MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: 1-8-12, OFFICE TOWER Z 14F HARUMI CHUO-KU 104-6212, JAPAN

IB No.	IB-0800179-D
Model	AJ65FBTA42-16DT-U

AJ65FBTA42-16DT CC-Link System Low Profile Waterproof Type Remote I/O Module User's Manual

● SAFETY PRECAUTIONS ●

(Read these precautions before using.)

When using this equipment, thoroughly read this manual. Also pay careful attention to safety and handle the module properly.
These precautions apply only to this equipment. Refer to the CPU module user's manual for a description of the PC system safety precautions.
These ●SAFETY PRECAUTIONS● classify the safety precautions into two categories: "DANGER" and "CAUTION".

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

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

[DESIGN PRECAUTIONS]

⚠DANGER

- When a communication error occurs in the data link, the communication error station will be in the following condition. Configure an interlocking circuit in a sequence program using the communication status information so that the safety of the overall system is always maintained.
  Accident may occur due to output error or malfunction.
  (1) Input points from remote I/O station will be all switched off.
  (2) Output points from remote I/O station will be all switched off.
- I/O could be switched on or off when a problem occurs in the remote I/O modules. So build an external monitoring circuit that will monitor any I/O signals that could cause a serious accident.

⚠CAUTION

- Use each module in an environment as specified in the "general specification" in the CPU module user's manual. Usage of the module outside the general specification range may cause electric shock, fire, malfunction, product damage or deterioration.
- Do not have control cables and communication cables bundled with or placed near by the main circuit and/or power cables. Wire those cables at least 100mm(3.94 inch) away from the main circuit and/or power cables. It may cause malfunction due to noise interference.

[INSTALLATION PRECAUTIONS]

⚠CAUTION

- Do not directly touch the module's conductive parts.
  Doing so could cause malfunction or trouble in the module.
- Tighten the module securely using DIN rail or installation screws within the specified torque range.
  Loose terminal screws may cause a short circuit or erroneous operation. If the terminal screws are too tight, it may cause falling, short circuit or erroneous operation due to damage of the screws.

[WIRING PRECAUTIONS]

⚠DANGER

- Completely turn off the externally supplied power used in the system when installing or placing wiring. Not completely turning off all power could result in electric shock or damage to the product.

⚠CAUTION

- Be sure to ground the FG terminals to the protective ground conductor.
  Not doing so could result in electric shock or erroneous operation.
- When wiring in the PLC, be sure that it is done correctly by checking the product's rated voltage and the terminal layout.
- Fix the attachment screws of waterproof cap and communication adapter securely within the specified torque range.
  Loose attachment screws may cause a fire or erroneous operation. If the attachment screws are too tight, it may cause a short circuit or erroneous operation due to damage of the screws.
- Make sure that foreign objects do not get in side the module, such as dirt and wire chips. It may cause fire product failure or malfunction.
- IP67 is only satisfied when the waterproof plug, waterproof cap, and communication adapter are all connected.
- Do not attach the communication cable to the I/O connector, as the I/O connector, the communication connector and the power supply connector are the same in shape.
  Failure to do so may cause frailer or malfunction of the PLC.
- Be sure to fix the wires or cables by ducts or clamps when connecting them to the module. Failure to do so may cause damage of the module or the cables due to accidental pull or unintentional shifting of the cables, or malfunctions due to poor contact of the cable.
- Do not install the control lines together with the communication cables, or bring them close to each other. Failure to do so may cause malfunctions due to noise.

[WIRING PRECAUTIONS]

⚠CAUTION

- When disconnecting a communication or power supply cable from the module, do not pull on the cable itself.
  Disconnect cables not fitted with a connectors by holding and pulling the cable connector. Disconnect cables not fitted with a connector by removing the screws from the part connected to the module can cause damage to the module or cable, or, malfunction due to cable connection faults.

[STARTING AND MAINTENANCE PRECAUTIONS]

⚠DANGER

- Do not touch terminals when the power is on. Doing so could cause an electric shock.
- Switch off all phases of the externally supplied power used in the system when cleaning the module or retightening the terminal or module mounting screws. Not doing so could result in electric shock.

⚠CAUTION

- Never try to disassemble of modify module. It may cause product failure, malfunction, fire or cause injury.
- Do not drop or apply any strong impact to the module. Doing so may damage the module.
- Completely turn off the externally supplied power used in the system before mounting or removing the module to/from the panel. Not doing so could result in damage to the product.
- Always make sure to touch the grounded metal to discharge the electricity charged in the electricity charged in the body, etc., before touching the module.
  Failure to do say cause a failure or malfunctions of the module.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

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

(0706)MEE

1. Specification

Item			Description
Input	Number of input points		8 points
	Isolation method		Photocoupler
	Rated input voltage		24 V DC
	Rated input current		Approx. 7 mA
	Operating voltage range		20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Max. simultaneous ON input points		100 %
	ON voltage/ON current		14 V or higher/3.5 mA or higher
	OFF voltage/OFF current		6 V or lower/1.7 mA or lower
	Input resistance		Approx. 3.3 kΩ
	Response time	OFF→ON	1.5 ms or lower (when 24 V DC)
		ON→OFF	1.5 ms or lower (when 24 V DC)
	Input form		Positive common (sink type)
Output	Number of output points		8 points
	Isolation method		Photocoupler
	Rated load voltage		24 V DC
	Operating load voltage range		20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Max. load current		0.5 A/point 2.4 A/common
	Max. load inrush current		1.0 A 10 ms or lower
	Leakage current at OFF		0.25 mA or lower
	Max. voltage drop at ON		0.15 V or lower (TYP.) 0.5 A, 0.25 V or lower (MAX.) 0.5 A
	Output form		Sink type
	Protect function		Overload protection function, overheat protection function
	Response time	OFF→ON	0.5 ms or lower
		ON→OFF	1.5 ms or lower (resistive load)
	External power supply for output part	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
		Current	10 mA or lower (when 24 V DC, all points ON) Not including external load current
	Surge suppressor		Zener diode
Wiring method for common			16 points/common (waterproof connector 2 to 4-wire type)
Number of stations occupied			1 station 32 points assignment (use 16 points)
I/O module power supply		Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
		Current	50 mA or lower (when 24 V DC, all points ON)
Noise durability			DC type noise voltage 500 Vp-p, noise width 1 μs, noise frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage			500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance			10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Protection of degree			IP67
Weight			0.40 kg
Option			Waterproof cap: A6CAP-WP2

For information about the connection devices necessary to use the main module, see the CC-Link System Small-Type Remote I/O Module User's Manual.

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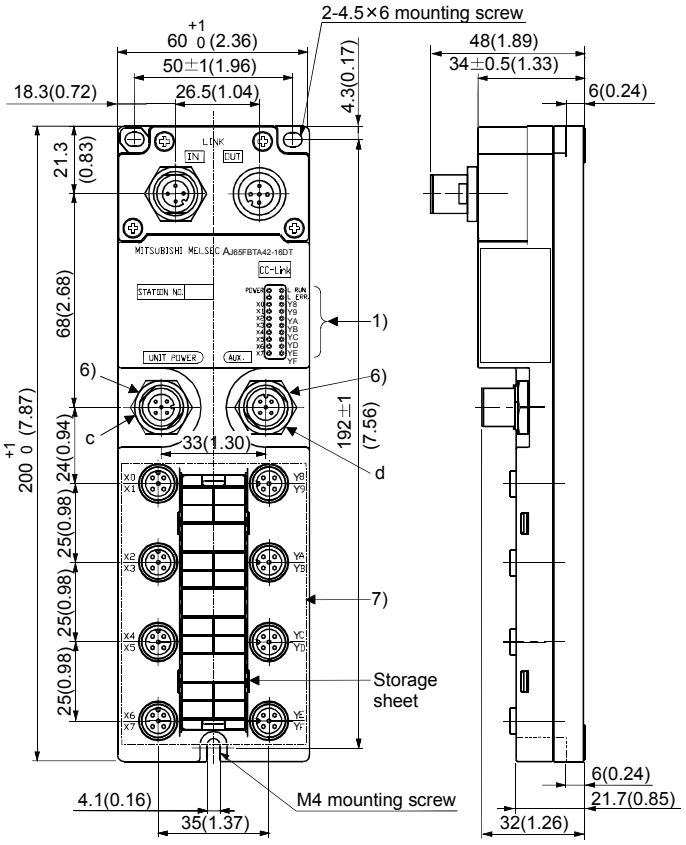
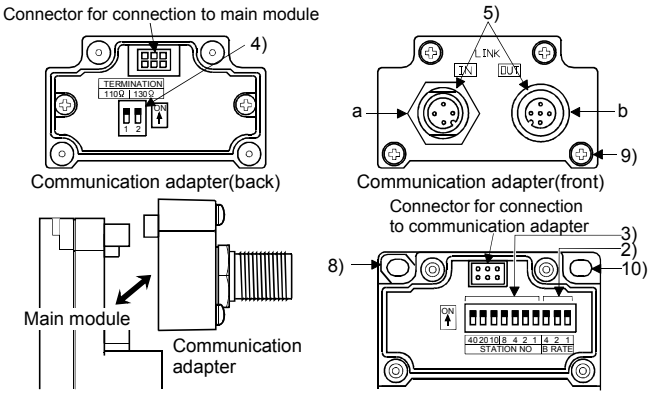
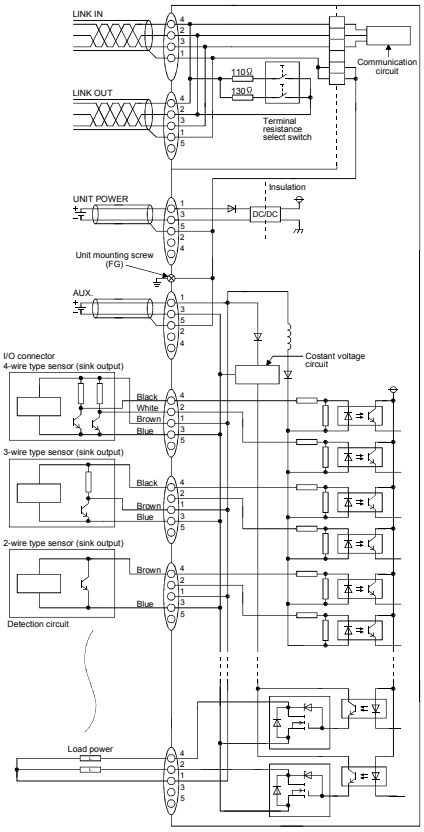


Unit: mm(inch)



External connection



Communication connector		
Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Empty

Power connector		
Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Empty	Empty
3	24G(UNIT)	24G(I/O)
4	Empty	Empty
5	⏚ (FG)	⏚ (FG)

I/O connector					
Pin No.		Signal name	Pin No.		Signal name
X0/X1	1	+24V	Y8/Y9	1	+24V
	2	X1		2	Y9
	3	24G		3	Empty
	4	X0		4	Y8
	5	Empty		5	Empty
X2/X3	1	+24V	YA/YB	1	+24V
	2	X3		2	YB
	3	24G		3	Empty
	4	X2		4	YA
	5	Empty		5	Empty
X4/X5	1	+24V	YC/YD	1	+24V
	2	X5		2	YD
	3	24G		3	Empty
	4	X4		4	YC
	5	Empty		5	Empty
X6/X7	1	+24V	YE/YF	1	+24V
	2	X7		2	YF
	3	24G		3	Empty
	4	X6		4	YE
	5	Empty		5	Empty

2. Name and Setting of Each Area

No.	Item	Description	
1)	Operating status indicator LEDs	LED name	Confirmation details
		POWER	ON: Power supply ON OFF: Power supply OFF
		L RUN	ON: Normal communication OFF: Communication shut off (time expiration error)
		L ERR.	ON: Communication data error Flash at regular intervals: Indicates that the station number setting or transmission speed setting switch position was changed while power is ON Flash at irregular intervals: When the setting of the terminal resistor is wrong; when the cable for the module or CC-Link is affected by noise OFF: Normal communication
		X0 to X7 Y8 to YF	ON: Input/Output ON OFF: Input/Output OFF
2)	Transmission speed setting switch	Setting value / Setting switch status (4, 2, 1) / Transmission speed 0: OFF OFF OFF — 156 kbps 1: OFF OFF ON — 625 kbps 2: OFF ON OFF — 2.5 Mbps 3: OFF ON ON — 5.0 Mbps 4: ON OFF OFF — 10 Mbps Be sure to set the transmission speed within the above range. Remove the communication adapter on the top part of the module to set the transmission speed. (When shipped from the factory, all settings are set to OFF.)	
3)	Station number setting switch	Select “10”, “20” or “40” to set the tens place of the station number. Select “1”,”2”,”4” or “8” to set the ones place of the station number. Always set the station number within the range of 1 to 64. (*1) (Example) Set the switches as below when setting the station number to 32: Station number: 32 — Tens place (40 20 10): OFF ON ON — Ones place (8 4 2 1): OFF OFF ON OFF Remove the communication adapter on the top part of the module to set the station number. (When shipped from the factory, all settings are set to OFF.)	
4)	Terminal resistance setting switch	The terminal resistor register can be turned to the ON setting by using the select switch. DIP switch1 / DIP switch 2 / Contents OFF / OFF / No terminal resistance ON / OFF / 110Ω resistor ON OFF / ON / 130Ω resistor ON ON / ON / Setting prohibited (When shipped from the factory, all settings are set to OFF.)	
5)	Waterproof connector for transmission line *2		Silk / Contents a: LINK IN — Connector for connecting the transmission line from the IN side (master station side). (Male 4 pins) b: LINK OUT — Connector for connecting the transmission line from the OUT side. Be sure to attach the waterproof cap when not in use.□Female 5 pins□ (Tightening torque range: 29 to 34 N.cm)
6)	Waterproof connector for power line *2		Silk / Contents c: UNIT POWER — Connector for supplying power to the module. (Male 5 pins) d: AUX. — Connector for supplying power to a load, etc. (Male 5 pins)
7)	Waterproof connector for input connection *2	Waterproof connector for connection I/O signal. (Female 5 pins) Be sure to attach waterproof cap A6CAP-WP2 (sold separately) when not in use. (Tightening torque range: 29 to 34 N.cm)	
8)	FG metal fitting	For module FG terminal (tightening torque range: 78 to 118 N.cm)	
9)	Communication adapter fixing screw	When replacing the main body online or changing switch setting, attach/remove the communication adapter with this screw. (Tightening torque range: 42 to 58 N.cm)	
10)	Module attachment hole	Screw hole for module attachment. 2-4.5 X 6 length hole (M4 attachment screw) (Tightening torque range: 78 to 118 N.cm)	

*1: Duplicate station number cannot be set.

*2: Waterproof connector (based on IEC947-5-2, M12 type)