User's Manual

BATCH REFRESH TYPE REMOTE I/O UNIT MELSECNET/ MINI-S3

A Series Programmable Controllers

MITSUBISHI

Cat. No. UMMM(S3)

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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.

1. INTRODUCTION

- 2. SYSTEM CONFIGURATION
- 3. PRE-OPERATION SETTING AND PROCEDURE
- 4. PROGRAMMING
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1. INTRODUCTION

This manual includes specifications, handling instructions and programming procedures for batch refresh type remote I/O units connected to and used in the MELSECNET/MINI-S3 data link system (referred to as "MINI-S3").

"Batch refresh type remote I/O units" are remote I/O units; all points are batch processed by one I/O refresh of the MINI-S3 link master station.

Batch refresh type remote I/O units enable high-speed I/O operations by accomplishing batch processing with one I/O refresh.

Information related to the operation of the batch refresh type remote I/O unit not found in this manual is available in the following manual:

AJ71PT32-S3 type MELSECNET/MINI-S3 Master Module User's Manual.

Another type of remote I/O unit that can be connected to and used with the MINI-S3 link is the partial refresh type remote I/O unit. Information related to the partial refresh type remote I/O unit is available in the following manual:

AJ35PTF-128DT Partial Refresh Type Remote I/O Unit User's Manual.

POINT

The batch refresh type remote I/O unit that is used in the MELSECNET/MINI-S3 is the same as that used in the MELSECNET/MINI.



1.1 Batch Refresh Type Remote I/O Unit

The following types of batch refresh type remote I/O units are used in the MELSECNET/MINI-S3 data link system.

- Stand-alone remote I/O unit
- Compact type remote I/O unit
- AJ72PT35 data link module
- (1) Stand-alone remote I/O unit
 - (a) Has high-strength, drip-proof casing made of aluminum diecast to allow direct installation to machinery for use as a cable junction box.
 - (b) The protection structure conforms to IP54G (JEM1030).
 - (c) One unit allows 8-point inputs or outputs.
 - (d) Occupies 1 station.
 - (e) Optical and twisted-pair data link modules are available.

REMARKS

The alphanumeric characters of the stand-alone remote I/O unit indicate the following:





- (2) 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.

 - (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)

REMARKS

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



Example: AJ35PTF-56 A R I/O unit



(3) AJ72PT35 link module

- (a) Loaded on the CPU slot of the main base unit to allow the A series building block type I/O modules to be used on a remote I/O station.
- (b) One module allows use of up to 128 I/O points.
- (c) Allows the number of stations occupied to be specified between 4 and 16 in increments of 4.
- (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).



1.2 Input and Output Methods

Data output and input to each of the remote I/O units is started when the communication start signal of the master module is set on.

Communication with a remote I/O unit normally occurs at 3.5 to 18ms intervals regardless of the sequence program scan time. (For further information concerning methods of input and output, see Section 4.1.)

(For further information concerning the I/O refresh timing, see the AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.)



- (1) Output to remote I/O units
 - When data is output to the remote I/O unit, the data is written to the transmission data area in the master module using the sequence program TO instruction.

Writing data to the transmission data area results in its being transmitted automatically to the remote I/O unit and output to external equipment.

(2) Input from remote I/O units

When input data from the remote I/O station is read, the data is read from the receive data area of the master module upon execution of the sequence program FROM instruction. When data is input from an external equipment to the remote I/O unit, the input data is automatically received in the receive data area of the master module.



2. SYSTEM CONFIGURATION

2.1 Overall Configuration





2.2 Applicable System

(1) The following master module can be used in the batch refresh type remote I/O units.

AJ71PT32-S3 (AJ71PT32)

- (2) Because the stand-alone remote I/O unit is enclosed in an aluminum diecast providing high-strength and drip-proof properties, it can be mounted directly to machinery.
- (3) Both compact type CPU remote I/O units and AJ72PT35 type data link modules are remote I/O units that be used in data link systems that utilize either optical fiber cable or twisted-pair data links.

This makes it possible to use both optical fiber and twistedpair cable in a single data link. For example, it is possible to receive using an optical data link connected to the RD side, and transmit using an twisted-pair data link connected to the SDA and SDB.



(4) The compact type CPU remote I/O unit and AJ71PT32 occupy multiple station points with one unit.

This requires that care be taken when assigning the total number of stations and the station numbers.

(For further information concerning the assignment of station numbers, see the AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.)



2.3 Notes on Selecting I/O Units

- (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 any transistor output unit of max. 0.1A load current 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 with large max. load current 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.

Load Voltage Item	12/24V DC Load	110/220V AC Load
Wiring length	3m (118.1inch) minimum	3m (118.1inch) minimum
Cable size	2mm² (14AWG) maximum	2mm² (14AWG) maximum
Short-circuit current	20A maximum	
Transformer capacity		2KVA maximum

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 fuse for AC. Define MP fuse for DC.

2. SYSTEM CONFIGURATION



(5) Relay life of relay output unit
 The required output unit should be selected by taking (1) above into consideration.

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2.4 Batch Refresh Type Remote I/O Unit

Name	Туре	Description	No. of Occupied Stations	
	AJ35PJ-8A	AC input, 100-120V AC, 8 points	1	
	AJ35PJ-8D	DC input (sink type), 12/24V DC, 8 points	1	
	AJ35PJ-8R	Contact output, 24V DC 2A, 240V AC 2A, 8 points	1	
	AJ35PJ-8S1	Triac output, 100-240V AC, 0.6A/point, 8 points	1	
Stand-alone Remote I/O Unit (For optical data link)	AJ35PJ-8T1	Transistor output (sink type), 12/24V DC, 0.1A/point, 8 points	1	
	AJ35PJ-8T2	Transistor output (sink type), 12/24V DC, 0.5A/point, 8 points	1	
	AJ35PJ-8T3	Transistor output (sink type), 12/24V DC, 2A/point, 8 points	1	
	AJ35PJ-8S2	Triac output, 100-240V AC, 2A/point, 8 points	1	
	AJ35TJ-8A	AC input, 100-120V AC, 8 points	1	
	AJ35TJ-8D	DC input (sink type), 12/24V DC, 8 points	1	
	AJ35TJ-8R	Contact output, 24V DC 2A, 240V AC 2A, 8 points	1	
Stand-alone	AJ35TJ-8S1	Triac output, 100-240V AC, 0.6A/point, 8 points	1	
Remote I/O Unit (For twisted-pair data link)	AJ35TJ-8T1	Transistor output (sink type), 12/24V DC, 0.1A/point, 8 points	1	
	AJ35TJ-8T2	Transistor output (sink type), 12/24V DC, 0.5A/point, 8 points	1	
	AJ35TJ-8T3	J35TJ-8T3 Transistor output (sink type), 12/24V DC, 2A/point, 8 points		
	AJ35TJ-8S2	Triac output, 100-240V AC, 2A/point, 8 points	1	
	AJ35PTF-32A	AC input, 100-120V AC, 32 points	4	
	AJ35PTF-32D	DC input (sink type), 12/24V DC, 32 points	4	
	AJ35PTF-24R	Contact output, 24V DC 2A, 240V AC 2A, 24 points	4	
	AJ35PTF-24S	Triac output, 100-240V AC, 0.6A/point, 24 points	4	
	AJ35PTF-24T	Transistor output (sink type), 12/24V DC, 0.5A/point, 24 points	4	
Compact Type Remote I/O Unit (for optical data link, twisted-pair data link)	AJ35PTF-28AR	AC input contact output, input side 100-120V AC, 16 points, output side 24V DC 2A, 240V AC 2A, 12 points	4	
	AJ35PTF-28AS	AC input triac output, input side 100-120V AC, 16 points, output side 100-240V AC, 0.6A/point, 12 points	4	
	AJ35PTF-28DR	DC input contact output, input side (sink type), 12/24V DC, 16 points, output side 24V DC 2A, 240V AC 2A, 12 points	4	
	AJ35PTF-28DS	DC input triac output, input side (sink type), 12/24V DC, 16 points, output side, 100-240V AC, 0.6A/point, 12 points	4	

Table 2.1 Remote I/O Unit (Continue)

2. SYSTEM CONFIGURATION

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Name	Туре	Type Description		
	AJ35PTF-28DT	DC input transistor output, input side (sink type), 12/24V DC, 16 points, output side (sink type), 12/24V DC, 0.5A/point, 12 points	4	
	AJ35PTF-56AR	AC input contact output, input side, 100-120V AC, 32 points, output side, 24V DC 2A, 24 points	8	
Compact Type	AJ35PTF-56AS	AC input triac output, input side, 100-120V AC, 32 points, output side, 100-240V AC, 0.6A/point, 24 points	8	
Remote I/O Unit (for optical data link, twisted-pair data link)	AJ35PTF-56DR	DC input contact output, input side (sink type), 12/24V DC, 32 points, output side, 24V DC 2A, 240V AC 2A, 24 points	8	
	AJ35PTF-56DS	DC input triac output, input side (sink type), 12/24V DC, 32 points, output side, 100-240V AC, 0.6A/point, 24 points	8	
	AJ35PTF-56DT	DC input transistor output, input side (sink type), 12/24V DC, 32 points, output side (sink type), 12/24V DC, 0.5A/ point, 24 points	8	
Data Link Module (for optical data link, twisted-pair data link)	AJ72PT35	Allows the building block type I/O modules to be used as remote I/O modules. • Max. number of modules : 8 • I/O points : 128 points • Number of occupied stations: 4, 8, 12, 16 (selected by switch)	See left	

Table 2.1 Remote I/O Unit



3. PRE-OPERATION SETTING AND PROCEDURE

3.1 Unit Handling Instructions

- (1) Do not remove printed circuit boards from the housing. Doing so could result in damage to the printed circuit boards. There are no user-serviceable parts on the boards.
- (2) When installing cables, ensure that no wire-cutoffs or other unwanted material enters the unit.
- (3) Do not subject the batch refresh type remote I/O units to shocks nor drop them.



3.2 Stand-Alone Remote I/O Unit

3.2.1 Pre-operational procedure





3.2.2 Nomenclature

(1) External view



3. PRE-OPERATION SETTING AND PROCEDURE

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For us	se as input unit				For use as outp	ut unit	
1	Cable clamp	For	fixing the	e optical fi	ber cable		
0	Terminal block	For Tern	informati ninal scr	ion concer ews (M3 >	ver and I/O signa ning wiring, see S < 6) 9 8kg·cm (4.33 to	Section 5	
3	Optical fiber cable connecter SD (OUT) CO RD (IN) Transmission A Receive terminal	ioù-	T) SD: C	onnected t	o (OUT) SD of th o (IN) RD of the AJ71PT32-S3 MEL	succeedi	
	Operating status indicator LEDs	ſ	LED		efinition	LED	Definition
			POWER	Lit when V	O unit power is on.	0	
			RUN		correct data com- with the master	1	
	ERROR POWER		SD	Flickers w transmitter	hile data is being 1.	2	
(4)	FUSE RD SD RUN 000000000 000000000		RD	Flickers w received.	hile data is being	3	Indicates the corresponding input/output ON/OFF state.
	7 6 5 6 3 2 1 0	•1	ERROR	detected.	ceive data error is uring correct data ation.	4	
						5	4
		•2	FUSE	Lit when a	fuse has blown.	<u>6</u> 7	4]]
		- L		*1: Only	remote output un remote output un	nit.	fuse.
5	Station number setting witches 0100 X10 X1	 Used to set the remote I/O station number in the range 1 to 64. X10: Left digit of a station number X1 : Right digit of a station number 					
6	FG wire	Con	nect grou	und wire f	rom TB6. This als	o groun	ds the case.
Ø	E.C. MODE switch E.C. MODE OFF ON		Connect ground wire from TB6. This also grounds the case. Used to set whether outputs are retained or switched OFF when I/O refresh is stopped. For further details, see Section 3.2.4.				
8	Fuse	OFF ON For fuses used with individual modules, see the specifications of the correspond- ing unit in Section 5.1.					

(2) Internal view of model for optical data link

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For u	se as input unit				For use as outp	out unit	
1	Terminal block	• F \$ • F	or inform ee Section or inform U71PT32-5	ation conce n 5.2. ation conc S3 Type M	erning the wiring erning the wirin ELSECNET/MINI-S	of the por g of the S3 Master	/O signal cables. wer supply and signal cables, twisted-pair link cable, see r Module User's Manual. 8kg·cm (4.33 to 6.93lb·inch)
	Operating status		LED	0	efinition	LED	Definition
	indicator LEDs		POWER	Lit when i/(O unit power is on.	0	
			RUN		correct data com- with the master	1	
			SD	Flickers with transmitted	nile data is being I.	2	
	ERROR POWER FUSE RD SD RUN		RD	Flickers wi received.	nile data is being	3	Indicates the corresponding input/output ON/OFF state.
2		*1	ERROR	detected.	eive data error is uring correct data ation.	4	
						5	
						6	
		*2	FUSE	Lit when a	fuse has blown.	7	L
					remote output un remote output un		use.
3	Station number setting witches	 Used to set the remote I/O station number in the range 1 to 64. X10: Left digit of a station number X1 : Right digit of a station number 					
٩	FG wire	Сог	nnect grou	und wire fr	om TB6. This als	o ground	is the case.
5	E.C. MODE switch E.C. E	Used to set whether outputs are retained or switched OFF when I/O refresh is stopped. For further details, see Section 3.2.4.					
6	Fuse 2500V	ing Wh	unit in S en a fuse	ection 5.1. has blow		ng appear	acifications of the correspond- rs in the check opening. A)

(3) Internal Views of model for twisted-pair data link



3.2.3 Setting the station number

- (1) The station number must be defined after switching OFF the remote I/O station. To avoid erroneous input or output, the station number must not be changed during I/O refresh.
- (2) The station number may be set between 1 and 64. For determining the station number, see the AJ71PT32-S3 MELSECNET/MINI-S3 Master Module User's Manual.

3.2.4 Setting the E.C. MODE switch

The E.C. MODE switch ON the remote output I/O station is used to specify whether the station outputs are retained or switched OFF when I/O refresh is stopped (MINI-S3 link communication start (Y18 or Y28 switched OFF)).

The remote I/O station must be turned OFF before setting the E.C. MODE switch.

Link Status	E.C. MODE Switch	OFF	ON	
	ON	Transmission data is output from the re- mote I/O unit.		
MINI-S3 link communication start (Y18 or Y28)	OFF	Output status just be- fore MINI-S3 link com- munication start is switched OFF is re- tained.	All outputs are switched OFF.	
If the remote I/O station is discon- nected from the system due to	Mode setting switch of master module is at 0 (automatic return) or 2 (communication stop at detection of online error)	Output status just be- fore an occurrence of communication error is retained.	All outputs are switched OFF.	
communication error	Mode setting switch of master module is at 1 (automatic return).	All outputs are switch- ed OFF.		

REMARKS

- 1. The E.C. MODE switch is factory-set to ON.
- The device number used for the MINI-S3 link communication start device of the master module varies depending on the mode of the master module. I/O dedicated mode Y18 Extension mode Y28



3.2.5 Machining the panel for wiring

The stand-alone remote I/O unit (AJ35PJ/TJ-[]]) is of drip-proof design. All cables must be sealed by using cable-through fittings. Machine the stand-alone remote I/O panel in accordance with Fig. 3.1 and install the user-prepared cable-through fittings.







REMARKS

Fig. 3.2 Cable Connection Example

Melamine or urethane paint should be used to repaint the panel on user side. The paint color is Munsell 5.2G 2.5/0.2 (dark gray)



3.3 Compact Remote I/O Unit

3.3.1 Pre-operational procedure





3.3.2 Number of stations occupied and I/O assignment

One compact type remote I/O unit occupies four or eight stations. Its I/O, I/O unit, faulty station detection and other data is processed as follows in accordance with the remote I/O unit station number and the number of stations occupied (n = remote I/O unit station number).

(1) AJ35PTF-32[]] (4 stations occupied)

l/O Number	I/O Data Storage Location	Remote I/O Station Card Data	Unit of Faulty Station Control
X0 to X7	Receive data of station n	Input	
X8 to XF	Receive data of station (n + 1)	Input	Stations n to (n + 3) are controlled as one
Y10 to Y17	Receive data of station (n + 2)	Input	control unit.
Y18 to Y1F	Receive data of station (n + 3)	Input	

(2) AJ35PTF-24[]] (4 stations occupied)

I/O Number	I/O Data Storage Location	Remote I/O Station Card Data	Unit of Faulty Station Control	
X0 to X7	Transmission data of station n	Output		
X8 to XF	Transmission data of station $(n + 1)$	Output	Stations n to (n + 3)	
Y10 to Y17	Transmission data of station $(n + 2)$	Output	are controlled as one control unit.	
Empty	Transmission data of station (n $+$ 3)	Output		

(3) AJ35PTF-28[[]] (4 stations occupied)

i/O Number	I/O Data Storage Location	Remote I/O Station Card Data	Unit of Faulty Station Control
X0 to X7	Receive data of station n	Input	
X8 to XF			Stations n to (n + 3) are controlled as one
Y10 to Y17			control unit.
Y18 to Y18	Transmission data of station ($n + 3$)	Output	1

(4) AJ35PTF-56[[1]] (8 stations occupied)

l/O Number	I/O Data Storage Location	Remote I/O Station Card Data	Unit of Faulty Station Control	
X0 to X7	Receive data of station n	Input		
X8 to XF	8 to XF Receive data of station (n + 1) Input		Stations n to (n + 3) are controlled as one	
X10 to X17	Receive data of station (n + 2)	Input	control unit.	
X18 to X1F	Receive data of station (n + 3)	Input		
Y20 to Y27				
Y28 to Y2F			Stations (n + 4) to (n $\frac{1}{2}$	
Y30 to Y37 Transmission data of station (n + 6) Empty Transmission data of station (n + 7)		Output	+ 7) are controlled as one control unit.	
		Output	1	



REMARKS

(1) I/O number Refers to the input/output signal indicated in Section 5.3.

- (2) I/O data storage location Indicates the area of the master module buffer memory where the I/O data is stored.
- (3) Remote I/O station card data Indicates the remote I/O unit card data stored to the master module buffer memory.
- (4) Unit of faulty station control Indicates the range of stations treated as faulty when an error has occurred in any remote I/O unit. For example, stations 1 to 4 all treated as faulty stations if the fuse of the AJ35PTF-28AS defined as station 1 has blown.



3. PRE-OPERATION SETTING AND PROCEDURE

3.3.3 Nomenclature



3. PRE-OPERATION SETTING AND PROCEDURE



No.	Description	Explanation
\$	Terminal block	For connecting twisted-pair cables when twisted-pair cables are used to connect one station with another, and for connecting I/O unit power cables. To succeeding station To succeeding station From preceding station FG 24V DC REMARKS Twisted-pair cables are not required for optical data link. For details, see the AJ71PT32-S 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: 8 to 12 kg·cm (6.93 to 10.4 lb·inch))
Ø	Output indicator LEDs B O C O D O E O F O FUSE	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)······5 to 8 kg·cm (4.33 to 6.93lb·inch) : Terminal screw (M4 screw)······8 to 14 kg·cm (6.93 to 12.1lb·inch)
9	Terminal block	For connecting the power and input signal cables. Removable. (Tightening torque: Terminal screw (M3 screw)······5 to 8 kg·cm (4.33 to 6.93lb·inch) : Terminal screw (M4 screw)······8 to 14 kg·cm (6.93 to 12.1lb·inch)
10	Input indicator LEDs $ \begin{array}{c} A \\ 0 \\ 0 \\ 1 \\ 0 \\ 1 \\ 0 \\ 1 \\ 2 \\ 3 \\ 0 \\ 4 \\ 0 \\ D \\ E \\ F \\ 0 \\ 0 \\ F \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$	Indicate the output ON/OFF state. The indicator LED is lit when the corresponding input is ON.
Û	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. For more information, see Section 3.3.5.



3.3.4 Setting the station number

- (1) The station number must be defined after switching OFF the remote I/O station. To avoid erroneous input or output, the station number must not be changed during I/O refresh.
- (2) The station number may be set between 1 and ((64 the number of stations occupied) + 1).
 For determining the station number, see the AJ71PT32-S3 MELSECNET/MINI-S3 Master Module User's Manual.

3.3.5 Setting the E.C. MODE switch

The E.C. MODE switch ON the remote output I/O station is used to specify whether the station outputs are retained or switched OFF when I/O refresh is stopped (MINI-S3 link communication start (Y18 or Y28 switched OFF)).

The remote I/O station must be turned OFF before setting the E.C. MODE switch.

Link Status	E.C. MODE Switch	OFF	ON	
MINI-S3 link communication start (Y18 or Y28)	ON	Transmission data is output from the mote I/O unit.		
	OFF	Output status just be- fore MINI-S3 link com- munication start is switched OFF is re- tained.	All outputs are switched OFF.	
If the remote VO station is discon- nected from the system due to communication error	Mode setting switch of master module is at 0 (automatic return) or 2 (communication stop at detection of online error)	Output status just be- fore an occurrence of communication error is retained.	All outputs are switched OFF.	
	Mode setting switch of master module is at 1 (automatic return).	All outputs are switch- ed OFF.		

REMARKS

- 1. The E.C. MODE switch is factory-set to ON.
- The device number used for the MINI-S3 link communication start device of the master module varies depending on the mode of the master module.
 I/O dedicated mode

NO dedicated mode	110
Extension mode ·····	Y28



3.3.6 Unit installation

- (1) Mounting Instructions
 - (a) Leave a minimum of 80mm (3 inches) clearance above the unit to ensure proper ventilation and ease access. (See Fig. 3.3)
 - (b) The unit must not be installed on its side or horizontally as in Fig. 3.4.
 - (c) Ensure that the surface on which the unit is to be mounted is flat to prevent possible flexing of the printed circuit boards.
 - (d) Do not mount the unit close to sources of vibration like large magnetic contactors or no-fuse breakers.
 - (e) Up to two compact remote I/O units may be fitted to each other. For full information, see item (2) below.
 - (f) To protect the unit from heat and noise, all other equipment should be installed at least 100mm (4 inches) away from the PC front (Fig. 3.5) and at least 50mm (2 inches) away from the base unit sides.







Fig. 3.5 Minimum Front Clearance with Panel Door Closed

Fig. 3.4 Horizontal Mounting (Not allowed)

3. PRE-OPERATION SETTING AND PROCEDURE



(2) Fitting compact remote I/O units When compact and AJ35PTF-128DT remote I/O units are used, two units may be connected in the following combinations:

Upper Unit	AJ35PTF-32[]]	AJ35PTF-24[]]	AJ35PTF-28(111)	AJ35PTF-56()]])	AJ35PTF-128DT
AJ35PTF-32[]]	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
AJ35PTF-24	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
AJ35PTF-28	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
AJ35PTF-56[[]]	Allowed	Allowed	Allowed	Allowed using a bracket	Allowed using a bracket
AJ35PTF-128DT	Allowed	Allowed	Allowed	Disallowed	Disallowed

(a) Connecting the AJ35PTF-56[[]] and AJ35TF-28[[]]]



The unit installation screws are supplied with the AJ35PTF-32[], -24[], -28[]], and -56[][]].





(b) Connection using the A0J2-2F bracket1) Installation method

2) Diagram showing units connected



3. PRE-OPERATION SETTING AND PROCEDURE



3.3.7 Simulation switch

A simulation switch can be mounted in the compact type remote I/O unit to simulate input.

By mounting the simulation switch directly to the input side of the compact type remote I/O unit, inputs can be simulated to be ON and OFF.

The two types of simulation switches are indicated below. The proper one to use depends on the compact type remote I/O unit that is being used.

The A0J2-SW16 type simulation switch is used with the AJ35PTF-28[[1]].

The A0J2-SW32 type simulation switch is used with the AJ35PTF-32[[1]] and AJ35PTF-56[[1]].



A0J2-SW16 type simulation switch A02-SW32

A02-SW32 type simulation switch



- (1) Mounting method of the simulation switch The simulation switch is mounted by first removing the terminal block from the input side of the compact type remote I/O unit and then mounting the simulation switch directly to the terminal mounting fixture.
- (2) Connecting power cable to the simulation switch Connecting the power cable to the simulation switch in the following manner.
 Pay sufficient care when connecting the power cable to the simulation switch because connection differs depending on the type of inputs.



(3) The following table provides specifications for the simulation switch.

Type	A0J2-SW16	A0J2-SW32
No. of input switches (points)	16	16
Rated voltage, current	250V AC, 10mA	
Minimum voltage, current	5V DC, 1mA	
Switching life (No. of times)	10,000 or more	
Lever operating force (g.f)	400 max.	
Size mm (inch)	165 (6.50) × 38 (1.50) × 39.5 (1.56)	192.5 (7.58) × 38 (1.50) × 39.5 (1.56)
Weight kg (lb)	0.18 (0.40)	0.19 (0.42)



3.4 AJ72PT35 Type Data Link Module

3.4.1 Pre-operational procedure




3.4.2. Number of stations occupied and I/O assignment

Notes on I/O assignment

- (1) The AJ72PT35 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 modules loaded on the base unit which accommodates the AJ72P35.
- (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 3.4.3.



AJ72PT35'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 station number).

Number of Stations I/O Number		i/O Data Storage Location		Remote I/O Station Card Data *1 (I/O automatically selected in		I lait of Faulty	
Occupied		Input	Output	accordance with the loaded u		Station Control	
	X/Y0 to X/Y7	Receive data of sta- tion n	Transmission data of station n	Input	Output		
4	X/Y8 to X/YF	Receive data of station $(n + 1)$	Transmission data of station (n + 1)	Input	Output	Stations n to (n + 3) are controlled as	
4	X/Y10 to X/Y17	Receive data of station (n $+$ 2)	Transmission data of station $(n + 2)$	Input	Output	one control unit.	
	X/Y18 to X/Y1F	Receive data of station (n $+$ 3)	Transmission data of station (n + 3)	Input	Output		
	X/Y20 to X/Y27	Receive data of station $(n + 4)$	Transmission data of station $(n + 4)$	Input	Output		
8	X/Y28 to X/Y2F	Receive data of station (n $+$ 5)	Transmission data of station $(n + 5)$	Input	Output	Stations (n + 4) to (n + 7) are control- led as one control unit.	
0	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		
	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 con-	
12	X/Y48 to X/Y4F	Receive data of station $(n + 9)$	Transmission data of station $(n + 9)$	Input	Output		
12	X/Y50 to X/Y57	Receive data of sta- tion (n + 10)	Transmission data of station $(n + 10)$	Input	Output	trolled as one con- trol unit.	
	X/Y58 to X/Y5F	Receive data of station $(n + 11)$	Transmission data of station $(n + 11)$	Input	Output		
	XY60 to XY67 Receive data of sta- tion $(n + 12)$ Transmission data of station $(n + 12)$ Input Output		Output				
16	X/Y68 to X/Y6F	Receive data of sta- tion (n + 13)	Transmission data of station $(n + 13)$	Input	Output	Station (n + 12) to (n + 15) are con-	
10	X/Y70 to X/Y77	Receive data of station $(n + 14)$	Transmission data of station $(n + 14)$	Input	Output	trolled as one con- trol unit.	
	X/Y78 to X/Y7F	Receive data of station (n $+$ 15)	Transmission data of station $(n + 15)$	Input	Output		

REMARKS

*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 station 5, a 16-point input module is on slot 0, a 16-point output module is on slot 1, and four stations occupied.



Station number = 5Number of stations occupied = 4

	I/O Data Sto	Remote I/O Station			
I/O Number	Input	t Output		Card Data	
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	



3.4.3 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 blown fuse 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 below, 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.

3. PRE-OPERATION SETTING AND PROCEDURE



REMARKS

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.

3. PRE-OPERATION SETTING AND PROCEDURE



3.4.4 Nomenclature



3. PRE-OPERATION SETTING AND PROCEDURE





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3.4.5 Setting the station number

- (1) The station number must be defined after switching OFF the remote I/O station. To avoid erroneous input or output, the station number must not be changed during I/O refresh.
- (2) The station number may be set between 1 and (64 the number of stations occupied) + 1).
 For determining the station number, see the AJ71PT32-S3 MELSECNET/MINI-S3 Master Module User's Manual.

3.4.6 Setting the E.C. MODE switch

The E.C. MODE switch is used to specify whether the station outputs are retained or switched OFF when I/O refresh is stopped (Y18 or Y28 switched OFF).

The remote I/O station must be powered down before setting the E.C. MODE switch.

Link Status	E.C. MODE Switch	OFF	ON
MINI-S3 link	ON	Transmission data is output from the remoti station.	
communication start (Y18 or Y28)	OFF	Output status at MINI- S3 link communication start switch-OFF is re- tained.	All outputs are switch- ed OFF.
If the remote I/O station is disconnected from the system due to	Mode setting switch of master module is at 0 (automatic re- turn) or 2 (com- munication stop at detection of online error)	Output status at occurrence of com- munication error is re- tained.	All outputs are switch- ed OFF.
communication error	Mode setting switch of master module is at 1 (automatic re- turn).	All outputs are switch- ed OFF.	

REMARKS

- 1. The E.C. MODE switch is factory-set to ON.
- The device number used for the MINI-S3 link communication start device of the master module varies depending on the mode of the master module.

I/O dedicated mo	de ····· Y18
Extension mode	······¥28



3.4.7 Setting the number of occupied station

Specify the number of stations occupied in accordance with the number of I/O points of the I/O modules loaded on the base unit.

- The number of stations occupied may be defined between 4 and 16 in increments of 4 as indicated below. The number of I/O points per occupied station is 8.
- (2) The number of stations occupied is 16 at any of switch positions 0 and 5 to 9.

Switch Position	Number of Stations Occupied
1	4 stations (32 I/O points)
2	8 stations (64 I/O points)
3	12 stations (96 I/O points)
4	16 stations (128 I/O points)



4. PROGRAMMING

4.1 Data I/O Method

4.1.1 Transmission area of the master module and the remote I/O unit station number

Communication between the PC CPU and batch refresh type remote I/O units is conducted via the batch refresh transmit area and receive area of the master module buffer memory.



Each batch refresh type remote I/O unit is configured to have 8 points locations for input and for output. The batch refresh transmit and receive data areas are assigned one byte per remote I/O unit number.





Output to remote I/O units is sent to the remote I/O unit, the station number of which has been assigned to the area in which the transmission data is written. Input from remote I/O units can be read from the area corresponding to station number of the remote I/O unit using the FROM instruction.



When the number of occupied stations in a remote unit is two or greater, the amount of area used is equal to that number.

Example: The following is an example of an AJ35PTF-32D (input points: 32, number of occupied stations: 4) that has been set to station 5.



In the case of an I/O compound unit, the first half of the area used for the occupied stations is used for receiving. The last half are used for transmission.

Example: The following is an example of an AJ35PTF-28DT (input points: 16, output points: 12, number of occupied stations: 4) that has been set to station 9.



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4.1.2 Data transmission between PC CPU and remote I/O unit

Data communication between PC CPU and batch refresh type remote I/O unit is performed by master module I/O refresh. Master module I/O refresh occurs at 3.5 to 18ms intervals regardless of the sequence program scan time when the communication start signal of the master module is set ON. (For further information concerning the I/O refresh time, see the AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.)

(1) Output to batch refresh type remote I/O unit

When data is output to the remote I/O unit, the data is written to the transmission data area in the master module using the sequence program TO instruction.

Writing data to the transmission data area results in its being transmitted automatically to the remote I/O unit and output to external equipment.

Each output of the remote I/O unit corresponds to a particular bit in the master module transmission data area. When an output is set to ON, "1" is written to the transmission data area bit corresponding to that output. When an output is set to OFF, "0" is written to the transmission data area bit corresponding to that output.



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(2) Input from batch refresh type remote I/O unit

When input data from the remote I/O station is read, the data is read from the receive data area of the master module upon execution of the sequence program FROM instruction.

When data is input from an external equipment to the remote I/O unit, the input data is automatically received in the receive data area of the master module.

Each input of the remote I/O unit corresponds to a particular bit in the master module receive data area.

When an input is set to on, "1" is written to the receive data area bit corresponding to that input. When an input is set to off, "0" is written to the receive data area bit corresponding to that input.



(3) Data communication timing

The timing for data communication between the PC CPU master module and remote I/O unit is indicated below.





4.1.3 I/O delay time in remote I/O unit

- (1) The following delays may occur until the PC CPU reads an input signal from a remote I/O station.
 - (a) Input remote I/O station response time (T₁ oworr) Indicates the period of time required for the input unit to be switched from ON to OFF or from OFF to ON. For further details, see Section 5.
 - (b) MINI-S3 link I/O refresh time (Tmr) See MELSECNET/MINI-S3 Master Module User's Manual.
 - (c) FROM instruction processing time (T_{mo}) There is a maximum of 1 scan delay if the FROM instruction is executed once during a scan of the sequence program.



- (2) The following delays may occur until the PC CPU provides an output signal from an output remote I/O station.
 - (a) <u>TO</u> instruction processing time (T_{ro}) There is a maximum of 1 scan delay if the <u>TO</u> instruction is executed once during a scan of the sequence program.
 (b) MNU S2 link UO refease time (T.)
 - (b) MINI-S3 link I/O refresh time (Tree)
 - (c) Output remote I/O station response time (To owner) Indicates the period of time required for the output unit to be switched from ON to OFF or from OFF to ON. For further information, see Section 5.





Exercise:

Suppose that the FROM and TO instructions are executed during one sequence program scan under the following conditions:

PC CPU scan time $(T_{reto}, T_{To}) = 50ms$ I/O refresh time $(T_{mer}) = 3.9ms$ Remote I/O unit input response time $(T_{1 \text{ oworr}}) = 25ms$ Remote I/O unit output response time $(T_{0 \text{ oworr}}) = 12ms$

(Max. input delay time) = $T_{1 \text{ owore}} + (T_{\text{Ref}} \times 2) + T_{\text{PRO}}$ = 25 + (3.9 × 2) + 50 = <u>82.8 (ms)</u>

(Max. output delay time) = $T_{To} + (T_{MEF} \times 2) + T_{O}$ onvorf = 50 + (3.9 × 2) + 12 = 69.8 (ms)



4.2 Relation between PC CPU Operating Status and I/O Refresh

I/O refresh of the MINI-S3 link is performed when the master module is in online mode (mode setting switch = 0 to 2) and $Y_{(n+10)}/Y_{(n+20)}$ (MINI-S3 link communication start) is ON.

VO refresh stops when the MINI-S3 link communication start signal is turned OFF.

- (1) Input remote I/O station
 - (a) During I/O refresh, remote I/O station input data is continually stored to the receive data area (buffer memory addresses 110 to 141).
 - (b) When I/O refresh is stopped, the receive data at the time of I/O refresh stop is retained.
- (2) Output remote I/O station
 - (a) During I/O refresh, transmission data (buffer memory addresses 10 to 41) is output to the output remote I/O stations.
 - (b) When I/O refresh is stopped, the output unit states depend on their E.C. MODE switch positions.
 For full information on the E.C. MODE switch, see Sections 3.2.4, 3.3.5, and 3.4.6.

i/O Refresh E.C. MODE Switch	During I/O Refresh {Y(n+18)/Y(n+28) ON}	I/O Refresh Stop (Y _{in+180} /Y _{in+281} OFF)
ON	Output remote I/O units are switched ON/OFF in	All outputs are switched OFF.
OFF	accordance with the transmission data.	Output state at the time of I/O refresh stop is re- tained.



4.3 Characteristics of I/O Refresh when either a Communication or Line Error has Occurred

4.3.1 Master module error detection

When an error occurs in remote I/O unit, the master module detects the station number of the remote I/O unit and the type of error. The I/O signals of the master module are set to ON as indicated below and the error code is stored in the buffer memory.

- MINI-S3 link error detection signal (X(n+s)/X(n+28))
- MINI-S3 link communication error signal (X_(n+7)/X_(n+27))
- Accumulative faulty station detection (addresses 90 to 93)
- Faulty station detection (addresses 100 to 103)
- Communication error code (address 107)
- Error detection code (address 108)

(For further information concerning the I/O signals and buffer memory, see Sections 4.4 and 4.5.)

When remote I/O units occupy more than two stations, and an error occurs in one station of an occupied station number, the station numbers for all of the occupied stations indicate an error has occurred.

For example, a compact type remote I/O unit AJ35PTF-28AS (input points: 16, output points: 12, number of occupied stations: 4) manages in units of four stations. When set to station 1 and a fuse blows, all of four stations (station 1 to station 4) are treated as faulty station.



4.3.2 Operation at an occurrence of errors

When an error occurs in the MINI-S3 link, one of the following two types of operating conditions develops.

- Communication continues (referred to as CC-type errors) The faulty unit is disconnected while other units continue to operate normally.
- Communication stops (referred to as CS-type errors) Even if an error occurs in only one unit, communication stops between all units.

(For further information concerning the two types of errors, see Section 6.1.)

(1) Operation when CC-type errors occur

When a CC-type error occurs, error processing occurs only in relation to the faulty unit. Other units continue normal communication.

(a) Input data from remote I/O units

Input data from faulty remote I/O units is processed in one of the two following ways depending on faulty station data clear specification $(Y_{(n+10)}/Y_{(n+20)})$.

1) When the faulty station data clear specification and receive data clear request are OFF

The input data from the faulty remote I/O unit is not stored in the buffer memory.

Data received directly prior to the communication error is retained.

For example, in the case when 10 remote I/O units are connected and an error occurs in station 5, the input data of station 5 is that data which existed prior to the error. However, the input data of station 1 to 4 and 6 to 10 is stored.

- When the faulty station data clear specification and receive data clear request are ON All points for the input data of the faulty remote I/O unit are either set to OFF or cleared.
- (b) Output data to the remote I/O units Output data to faulty remote I/O units is processed in one of the two following ways depending on the setting of the operation mode switch.
 - 1) Automatic online return ON (0) The transmission data set in the buffer memory transmit area is output.
 - 2) Automatic online return OFF (1) Off data is output.



(2) Operation when CS-type errors occur The following errors will stop communication.
Initialize data error the total number of remote stations (1 to 64) the number of retries (1 to 32) line error check (0 to 2), or

partial refresh station.

An I/O refresh was started when an erring setting existed in:

Line error

Open in data link cables or no power is being supplied to the remote I/O unit(s).

- Faulty station A communication error occurs with either of remote I/O unit when the operation mode switch was set to stop communication when an online error is detected (2).
- (a) When an initialize data error occurs, the master module does not perform I/O refresh.
- (b) Operation when a line error occurs
 - Input data from a remote I/O unit When a fault occurs in a line, none of the input data from any of the remote I/O units is stored in the buffer memory.

Data received directly prior to the fault occurring in the line is retained.

 Output data to remote I/O units When a fault occurs in a line, output data to remote I/O units is processed in one of the two following ways depending on the E.C. mode setting of the output remote I/O unit.

E.C. Mode Setting	Output Data of the Remote I/O Unit		
OFF	Retain data that existed directly prior to the error.		
ON	All outputs are switched OFF.		

For further information, concerning the E.C. mode setting, see Section 3.

3) For further information concerning the location of fault when a fault occurs in lines, see AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.



- (c) Operation when a fault occurs in a station When a communication error occurs in any remote I/O unit with the operation mode switch is set to "2" (stop communication when an online error is detected), MINI-S3 link communication stops.
 - Input data from the remote I/O unit When a communication error has occurred in a remote I/O unit and communication has stopped, none of the input data from any of the remote I/O units is stored in the buffer memory.

Data received directly prior to the communication error occurring in the remote I/O unit is retained.

 Output data to the remote I/O units When a communication error occurs in a remote I/O unit, output data to remote I/O units is processed in one of the two following ways depending on the setting of the E.C. mode setting of the output remote I/O unit.

E.C. Mode Setting	Output Data of the Remote I/O Unit		
OFF	Retain data that existed directly prior to the error.		
ON	All outputs are switched OFF.		

For further information concerning the E.C. mode setting, see Section 3.

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4.4 I/O List for the PC CPU

The I/O numbers for the master module PC CPU are listed in Tables 4.1 and 4.2.

The device numbers of PC CPU input/output signals vary depending on whether the master module is used in the I/O dedicated mode or extension mode.

(For further information concerning the I/O dedicated mode and extension mode, see AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.)

(1) I/O list for the I/O dedicated mode

A list for I/O signals when the master module is being used in the I/O dedicated mode is indicated in Table 4.1.

The letter "n" in the Device No. column is the head I/O number of the master module and is determined by the mounted location of the master module and the number of points of the I/O units mounted in the slot in front of the master module.

For example: When the head I/O number of the master module is "X/Y20":

 $X_{(n+0)}$ to $X_{(n+1F)} = X20$ to X3F $Y_{(n+0)}$ to $Y_{(n+1F)} = Y20$ to Y3F

Device No.	Signal	Device No.	Signal
Xin+or	Hardware fault	Y(n+0)	
X(n+1)	MINI-S3 link communicating		
X(n+2)			
X(n+3)	Reserved		
X(n+4)			
X(n+5)	Test mode		
X(n+6)	MINI-S3 link error detection		
X(n+7)	MINI-S3 link communication error		
X(n+s) to	Reserved	to Y(n+12)	Reserved
		Y(n+18)	MINI-S3 link communication start
		Y(n+19)	Reserved
		Y(n+1A)	FROM / TO instruction response designation
		Y(n+18)	Faulty station data clear designation
		Y(n+1C)	Reserved
		Y(n+1D)	Error reset
		Y(n+1E)	Reserved
X(n+1F)		Y(n+1F)	U4921420

Table 4.1 I/O Signal List



- (2) I/O list for the extension mode
 - A list for I/O signals when the master module is being used in the extension mode is indicated in Table 4.2.

The letter "n" in the Device No. column is the head I/O number of the master module and is determined by the mounted location of the master module and the number of points of the I/O units mounted in the slot in front of the master module.

(For example: When the head I/O number of the master)

module is "X/Y20":

 $X_{(n+0)}$ to $X_{(n+2F)} = X20$ to X4F $Y_{(n+0)}$ to $Y_{(n+2F)} = Y20$ to Y4F

Device No.	Signa	1	Device No.	Sigi	nal	
X(n+0)	Transmit complete signal	For remote terminal	Y(n+0)	Transmit request signal	For remote terminal	
X(n+1)	Read request signal	unit No. 1	Y(n+1)	Read complete signal	unit No. 1	
X(n+2)	Transmit complete signal	For remote terminal	Y(n+2)	Transmit request signal	For remote terminal	
X(n+3)	Read request signal	unit No. 2	Y(n+3)	Read complete signal	unit No. 2	
X(n+4)	Transmit complete signal	For remote terminal	Y(n+4)	Transmit request signal	For remote terminal	
X(n+5)	Read request signal	unit No. 3	Y(n+5)	Read complete signal	unit No. 3	
X(n+6)	Transmit complete signal	For remote terminal	Y(n+6)	Transmit request signal	For remote terminal	
X(n+7)	Read request signal	unit No. 4	Y(n+7)	Read complete signal	unit No. 4	
X(n+8)	Transmit complete signal	For remote terminal	Y(n+8)	Transmit request signal	For remote terminal	
X(n+9)	Read request signal	unit No. 5	Y(n+9)	Read complete signal	unit No. 5	
X(n+A)	Transmit complete signal	For remote terminal	Y(n+A)	Transmit request signal	For remote termina	
X(n+B)	Read request signal	unit No. 6	Y(n+B)	Read complete signal	unit No. 6	
X(n+C)	Transmit complete signal	For remote terminal	Y(n+C)	Transmit request signal	For remote termina	
X(n+D)	Read request signal	unit No. 7	Y(n+D)	Read complete signal	unit No. 7	
X(n+E)	Transmit complete signal	For remote terminal	Y(n+E)	Transmit request signal	For remote terminal	
X(n+F)	Read request signal	unit No. 8	Y(n+F)	Read complete signal	unit No. 8	
X(n+10)	Transmit complete signal	For remote terminal	Y(n+10)	Transmit request signal	For remote terminal	
X(n+11)	Read request signal	unit No. 9	Y(n+11)	Read complete signal	unit No. 9	
X(n+12)	Transmit complete signal	For remote terminal	Y(n+12)	Transmit request signal	For remote terminal	
X(n+13)	Read request signal	unit No. 10	Y(n+13)	Read complete signal	unit No. 10	
X(n+14)	Transmit complete signal	For remote terminal	Y(n+14)	Transmit request signal	For remote termina	
X(n+15)	Read request signal	unit No. 11	Y(n+15)	Read complete signal	unit No. 11	
X(n+16)	Transmit complete signal	For remote terminal	Y(n+16)	Transmit request signal	For remote terminal	
X(n+17)	Read request signal	unit No. 12	Y(n+17)	Read complete signal	unit No. 12	
X(n+18)	Transmit complete signal	For remote terminal	Y(n+18)	Transmit request signal	For remote terminal	
X(n+19)	Read request signal	unit No. 13	Y(n+19)	Read complete signal	unit No. 13	
$X_{(n+1A)}$	Transmit complete signal	For remote terminal	Y(0+1A)	Transmit request signal	For remote terminal	
X(n+1B)	Read request signal	unit No. 14	Y(n+18)	Read complete signal	unit No. 14	
X(n+1C)	neau request signal	1	Y(n+1C)	need complete signal		
X(n+1D)			Y(n+1D)			
X(n+1E)	Reserv	red	Y(n+1E)			
X(n+1F)			Y(n+1E)	Beserved		
X(a+20)	Hardware fault		Y(n+20)			
X(n+23)	MINI-S3 link communicat	ing	Y(n+21)			
X(n+22)	Reserv	red	Y(n+22)			
X(n+23)	Receive data clear comple	ation (for AJ35PTF-R2)	Y(n+23)	Receive data clear reque	est (for AJ35PTF-R2)	
X(n+24)	Remote terminal unit err	or detection	Y(n+24)	Remote terminal unit er	ror detection clear	
X(n+25)	Test mode		Y(n+25)			
X(n+26)	MINI-S3 link error detect	ion	Y(n+26)	Reser	ved	
Xintan	MINI-S3 link communication error		Y(n+27)			
X(n+28)	ROM error		Y6+20	MINI-S3 link communica	the second se	
X(n+29)			Y(n+29)	Reser	the second se	
X(n+2A)			Yin+2AJ	FROM / TO instruction		
X(n+2B)			Y(n+28)	Faulty station data clear		
X(n+2C)	Reserved		Y(n+2C)	Switching buffer memor	y channel	
X(n+2D)			Yin+201	Error reset		
X(n+2E)			Y(n+2E)	Reser	ved	
X(n+2F)	L		Y(n+2F)	nesei veu		

Only the _____ signals can be used in the batch refresh type remote I/O unit.

Table 4.2 1/O List for the Extension Mode



4.4.1 Explanation for I/O signals

The following sections explain the ON/OFF timing and conditions only for I/O signals used for communications with a batch refresh type remote I/O unit among the I/O signals indicated in Tables 4.1 and 4.2.

The contents in () are device numbers which correspond to those indicated in Tables 4.1 and 4.2.

For information concerning I/O signals not explained in this manual, see AJ71PT32-S3 Type MELSECNET/MINI-S3 Master Module User's Manual.

(1) Hardware fault (I/O dedicated mode: X(n+9)/extension mode: X(n+20)

- (a) On indicates that the master module mode setting switch has been set to any of 6 to 9 or a hardware fault has occurred.
- (b) Used as an interlock for the FROM / TO instruction to the master module.

(2) MINI-S3 link communicating (I/O dedicated mode: X(n+1)/extension mode: X(n+21))

- (a) On indicates that the master module mode has communicated with all remote I/O stations once after Y18 (MINI-S3 link communication start) is switched on.
- (b) Switched OFF When Y18 is switched off. Off indicates that a data communication stop error has occurred.
- (c) Used as an interlock for data transfer to and from the master module.



(3) Test mode (I/O dedicated mode: X(n+s)/extension mode: X(n+25))

(a) On indicates that the power is switched ON with the mode setting switch in any of 3 to 5.



(4) MINI-S3 link error detection (I/O dedicated mode: Xin+si/extension mode: Xin+si)

- (a) This signal detects if the receive data from the remote unit is normal or not.
- (b) The master module checks the receive data from the remote unit and, if an error occurs, the signal is set to ON.
- (c) The MINI-S3 link error detection signal operates in one of three following ways depending on the setting of the operation mode.
 - 1) Operation mode setting specified for automatic online return ON

Data communication continues even though an error occurs setting the MINI-S3 link error detection signal to ON. The signal is automatically set to OFF with the next communication that is performed without an error.

2) Operation mode setting specified for automatic online return OFF

When an error has been detected, the MINI-S3 link error detection signal is retained ON.

The MINI-S3 link error detection signal is set to OFF by setting the start signal $(Y_{(n+10)}/Y_{(n+20)})$ to OFF, and the error reset signal $(Y_{(n+10)}/Y_{(n+20)})$ to ON.

The MINI-S3 link error detection signal is also set to OFF when the start signal $(Y_{(n+18)}/Y_{(n+28)})$ switches from OFF to ON.



- Operation mode setting specified for communication stop at the time of online error detection. The MINI-S3 link error detection signal is set to neither ON nor OFF when an error has been detected. The MINI-S3 link communication error signal (X_(n+7)/X_(n+27)) is set to ON when an error in the receive data is detected.
- (d) The error detection code is stored in address 108 of the buffer memory when the MINI-S3 link error detection signal is set to ON.



(5) MINI-S3 link communication error (I/O dedicated mode: X_{in+n} /extension mode: X_{in+2n})

- (a) This signal detects if an error has occurred in the MINI-S3 link line or not.
- (b) If an error has occurred in the MINI-S3 link line, the signal is set to ON.
- (c) The signal is set to ON when:
- Any remote I/O unit power supply is switched OFF.
 - Any data link cable is broken.
 - A communication error has occurred with the mode setting specified for communication stop at the time of online error detection.
- (d) The MINI-S3 link communication error signal operates in one of the following three ways depending on the setting of the operation mode.
 - 1) Operation mode setting specified for automatic online return ON

Data communication continues even though an error occurs setting the MINI-S3 link communication error signal to ON. The signal is automatically set to OFF with the next communication that is performed without an error.

2) Operation mode setting specified for automatic online return OFF, or for communication stop at the time of online detection.

When an error has been detected, the MINI-S3 link communication error signal is retained ON, and the communication does not return online even if the fault is repaired.

For information concerning the output of data during communication error periods, see Section 4.3.

The MINI-S3 link communication error signal is set to OFF by setting the communication start signal $(Y_{(n+10)}/Y_{(n+20)})$ to OFF, and the error reset signal $(Y_{(n+10)}/Y_{(n+20)})$ to ON.

The MINI-S3 link communication error signal is also set to OFF when the start signal $(Y_{(n+10)}Y_{(n+20)})$ switches from OFF to ON.



(e) The communication error code is stored in address 107 of the buffer memory, when the MINI-S3 link communication error signal is set to ON.



(6) MINI-S3 link communication start (I/O dedicated mode: Yin+in/extension mode: Yin+in)

- (a) This signal starts the MINI-S3 link communication processing, and is set to ON by the sequence program.
- (b) Setting the MINI-S3 link communication start to ON, initiates I/O refresh by the master module and communication check is performed for all the remote units. When the communication check ends normally, the master module sets the MINI-S3 link communication-in-progress signal to ON, and communication is performed by all remote units.
- (c) When the MINI-S3 link start signal is set to ON, the buffer memory and I/O signals are initialized as indicated below.
 - The contents of addresses 70 to 209 and 598 to 855 of the buffer memory are cleared.
 - The remote terminal unit error detection signal (X_(n+24)) is set to OFF.
 - The MINI-S3 link error detection signal (X_(n+s)/X_(n+2s)) is set to OFF.
 - The MINI-S3 link communication error signal (X_(n+2)/X_(n+22)) is set to OFF.



(7) FROM / TO instruction response designation (I/O dedicated mode: Y_(n+10)/extension mode: Y_(n+20))

- (a) Defines priority of access to the master module buffer memory.
- (b) Off indicates that the master module processing has priority.
- (c) On indicates that the PC CPU's FROM / TO instruction has priority.



(d) The following processing varies depending on the ON/OFF status of the FROM / TO instruction response designation.

Harn	OFF	ON
Access to buffer memory	Priority given to master module.	Priority given to PC CPU's FROM / TO instruction.
Receive (input) data read from several stations by one FROM instruction	The receive data re- freshed at the same tim- ing can be read.	The receive data re- freshed at different tim- ings may be read.
FROM / TO instruction proces- sing time	There is a delay of (0.3ms + 0.2ms × (number of partial refresh stations connected)) max.	No delay

(8) Faulty station data clear designation (I/O dedicated mode: Y_(n+10)/extension mode: Y_(n+20))

- (a) Specify whether the receive data from a faulty remote I/O station is cleared or not.
- (b) $Y_{(n+10)}$ or $Y_{(n+20)}$ is independent of the transmission data to a faulty station.

Faulty Station Data Clear Designation Master Module Buffer Memory	OFF	ON
Transmission data for batch re- fresh (addresses 10 to 41)		
Transmission data for batch re- fresh (addresses 110 to 141)	Data at occurrence of communication error is retained.	All points are switched OFF.
Transmission data for partial re- fresh (addresses 300 to)		
Transmission data for partial re- fresh (addresses 600 to)	Data at occurrence of communication error is retained.	All points are switched OFF.

POINT

It is suggested to use no automatic return mode (mode setting switch = 1) when $Y_{(n+10)}$ or $Y_{(n+20)}$ is ON.



- (9) Error reset (I/O dedicated mode: Yin+10)/extension mode: Yin+20)
 - (a) When the master module detects an error in communication with a remote unit, the MINI-S3 link error detection signal $(X_{(n+e)}/X_{(n+2e)})$ and MINI-S3 link communication error signal $(X_{(n+2y)}/X_{(n+22)})$ are set to ON.
 - (b) The error reset signal is used to reset the error detected status and is set to on by the sequence program.
 However, the error reset signal is effective only when the start signal (Y_{(n+10}/Y_{(n+20})) is OFF.
 - (c) The processing indicated below is performed when the error reset signal is set to ON.
 - 1) The areas of the buffer memory indicated below are cleared.
 - Communication error code area (address 107)
 - Error detection code area (address 108)
 - Remote terminal unit error station detection area (address 195)
 - Remote terminal unit error code area (address 196 to 209)
 - 2) The signals indicated below are reset.
 - Remote terminal unit error detection signal (X_{in+24})
 - MINI-S3 link error detection signal (X_(n+4)/X_(n+24))
 - MINI-S3 link communication error signal (X(n+7)/X(n+27))
 - 3) The ERR.LEDs indicated below are switched OFF.
 - ERR. LOOP LED
 - ERR. REM LED



4.5 Buffer Memory

The master module has a buffer memory (not battery backed) for communication of data with the PC CPU.

The FROM / TO instructions are used to read data from the buffer memory to the PC CPU or write data to the buffer memory from the PC CPU.

4.5.1 Buffer memory assignment

idress (De	acimal)	ſ	Description					
ö	Number of remote VC stations	(*2)	Define the remote I/O station range for I/O refresh.					
1	Number of retries		Define the number of retries at occurrence of communication error.					
	Reserved		Lined to should super linestion	Read/write				
4	Line error check	······	Used to check error location	neauwine				
	Reserved	·····						
10 to 41	Transmission data for batch re- fresh		Stores data to be output to batch refresh type remote I/O stations.					
	Reserved	····· [en e					
70 to 77	Remote VO units card data		Stores I/O unit types used as remote I/O stations.	Read only				
	Reserved							
90 to 93	Accumulative faulty station detec- tion		Stores faulty station numbers until reset by the sequence program.	Read/write				
	Reserved							
100 to 103	Faulty station detection		Stores the most recent faulty station numbers.					
	Reserved							
107	Communication error code		Stores the reason why MINI-S3 link error communication error has been switched ON.					
108	Error detection code	T T	Latches the ON/OFF state of MINI-S3 link error detection.					
	Reserved	Γ		i de la composición d				
110 to 141	Receive data for batch refresh		Stores the input data to batch refresh type remote I/O unit.	Read only				
•••••	Reserved	····· F						
160	Line error retry counter		Stores the number of retries made when communication cannot be made with all remote I/O stations due to line error.					
161 to 192	Retry counter		Stores the number of retries made to the faulty station.					
	Reserved							
195	Remote terminal unit faulty sta- tion		Stores the station number when the remote terminal unit error occurs.					
196 to 209	Remote terminal unit error code		Stores the cause when the remote terminal unit error detection signal $(X \pmod{10+24})$ is turned ON.					
	Reserved	ΓΓ						
250 to 282	Partial refresh station		Write the partial refresh type remote I/O unit numbers and the numbers of digits specified (numbers of partial refresh times).					
•••••	Reserved	·····F						
300 to 555	Transmission data for partial re- fresh		Stores data output to batch refresh type remote I/O units.	Read/write				
	Reserved	····· F						
598	Accumulative input error detec- tion for partial refresh		Holds the partial refresh input data receive error until reset by the sequence program.					
599	Input faulty station detection for partial refresh		Stores the partial refresh input data receive error.					
600 to 855	Receive data for partial refresh		Stores input data to partial refresh type remote I/O units.	Read only				

Only the areas indicated by can be used in the batch refresh type remote I/O unit.

4. PROGRAMMING

ddress (Decimal)

Address (Decimal)			Description	Read/Write of PC CPU
858 Receive data clear	specification	{ *1 }	Specifies the station number of the AJ71PTF-R2 that clears receive data using the receive data clear request signal (Y(n+23)).	
859 Receive data clear a tion	rea specifica-	(*1)	Specifies the receive buffer that is to be cleared when the receive data is cleared by the receive data clear request signal $(Y_{(n+2a)})$.	Read/write
860 to Parameters for no-p 929	rotocol mode	(*1)	Specifies the parameters to be used when in the AJ71PTF-R2 no-protocol mode.	
930 to Reserve 1099	d			
Address (Decimel) (*3)	(*3 Channel 1	_		
1100 Transmission/r- eceive area for remote termin- al unit No. 1 2100 Transmission/r- eceive area for remote termin- al unit No. 2 3100 Transmission/r- eceive area for remote termin- al unit No. 3 4099 al unit No. 3 4100 Transmission/r- eceive area for remote termin- al unit No. 3 4100 Transmission/r- eceive area for remote terminal unit No. 4 5100 transmission/r- eceive area for remote termin- al unit No. 5 6100 Transmission/r- eceive area for remote termin- al unit No. 6 7100 Transmission/r- eceive area for remote termin- al unit No. 6 7100 Transmission/r- eceive area for al unit No. 7 (Y(e+zc) OFF)	Transmission eceive area for remote termin al unit No. 8 Transmission eceive area for remote terminal unit No. 9 Transmission/re ceive area for mote terminal u No. 10 Transmission/re ceive area for mote terminal u No. 11 Transmission/re ceive area for mote terminal u No. 12 Transmission/re ceive area for mote terminal u No. 12 Transmission/re ceive area for mote terminal u No. 13 Transmission/re ceive area for mote terminal u No. 14	re- nit re- nit re- nit re- nit re- nit re- nit	Writes transmission data to a remote terminal unit or stores receive data from a remote terminal unit.	Read/write

POINT

- (1) The *1 area is used only when the master module is in the extension mode. (It is not used in the I/O dedicated mode.)
- (2) The *2 area does not need to be specified when the master module is in the extension mode. (The contents of the initial data ROM are automatically stored here.)
- (3) The *3 channel is used to perform read and write operations for addresses 1100 to 8099 and is switched by the channel switch signal $(Y_{(n+2n)})$.
- (4) When power is turned on or the PC CPU is reset, all areas of the buffer memory are cleared (set to 0).
 However, for the number of retries (address 1) and the parameters for the no-protocol mode (addresses 860 to 929), the default values are set.
- (5) Do not write from the PC CPU to the read-only areas.
- (6) The reserved areas are used by the master module system.
- (7) Data in the read-only areas including the reserved areas can be read from the PC CPU sequentially, e.g. data can be read from the accumulative faulty station detection (addresses 90 to 93) and faulty station detection (addresses 100 to 103) areas by using a single FROM instruction.

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4.5.2 Buffer memory and data location

(1) Total number of remote I/O stations (address 0)

- (a) Define the remote I/O unit range for I/O refresh.
- (b) I/O refresh is performed for up to the remote I/O unit specified in address 0.

For example, remote I/O units 1 to 20 are refreshed when 20 is set to address 0. Remote units of address 21 and on are not refreshed.

(c) Specify the last remote I/O unit number connected to the master module.

The value specified should include the number of occupied stations if the last remote I/O unit occupies two or more stations. That is, set 13 to address 0 to allow data link for up to station 10 that occupies 4 stations.

- (d) Default value is 0.
- (e) Any value between 1 and 64 may be specified. Any value set outside this range flags an initial data error when the MINI-S3 link communication start signal (Y_(n+10) / Y_(n+20)) is switched ON.
- (f) The number of remote I/O stations should be written to address 0 with the MINI-S3 link communication start signal OFF because the value active at the leading edge of the MINI-S3 link communication signal is valid.
- (g) This address does not need to be specified by the sequence program when the master module is used in the extension mode. (Sequence program specified settings are ignored.) The settings for the total number of remote stations in the extension mode is set by the initial data ROM or the SW[]GP-MINIP type system floppy disk.

When power is applied to the PC or when it is reset, the specified contents of the initial data ROM is automatically read to this area.

For further information concerning the methods of specifying the total number of remote stations in the extension mode, see the SW__GP-MINIP Operating Manual.

(2) Number of retries (address 1)

- (a) Define the number of retries made to the faulty remote I/O unit.
- (b) Default value is 5.
- (c) Any value between 0 and 32 may be specified.
- (d) The number of retries should be written to address 1 when the MINI-S3 link communication start signal (Y_{in+181} / Y_{in+281}) is OFF because the value active at the leading edge of the MINI-S3 link communication start signal is valid.
- (e) A communication error occurs if the faulty remote I/O unit cannot be restored after retry is made the specified number of times.



- (3) Line error check (address 4)
 - (a) The line error check setting aids in locating line faults by lighting the remote unit RUN LED lamps up to the location where the fault has occurred.
 Although faults can be located with the RD/SD LEDs with the line check function provided by the operation mode switch ON the front panel of the master module, units such as the operation box which is not equipped with RD/SD LEDs cannot be checked using this function.
 Because the line error check locates the faulty unit using the

RUN LED, it can be used for all units.

(b) The line error check forces the output of OFF data or the value of data that existed directly prior to the fault occurring of each of the remote units to turn on the RUN LED. (If no line error has occurred, normal data is output.)

POINT

When a line error check is performed, the E.C. mode setting of the output remote I/O units is no longer effective as the data is output forcibly to each of the remote units.

Note that this means that the output status set by the E.C. mode setting at the point the error occurred is changed by the line error check.

(c) The line error check is performed by either a "1" or "2" being set in buffer memory address 4.

The value becomes effective when the communication start signal $(Y_{(n+16)} / Y_{(n+20)})$ is set from OFF to ON.

- 0: Normal data link operations
- 1: Outputs off data, and line error check is performed
- 2: The value of data that existed directly prior to the fault occurring is output, and line error check is performed.



Operation		Output S	itatus of th	e Remote	I/O Units	
Mode Switch located on front	Line Error Check Setting (buffer)	before	located faulty ition	after	located faulty ition	
penel of master module	address 4	E.C. mode setting ON	E.C. mode setting OFF	E.C. mode setting ON	E.C. mode setting OFF	
0	0	All output points are switched OFF	The data existing directly prior to the fault occurring is retained.			Remote VO unit Remote VO Remote VO
	1	All output points are switched OFF			The data	Remote VO unit CO unit VO
	2	directly pr	directly prior to the ault occurring is re-	All output points are switched OFF	existing directly prior to the fault occurring is retained.	Units Remote VO
1, 2	0	All output points are switched OFF	The data existing directly prior to the fault occurring is retained.			located before faulty location Faulty location faulty location faulty location
	1, 2		points are ed OFF	<u> </u>		

(d) The value of line error check settings and the output status to each of the output remote I/O units is indicated below.

(e) The output data (the data which uses the transmit area (addresses 1100 to 8099) for the remote terminal unit) corresponding to the remote terminal unit retains output data regardless of the setting of the line error check.

(4) Transmission data for batch refresh (addresses 10 to 41)

- (a) Set the data to be output to the batch refresh type remote I/O unit.
- (b) Batch refresh transmission data area assignment is as follows: Addresses where the transmission data is to be written vary according to the station number assigned to each individual remote I/O units.

Master r	nodule			Remote I/O unit
Address	b15 to	b8 b7	to	60
10	Station 2		Station 1	Y7 Y6 Y5 Y4 Y3 Y2 Y1 Y0 Station 1
11	Station 4		Station 3	
12	Station 6		Station 5	Y7 Y6 Y5 Y4 Y3 Y2 Y1 Y0 Station 2
				to
40	Station 62		Station 61	► Y7 Y6 Y5 Y4 Y3 Y2 Y1 Y0 Station 63
41	Station 64		Station 63	
				Y7 Y6 Y5 Y4 Y3 Y2 Y1 Y0 Station 64



(c) Batch refresh transmission data area is made up of 8 bits per remote I/O station as shown below.



(5) Remote I/O unit card data (addresses 70 to 77)

- (a) Stores the card data of the remote I/O units linked to MINI-S3.
- (b) There are three types of card data which is expressed in two bits.
 - 00: Indicates that there is no remote I/O unit or the unit could not make initial communication.
 - 01: Indicates an input remote I/O unit. Indicates a partial refresh type remote I/O unit Indicates a remote terminal unit
 - 10: Indicates an output remote I/O unit.
- (c) Data is made up as indicated below:

Address	b15	b14	b13	ь12	611	ь10	69 1	6	b7	66	b5	ы	b3	b 2	ь1	ь0
70	Station	8	Station	7	Station	6	Station 5	5	Station	4	Station	3	Station	2	Station	T
71	Station	16	Station	15	Station	14	Station 1	3	Station	12	Station	11	Station	10	Station	9
		ļ				-				-		-		-	_	7
76	Station	56	Station	55	Station	54	Station 5	3	Station	52	Station	51	Station	50	Station	49
77	Station	64	Station	63	Station	62	Station 6	1	Station	60	Station	59	Station	58	Station	67

(d) Remote I/O station card data is processed only once when the MINI-S3 link communication start signal (Y_(n+10) / Y_(n+20)) is turned from OFF to ON.

(6) Accumulative faulty station detection (addresses 90 to 93)

- (a) The station number of the faulty remote I/O unit is detected.
- (b) Sets "1" to the bit corresponding to the faulty remote I/O station when a communication error occurs.
- (c) The corresponding bit is not reset to 0 if the faulty station is restored. Addresses 90 to 93 indicate accumulative faulty stations indicated in the faulty station detection area (addresses 100 to 103).
- (d) Reset to 0 when the MINI-S3 link communication start signal $(Y_{(n+10)} / Y_{(n+20)})$ is turned from OFF to ON.
- (e) The data configuration is as indicated below:

Address	b15	b14	ь13	612	611	b10	50	5 8	b7	66	b5	ы	ыз	b2	b 1	ы
90	Station 16	Station 15	Station 14	Station 13	Station 12	Station 11	Station 10	Station 9	Station 8	Station 7	Station 6	Station 5	Station 4	Station 3	Station 2	Station 1
91	Station 32	Station 31	Station 30	Station 29	Station 28	Station 27	Station 26	Station 25	Station 24	Station 23	Station 22	Station 21	Station 20	Station 19	Station 18	Station 17
92	Station 48	Station 47	Station 46	Station 46	Station 44	Station 43	Station 42	Station 41	Station 40	Station 39	Station 38	Station 37	Station 36	Station 35	Station 34	Station 33
93	Station 64	Station 63	Station 62	Station 61	Station 60	Station 59	Station 58	Station 57	Station 56	Station 55	Station 54	Station 53	Station 52	Station 51	Station 50	Station 49
						-									1.	Error

1: Error 0: Normal



- (7) Faulty station detection (addresses 100 to 103)
 - (a) The station number of the faulty remote I/O unit is detected.
 - (b) Sets "1" to the bit corresponding to the faulty I/O station if correct communication is impossible after the retry of the specified number (address) of retries after an occurrence of communication error.
 - (c) In the automatic return mode, the corresponding bit is reset to "0" when the faulty station is restored.
 - In the no-automatic return mode, the corresponding bit remains "1".
 - (d) Any faulty station is detected when the MINI-S3 link communication start signal (Y_{in+10} / Y_{in+20}) is ON. Data is retained when the MINI-S3 link communication start signal is OFF.
 (e) The data configuration is as indicated below:
 - bit
 bit</th

0: Normal

(8) Communication error code (address 107)

- (a) Stores the corresponding error code when the MINI-S3 link communication error signal $(Y_{(n+2)}/Y_{(n+22)})$ is turned ON.
- (b) Communication error codes are as follows:

Code	Definition	Cause
0	No error	
1	Initial data error	Any of the following settings is wrong: • Total number of remote stations • Number of retries • Partial refresh stations • Line error check • No-protocol mode parameters
2	Line error	A link cable is broken or a remote I/O unit power is OFF.
3	Station fault	Communication has stopped due to a station fault with the communication stop (C-S mode) mode specified for fault detection.
4	Partial refresh type remote I/ O unit fault	Communication has stopped due to occurrence of input error of the partial refresh type remote I/O unit with the communication stop (C-S mode) mode specified for fault detection.

- (c) The communication error code is reset to 0 in the following cases:
 - The error reset signal (Y_(N+1D) / Y_(n+2D)) is turned on when the communication start signal (Y_(n+1B) / Y_(n+2B)) is OFF.
 - The communication start signal is turned from OFF to ON.



- (9) Error detection code (address 108)
 - (a) "1" indicates that the MINI-S3 link error detection signal (X_{m+m} / X_{un+2m}) has been turned ON. "0" indicates normal.
 - (b) In the automatic return mode (mode setting switch = 0), the error detection code remains "1" but the MINI-S3 link error detection signal is switched OFF when communication is restored.
 - (c) The error detection code is reset to 0 in the following cases:
 - The error reset signal (Y_(n+10) / Y_(n+20)) is turned on when the communication start signal (Y_(n+18) / Y_(n+28)) is OFF.
 - The communication start signal is turned from OFF to ON.

(10) Receive data for batch refresh (addresses 110 to 141)

- (a) Stores input from the batch refresh type remote I/O units.
- (b) Receive data area assignment for batch refresh is as indicated below.

The storage address for the receive data varies depending on the station number assigned to each remote unit.



(c) Batch refresh receive data area is made up of 8 bits per remote I/O station as shown below.



(11) Line error retry counter (address 160)

- (a) Stores the number of retry times after a line error has occurred.
- (b) Reset to 0 when communication is restored.
- (c) Stores the value from address 1 (number of retries) when the MINI-S3 link communication error signal $(X_{(n+2)} / X_{(n+22)})$ is turned ON.


(12) Retry counter (addresses 161 to 192)

- (a) Receives the number of retries made to the faulty remote I/O unit.
- (b) Reset to 0 when communication is restored.
- (c) Buffer memory assignment is as indicated below:

Address	b15	to	b8	b7	to	b0
161		Station 2			Station	1
162		Station 4			Station	3
163		Station 6			Station	5
	<u> </u>		_			
191	s	itation 62	2		Station (61
192	S	station 64	l		Station (63

(d) The retry counter area has 8 bit locations per remote I/O station as shown below:



4. PROGRAMMING



4.6 Programming Procedure





4.7 Program Example

(1) Head I/O number of the AJ71PT32-S3 type

3F In extension mode ··· X · Y20 to 4F

(2) System configuration



REMARKS

Note on setting the station numbers:

The number of FROM and TO instructions used to transfer data of all remote I/O stations can be reduced by setting the remote I/O station numbers. The above system example indicates the station number setting which allows the batch refresh receive data to be read by one FROM instruction.

(3) Assignment of data transmission devices for batch refresh type remote I/O units

Buffer Memory	F		etion 60 to 7 68 to 15	Remarks		Buffer Memory		1	stion 60 to 7 68 to 15	Remarks	e Mene Addre													
Address	Station number	1/O address	Device		Addre	Address	Station number	I/O address	Device															
	1	to	to	Empty		110	1	X0 to 7	M200 to 207	A PERTE SOOT														
10				(Receive station)		110	2	X8 to F	M208 to 215	AJ35PTF-28DT	1													
	2	to	to	for AJ35PTF-28DT			3	to	to	Empty														
	3	Y10 to 17	Y100 to 107	AJ35PTF- 28DT AY41 of AJ72PT35		1 1				(Transmission)														
1	4	Y18 to 1B	Y108 to 108				4	to	to	station for AJ35PTF-28DT														
_	5	Y0 to 7	Y110 to 117					5	to	to	Empty	\square												
2	6	Y8 to F	Y118 to 11F																2	6	to	to	(Transmission)	
	7	Y10 to 17	Y120 to 127					7	to	to	station for AX41 of	\square												
3	8	Y18 to 1F	Y128 to 12F			3	8	to	to	AJ72PT35														
	9	to	to	Empty			9	X0 to 7	M216 to 223															
4	10	to	to	Receive station		4	10	X8 to F	M224 to 231	AX41 of														
	11	to	to	for AY41 of			11	X10 to 17	M232 to 239	AJ72PT35	\square													
5	12	to	to	AJ72PT35		5	12	X18 to 1F	M240 to 247															



4.7.1 Example of an initial data write program

The writing of initial data should occur when the MINI-S3 link communication start signal is OFF.

The set values of the initial data take effect when the MINI-S3 link communication start signal goes from OFF to ON.

(1) I/O dedicated mode





(2) Extension mode



" 5 " MOV D1 TO instruction 0 Total number of remote VO stations data ROM



4.7.2 Example of an input data read program

- (1) MINI-S3 link communication starts when the master module communication start signal is set to ON.
- (2) The input data of the batch refresh type remote I/O units is stored in the batch refresh receive data area (addresses 110 to 141)
- (3) An example of program to read the input data of remote I/O station numbers is 1 and 2 to M200 to M215 is given below. The master module is in the extension mode for this example.



The device number in () is the number used in the I/O dedicated mode.





4.7.3 Example of an output data write program

- (1) MINI-S3 link communication starts when the master module communication start signal is set to ON.
- (2) The output data of the batch refresh type remote I/O units is written in the batch refresh transmission data area (addresses 10 to 41)
- (3) An example of program to constantly output the ON/OFF data at Y100 to 10B to remote I/O stations 3 and 4. The master module is in the extension mode for this example.



The device number in () is the number used in the I/O dedicated mode.





4.7.4 Example of an application program

For information concerning the configuration of the system and device assignments indicated in the program example, see Section 4.7.

The master module is in the extension mode for this example. (The device number in () is the number used in the I/O dedicated mode.)



4. PROGRAMMING



ocessing receive d				
Station number 9 com	nunication error detection			
1				
1 1129			N41 3	
₩41				
H9036		CNOV 024	K4 1216 0	
			K232 2	Transfers receive data of station numbers 9 to 1 M216 to 247.
	equence operation fo		IM-1	
			H0 3	
Deserving and	aive data of station	mbor 12		
Processing rec	eive data of station nu			
Station number 13 con	munication error detection		ļ	
#24		CHC HO	H42 3	
			1	
H42			-	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	CHOV 026	1248 J	Transfers receive data of station number 13 to N to 255.
			H248 3	
Performs se	quence operation for			
Performs se				
Performs se	quence operation for		ber	
Performs se	equence operation for 1248 to 255.	station num	ber	
Performs set 13 using M	equence operation for 1248 to 255. n data	station num	HE 2	
Performs set 13 using M	equence operation for 1248 to 255. n data	station num	HE 2	
Performs set 13 using M	equence operation for 1248 to 255. n data	station num	HE 2	
Performs se 13 using M transmissio	n data nission data for stati		ber] 	
Performs se 13 using M transmissio	nission data for station		ber] 	
Performs se 13 using N transmissio Sets transminand 4 to 1 Sets transmito Y110 to	nission data for station		ber] 	
Performs se 13 using N transmissio Sets transminand 4 to 1 Sets transmissio	nission data for station		ber] 	
Performs se 13 using N [transmissio [Sets transmined to 1 [Sets transmined to 1 [Sets transmined to 1] [Sets transmined to 1] [Sets transmined to 1] [Hardware fault	nission data for station		ber] 	
Performs se 13 using N [transmissio [Sets transmined to 1 [Sets transmined to 1 [Sets transmined to 1] [Sets transmined to 1] [Sets transmined to 1] [Hardware fault	nission data for station 1248 to 255. n data nission data for station 00 to 10F. nission data for station 12F.		ber] 	
Performs se 13 using N [transmissio [Sets transmined to 1 [Sets transmined to 1 [Sets transmined to 1] [Sets transmined to 1] [Sets transmined to 1] [Hardware fault	nission data for station 1248 to 255. n data nission data for station 00 to 10F. nission data for station 12F.		beri 	to 255. Transfers transmission data Y100 to 10F of statio
Performs set 13 using M Isets transmissio Sets transmined to 1 Sets transmined to 1 Sets transmined to 1 Hardware fault	nission data for station 1248 to 255. n data nission data for station 00 to 10F. nission data for station 12F.	station num station num crite on numbers numbers 5 t	beri 	to 255.
Performs set 13 using M Isets transmissio Sets transmined to 1 Sets transmined to 1 Sets transmined to 1 Hardware fault	nission data for station 1248 to 255. n data nission data for station 00 to 10F. nission data for station 12F.	station num station num crice on numbers numbers 5 t	beri 	to 255. Transfers transmission data Y100 to 10F of station numbers 3 and 4 to D40.
Performs set 13 using M Isets transmissio Sets transmined to 1 Sets transmined to 1 Sets transmined to 1 Hardware fault	nission data for station 1248 to 255. n data nission data for station 00 to 10F. nission data for station 12F.	station num station num cucz on numbers numbers 5 t	beri 	Transfers transmission data Y100 to 10F of station

REMARKS

*1: Indicates above is the circuit to detect a communication error which has occurred between faulty station detection data read and receive data read. When faulty station data clear designation (Y4B(Y3B)) is off, data existing directly prior to the fault occurring is retained if a communication error occurs. The program marked *1 is not required for a system which may continue operation using the data which was received during correct communication.



5. SPECIFICATIONS

The following sections explain the specifications for the batch refresh type remote I/O units.

- Stand-alone remote I/O unit (for optical data link)
- Stand-alone remote I/O unit (for twisted-pair cable data link)
- Compact type CPU remote I/O unit
- AJ71PT35 type data link module

5.1 Stand-alone Remote I/O Units (for optical data link)

The casing is made of aluminum diecast to ensure high strength and drip-proof structure.

- (1) The protection structure conforms to IP54G (JEM1030).
- (2) One unit allows 8-point input or output.
- (3) Occupies 1 station.
- (4) Uses a batch I/O refresh system.
- (5) Remote I/O unit for dedicated optical data link operations.



5.1.1 AJ35PJ-8A AC input unit

Туре	AC INPUT	
Specifications	AJ35PJ-8A	Terminal arrangement
Number of input points	8	
Isolation	Photocoupier	
Rated input voltage	100-120V AC, 50/60Hz	
Rated input current	10mA (100V AC, 60Hz)	
Operating voltage range	85 to 132V AC (50/60Hz ±5%)	
Number of max. simultaneous input points	100% (8 points) switched on simultaneously	vi SG vi FG
Inrush current	300mA max. within 0.3ms (132V AC)	
ON voltage/ON current	80V AC min./6mA min.	
OFF voltage/OFF current	40V AC max./4mA max.	열 동안
Input impedance	Approx. 10kΩ (60Hz), approx. 12kΩ (50Hz)	de st] φ
OFF to ON	15ms max.	<u>₩</u> <u>-</u>
Response time ON to OFF	25ms max.	1 X1 9 9
Common	8 points/common (Common terminals: TB9 to TB13)	<u>2 X2 000</u>
Operation display	ON indication (LED)	<u> </u>
External wire connection	26-point terminal block (M3 screw X 6)	X X6 9.94
Applicable wire size	0.75 to 2mm ² (18 to 14 AWG) (tightening torque: 7kg-cm (6.06lb-inch))	
Applicable solderless terminal	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	
Number of stations occupied	1	
O unit power supply Voltage	15.6 to 31.2V DC	
Current	0.04A	
Weight kg (lb)	2.2 (4.84)	
	External Connection	
		Terminal Number Signal
		TB1 Reserved
		TB2 Reserved TB3 Reserved
	3	TB4 Reserved
	5 SG	TB5 SG
	s FG 🖈 🚓	TB6 FG
24V DC		TB7 +24V
	<u>9</u>	TB8 24G
(3-wire sensor)		
		TB9 COM1
	11 COM1	TB9 COM1 TB10 COM1
	 11 COM1 12	TB9 COM1 TB10 COM1
(2-wire sensor)		TB9 COM1 TB10 COM1 TB11 COM1
		TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0
		TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0 TB15 X1
		TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0 TB15 X1 TB16 X2
(2-wire sensor)		TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0 TB15 X1
(2-wire sensor)	11 COM1 12 13 14 14 15 15 16 18 18 14 19 16 19 16 16 17 19 16 17 19 16 17 19 16 17 19 18 19 19 19 19 19 19 19 19 19 19	TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0 TB15 X1 TB16 X2 TB17 X3
(2-wire sensor)	11 COM1 12 13 14 15 15 16 17 18 18 18 18 18 18 19 20 18 20 18 20 18 20 18 20 19 20 20 20 20 20 20 20 20 20 20	TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB14 X0 TB15 X1 TB16 X2 TB17 X3 TB18 X4
(2-wire sensor)	11 COM1 12 13 13 14 15 15 16 17 18 18 18 18 18 18 18 20 18 20 18 20 18 20 19 10 10 10 10 10 10 10 10 10 10	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
(2-wire sensor)	11 COM1 12 13 14 X0 15 X1 16 X2 17 X3 18 X4 19 X6 20 X6 21 X7 22 22 24	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
(2-wire sensor)	11 COM1 12 13 14 X0 15 X1 16 X2 17 X3 18 X4 19 X6 20 X6 21 X7 22 23 24 COM2	TB9 COM1 TB10 COM1 TB11 COM1 TB12 COM1 TB13 COM1 TB13 COM1 TB14 X0 TB15 X1 TB16 X2 TB17 X3 TB18 X4 TB19 X5 TB20 X6 TB21 X7 TB22 COM2 TB23 COM2
(2-wire sensor)	11 COM1 12 13 14 X0 15 X1 16 X2 17 X3 18 X4 19 X6 20 X6 21 X7 22 23 24 COM2	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

IB (NA) 66215-A



5.1.2 AJ35PJ-8D DC input unit



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5.1.3 AJ35PJ-8R contact output unit



18 (NA) 66215-A



5.1.4 AJ35PJ-8S1 triac output unit



5. SPECIFICATIONS



5.1.5 AJ35PJ-8T1 transistor output unit (sink type)





5.1.6 AJ35PJ-8T2 transistor output unit (sink type)



5. SPECIFICATIONS



5.1.7 AJ35PJ-8T3 transistor output unit (sink type)



*1: When 12V DC is used as a load power supply, 24V DC 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.



5.1.8 AJ35PJ-8S2 triac output unit





5.2 Stand-alone Remote I/O Units (for twisted-pair data link)

The casing is made of aluminum diecast to ensure high strength and drip-proof structure.

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

(2) One unit allows 8-point input or output.

(3) Occupies 1 station.

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

(5) Remote I/O unit for twisted-pair data link operations.



5.2.1 AJ35TJ-8A AC input unit





5.2.2 AJ35TJ-8D DC input unit (sink type)





5.2.3 AJ35TJ-8R contact output unit



(B (NA) 06215-A



5.2.4 AJ35TJ-8S1 triac output unit



5. SPECIFICATIONS



5.2.5 AJ35TJ-8T1 transistor output unit (sink type)



- 5-15 -

5. SPECIFICATIONS



5.2.6 AJ35TJ-8T2 transistor output unit (sink type)



- 5-16 -



5.2.7 AJ35TJ-8T3 transistor output unit (sink type)



*1: When 12V DC is used as a load power supply, 24V DC 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.



5.2.8 AJ35TJ-8S2 triac output unit



- 5-18 -



5.3 Compact Remote I/O Units

Same in size as the compact type (A0J2) I/O units.

- 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.
- (2) Occupies 4 or 8 stations.
- (3) Uses a batch I/O refresh system.
- (4) Can be used for both optical and twisted-pair data links.



5.3.1 AJ35PTF-32A AC input unit

				INIPLIT	SPECIFICATIONS				
Nu	mber of i	nput	points		32				
	Isolat	<u> </u>			Photocoupler				
F	lated inpu	_	tage		100-120V AC, 50/60Hz				
	lated inpu				10mA (100V AC, 60Hz)				
	erating vo				85 to 132V AC (50/60Hz ±5%)				
	voltage/			80V AC min./6mA min.					
	voltage/	_		L	40V AC max/4mA max.				
00	Inrush d				300mA max, within 0.3ms (132V AC)				
	Input imp	_			Approx. 10kΩ (60Hz), approx. 12kΩ (50Hz)				
	input ing		FF to ON	15ms max. (6ms typ.)					
Respon	nse time	<u> </u>	N to OFF		35ms max. (16ms typ.)				
	Come			16 -	oints/common (Common terminals: TB17, TB34)				
	Common Operation display				(LED is lit to indicate that corresponding input is on)				
	Operation display Number of max. simultaneous			Provided	(LED is ht to indicate that corresponding input is on)				
	input p	oints		100%	(16 points/common) simultaneously switched on				
·	External wire connection				36-point terminal block (M3 screw × 6)				
A	pplicable	wire	size	0.75 to 2mm ²	(18 to 14 AWG) (tightening torque: 7kg-cm (6.06lb-inch))				
Applic	abie solde	rless	terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A				
Numb	er of stat	ions	occupied		4				
	O unit power supply		Voltage		15.6 to 31.2V DC				
VO unit	home, ant		Current		110mA				
	Weight	kg (it)		0.75 (1.65)				
	N				External Connection				
Terminal Number	Input Signal								
TB1 TB2	X00 X01								
TB3	X02								
TB4 TB5	X03			External input device	IN				
TB6	X05								
T87 T88	X06 X07								
TB9	XOB				Photocoupler				
TB10 TB11	XOS				LED display				
TB12	XOB								
TB13	XOC								
TB14 TB15	XOD			TB16					
TB16	XOF			тв17	-				
TB17 TB18	COM1 X10								
TB19	X11			••••••					
TB20 TB21	X12 X13				_				
TB22	X14			/					
TB23 TB24	X15 X16								
TB25	X17								
TB26 TB27	X18 X19)					
TB28	X19 X1A			твзз	_				
TB29	X18			TB34	-				
T830 T831	X1C X1D			COM2	-				
TB32	XIE								
TB33	X1F			-					
TB34	COM2				1				
	COM2 NC NC								



5.3.2 AJ35PTF-32D DC input unit (sink type)

				INPUT	SPECIFICATIONS				
Num	nber of in	put r	points		32				
	Isolati				Photocour	oler			
Ra	ted input		808	120	DC	24V DC			
L	ated input				nA	7mA			
	rating vol				10.2 to 31.2 AC (Ripple				
<u> </u>	voltage/C				9.5V DC min./2.0				
		_			6V DC max./1.0r	······································			
	voltage/C				the second s				
	Input res		;e		Approx. 3.				
	Input 1				Sink typ				
Respons	se time		F to ON	10ms max. (6ms typ.)					
			to OFF		10ms max. (7.				
	Common				points/common (Common				
C	Operation display		ay	Provided	(LED is lit to indicate that	t corresponding input is on)			
Number	r of max. input p		uitaneous	1009	6 (16 points/common) sim	ultaneously switched on			
Exte	rnal wire	conn	ection		36-point terminal block	(M3 screw × 6)			
Ar	plicable	wire	size	0.75 to 2mm	² (18 to 14 AWG) (tighten	ing torque: 7kg-cm (6.06lb-inch))			
Applica	ble solde	rless	terminal		1.25-3, 1.25-YS3A, 2 V1.25-3, V1.25-YS3A, V				
Numbe	or of stati	ons o	occupied		4				
	Voltage			15.6 to 31.2	V DC				
VO unit p	O unit power supply		Current	110mA					
	Weight I	(ib)		0.70 (1.5	4)			
	N		·						
Terminal	input Signal				External Connection	n			
TB1	X00								
TB2 TB3	X01 X02								
TB4	X02								
185	X04		E	xternal input device		IN			
T86 T87	×05 ×06					±			
TBB	X07					er 💽 LED display			
TB9 TB10	X08 X09					$\overline{}$			
TB11	XOA			: (
TB12	XOB								
TB13 TB14	X0C X0D								
T815	XOE			1					
TB16 TB17	COM1			+ - 0	►	•			
TB18	X10			- + TB17					
T819	X11			COM1	-,				
TB20 TB21	×12 ×13			TB18					
TB22	X14			1 <u>,,,,</u>	-				
T823 T824	×15 ×16) د					
7825	X17								
T826	X18)					
T827 T828	X19 X1A								
TB29	X1B			TB33	-				
TB30 TB31	X1C X1D			- + T834					
	XIE			COM2					
TB32									
T833	X1F								



5.3.3 AJ35PTF-24R contact output unit

			OUTPUT SPECIFICATIONS					
Numl	ber of ou	tput points	24					
	Isolati		Photocoupler					
Rated sw		oltage, current	24V DC, 2A (resistance load) 240V AC, 2A (COS \$=1) point, 5A/common					
Mi	n. switch	ing load	5V DC/1mA					
Max	. switchir	g voltage	264V AC, 125V DC					
Max.	switching	frequency	3600 times/hour					
		Mechanical	20 million times min.					
			Rated switching voltage/current load: 200 thousand times min.					
Lif	e	Electrical	200V AC/1.5A, 240V AC/1A (COS •=0.7): 200 thousand times min.					
		LIUGAIDUI	200V AC/1A, 240V AC/0.5A (COS ♦ =0.35): 200 thousand times min.					
			24V DC/1A, 100V DC/0.1A (L/R = 7ms): 200 thousand times min.					
Respons	Response time OFF to ON ON to OFF Dutput external supply power ower for driving		10ms max.					
iscapona			12ms max.					
supply			24V DC 10%, ripple voltage 4Vp-p max.					
relay		Current	220mA (24V DC, all points switched on)					
N	oise supp		Not provided					
	Comm		8 points/common (Common terminals: TB9, TB19, TB29)					
	peration		Provided (LED is lit to indicate that corresponding input is on)					
		connection	36-point terminal block (M3 screw X 6)					
Ар	plicable v	vire size	0.75 to 2mm ² (18 to 14 AWG) (tightening torque: 7kg-cm (6.06lb-inch))					
Applicat	Applicable solderless terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A					
Numbe	Number of stations occupied		4					
VO unit p	ower supr	Voitage	15.6 to 31.2V DC					
		Current	120mA					
	Weight k	g (Ib)	0.80 (1.76)					
Terminal	OUT Input		External Connection					
Number TB1	Signal Y00							
TB2	Y01							
TB3 TB4	Y02 Y03		External output device OUT					
T85	Y04		External output device OUT					
TB6 TB7	Y05		→					
TB6	¥07							
TB9 TB10	COM1 NC		Photocoupler LED dispusy					
TB11	YOS							
TB12 TB13	YOP							
TB14	XOB							
TB15	XOC							
TB16 TB17	YOE							
TB18	YOF		<u>1 град твів і</u>					
T819	COM2		ТВ19					
TB20 TB21	NC		COM2					
TB22	Y11							
TB23 TB24	¥12 ¥13							
TB25	¥13 ¥14		the the second s					
TB26	¥15		Тв29					
TB27 TB28	¥18 ¥17		СССМЗ					
TB29	COM3	<u> </u>						
T830	NC							
TB31 TB32	NC NC		TB35					
T833	NC							
TB34 TB35	24V DC 24G DC							
	NC							
T836								



5.3.4 AJ35PTF-24S triac output unit

			OUTPUT SPECIFICATIONS					
Nur	nber of ou	utput points	24					
	Isolat		Photocoupler					
6	Rated load		100-240V AC, 40 to 70Hz					
	Max. load	· · · · · · · · · · · · · · · · · · ·	284V AC					
	Max. load		0.6A/point, 2.4A/common					
		tage/current	24V AC/100mA, 100V/240V AC/10mA					
			20A, 10ms max.; 8A, 100ms max.					
	Max. inrush current Leakage current at OFF		1.5mA (120V AC, 60Hz)					
Max	Max. voltage drop at ON		3.0mA (240V AC, 60Hz) 1.5V max. (100 to 600mA), 1.8V max. (50 to 100mA), 2V max. (10 to 50mA)					
	OFF to ON		Ims max.					
Respor	Response time ON to OFF		0.5 cycles + 1ms max.					
	Fuse rating		Fast-melting fuse 3.2A (1 fuse per common) HP-32					
BI	Blown fuse indication		Provided (When fuse is blown, LED is lit to indicate that the station is faulty.)					
	Noise sup							
'	Comr		CR absorber (0.022 μ F + 47 Ω) 8 points/common (Common terminals: TB9, TB19, TB29)					
	Operation	_	Provided (LED is lit to indicate that corresponding input is on)					
	·····	connection						
	pplicable		36-point terminal block (M3 screw X 6)					
	phicaple	WITE 5128	0.75 to 2mm ² (18 to 14 AWG) (tightening torque: 7kg·cm (6.06lb·inch))					
Applic	able solde	rless terminal	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A					
Numb	er of stati	ons occupied	4					
		Voltage	15.6 to 31.2V DC					
VO unit	O unit power supply Current		200mA					
	Weight k		0.83 (1.83)					
	TUO							
Terminel Number	Input Signal		External Connection					
TB1	Y00							
TB2 TB3	Y01 Y02							
TB4	¥03		External output device) OUT					
785 TB6	Y04 Y05	``						
T87	Y06		TB1 Photocoupler LED display					
TB8 TB9	Y07 COM1							
TB10	NC		市の空外					
TB11 TB12	Y06 Y09							
TB12 TB13	Y09 Y0A							
TB14	XOB							
TB15 TB16	X0C X0D							
TB17	YOE							
TB18 TB19	YOF COM2							
TB20	NC							
T821	Y10		COM2					
TB22 TB23	Y11 Y12							
TB24	¥13							
TB25 TB26	Y14 Y15							
TB27	Y16		TB29 Blown fuse indication					
TB28 TB29	Y17 COM3		COM3 indication					
TB30	NC							
TB31	NC		Blown fuse detector					
T832 T833	NC NC							
T834	NC							
TB36								
T836								



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5.3.5 AJ35PTF-24T transistor output unit (sink type)

			OUTPUT SPECIFICATIONS						
Nur	ober of ou	tput points	24						
- Nun	Isolati		Photocoupler						
<u> </u>	Rated load		12/24V DC						
		voltage range	10.2 to 31.2V DC						
	Max. load		0.5A/point, 3.2A/common						
	fax. inrust		4A, 10ms max.						
			0.1mA max.						
Lea	kage cum	ent at OFF	0.9V (typ.) 0.5A						
Max	. voltage	drop at ON	1.5V (max.) 0.5A						
	Output	type	Sink type						
		OFF to ON	2ms max.						
Respon	nse time	ON to OFF	2ms max. (resistance load)						
		Voltage	12/24V DC (10.2 to 31.2V DC)						
External	supply pov	ver Current	23mA (typ. 24V DC, 8 points/common switched on)						
;	Noise suppression		Varistor (52 to 62V)						
· · · ·	Comm		8 points/common (Common terminals: TB9, TB19, TB29)						
	Operation		Provided (LED is lit to indicate that corresponding input is on)						
		connection	36-point terminal block (M3 screw × 6)						
			0.75 to 2mm ² (18 to 14 AWG) (tightening torque: 7kg-cm (6.06lb-inch))						
	Applicable wire size Applicable solderless terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A,						
Applica			V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A						
Numb	Number of stations occupied		4						
		Voltage	15.6 to 31.2V DC						
VO unit	power sup	Current	130mA						
	Weight k	g (lb)	0.73 (1.61)						
Terminal	OUT Input		External Connection						
Number TB1	Signal								
TB2	Y00 Y01								
TB3	Y02		ernal output device OUT						
T84 T85	Y03 Y04		ernal output device OUT						
TB6	Y05								
TB7 TB8	Y06 Y07		TB1 Veristor Transistor						
789	COM1								
TB10 TB11	12/24V DO								
TB12	¥09								
TB13 TB14	YOA		COMI						
TB15	XOC		TBIO						
TB16 TB17	XOD YOE								
TB18	YOF								
TB19 TB20	COM2 12/24V DO								
TB21	Y10		+1 - TB19						
T822 T823	Y11 Y12		COM2						
TB23	¥12 ¥13		TB20						
T825 T826	Y14 Y15								
TB26	¥15 ¥16								
T828	Y17								
TB29 TB30	COM3 12/24V DC		+ <u></u> - TB29						
	12241 00								
TB31	NC		1° COM3						
TB31 TB32 TB33			Твзо						
7832 7833 7834	NC NC NC NC								
7832 7833	NC NC NC								



5.3.6 AJ35PTF-28AR AC input and contact output unit

			INPUT SI	PECIFICATIONS	1	0	UTPUT SPECIFICATIONS	
Numbr	er of in	put points		16	Number of	output points	12	
	Isolati			Photocoupler		tion	Photocoupler	
Rate	d input	voltage		100-120V AC, 50/60Hz	Rated a	witching	24V DC/2A (resistance load)/ poi 240V AC/2A (COS # = 1)/ poi	
	_	current		10mA (100V AC. 60Hz)	voltage	Inerruck	240V AC/2A (COS # = 1) / PO	nt, 5A/common
_		tage range		85 to 132V AC (50/80Hz ±5%)	Min. swit	ohing load	5V DC/1mA	
		N current		80V AC min/SmA min.	Max. switc	ning voltage	264V AC, 125V D	С
		FF current		40V AC max/4mA max.	Max. switchi	ng frequency	3890 times/hour	
	rush cu		200	DmA max. within 0.3ms (132V AC)	ſ	Mechanical	20 million times m	Hn.
	ut imp			x. 10kΩ (80Hz), approx. 12kΩ (50Hz)	1		Rated switching voltage/cu	ment load
	í		мррго		1		200 thousand times	min.
Respo		OFF to ON		15ms max. (6ms typ.)	Life		200V AC/1.5A, 240V AC/1A (200 thousand times	
	10	ON to OFF		25ms max. (16ms typ.)	1	Electrical	200V AC/1A, 240V AC/0.5A (
	Comm	ion	16 poir	te/common (Common terminal: TB17)	1		200 thousand times	
Оре	eration	display	(LED is lit	Provided to indicate that corresponding input is on)			24V DC/1A, 100V DC/0.1A 200 thousand times	
	Numbe			100% (16 points/common)		OFF to ON	10ms max.	
	nput pa	taneous pints		simultaneously switched on	Response	ON to OFF		<u></u>
						UN 10 UPP	12ms max.	
					Output ex- ternal supply power	Voltage	24V DC ±10%, ripple voltage	4Vp-p max.
					(Power for driving relay	Current	110mA (24V DC, all points a	witched on)
					ceil)			
					Noise su	ppression	Not provided	
					Com	mon	8 points/common (Common ta 3 points/common (Common ta Independent contact (Common	rminel: TE31)
				Operation	n display	Provided (LED is lit to indicate that correspon	ding output is on	
Externa	al wire o	connection		36 -poi	nt terminal bk	ock (M3 screw	× 6)	
Appli	icable v	wire size		0.75 to 2mm ² (18 to 1	4 AWG) (tigh	tening torque	: 7kg·cm (6.06lb·inch))	
Applic		olderless		1.25-3, 1.25-YS3A, 2-S3	. 2-YS3A. VI	25-3. V1 25-	VS34 V2-S3 V2-VS34	
Num	termin ber of	stations						
	occupi							
NO UI No Weine Si		Voltage			15.6 to 3			
		Current			120			
_	eight k		- T-		0.78			
147	ninei Hum		nal		Extern	Connect	on	
	T81 T82		00 01					
-	TB3							
			ng 1					
	184		02					
	TB4 TB5	X	02 03 04	External input device				
_	TB5 TB6	X	03		c			
	785 786 787		03 04 05 06	External input device	₽	 	±	
	786 786 787 788		03 04 05 06 07		ه ار آر	Z. Pho	tocoupler	1
	785 786 787 788 789		03 04 05 06 07 08		ار ار			I N
	TB5 TB6 TB7 TB8 TB9 TB10		03 04 05 06 07 08 09					IN
	785 786 787 788 789		03 04 05 06 07 08 09 14					I N
	TB5 TB6 TB7 TB8 TB9 TB10 TB11		03 04 05 06 07 08 09 04 09 08					I N
	786 786 787 788 789 7810 7811 7811 7812 7813 7814		03 04 05 06 07 08 09 09 09 04 06 00 00	External output device				- N
	786 786 787 788 789 7810 7811 7811 7813 7813 7814 7815		03 04 05 06 07 08 09 09 08 04 06 06 06 06 06 06 06 06 06 06 06 06 06	External output device				I N
	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16		03 04 05 06 08 09 09 04 08 09 04 08 00 00 00 00 00 00 00	External output device				- 2
	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17		23 24 25 26 27 27 20 29 29 24 29 29 24 20 29 20 20 20 20 20 20 20 20 20 20 20 20 20	External output device				 N
	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17		03 04 05 06 07 09 08 09 09 04 00 06 00 06 00 06 00 00 06 00 00 00 00	External output device				I N
	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19		03 04 05 05 05 05 05 05 05 05 05 05 05 05 05	External output device				IN
	TB5 TB4 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB15 TB16 TB17 TB18 TB19		03 04 05 05 07 08 09 09 08 09 09 08 00 00 00 00 00 00 00 00 00 00 00 00	External output device				
	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19		03 04 05 05 07 09 09 09 09 09 00 00 00 00 00 00 00 00	External output device				- N 0
	TB5 TB6 TB7 TB8 TB17 TB18 TB11 TB12 TB13 TB14 TB16 TB18 TB18 TB18 TB19 TB18 TB19 TB20 TB21		03 04 05 05 06 07 09 08 09 09 04 00 00 00 00 00 00 00 00 00 00 00 00	External output device TB18 COM1 External output device TB18 COM1 TB18 TB17 COM1 TB18 TB18 COM1 TB18 TB18 COM1 TB18 TB18 COM1 TB18 TB18 COM1 TB18 TB18 TB17 COM1 TB18 TB18 TB18 TB17 COM1 TB18 TB18 TB17 COM1 TB18 TB18 TB18 TB18 TB18 TB18 TB18 TB17 COM1 TB18 TB28				0
	TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24		03 04 05 05 07 08 07 09 09 00 00 00 00 00 00 00 00 00 00 00	External output device TB16 TB17 COM1 External output device TB26 COM2 TB26 COM2 TB26 COM2 TB26 COM2 TB26 COM2 TB26				0
	TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25		03 04 05 05 07 09 09 09 09 00 00 00 00 00 00 00 00 00	TB1 TB16 TB17 COM1 External output device TB18 TB17 COM1 External output device TB18 TB18 TB18 COM1 TB25 TB25 COM2 TB28 Z TB20 TB31				0
	TB6 TB4 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB21 TB22 TB23 TB24 TB25 TB26		03 04 05 05 05 05 05 05 05 05 05 05 05 05 05	External output device				0
	TB6 TB6 TB7 TB8 TB9 TB10 TB11 TB13 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB26 TB27		03 04 05 05 07 08 07 08 07 08 07 08 07 08 07 08 07 08 07 00 01 11 12 23 3 0 14 15 5 (6 7 7 (2) 14 15 5 (2) 14 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10	TB1 TB16 TB17 COM1 External output device TB18 TB17 COM1 External output device TB18 TB18 TB18 COM1 TB25 TB25 COM2 TB28 Z TB20 TB31				0
	TB5 TB4 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB16 TB17 TB18 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28		03 04 05 05 07 08 07 09 09 00 00 00 00 00 00 00 00 00 00 00	External output device				0
	TB6 TB4 TB9 TB10 TB112 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB26 TB27 TB28 TB29		D3 D4 D5 D6 D7 D8 D9 D4 D8 D7 D8 D7 D8 D7 D8 D7 D8 D9 D11 12 13 14 55 6 7 M2 C 8 9					0
	TB6 TB4 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB21 TB22 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB20 TB20 TB20 TB20 TB20 TB20 TB20 TB20	XXX XXX XXX XXX XXX XXX XXX XXX XXX XX	03 04 04 05 05 05 05 05 05 05 05 05 05 05 05 05	External output device				0
	TB6 TB4 TB9 TB10 TB112 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB26 TB27 TB28 TB29		03 04 05 05 07 08 09 04 05 05 06 07 08 09 04 05 05 06 07 07 08 09 04 05 05 06 77 M2 C 8 9 A M3	External output device TB17 COM4 TB25 TB25 TB25 TB25 TB26 COM2 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 COM4 TB33 COM4 TB34				0
	TB5 TB4 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB23 TB24 TB25 TB27 TB28 TB29 TB20 TB21 TB22 TB23 TB23 TB23 TB23 TB30	Xi Xi Xi Xi Xi Xi Xi Xi Xi Xi Xi Xi Xi X	03 04 05 05 07 08 07 08 07 08 07 08 07 00 00 00 00 00 00 00 00 00 00 00 00					0
	TB6 TB4 TB9 TB10 TB112 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB117 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB33 TB34	XXX XXX XXX XXX XXX XXX XXX XXX XXX XX	03 04 05 05 05 05 05 05 05 05 05 05	External output device TB17 COM4 TB25 TB25 TB25 TB25 TB26 COM2 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 COM4 TB33 COM4 TB34				0
	TB6 TB4 TB9 TB10 TB112 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB30 TB31 TB32 TB33	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	03 04 05 05 07 08 09 04 05 05 07 08 09 11 12 13 14 15 16 77 M2 C 8 9 M3 8 M44 DC DC	External output device TB17 COM4 TB25 TB25 TB25 TB25 TB26 COM2 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 TB26 COM4 TB33 COM4 TB34				0



5.3.7 AJ35PTF-28AS AC input and triac output unit

		INPL	T SPECIFICATIONS		C	UTPUT SPECIFICATIONS	
Net	mber of input		16	Number of	output points	12	
-	Isolation		Photocoupler		ation	Photocoupler	
F	Rated input vol	tage	100-120V AC, 50/60Hz	Rated los	d voltage	100-240¥ AC, 40 to	70Hz
┣──	Rated input cur		10mA (100V AC, 60Hz)		d voltage	264V AC	
<u> </u>	perating voltage		85 to 132V AC (50/80Hz ±5%)		d current	0.6A/point, 2.4A/com	mon
<u> </u>	voltage/ON c		80V AC min./6mA min.		oltage/current	24V AC/100mA, 100V/240V	
<u> </u>	FF voltage/OFF c		40V AC max./4mA max.		sh current	20A, 10ms max.; 8A, 100	
- 07	Inrush currer		300mA max. within 0.3ms (132V AC)			1 5mA (132V AC A	(M-4->)
	Input impedar		Approx. 10kΩ (60Hz), approx. 12kΩ (50Hz)	Leekage cu	rrent at OFF	3.0mA (264V AC, 60	OHz)
	lore	to ON	15ms max. (6ms typ.)	Max. voltao	e drop at ON	1.5V max. (0.1 to 0.	6A),
Re		OFF			-	1.8V max. (50 to 100mA), 2.0V m	nax. (10 to 50mA)
⊢	10111		25ms max. (16ms typ.)	Response time	OFF to ON	Ims max.	
-	Common		6 points/common (Common terminal: TB17)		ON to OFF	0.5 cycles + 1ms n	
	Operation disp	ay (LE	Provided . D is lit to indicate that corresponding input is on)	Fuse	rating	Fast-melting fuse 3.2A (one fuse pe	r common) HP-32
	Number of			Blown fue	indication	Provided (When fuse is blow	
	max. simultane	ous	100% (16 points/common) simultaneously switched on	0.0411 100		the LED is lit to indicate that the	
	input points			Noise su	ppression	CR absorber (0.022 µ F-	+47Ω)
				Co	mon	8 points/common (Common te	erminal: TB26)
				Con		4 points/common (Common te	erminal: TB33)
				Operatio	n display	Provided (LED is lit to indicate that correspon	ding output is on.)
_	ternat wire conn				ock (M3 scre	and the second se	
-	Applicable wire		0.75 to 2mm ² (18 to 14	AWG) (tig	ntening torqu	e: 7kg·cm (6.06lb·inch)}	
A	pplicable solde terminal	riess	1.25-3, 1.25-YS3A, 2-S3	, 2-YS3A, V	1.25-3, V1.25-	YS3A, V2-S3, V2-YS3A	
•	Number of stat occupied	ions			4		
		tage		15.6 to	31.2V DC		
pow	ver supply Cur	rent		140	mA		
	Weight kg (lt	o)		0.65	(1.43)		
	Weight kg (It Terminal Number	s) Signal	1		(1.43) al Connect	ion	
						ion	
	Terminal Number TB1 TB2	Signal X00 X01				ion	
	Terminal Number TB1 TB2 TB3	Signal X00 X01 X02				ion	
	Terminal Number TB1 TB2 TB3 TB4	Signal X00 X01 X02 X03	External input device			ion	
	Terminal Number TB1 TB2 TB3	Signal X00 X01 X02				ion	
	Terminal Number TB1 TB2 TB3 TB4 TB5 TB5 TB5 TB7	Signal X00 X01 X02 X03 X04 X05 X06	External input device			±	
	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8	Signal x00 x01 x02 x03 x04 x05 x06 x07				ion	
	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9	Signal x00 x01 x02 x03 x04 x05 x06 x07 x08				±	- 2
I N	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X09				±	- 2
- 7	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9	Signal x00 x01 x02 x03 x04 x05 x06 x07 x08				±	- 2
- 7	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X08 X09 X00 X00 X00 X00 X00 X00				±	- 2
- 7	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X08 X07 X08 X09 X0A X09 X0A X0A X0D				±	- 2
- 7	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB9 TB10 TB11 TB12 TB13 TB14 TB15	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X09 X0A X08 X09 X0A X00 X00 X00 X00 X02 X04 X05 X05 X05 X05 X06 X07 X07 X07 X07 X07 X07 X07 X07	TB1 TB1 TB17 COM1 External output device			±	- 2
- z	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X08 X07 X08 X09 X0A X09 X0A X0A X0D	External output device			LED displey	- 2
- 2	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB6 TB7 TB6 TB7 TB8 TB1 TB1 TB1 TB12 TB13 TB14 TB15 TB16	Signal X00 X01 X02 X03 X04 X05 X06 X07 X06 X07 X08 X09 X0A X09 X0A X00 X00 X00 X00 X00 X00 X00 X00	External output device			LED displey	- 2
- 2	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB6 TB7 TB6 TB7 TB6 TB1 TB1 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB19	Signal X00 X01 X02 X03 X04 X05 X06 X07 X06 X07 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00	External output device			LED displey	- Z
- Z	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20	Signal X00 X01 X02 X03 X04 X05 X06 X06 X06 X06 X07 X08 X08 X00 X00 X00 X00 X00 X00 X00 X00	External output device			LED displey	
- Z	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X01 X01 X01 X01 X01 X01 X01 X01 X01 X01	External output device			LED displey	0
- Z	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20	Signal X00 X01 X02 X03 X04 X05 X06 X06 X06 X06 X07 X08 X08 X00 X00 X00 X00 X00 X00 X00 X00	External output device			LED displey	
- Z	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB15 TB15 TB15 TB19 TB20 TB21 TB22 TB23 TB24	Signal X00 X01 X02 X03 X04 X05 X06 X06 X07 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00	External output device			LED displey	0
-	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device			LED displey	0
0	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB1 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 COM1 External output device TB18 TB25 Hf TB26 COM2 TB28 Z TB28 Z TB28 Z TB28 Z TB28 Z TB28			LED displey	0
0.0	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X09 X08 X09 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00	External output device TB17 COM1 External output device TB18 TB25 Hf TB26 COM2 TB28 Z TB28 Z TB28 Z TB28 Z TB28 Z TB28		Blown fuse	LED displey	0
0	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB1 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 TB17 COM1 External output device TB25 TB26 COM2 TB26			LED displey	0
0 0	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB29 TB20	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 COM1 External output device TB26 TB26 TB26 TB26 TB26 TB28 TB28 TB28		Blown fuse	LED display	0
0 0	Terninal Number T81 T82 T83 T84 T85 T86 T87 T86 T87 T88 T89 T810 T811 T812 T813 T814 T813 T814 T815 T816 T817 T818 T819 T820 T821 T822 T823 T824 T823 T824 T825 T826 T827 T828 T829 T830 T831	Signal X00 X01 X02 X03 X04 X05 X06 X06 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X09 X04 X07 X08 X09 X04 X07 X08 X09 X07 X08 X09 X00 X07 X08 X09 X00 X07 X08 X09 X00 X07 X08 X09 X00 X07 X08 X09 X00 X07 X08 X09 X00 X07 X08 X09 X00 X09 X00 X07 X08 X09 X00 X00 X07 X08 X09 X00 X00 X07 X08 X09 X00 X07 X08 X09 X00 X00 X07 X08 X09 X00 X00 X07 X08 X09 X00 X00 X00 X07 X08 X00 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X07 X08 X07 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 TB17 COM1 External output device TB25 TB26 COM2 TB26		Blown fuse indication	LED display	0
0 0	Terninal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB7 TB7 TB10 TB11 TB12 TB13 TB14 TB15 TB15 TB15 TB19 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 TB17 COM1 External output device TB25 TB26 COM2 TB26		Blown fuse indication	LED display	0
0 0	Terninal Number T81 T82 T83 T84 T85 T86 T87 T86 T87 T88 T89 T810 T811 T812 T813 T814 T813 T814 T815 T816 T817 T818 T819 T820 T821 T822 T823 T824 T823 T824 T825 T826 T827 T828 T829 T830 T831	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 TB17 COM1 External output device TB25 TB26 COM2 TB26		Blown fuse indication	LED display	0
0 0	Terminal Number TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB28 TB29 TB28 TB29 TB30 TB31 TB31 TB32 TB33	Signal X00 X01 X02 X03 X04 X05 X06 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X08 X07 X07 X07 X07 X07 X08 X07 X07 X07 X07 X07 X07 X07 X07 X07 X07	External output device TB17 TB17 COM1 External output device TB25 TB26 COM2 TB26		Blown fuse indication	LED display	0

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5.3.8 AJ35PTF-28DR DC input and contact output unit (sink type input)

	-	INPUT SPECIFICATION	NS	T		UTPUT SPECIFICATIONS			
Number o	f input points	·····	6	Number of	output points	12			
	plation		coupier		ation	Photocoupler			
	put voltage	12V DC 3mA	24V DC		witching Yourrent	24V DC/2A (resistance load)/ point, SA/comi 240V AC/2A (COS # =1) / point, SA/comi	mon		
	voltage range		ppie ratio within 5%)	Min. swit	ching load	5V DC/1mA			
	e/ON current		/2.6mA min.	Max. switc	ning voltage	264V AC, 125V DC			
	e/OFF current		/1.0mA max.	Mex. switch	ng frequency	3600 times/hour			
	resistance		. 3.4kΩ	1	Mechanical	20 million times min.			
Inp	ut type	Sink	type	-		Rated switching voltage/current load 200 thousand times min.			
Response time	OFF to ON		(6ms typ.)	Life		200V AC/1.5A, 240V AC/1A (COS # =0.7 200 thousand times min.	7),		
·····	mmon		(7.5ms typ.) mmon terminal: TB17)	-	Electrical	200V AC/1A, 240V AC/0.5A (COS # =0.3	15),		
Operati	on display		rided corresponding input is on)	1		200 thousand times min. 24V DC/1A, 100V DC/0.1A (L/R=7ms), 200 thousand times min.	,		
	nber of	100% (16 po	ints/common)	1	OFF to ON	10ms max.			
	multaneous t points		y switched on	Response time	ON to OFF	12ms max.			
				Output ex- ternal supply	Voltage	24V DC ±10%, ripple voltage 4Vp-p mi	ax.		
				power (Power for driving relay	Current	110mA (24V DC, all points switched or	n)		
				Coil)	ppression	Not provided			
				Com		8 points/common (Common terminal: TB 3 points/common (Common terminal: TB Independent contect (Common terminal: T	326) 331) 1833)		
						Provided (LED is lit to indicate that corresponding output	is on		
	ire connection			t terminal bl					
	le wire size		0.75 to 2mm ² (18 to 1	4 AWG) (tigh	tening torqu	a: 7kg-cm (6.06lb-inch))			
	e solderless minal		1.25-3, 1.25-YS3A, 2-S	3, 2-YS3A, V	.25-3, V1.25-	YS3A, V2-S3, V2-YS3A			
	of stations supied								
VO unit	Voltage			15.6 to 3	1.2V DC				
ower supply	Current			120	mA				
Weigh	t kg (lb)			0.76	1.67)				
Terminal		gnal		Externa	d Connect	on			
T8 TB		00							
TB		102 Extern			····		T		
TB		03 Externa	al input device)			±			
TB		05			Phi	blocoupler LED display			
ТВ		06		Y					
TB		07			ų (N N			
		08	•••• •••••	← ┌					
TB		0A OA	- + TB17			1	1		
TB		08 External	output device COM1			·	4		
TB			TB18	1		+			
TB		0D 0E		•		hotocoupler LED display			
TB		OF	1						
TB1		M1		<u>آ</u> _					
TB		10	ТВ26		1 -		F		
TB1		11		I					
TB2		12		∲ −		0			
TB2		<u>13</u> 14	2	•			1		
TB2		15	ТВ30	<u>.</u>		ln			
TB2		16	TB31	I		Т	1		
1 104		17		┿-			1		
TB2		M2		L			1		
				Υ ⁻			1		
TB2 TB2 TB2	26 CC 27 N	C			1 1		1		
TB2 TB2 TB2 TB2	26 CC 27 N 28 Y	18		┢					
TB2 TB2 TB2 TB2 TB2	26 CC 27 N 28 Y 19 Y	18 19							
TB2 TB2 TB2 TB2 TB2 TB3	26 CC 27 N 28 Y 19 Y 10 Y	18 19	COM4 TB34	┢╾ ∲╺╋┥───					
TB2 TB2 TB2 TB2 TB2 TB3 TB3	26 CC 27 N 28 Y 19 Y 10 Y	18 19 IA M3	COM4	} − ▶ 1−−−					
TB2 TB2 TB2 TB2 TB2 TB3 TB3 TB3 TB3	26 CC 27 N 28 Y 79 Y 10 Y 11 CO 12 Y	18 19 IA M3 IB	COM4 TB34	∲- • ●					
TB2 TB2 TB2 TB2 TB2 TB3 TB3	26 CC 27 N 28 Y 29 Y 20 Y 11 CO 12 Y 13 CO	18 19 IA M3	COM4 TB34	∲- • • •					
TB2 TB2 TB2 TB2 TB3 TB3 TB3 TB3 TB3	26 CC 27 N 28 Y 29 Y 29 Y 11 CO 12 Y 13 CO 14 24V 15 24G	18 19 14 M3 18 18 M4 DC	COM4 TB34	}- 					



5.3.9 AJ35PTF-28DS DC input and triac output unit (sink type input)

INPUT SPECIFICATIONS						OUTPUT SPECIFICATIONS			
Number of input points			16			Number of output points 12			
Isolation			Photocoupler			ation	Photocoupler		
Rated input voltage		tage	12V DC 24V DC		_	ad voltage	100-240V AC, 40 to 70Hz		
Rated input current		rent	3mA 7mA		_	d voltage	264V AC		
Operating voltage range			10.2 to 31.2V DC (ripple ratio within 5%)			d current	0.6A/point, 2.4A/common		
ON voltage/ON current			9.5V DC min./2.6mA min.			oltage/current	24V AC/100mA, 100V/240V AC/10mA		
OFF voltage/OFF current			6V DC max/1.0mA max.			sh current	20A, 10ms max.; 8A, 100ms max.		
Input resistance			Approx. 3.4kΩ						
Input type			Sink type		Leekage cu	rrent at OFF	1.5mA (132V AC, 60Hz) 3.0mA (264V AC, 60Hz)		
Response OFF to OF					Max. voltage drop at ON		1.5V max /0.1 to /	641	
					- Totag		1.8V max. (50 to 100mA), 2.0V max. (10 to 50mA)		
Common			10ms max. (7.5ms typ.)			OFF to ON	1ms max.		
		+	16 points/common (Common terminal: TB17)		time	ON to OFF	OFF 0.5 cycles + 1ms max.		
Operation display		lay	Provided (LED is lit to indicate that corresponding input is on)		Fuse	Fuse rating Fast-melting fuse 3.2A (one fuse per common) HP-			mon) HP-32
Number of max. simultaneous		ous	100% (16 points/common)		Blown fus	indication .	Provided (When fuse is blown,		
input points			simultaneously switched on		Noise		the LED is lit to indicate that the station is faulty.)		
					10150 80	ppression	CR absorber (0.022 µ i		
						mon	8 points/common (Common terminal: TB26) 4 points/common (Common terminal: TB33)		
				Operatio	Operation display (LED is lit to indicate that corresponding output is on.)				
External wire connection			36-point terminal block (M3 screw X 6)						
Applicable wire size			0.75 to 2mm ² (18 to 14 AWG) (tightening torque: 7kg·cm (6.06lb·inch))						
Applicable	e solder minal	less					YS3A, V2-S3, V2-YS3A		
Number of stations occupied		ons	4						
VO unit Voltage		age	15.6 to 31.2V DC						
ower supply Current		rent	150mA						
Weigh	t kg (lb)			0.76				
Terminal	Number	Signa	e T			l Connecti	00		
TB		X00	<u> </u>		EA COTTA	Connect			
TB		X01							
TB		X02							
TB4 TB5 TB6		X03	External	External input device			+		
		X04 X05		ТВ1	_	Photocoup	er 😧 LED display		
TB		X06			┉				
TB		X07		1 2 1					
TBS		X08		TB16 }	¥	<u> </u>		N	
TB1		X09							
TB1 TB1		X0A X0B		- 1+ TB17					
TB1		X0C		COM1					
TB1	4	XOD	External or	tput device			•		
TB1		XDE		ТВ18		Photocourt	er LED display		
TB1 TB1		XOF		rl_l	<u> </u>				
TB1		COM1 Y10		2	ዀ)		
TB1		Y11		TB25 HP	" Ÿ	44	/		
	9				»<				1
TB2	0	Y12			5				
T82 T82	0 1	Y13		~	<u>}_</u>			0	
T82 T82 T82	0 1 2	Y13 Y14			a 1			0	
TB2 TB2 TB2 TB2 TB2	0 1 2 3	Y13 Y14 Y15						1 1	
T82 T82 T82	0 1 2 3 4	Y13 Y14						U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6	Y13 Y14 Y15 Y16 Y17 COM2						U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7	Y13 Y14 Y15 Y16 Y17 COM2 NC				wn fuee		U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7 8	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18			BIO	wn fuse cation		U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7 8 9	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18 Y19			BIO			U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 5 6 7 8 9 0	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18			BIO	Blow	n fu se	U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7 8 9 0 1 2	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18 Y19 Y18 Y19 Y1A NC Y1B			BIO	cation		U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 5 6 7 8 9 0 1 2 3 3	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18 Y19 Y18 Y19 Y1A NC Y18 COM3			BIO	Blow		U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7 8 9 0 1 1 2 3 4 4 4 4 4 4 4 5 6 6 7 8 9 9 0 1 4 4 4 5 6 6 6 7 8 8 9 9 0 4 4 4 6 6 6 6 7 7 8 8 9 9 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18 Y19 Y1A NC Y18 COM3 NC			BIO	Blow		U	
TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2 TB2	0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 5	Y13 Y14 Y15 Y16 Y17 COM2 NC Y18 Y19 Y18 Y19 Y1A NC Y18 COM3			BIO	Blow		U	

IB (NA) 86215-A


5.3.10 AJ35PTF-28DT DC input and transistor output unit

Nur			INPUT SPECIFICATION	4S		C	UTPUT SPECIFICATIONS	
	ber of in	put points		6	Number of	output points	12	
	Isolatio			oupler		tion	Photocoupler	
Re	ted input	voltage	12V DC	24V DC	Rated los	d voltage	12/24V DC	
-	ted input		3mA	7mA	Operati	ng load	10.2 to 31.2V DC	
Ope	rating volt	age range	10.2 to 31.2V DC (rig	opie ratio within 5%)	P	d current		
ON	voltage/O	N current	9.5V DC min	./2.6mA min.		sh current	0.5A/point, 3.2A/comn 4A, 10ms max.	
<u> </u>	voitage/O			/1.0mA max.		ment at OFF	0.1mA max.	
	Input resi		Approx			drop at ON	0.9V (typ.) 0.5A	
	Input ty		Sink			·····	1.5V (mex.) 0.5A	
		OFF to ON	10ms max. 10ms max.		· · · · · · · · · · · · · · · · · · ·	t type	Sink type	
	Comm			mmon terminal: TB17)	Response time	OFF to ON ON to OFF	2ms max.	41
			· · · · · · · · · · · · · · · · · · ·	ided		UN to UPP	2ms max. (resistance i	080)
	peration	display		corresponding input is on)	Output ex-	Voltage	12/24V DC (10.2 to 31.2)	/ DC)
	Number ax. simult		100% (16 po	ints/common)	ternal supply power		· · · · · · · · · · · · · · · · · · ·	
	input po		simultaneousi	y switched on	,	Current	23mA (typ. 24V DC, 8 points/comm	ion switched on)
		i			Noise su	ppression	Varistor (52 to 62V)
					Com	mon	8 points/common (Common ter	minal: TB26)
		İ					4 points/common (Common ter	minal: TB33)
		1			Operatio	n display	Provided (LED is lit to indicate that correspond	ing output is on.)
Exte	rnal wire c	connection			t terminal bl		w × 6)	
Ap	plicable v	vire size		0.75 to 2mm ² (18 to 1)	4 AWG) (tigh	taning torqu	e: 7kg·cm (6.06lb·inch))	
Ap	plicable so termin			1.25-3, 1.25-YS3A, 2-S3	3, 2-YS3A, V	.25-3, V1.25-	YS3A, V2-S3, V2-YS3A	
Nu	umber of occupi					l		
) unit	Voltage		** ** *	15.6 to 3	1.2V DC		
	r supply	Current			110			
	Weight k	g (Ib)			0.65	(1.43)		
	'erminal Num	ter Sig	inat	· · · · · · · · · · · · · · · · · · ·	Externa	l Connect	ion	
	TB1		00					
┝	TB2 TB3		01					
E	TB4		02		<u> </u>			
F	TB5			nput device			•	
-	<u>786</u> 787		05	TB1		Pho	tocoupler 💮 LED display	
1	TB8	×	07		(R)	- 67		
NH	TB9 TB10		08			R (2	κχ()	N
"H	TB11							
	TB12	X	08	- + TB17	N			
⊢	TB13 TB14		0C External or	COM1	77			
	TB15			TB18	Varistor	Transistor	+	
F	TB16		OF	┍┨╘╏╌┈┿┈╇			Photocoupler LED display	
+	TB17 TB18		M1		_ Ż ¥	᠆᠆᠘᠊		
E	T819		11		╴┎┿╍┿			
F	T820		12	+ - тв26				
┝	TB21 TB22		13 14	COM2				0
F	TB23		15	TB27			-	U
E	TB24		16		-			T
$\circ \vdash$	TB25 TB26		17 M2					
ΰŀ	TB27		V DC	TB32	_			
τĻ	TB28	Y	18	+, - твзз	-			
\vdash	TB29		19	COM3	-			
-	TB30 TB31		iA ic	TB34	•			
L	TB32	Ý	B	10.54				
F	TB33		M3				······································	
	TB34		V DC					
\vdash	TB35	1 N						

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5.3.11 AJ35PTF-56AR AC input and contact output unit

ſ		INPUT SPECIFICATIONS	T		UTPUT SPECIFICAT	IONS	
Number of	input points	32	Number of	output points		24	
	rtion	Photocoupler	_	tion	Phot	tocoupler	
	ut voltage	100-120V AC, 50/60Hz	Rated a	witching	24V DC/2A (resistance 240V AC/2A (COS #	load)/	
	ut current	10mA (100V AC, 60Hz)	voltage	Current	240V AC/2A (COS #	= 1) / point, 5A	/common
· · · · ·	oltage range	86 to 132V AC (50/60Hz ±5%)	Min. swit	ching load	57	DC/1mA	
	ON current	80V AC min./6mA min.	Max. switch	hing voltage	264V A	C, 125V DC	
	OFF current	40V AC max/4mA max.	Max. switchi	ng frequency	3600	times/hour	
	current	300mA max. within 0.3ms (132V AC)	1	Mechanical	20 millio	n times min.	
	pedance	Approx. 10kΩ (60Hz), approx. 12kΩ (50Hz)	-		Rated switching	voltage/current	load
	OFF to ON	15ms max. (6ms typ.)	-			and times min.	
Response time	ON to OFF	25ms max. (16ms typ.)	Life		200V AC/1.5A, 240 200 thous	and times min.	• ≈ 0.7},
Com	mon	16 points/common (Common terminals: TB17, TB34	1	Electrical	200V AC/1A, 240V	AC/0.5A (COS #	= 0.36),
		Provided	4		200 thous	and times min.	
Operation	n display	(LED is lit to indicate that corresponding input is on)			24V DC/1A, 100V	DC/0.1A (L/R=	7ms),
	ber of	100% (16 points/common)	1	OFF to ON		ns max.	
	ultaneous points	simultaneously switched on	Response time	ON to OFF			
			Output ex-		120	ns max.	· · · ·
			ternal supply	Voltage	24V DC ±10%, rip	ple voltage 4Vp	-p max.
			power (Power for				
			driving relay	Current	220mA (24V DC, a	I points switch	ed on)
			coil)	l			
				ppression		provided	
			Com	mon	8 points/common (Commo		, TB19, TB29)
			Operation	n display	Pro (LED is lit to indicate that	ovided t corresponding o	Nutout is on 1
External wire	connection	Two 36-p	oint terminal	blocks (M3 a			
Applicable	wire size				e: 7kg·cm (6.06(b·inch))		
Applicable							
term		1.25-3, 1.20-153A, 2-5		1.20-3, 11.20-	YS3A, V2-S3, V2-YS3A		
Number o			8	3			
	Voltage	···· · · · · · · · · · · · · · · · · ·	15.6 to 3				· · · · ·
VO unit power supply	Current	· . · · ·	15.0 10 3				
Weight		- · · · · · · · · · · · · · · · · · · ·	1.20				
	N N						т
Terminal Numbe		External	Connection				Terminel Number
TB1	X00					Y20	TB1
TB2 TB3	X01 X02					Y21	TB2
TB4	X02	-1				Y22 Y23	TB3 TB4
TB5	X04					Y24	TB5
TB6	X05	External input device		(F)	(ternal output device)	Y25	TB6
	X06 X07		· · · · · · · ·			¥26	T87
TB9	X07	IN		<u>, TUC</u>		Y27 COM3	TB8 TB9
TB10	X09		•			NC	TB10
TB11	XOA		I	M		Y28	TB11
TB12	XOB		ED	2		Y29	TB12
TB13 TB14	X0C X0D	┥┊╎┊┌⋎क़ऺॖऺक़॒ऀॱ	᠉ᠼᠵᡃ	لعيمالك		Y2A Y2B	TB13 TB14
TB15	XOE		3 7			Y2C	TB15
TB16	XOF		Photocoupler		COM3	Y2D	TB16
TB17	COM1		,			Y2E	T817
TB18 TB19	X10 X11				TRIE	Y2F COM4	TB18
TB20	X12	СОМ1	1	1		NC NC	TB19 TB20
TB21	X13					Y30	TB21
TB22	X14					Y31	TB22
2	X15					Y32	TB23
TB23					TB28	Y33 Y34	TB24 TB25
TB24	X16		I				1.44.4
						Y35	TB26
TB24 TB25 TB26 TB27	X16 X17 X18 X19)			COMS	Y35 Y36	TB27
TB24 TB25 TB26 TB27 TB28	X16 X17 X18 X19 X19 X1A) 			COM5 TB34 TB36	Y35 Y36 Y37	TB27 TB28
TB24 TB25 TB26 TB27 TB28 TB29	X16 X17 X18 X19 X1A X1B	*** •********			COMIS TB34	Y35 Y36 Y37 COM5	TB27 TB28 TB29
TB24 TB25 TB26 TB27 TB28	X16 X17 X18 X19 X19 X1A				COM5 TB34 TB36	Y35 Y36 Y37 COM5 NC	TB27 TB28 TB29 TB30
TB24 TB25 TB26 TB27 TB28 TB29 TB30	X16 X17 X18 X19 X1A X1B X1C X1D X1E			L	COM5 TB34 TB36	Y35 Y36 Y37 COM5	TB27 TB28 TB29
TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33	X16 X17 X18 X19 X1A X1A X1B X1C X1D X1E X1F				COM5 TB34 TB36	Y35 Y36 Y37 COM5 NC NC NC NC	T827 T828 T829 T830 T831
TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33 TB33 TB34	X16 X17 X18 X19 X1A X1A X1C X1D X1C X1D X1F COM2				COM5 TB34 TB36	Y35 Y36 Y37 COM5 NC NC NC NC NC 24V DC	TB27 TB28 TB29 TB30 TB31 TB32 TB33 TB34
TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33	X16 X17 X18 X19 X1A X1A X1B X1C X1D X1E X1F				COM5 TB34 TB36	Y35 Y36 Y37 COM5 NC NC NC NC	TB27 TB28 TB29 TB30 TB31 TB32 TB33



5.3.12 AJ35PTF-56AS AC input and triac output unit

[NPUT SPECIFICATIONS	T		UTPUT SPECIFICATI	ONS	
Number of in		32	Number of	output points		24	
Isolati		Photocoupler		ation	Phot	ocoupler	
Rated input		100-120V AC, 50/60Hz		d voltage		AC, 40 to 70H	7
Rated input		10mA (190V AC, 60Hz)		d voltage		AV AC	
		85 to 132V AC (50/80Hz ±5%)		d ourrent		2.4A/common	<u> </u>
Operating volt ON voltage/O		80 10 1327 AC (BURGUNE 10%) 80V AC min/6mA min.		oitage/current	24V AC/100mA.		
				sh current	20A, 10ms max		
OFF voltage/O		40V AC max/4mA max.				2V AC, 60Hz)	mex.
Inrush cu		300mA max. within 0.3ms (132V AC)	Leakage cu	rrent at OFF	3.0mA (20	AC, BOHz)	
Input impe		Approx. 10kΩ (80Hz), approx. 12kΩ (50Hz)	May uniter	drop at ON	1.5V max.	(0.1 to 0.8A),	
mosponee	OFF to ON	15ms max. (6ms typ.)	which working		1.8V max. (0.1A), 2		to 50mA)
	N to OFF	35ms max. (16ms typ.)	Response	OFF to ON		s max.	
Comm	on	16 points/common (Common terminals: TB17, TB34)	time	ON to OFF		+ 1ms max.	
Operation	display	Provided (LED is lit to indicate that corresponding input is on)	Fuse	rating	Fast-melting fuse 3.2A (c	ine fuse per co	mmon) HP-32
Numbe	r of		Biourn fue	indication		ovided Ise is blown,	
max. simult	taneous	60% (10 points/common) simultaneously switched on	BROWN TUS	e indiceuon	the LED is lit to indicat	e that the stati	on is faulty.)
input po	bints		Noise su	ppression		(0.022 µ F+47	
				mon	8 points/common (Commo		
					Pro	vided	
			· · · · · · · · · · · · · · · · · · ·	n display	(LED is lit to indicate that	corresponding	output is on.)
External wire of	connection	Two 36-p	int terminal	blocks (M3 s	(crew X 6)		
Applicable v	vire size	0.75 to 2mm ² (18 to 1	4 AWG) (tigh	tening torqu	e: 7kg·cm (6.06lb·inch))		
Applicable s		1.25-3, 1.25-YS3A, 2-S	3, 2-YS3A, V	1.25-3, V1.25-	YS3A, V2-S3, V2-YS3A		
Number of	stations			 B			
occupi							
VO unit	Voitage			31.2V DC			
	Current			mA			
Weight k			1.10	(2.42)			
Terminal Number	Input Signal	External (Connection				UT Terminal Number
TB1	X00					Y20	TB1
TB2	X01					Y21	T82
TB3 TB4	X02					Y22	
T85	X03						TB3
100	X04	External input device		E	ternal output device	Y23	TB4
TB6	X04 X05		1		ternal output device	Y23 Y24	TB4 TB5
TB6 TB7		External input device	I		ntermal output device	Y23	TB4
TB7 TB8	X05 X06 X07	IN IN	*		stemal output device	Y23 Y24 Y25 Y26 Y27	TB4 TB5 TB6 TB7 TB8
TB7 T88 TB9	X05 X06 X07 X08		ě _			Y23 Y24 Y25 Y26 Y27 COM3	TB4 TB5 TB6 TB7 TB8 TB9
TB7 TB8 TB9 TB10	X05 X06 X07 X08 X09		ED POINT			Y23 Y24 Y25 Y26 Y27 COM3 NC	TB4 TB5 TB6 TB7 TB8 TB9 TB10
TB7 T88 TB9	X05 X06 X07 X08		£0			Y23 Y24 Y25 Y26 Y27 COM3	TB4 TB5 TB6 TB7 TB8 TB9
TB7 TB8 TB9 TB10 TB11 TB12 TB13	X05 X06 X07 X08 X09 X04 X08 X08 X00		£0			Y23 Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y29 Y2A	TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11
TB7 T88 TB9 TB10 TB11 TB12 TB13 TB14	X05 X06 X07 X08 X09 X0A X08 X0C X0C X0D		ED Holay			Y23 Y24 Y25 Y27 COM3 NC Y28 Y29 Y28 Y28	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14
TB7 T88 TB9 TB10 TB11 TB12 TB13 TB14 TB15	X05 X06 X07 X08 X09 X0A X08 X0A X0B X0C X0C		ED Holay			Y23 Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y29 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14
TB7 T88 TB9 TB10 TB11 TB12 TB13 TB14	X05 X06 X07 X08 X09 X0A X08 X0C X0C X0D		ED Holay			Y23 Y24 Y25 Y27 COM3 NC Y28 Y29 Y28 Y29 Y28 Y20 Y20	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16	X05 X06 X07 X08 X09 X0A X08 X0A X0B X0C X0D X0E X0F		ED Holay			Y23 Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y29 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19	X05 X06 X07 X08 X09 X04 X08 X06 X06 X06 X06 X06 X06 X06 X07 X06 X07 X07 X07 X07 X07 X07 X07 X07 X08 X07 X08 X09 X09 X09 X09 X09 X09 X09 X09 X09 X09		ED Holay			Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y25 Y25 Y25	TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB16 TB15 TB16
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB18 TB19	X05 X06 X07 X08 X08 X08 X08 X08 X08 X08 X00 X00 X00		ED Holay			Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y28 Y29 Y28 Y29 Y28 Y28 Y22 Y22 Y22 Y22 Y22 Y25 Y25 Y25 Y25 Y25	TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB16 TB17 TB18 TB19 TB20
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21	X05 X06 X07 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00		ED Holay			Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB16 TB17 TB18 TB19 TB20 TB21 TB22	X05 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X00		ED Iplay			Y23 Y24 Y25 Y27 COM3 NC Y28 Y27 Y28 Y27 Y28 Y28 Y28 Y28 Y28 Y28 Y28 Y28 Y28 Y28	TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21	X05 X06 X07 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00		ED polery Photocoupier			Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB25	X05 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X01 X10 X11 X11		ED Iplay			Y23 Y24 Y25 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y20 Y22 Y20 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB16 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26	X06 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X00		ED polary Photocoupier Blown fua indication		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 NC Y28 Y27 Y28 Y27 Y28 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22</td> <td>TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26</td>	Y23 Y24 Y25 Y27 COM3 NC Y28 Y27 Y28 Y27 Y28 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27	X06 X06 X07 X08 X09 X0A X00 X0C X00 X01 X11 X12 X13 X14 X15 X16 X17 X18		ED poler Photocoupier		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 NC Y27 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22</td> <td>TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB16 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27</td>	Y23 Y24 Y25 Y27 COM3 NC Y27 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB16 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28	X05 X06 X07 X08 X09 X08 X09 X00 X00 X00 X00 X00 X00 X00 X00 X00		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29</td> <td>TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28</td>	Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27	X06 X06 X07 X08 X09 X0A X00 X0C X00 X01 X11 X12 X13 X14 X15 X16 X17 X18		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 NC Y27 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22</td> <td>TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29</td>	Y23 Y24 Y25 Y27 COM3 NC Y27 Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31	X06 X06 X07 X08 X09 X0A X00 X0C X00 X01 X11 X113 X114 X115 X116 X117 X18 X19 X110		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29</td> <td>TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28</td>	Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32	X05 X06 X07 X08 X09 X08 X00 X06 X07 X00 X06 X07 X00 X07 X10 X11 X11 X12 X13 X14 X15 X16 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X16 X17 X18 X16 X17 X18 X16 X17 X18 X16 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X18 X17 X17 X17 X17 X17 X17 X17 X17 X17 X17		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y29 Y28 Y29 Y29 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29</td> <td>TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB28 TB29 TB30 TB31 TB32</td>	Y23 Y24 Y25 Y27 COM3 NC Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y28 Y29 Y29 Y28 Y29 Y29 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB28 TB29 TB30 TB31 TB32
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB25 TB26 TB29 TB20 TB21 TB22 TB23 TB26 TB27 TB28 TB30 TB31 TB32 TB33	X05 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X00		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29</td> <td>TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33</td>	Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB27 TB28 TB29 TB20 TB21 TB23 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33 TB34	X06 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X00		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 COM3 Y27 Y27 Y27 Y27 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22</td> <td>TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33 TB33</td>	Y23 Y24 Y25 Y27 COM3 Y27 Y27 Y27 Y27 Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB4 TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33 TB33
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33	X05 X06 X07 X08 X09 X0A X00 X00 X00 X00 X00 X00 X00 X00 X00		Blown fus Blown fus		101 2 100 <td>Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29</td> <td>TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33</td>	Y23 Y24 Y25 Y27 Y27 Y27 Y27 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB4 TB5 TB6 TB7 TB8 TB1 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33

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5.3.13 AJ35PTF-56DR DC input and contact output unit (sink type input)

		INPUT SPECIFICATION	NS	1	0	UTPUT SPECIFICAT	IONS	
Number of	input points		2	Number of	output points		24	
isola		Photoc	coupler	isola	etion	Pho	tocoupler	
Rated inp	ut voltage	12V DC	24V DC		witching	24V DC, 2A (resistance 240V AC, 2A (COS ≠	load/point. 5	A/common
Rated inp	ut current	3mA	7mA		current			
Operating vi	oltage range	10.2 to 31.2V DC (rip	pple ratio within 5%)		ching load		DC/1mA	
ON voltage	ON current	9.5V DC min	./2.6mA min.		hing voltage ng frequency		times/hour	
OFF voltage	OFF current	6V DC max.	/1.0mA_max.	Max. switch	Mechanical		umeshour on times min.	
Input re	sistance	Approx.	. 3.4kΩ		Intercontrol	Rated switching		t lord
Input		Sink				200 thous	and times min.	
Response	OFF to ON		(6ms typ.)	Life		200V AC/1.5A, 240	V AC/1A (COS and times min.	
time	ON to OFF	10ms max.			Electrical	200V AC/1A, 240V		
Com	mon	16 points/common (Comm Prov		4			and times min.	
Operation	n display	(LED is lit to indicate that	corresponding input is on)			24V DC/1A, 100V 200 thous	/ DC/0.1A (L/R= and times min.	
	per of	60% (10 poir	nts/common)	844444	OFF to ON		ns max.	
max. sim input		simultaneously		Response time	ON to OFF		ns max.	
	·			Output ex-				
				ternal supply power	Voitage	24V DC ±10%, rip	ple voltage 4V	p-p mex.
				(Power for		·····		
				driving relay coil)	Current	220mA (24V DC, a	all points switc	hed on)
				Noise su	ppression	Not	provided	
				Com	mon	8 points/common (Commo	on terminals: TB	9, TB19, TB29)
				Operation	n display	Pr	ovided	
External wire			Two 24 no		błocks (M3 s	(LED is lit to indicate that	t corresponding	output is on.)
Applicable			0.75 to 2mm ² (18 to 14					
Applicable								
term	inal		1.25-3, 1.25-YS3A, 2-S3	8, 2-YS3A, VI	1.25-3, V1.25-	YS3A, V2-S3, V2-YS3A		
Number o occu				8	3			
VO unit	Voltage		···· ···	15.6 to 3	31.2V DC			
power supply	Current			150		····		·
Weight	kg (lb)			0.98	(2.16)			
	IN .		External C	onnection				UT
Terminal Number	r input Signs X00			· · ·			Output Signal Y20	Terminal Number TB1
TB2	X01]					Y21	TB2
TB3	X02 X03						Y22	TB3 TB4
TB5								
	X04	-					Y23 Y24	
T86	X05	External input dev	vice		Ext	ernal output device	Y24 Y25	TB5 TB6
T87	X05 X06	External input dev	vice IN	d	Ext	ernal output device	Y24 Y25 Y26	TB6 TB6 TB7
	X05	External input dev		o		ernal output device	Y24 Y25	TB5 TB6 TB7 TB8
TB7 TB8 TB9 TB10	X05 X06 X07 X08 X09	External input dev		o		ernal output device	Y24 Y25 Y26 Y27 COM3 NC	TB5 TB6 TB7 TB8 TB9 TB10
TB7 TB8 TB9 TB10 TB11	X05 X06 X07 X08 X09 X09 X0A	F		• C			Y24 Y25 Y26 Y27 COM3 NC Y28	TB5 TB6 TB7 TB8 TB9 TB10 TB11
TB7 TB8 TB9 TB10	X05 X06 X07 X08 X09	F		ف م			Y24 Y25 Y26 Y27 COM3 NC	TB5 TB6 TB7 TB8 TB9 TB10
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14	X05 X06 X07 X08 X09 X04 X08 X06 X00 X00	F					Y24 Y25 Y27 COM3 NC Y28 Y29 Y24 Y28	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16	X05 X06 X07 X08 X09 X04 X04 X06 X00 X00 X00	F		tococoupier			Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y2A Y28 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB16	X05 X06 X07 X08 X09 X04 X04 X08 X06 X00 X00 X00 X06 X06	F					Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y20 Y20 Y20	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB16 TB17 TB18	X06 X07 X08 X09 X08 X00 X0F COM1 X10					781 188 188 188 188 188 0 188 0 181 1 1 1 1 1 1 1 1 1 1 1 1 1	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y2A Y28 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19	X06 X07 X08 X08 X08 X08 X08 X08 X08 X09 X00 X00 X00					781 188 188 COM3 CO	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y20 Y22 Y20 Y22 Y22 Y22 Y22 Y25 COM4	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB18
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB18 TB19	X06 X07 X08 X09 X04 X05 X06 X07 X08 X00 X10 X11 X12					781 2 789 789 789 789 789 789 789 781 1 1 1 1 1 1 1 1 1 1 1 1 1	Y24 Y25 Y26 Y27 COM3 NC Y28 Y28 Y28 Y28 Y28 Y22 Y20 Y20 Y20 Y22 Y22 Y22 Y27 COM4 NC	TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21	X06 X07 X08 X09 X04 X08 X09 X00 X00 X00 X00 X00 X00 X00 X01 X05 X06 X07 X08 X09 X00 X00 X01 X11 X12 X13 X14					781 188 188 COM3 CO	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y20 Y22 Y20 Y22 Y22 Y22 Y22 Y25 COM4	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB18
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23	X06 X07 X08 X09 X08 X08 X09 X00 X01 X11 X12 X13 X14 X15					TB1 - TB8 COM3 TB1 - TB1 - TB18 COM3 TB19 COM4 COM4	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y20 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24	X06 X07 X08 X09 X04 X08 X00 X01 X11 X12 X13 X14 X15 X16					TB1	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB19 TB20 TB21 TB23 TB23
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB26 TB26	X06 X07 X08 X09 X04 X08 X09 X04 X06 X07 X08 X09 X00 X00 X00 X00 X00 X00 X01 X10 X11 X12 X13 X14 X15 X17 X18					TB1 L TB9 COM3 TB11 L TB19 COM4 TB19 COM4 TB19 COM4 TB21 TB21 TB22 TB	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y29 Y22 Y20 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB26 TB26 TB27	X06 X07 X08 X09 X08 X09 X00 X01 X11 X12 X13 X14 X16 X17 X18 X19					TB1 - TB8 - TB8 COM3 - TB1 - TB18 - TB19 - TB19 - TB19 - TB19 - TB19 - TB21 - S TB28	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y28 Y29 Y22 Y29 Y22 Y27 Y20 Y22 Y27 Y20 Y22 Y27 Y27 Y27 Y27 Y27 Y27 Y28 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB26 TB27	X06 X07 X07 X08 X08 X08 X06 X00 X00 X00 X00 X00 X00 X00 X00 X00	TB16 				TB1 TB2 TB2 TB2 TB1 TB2 TB12 TB12 TB19 COMMS TB21 TB22 TB22 TB22 TB22 COMMS C	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB13 TB14 TB15 TB16 TB17 TB18 TB18 TB19 TB20 TB21 TB23 TB26 TB26 TB27 TB28
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB26 TB26 TB27	X06 X07 X08 X09 X08 X09 X00 X01 X11 X12 X13 X14 X16 X17 X18 X19					TB1 1 TB2 TB3 COM4 TB18 TB18 TB18 TB18 TB19 COM4 TB21 TB21 TB21 TB21 TB22 TB23 TB34	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y28 Y29 Y22 Y29 Y22 Y27 Y20 Y22 Y27 Y20 Y22 Y27 Y27 Y27 Y27 Y27 Y27 Y28 Y28 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29 Y29	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB17 TB18 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB26 TB27 TB28 TB28
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB26 TB27 TB28 TB29 TB29 TB30 TB31	X06 X07 X08 X09 X00 X11 X12 X13 X14 X16 X10	TB16 				TB1 1 TB2 TB3 COM4 TB18 TB18 TB18 TB18 TB19 COM4 TB21 TB21 TB21 TB21 TB22 TB23 TB34	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y28 Y29 Y22 Y29 Y22 Y22 Y27 Y20 Y22 Y22 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB26 TB26 TB27 TB28 TB20 TB21 TB22 TB23 TB24 TB26 TB27 TB28 TB29 TB20 TB21 TB22 TB23
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB28 TB28 TB29 TB30 TB31 TB32	X06 X07 X08 X09 X08 X00 X01 X11 X12 X13 X14 X15 X14 X18 X10 X10 X12	TB16 				TB1 1 TB2 TB3 COM4 TB18 TB18 TB18 TB18 TB19 COM4 TB21 TB21 TB21 TB21 TB22 TB23 TB34	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB13 TB14 TB15 TB17 TB18 TB18 TB19 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB21 TB22 TB23 TB24 TB26 TB27 TB28 TB29 TB29 TB29 TB30 TB31	X06 X07 X08 X09 X00 X11 X12 X13 X14 X16 X10	TB16 				TB1 1 TB2 TB3 COM4 TB18 TB18 TB18 TB18 TB19 COM4 TB21 TB21 TB21 TB21 TB22 TB23 TB34	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y28 Y29 Y22 Y20 Y20 Y20 Y22 Y27 Y20 Y22 Y27 Y27 Y20 Y22 Y27 Y27 Y20 Y22 Y27 Y23 Y23 Y33 Y34 Y33 Y34 Y35 Y36 Y37 COM5 NC NC NC	TB5 TB6 TB7 TB8 TB10 TB11 TB12 TB13 TB14 TB15 TB17 TB18 TB17 TB18 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB26 TB27 TB28 TB29 TB20 TB20 TB21 TB22 TB23 TB24 TB29 TB31 TB32 TB33
TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB16 TB17 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB20 TB21 TB28 TB29 TB30 TB31 TB32 TB33	X06 X07 X08 X09 X04 X08 X09 X04 X08 X09 X04 X08 X09 X04 X09 X04 X09 X04 X06 X07 X08 X09 X00 X01 X11 X13 X14 X15 X10 X11 X11	TB16 				TB1 1 TB2 TB3 COM4 TB18 TB18 TB18 TB18 TB19 COM4 TB21 TB21 TB21 TB21 TB22 TB23 TB34	Y24 Y25 Y26 Y27 COM3 NC Y28 Y29 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22 Y22	TB5 TB6 TB7 TB8 TB10 TB11 TB13 TB14 TB15 TB17 TB18 TB18 TB19 TB18 TB19 TB20 TB21 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31 TB32



5.3.14 AJ35PTF-56DS DC input and triac output unit

	l)	PUT SPECIFICATION	8			UTPUT SPECIFICAT	IONS	
Number of i			32	Number of	output points		24	
Isola			coupier		tion	Pho	tocoupler	
Rated input		12V DC	24V DC		d voltage		AC, 40 to 70H	2
Rated inp		3mA	7mA		d voltage		HU AC	•
Operating vo			pple ratio within 5%)		d current		, 2.4A/commoi	
ON voltage			./2.6mA min.		htage/current	24V AC/100mA,		
OFF voltage/			J1.0mA max.		sh current	20A, 10ms ma		
input re			. 3.4kß				32V AC, 60Hz)	
Input			type	Leekege cu	rrent at OFF	3.0mA (2	64V AC, 60Hz)	
	OFF to ON		. (6ms typ.)	Max. voltage	drop at ON	1.5V max	(0.1 to 0.6A),	
Response time	ON to OFF	· · · · · · · · · · · · · · · · · · ·	(7.5ms typ.)		OFF to ON	1.8V max. (50 to 100m		(10 to 50mA)
Com			non terminals: TB17, TB34)	Response time	ON to OFF		t the max.	
		and the second sec	vided		rating		+ 1ms max.	
Operation	display		corresponding input is on)		raung	Fast-melting fuse 3.2A (mmon) HP-32
Numb max. simu		60% (10 poi	inta/common)	Blown fuse	indication	(When fi	ovided use is blown,	
input j		simultaneoush	y switched on			the LED is lit to indicat		
					ppression		(0.022 µ F+47	
				Com	mon	8 points/common (Commo		9, TB19, TB29
	i			Operatio	n display	Pr (LED is lit to indicate that	ovided	output is as i
External wire	connection		Two 38-00	int termine!	blocks (M3 s		corresponding	output is on.)
Applicable			0.75 to 2mm ² (18 to 14					
Applicable								
term			1.25-3, 1.25-YS3A, 2-S3	, 2-YS3A, V	1.25-3, V1.25-	Y53A, V2-S3, V2-YS3A		
Number o					3			· · · · · ·
				15.0				
VO unit power supply	Voltage			15.6 to 3				
	Current			230				
Weight	Kg (ID)	1		1.16	(2.55)		T	UT
Terminal Numbe	r Input Signa	-	External C	onnection			Output Signal	Terminel Numbe
TB1	X00	1					Y20	TB1
	X01 X02	-					Y21	T82
TB4	X02	-1					Y22 Y23	TB3 TB4
TB5	X04	1					¥24	TB5
T86	X05						Y25	TB6
TB7 TB8	X06 X07	External input dev	vice		Ex	ternal output device	¥26	T87
TB9	X08							
TB10		י ר	i Ni	T	OUT		Y27	TB8
TB11	X09] [IN		OUT		COM3	T89
	X0A		1	1 1				
TB12	X0A X08			•			COM3 NC Y28 Y29	TB9 TB10 TB11 TB12
TB12 TB13	X0A X0B X0C		1	ب الم الم		тв: 2	COM3 NC Y28 Y29 Y2A	TB9 TB10 TB11 TB12 TB13
TB12	X0A X08				青.		COM3 NC Y28 Y29 Y2A Y2A Y2B	T89 T810 T811 T812 T813 T814
TB12 TB13 TB14 TB16 TB16	X0A X0B X0C X0C X0C X0F			Hay Photocoup			COM3 NC Y28 Y29 Y2A	TB9 TB10 TB11 TB12 TB13
TB12 TB13 TB14 TB16 TB16 TB17	X0A X08 X0C X0C X0C X0E X0F COM1						COM3 NC Y28 Y29 Y2A Y28 Y22 Y2C Y2D Y2C Y2D	TB9 TB10 TB11 TB12 TB13 TB14 TB15
TB12 TB13 TB14 TB16 TB16 TB17 TB18	X0A X08 X0C X0C X0C X0E X0F COM1 X10						COM3 NC Y28 Y29 Y2A Y2A Y2B Y2C Y2D Y2C Y2D Y2E Y2F	TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB16 TB17 TB18
T812 T813 T814 T816 T816 T816 T817 T818 T819	X0A X0B X0C X0D X0E X0F COM1 X10 X11						COM3 NC Y28 Y29 Y2A Y22 Y2C Y2C Y2D Y2C Y2C Y2C Y2C Y2C Y2C	TB9 T810 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19
TB12 TB13 TB14 TB16 TB16 TB17 TB18	X0A X08 X0C X0C X0C X0E X0F COM1 X10						COM3 NC Y28 Y29 Y29 Y22 Y22 Y2C Y2C Y2C Y2C Y2E Y2F COM4 NC	TB9 T810 T811 T812 T813 T814 T816 T817 T818 T819 T820
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22	X0A X0B X0C X0C X0F COM1 X10 X11 X12 X13 X14						COM3 NC Y28 Y29 Y2A Y22 Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C	T89 T810 T811 T813 T813 T814 T816 T816 T816 T817 T818 T819
TB12 TB13 TB14 TB16 TB16 TB17 TB16 TB19 TB20 TB20 TB20 TB22 TB22 TB23	X0A X0B X0C X0C X0F COM1 X10 X11 X11 X11 X11 X13 X14 X15						COM3 NC Y28 Y28 Y2A Y28 Y2C Y2D Y2C Y2D Y2C Y2D Y2C Y2D Y2C Y2D Y27 Y2D Y27 Y20 Y27 Y20 Y27 Y20 Y27 Y20 Y27 Y20 Y20 Y20 Y20 Y20 Y20 Y20 Y20 Y20 Y20	TB9 T810 T611 T812 T813 T814 T816 T818 T819 T819 T820 T821 T821 T823
TB12 TB13 TB14 TB15 TB16 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24	X0A X0B X0C X0D X0F COM1 X10 X11 X12 X13 X14 X14 X15 X16						COM3 NC Y28 Y28 Y29 Y2A Y28 Y22 Y22 Y2C Y2C Y20 Y22 Y27 Y27 Y27 Y27 Y30 Y31 Y32 Y33	TB9 T810 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T820 T821 T823 T824
TB12 TB13 TB14 TB16 TB16 TB17 TB18 TB19 TB20 TB20 TB20 TB22 TB22 TB23	X0A X0B X0C X0C X0F COM1 X10 X11 X11 X11 X11 X13 X14 X15						COM3 NC Y28 Y28 Y29 Y2A Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C	TB9 T810 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T819 T820 T821 T823 T824 T825
TB12 TB13 TB14 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27	X0A X0B X0C X0C X0F X0F X0F X0F X0F X0F X10 X11 X11 X12 X13 X13 X14 X15 X17 X18 X19					32 TB8 TB9 COM3 → TB9 → TB9 → TB9 → TB9 → TB9 → → TB9 → → → → → → → → → → → → →	COM3 NC Y28 Y28 Y29 Y2A Y28 Y22 Y22 Y2C Y2C Y20 Y22 Y27 Y27 Y27 Y27 Y30 Y31 Y32 Y33	TB9 T810 T811 T811 T812 T813 T814 T815 T816 T817 T818 T819 T820 T821 T823 T824
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28	X0A X0B X0C X0D X0F COM1 X10 X11 X12 X13 X13 X14 X15 X16 X17 X18 X19 X1A			Photocoup			COM3 NC Y28 Y29 Y2A Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C	TB9 T810 T811 T811 T811 T812 T813 T814 T815 T816 T817 T818 T819 T820 T821 T822 T823 T824 T825 T826 T827 T828
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29	X0A X0B X0C X0C X0F COM1 X10 X11 X12 X13 X14 X14 X14 X15 X16 X17 X18 X19 X1A X18 X18			Photocoup Blown fue		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y29 Y2A Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C	TB9 T810 T811 T811 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T819 T820 T821 T823 T824 T825 T826 T827 T828
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28	X0A X0B X0C X0D X0F COM1 X10 X11 X12 X13 X13 X14 X15 X16 X17 X18 X19 X1A			Photocoup Blown fue (indicator		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y28 Y27 Y28 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y33 Y33 Y33 Y33 Y34 Y35 Y36 Y37 COM6 NC	TB9 T810 T811 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T820 T821 T822 T823 T824 T825 T826 T827 T828 T829 T830
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB17 TB18 TB17 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB29 TB30 TB31	X0A X0B X0C X0D X0F X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X1A X1B X1C X1E			Biown fue (indication Biown fue		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y29 Y2A Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C Y2C	TB9 T810 T811 T811 T812 T813 T814 T815 T816 T818 T819 T820 T821 T822 T823 T824 T825 T826 T827 T828 T829 T830
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33	X0A X0B X0C X0D X0F COM1 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X14 X15 X16 X17 X18 X11			Biown fue (indication Biown fue		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y28 Y27 Y28 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y33 Y33 Y33 Y33 Y34 Y35 Y36 Y37 COM6 NC	TB9 T810 T811 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T820 T821 T822 T823 T824 T825 T826 T827 T828 T829 T830
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB24 TB25 TB26 TB27 TB28 TB30 TB31 TB32 TB33 TB34	X0A X0B X0C X0C X0F X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X11 X11			Biown fue (indication Biown fue		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y28 Y27 Y28 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27	TB9 T810 T811 T811 T811 T811 T812 T813 T814 T815 T816 T817 T819 T819 T820 T821 T822 T823 T824 T825 T826 T827 T828 T829 T830 T831 T832 T833 T834
TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB19 TB20 TB21 TB22 TB23 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33	X0A X0B X0C X0D X0F COM1 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X14 X15 X16 X17 X18 X11			Biown fue (indication Biown fue		32 TB0 COM3 COM3 TB10 COM3 TB10 COM4 TB10 COM4 TB10 COM4 TB10 COM4 CO	COM3 NC Y28 Y28 Y29 Y2A Y27 Y2C Y2C Y2C Y22 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27 Y27	TB9 TB10 TB11 TB11 TB11 TB11 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB19 TB20 TB21 TB22 TB23 TB26 TB27 TB28 TB29 TB30 TB31 TB32 TB33



5.3.15 AJ35PTF-56DT DC input and transistor output unit (sink type input and output)

		NPUT SPECIFICATION				UTPUT SPECIFICAT	0.00	
				Alumbury		OITUI OFEUNCAT		
	input points		32		output points		24	
	ation		coupler		ntion		tocoupler	
	ut voltage	12V DC	24V DC 7mA		id voltage	12/	24V DC	
	oltage range	3mA	pple ratio within 5%)	voltage	ng load a range	10.2 to	31.2V DC	
	ON current	·····	/2.6mA min.	Max. loa	d current	0.5A/point	3.2A/commo	n
	OFF current		/1.0mA mex.	Max. innu	sh current	4A , 1	Oms max.	
	sistance		. 3.4kΩ		rrent at OFF	0.1r	nA max.	
	t type		type		drop at ON	0.9V (typ.) 0.54	, 1.5V (max.)	0.5A
Response	OFF to ON	10ms max.	(6ms typ.)		rt type		nk type	
time	ON to OFF	10ms max.	(7.5ms typ.)	Response time	OFF to ON		s max.	
Com	mon	16 points/common (Comm	on terminals: TB17, TB34)		ON to OFF	Zms max. (resistance loa	
Operation	n display		rided corresponding input is on)	Output ex- ternal supply	Voltage	12/24V DC (1	0.2 to 31.2V))
max. sim	ber of iuitaneous points	60% (10 poi simultaneousi	nts/common) y switched on	power	Current	23mA (typ. 24V DC, 8 p	oints/commor	switched on)
pot				Noise su	ppression	Varistor	(52 to 62V)	
				Com	mon	8 points/common (Commo	n terminals: Ti	39, TB19, TB29)
				Operatio	n display	Pro in lit to indiants the	ovided	
External win	s connection		Two 36-00	int termine!	blocks (M3 s	(LED is lit to indicate that crew X 6)	Corresponding	output is on)
	wire size		0.75 to 2mm ² (18 to 14					
	solderless		1.25-3, 1.25-YS3A, 2-S3					
	of stations ipied			٤	3			
VO unit	Voltage			15.6 to 3	31.2V DC			
power supply	Current			. 160	mA			
Weight				1.09	(2.40)			
Terminal Numb	ar Input Signs	H	External C	onnection			Output Signal	UT Terminal Musica
181	X00						Y20	TB1
TB2	X01						Y21	TB2
	X02 X03						Y22 Y23	TB3 TB4
TB5	X04	1					Y24	TB5
TB6	X05	External input dev	vice		Ex	ternal output device	Y25	TB6
TB7 TB8	X06 X07						Y26 Y27	TB7 TB8
TB9	XOS] -	1N	(DUT		COM3	T89
TB10	X09			† т	nsistor Veris		12/24V DC	TB10
TB11 TB12	X0A X08		R Photocoupler LED	<u>*</u> "			Y28 Y29	TB11 TB12
TB13	XOC			ᠯᠽᠷ	≞ıқ ∓ Ż		Y2A	TB12
TB14	XOD	\		425			Y2B	TB14
TB15 TB16	XOE	-1 - 7		Photocoupler		TB9 - ++	Y2C Y2D	TB15 TB16
T817	COMI	— твіє				TB10	Y2D Y2E	TB17
TB18	X10	- + 1817					Y2F	TB18
TB19 TB20	X11 X12		4			TP10	COM4	TB19
TB21	X12	твта					12/24V DC Y30	TB20 TB21
TB22	X14	ך גיייי+				TB19 - +	Y31	TB22
TB23 TB24	X15 X16						Y32	TB23
TB25	X10						Y33 Y34	TB24 TB25
T826	X18	그 그 가				· —	Y35	TB26
TB27 TB28	X19 X1A	- TB33				-+ TB28	Y36	T827
TB29	X1A X1B	- + TB34				T829 - 4 +	Y37 COM5	TB28 TB29
TB30	X1C	COM2				COM5 TB30	12/24V DC	TB30
TB31	X1D X1E	┥ └					NC	TB31
							NC	TB32
TB32 TB33							NC	TP22
T833 T834	X1F COM2						NC NC	TB33 TB34
T833	X1F	-						

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5.4 AJ72PT35 Data Link Module

The AJ72PT35 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) Can be used for both optical and twisted-pair data links.

Specifications	Туре	AJ72PT35	Remarks
	Max. number of I/O modules	8	
AJ72PT35 each	Max. number of I/O points	128	
100 0001	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 un	it used	A32B, A35B, A38B	Extension base must not be used.
Modules	s used	Building block type input, output, VO compound (treated as output), and blank modules	Special modules must not be used.
5V DC inter consum		0.5A	
Weig	ght	0.75kg	



6. TROUBLESHOOTING

6.1 Data Communication Errors

There are two types of errors which may occur during data communication between the master module and remote I/O stations.

- (1) Error which only stops data communication with the faulty remote I/O station.
- (2) Error which stops data communication with all remote I/O stations.

REMARKS

A communication error indicates that normal communication could not be made after retries had been made the number of retries set to buffer memory address 1.

6.1.1 Data communication continue error

The following operations are performed when the error occurring only stops communication with the faulty station and continues communication with the other stations:

- (1) The MINI-S3 link error detection $(X_{(n+6)}/X_{(n+26)})$ is turned on. This signal is turned off when communication is restored. For further details, see Section 4.4.
- (2) Stores the faulty station number to buffer memory addresses 100-103,
 - (a) Sets 1 to the corresponding bit.
 - (b) In the automatic return mode, the corresponding bit is reset to 0 when the faulty station is restored.
 - (c) In the no-automatic return mode, the corresponding bit remains 1.
- (3) Stores the accumulative faulty station numbers to buffer memory addresses 90-93. This area stores the accumulative result of faulty stations explained in (2).
- (4) Stores the error detection code in buffer memory address 108.
 1 is written to this address when any station causes a communication error. 1 remains if communication is restored.
- (5) Clears the faulty station, accumulative faulty station and error detection code when the MINI-S3 link communication start (Y_{(n+18/}Y_(n+28)) is turned from off to on.
- (6) Switches on the "ERR. REM" LED of the master module.
- (7) Switches off all outputs of the faulty station in the noautomatic return mode.

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POINT

The data communication continue error may occur when:

- (1) The total number of remote I/O stations connected does not coincide with the number of remote I/O stations (address 0) specified. For example, an error occurs at station 3 when the number of stations set is 5 and there are stations 1, 2, 4 and 5 connected.
- (2) The fuse in an output remote I/O unit has blown.
- (3) A communication data error has occurred due to noise.

In this case examine the data link cable wiring and grounding methods.



6.1.2 Data communication stop error

The following operations are performed when the error occurring has stopped data communication with all remote I/O stations.

- Switches the MINI-S3 link communication in-progress signal (X_(n+1)/X_(n+21)) OFF and the MINI-S3 link error detection signal (X_(n+1)/X_(n+22)) ON.
- (2) Stores the corresponding error code to buffer memory address 107.

Error Code	Definition	Cause
0	No error	
1	Initial data error	 I/O refresh has been initiated after while there are errors in the setting of: total number of remote I/O stations number of retries partial refresh stations line error check parameter for the no-protocol mode
2	Line error	Any data link cable has been broken or remote I/O station power switched OFF.
3	Station fault	Data communication has been stopped due to station fault with the mode setting switch set to 2 (communication stop specified at online error detection).
4	Faulty partial refresh type remote I/O sta- tion	Data communication has been stopped due to an error occurring in input from the partial refresh type remote I/O station with the mode setting switch set to 2 (communication stop specified at online error detection).

Table 6.1 Communication Error Code List

- (3) When code 3 is stored to address 107, 1 is set to the corresponding bit of the faulty station area (addresses 90 to 93) and accumulative faulty station area (addresses 100 to 103).
- (4) The communication error code can be cleared by:
 - (a) Turning the MINI-S3 link communication start signal from OFF to ON.
 - (b) Turning the error reset signal $(Y_{(n+10)}/Y_{(n+20)})$ from OFF to ON with the MINI-S3 link communication start $(Y_{(n+10)}/Y_{(n+20)})$ OFF.
- (5) The faulty station and accumulative faulty station bits are reset to 0 when the MINI-S3 link communication start signal (X_{in+18}/X_{in+28}) is turned from OFF to ON.



6.2 Troubleshooting

For information on PC CPU unit troubleshooting, see the corresponding CPU User's Manual.

6.2.1 General troubleshooting flowchart





6.2.2 Remote I/O station RD/SD LED OFF





6.2.3 Input fault





6.2.4 Output fault





6.3 I/O Connection Troubleshooting

6.3.1 Input wiring troubleshooting





6. TROUBLESHOOTING



\square	Condition	Cause	Corrective Action
Example 5	DC input signal does not switch off. (Input LED may remain on or flicker)	• Current flow due to the use of two power supplies. DC input E_1 E_2 P Input unit	
		E₁>E₂	

Table 6.2 Input Wiring Troubleshooting

Example: Calculation for Example 4



Consider a contact switch with LED indicator connected to the AJ35P/TJ-8D, giving a 4mA leakage current.

• The voltage V₁₈ across terminal and common is obtained by the following expression:

$$V_{TB} = 4 \text{ [mA]} \times 2.4 \text{ [K}\Omega\text{]} = 9.6 \text{ [V]}$$
 (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:



• Calculated the resistor value, R, as shown below: For an input voltage 6V, current I must be:

 $(24 - 6 [V]) \div 3.6 [K\Omega] \times 5mA$

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



• Hence, for resistor, R

6 [V] ÷ R > 5 - 2.5 [mA] 6 [V] ÷ 2.5 [mA] > R 2.4 [KΩ] > R

For $R = 2K\Omega$, the power capacity must be:

 $W = (applied voltage)^2 / R (or W = (maximum current) 2 \times R)$

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 $2K\Omega$, 0.5 to 1W resistor should therefore be connected across the relevant input terminal and its COM.

6. TROUBLESHOOTING



6.3.2 Output wiring troubleshooting



Table 6.3 Output Wiring Troubleshooting

6. TROUBLESHOOTING



POINT

Specifications for the RC network described in Examples 2 and 3 are as follows:

1) Combination of C and R

С	0.1 µ F	0.47 µ F	0.5 µ F
R	120 Ω	47Ω	50 Ω

- 2) Capacitor voltage rating is 630V DC or 200V AC.
- 3) Resistor rating is 1/2W or more.
- 4) As a guide for output load power consumption of 30VA, use C=0.47 μ F and R=47 Ω (approx.).

ΜΕΜΟ

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APPENDICES

APPENDIX 1 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.

 _	_	_	_	-	_	_	_		_
 -		_		٠	75	•	76	-	٦.
35	v								
5	~		-۲		36		36		۵.

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







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Unit: mm (inch)

MELSEC-



- (2) Compact remote I/O unit
 - (a) AJ35PTF-32, 28, 24[11] The following diagram is for the AJ35PTF-32[] which is equal in external dimensions to the AJ35PTF-28[11] and AJ35PTF-24[].





(b) AJ35PTF-56[[[]]











IMPORTANT

The components on the printed damit bounds will be demaged by static electricity, so avoid handling them disectly. If it is necessary to handle them take the following precautions.

Carl & Arth

- (1) Ground human body and work bench.
- (2) Do not touch the conductive areas of the printed circuit board and its electrical parts with any non-grounded train site.

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.

