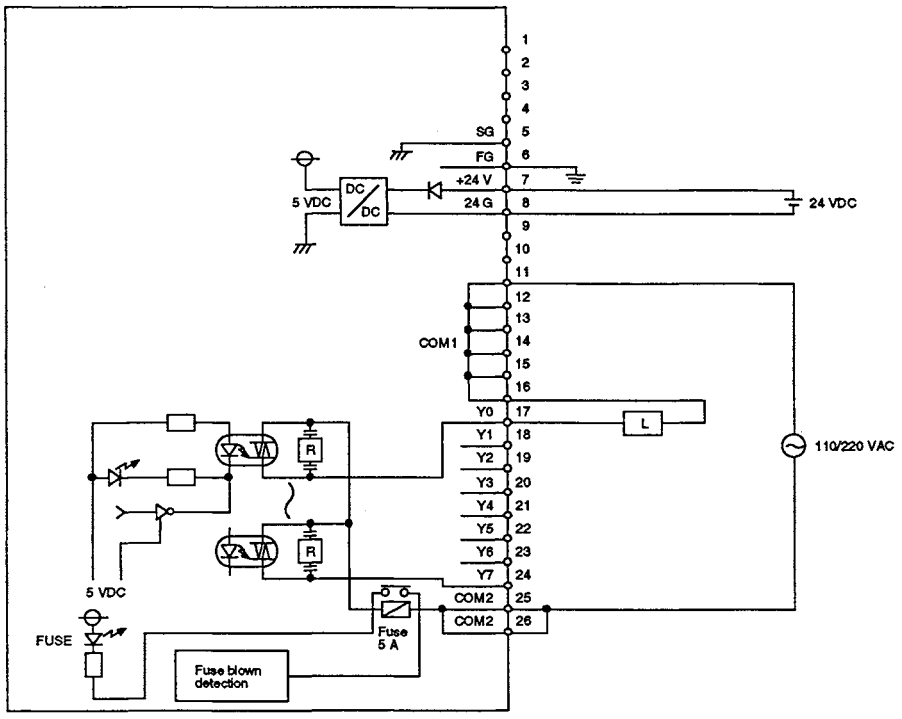
4.3.4 Type AJ35PJ-8S1 triac output unit

Specifications \ Type		Triac Output Unit AJ35PJ-8S1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Max. load voltage		264 VAC
Max. load current		0.6 A/point, 4 A/common
Min. load voltage/current		24 VAC/100 mA, 100 VAC/10 mA, 240 VAC/10 mA
Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Leakage current at OFF		1.5 mA (120 VAC, 60 Hz), 3.0 mA (240 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (100 to 600 mA), 1.8 V or lower (50 to 100 mA), 2 V or lower (10 to 50 mA)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Fuse rating		Fast-melting fuse 5 A (1 fuse per common) HP-50
Fuse Blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminals: TB25 to TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.08 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

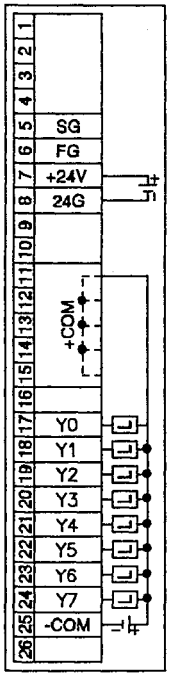


Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

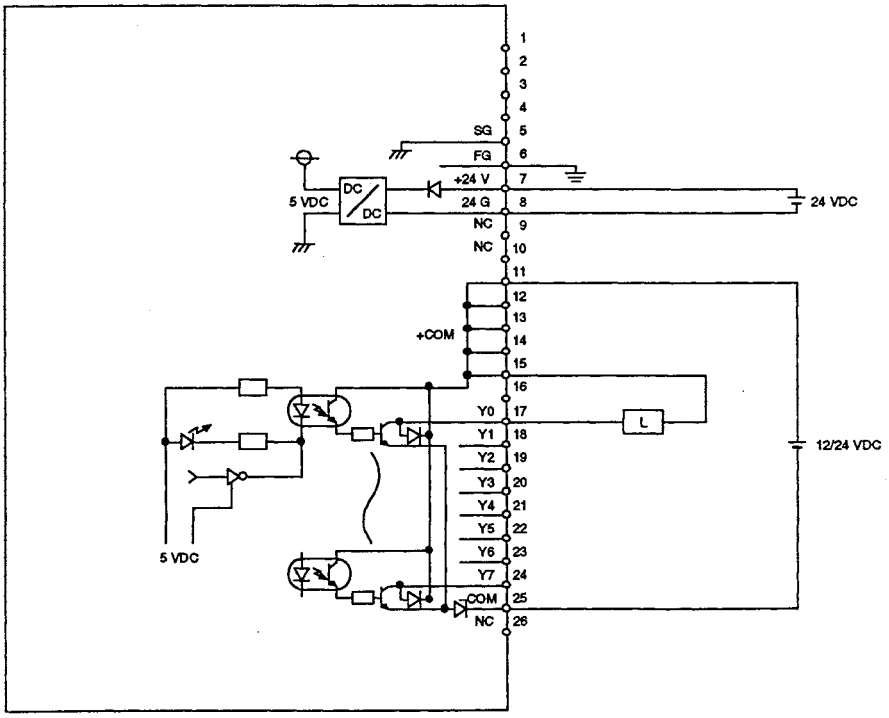
4.3.5 Type AJ35PJ-8T1 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type) AJ35PJ-8T1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.1 A/point, 0.8 A/common
Max. inrush current		0.4 A, 100 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		2.5 V (0.1 A), 1.75 V (5 mA), 1.7 V (1 mA)
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Clamp diode
Common method		8 points/common (Common terminal: TB25)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.05 A
Output external power supply	Voltage	10.2 to 31.2 VDC
	Current	0.03 A (TYP) 24 VDC
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

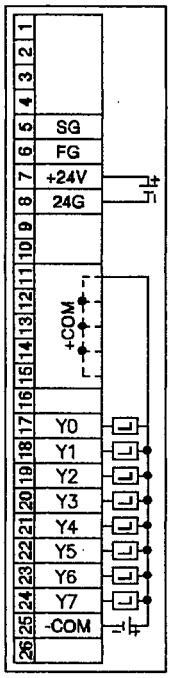


Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	Vacant
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	Vacant

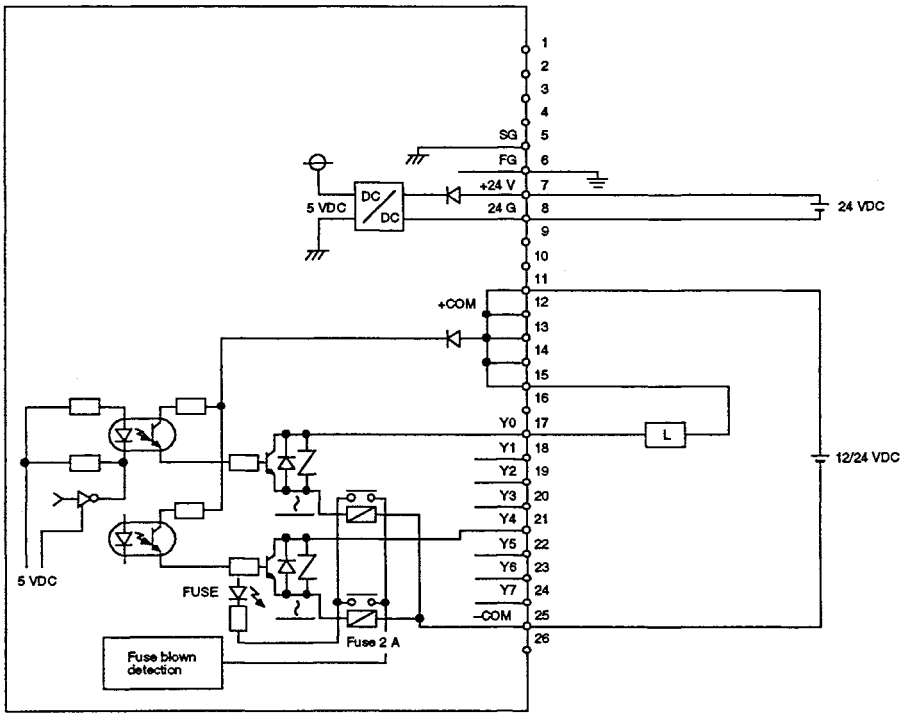
4.3.6 Type AJ35PJ-8T2 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type) AJ35PJ-8T2
Number of input points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.5 A/point, 3.2 A/common (1.6 A/fuse)
Max. inrush current		7 A 10 ms or less, 3.5 A 100 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP), 0.5 A, 1.5 V (or lower), 0.5 A
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Varistor (52 to 62 V)
Fuse rating		Fast-melting fuse 2 A (2 fuses per common) MP-20
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminal: TB25)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.05 A
Output external power supply	Voltage	10.2 to 31.2 VDC
	Current	0.065 A (TYP) 24 VDC
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



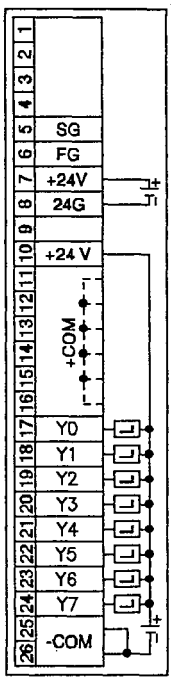
External Connection



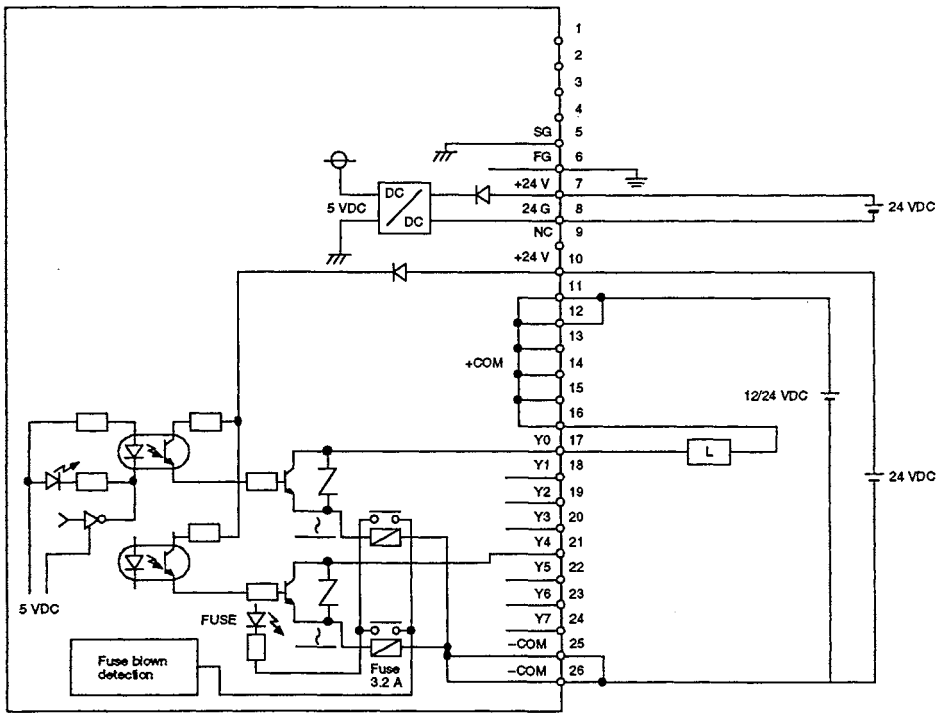
Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	Vacant
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	Vacant

4.3.7 Type AJ35PJ-8T3 transistor output unit (sink type)

Specifications \ Model Type		Transistor Output Unit (Sink Type) AJ35PJ-8T3	Terminal Arrangement
Number of output points		8 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 VDC *1	
Operating load voltage range		21.6 to 31.2 VDC (10.2 to 31.2 VDC) *1	
Max. load current		2 A/point, 6 A/common (3 A/fuse)	
Max. inrush current		6 A 100 ms or less, 10 A 10 ms or less	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		1.5 V (2 A)	
Response time	OFF → ON	2 ms or less	
	ON → OFF	2 ms or less (resistive load)	
Surge suppression		Varistor (108 to 132 V)	
Fuse rating		Fast-melting fuse 3.2 A (2 fuses per common) MP-32	
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)	
Common method		8 points/common (Common terminals: TB25, TB26)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 x 6 screws)	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 60 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	0.05 A	
Output external power supply	Voltage	21.6 to 31.2 VDC	
	Current	0.065 A (TYP) 24 VDC	
Weight kg (lb)		2.3 (5.06)	



External Connection



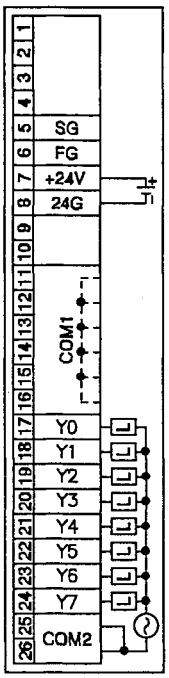
Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	+24V
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	+COM
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	-COM

*1: When 12 VDC is used as a load power supply, 24 VDC is required separately as an output external supply power. In this case, note that the negative terminals are at the same potential as shown above.

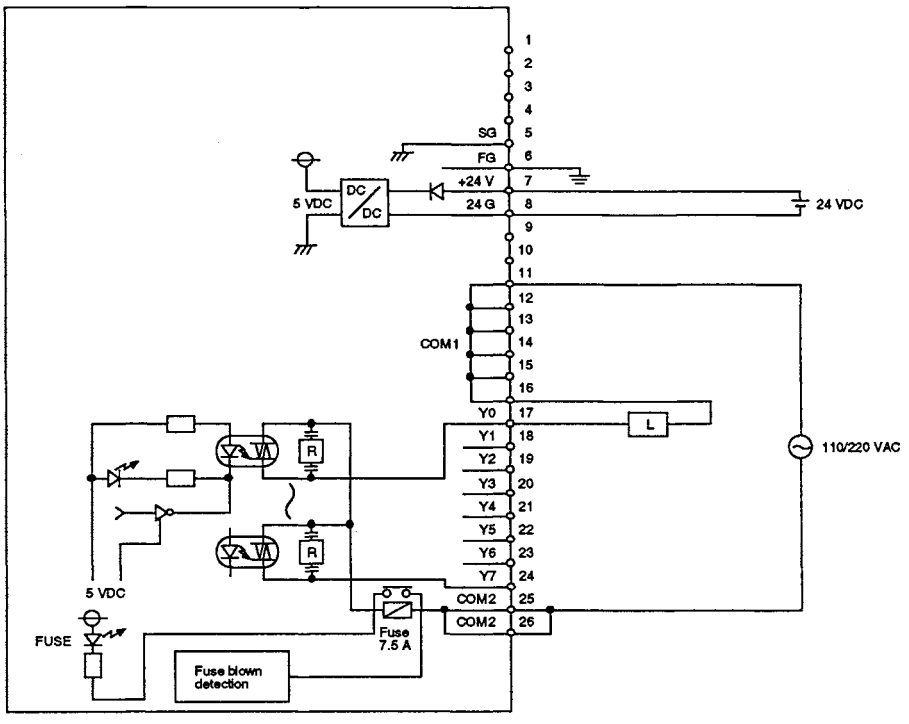
4.3.8 Type AJ35PJ-8S2 triac output unit

Specifications \ Type		Triac Output Unit: AJ35PJ-8S2
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 VAC, 50/60 Hz ±5 %
Max. load voltage		264 VAC
Max. load current		2 A/point, 5 A/common
Min. load voltage/current		24 VAC/100 mA, 100 VAC/10 mA, 240 VAC/20 mA
Max. inrush current		40 A 10 ms or less, 15 A 100 ms or less
Leakage current at OFF		1.5 mA (120 VAC, 60 Hz), 3.0 mA (240 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (1 to 2 A); 1.8 V or lower (0.2 to 1 A); 5 V or lower (0.2 A or lower)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Fuse rating		Fast-melting fuse 7.5 A (1 fuse per common) GP75R
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminals: TB25, TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.08 A
Weight kg (lb)		2.4 (5.28)

Terminal Arrangement



External Connections



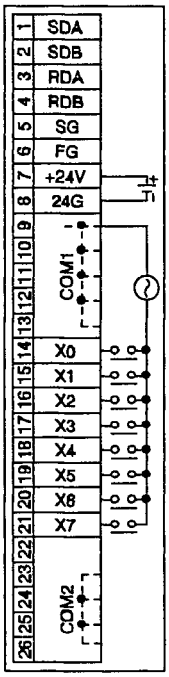
Terminal No.	Signal Name
TB1	Reserved
TB2	Reserved
TB3	Reserved
TB4	Reserved
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

4.4 Stand-Alone Remote I/O Units (For Use with Twisted-Pair Data Links)

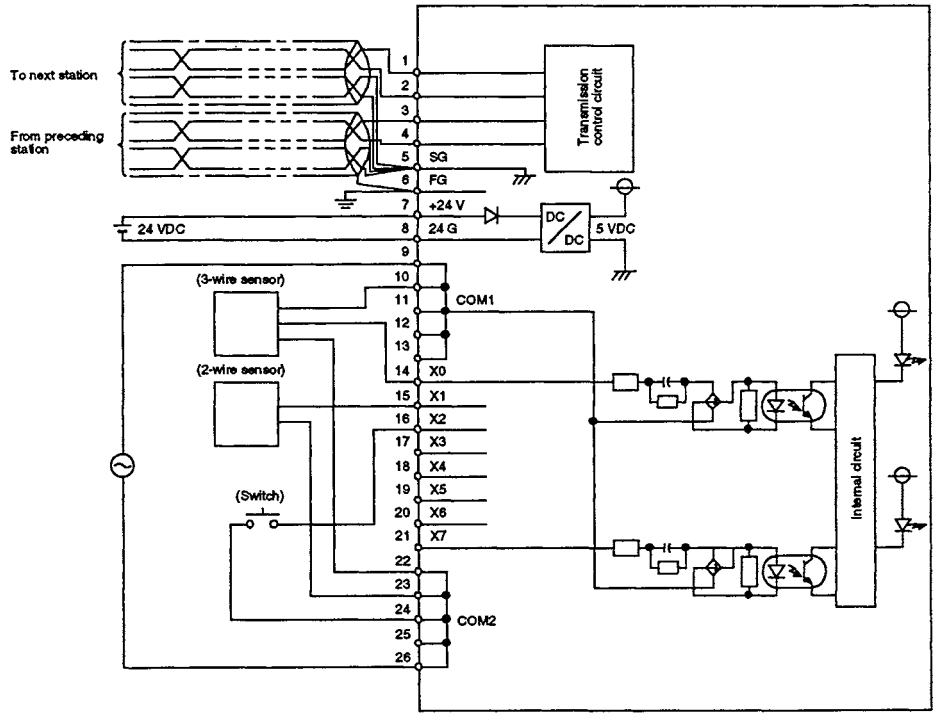
4.4.1 Type AJ35TJ-8A AC input unit

Specifications \ Type		AC Input Unit
		AJ35TJ-8A
Number of input points		8 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC, 50/60 Hz
Rated input current		10 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
Max. simultaneous ON input points		100 % (8 points) simultaneously ON
Inrush current		300 mA or lower within 0.3 ms (132 VAC)
ON voltage/ON current		80 VAC or higher/6 mA or higher
OFF voltage/OFF current		40 VAC or lower/4 mA or lower
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less
	ON → OFF	25 ms or less
Common method		8 points/common (Common terminals: TB9 to TB13)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.05 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

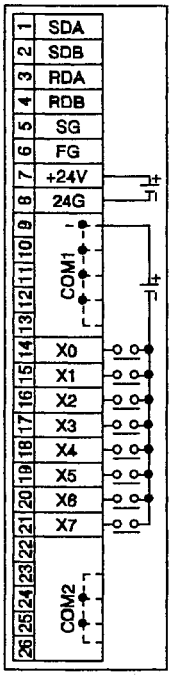


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	COM1
TB10	COM1
TB11	COM1
TB12	COM1
TB13	COM1
TB14	X0
TB15	X1
TB16	X2
TB17	X3
TB18	X4
TB19	X5
TB20	X6
TB21	X7
TB22	COM2
TB23	COM2
TB24	COM2
TB25	COM2
TB26	COM2

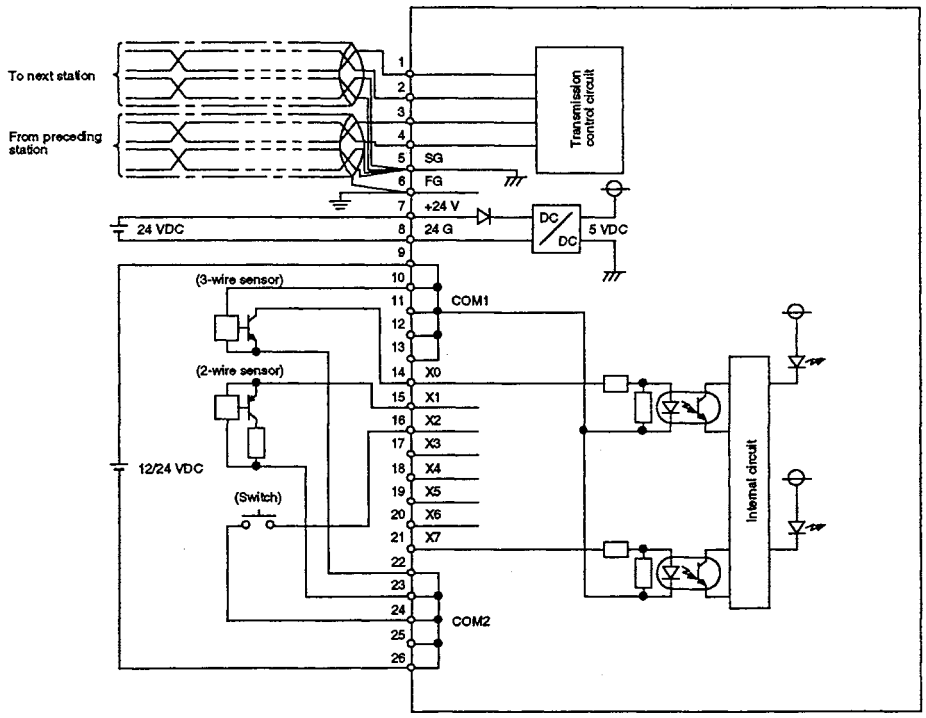
4.4.2 Type AJ35TJ-8D DC input unit (sink type)

Specifications \ Type		DC Input Unit (Sink Type)	
		AJ35TJ-8D	
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		4 mA	10 mA
Operating voltage range		10.2 to 31.2 VDC (Ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 % (8 points) simultaneously ON	
ON voltage/ON current		9.5 VDC or higher/3 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.5 mA or lower	
Input resistance		Approx. 2.4 kΩ	
Response time	OFF → ON	10 ms or less	
	ON → OFF	10 ms or less	
Common method		8 points/common (Common terminals: TB9 to TB13)	
Operation indication		ON indication (LED)	
External wiring system		26-point terminal block (M3 x 6 screws)	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Number of stations occupied		1 station	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	0.05 A	
Weight kg (lb)		2.2 (4.84)	

Terminal Arrangement



External Connections

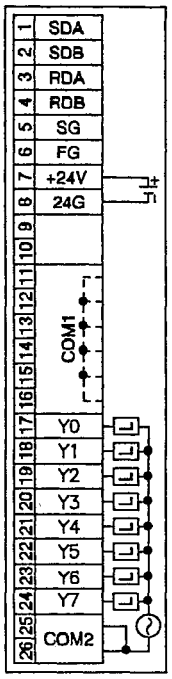


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	COM1
TB10	COM1
TB11	COM1
TB12	COM1
TB13	COM1
TB14	X0
TB15	X1
TB16	X2
TB17	X3
TB18	X4
TB19	X5
TB20	X6
TB21	X7
TB22	COM2
TB23	COM2
TB24	COM2
TB25	COM2
TB26	COM2

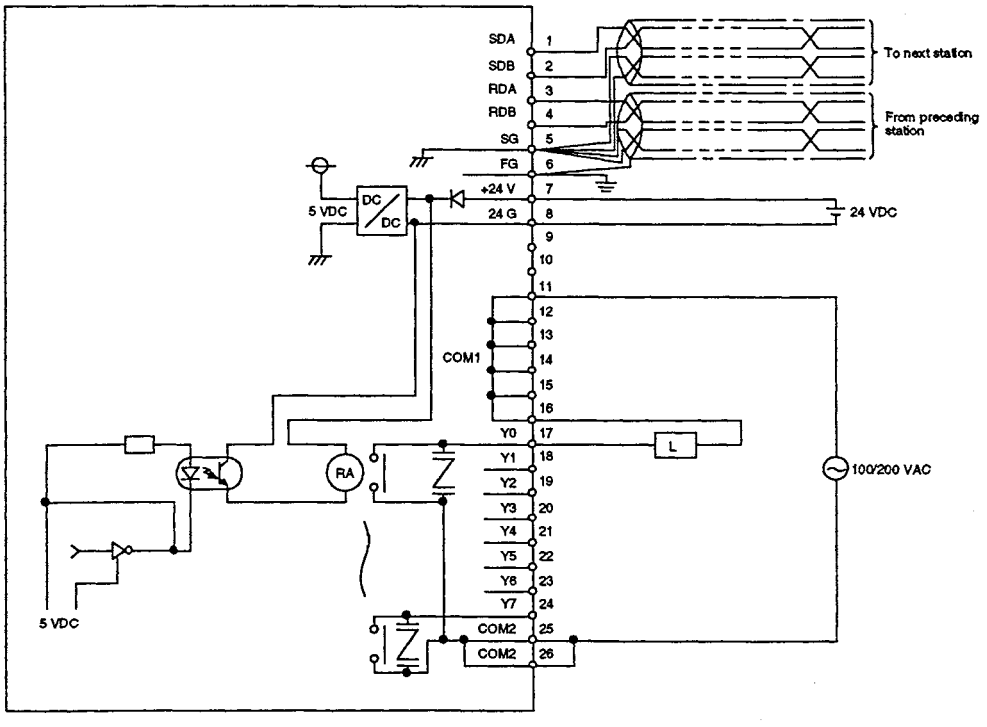
4.4.3 Type AJ35TJ-8R contact output unit

Specifications \ Type		Contact Output Unit: AJ35TJ-8R
Number of output points		8 points
Isolation method		Photocoupler
Rated switching voltage/ current		24 VDC, 2 A (resistive load) / 1 point, 8 A/common 240 VAC, 2A (COSϕ = 1)
Max. switching load		5 VDC, 1 mA
Max. switching voltage		250 VAC, 125 VDC
Leakage current at OFF		0.5 mA (120 VAC, 60 Hz), 1.0 mA (240 VAC, 60 Hz)
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current load: More than 20,000 times
		200 VAC/1.5 A, 240 VAC/1 A (COSϕ = 0.7): More than 20,000 times
		200 VAC/1 A, 240 VAC/0.5 A (COSϕ = 0.35): More than 20,000 times
		24 VDC/1 A, 100 VDC/0.1 A (L/R = 7 ms): More than 20,000 times
Max. switching frequency		3600 times/hour
Surge suppression		Capacitive varistor (430 V)
Common method		8 points/common (Common terminals: TB25 to TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	20.4 to 31.2 VDC
	Current	0.13 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

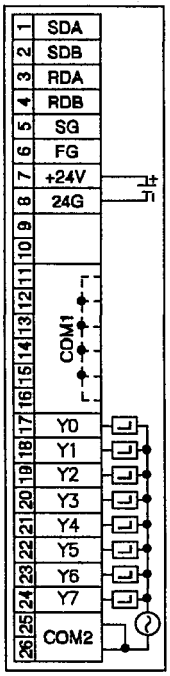


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

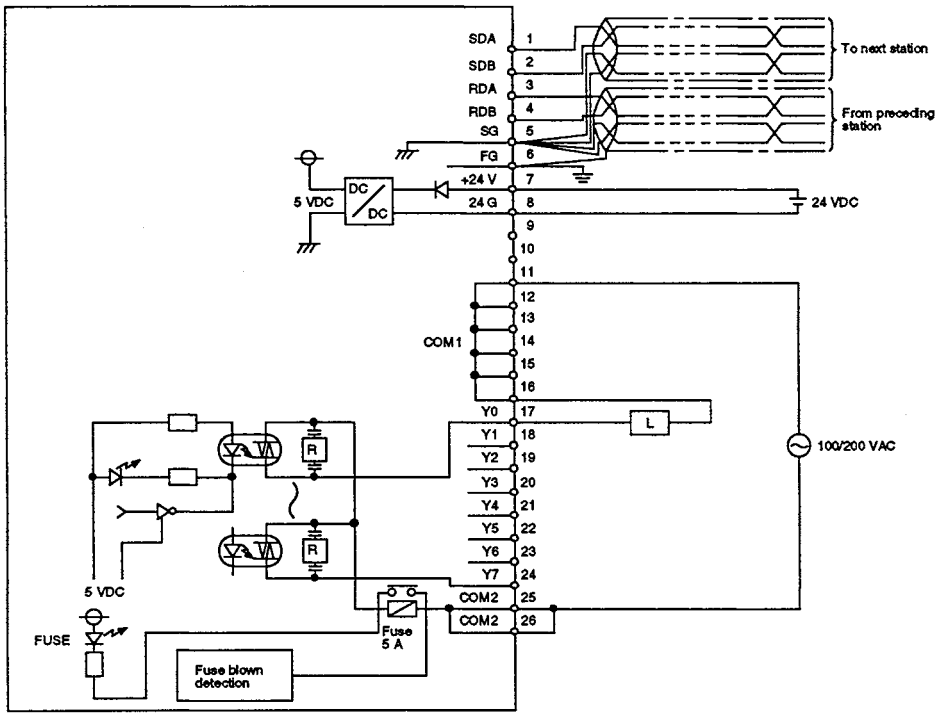
4.4.4 Type AJ35TJ-8S1 triac output unit

Specifications \ Type		Triac Output Unit AJ35TJ-8S1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Max. load voltage		264 VAC
Max. load current		0.6 A/point, 4 A/common
Min. load voltage/current		24 VAC/100 mA, 100 VAC/10 mA, 240 VAC/10 mA
Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Leakage current at OFF		1.5 mA (120 VAC, 60 Hz), 3.0 mA (240 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (100 to 600 mA), 1.8 V or lower (50 to 100 mA), 2 V or lower (10 to 50 mA)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Fuse rating		Fast-melting fuse 5 A (1 fuse per common) HP-50
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminals: TB25 to TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.09 A
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

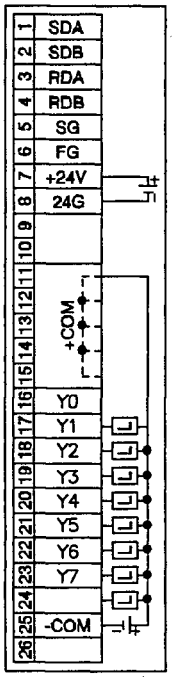


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

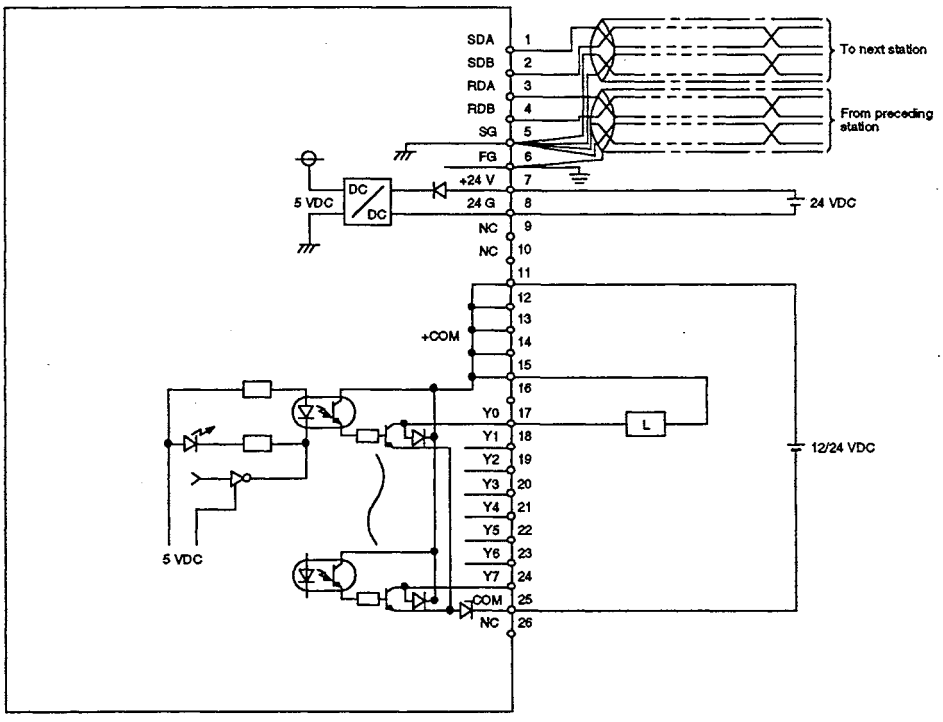
4.4.5 Type AJ35TJ-8T1 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type) AJ35TJ-8T1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.1 A/point, 0.8 A/common
Max. inrush current		0.4 A, 100 ms or less
Leakage current at OFF		0.1 mA or less
Max. voltage drop at ON		2.5 V (0.1 A), 1.75 V (5 mA), 1.7 V (1 mA)
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Clamp diode
Common method		8 points/common (Common terminal: TB25)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.06 A
Output external power supply	Voltage	10.2 to 31.2 VDC
	Current	0.03 A (TYP) 24 VDC
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

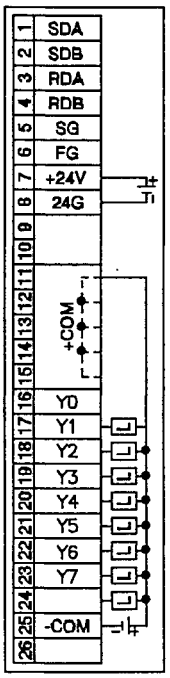


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	Vacant
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	Vacant

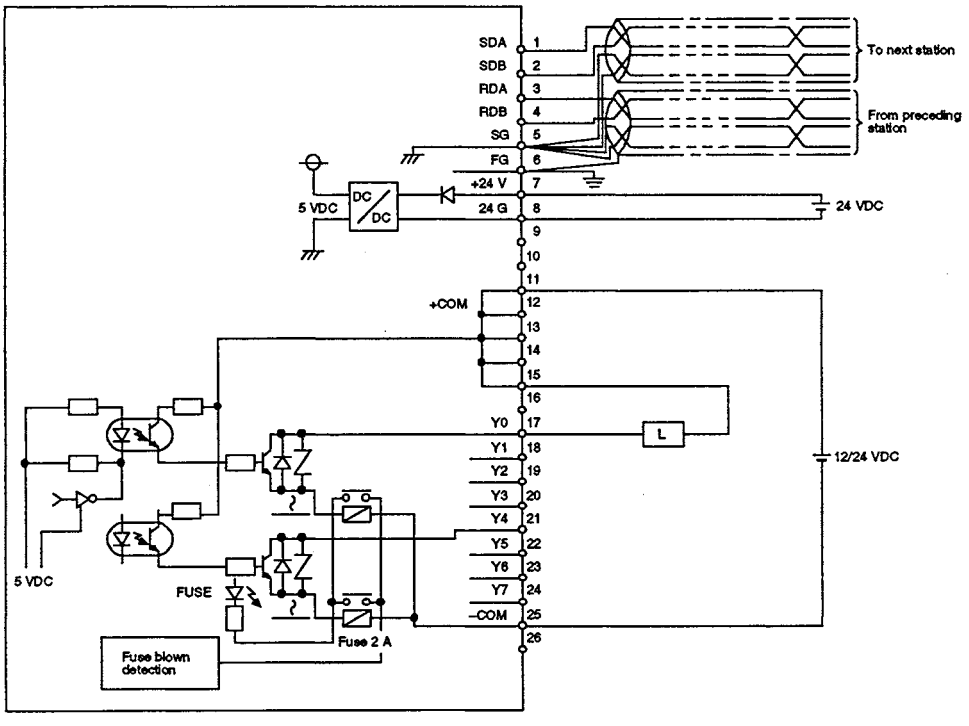
4.4.6 Type AJ35TJ-8T2 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type) AJ35TJ-8T2
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.5 A/point, 3.2 A/common (1.6 A/fuse)
Max. inrush current		7 A 10 ms or less, 3.5 A 100 ms or less
Leakage current at OFF		0.1 mA or less
Max. voltage drop at ON		0.9 V (TYP) 0.5 A, 1.5 V (MAX) 0.5 A
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Varistor (52 to 62 V)
Fuse rating		Fast-melting fuse 2 A (2 fuses per common) MP-20
Blown fuse indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminal: TB25)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.06 A
Output external power supply	Voltage	10.2 to 31.2 VDC
	Current	0.065 A (TYP) 24 VDC
Weight kg (lb)		2.2 (4.84)

Terminal Arrangement



External Connection

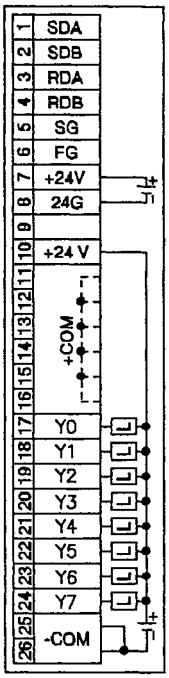


Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	Vacant
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	Vacant

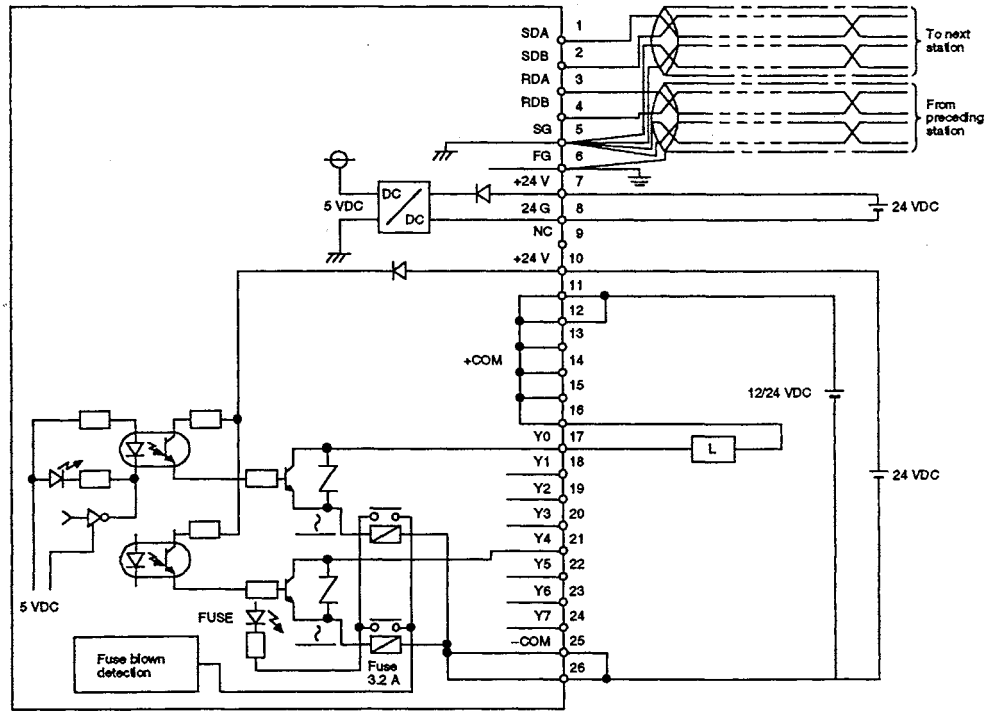
4.4.7 Type AJ35TJ-8T3 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type) AJ35TJ-8T3
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC *1
Operating load voltage range		21.6 to 31.2 VDC (10.2 to 31.2 VDC) *1
Max. load current		2 A/point, 6 A/common (3 A/fuse)
Max. inrush current		6 A 100 ms or less, 10 A 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		1.5 V (2 A)
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Varistor (108 to 132 V)
Fuse rating		Fast-melting fuse 3.2 A (2 fuses per common) MP-32
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminals: TB25, TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.06 A
Output external power supply	Voltage	21.6 to 31.2 VDC
	Current	0.065 A (TYP) 24 VDC
Weight kg (lb)		2.3 (5.06)

Terminal Arrangement



External Connection



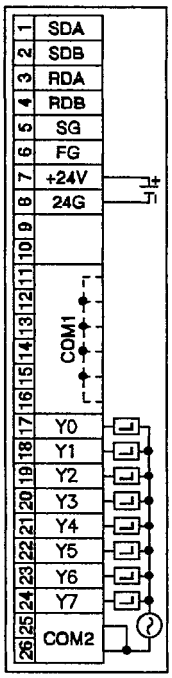
Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	+24V
TB11	+COM
TB12	+COM
TB13	+COM
TB14	+COM
TB15	+COM
TB16	+COM
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	-COM
TB26	-COM

*1: When 12 VDC is used as a load power supply, 24 VDC is required separately as an output external supply power. In this case, note that the negative terminals are at the same potential as shown above.

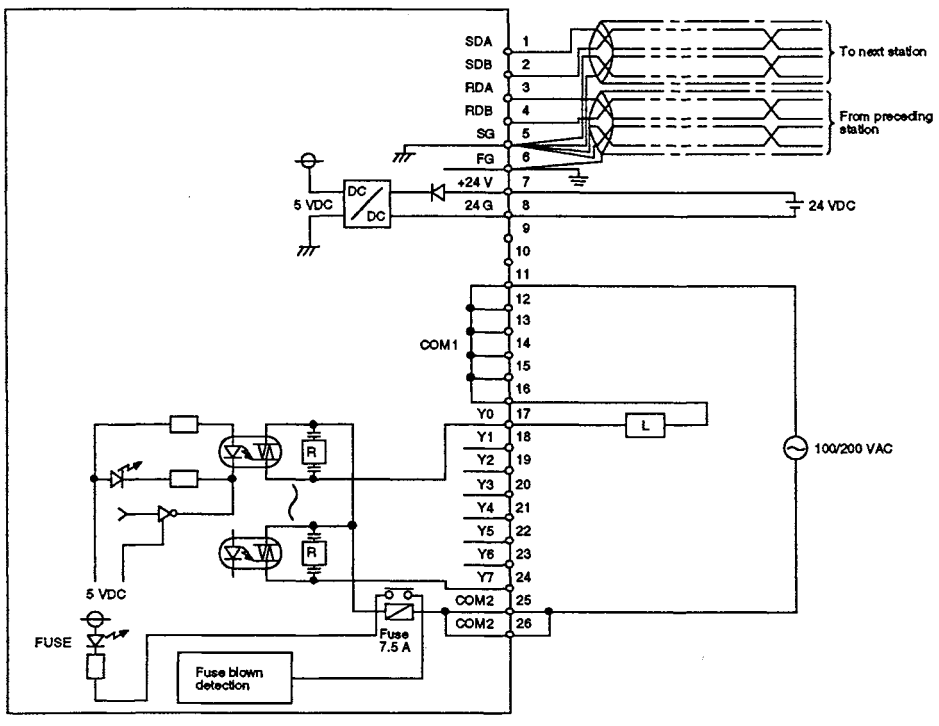
4.4.8 Type AJ35TJ-8S2 triac output unit

Specifications \ Type		Triac Output Unit: AJ35TJ-8S2
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 VAC, 50/60 Hz ±5 %
Max. load voltage		264 VAC
Max. load current		2 A/point, 5 A/common
Min. load voltage/current		24 VAC/100 mA, 100 VAC/10 mA, 240 VAC/20 mA
Max. inrush current		40 A 10 ms or less, 15 A 100 ms or less
Leakage current at OFF		1.5 mA (120 VAC, 60 Hz), 3.0 mA (240 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (1 to 2 A) 1.8 V or lower (0.2 to 1 A) 5 V or lower (0.2 A or lower)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Fuse rating		Fast-melting fuse 7.5 A (1 fuse per common) GP75R
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Common method		8 points/common (Common terminals: TB25, TB26)
Operation indication		ON indication (LED)
External wiring system		26-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		1 station
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	0.09 A
Weight kg (lb)		2.4 (5.28)

Terminal Arrangement



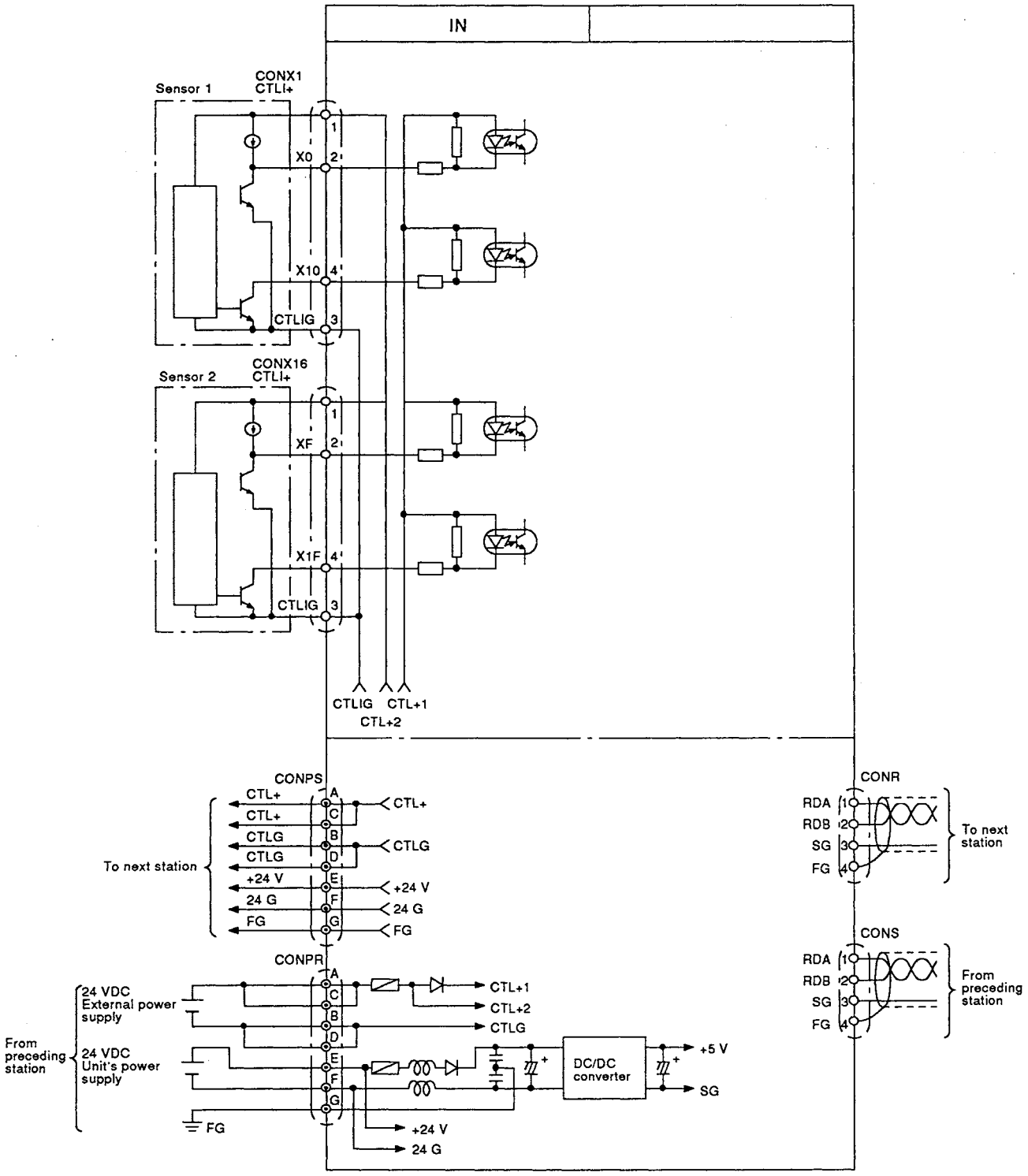
External Connection



Terminal No.	Signal Name
TB1	SDA
TB2	SDB
TB3	RDA
TB4	RDB
TB5	SG
TB6	FG
TB7	+24V
TB8	24G
TB9	Vacant
TB10	Vacant
TB11	COM1
TB12	COM1
TB13	COM1
TB14	COM1
TB15	COM1
TB16	COM1
TB17	Y0
TB18	Y1
TB19	Y2
TB20	Y3
TB21	Y4
TB22	Y5
TB23	Y6
TB24	Y7
TB25	COM2
TB26	COM2

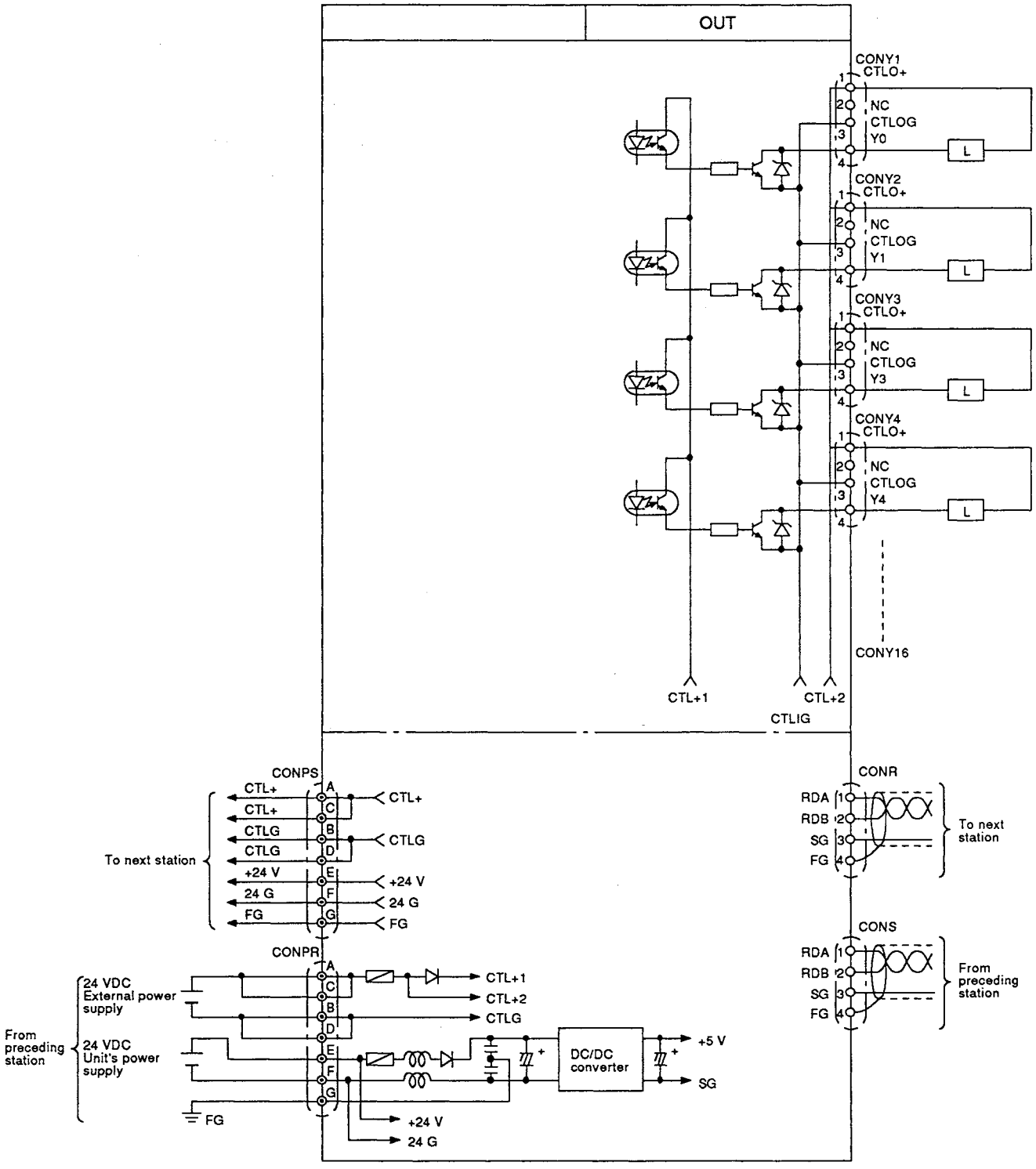
4.4.9 Type AJ35TJ-16 transistor output unit (sink type)

Specifications \ Type		Transistor Output Unit (Sink Type)
		AJ35TJ-16T
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.3 A/point
Max. inrush current		1.2 A 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP) 0.3 A 1.5 V (MAX) 0.3 A
Output form		Sink type
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Surge suppression		Diode with built-in transistor
Common method		16 points/common
Operation indication		ON indication (LED)
External wiring system		Connector
Applicable wire size		0.2 to 0.5 mm^2
Number of stations occupied		2 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	200 mA
Output external power supply	Voltage	10.2 to 31.2 VDC
	Current	2.9 A
Protection structure		Drip-proof structure conforming to IP54 (JEM1030)
Weight kg (lb)		2.6 (5.72)


IN
Sensor 1
CONX1
CTLI+
X0
X10
CTLIG
Sensor 2
CONX16
CTLI+
XF
X1F
CTLIG
CTLIG
CTL+1
CTL+2
CONPS
CTL+
CTL+
CTLG
CTLG
+24 V
24 G
FG
To next station
CTL+
CTLG
+24 V
24 G
FG
CONPR
24 VDC
External power
supply
24 VDC
Unit's power
supply
From
preceding
station
CTL+1
CTL+2
CTLG
+24 V
24 G
FG
DC/DC
converter
+5 V
SG
CONR
RDA
RDB
SG
FG
To next
station
CONS
RDA
RDB
SG
FG
From
preceding
station

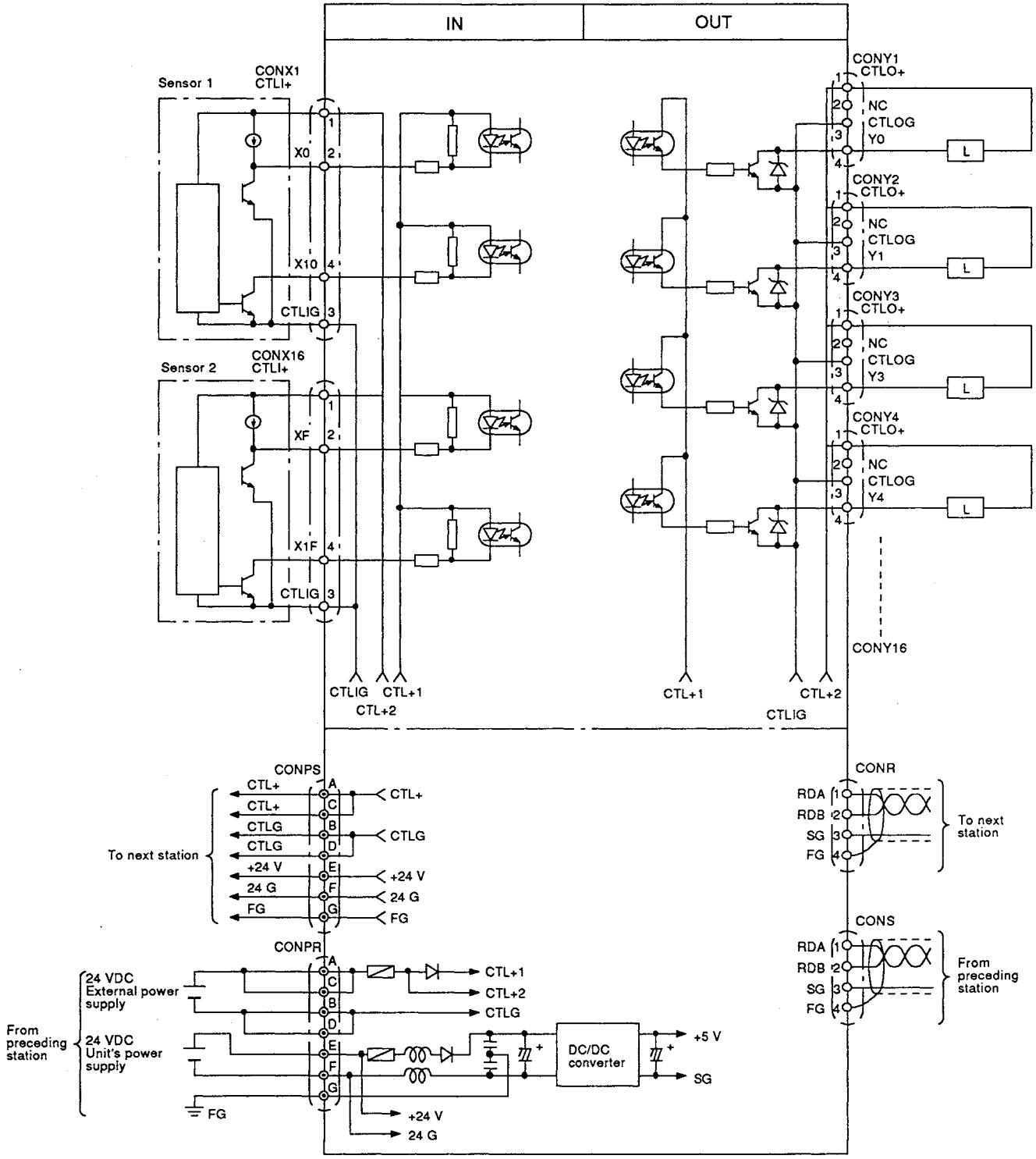
4.4.10 Type AJ35TJ-32D DC input unit

Specifications \ Type		DC Input Unit (Sink Type)	
		AJ35TJ-32D	
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio: within 5 %)	
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		32 points/common	
Operation indication		ON indication (LED)	
External wiring system		Connector	
Applicable wire size		0.2 to 0.5 mm^2 (18 to 14 AWG)	
Number of stations occupied		4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	250 mA	
Output external power supply	Voltage	10.2 to 31.2 VDC	
	Current	1.7 A	
Protection structure		Drip-proof structure conforming to IP54 (JEM1030)	
Weight kg (lb)		2.9 (6.36)	


OUT
CONY1
CTLO+
NC
CTLOG
Y0
L
CONY2
CTLO+
NC
CTLOG
Y1
L
CONY3
CTLO+
NC
CTLOG
Y3
L
CONY4
CTLO+
NC
CTLOG
Y4
L
CONY16
CTL+1
CTL+2
CTLIG
CONPS
CTL+
CTL+
CTLG
CTLG
+24 V
24 G
FG
To next station
CTL+
CTLG
+24 V
24 G
FG
CONPR
24 VDC
External power
supply
24 VDC
Unit's power
supply
From
preceding
station
FG
CTL+1
CTL+2
CTLG
DC/DC
converter
+5 V
SG
+24 V
24 G
CONR
RDA
RDB
SG
FG
To next
station
CONS
RDA
RDB
SG
FG
From
preceding
station

4.4.11 Type AJ35TJ-48DT I/O Unit (sink type)

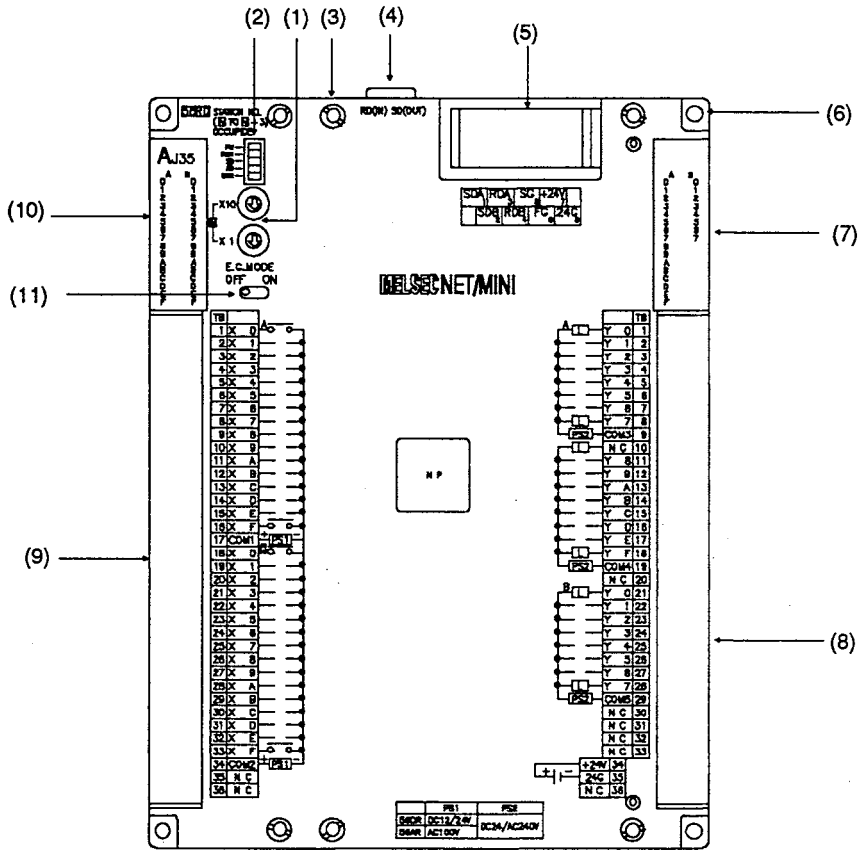
Type		DC Input (Sink Type) Transistor Output (Sink Type) Unit			
		AJ35TJ-48DT			
Input Specifications				Output Specifications	
Number of input points		32 points		Number of output points	16 points
Isolation method		Photocoupler		Isolation method	Photocoupler
Rated input voltage		12 VDC	24 VDC	Rated load voltage	12/24 VDC
Rated input current		3 mA	7 mA	Operating load voltage range	10.2 to 31.2 VDC
Operating voltage range		10.2 to 31.2 VDC (ripple ratio: within 5 %)		Max. load current	0.3 A/point
ON voltage/ ON current		9.5 VDC or higher/ 2.6 mA or higher		Max. inrush current	1.2 A 10 ms or shorter
OFF voltage/ OFF current		6 VDC or lower/ 1.0 mA or lower		Leakage current at OFF	0.1 mA or less
Input resistance		Approx. 3.4 kΩ		Max. voltage drop at ON	0.9 V (TYP) 0.3 A 1.5 V (MAX) 0.3 A
Input form		Sink type		Output form	Sink type
Response time	OFF → ON	10 ms or less (6 ms TYP)		Response time OFF → ON	2 ms or less
	ON → OFF	10 ms or less (7.5 ms TYP)		Response time ON → OFF	2 ms or less (resistive load)
Common method		48 points/common (common to inputs and outputs)		Surge suppression	Diode with built-in transistor
Operation indication		ON indication (LED)		Common method	48 points/common (common to inputs and outputs)
				Operation indication	ON indication (LED)
External wiring system		Connector			
Applicable wire size		0.2 to 0.5 mm^2 (18 to 14 AWG)			
Number of stations occupied		4 stations			
I/O unit power supply	Voltage	15.6 to 31.2 VDC			
	Current	350 mA			
Output external power supply	Voltage	10.2 to 31.2 VDC			
	Current	4.7 A			
Protection structure		Drip-proof structure conforming to IP54 (JEM1030)			
Weight kg (lb)		3.0 (6.6)			


IN
OUT
Sensor 1
CONX1
CTLI+
X0
X10
CTLIG
Sensor 2
CONX16
CTLI+
XF
X1F
CTLIG
CONY1
CTLO+
NC
CTLOG
Y0
CONY2
CTLO+
NC
CTLOG
Y1
CONY3
CTLO+
NC
CTLOG
Y3
CONY4
CTLO+
NC
CTLOG
Y4
CONY16
L
CTLIG
CTL+1
CTL+2
CTLIG
CTL+1
CTL+2
CTLIG
CONPS
CTL+
CTL+
CTLG
CTLG
+24 V
24 G
FG
To next station
CTL+
CTLG
+24 V
24 G
FG
CONPR
24 VDC
External power
supply
24 VDC
Unit's power
supply
From
preceding
station
CTL+1
CTL+2
CTLG
DC/DC
converter
+5 V
SG
FG
+24 V
24 G
CONR
RDA
RDB
SG
FG
To next
station
CONS
RDA
RDB
SG
FG
From
preceding
station

5. COMPACT TYPE REMORT I/O UNIT SPECIFICATIONS

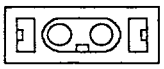
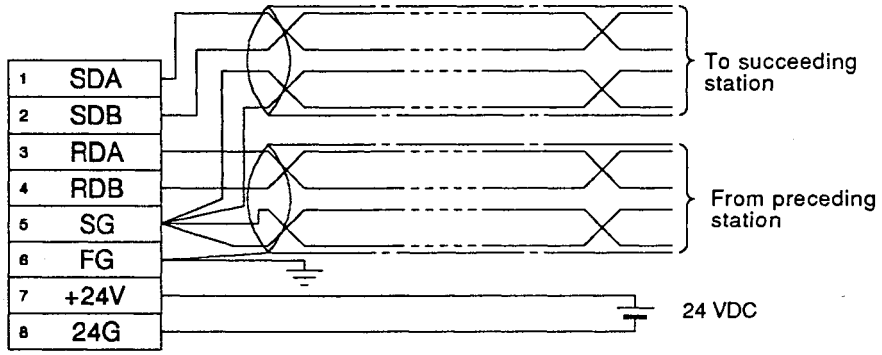
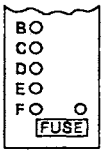
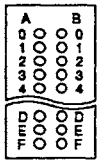
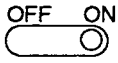
This section describes the names of the parts of compact type remote I/O units, and the specifications of input units, output units, and input/output composite units.

5.1 Nomenclature



(1)	Station number setting switches X10 N X1	• Used to set the remote I/O station number may be set between 1 and ((64 – the number of stations occupied) + 1). • X10 : Ten (10) digit of a station number • X1 : Units (1) digit of a station number
(2)	Operating status indicator LEDs PW RUN SD RD ERR.	

LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.
RUN	Lights while data communication is being performed with the master station normally.
SD	Flashes while data is being transmitted.
RD	Flashes while data is being received.
ERR.	Lights when a receive data error occurs; OFF during normal communication.

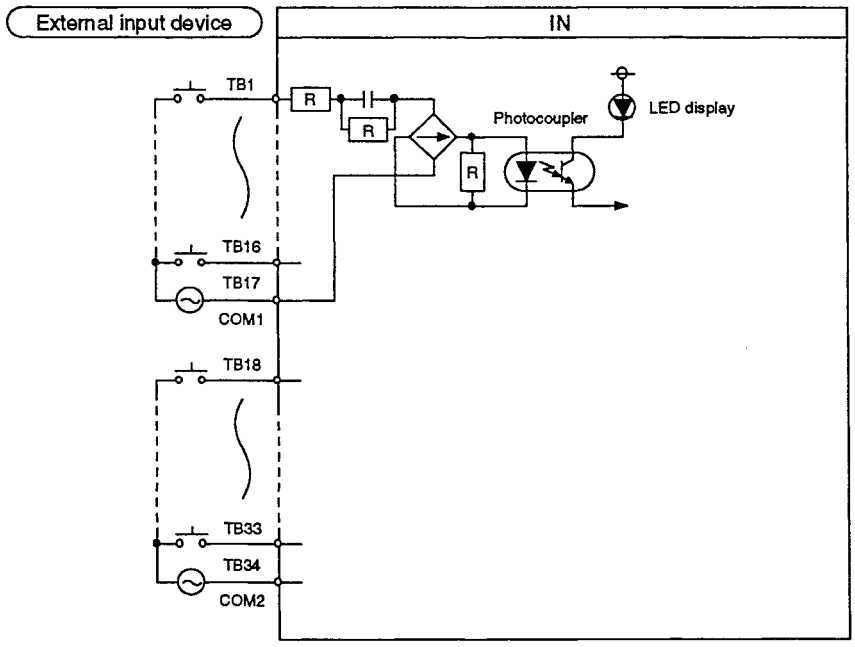
(3)	Cover installation screw	Special screw for fixing the front cover. Used as a nut (for M4 screw) when the other unit is fitted.
(4)	Optical fiber cable connector  RD (IN) SD (OUT)	For connecting the optical fiber cables when optical fiber cables are used to connect one station with another. (IN) RD : Connected to (OUT) SD of the preceding station (OUT) SD : Connected to (IN) RD of the succeeding station For connection, see the MELSECNET/MINI-S3 master module User's Manual.
(5)	Terminal block	For connecting twisted-pair cables when twisted-pair cables are used to connect one station with another, and for connting I/O unit power cables.  **REMARK** Twisted-pair cables are not required for optical data link. For details, see the MELSECNET/MINI-S3 master module User's Manual.
(6)	Unit installation hole	Used to install the I/O unit to panel. (For M4 screw, Tightening torque : 78 to 118 N·cm [8 to 12 kg·cm] (6.93 to 10.4 lb·inch)
(7)	Output indecator LEDs 	Indicate the output ON/OFF state and the output unit fuse (for only the unit with fuse) state. • Lit when the corresponding output is ON. • Lit when the fuse is blown.
(8)	Terminal block	For connecting the power and output signal cables. Removable. Tightening torque :Terminal screw (M3 screw) . . .49 to 78 N·cm [5 to 8 kg·cm] (4.33 to 6.93 lb·inch) :Terminal screw (M4 screw) . . .78 to 137 N·cm [8 to 14 kg·cm] (6.93 to 12.1 lb·inch)
(9)	Terminal block	For connecting the power and output signal cables. Removable. Tightening torque :Terminal screw (M3 screw) . . .49 to 78 N·cm [5 to 8 kg·cm] (4.33 to 6.93 lb·inch) :Terminal screw (M4 screw) . . .78 to 137 N·cm [8 to 14 kg·cm] (6.93 to 12.1 lb·inch)
(10)	Input indicator LEDs 	Indicate the output ON/OFF state. The indicator LED is lit when the corresponding input is ON.
(11)	E.C. MODE switch E.C. MODE 	Used to set whether outputs are retained or seitched OFF when I/O refresh is stopped.

5.2 Type AJ35PTF-32A Input Unit

Input Specifications		
Number of input points		32 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC, 50/60 Hz
Rated input current		10 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
ON voltage/ON current		80 VAC or higher/6 mA or higher
OFF voltage/OFF current		40 VAC or lower, 4 mA or lower
Inrush current		Max 300 mA within 0.3 ms (132 VAC)
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less (6 ms TYP)
	ON → OFF	35 ms or less (16 ms TYP)
Common method		16 points/common (Common terminals: TB17, TB34)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
Max simultaneous ON input points		100 % (16 points/common) simultaneously ON
External wiring system		36-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		4 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	110 mA
Weight kg (lb)		0.75 (1.65)

IN	
Terminal No.	Signal Name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	COM1
TB18	X10
TB19	X11
TB20	X12
TB21	X13
TB22	X14
TB23	X15
TB24	X16
TB25	X17
TB26	X18
TB27	X19
TB28	X1A
TB29	X1B
TB30	X1C
TB31	X1D
TB32	X1E
TB33	X1F
TB34	COM2
TB35	NC
TB36	NC

External Connection

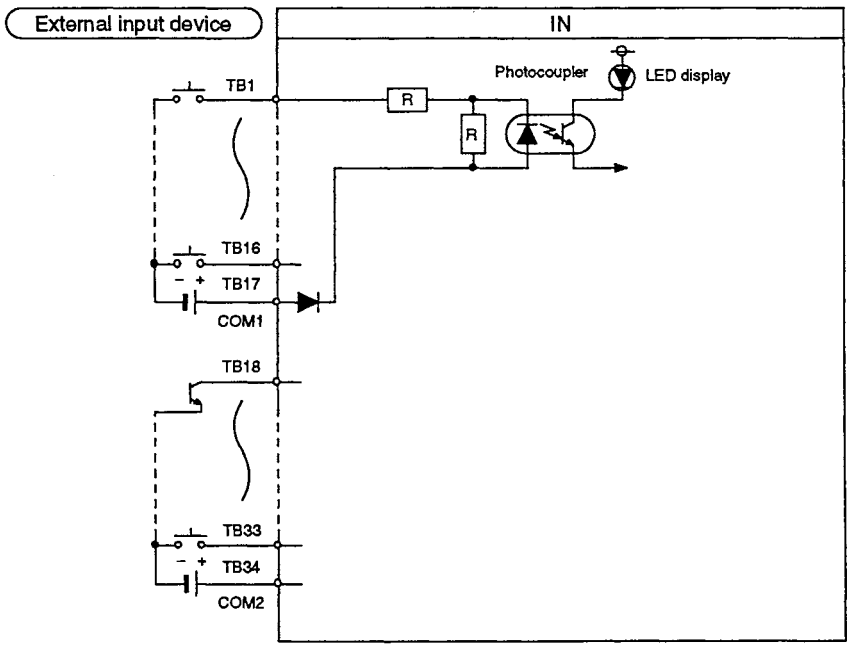


5.3 Type AJ35PTF-32D Input Unit

Input Specifications			
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VAC (Ripple ratio: within 5 %)	
ON voltage/ON current		9.5 VDC or higher, 2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower, 10 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		16 points/common (Common terminals: TB17, TB34)	
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	
Max simultaneous ON input points		75 % (12 points/common) simultaneously ON	
External wiring system		36-point terminal block (M3 x 6 screws)	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	
Number of stations occupied		4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	110 mA	
Weight kg (lb)		0.70 (1.54)	

IN	
Terminal No.	Signal Name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	COM1
TB18	X10
TB19	X11
TB20	X12
TB21	X13
TB22	X14
TB23	X15
TB24	X16
TB25	X17
TB26	X18
TB27	X19
TB28	X1A
TB29	X1B
TB30	X1C
TB31	X1D
TB32	X1E
TB33	X1F
TB34	COM2
TB35	NC
TB36	NC

External Connection

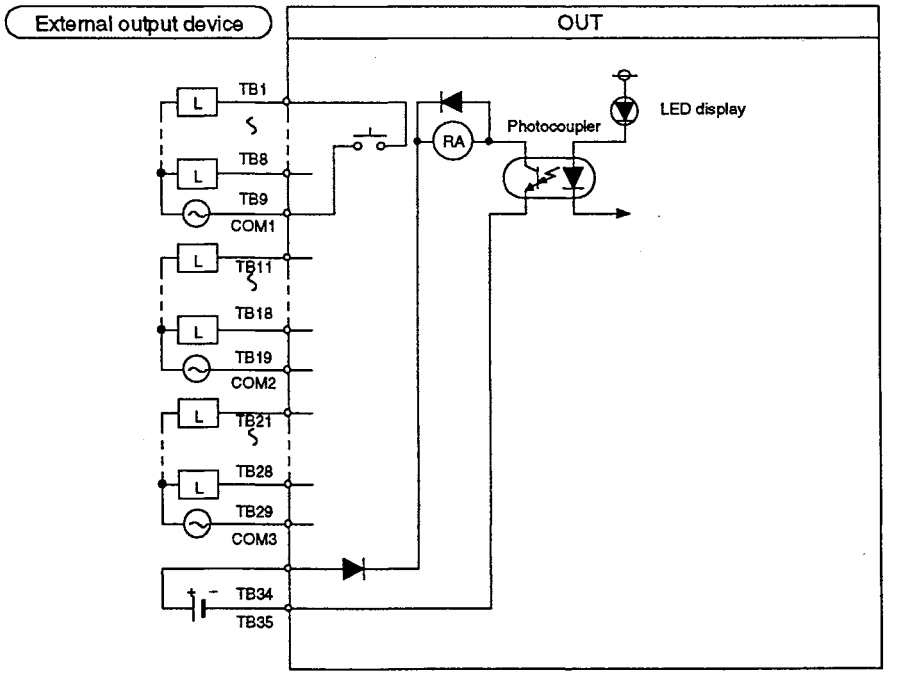


5.4 Type AJ35PTF-24R Output Unit

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC 2 A (load resistance) / 1 point, 240 VAC 2 A (COSϕ = 1) / 5 A/common
Min. switching load		5 VDC 1 mA
Max. switching voltage		264 VAC 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage/current loads More than 200000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 200000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 200000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Output external supply power (Power for driving relay coil)	Voltage	24 VDC ±10 %, ripple ratio: 4 Vp-p or less
	Current	220 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points/common (Common terminals: TB9, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
External wiring system		36-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		4 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	120 mA
Weight kg (lb)		0.80 (1.76)

OUT	
Terminal No.	Signal Name
TB1	Y00
TB2	Y01
TB3	Y02
TB4	Y03
TB5	Y04
TB6	Y05
TB7	Y06
TB8	Y07
TB9	COM1
TB10	NC
TB11	Y08
TB12	Y09
TB13	Y0A
TB14	Y0B
TB15	Y0C
TB16	Y0D
TB17	Y0E
TB18	Y0F
TB19	COM2
TB20	NC
TB21	Y10
TB22	Y11
TB23	Y12
TB24	Y13
TB25	Y14
TB26	Y15
TB27	Y16
TB28	Y17
TB29	COM3
TB30	NC
TB31	NC
TB32	NC
TB33	NC
TB34	24 VDC
TB35	24GDC
TB36	NC

External Connection

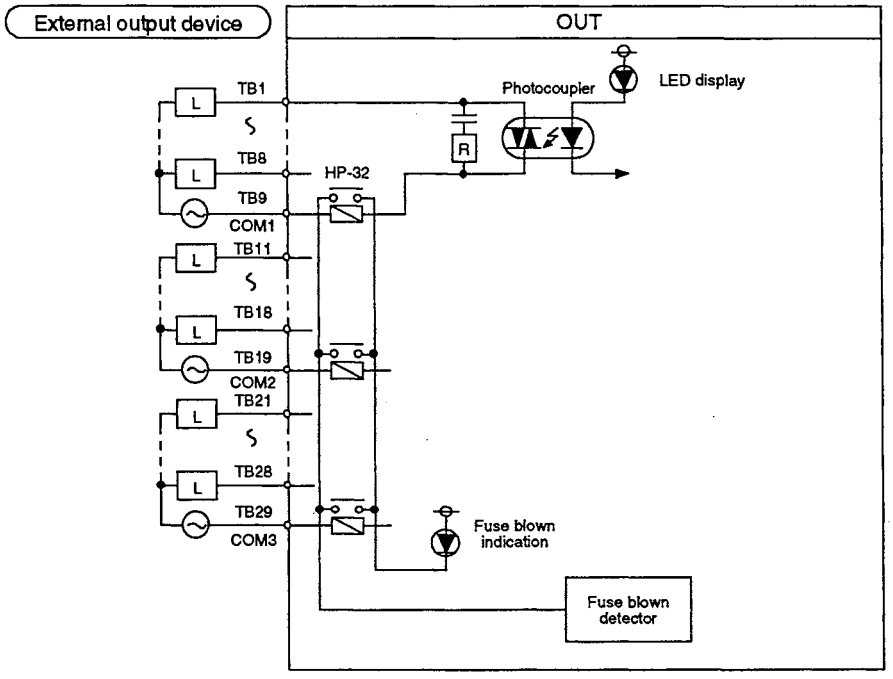


5.5 Type AJ35PTF-24S Output Unit

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated switching voltage/current		100 to 240 VAC 40 to 70 Hz
Max. load voltage		264 VAC
Max. load current		0.6 A/point, 2.4 A/common
Min. load voltage/current		24 VAC/100 mA, 100 /240 VAC 10 mA
Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Leakage current at OFF		1.5 mA (120 VAC, 60 Hz) 3.0 mA (240 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (0.1 to 0.6 A), 1.8 V or lower (50 to 100 mA), 2.0 V or lower (10 to 50 mA)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Fuse rating		Fast-melting fuse 3.2 A (1 fuse per common) HP-32
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Common method		8 points/common (Common terminals: TB8, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
External wiring system		36-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		4 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	200 mA
Weight kg (lb)		0.83 (1.83)

OUT	
Terminal No.	Signal Name
TB1	Y00
TB2	Y01
TB3	Y02
TB4	Y03
TB5	Y04
TB6	Y05
TB7	Y06
TB8	Y07
TB9	COM1
TB10	NC
TB11	Y08
TB12	Y09
TB13	Y0A
TB14	Y0B
TB15	Y0C
TB16	Y0D
TB17	Y0E
TB18	Y0F
TB19	COM2
TB20	NC
TB21	Y10
TB22	Y11
TB23	Y12
TB24	Y13
TB25	Y14
TB26	Y15
TB27	Y16
TB28	Y17
TB29	COM3
TB30	NC
TB31	NC
TB32	NC
TB33	NC
TB34	NC
TB35	NC
TB36	NC

External Connection

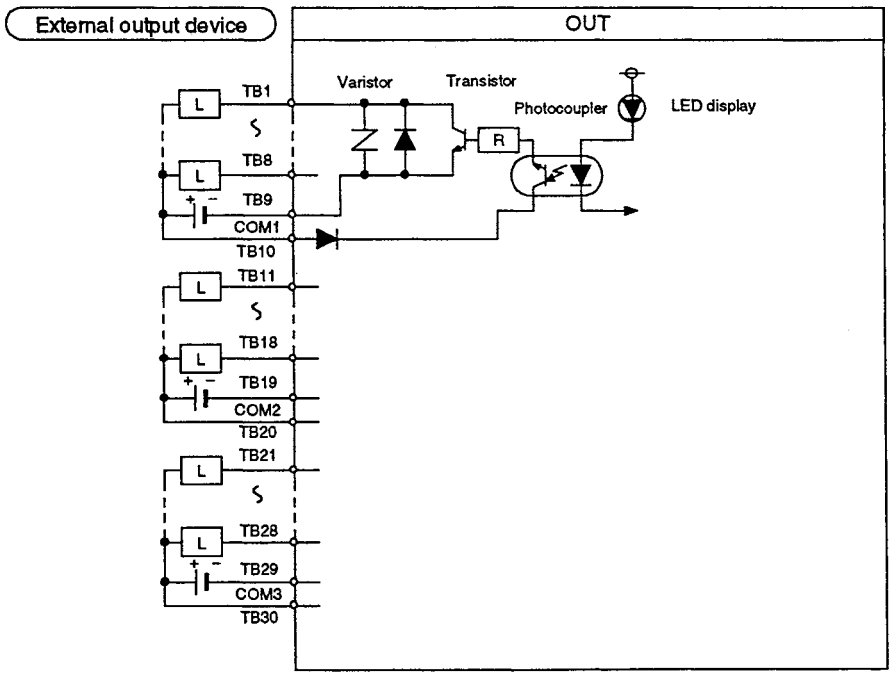


5.6 Type AJ35PTF-24T Output Unit

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operation load voltage range		10.2 to 31.2 VDC
Max. load current		0.5 A/point, 3.2 A/common
Max. inrush current		4 A, 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP) 0.5 A 1.5 V (MAX) 0.5 A
Output form		Sink type
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
External power supply	Voltage	12/24 VDC (10.2 to 31.2 VDC)
	Current	23 mA (TYP 24 VDC 8 points/common ON)
Surge suppression		Varistor (52 to 62 V)
Common method		8 points/common (Common terminals: TB9, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
External wiring system		36-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque: 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3
Number of stations occupied		4 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	130 mA
Weight kg (lb)		0.73 (1.61)

OUT	
Terminal No.	Signal Name
TB1	Y00
TB2	Y01
TB3	Y02
TB4	Y03
TB5	Y04
TB6	Y05
TB7	Y06
TB8	Y07
TB9	COM1
TB10	12/24VDC
TB11	Y08
TB12	Y09
TB13	Y0A
TB14	Y0B
TB15	Y0C
TB16	Y0D
TB17	Y0E
TB18	Y0F
TB19	COM2
TB20	12/24VDC
TB21	Y10
TB22	Y11
TB23	Y12
TB24	Y13
TB25	Y14
TB26	Y15
TB27	Y16
TB28	Y17
TB29	COM3
TB30	12/24VDC
TB31	NC
TB32	NC
TB33	NC
TB34	NC
TB35	NC
TB36	NC

External Connection



5.7 Type AJ35PTF-28AR I/O Unit

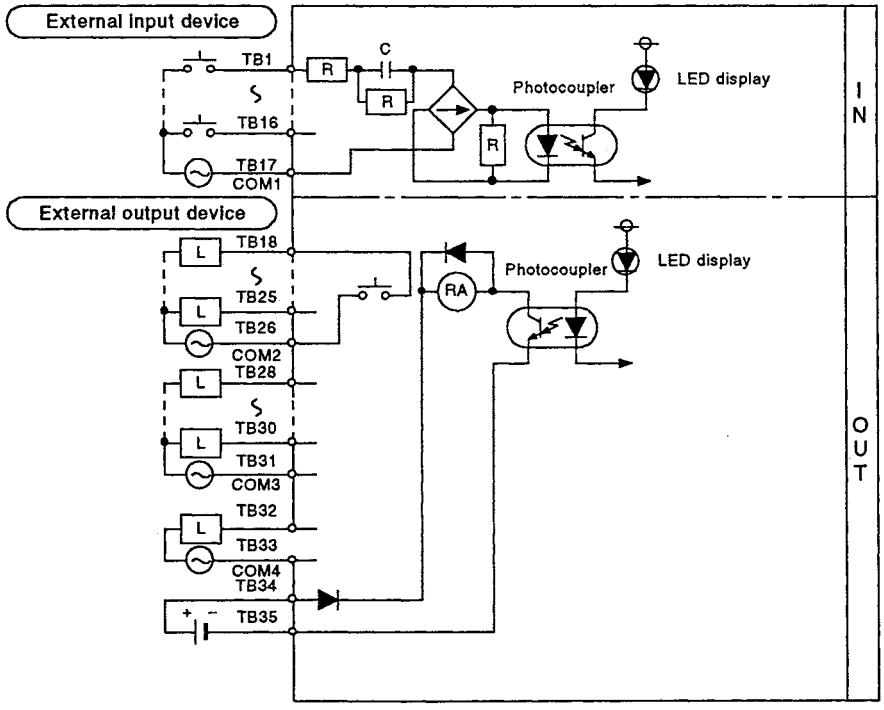
Input Specifications		
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC 50/60 Hz
Rated input current		10 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
ON voltage/ON current		80 VAC or higher/6 mA or higher
OFF voltage/OFF current		40 VAC or lower/4 mA or lower
Inrush current		Max. 300 mA, within 0.3 ms (132 VAC)
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less (6 ms TYP)
	ON → OFF	25 ms or less (16 ms TYP)
Common method		16 points/common (common terminal : TB17)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
Max. simultaneous ON input points		100 % simultaneously ON (16 points/common)

Output Specifications		
Number of output points		12 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC 2 A (resistive load) / 1 point, 240 VAC/2 A (cosϕ = 1) / 5 A/common
Min. switching load		5 VDC/1 mA
Max. switching voltage		264 VAC 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage and current loads: More than 200,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Output external supply power (Power for driving relay coil)	Voltage	24 VDC ±10 %, ripple voltage: 4 Vp-p or less
	Current	110 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points/common (common terminal :TB26) 3 points/common (common terminal :TB31) independent contact(common terminal :TB33)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

External wiring system		36-point terminal block (M3 X 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3
Number of stations occupied		4 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	120 mA
Weight kg (lb)		0.78 (1.72)

	Terminal No.	Signal Name
IN	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	X08
	TB10	X09
	TB11	X0A
	TB12	X0B
	TB13	X0C
	TB14	X0D
	TB15	X0E
	TB16	X0F
	TB17	COM1
OUT	TB18	Y10
	TB19	Y11
	TB20	Y12
	TB21	Y13
	TB22	Y14
	TB23	Y15
	TB24	Y16
	TB25	Y17
	TB26	COM2
	TB27	NC
	TB28	Y18
	TB29	Y19
	TB30	Y1A
	TB31	COM3
	TB32	Y1B
	TB33	COM4
	TB34	24VDC
	TB35	24GDC
	TB36	NC

External Connection

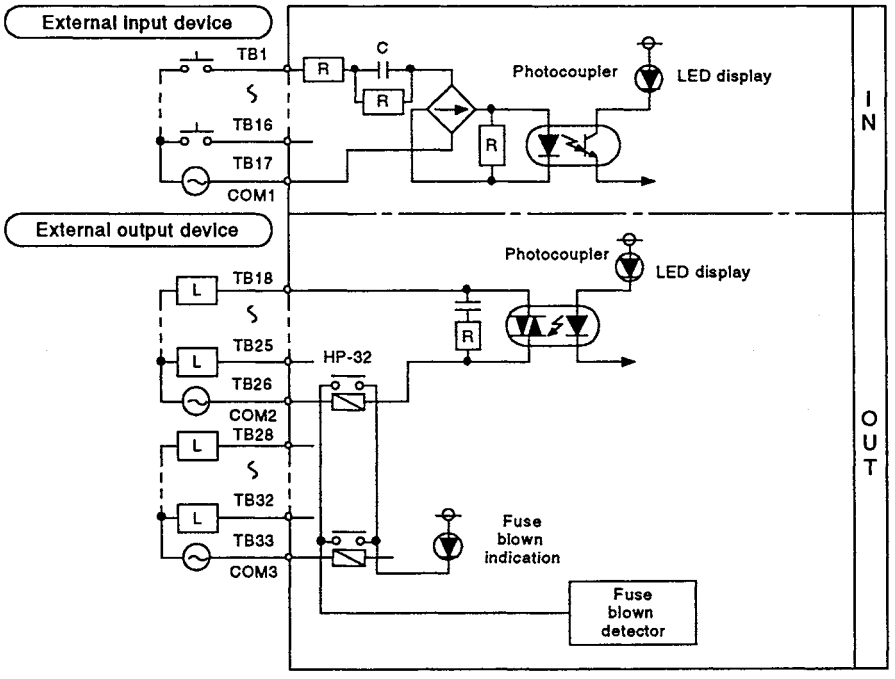


5.8 Type AJ35PTF-28AS I/O Unit

Input Specifications			Output Specifications		
Number of input points		16 points	Number of output points		12 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC 50/60 Hz	Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Rated input current		10 mA (100 VAC, 60 Hz)	Max. load voltage		264 VAC
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)	Max. load current		0.6 A/point, 2.4 A/common
ON voltage/ON current		80 VAC or higher/6 mA or higher	Min. load voltage/current		24 VAC 100 mA, 100/240 VAC 10 mA
OFF voltage/OFF current		40 VAC or lower/4 mA or lower	Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Inrush current		Max. 300 mA, within 0.3 ms (132 VAC)	Leakage current at OFF		1.5 mA (132 VAC, 60 Hz) 3.0 mA (264 VAC, 60 Hz)
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)	Max. voltage drop at ON		1.5 V or lower (0.1 to 0.6 A), 1.8 V or lower (50 to 100 mA), 2.0 V or lower (10 to 50 mA)
Response time	OFF → ON	15 ms or less (8 ms TYP)	Response time	OFF → ON	1 ms or less
	ON → OFF	25 ms or less (16 ms TYP)		ON → OFF	0.5 Hz + 1 ms or less
Common method		16 points/common (common terminal : TB17)	Fuse rating		Fast-melting fuse 3.2 A (one fuse percommon) HP-32
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Max. simultaneous ON input points		100 % simultaneously ON (16 points/common)	Surge suppression		CR absorber (0.022 μF + 47 Ω)
			Common method		8 points/common (common terminal :TB26) 4 points/common (common terminal :TB33)
			Operation indication		Provided (LED is lit to indicate that corresponding output is ON)
External wiring system		36-point terminal block (M3 X 6 screws)			
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque : 60 N·cm [7 kg·cm] (6.06 lb·inch))			
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3			
Number of stations occupied		4 stations			
I/O unit power supply	Voltage	15.6 to 31.2 VDC			
	Current	140 mA			
Weight kg (lb)		0.65 (1.43)			

	Terminal No.	Signal Name
IN	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	X08
	TB10	X09
	TB11	X0A
	TB12	X0B
	TB13	X0C
	TB14	X0D
	TB15	X0E
	TB16	X0F
	TB17	COM1
OUT	TB18	Y10
	TB19	Y11
	TB20	Y12
	TB21	Y13
	TB22	Y14
	TB23	Y15
	TB24	Y16
	TB25	Y17
	TB26	COM2
	TB27	NC
	TB28	Y18
	TB29	Y19
	TB30	Y1A
	TB31	NC
	TB32	Y1B
	TB33	COM3
	TB34	NC
	TB35	NC
	TB36	NC

External Connection



5.9 Type AJ35PTF-28DR I/O Unit

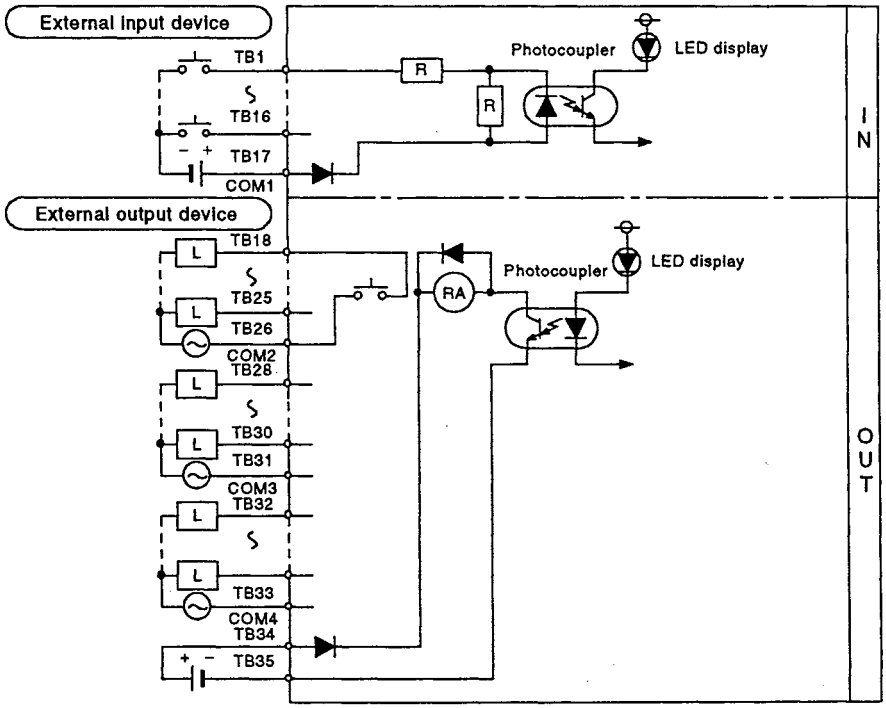
Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)	
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		16 points/common (common terminal : TB17)	
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	
Max. simultaneous ON input points		100 % simultaneously ON (16 points)	

Output Specifications		
Number of output points		12 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC 2 A (resistive load) / 1 point, 240 VAC/2 A (cosϕ = 1) / 5 A/common
Min. switching load		5 VDC/1 mA
Max. switching voltage		264 VAC 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage and current loads: More than 200,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Output external supply power (Power for driving relay coil)	Voltage	24 VDC ±10 %, ripple ratio: 4 Vp-p or less
	Current	110 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points/common (common terminal :TB26) 3 points/common (common terminal :TB31) Independent contact (common terminal :TB33)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

External wiring system	36-point terminal block (M3 X 6 screws)	
Applicable wire size	0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal	R1.25-3, R2-3, RAV1.25-3, RAV2-3	
Number of stations occupied	4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	120 mA
Weight kg (lb)	0.76 (1.72)	

	Terminal No.	Signal Name
IN	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	X08
	TB10	X09
	TB11	X0A
	TB12	X0B
	TB13	X0C
	TB14	X0D
	TB15	X0E
	TB16	X0F
	TB17	COM1
OUT	TB18	Y10
	TB19	Y11
	TB20	Y12
	TB21	Y13
	TB22	Y14
	TB23	Y15
	TB24	Y16
	TB25	Y17
	TB26	COM2
	TB27	NC
	TB28	Y18
	TB29	Y19
	TB30	Y1A
	TB31	COM3
	TB32	Y1B
	TB33	COM4
	TB34	24VDC
	TB35	24GDC
	TB36	NC

External Connection

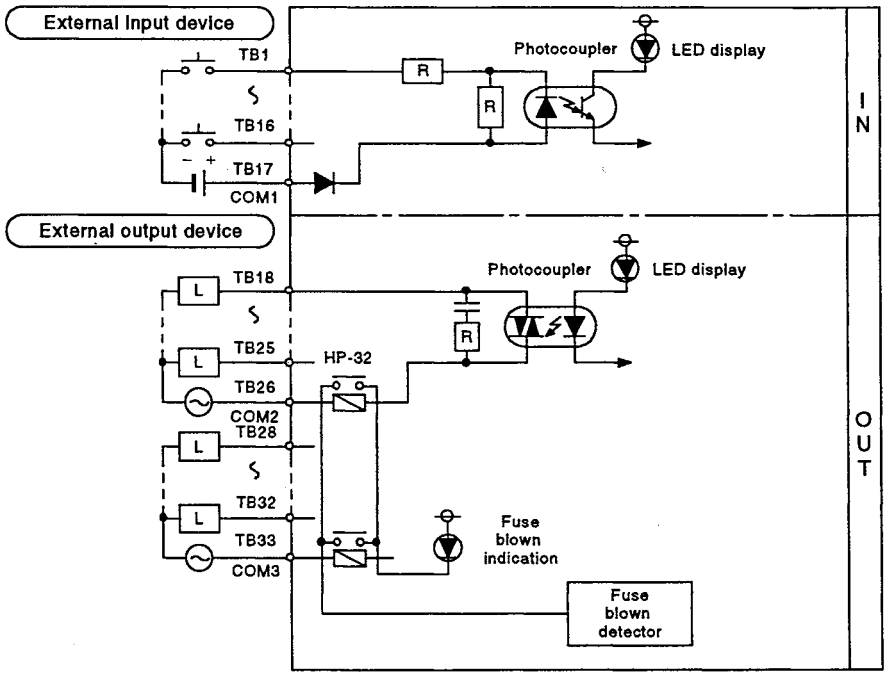


5.10 Type AJ35PTF-28DS I/O Unit

Input Specifications				Output Specifications		
Number of input points		16 points		Number of output points		12 points
Isolation method		Photocoupler		Isolation method		Photocoupler
Rated input voltage		12 VDC	24 VDC	Rated load voltage		100-240 VAC, 40 to 70 Hz
Rated input current		3 mA	7 mA	Max. load voltage		264 VAC
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)		Max. load current		0.6 A/point, 2.4 A/common
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher		Min. load voltage/current		24 VAC 100 mA, 100/240 VAC 10 mA
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower		Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Input resistance		Approx. 3.4 kΩ		Leakage current at OFF		1.5 mA (132 VAC, 60 Hz) 3.0 mA (264 VAC, 60 Hz)
Input form		Sink type		Max. voltage drop at ON		1.5 V or lower (0.1 to 0.6 A), 1.8 V or lower (50 to 100 mA), 2.0 V or lower (10 to 50 mA)
Response time	OFF → ON	10 ms or less (6 ms TYP)		Response time	OFF → ON	1 ms or less
	ON → OFF	10 ms or less (7.5 ms TYP)			ON → OFF	0.5 Hz + 1 ms or less
Common method		16 points/common (common terminal : TB17)		Fuse rating		Fast-melting fuse 3.2 A (one fuse percommon) HP-32
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)		Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Max. simultaneous ON input points		100 % simultaneously ON (16 points)		Surge suppression		CR absorber (0.022 μF + 47 Ω)
				Common method		8 points/common (common terminal : TB26) 4 points/common (common terminal : TB33)
				Operation indication		Provided (LED is lit to indicate that corresponding output is ON)
External wiring system		36-point terminal block (M3 X 6 screws)				
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque : 69 N-cm [7 kg-cm] (6.06 lb-inch))				
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3				
Number of stations occupied		4 stations				
I/O unit power supply	Voltage	15.6 to 31.2 VDC				
	Current	150 mA				
Weight kg (lb)		0.76 (1.67)				

	Terminal No.	Signal Name
IN	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	X08
	TB10	X09
	TB11	X0A
	TB12	X0B
	TB13	X0C
	TB14	X0D
	TB15	X0E
	TB16	X0F
	TB17	COM1
OUT	TB18	Y10
	TB19	Y11
	TB20	Y12
	TB21	Y13
	TB22	Y14
	TB23	Y15
	TB24	Y16
	TB25	Y17
	TB26	COM2
	TB27	NC
	TB28	Y18
	TB29	Y19
	TB30	Y1A
	TB31	NC
	TB32	Y1B
	TB33	COM3
	TB34	NC
	TB35	NC
	TB36	NC

External Connection



5.11 Type AJ35PTF-28DT I/O Unit

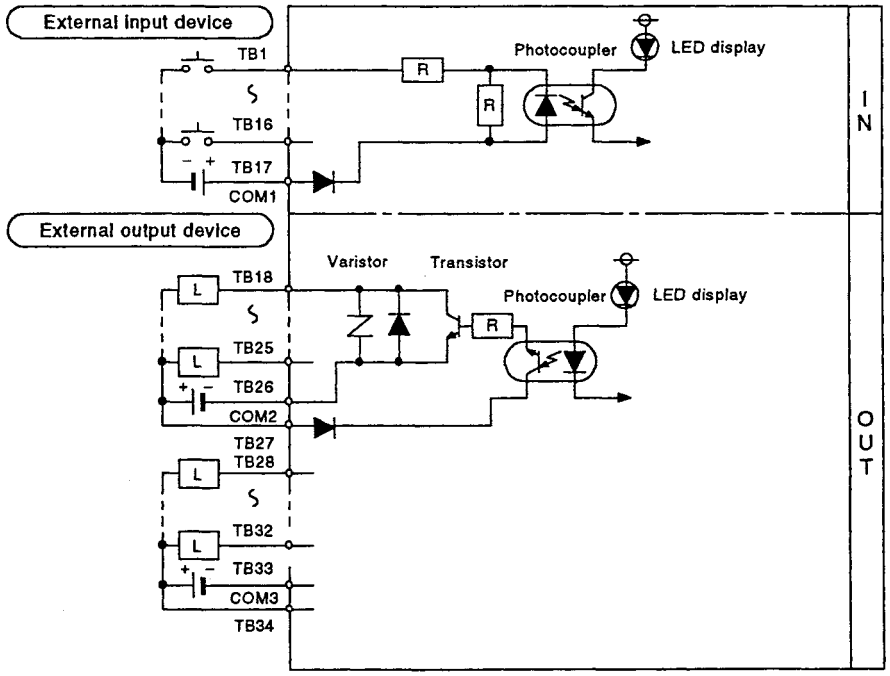
Input Specifications			
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)	
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		16 points/common (common terminal : TB17)	
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	
Max. simultaneous ON input points		100 % simultaneously ON (16 points)	

Output Specifications		
Number of output points		12 points
Isolation method		Photocoupler
Rated load voltage		12/24 VDC
Operating load voltage range		10.2 to 31.2 VDC
Max. load current		0.5 A/point, 3.2 A/common
Max. inrush current		4 A 10 ms or less
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.9 V (TYP) 0.5 A 1.5 V (MAX) 0.5 A
Output form		Sink type
Response time	OFF → ON	2 ms or less
	ON → OFF	2 ms or less (resistive load)
Output external power supply	Voltage	12/24 VDC (10.2 to 31.2 VDC)
	Current	23 mA (TYP 24 VDC, 8 points/common ON)
Surge suppression		Varistor (52 to 62 V)
Common method		8 points/common (common terminal :TB26) 4 points/common (common terminal :TB33)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

External wiring system	36-point terminal block (M3 X 6 screws)	
Applicable wire size	0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal	R1.25-3, R2-3, RAV1.25-3, RAV2-3	
Number of stations occupied	4 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	110 mA
Weight kg (lb)	0.65 (1.43)	

	Terminal No.	Signal Name
IN	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	X08
	TB10	X09
	TB11	X0A
	TB12	X0B
	TB13	X0C
	TB14	X0D
	TB15	X0E
	TB16	X0F
	TB17	COM1
OUT	TB18	Y10
	TB19	Y11
	TB20	Y12
	TB21	Y13
	TB22	Y14
	TB23	Y15
	TB24	Y16
	TB25	Y17
	TB26	COM2
	TB27	12/24VDC
	TB28	Y18
	TB29	Y19
	TB30	Y1A
	TB31	NC
	TB32	Y1B
	TB33	COM3
	TB34	12/24VDC
	TB35	NC
	TB36	NC

External Connection



5.12 Type AJ35PTF-56AR I/O Unit

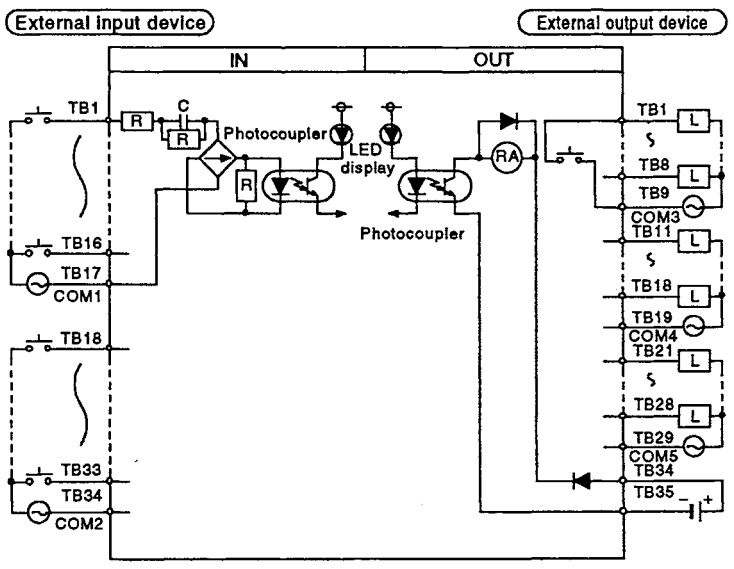
Input Specifications		
Number of input points		32 points
Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC 50/60 Hz
Rated input current		10 mA (100 VAC, 60 Hz)
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)
ON voltage/ON current		80 VAC or higher/6 mA or higher
OFF voltage/OFF current		40 VAC or lower/4 mA or lower
Inrush current		Max. 300 mA, within 0.3 ms (132 VAC)
Input impedance		Approx. 10 kΩ (60 Hz), Approx. 12 kΩ (50 Hz)
Response time	OFF → ON	15 ms or less (6 ms TYP)
	ON → OFF	25 ms or less (16 ms TYP)
Common method		16 points/common (common terminal : TB17,TB34)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)
Max. simultaneous ON input points		100 % simultaneously ON (16 points)

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC 2 A (resistive load) 240 VAC/2 A (cosϕ = 1) / 1 point, 5 A/common
Min. switching load		5 VDC/1 mA
Max. switching voltage		264 VAC 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage and current loads: More than 200,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Output external supply power (Power for driving relay coil)	Voltage	24 VDC ±10 %, ripple ratio 4 Vp-p or less
	Current	220 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points/common (common terminals : TB9, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

External wiring system		Two 36-point terminal block (M3 x 6 screws)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3
Number of stations occupied		8 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	150 mA
Weight kg (lb)		1.20 (2.64)

IN	
Terminal No.	Signal Name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	COM1
TB18	X10
TB19	X11
TB20	X12
TB21	X13
TB22	X14
TB23	X15
TB24	X16
TB25	X17
TB26	X18
TB27	X19
TB28	X1A
TB29	X1B
TB30	X1C
TB31	X1D
TB32	X1E
TB33	X1F
TB34	COM2
TB35	NC
TB36	NC

External Connection

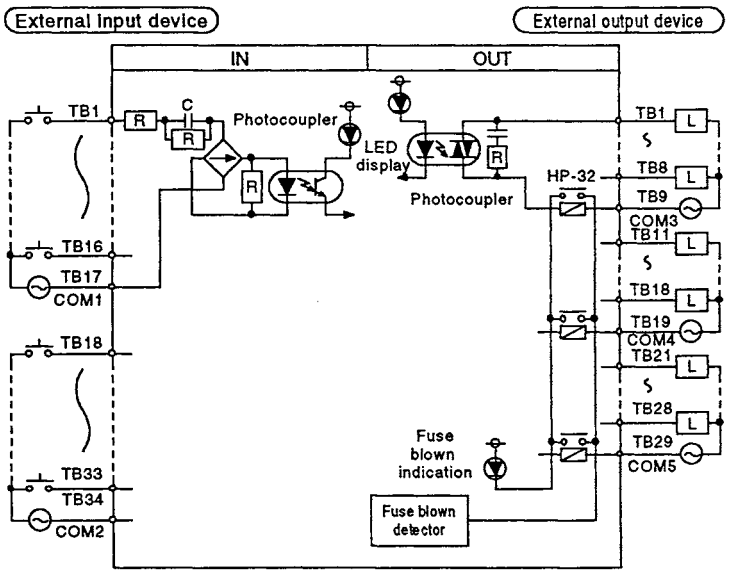


OUT	
Signal Name	Terminal No.
Y20	TB1
Y21	TB2
Y22	TB3
Y23	TB4
Y24	TB5
Y25	TB6
Y26	TB7
Y27	TB8
COM3	TB9
NC	TB10
Y28	TB11
Y29	TB12
Y2A	TB13
Y2B	TB14
Y2C	TB15
Y2D	TB16
Y2E	TB17
Y2F	TB18
COM4	TB19
NC	TB20
Y30	TB21
Y31	TB22
Y32	TB23
Y33	TB24
Y34	TB25
Y35	TB26
Y36	TB27
Y37	TB28
COM5	TB29
NC	TB30
NC	TB31
NC	TB32
NC	TB33
24VDC	TB34
24GDC	TB35
Vacant	TB36

5.13 Type AJ35PTF-56AS I/O Unit

Input Specifications			Output Specifications		
Number of input points		32 points	Number of output points		24 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		100 to 120 VAC 50/60 Hz	Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Rated input current		10 mA (100 VAC, 60 Hz)	Max. load voltage		264 VAC
Operating voltage range		85 to 132 VAC (50/60 Hz ±5 %)	Max. load current		0.6 A/point, 2.4 A/common
ON voltage/ON current		80 VAC or higher/6 mA or higher	Min. load voltage/current		24 VAC/100 mA, 100/240 VAC 10 mA
OFF voltage/OFF current		40 VAC or lower/4 mA or lower	Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Inrush current		Max. 300 mA, within 0.3 ms (132 VAC)	Leakage current at OFF		1.5 mA (132 VAC, 60 Hz), 3.0 mA (264 VAC, 60 Hz)
Input impedance		Approx. 10 kΩ (60 Hz), approx. 12 kΩ (50 Hz)	Max. voltage drop at ON		1.5 V or lower (0.1 to 0.6 A), 1.8 V or lower (0.1 A or lower), 2.0 V or lower (10 to 50 mA)
Response time	OFF → ON	15 ms or less (6 ms TYP)	Response time	OFF → ON	1 ms or less
	ON → OFF	35 ms or less (16 ms TYP)		ON → OFF	0.5 Hz + 1 ms or less
Common method		16 points/common (common terminal : TB17,TB34)	Fuse rating		Fast-melting fuse 3.2 A (1 fuse per common) HP-32
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Max. simultaneous ON input points		60 % simultaneously ON (10 points)	Surge suppression		CR absorber (0.022 μF + 47 Ω)
			Common method		8 points/common (common terminal : TB9, TB19, TB29)
			Operation indication		Provided (LED is lit to indicate that corresponding output is ON)
External wiring system		Two 36-point terminal block (M3 x 6 screws)			
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))			
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3			
Number of stations occupied		8 stations			
I/O unit power supply	Voltage	15.6 to 31.2 VDC			
	Current	230 mA			
Weight kg (lb)		1.10 (2.42)			

IN		External Connection	OUT	
Terminal No.	Signal Name		Signal Name	Terminal No.
TB1	X00		Y20	TB1
TB2	X01		Y21	TB2
TB3	X02		Y22	TB3
TB4	X03		Y23	TB4
TB5	X04		Y24	TB5
TB6	X05		Y25	TB6
TB7	X06		Y26	TB7
TB8	X07		Y27	TB8
TB9	X08		COM3	TB9
TB10	X09		NC	TB10
TB11	X0A		Y28	TB11
TB12	X0B		Y29	TB12
TB13	X0C		Y2A	TB13
TB14	X0D		Y2B	TB14
TB15	X0E		Y2C	TB15
TB16	X0F		Y2D	TB16
TB17	COM1		Y2E	TB17
TB18	X10		Y2F	TB18
TB19	X11		COM4	TB19
TB20	X12		NC	TB20
TB21	X13		Y30	TB21
TB22	X14		Y31	TB22
TB23	X15		Y32	TB23
TB24	X16		Y33	TB24
TB25	X17		Y34	TB25
TB26	X18		Y35	TB26
TB27	X19		Y36	TB27
TB28	X1A		Y37	TB28
TB29	X1B		COM5	TB29
TB30	X1C		NC	TB30
TB31	X1D		NC	TB31
TB32	X1E		NC	TB32
TB33	X1F		NC	TB33
TB34	COM2		NC	TB34
TB35	NC		NC	TB35
TB36	NC		NC	TB36



5.14 Type AJ35PTF-56DR I/O Unit

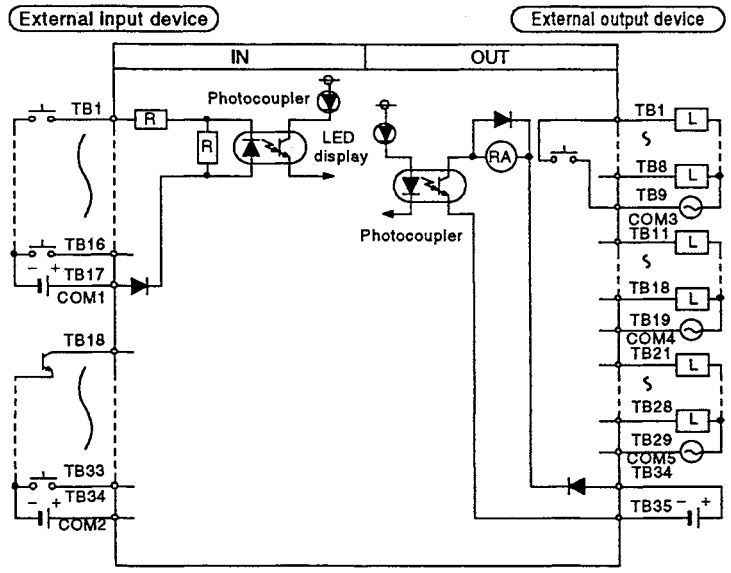
Input Specifications			
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)	
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		16 points/common (common terminal : TB17,TB34)	
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	
Max. simultaneous ON input points		60 % simultaneously ON (10 points)	

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated switching voltage/current		24 VDC 2 A (resistive load) / 1 point, 240 VAC/2 A (cosϕ = 1) 5 A/common
Min. switching load		5 VDC/1 mA
Max. switching voltage		264 VAC 125 VDC
Max. switching frequency		3600 times/hour
Service life	Mechanical	More than 20 million times
	Electrical	Rated switching voltage and current loads: More than 200,000 times
		200 VAC 1.5 A, 240 VAC 1 A (COSϕ = 0.7): More than 200,000 times
		200 VAC 1 A, 240 VAC 0.5 A (COSϕ = 0.35): More than 200,000 times
		24 VDC 1 A, 100 VDC 0.1 A (L/R = 7 ms): More than 200,000 times
Response time	OFF → ON	10 ms or less
	ON → OFF	12 ms or less
Output external supply power (Power for driving relay coil)	Voltage	24 VDC ±10 %, ripple ratio: 4 Vp-p or less
	Current	220 mA (24 VDC, all points ON)
Surge suppression		None
Common method		8 points/common (common terminals : TB9, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

External wiring system		Two 36-point terminal block (M3 screw x 6)
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3
Number of stations occupied		8 stations
I/O unit power supply	Voltage	15.6 to 31.2 VDC
	Current	150 mA
Weight kg (lb)		1.18 (2.55)

IN	
Terminal No.	Signal Name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	COM1
TB18	X10
TB19	X11
TB20	X12
TB21	X13
TB22	X14
TB23	X15
TB24	X16
TB25	X17
TB26	X18
TB27	X19
TB28	X1A
TB29	X1B
TB30	X1C
TB31	X1D
TB32	X1E
TB33	X1F
TB34	COM2
TB35	NC
TB36	NC

External Connection



OUT	
Signal Name	Terminal No.
Y20	TB1
Y21	TB2
Y22	TB3
Y23	TB4
Y24	TB5
Y25	TB6
Y26	TB7
Y27	TB8
COM3	TB9
NC	TB10
Y28	TB11
Y29	TB12
Y2A	TB13
Y2B	TB14
Y2C	TB15
Y2D	TB16
Y2E	TB17
Y2F	TB18
COM4	TB19
NC	TB20
Y30	TB21
Y31	TB22
Y32	TB23
Y33	TB24
Y34	TB25
Y35	TB26
Y36	TB27
Y37	TB28
COM5	TB29
NC	TB30
NC	TB31
NC	TB32
NC	TB33
24VDC	TB34
24GDC	TB35
Vacant	TB36

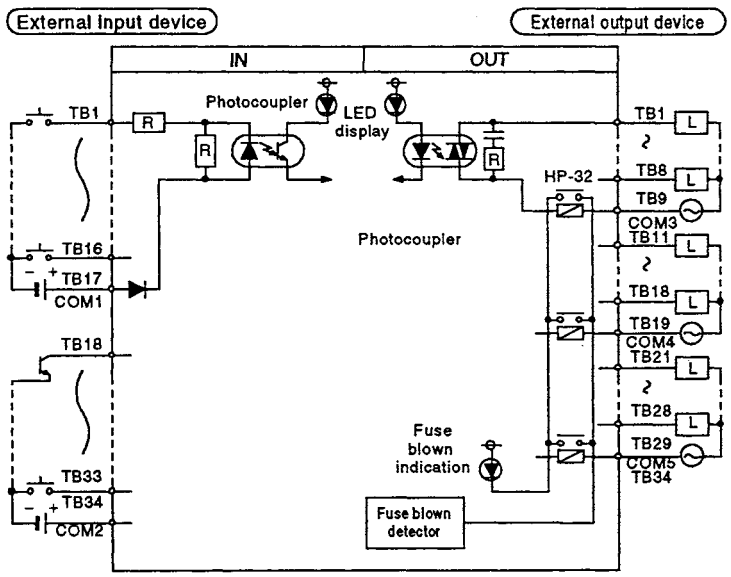
5.15 Type AJ35PTF-56DS I/O Unit

Input Specifications			
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		12 VDC	24 VDC
Rated input current		3 mA	7 mA
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)	
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher	
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower	
Input resistance		Approx. 3.4 kΩ	
Input form		Sink type	
Response time	OFF → ON	10 ms or less (6 ms TYP)	
	ON → OFF	10 ms or less (7.5 ms TYP)	
Common method		16 points/common (common terminals : TB17,TB34)	
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)	
Max. simultaneous ON input points		60 % simultaneously ON (10 points)	
External wiring system		Two 36-point terminal block (M3 X 6 screws)	
Applicable wire size		0.75 to 2 mm² (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	
Number of stations occupied		8 stations	
I/O unit power supply	Voltage	15.6 to 31.2 VDC	
	Current	230 mA	
Weight kg (lb)		1.16 (2.55)	

Output Specifications		
Number of output points		24 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 VAC, 40 to 70 Hz
Max. load voltage		264 VAC
Max. load current		0.6 A/point, 2.4 A/common
Min. load voltage/current		24 VAC/100 mA, 100/240 VAC 10 mA
Max. inrush current		20 A 10 ms or less, 8 A 100 ms or less
Leakage current at OFF		1.5 mA (132 VAC, 60 Hz), 3.0 mA (264 VAC, 60 Hz)
Max. voltage drop at ON		1.5 V or lower (0.1 to 0.6 A), 1.8 V or lower (50 to 100 mA), 2.0 V or lower (10 to 50 mA)
Response time	OFF → ON	1 ms or less
	ON → OFF	0.5 Hz + 1 ms or less
Fuse rating		Fast-melting fuse 3.2 A (1 fuse per common) HP-32
Fuse blown indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)
Surge suppression		CR absorber (0.022 μF + 47 Ω)
Common method		8 points/common (common terminals : TB9, TB19, TB29)
Operation indication		Provided (LED is lit to indicate that corresponding output is ON)

IN	
Terminal No.	Signal Name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	COM1
TB18	X10
TB19	X11
TB20	X12
TB21	X13
TB22	X14
TB23	X15
TB24	X16
TB25	X17
TB26	X18
TB27	X19
TB28	X1A
TB29	X1B
TB30	X1C
TB31	X1D
TB32	X1E
TB33	X1F
TB34	COM2
TB35	NC
TB36	NC

External Connection

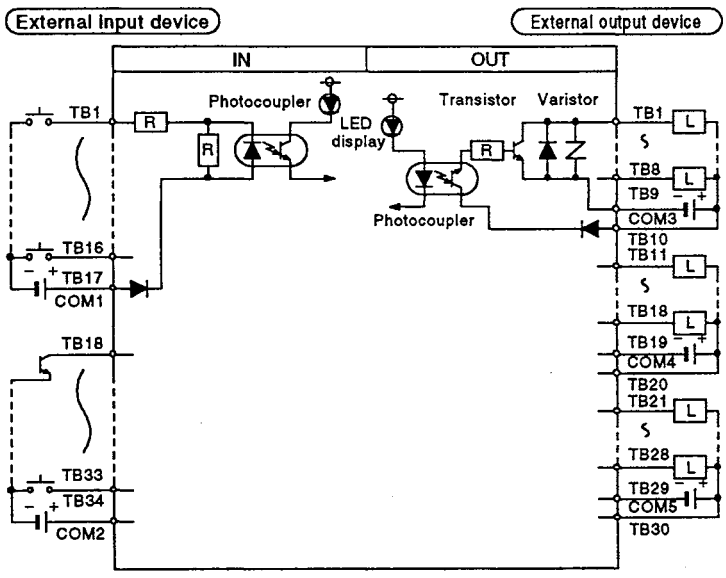


OUT	
Signal Name	Terminal No.
Y20	TB1
Y21	TB2
Y22	TB3
Y23	TB4
Y24	TB5
Y25	TB6
Y26	TB7
Y27	TB8
COM3	TB9
NC	TB10
Y28	TB11
Y29	TB12
Y2A	TB13
Y2B	TB14
Y2C	TB15
Y2D	TB16
Y2E	TB17
Y2F	TB18
COM4	TB19
NC	TB20
Y30	TB21
Y31	TB22
Y32	TB23
Y33	TB24
Y34	TB25
Y35	TB26
Y36	TB27
Y37	TB28
COM5	TB29
NC	TB30
NC	TB31
NC	TB32
NC	TB33
NC	TB34
NC	TB35
NC	TB36

5.16 Type AJ35PTF-56DT I/O Unit

Input Specifications				Output Specifications		
Number of input points		32 points		Number of output points		24 points
Isolation method		Photocoupler		Isolation method		Photocoupler
Rated input voltage		12 VDC	24 VDC	Rated load voltage		12/24 VDC
Rated input current		3 mA	7 mA	Operating load voltage range		10.2 to 31.2 VDC
Operating voltage range		10.2 to 31.2 VDC (ripple ratio : within 5 %)		Max. load current		0.5 A/point, 3.2 A/common
ON voltage/ON current		9.5 VDC or higher/2.6 mA or higher		Max. inrush current		4 A, 10 ms or less
OFF voltage/OFF current		6 VDC or lower/1.0 mA or lower		Leakage current at OFF		0.1 mA or lower
Input resistance		Approx. 3.4 kΩ		Max. voltage drop at ON		0.9 V (TYP) 0.5 A, 1.5 (MAX) 0.5 A
Input form		Sink type		Output form		Sink type
Response time	OFF → ON	10 ms or less (6 ms TYP)		Response time	OFF → ON	2 ms or less
	ON → OFF	10 ms or less (7.5 ms TYP)			ON → OFF	2 ms or less (resistive load)
Common method		16 points/common (common terminals : TB17,TB34)		Output external power supply	Voltage	12/24 VDC (10.2 to 31.2 VDC)
Operation indication		Provided (LED is lit to indicate that corresponding input is ON)			Current	23 mA (TYP 24 VDC, 8 points/common ON)
Max. simultaneous ON input points		60 % simultaneously ON (10 points)		Surge suppression		CR absorber (0.022 μF + 47 Ω)
				Common method		8 points/common (common terminals : TB9, TB19, TB29)
				Operation indication		Provided (LED is lit to indicate that corresponding output is ON)
External wiring system		Two 36-point terminal block (M3 X 6 screws)				
Applicable wire size		0.75 to 2 mm^2 (18 to 14 AWG) (tightening torque : 69 N·cm [7 kg·cm] (6.06 lb·inch))				
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3				
Number of stations occupied		8 stations				
I/O unit power supply	Voltage	15.6 to 31.2 VDC				
	Current	160 mA				
Weight kg (lb)		1.09 (2.40)				

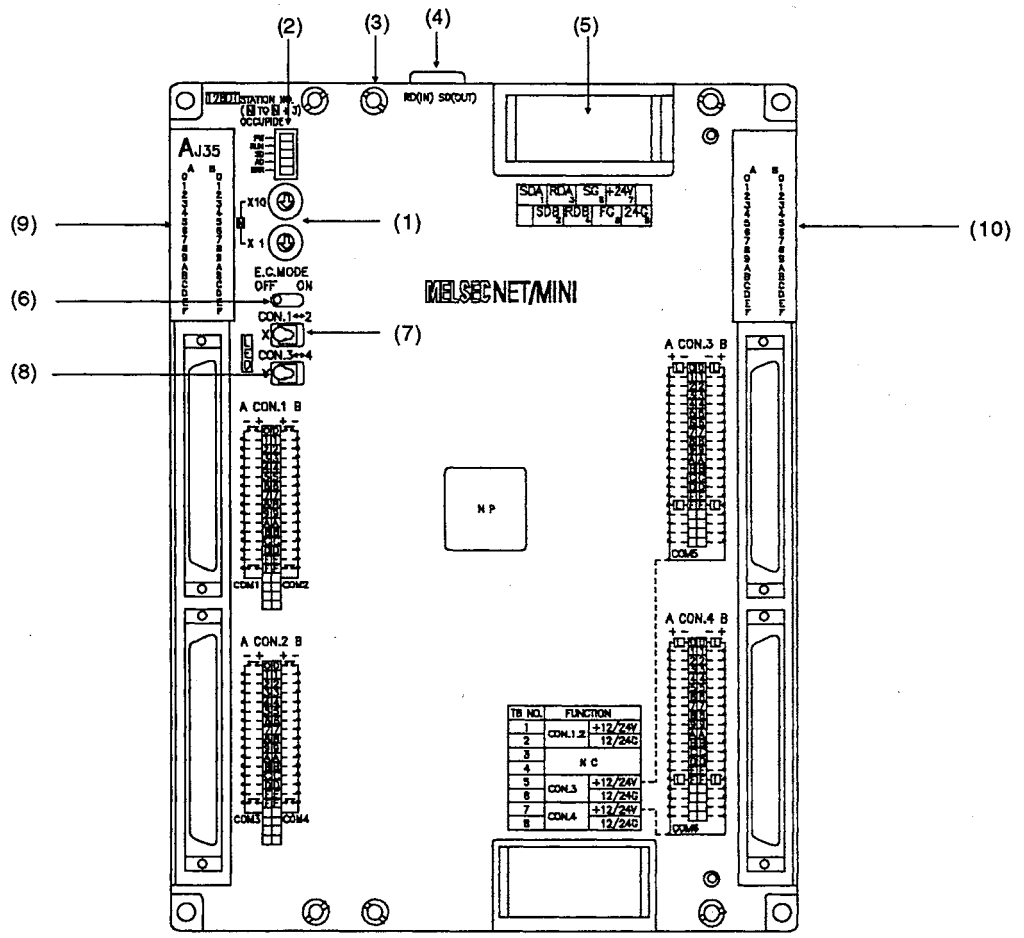
IN		External Connection	OUT	
Terminal No.	Signal Name		Signal Name	Terminal No.
TB1	X00		Y20	TB1
TB2	X01		Y21	TB2
TB3	X02		Y22	TB3
TB4	X03		Y23	TB4
TB5	X04		Y24	TB5
TB6	X05		Y25	TB6
TB7	X06		Y26	TB7
TB8	X07		Y27	TB8
TB9	X08		COM3	TB9
TB10	X09		12/24VDC	TB10
TB11	X0A		Y28	TB11
TB12	X0B		Y29	TB12
TB13	X0C		Y2A	TB13
TB14	X0D		Y2B	TB14
TB15	X0E		Y2C	TB15
TB16	X0F		Y2D	TB16
TB17	COM1		Y2E	TB17
TB18	X10		Y2F	TB18
TB19	X11		COM4	TB19
TB20	X12		12/24VDC	TB20
TB21	X13		Y30	TB21
TB22	X14		Y31	TB22
TB23	X15		Y32	TB23
TB24	X16		Y33	TB24
TB25	X17		Y34	TB25
TB26	X18		Y35	TB26
TB27	X19		Y36	TB27
TB28	X1A		Y37	TB28
TB29	X1B		COM5	TB29
TB30	X1C		12/24VDC	TB30
TB31	X1D		NC	TB31
TB32	X1E		NC	TB32
TB33	X1F		NC	TB33
TB34	COM2		NC	TB34
TB35	NC		NC	TB35
TB36	NC		NC	TB36



6. PARTIAL REFRESH TYPE REMOTE I/O UNIT SPECIFICATIONS

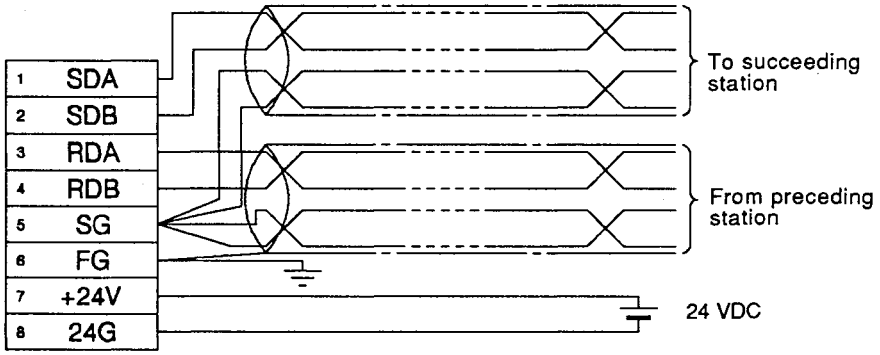
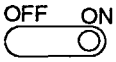
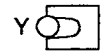
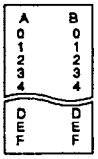
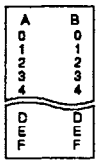
This section describes the names of the parts, and the specifications, of the partial refresh type remote I/O units.

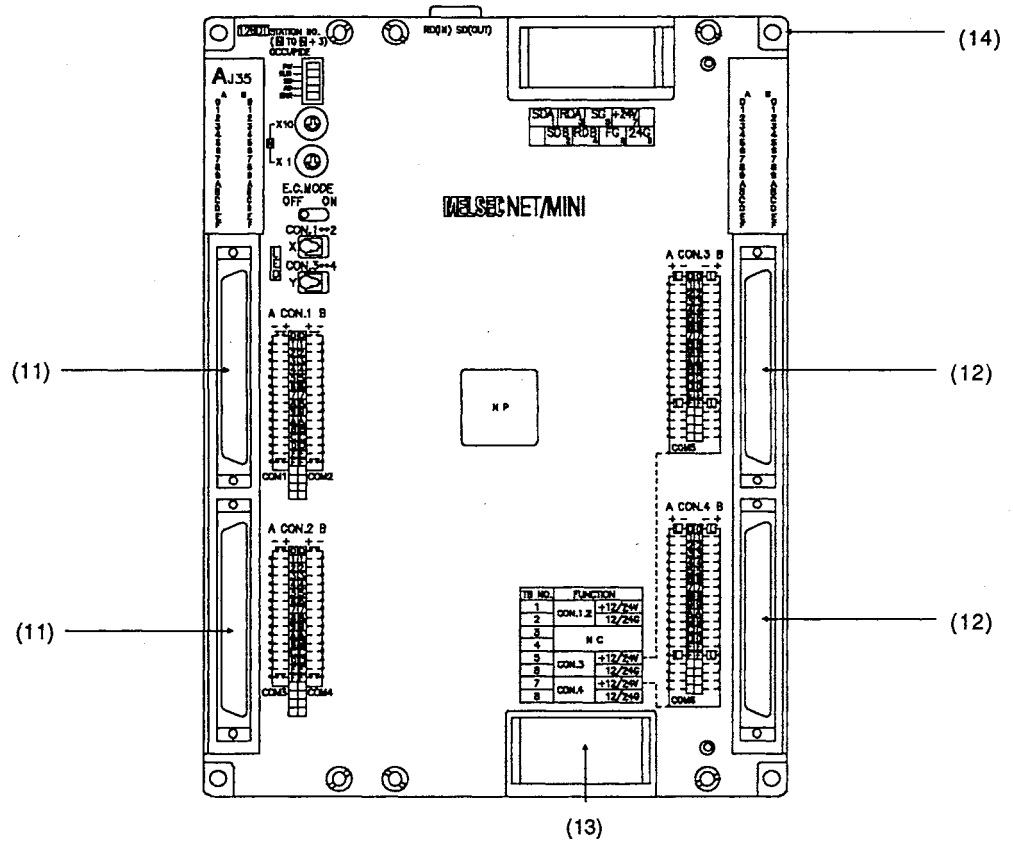
6.1 Nomenclature



(1)	Station number setting switches X10 N X1	• Used to set the remote I/O station number in the range 1 to ((64 – the number of stations occupied) + 1). • X10 : Ten (10) digit of a station number. • X1 : Units (1) digit of a station number.
(2)	Operating status indicator LEDs PW RUN SD RD ERR.	

LED Name	Indication
PW	Lights when the power to the I/O unit is turned ON.
RUN	Lilghts while data communication is being performed with the master station normally.
SD	Flashes while data is being transmitted.
RD	Flashes while data is being received.
ERR.	Lights when a receive data error occurs; OFF during normal communication.

(3)	Cover installation screw	Special screw for fixing the front cover. Used as a nut (for M4 screw) when the other unit is fitted.
(4)	Optical fiber cable connector  RD (IN) SD (OUT)	For connecting the optical fiber cables when optical fiber cables are used to connect one station with another. (IN) RD : Connected to (OUT) SD of the preceding station (OUT) SD : Connected to (IN) RD of the succeeding station For connection, see the MELSECNET/MINI-S3 master module User's Manual.
(5)	Terminal block	For connecting twisted-pair cables when twisted-pair cables are used to connect one station with another, and for connting I/O unit power cables.  **REMARKS** Twisted-pair cables are not required for optical data link. For details, see the MELSECNET/MINI-S3 master module User's Manual.
(6)	E.C. MODE switch E.C. MODE  OFF ON	Used to set whether outputs are retained or seitched OFF when I/O refresh is stapped.
(7)	Input display select switch CON 1↔2  Y	Selects which 32 of the 64 input points are to be connected to the input display LEDs to show ON/OFF status. Set to CON1 to select the inputs connected to CON1. Set to CON2 to select the inputs connected to CON2.
(8)	Output display select switch CON 3↔4  Y	Selects which 32 of the 64 input points are to be connected to the input display LEDs to show ON/OFF status. Set to CON3 to select the inputs connected to CON3. Set to CON4 to select the inputs connected to CON4
(9)	Input indicator LEDs 	Indicate the input ON/OFF state. The indicator LED is lit when the corresponding input is ON.
(10)	Output indicator LEDs 	Indicate the output ON/OFF state. The indicator LED is lit when the corresponding output is ON.



(11)	Input connector	For connecting input signal cable. Connector jack is provided on the main unit. (A6CON1) For further information concerning the wiring or the connector, see Section 5.
(12)	Output connector	For connecting output signal cable. Connector jack is provided on the main unit. (A6CON1) For further information concerning the wiring or the connector, see Section 5.
(13)	I/O signal power cable terminal block	For connecting the I/O signal power cable.
(14)	Unit installation hole	Used to install the I/O unit to panel. (For M4 screw, Tightening torque: 78 to 117 N·cm)

POINT

The input/output ON/OFF status may only be monitored by the input and output indicator LEDs or (9) and (10) while the master unit is performing I/O refresh (the RUN LED of the AJ35PTF-128DT is ON.)

REMARK

Use an appropriate tool (e.g. a screwdriver) to move the input and output display select switches if they are covered with wiring when the AJ35PTF-128DT is fitted with a compact remote I/O unit.

6.2 AJ35PTF-128DT Specification

Input Specifications				Output Specifications		
Number of input points		64 points		Number of output points		64 points
Isolation method		Photocoupler		Isolation method		Photocoupler
Rated input voltage		12 VDC	24 VDC	Rated load voltage		12/24 VDC
Rated input current		4 mA	9 mA	Operating load voltage range		10.2 to 31.2 VDC
Operating voltage range		10.2 to 26.4 VDC (ripple ratio : within 5 %)		Max. load current		100 mA/point, 2 A/common
ON voltage/ON current		8 VDC or higher/ 2.3 mA or higher		Max. inrush current		0.4 A, 100 ms or less
OFF voltage/OFF current		4 VDC or lower/ 0.5 mA or lower		Leakage current at OFF		0.1 mA or lower
Input resistance		Approx. 2.4 kΩ		Max. voltage drop at ON		2.5 V (100 mA), 1.75 V (5 mA), 1.7 V (1 mA)
Input form		Sink type dynamic scanning (64 I/O points are refreshed in group of four.)		Surge suppression		Clamp diode
				Output form		Sink type static type
*1 Response time	OFF → ON	107 ms or less		*1 Response time	OFF → ON	(2 + I/O refresh time x 5) ms or less
	ON → OFF	107 ms or less			ON → OFF	(2 + I/O refresh time x 5) ms or less
Output external power supply	Voltage	12/24 VDC (10.2 to 31.2 VDC)				
	Current	40mA (TYP 24 VDC, 32 points/common ON)				
Common method		16 points/common (Common pins : 1A17, 1B17, 2A17, 2B17)		Common method		32 points/common (Common pins : TB5, TB7)
Operation indication		ON indication (LED), switched in groups of 32 points by input indicator select switch.		Operation indication		ON indication (LED), switched in groups of 32 points by input indicator select switch.
I/O unit power supply	Voltage	15.6 to 31.2 VDC				
	Current	200 mA				
External wiring system		*3 Four 40-pin connector (soldered) 4				
Applicable wiring size		0.3 mm^2 (0.0005 $inch^2$) (18 to 14 AWG)				
Number of stations occupied		4 stations				
*2 Number of digits		404				
Weight kg (lb)		1.05 (2.31)				

*1 : For more details of the response time, see the MELSECNET/MINI-S3 master module User's Manual.
The response times shown in the table are those when sixteen AJ35PTF-128DT units are connected.

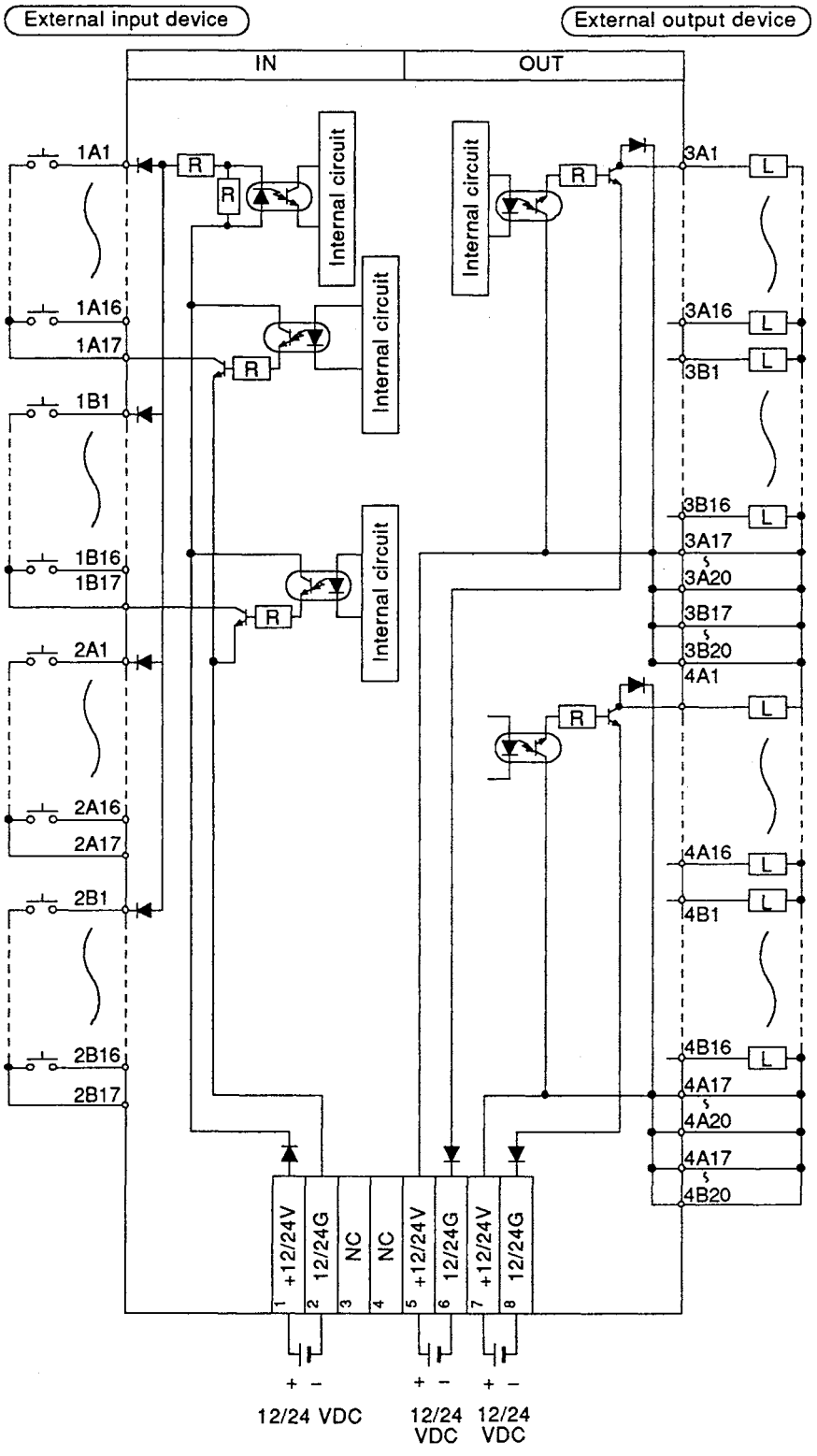
*2 : The AJ35PTF-128DT refreshes input four times and output four times.
The number of digits specified for the partial refresh station must be 404.

*3 : The AJ35PTF-128DT has four connectors indicated below:

- Connector..... FCN-3601J040-AU
- Cover..... FCN-360J040-J1

IN	
Pin No.	Signal Name
1A1	X00
1A2	X01
1A3	X02
1A4	X03
1A5	X04
1A6	X05
1A7	X06
1A8	X07
1A9	X08
1A10	X09
1A11	X0A
1A12	X0B
1A13	X0C
1A14	X0D
1A15	X0E
1A16	X0F
1A17	COM1
1A18	Vacant
1A19	Vacant
1A20	Vacant
1B1	X10
1B2	X11
1B3	X12
1B4	X13
1B5	X14
1B6	X15
1B7	X16
1B8	X17
1B9	X18
1B10	X19
1B11	X1A
1B12	X1B
1B13	X1C
1B14	X1D
1B15	X1E
1B16	X1F
1B17	COM2
1B18	Vacant
1B19	Vacant
1B20	Vacant
2A1	X20
2A2	X21
2A3	X22
2A4	X23
2A5	X24
2A6	X25
2A7	X26
2A8	X27
2A9	X28
2A10	X29
2A11	X2A
2A12	X2B
2A13	X2C
2A14	X2D
2A15	X2E
2A16	X2F
2A17	COM3
2A18	Vacant
2A19	Vacant
2A20	Vacant
2B1	X30
2B2	X31
2B3	X32
2B4	X33
2B5	X34
2B6	X35
2B7	X36
2B8	X37
2B9	X38
2B10	X39
2B11	X3A
2B12	X3B
2B13	X3C
2B14	X3D
2B15	X3E
2B16	X3F
2B17	COM4
2B18	Vacant
2B19	Vacant
2B20	Vacant
TB1	12/24 VDC
TB2	12/24 G

External Connection



OUT	
Signal Name	Pin No.
Y00	3A1
Y01	3A2
Y02	3A3
Y03	3A4
Y04	3A5
Y05	3A6
Y06	3A7
Y07	3A8
Y08	3A9
Y09	3A10
Y0A	3A11
Y0B	3A12
Y0C	3A13
Y0D	3A14
Y0E	3A15
Y0F	3A16
+12/24 V	3A17
+12/24 V	3A18
+12/24 V	3A19
+12/24 V	3A20
Y10	3B1
Y11	3B2
Y12	3B3
Y13	3B4
Y14	3B5
Y15	3B6
Y16	3B7
Y17	3B8
Y18	3B9
Y19	3B10
Y1A	3B11
Y1B	3B12
Y1C	3B13
Y1D	3B14
Y1E	3B15
Y1F	3B16
+12/24 V	3B17
+12/24 V	3B18
+12/24 V	3B19
+12/24 V	3B20
Y20	4A1
Y21	4A2
Y22	4A3
Y23	4A4
Y24	4A5
Y25	4A6
Y26	4A7
Y27	4A8
Y28	4A9
Y29	4A10
Y2A	4B11
Y2B	4B12
Y2C	4B13
Y2D	4B14
Y2E	4B15
Y2F	4B16
+12/24 V	4B17
+12/24 V	4B18
+12/24 V	4B19
+12/24 V	4B20
Y30	4B1
Y31	4B2
Y32	4B3
Y33	4B4
Y34	4B5
Y35	4B6
Y36	4B7
Y37	4B8
Y38	4B9
Y39	4B10
Y3A	4B11
Y3B	4B12
Y3C	4B13
Y3D	4B14
Y3E	4B15
Y3F	4B16
+12/24 V	4B17
+12/24 V	4B18
+12/24 V	4B19
+12/24 V	4B20
12/24 VDC	TB5
12/24 G	TB6
12/24 VDC	TB7
12/24 G	TB8

7. AJ72PT35/AJ72T35 DATA LINK MODULE SPECIFICATIONS

This section covers the number of stations occupied, I/O allocations, cautions, and names of parts, for AJ72PT35/AJ72T35 data link modules.

7.1 Number of stations occupied and I/O assignment

Notes on I/O assignment

(1) The AJ72PT35/AJ72T35 allows the number of stations occupied to be specified by the occupied station number setting switch between 4 and 16 in increments of 4.

(2) Specify the number of stations occupied in accordance with the number of all I/O points of the building-block type I/O units loaded on the base unit which accommodates the AJ72P35/AJ72T35.

(3) See the table below. The number of I/O points per remote I/O station is 8.

Number of Stations Occupied	Number of I/O Points
4	32
8	64
12	96
16	128

(4) I/O modules may be loaded onto the base unit in any order. Note that stations regarded as faulty depend on the number of loaded module points and the loading order as explained in Section 7.2.

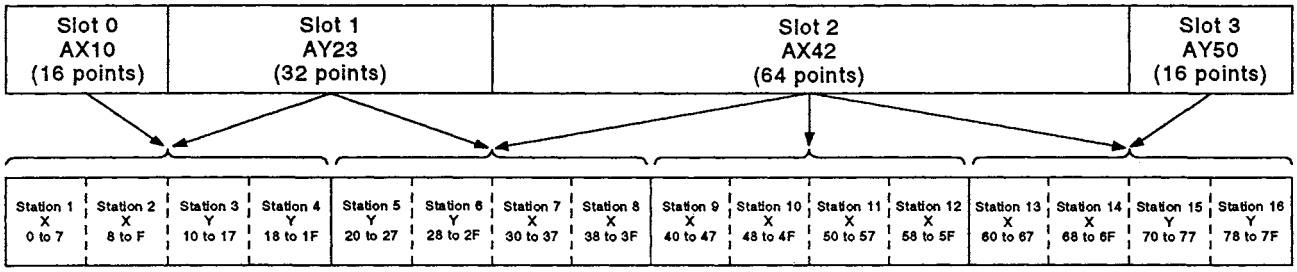
7.2 Notes on installation of I/O modules

I/O modules may be loaded in any order. Note that stations regarded as faulty depend on the number of loaded module points and the loading order.

(1) The corresponding I/O ERR. LED is lit to indicate the I/O module which has developed a fuse blown or a module verify error.

(2) The faulty station data in the faulty station area of the master station is controlled in groups of four stations (32 points).

(3) If a communication fault occurs or a fuse is blown, 1 is written to the corresponding bit of the master station faulty station detection area.
When the I/O modules are loaded as shown below, 1 is written to the faulty station detection area as described bellow:



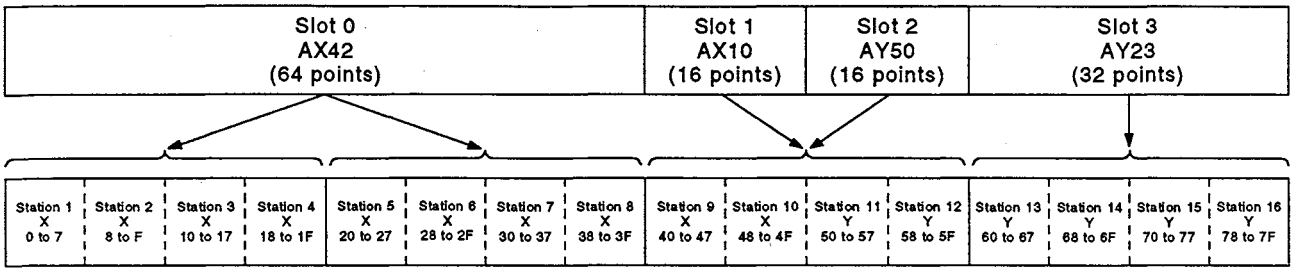
(a) If the fuse of the AY23 on slot 1 has blown, "1" is written to stations 1 to 8 in the faulty station detection area.
In this case, a communication error also occurs at 16 points (stations 1, 2) of the AX10 on slot 0 and 16 points (stations 7, 8) of the AX42 on slot 2. With Y1B (faulty station data clear) set ON in the master station, receive data is cleared from the 16 points of the AX10 and the 16 points of the AX42 (X30 to 3F).

(b) If the fuse of the AY50 on slot 3 has blown, "1" is written to stations 13 to 16 in the faulty station detection area.
In this case, a communication error also occurs at 16 points (X60 to 6F) of the AX42 on slot 2.

(4) By assigning the number of I/O module points in groups of four stations (32 points), the faulty module can be matched with the faulty station data in the faulty station detection area.
By changing the module assignment in (3) as shown on the next page, for example, the other I/O module(s) is(are) not affected if the AY23 fuse is blown and receive/transmission data can be transferred from/to the master station sequentially.

REMARK

To check whether any output module fuse has blown or not, use the output module fuse LED or the AJ72PT35 LED (I/O 0 to 7).



(5) Any I/O module must be installed or removed after switching OFF the power of the remote I/O station.

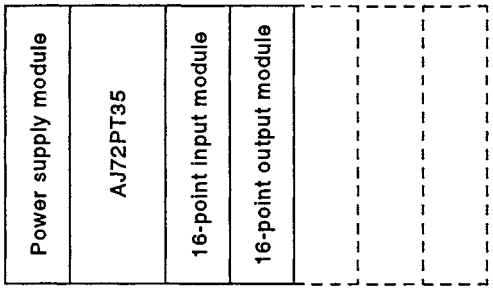
AJ72PT35/AJ72T35's I/O, I/O module, faulty station detection and other data is processed as follows in accordance with its station number and the number of stations occupied (n = AJ72PT35/AJ72T35 station number).

Number of Stations Occupied	I/O Number	I/O Data Storage Location		Remote I/O Station Card Data *1 (I/O Automatically Selected in Accordance with the Loaded Module)		Unit of Faulty Station Control
		Input	Output			
4	X/Y0 to X/Y7	Receive data of station n	Transmission data of station n	Input	Output	Stations n to (n + 3) are controlled as one control unit.
	X/Y8 to X/YF	Receive data of station (n + 1)	Transmission data of station (n + 1)	Input	Output	
	X/Y10 to X/Y17	Receive data of station (n + 2)	Transmission data of station (n + 2)	Input	Output	
	X/Y18 to X/Y1F	Receive data of station (n + 3)	Transmission data of station (n + 3)	Input	Output	
8	X/Y20 to X/Y27	Receive data of station (n + 4)	Transmission data of station (n + 4)	Input	Output	Stations (n + 4) to (n + 7) are controlled as one control unit.
	X/Y28 to X/Y2F	Receive data of station (n + 5)	Transmission data of station (n + 5)	Input	Output	
	X/Y30 to X/Y37	Receive data of station (n + 6)	Transmission data of station (n + 6)	Input	Output	
	X/Y38 to X/Y3F	Receive data of station (n + 7)	Transmission data of station (n + 7)	Input	Output	
12	X/Y40 to X/Y47	Receive data of station (n + 8)	Transmission data of station (n + 8)	Input	Output	Stations (n + 8) to (n + 11) are controlled as one control unit.
	X/Y48 to X/Y4F	Receive data of station (n + 9)	Transmission data of station (n + 9)	Input	Output	
	X/Y50 to X/Y57	Receive data of station (n + 10)	Transmission data of station (n + 10)	Input	Output	
	X/Y58 to X/Y5F	Receive data of station (n + 11)	Transmission data of station (n + 11)	Input	Output	
16	X/Y60 to X/Y67	Receive data of station (n + 12)	Transmission data of station (n + 12)	Input	Output	Station (n + 12) to (n + 15) are controlled as one control unit.
	X/Y68 to X/Y6F	Receive data of station (n + 13)	Transmission data of station (n + 13)	Input	Output	
	X/Y70 to X/Y77	Receive data of station (n + 14)	Transmission data of station (n + 14)	Input	Output	
	X/Y78 to X/Y7F	Receive data of station (n + 15)	Transmission data of station (n + 15)	Input	Output	

REMARK

*1: The remote I/O station card data in an empty slot is treated as input.

Example: The following example assumes that the AJ72PT35 is set as station 5, a 16-point input module is installed in slot 0, a 16-point output module is installed in slot 1, and four stations are occupied.

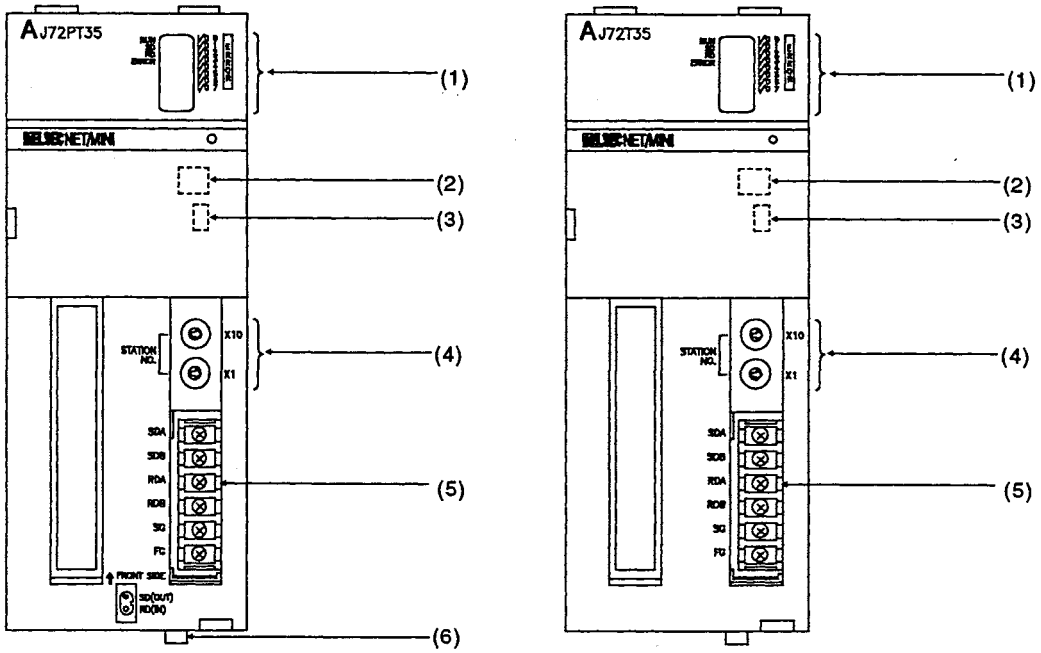


The number of stations: 5 stations
Occupied points: 4 stations

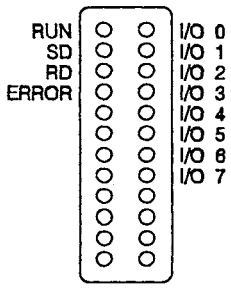
I/O Number	I/O Data Storage Location		Remote I/O Station Card Data	
	Input	Output		
X0 to X7	Receive data of station 5		Input	
X8 to XF	Receive data of station 6		Input	
Y10 to Y17		Transmission data of station 7		Output
Y18 to Y1F		Transmission data of station 8		Output

7.3 Nomenclature

The names of the parts of AJ72PT35/AJ72T35 data link modules are indicated below.



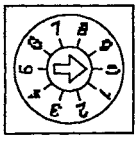
(1) Operating status indicator LEDs



For indicating operating status, error definition, etc.

LED Name	Indication
RUN	Light while data communication is being performed with the master station normally.
SD	Flashes when data is being transmitted.
RD	Flashes when data is being received.
ERROR	Lights when a receive data error occurs; OFF during normal communication.
I/O 0	Lights if fuse is blow or verify error is detected with the module loaded in slot 0; OFF under normal conditions.
I/O 1	Lights if fuse is blow or verify error is detected with the module loaded in slot 1; OFF under normal conditions.
I/O 2	Lights if fuse is blow or verify error is detected with the module loaded in slot 2; OFF under normal conditions.
I/O 3	Lights if fuse is blow or verify error is detected with the module loaded in slot 3; OFF under normal conditions
I/O 4	Lights if fuse is blow or verify error is detected with the module loaded in slot 4; OFF under normal conditions.
I/O 5	Lights if fuse is blow or verify error is detected with the module loaded in slot 5; OFF under normal conditions.
I/O 6	Lights if fuse is blow or verify error is detected with the module loaded in slot 6; OFF under normal conditions.
I/O 7	Lights if fuse is blow or verify error is detected with the module loaded in slot 7; OFF under normal conditions.

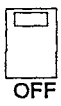
(2) Occupied station number setting switch



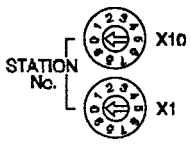
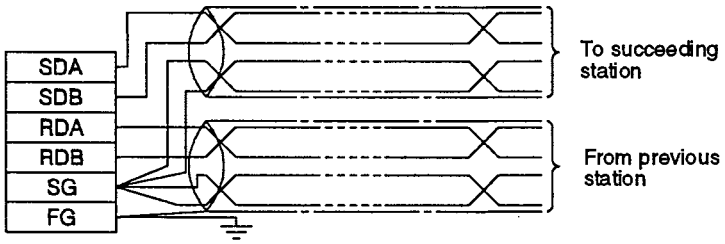
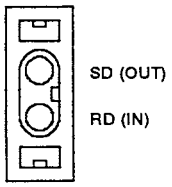
Occupied station points are determined by setting No. of the setting switch.
The number of I/O points per station of the occupied points is 8 points.
Every 4-station unit, 4 to 16 stations in 4 different levels, can be set.
If the setting switch of 0 is set to 5 to 9, the number of occupied points is 16 stations.

Setting No.	Occupied point
1	4 stations (I/O points: 32 points)
2	4 stations (I/O points: 64points)
3	4 stations (I/O points: 96 points)
4	4 stations (I/O points: 128 points)

(3) E.C. MODE switch



Used to set whether outputs are retained or switched OFF when I/O refresh is stopped.

(4)	Station number setting switches 	• Used to set AJ72PT35/AJ72T35 in the range 1 to (64 – the number of stations occupied) +1). • X10 : Ten (10) digit of a station number • X1 : Units (1) digit of a station number
(5)	Terminal block	For connecting twisted-pair cables when twisted-pair cables are used to connect one station with another.  **REMARK** Twisted-pair cables are not required for optical data link. For details, see the MELSECNET/MINI-S3 master module User's Manual.
(6)	Optical fiber cable connector 	This connector is used for connecting to other station with an optical fiber cable. • (IN) RD : Connected to (OUT) SD of the previous station. • (OUT) SD : Connected to (IN) RD of the succeeding station. For connecting the cable, see the MELSECNET/MINI-S3 master module User's Manual for details.

7.4 AJ72PT35/AJ72T35 Data Link Module

The AJ72PT35/AJ72T35 allows the A series building block type I/O modules to be used on a remote I/O station.

(1) Loaded on the CPU slot of the main base unit.

(2) One module allows up to 128 I/O points to be used.

(3) Allows the number of stations occupied to be specified by the switch between 4 and 16 in increments of 4.

(4) Uses a batch I/O refresh system.

(5) The AJ72PT35 can be used for both optical and twisted-pair data links.

(6) The AJ72T35 can be used for twisted-pair data links.

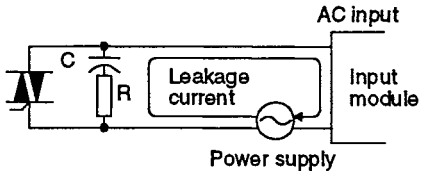
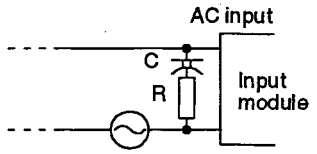
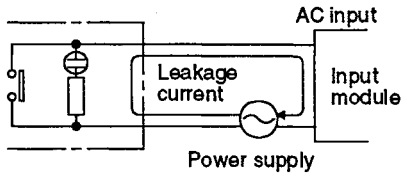
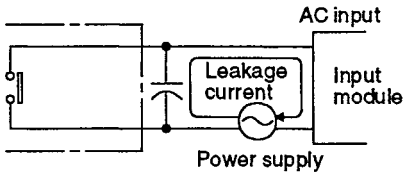
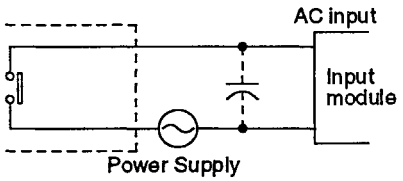
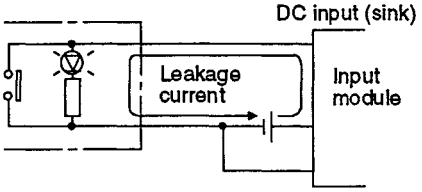
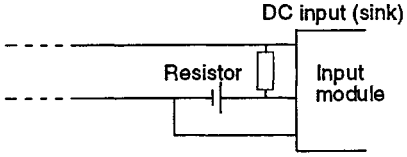
Specifications \ Type		AJ72PT35	AJ72T35	Remarks
AJ72PT35/ AJ72T35 each	Max. number of I/O modules	8		
	Max. number of I/O points	128		
	Number of stations occupied	4, 8, 12, 16 (Selected by the occupied station number setting switch)		The number of I/O points is set to 32, 64, 96 or 128 in accordance with the setting of the occupied stations.
Base unit used		A32B, A35B, A38B		Extension base must not be used.
Modules used		Building block type input, output, I/O compound (treated as output), and blank modules		Special modules must not be used.
5 VDC internal current consumption		0.5A	0.45A	
Weight kg (lb)		0.75 (1.65)		

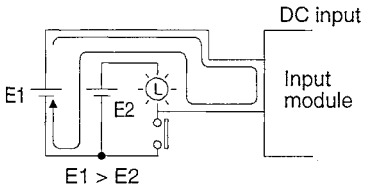
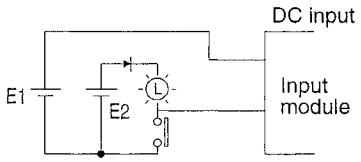
8. I/O CONNECTION TROUBLESHOOTING

This section explains possible problems with I/O circuits.

8.1 Input Circuit Troubleshooting

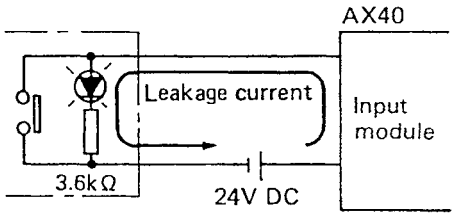
This section describes possible problems with input circuits, and corrective action.

	Condition	Cause	Corrective Action
Example 1	Input signal does not turn OFF.	• Leakage current of input switch (e.g. drive by non-contact switch). 	• Connect an appropriate resistor which will make the voltage across the terminals of the input module lower than the OFF voltage value.  It is recommended to use 0.1 to 0.47 μF + 47 to 120 Ω (1/2 W) for the CR constant.
Example 2	Input signal does not turn OFF.	• Drive by a limit switch with neon lamp. 	• Same as Example 1. • Or make up another independent display circuit.
Example 3	Input signal does not turn OFF.	• Leakage current due to line capacity of wiring cable. Line capacity C of twisted pair cable is approx. 100 PF/m. 	• Same as Example 1. • However, leakage current is not generated when the power supply is located in the input equipment side as shown below. 
Example 4	Input signal does not turn OFF.	• Drive by switch with LED indicator. 	• Connect a register which will make the voltage between the input module terminal and COM1 higher than the OFF voltage, as shown below.  * An example calculation of a value for a connected resistor is given on the following page.

	Condition	Cause	Corrective Action
Example 5	Input signal does not turn OFF.	• Sneak path due to the use of two power supplies. 	• Use only one power supply. • Connect a sneak path prevention diode. (Figure below) 

Example:

Calculation for Example 4

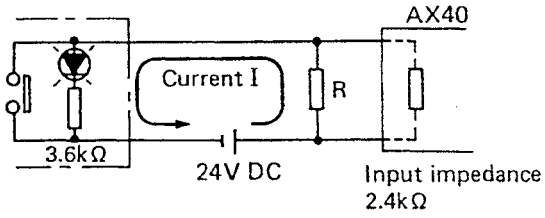


Consider a contact switch with LED indicator connected to an AX40 module, giving a 4mA leakage current.

- The voltage V_{TB} across terminal and common is obtained by the following expression:

  $V_{TB} = 4\ [mA] \times 2.4\ [K\Omega] = 9.6\ [V]$ (The voltage drop across the LED may be ignored.)

  The OFF threshold voltage is 6V so that the input will remain energized when the contact switch is open. Use resistor R as shown below:



- Calculate the resistor value, R, as shown below:
  For an input voltage < 6V, current I must be:

  $(24 - 6[V]) \div 3.6[k\Omega] = 5mA$

  Resistor R must be selected to give a current I > 5mA.

- Hence, for resistor, R

  $6[V] \div R > 5 - 2.5[mA]$
  $6[V] \div 2.5[mA] > R$
  $2.4[k\Omega] > R$

For R = 2kΩ, the power capacity must be:

W = (applied voltage)²/R (or W = (maximum current)² × R)

Resistor R terminal voltage is:

$$\frac{2.4 \times 2}{2.4 + 2}(k\Omega) : \frac{2.4 \times 2}{2.4 + 2} + 3.6(k\Omega) = X : 24(V)$$

$X = 5.58(V)$

Therefore, the power capacity W of resistor R is

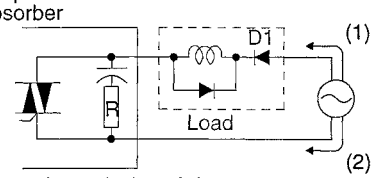
$W = (5.58[V])^2/2[k\Omega] = 0.015[W]$

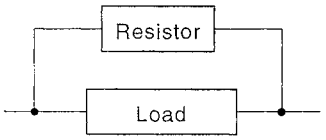
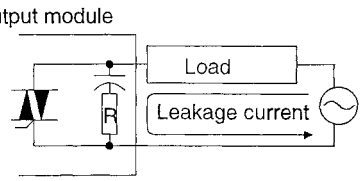
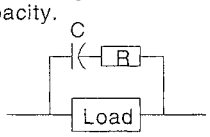
- Use a safety factor of 3 to 5. Resistor should therefore be rated at 0.5 to 1W.

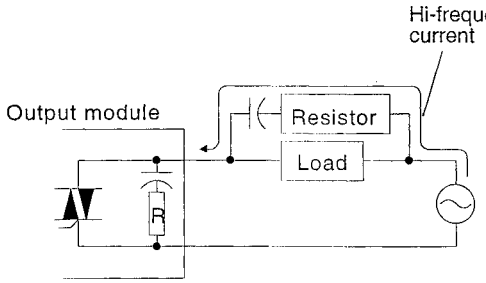
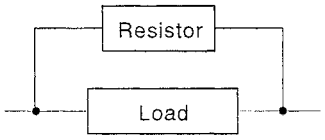
  A 3kΩ, 0.5 to 1W resistor should therefore be connected across the relevant input terminal and its COM.

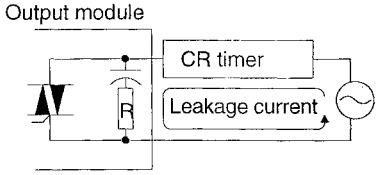
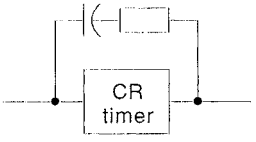
8.2 Output Circuit Failures and Corrective Action

This section describes possible problems with the output circut and corrective actions.

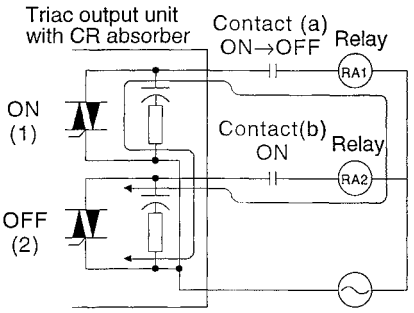
<table>
<tr><th></th><th>Condition</th><th>Cause</th><th>Corrective Action</th></tr>
<tr><td>Example 1</td><td>When the output is OFF, excessive voltage is applied to the load.</td><td>• Load is half-wave rectified inside (in some cases, this is true of a solenoid).
Output module with CR absorber
 

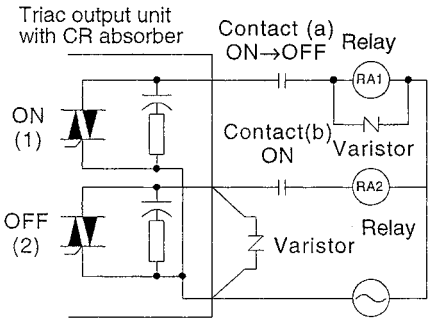
• When the polarity of the power supply is as shown in (1), C (or capacitive varistor) is charged. When the polarity is as shown in (2), the voltage charged in C (or capacitive varistor) plus the line voltage are applied across D1. Max. voltage is approx. 2.2E.</td><td>• Connect a resistor of 10 to 999 kΩ across the load.
(If a resistor is used in this way, it does not pose a problem to the output element. But it may cause the diode, which is built into the load, to deteriorate, resulting in a fire, etc.)
 
</td></tr>
<tr><td>Example 2</td><td>The load does not turn OFF</td><td>• Leakage current due to built-in noise suppression
 
</td><td>• Connect a resistor across the load.
(When the wiring distance from the output card to the load is long, there may be a leakage current due to the line capacity.)
 

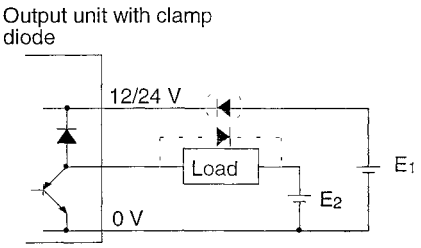
It is recommended to use 0.1 to 0.47 μF + 47 to 120 Ω (1/2 W) for the constant of CR.</td></tr>
<tr><td>Example 3</td><td>Load turns OFF with a delay.</td><td>• Leakage current due to a noise suppression for load
 
</td><td>• Disconnect the noise suppression from both ends of the load and leave the resistor only.
(When the wiring distance from output card to load is long, there may be a leakage current due to the line capacity.)
 

Resistance standard:
At 100 VAC: 5 to 10 kΩ, 5 to 3 W
At 200 VAC: 10 to 20 kΩ, 15 to 10 W</td></tr>
<tr><td>Example 4</td><td>When the load is a CR type timer, time constant fluctuates .</td><td> 
</td><td>• Drive the CR type timer from the same contact as the relay.
(Some timers have half-wave rectified internal circuits. Take precautions as indicated on Example 1.)
 

Calculate the CR constant depending on the load.</td></tr>
</table>

<table>
<tr><th></th><th>Condition</th><th>Cause</th><th>Corrective Action</th></tr>
<tr><td>Example 5</td><td>Load turns ON only for an instant when output turns OFF.</td><td>• Counter electromotive voltage due to ON/OFF operation of external relays.
 

• When output (1) is ON and output (2) is OFF, and when contact (a) is turned from ON to OFF, the counter electromotive voltage produced at external relay RA1 makes output (2) turn ON for an instant and external relay RA2 turn ON for an instant.</td><td>• Connect a varistor to both ends of the load or triac output.
 

• Varistor of which element diameter is 7 ϕ or more and of 430 V recommended.</td></tr>
<tr><td>Example 6</td><td>Load does not turn OFF. (for DC use)
(Panel-mounted and stand-alone remote I/O units only)</td><td>• Sneak path due to the use of two power supplies.
 

• When $E_1 < E_2$, snake path occurs.</td><td>• Reduce the power supplies from two to one.
• Connect a sneak path prevention diode.
(When the load is a relay or similar device, it is necessary to connect reverse-voltage absorbing diode to the load. (Shown by the dotted line in the figure at left))</td></tr>
</table>

POINT

Specifications recommended for the capacitor and resistor used in Examples 2 and 4 are as follows.

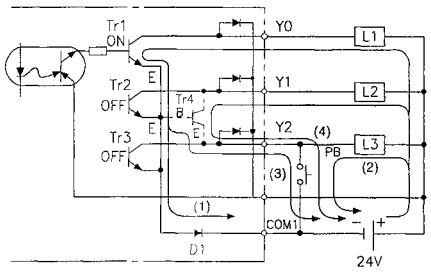
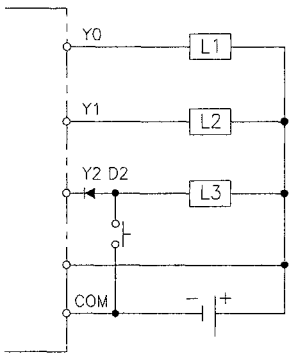
(1) Combination of capacitors and resistors

C	0.1 μF	0.47 μF	0.5 μF
R	120 Ω	47 Ω	50 Ω

(2) Rated voltage of C is 630 VDC or 200 VAC.

(3) Power capacity of R is 1/2 W or more.

(4) When power consumption of load is 30 VA or higher, use C and R of 0.47 μF + 47 Ω.

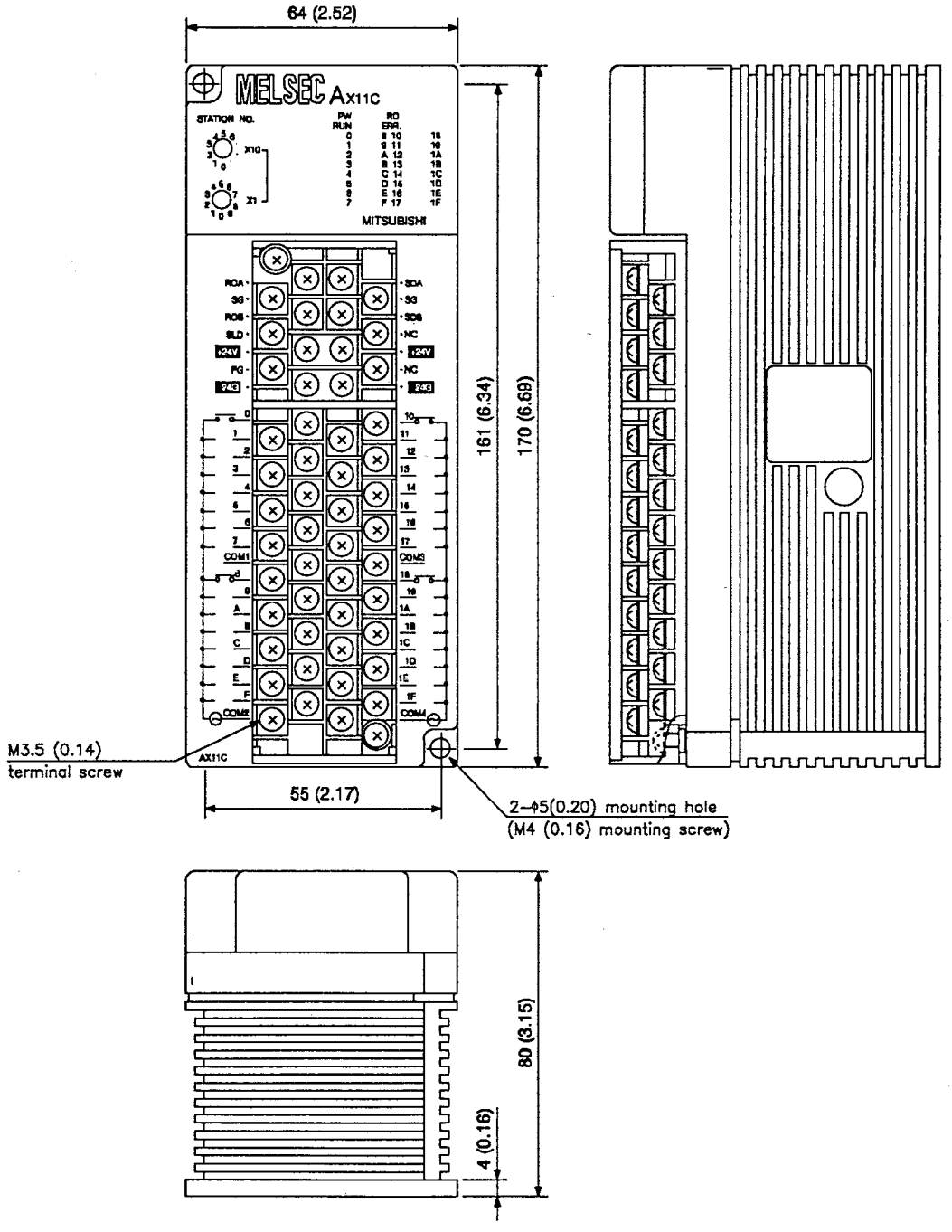
	Condition	Cause	Corrective Action
Example 7	When using an external switch connected between the output and common in a parallel circuit, the voltage between Y1 and COM1 does not become the load voltage of 24 V, but drops to a value between 0 and 24 V, even though Y1, which does not have an external switch, is turned OFF. The problem of low output occurs especially when load L2 is a light one (LED lamp, photocoupler) and the load current is small. (For panel-mounted type and out-of-panel type remote I/O units only.)	• Faulty output due to the parasitic transistor (Tr4).  • Y2 can turn ON load L3 either from PC or PB. When PB is ON, Y0 is turned ON by PC, and Y1 is OFF: (1) L1 (current (1)) and L3 (current (2)) are turned ON. (2) D1 is connected between COM1 and the emitter E, and a potential difference arises with respect to COM1. (3) Transistors for AY40 to AY42 include the parasitic transistor (Tr4). (4) The potential difference mentioned in (2) acts between the base (B) and emitter (E) of TR4, causing the base current (3) to flow. (Tr is turned ON.) (5) As a result of (4) above, the collector current (4) flows, and the voltage of Y1 drops to a value between 0 and 24 V.	 • Add D2 (IF = approx. 1A) to the output Y2 which is connected to the external switch. (Prevents currents (3) and (4) in the figure above from flowing.) When Y2 is turned ON, the voltage increases to between 0.6 and 1V; check the operation voltage of L3.

APPENDICES

APPENDIX 1 EXTERNAL DIMENSIONS

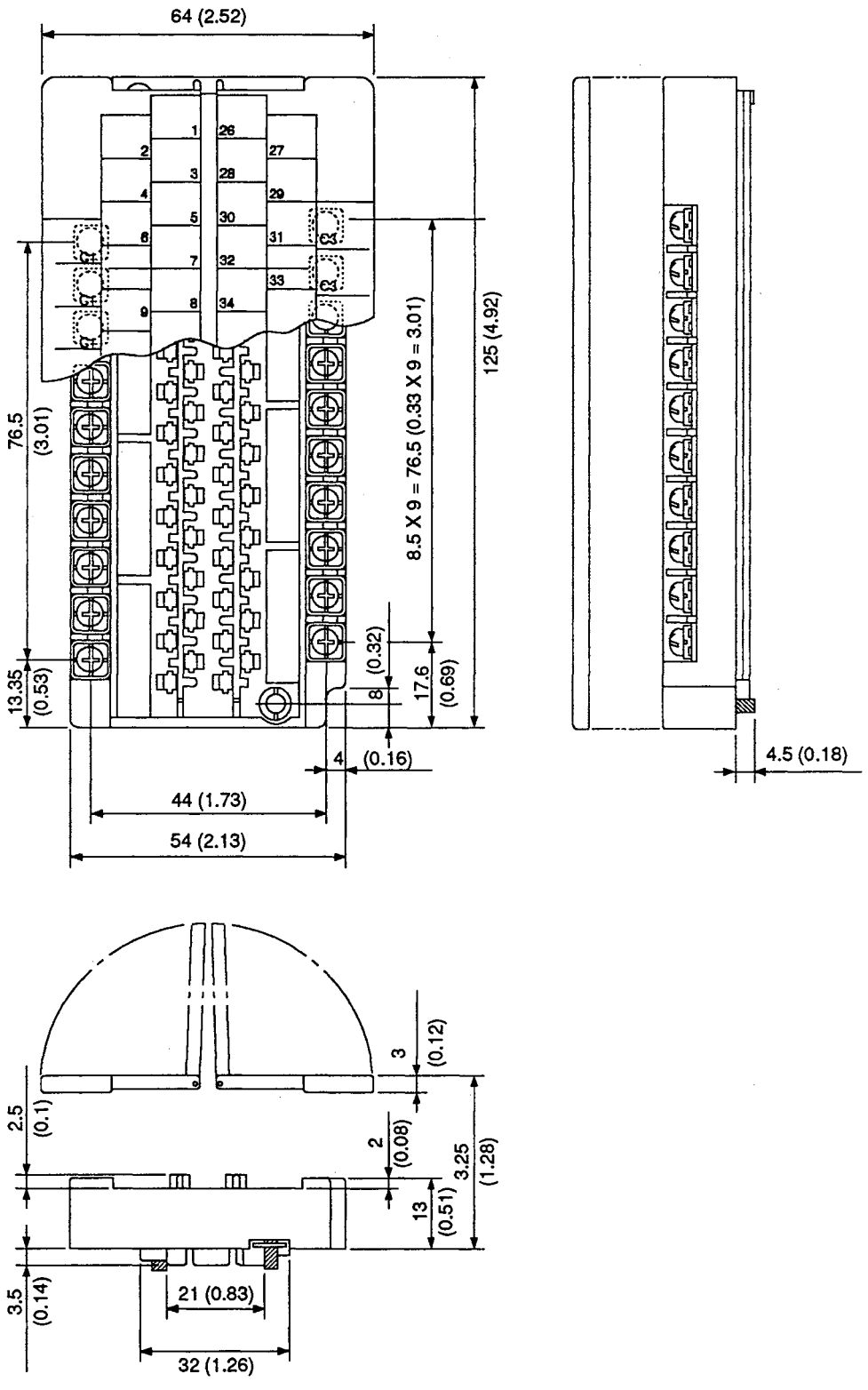
1.1 A2C I/O Unit

The external dimensions of the AX[ ]C, AY[ ]C, and AX[ ]Y[ ]C are shown in the figure below.



1.2 Common Terminal Block

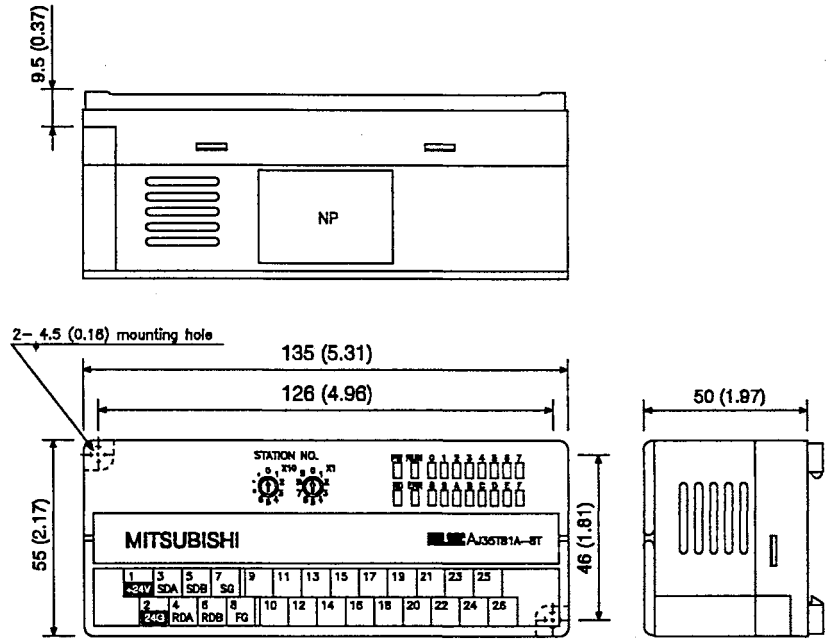
The external dimensions of the A2CCOM-TB are shown in the figure below.



Unit : mm (inch)

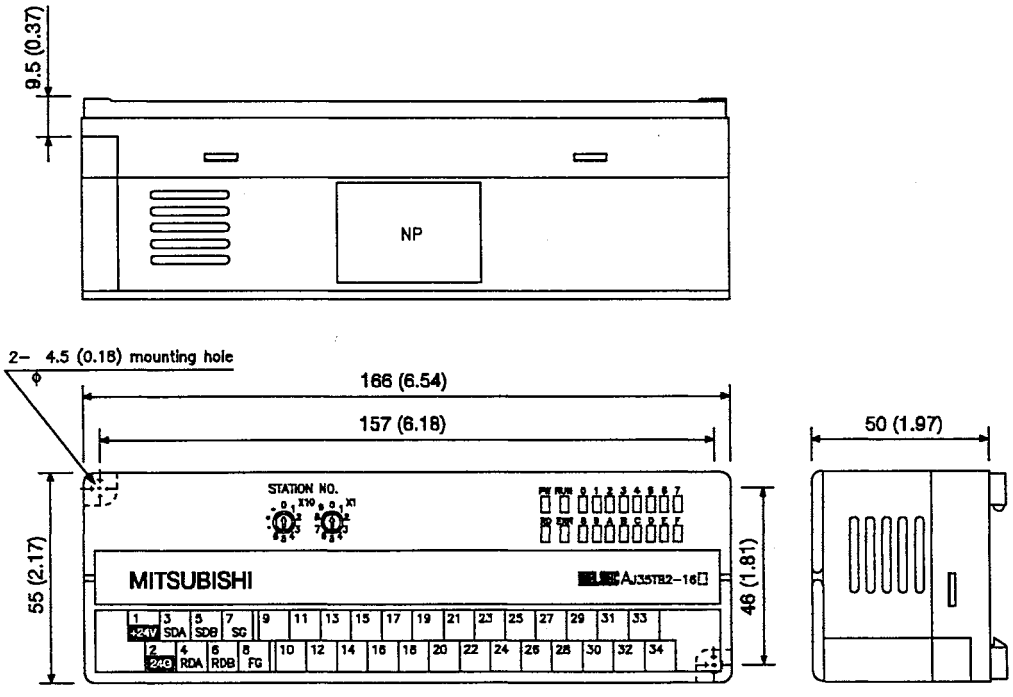
1.3 Remote Terminal Block I/O Units and Remote Connector I/O Units

(1) External dimensions of 26-point terminal block module type



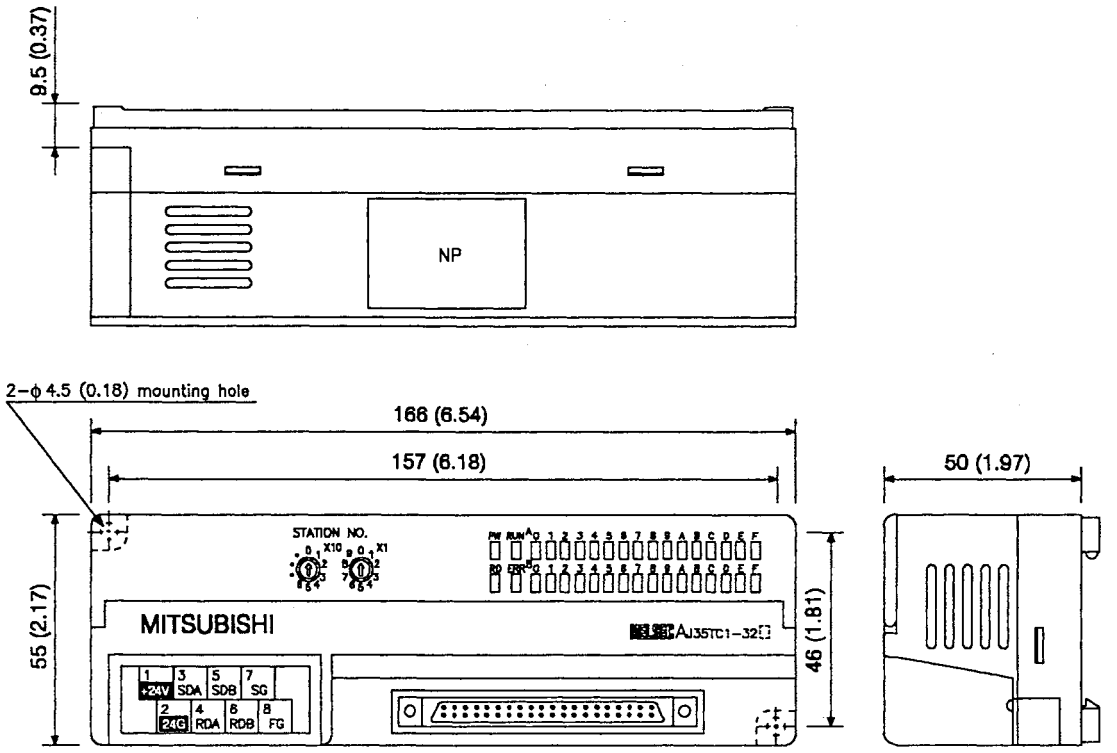
Unit : mm (inch)

(2) External dimensions of 34-point terminal block module type



Unit : mm (inch)

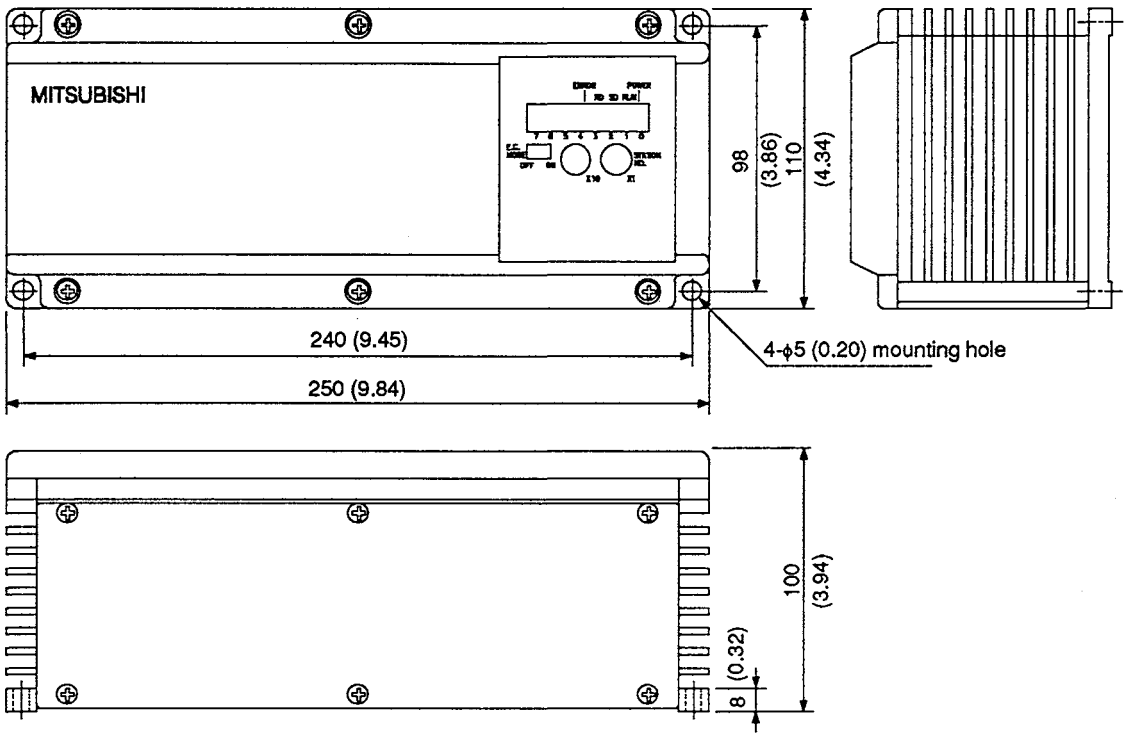
(3) External dimensions of the AJ35TC1-32[ ] series.



Unit : mm (inch)

1.4 Stand-Alone Remote I/O Units

(1) External dimensions of the AJ35[ ]J-8[ ] series

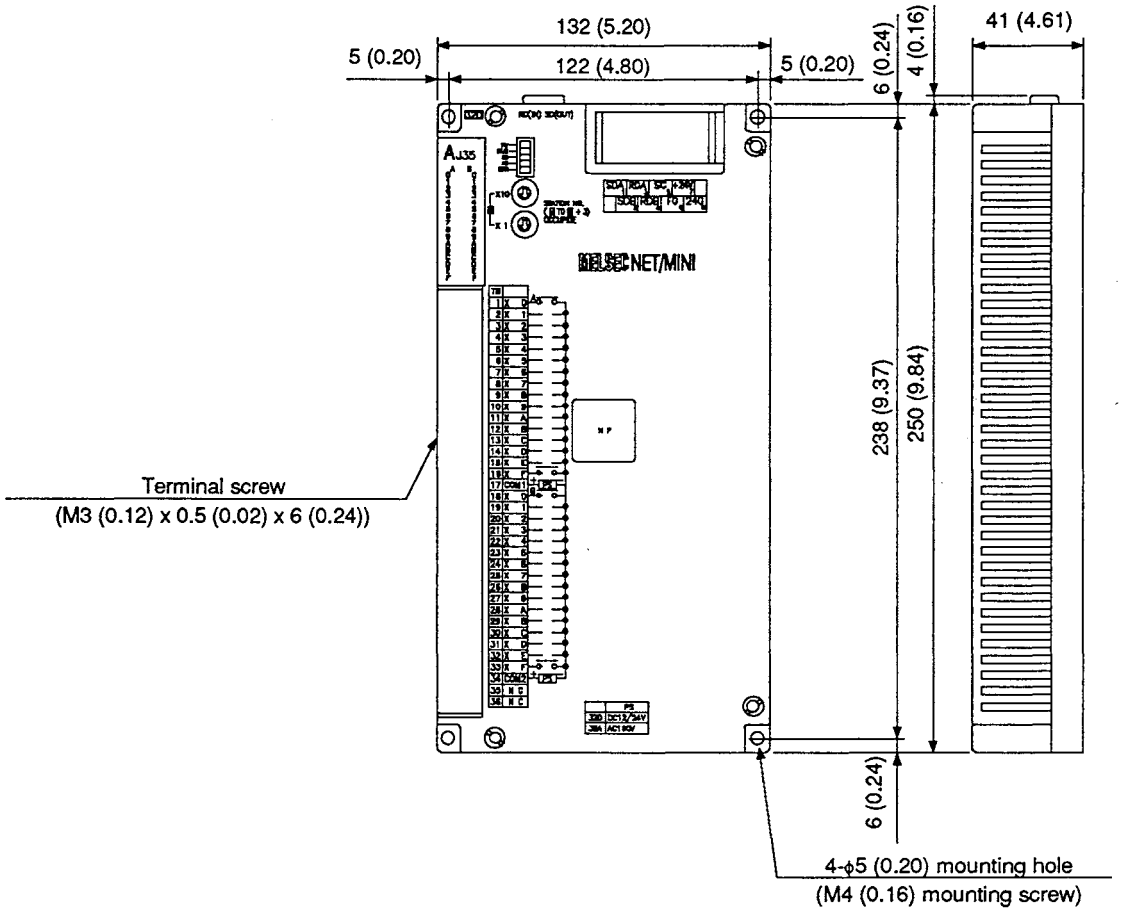


Unit : mm (inch)

1.5 Compact Remote I/O Unit

(1) External dimensions of the AJ35PTF-32, 28, 24[ ][ ] series

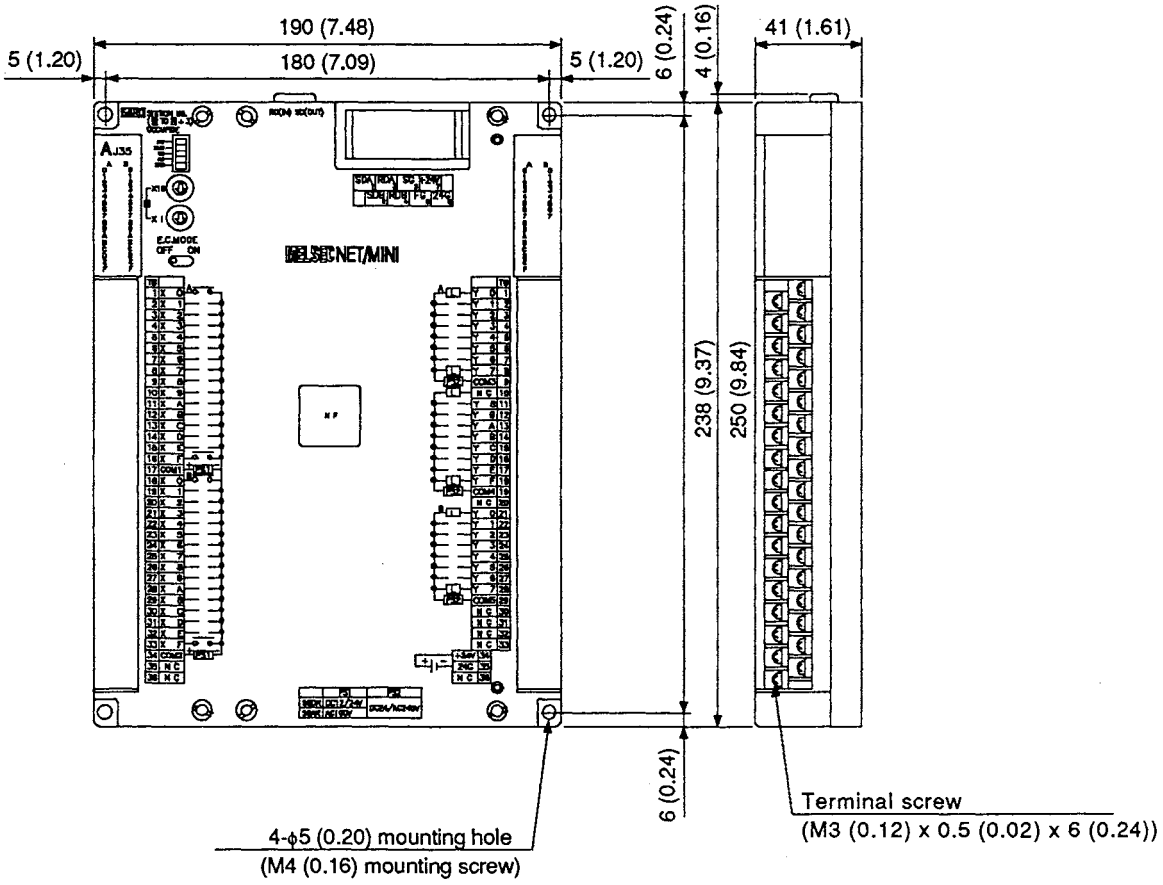
The following diagram is for the AJ35PTF-32[ ] which is equal in external dimensions to the AJ35PTF-28[ ][ ] and AJ35PTF-24[ ].



The length of the M4 (0.16) installation screw should be between 18 (0.71) and 20mm (0.79 inch).

Unit : mm (inch)

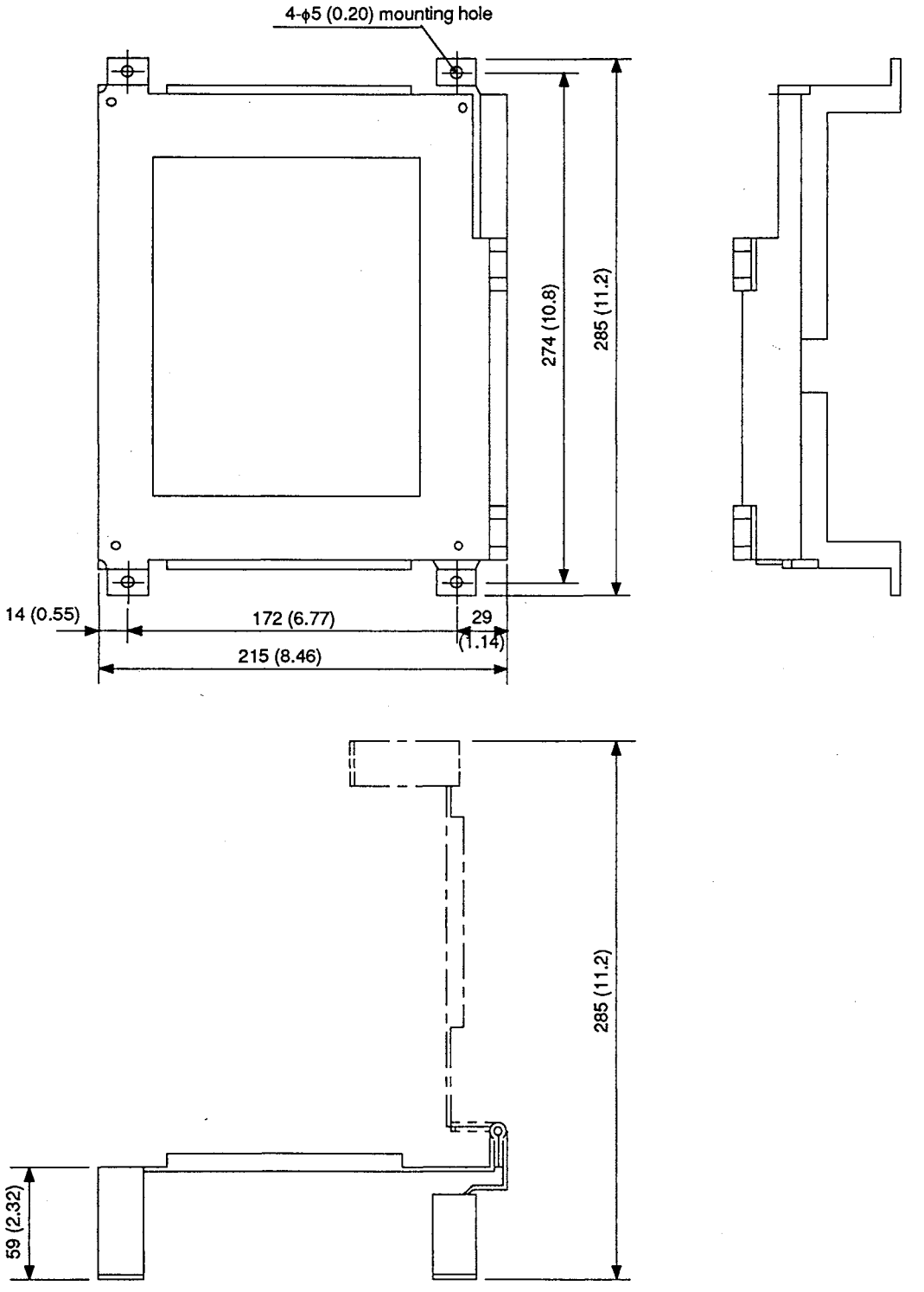
(2) External dimensions of the AJ35PTF-56[ ][ ] series



The length of the M4 (0.16) installation screw should be between 18 (0.71) and 20mm (0.79 inch).

Unit : mm (inch)

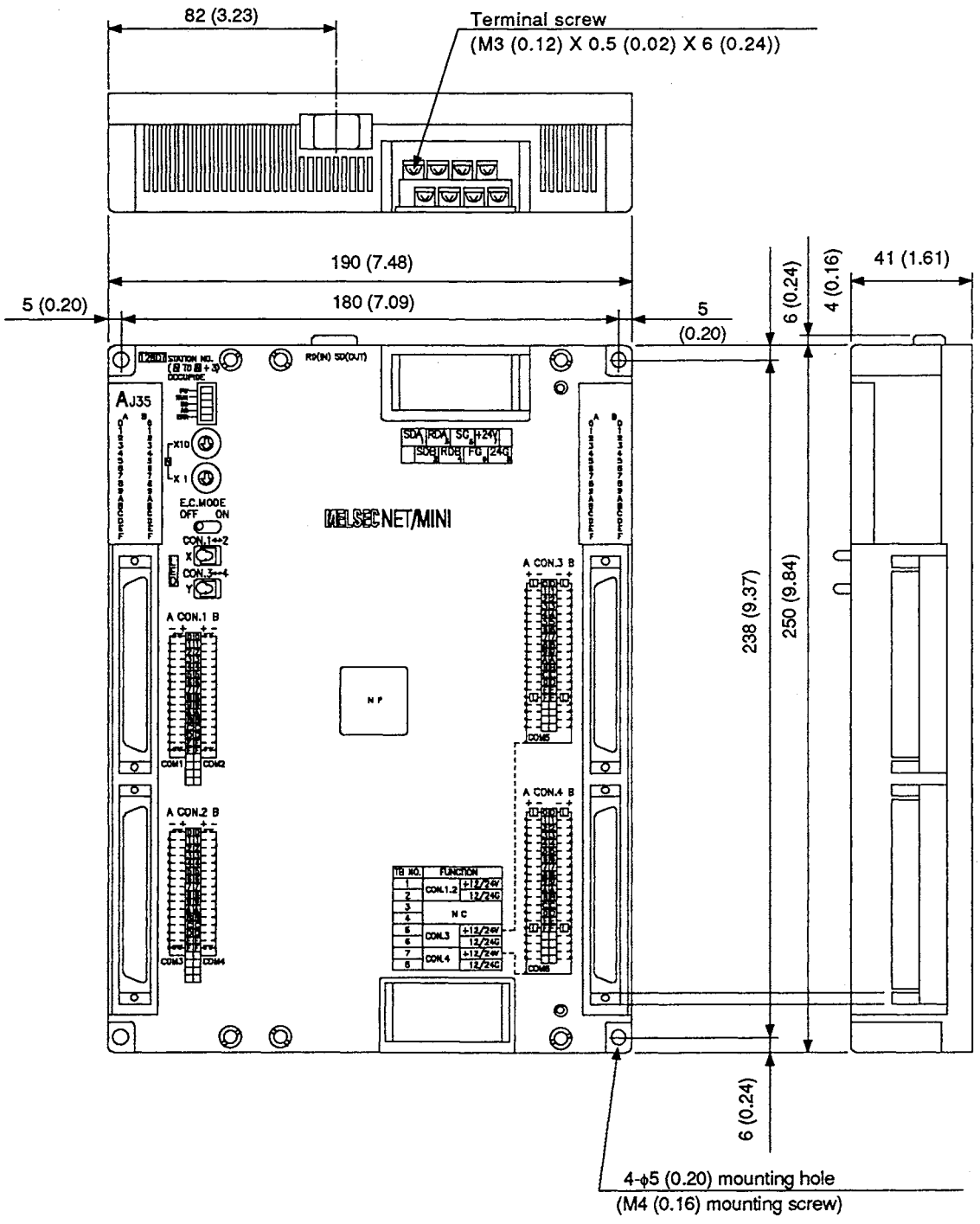
1.6 A0J2-2F Bracket Dimensions



Unit : mm (inch)

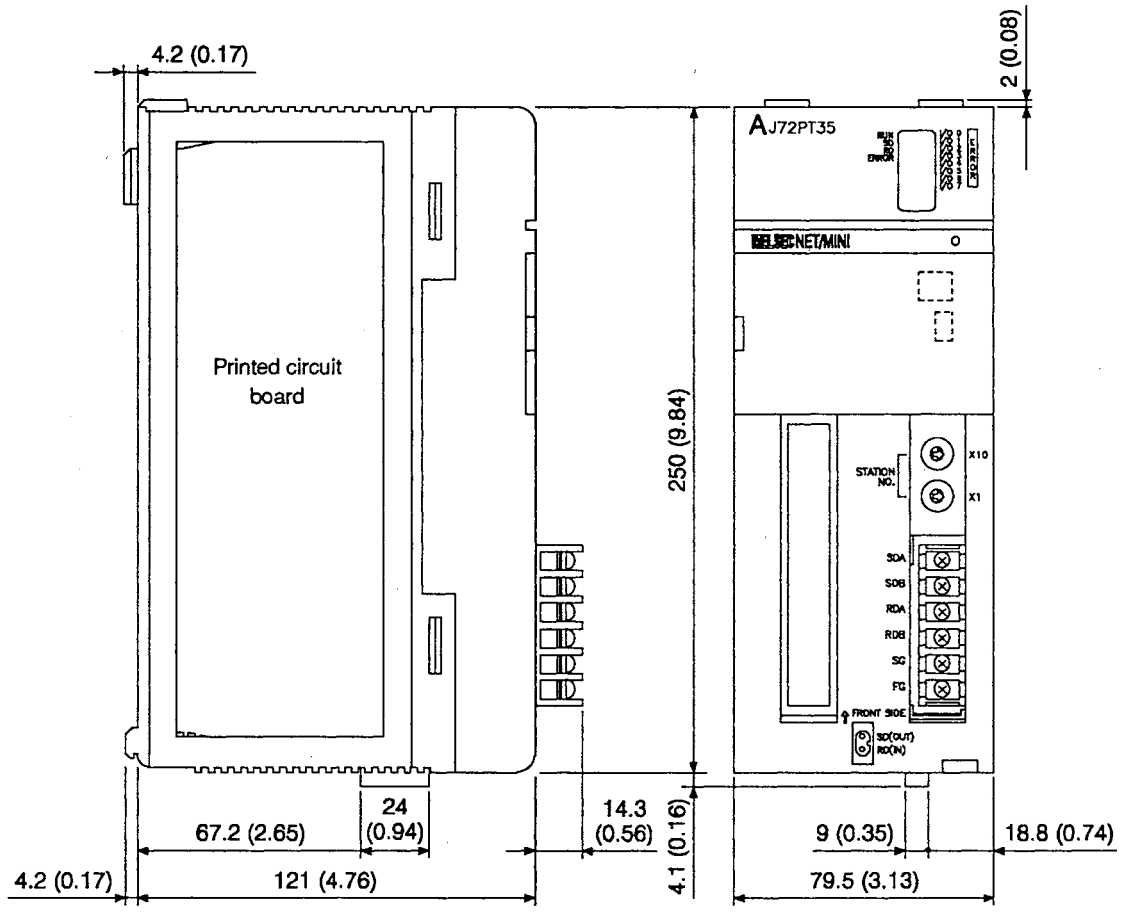
1.7 Partial Refresh Type I/O Units

The external dimensions of the AJ35PTF-128DT are shown in the figure below



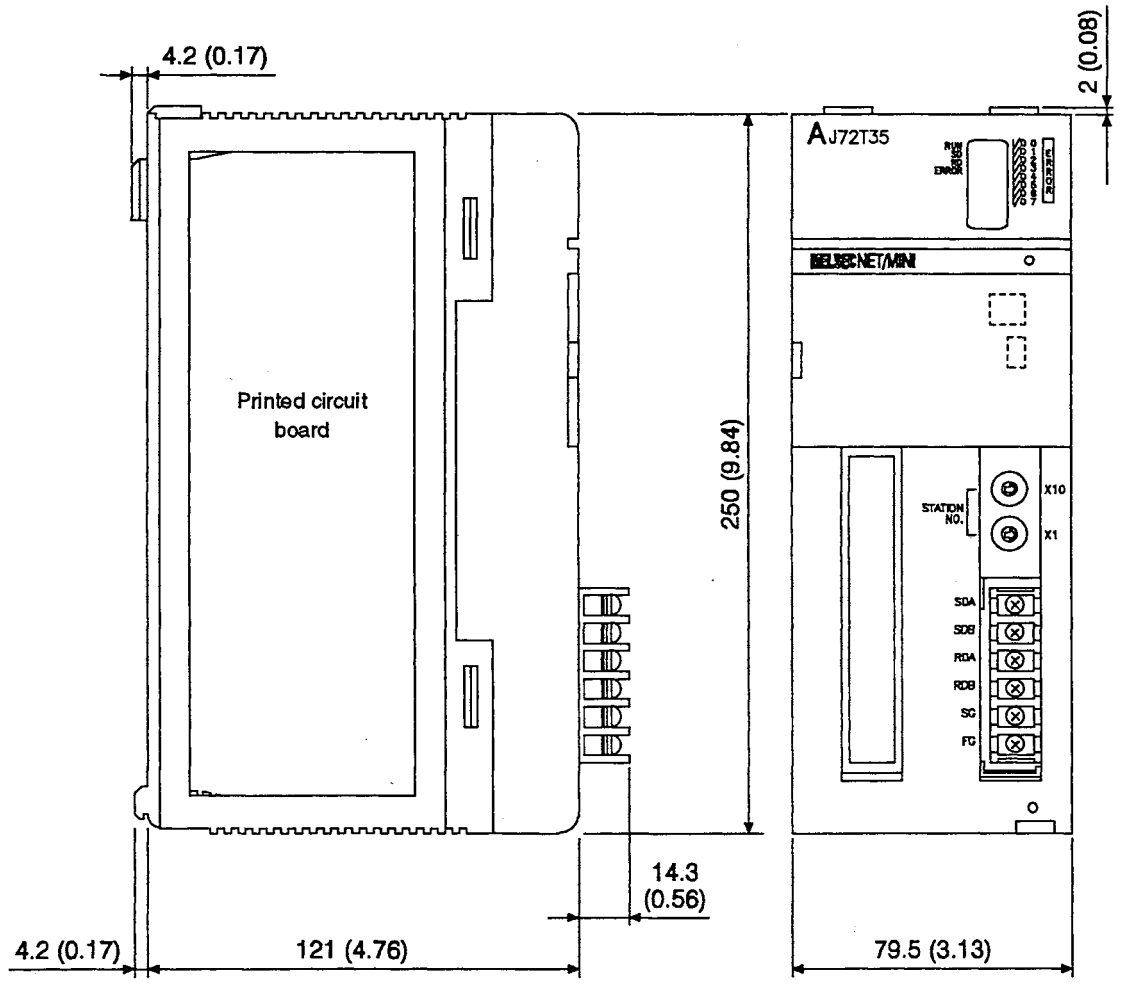
Unit : mm (inch)

1.8 AJ72PT35 Data Link Module



Unit : mm (inch)

1.9 AJ72T35 Data Link Module



Unit : mm (inch)

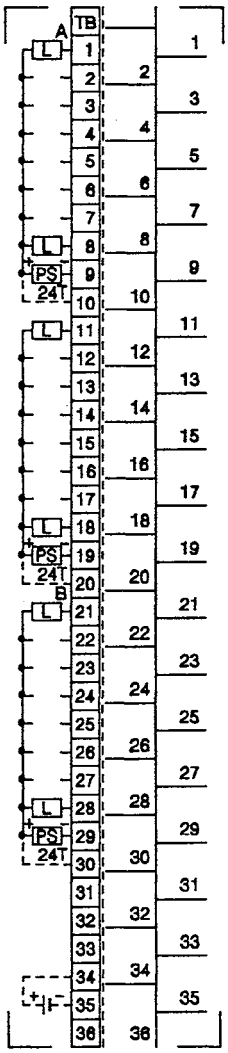
APPENDIX 2 TERMINAL SYMBOL SHEETS FOR COMPACT REMOTE I/O UNITS

Cut and apply any of the following sheets to the corresponding terminal block cover if the silkscreen terminal diagram of the first I/O unit is hidden under the second unit.

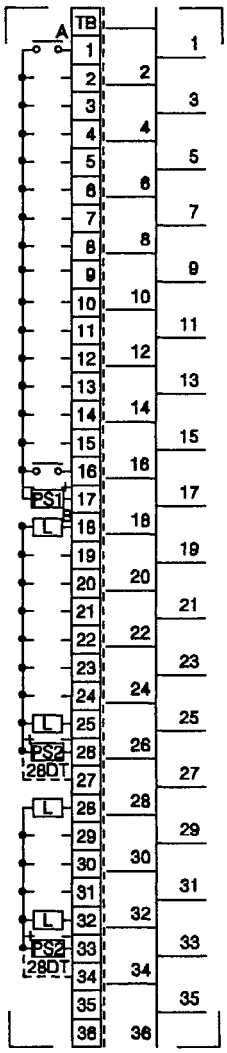
AJ35PTF- [ ][ ][ ]

The external dimensions of the AX[ ]C, AY[ ]C, and AX[ ]Y[ ]C are shown in the figure below.

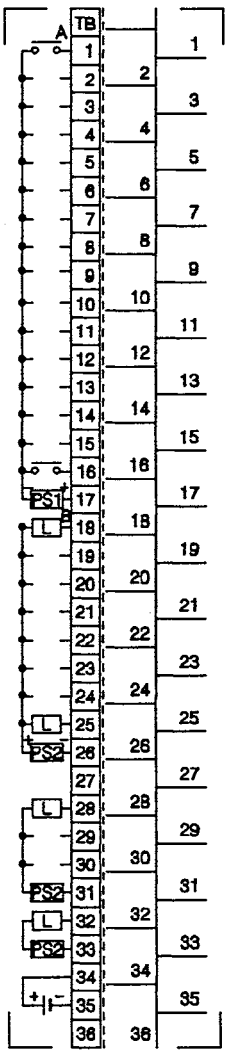
24[ ]



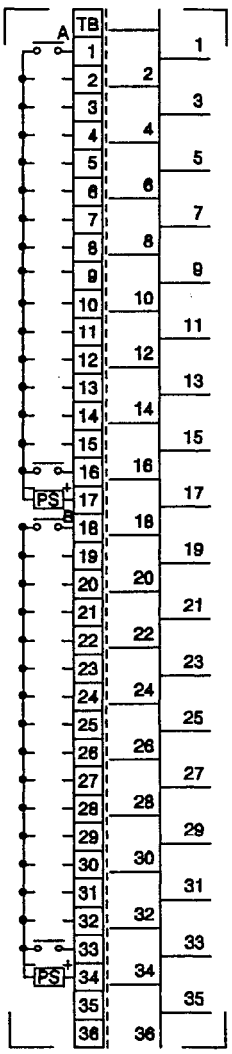
28DS, DT, AS



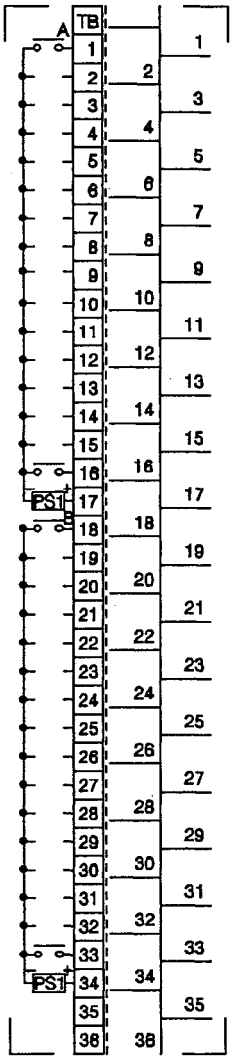
28DR, AR



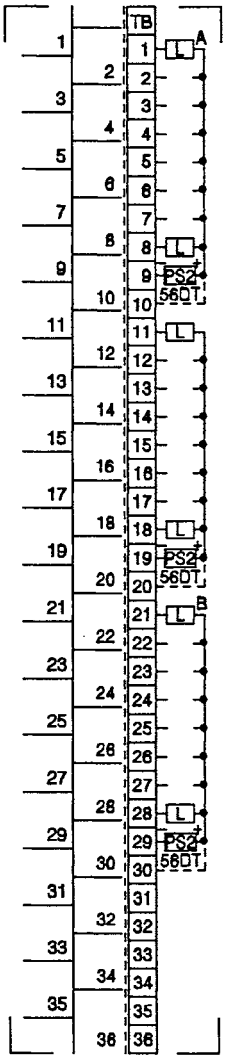
32[ ]



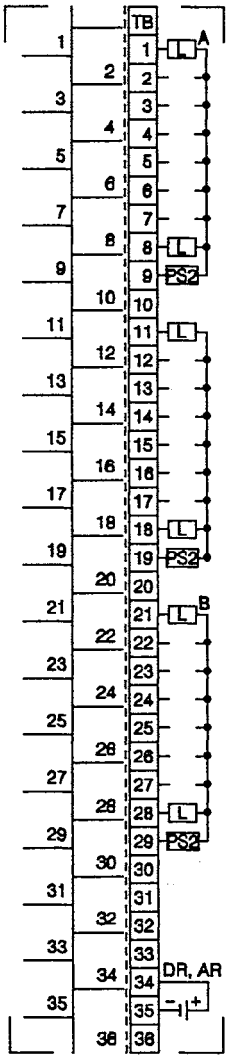
Left-hand terminal block of 56[ ][ ]



Right-hand terminal block of 56DS, DT, AS



Right-hand terminal block of E56DR, AR



APPENDIX 3 CONNECTORS FOR STAND-ALONE TYPE I/O UNITS

3.1 Procurable Modules of Plug for Power Supply Connectors and Supplier Details

The models of plug that can be procured for connection to the CONPS and CONPR power supply connetors of the unit, and details of the relevant suppliers, are listed below.

Procurable model MS3106E16S-1S
Supplier details JAE CO.LTD

- JAE Electronics. Inc.

  142 Technology Drive, Suite 100 Irvinc,
  California 92718-2401, U.S.A.
  Phone. 714(753)2600/Fax 714(753)2699

- JAE Electronics, Inc. Florida Sales Office

  2857 N.E. 26 Street Fl. Landerdale,
  Florida 33305, U.S.A.
  Phone 305(563)3484/Fax 305(563)3507

- JAE Oregon. Inc.

  11555 S.W. Leveton Drive Tualatin,
  Oregon 97062 U.S.A.
  Phone 503(692)1333/FAX 503(692)4193

- JAE Electronics, Inc. U.K. Branch Office

  Suite 21B Coliseum. Watchmoor Park Camberley
  Surrey GU15 3YL, England
  Phone (0276)21717/Fax (0276)66165

- JAE Hong Kong, Ltd.

  Rm 1301 GRANDMARK Nos, 8A-10
  Granville Road Tsimshatsui, Kowloon, Hong Kong
  Phone 852(723)7782/FAX 852(723)9028

- JAE Taiwan, Ltd.

  35, 20RD Industrial Park, 40813
  Taichung, Taiwan, R.O.C.
  Phone (04)359-3633/Fax (04)359-3697

3.2 Procurable Models of Plug for Communications Connectors and Supplier Details

The models of plug that can be procured for connection to the CONS and CONR communications connectors of the unit, and details of the relevant suppliers, are listed below.

Procurable model XS2A-A421
Supplier details OMRON CO.LTD

- GERMANY

  OMRON ELECTRONICS GinbH
  Oberrather Strasse 6 W-4000 Düsseldorf 30
  Phone 49-211-9658-0/Fax 49-211-9658-107

- U.K.

  OMRON ELECTRONICS LTD.
  I Apsley Way/Staples Corner LONDON NW27HF
  Phone 44-81-450-4646/Fax 44-81-450-3186

- U.S.A.

  OMRON ELECTRONICS INC.
  1 East Commerce Dr., Schaumburg, IL 60173
  Phone 1-708-843-7900/Fax 708-843-8568

- CANADA

  OMRON CANADA INC.
  350 Middlefield Road, Scarborough, Ontario M1S5B1
  Phone 1-416-298-9988/Fax 1-416-293-1816

- HONG KONG

  OMRON ELECTRONICS ASIA LTD.
  Unit 1510-12, Silvercord Tower 1
  30, Canton Road, Tsimshatsui, Kowloon
  Phone 852-375-3827/Fax 852-375-1475

- AUSTRALIA

  OMRON ELECTRONICS PTY. LTD.
  Unit 3A 13 Rodborough Rd. Frenchs Forest N.S. W2086
  Phone 61-2-975-1511/Fax 61-2-975-1518

- NEW ZEALAND

  OMRON ELECTRONICS LIMITED
  65 Boston Road, Private Bag, Symond Street, Auckland
  Phone 64-9-358-4400/Fax 64-9-358-4411

3.3 Procurable Models of Plug for I/O Connectors and Supplier Details

The models of plug that can be procured for connection to the CONX1-CNX16 and CONY1-CONY16 I/O connectors of the unit, and details of the relevant suppliras, are listed below.

Procurable model	XS2A-D421
Supplier details	OMRON CO.LTD

IMPORTANT

(1) Design the configuration of a system to provide an external protective or safety inter locking circuit for the PCs.

(2) The components on the printed circuit boards will be damaged by static electricity, so avoid handling them directly. If it is necessary to handle them take the following preautions.

(a) Ground your body and the work bench.

(b) Do not touch the conductive areas of the printed circuit board and its electrical parts with non-grounded tools, etc.

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.

Owing to the very great variety in possible applications of this equipment, you must satisfy yourself as to its suitability for your specific application.

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not , compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

(1) In using the Mitsubishi MELSEC programmable logic controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
(2) The Mitsubishi programmable logic controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the programmable logic controller applications.
In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation, equipment for recreation and amusement, and safety devices, shall also be excluded from the programmable logic controller range of applications.
However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

A2C, MELSECNET/MINI-S3 I/O MODULE

User's Manual

MODEL	A2C,MINI-I/O-U-E
MODEL CODE	13JL00
SH(NA)-3546-F(0601)MEE	

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN