

Art.No. 67831
2001 11 06
IB-66465-A

MITSUBISHI

PROGRAMMABLE CONTROLLER

MELSEC-A

User's Manual

MELSECNET/B data link module type A1SJ72T25B (Hardware)

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.



The United States	Mitsubishi Electronics America Inc. (Industrial Automation Division) 800 Biermann Court, Mt Prospect IL 60056 Phone: (708)298 9223
Canada	Mitsubishi Electric Sales Canada, Inc. (Industrial Automation Division) 4290 14th Avenue, Markham, Ontario L3R 0J2 Phone: (416)475 7728
United Kingdom	Mitsubishi Electric UK Ltd., (Industrial Sales Division) Travellers Lane, Hatfield Herts AL10 8XB Phone: (0707)276100
Germany	Mitsubishi Electric Europe GmbH (Industrial Automation Division) Gothar Strasse 8 Postfach 1548 D 4030 Ratingen 1 Phone: (02102)4860
Taiwan	Setsuyo Enterprise Co. Ltd. (106) 11th Fl., Chung Ling Bldg 363 Sec 2 Fu Hsing S Rd Taipei Taiwan R O C Phone: (02)732 0161
Hongkong (& China)	Ryoden International Ltd. (Industrial & Electrical Controls Division) 10/F Manulife Tower 169 Electric Rd North Point, Hong Kong Phone: 8878870
Singapore (& Malaysia)	MELCO Sales Singapore Pte. Ltd., (Industrial Division) 307 Alexandra Rd #05 01/02, Mitsubishi Electric Bldg Singapore 0315 Phone: 4732308
Thailand	F A Tech Co Ltd 1138/33 34 Rama3 Rd, Yannawa Bangkok 10120 Phone: (02)295 2861-4
Australia	Mitsubishi Electric Australia Pty Ltd., (Industrial Controls Division) 348 Victoria Rd., Rydalmere N S W 2116 Phone: (02)684 7200
Republic of South Africa	M S A Manufacturing (Pty) Ltd (Factory Automation Division) P.O. Box 39733, Bramley, Johannesburg 2018 Phone: (011)444 8080

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: MITSUBISHI DENKI BLDG, MARUNOUCHI, TOKYO 100, JAPAN. TEL: 03-5632-1000. FAX: 03-5632-1001
INDOYA WORKS: 1-1-1, YADA, NISHIKI-KU, KOBE 650, JAPAN

1. GENERAL DESCRIPTION

1 GENERAL DESCRIPTION

(1) This manual describes the specifications, part names, and self-diagnostic tests of the A1SJ72T25B.

An A1SJ72T25B is used with the AnS series CPU in the MELSECNET/B data link system (Bus system).

(2) The followings give application, applicable cable, and installation location of the A1SJ72T25B:

- Application : As a remote I/O station
- Applicable cable : Twisted wire pair cable
- Module installation location : CPU slot of a main base unit

(3) The following manual gives details of the MELSECNET/B data link system.

MELSECNET, MELSECNET/B data link system reference manual

(IB(NA)-66350)

2. SPECIFICATIONS

2 SPECIFICATIONS

2.1 General Specifications

Item	Specifications				
Operating ambient temperature	0 to 55 °C (See the important notice described below)				
Storage ambient temperature	-20 to 75 °C				
Operating ambient humidity	10 to 90% RH, non-condensing				
Storage ambient temperature	10 to 90% RH, non-condensing				
Vibration resistance	Conforms to ² JIS C 0911	Frequency	Acceleration	Amplitude	Sweep Count 10 times 1 (1 octave/minute)
		10 to 55 Hz	—	0.075 mm (0.003 in)	
		55 to 150 Hz	9.8 m/s ² (1g)	—	
Shock resistance	Conforms to ² JIS C 0912 (9.8 m/s ² (10g) x 3 times in 3 directions)				
Noise durability	By noise simulator of 1500 Vpp voltage, 1 μsec noise width and 25 to 80 Hz noise frequency				
Dielectric withstand voltage	1500 VAC for 1 minute across AC external terminals and ground				
Insulation resistance	5 MΩ or greater by 500 VDC insulation resistance tester across AC external terminals and ground				
Grounding	Class 3 grounding; Ground to the panel if proper grounding is not available				
Operating ambience	Free of corrosive gases. Dust should be minimal.				
Cooling method	Self-cooling				

When imported from Japan, this manual does not require application to the Ministry of International Trade and Industry for service transaction permission.

IB (NA) 66465 A (9404) MEE Printed in Japan

Specifications subject to change without notice

REMARKS

- (1) One octave marked *1 indicates a change from the initial frequency to double or half frequency. For example, any of the changes from 10 to 20 Hz, from 20 to 40 Hz, or 20 to 10 Hz are referred to as one octave.
- (2) *2JIS: Japanese Industrial Standard

IMPORTANT

Restriction for UL standard approved products

In order to be recognized as UL listed products, the following restrictions apply;

- (1) Operating ambient temperature is limited from 0 to 50°C
- (2) A class 2 power supply recognized by the UL standard must be used

3. HANDLING

3 HANDLING

3.1 Handling Instructions

Handle the A1SJ72T25B as indicated below:

- (1) Protect the case from impact, since it is made from resin.
- (2) Do not touch or remove the printed circuit boards from the case.
- (3) When wiring, make every effort to keep wire cutoffs from entering the module. Make sure to remove any which do enter the module.
- (4) To install the module to the base unit, tighten the screws as indicated.

Screw Location	Tightening Torque Range N cm (kg cm) [lb inch]
Cable terminal screw (M3.5 screw)	58.8 (6) [5.2] to 88.2 (9) [7.79]
Terminal block mounting screw (M3.5 screw)	58.8 (6) [5.2] to 88.2 (9) [7.79]
Module mounting screw (M4 screw)	78.4 (8) [6.93] to 117.6 (12) [10.39]

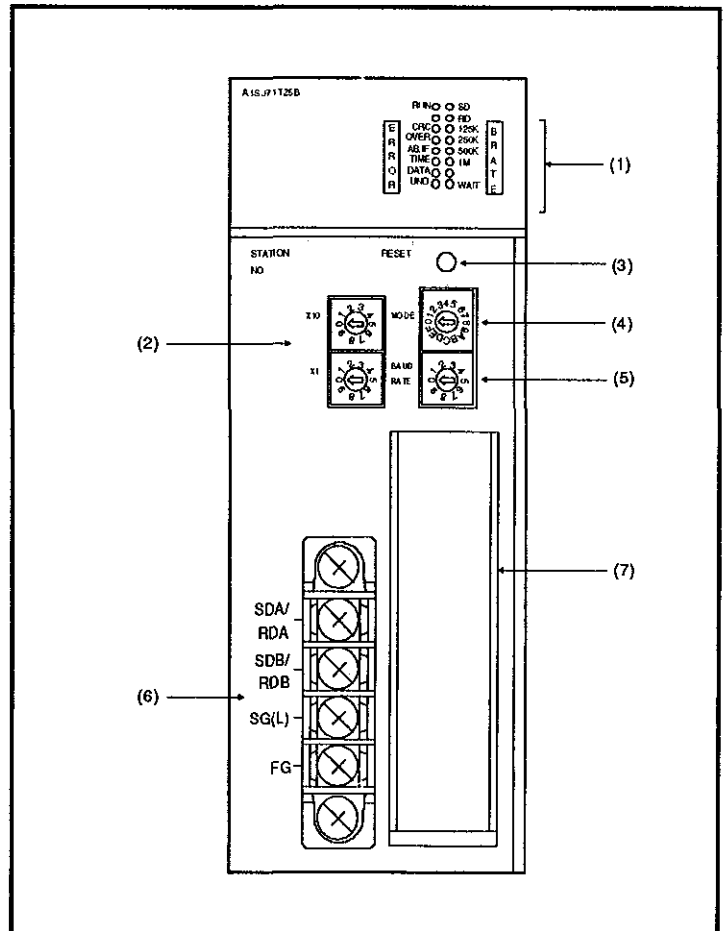
2.2 Performance Specifications

Item	Specifications
Model	A1SJ72T25B
Max number of I/O points	Input (X) Output (Y) X, Y total 512 points (When A1SCPU is used as the master station up to 250 points)
MELSECNET mode	Max link points for one station $\frac{X \text{ (points)} + Y \text{ (points)}}{8} + 2 \times W \text{ (points)} \leq 512 \text{ bytes}$
MELSECNET II composite mode	Max link points for one station $\frac{X \text{ (points)} + Y \text{ (points)}}{8} + 2 \times W \text{ (points)} \leq 512 \text{ bytes}$
Current consumption (5 VDC)	0.3 A
Weight (kg) (lb)	0.4 (0.88)
Allowable momentary power failure time	20 msec
Communication speeds	125K bps/250K bps/500K bps/1M bps
Communication method	Half duplex bit serial method
Synchronous method	Frame synchronous method
Transmission path method	Bus type
Overall extension distance	Varies according to the communication speed
Number of connected stations	Max 32 units (1 master station 31 local or remote I/O stations)
Modulation method	NRZI method
Transmission format	Conforms to HDLC (frame method)
Error control system	Retry due to CRC (generating polynomial $X^{16} + X^{12} + X^5 + 1$) and timeout
RAS function	Diagnostic function such as host link line
Connecting terminal	Terminal block
Applicable cable	Shielded twisted wire pair cable (KNPEV SB 0.5SQ x 1P)

REMARK

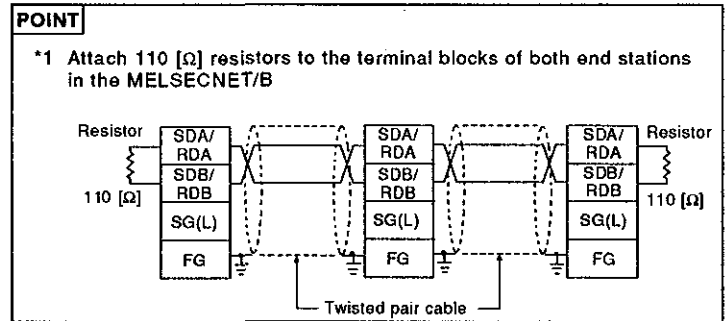
Refer to the A1SJ71AT21B user's manual about the overall extension distance.

3.2 Part Names



No.	Name (Enlarged View)	Description																									
(1)	Operation Status and Error Indication LED <table border="0"> <tr> <td>RUN</td><td>○</td><td>SD</td><td rowspan="8">B R A T E</td> </tr> <tr> <td>CRC</td><td>○</td><td>125K</td> </tr> <tr> <td>OVER</td><td>○</td><td>250K</td> </tr> <tr> <td>AB IF</td><td>○</td><td>500K</td> </tr> <tr> <td>TIME</td><td>○</td><td>1M</td> </tr> <tr> <td>DATA</td><td>○</td><td></td> </tr> <tr> <td>UND</td><td>○</td><td>WAIT</td> </tr> </table>	RUN	○	SD	B R A T E	CRC	○	125K	OVER	○	250K	AB IF	○	500K	TIME	○	1M	DATA	○		UND	○	WAIT	LED	Operation	LED	Operation
		RUN	○	SD		B R A T E																					
		CRC	○	125K																							
		OVER	○	250K																							
		AB IF	○	500K																							
		TIME	○	1M																							
		DATA	○																								
		UND	○	WAIT																							
RUN	Goes ON when data link is normal.	SD	ON during data sending																								
CRC	Goes ON when a code check error is detected	RD	ON during data receiving																								
OVER	Goes ON when a data read is delayed	125K	Indicate the baud rate																								
AB IF	ON when all data consists of 1s	250K																									
TIME	Goes ON when a timeout occurs.	500K																									
DATA	Goes ON when a data error occurs.	1M																									
	UNDER	Goes ON when an overrun error occurs	WAIT	ON during wait for the communication with special function module																							
(2)	Station Number Setting Switch	• Set these switches within the range of 01 to 31																									
	STATION NO 																										
(3)	Reset Switch	This is a reset switch for the station Press the switch after changing station number																									
	RESET																										

No	Name (Enlarged View)	Application
(6)	Terminal Block	<ul style="list-style-type: none"> How to wire the stations is shown in the POINT below *1
	RS-422 Connector	<ul style="list-style-type: none"> Used to connect to peripheral devices Covered when not in use



No	Name (Enlarged View)	Application																											
(4)	Mode Selection Switch 	<ul style="list-style-type: none"> The following modes can be selected by the mode selection switch. <table border="1"> <thead> <tr> <th>Setting Number</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Online (A R)</td> <td>Automatically returns when the module operates normally.</td> </tr> <tr> <td>1</td> <td>Online (U R)</td> <td>Does not automatically return when the module operates normally.</td> </tr> <tr> <td>2</td> <td>Offline</td> <td>Releases the self station</td> </tr> <tr> <td>3 4</td> <td>—</td> <td>Unused*</td> </tr> <tr> <td>5</td> <td>Test 1 (B M)</td> <td>Inter-station test mode (master station)</td> </tr> <tr> <td>6</td> <td>Test 2 (B S)</td> <td>Inter station test mode (slave station)</td> </tr> <tr> <td>7</td> <td>Test 3 (S R)</td> <td>Self-loopback test</td> </tr> <tr> <td>8 to F</td> <td>—</td> <td>Unusable*</td> </tr> </tbody> </table> <p>* If the switch is set to any number from 4 to F, the LED (DATA) goes ON and the module goes into the offline state</p>	Setting Number	Name	Description	0	Online (A R)	Automatically returns when the module operates normally.	1	Online (U R)	Does not automatically return when the module operates normally.	2	Offline	Releases the self station	3 4	—	Unused*	5	Test 1 (B M)	Inter-station test mode (master station)	6	Test 2 (B S)	Inter station test mode (slave station)	7	Test 3 (S R)	Self-loopback test	8 to F	—	Unusable*
		Setting Number	Name	Description																									
		0	Online (A R)	Automatically returns when the module operates normally.																									
		1	Online (U R)	Does not automatically return when the module operates normally.																									
		2	Offline	Releases the self station																									
		3 4	—	Unused*																									
		5	Test 1 (B M)	Inter-station test mode (master station)																									
		6	Test 2 (B S)	Inter station test mode (slave station)																									
7	Test 3 (S R)	Self-loopback test																											
8 to F	—	Unusable*																											
(5)	Baud Rate Switch 	<table border="1"> <thead> <tr> <th>Setting Number</th> <th>Baud Rate</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>125K bps</td> </tr> <tr> <td>1</td> <td>250K bps</td> </tr> <tr> <td>2</td> <td>500K bps</td> </tr> <tr> <td>3</td> <td>1M bps</td> </tr> <tr> <td>4 to F</td> <td>Unused</td> </tr> </tbody> </table> <p>* If the switch is set to any number from 4 to F, the LED (DATA) goes ON and the module goes into the offline state</p>	Setting Number	Baud Rate	0	125K bps	1	250K bps	2	500K bps	3	1M bps	4 to F	Unused															
		Setting Number	Baud Rate																										
		0	125K bps																										
		1	250K bps																										
		2	500K bps																										
		3	1M bps																										
4 to F	Unused																												

3.3 Settings of Each Part

- (1) Set the link module in the data link system as shown below
 - (a) Station number switch setting
Specify the station number of the A1SJ72T25B within the range of 01 to 31
 - (b) Mode switch setting
Sets the operation mode and the self-diagnosis mode
 - (c) Link parameter
The link parameter is required in a master station
- (2) The MELSECNET, MELSECNET/B data link reference manual gives details

4. SELF-DIAGNOSTIC TESTING

4 SELF-DIAGNOSTIC TESTING

Refer to the A1SJ71AT21B user's manual about the self-diagnostic testing

REVISIONS

A	
Apr. 1994	

IMPORTANT

- (1) Design the configuration of a system to provide an external protective or safety interlocking circuit for the CPs
- (2) The components on the printed circuit boards will be damaged by static electricity, so avoid handling them directly. If it is necessary to handle them, take the following precautions:
 - (a) Ground human body and work bench
 - (b) Do not touch the conductive areas of the printed circuit board and its electrical parts with and non-grounded tools etc.

Under no circumstances will Mitsubishi Electric be liable or responsible for any consequential damage that may arise as a result of the installation or use of this equipment.

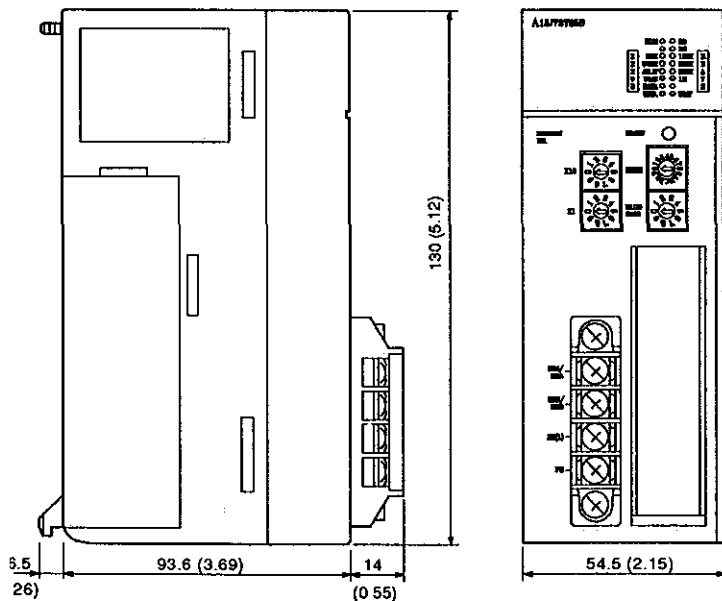
All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.

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

APPENDIX

APPENDIX

APPENDIX 1 OUTSIDE DIMENSIONS



Unit: mm (inch)