# AJ65FBTA4-16DE 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".



Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.

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 ACAUTION 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]

#### 

- 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.

 Input 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 input signals that could cause a serious accident.

# 

- 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]

- 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.

# 

- 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.

#### [WIRING PRECAUTIONS]

## 

- 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.
- 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.

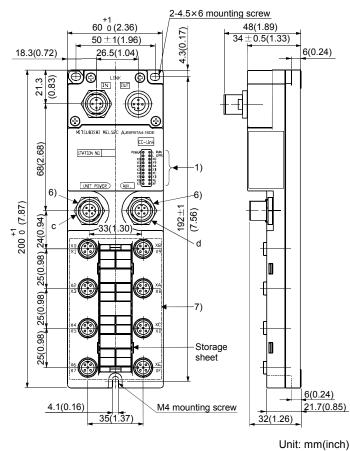
### [DISPOSAL PRECAUTIONS]

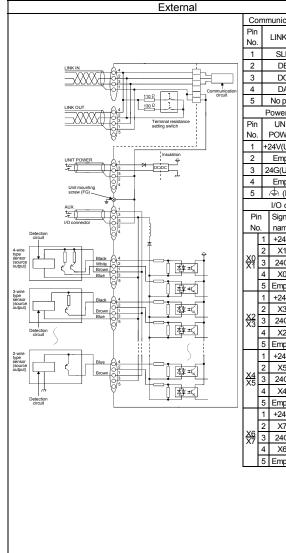
• When disposing of this product, treat it as industrial	waste.

#### (0706)MEE

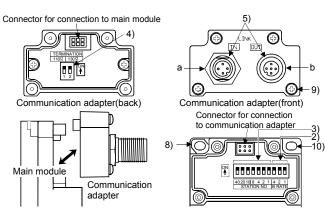
		(0100)///2					
1. Specification							
Item		Description					
Number of input point	s	16 points					
Isolation method		Photocoupler					
Rated input voltage		24 V DC					
Rated input current		Approx. 7 mA					
Operating voltage ran	ge	20.4 to 26.4 V DC (ripple ratio: within 5 %)					
Max. simultaneous O	N input points	100 %					
ON voltage/ON current	nt	14 V or higher/3.5 mA or higher					
OFF voltage/OFF cur	rent	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)					
Response unie	ON→OFF	1.5 ms or lower (when 24 V DC)					
Wiring mathed for an		16 points/common					
Wiring method for cor	nmon	(waterproof connector 2 to 4-wire type)					
Input form		Negative Common (source type)					
Number of stations of	cupied	1 station 32 points assignment (use 16 points)					
I/O module power	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)					
supply	Current	40 mA or lower					
suppiy	Current	(when 24 V DC and, all points ON)					
		DC type noise voltage 500 Vp-p,					
Noise durability		noise width 1 µs, noise frequency 25 to 60 Hz					
-		(noise simulator condition)					
Withstand voltage		500 V AC for 1 minute between all DC extern					
White the tenage		terminals and ground					
		10 $M\Omega$ or higher, measured with a 500 V DC					
Insulation resistance		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.





Pin No. 1 2 3	mn	nunicati LINK IN		с	onr	nector	
Pin No. 1 2 3				C	OUI	lector	
No. 1 2 3		I INK IN					
2 3	1		I	LINK OUT			
3	1	SLD			SLD		
		DB				DB	
		DG				DG	
4		DA				DA	
5		No pins		Empty			
	F	ower co	nc	٦e	ecto	r	
Pin		UNIT			A	UX.	
No.		POWEF					
1	+;	24V(UN				. ,	
2		Empty				mpty	
3	- 2	4G(UNI Empty				G(I/O) mpty	
4	-	Empty (FG			Б	(FG)	
5		I/O cor				(10)	
Pir		Signal		Pi		Signal	
No		name		No.		name	
	1	+24V			1	+24V	
F	2	X1		1	2	X9	
<u>X0</u> X1	3	24G	X	<u>8</u>	3	24G	
~	4	X0	^		4	X8	
-	5	Empty			5	Empty	
	1	+24V			1	+24V	
VO	2	X3	~	AB	2	XB	
<u>X2</u> X3	3	24G	X		3	24G	
-	4	X2		ļ	4	XA	
	5	Empty			5	Empty	
-	1	+24V		ļ	1	+24V	
¥4	2	X5	x,	_	2	XD	
<u>X4</u> X5	3	24G	XI	Б	3	24G	
	4	X4		ļ	4	XC	
$\square$	5	Empty	_	_	5	Empty	
	1	+24V			1	+24V	
X6	2	X7	x	E	2	XF	
<u>X6</u> X7	3 4	24G X6	X	F	3	24G XE	
	4 5			4 5			
	5	Empty			5	Empty	



## 2. Name and Setting of Each Area

No.	Item						scrip				
			name					mation d			
	Operating	POWER ON: Power supply ON OFF: Power supply					pply OF	F			
		L RU	L RUN ON: Normal communication OFF: Communication shut off (time expiration error)						ror)		
		├	ON: Communication data error							.01)	
				Flash at regular intervals:							
1) status indicator LEDs				Indicates that the station number setting or							
			transmission speed setting switch position was changed while power is ON								
	L EF	KR.	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						
		VO L	-		Norma						
		X0 to		UN:	nput Ol	N OFF	-: inp				
		5	Setting v	alue		tting sw			Transn	nission	speed
					4 OFF	2 01		1 OFF	1	56 kbpc	
		0		OFF		-	OFF				
	Transmission		2		OFF	-		OFF			
2)	speed setting		3		OFF			ON			
	switch		4		ON	OF	F	OFF	1	0 Mbps	
			ne trans ngs are			ea. (Wh	ien sh	upped fro	un the f	actory, a	all
						o set th	e ten	s place o	f the sta	ation nur	nber.
		Sele	ct "1","2	2","4" o	or "8" to	set the	ones	place of	the sta	tion nun	nber.
		(⊨xa		Set the o 32:	e switch	ies as t	elow	wnen se	ung the	e station	numb
3)	Station number		Statio		Te	ens plac	re		Ones	nlace	
0)	setting switch		numb		40	20	10	8	4	2	1
		32			OFF	ON	ON	OFF	OFF	ON	OFF
		Remove the communication adapter on the top part of the module to									
					nber. (V	When s	hippe	d from th	e factor	ry, all se	ettings
			set to O		tor can	he turn	ed to	the ON 4	setting 4	NV LIEINA	the
			The terminal resistor can be turned to the ON setting by using the select switch.								
	Terminal		DIP swi		DIP sv	witch 2		(	Contents		
4)	Terminal			OFF		OFF		No terminal resistance			
4)	resistance							110	reciet	or ONI	
<i>'</i>	resistance setting switch		ON		O						
,			OFF		0	N		130	resist	or ON	
,			OFF ON	-	0	N N	all of	130 Settir	resiste ng prohi	or ON ibited	
,		(Wh	OFF ON	e Ded fro	O O om the t	N N	all se	130 Settir ettings ar	resiste ng prohi e set to	or ON ibited	
,		(Wh	OFF ON	-	O O om the t	N N factory,		130 Settir ettings ar Con	resisten ng prohi e set to tents	or ON ibited OFF.)	
,	setting switch	F	OFF ON en shipp	e Ded fro	O O om the t	N N factory, Conne	ctor f	130 Settir ettings ar Con or conne	resisten ng prohi e set to tents cting the	or ON ibited OFF.)	
,		F	OFF ON en shipp	: bed fro Silk	O O om the t	N factory, Conne transm (maste	ctor f hissio er stat	130 Settir ettings ar Con or conne n line froi tion side)	Transmission spe 156 kbps 625 kbps 2.5 Mbps 5.0 Mbps 10 mbps		
5)	Setting switch Waterproof connector for transmission	F	OFF ON en shipp	: bed fro Silk	O O om the t	N factory, Conne transm (maste Conne	ector f hissio er stat	130 Settings an Con or conne n line froi tion side) or conne	resisten ng prohi e set to tents cting the m the IN . (Male cting the	or ON ibited OFF.) e N side 4 pins) e	e. Be
,	setting switch Waterproof connector for		OFF ON en shipp a LII	: bed fro Silk	O om the t	N factory, factory, Conne transm (maste Conne transm sure to	ector f nissio er stat ector f nissio o attao	130 Settings ar Con or conne n line froi tion side) or conne n line froi ch the wa	resistent ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo	or ON ibited OFF.) e V side 4 pins) e DUT side	
,	Setting switch Waterproof connector for transmission		OFF ON en shipp a LII	Silk	O om the t	N factory, factory, Conne transm (maste Conne transm sure to not in i	ector f hissio er stal ector f hissio attac	130 Settir ettings ar Con or conne fon side) or conne n line froi ch the wa Female s	resiste ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins)	or ON ibited OFF.) e V side 4 pins) e UT side f cap wh	hen
,	Setting switch Waterproof connector for transmission		OFF ON en shipp a LII	Silk	O om the t	N factory, factory, Conne transm (maste Conne transm sure to not in i	ector f hissio er stal ector f hissio attac	130 Settings ar Con or conne n line froi tion side) or conne n line froi ch the wa	resiste ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins)	or ON ibited OFF.) e V side 4 pins) e UT side f cap wh	hen
,	Waterproof connector for transmission line *2		OFF ON en shipp a LII	Silk		N factory, Conne transm (maste Conne transm sure to not in i (Tighte	ector f hissio er stat cotor f hissio attao use. ( ening	130 Settings ar Con or conne n line froo or conne or conne or conne or conne or conne the froo con conne or conne the froo conne or conne or conne or conne or conne or conne or conne or conne the froo conne the froo conne the froo conne the froo conne the froo conne conne the froo conne the froo conne conne the froo conne conne the froo conne conne the froo conne the froo conne the froo conne the froo conne conne conne conne conne the froo conne	resist ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins) nge: 29 tents	or ON bited OFF.) e V side 4 pins) e UT side f cap wh 3 to 34 N	hen N.cm)
5)	waterproof connector for transmission line *2 Waterproof	ł	OFF ON en shipp a LII	Silk		N factory, factory, Conne transm (maste Conne transm sure to not in i (Tighte Conne	ector f hissio er stat ector f hissio o attao use. ( ening	130 Settings ar Con or conne n line frootion side) or conne n line froot ch the wa Female & torque ra Con	resist ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins) inge: 29 tents tents	or ON bited OFF.) e V side 4 pins) e UT side f cap wh 3 to 34 N	hen N.cm)
,	waterproof connector for transmission line *2 Waterproof connector for	ł	OFF ON en shipp a LII	Silk	O Om the t	N n factory, factory, factory, conne transm conne transm sure tc not in 1 (Tighte Conne modul	ector f hissio er stat ector f hissio attao use. ( ening ector f e. (Ma	130 Settings an Con or connee n line froo or connee n line froo ch the wa Female & torque ra Con or supply ale 5 pins	resist ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins) nge: 29 tents tents	or ON ibited OFF.) e V side 4 pins) e VUT side of cap wh O to 34 N ver to th	hen I.cm) e
5)	waterproof connector for transmission line *2 Waterproof	ł	OFF ON en shipp a LII	Silk	O O Dom the 1 IN DUT	N n factory, factory, factory, conne transm conne transm sure tc not in 1 (Tighte Conne modul	ector f hissio er stat ctor f hissio attao use. ( ening ector f e. (Ma	130 Settings ar Con or connee n line froi tion side) or connee n line froi tion side) or connee torque ra torque ra Con or supply ale 5 pins or supply	resist ng prohi e set to tents cting the n the IN . (Male cting the n the C terproo 5 pins) nge: 29 tents tents	or ON ibited OFF.) e V side 4 pins) e VUT side of cap wh O to 34 N ver to th	hen I.cm) e
5)	Waterproof connector for transmission line *2 Waterproof connector for power line *2		OFF ON en shipp a LII b LIN	Silk	O O Dom the t IN DUT WER	N factory, f	ctor f hissio er stat ctor f hissio o attac use. ( ening ctor f e. (Ma ctor f lale 5	130 Settings arr Con or connen n line froot or connen n line froot con connen n line froot con connen n line froot ch the was Female § torque ra Con or supply ale § pins)	resister ag prohi e set to tents cting the m the IN . (Male cting the m the C terproo 5 pins) ange: 29 tents tents tents ing pov	or ON ibited OFF.) e V side 4 pins) e OUT side of cap wh O to 34 N ver to th	hen J.cm) e load,
5)	waterproof connector for transmission line *2 Waterproof connector for	t t Watu	OFF ON en shipp a LII b LIN c UN d [	Silk	O O Dom the t	N n factory,	ctor f hissio ctor f hissio attac use. ( ening ctor f e. (Ma ctor f lale 5	130 Settin Settings ar Con or conne n line fro or conne n line fro or conne for conne or conne tor conne tor conne or conne tor conne tor conne or conne tor supply ale 5 pins or supply tor sign linput sign	resister ag prohi e set to tents cting the n the IN . (Male cting the m the C tents terproo 5 pins) ngge: 29 tents tents ing pov all (Fer	or ON ibited OFF.) e V side 4 pins) e VUT side of cap with 2 to 34 N ver to th ver to th	hen <u>I.cm)</u> e load, pins)
5)	Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input	t t Watu Be s	OFF ON en shipp a LIN b LIN	E	O O Om the 1 IN DUT WER	N factory, factory, Conne transm sure to not in i (Tighte Conne etc. (N conne etc. (N	ctor f hissio er stat ctor f hissio attac use. ( ening ctor f e. (Ma ctor f lale 5 ction ) A6C	130 Settir Con or conne n line fro tion side) or conne n line fro ch the wa Female § torque ra torque ra Con or supply ale 5 pins or supply pins)	resister ng prohi e set to tents cting the m the IN . (Male cting the m the C terproo 5 pins) nge: 25 tents ing pov s) ing pov	or ON ibited OFF.) e V side 4 pins) e VUT side of cap with 2 to 34 N ver to th ver to th	hen <u>I.cm)</u> e load, pins)
5) 6) 7)	Setting switch Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input connector for input connector for	t t Watu Be s not ii	OFF ON ON a ship a LIN b LIN	E Silk	O O O O O M M M M M M M M M M M M M M M	N N factory, Conne transm conne transm sure tc conne modul Conne modul Conne conne tc (N transm conne conne tc (N transm conne tc (N transm	ctor f hissio er stal ctor f hissio use. ( ening ctor f lale 5 ctor f lale 5 ctor f hactor f	130 Settir ettings ar Con or conne n line fro ition side) or conne n line fro ch the wa Female § torque ra torque ra con or supply pins)	resisti reg prohi e set to tents titing thin n the IN (Male cting thin n the C (Male cting thin n the C teterproc 6 pins) (ing pov ing pov ing pov nal. (Fer (sold s N.cm)	or ON ibited OFF.) e V side 4 pins) e UT side f cap wl 2 to 34 N ver to th ver to th ver to a male 5 p separate	hen I.cm) e load, bins) Hy) wh
5)	Setting switch Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input connection *2 FG metal fitting	Res not ii For n	OFF ONNenshipp a LIN	E Silk	O O O O O O O O O O O O O O O O O O O	N N Conne transmr (mastee Conne transmr not in n not in n not in n transtr Conne etc. (M Conne etc. (M Conne transtr conne transtr transtr conne transtranstr transtr transtranstr	ctor f hissio er stal ctor f hissio use. ( ening ctor f lale 5 ctor hale 5 ctor hale 5 ctor hale 5 ctor hale 5 ctor hale 5 ctor hale 5 ctor hale 5 ctor hissio hiss	130 Settir Settir Con or conne n line froi con subely torque rate torque rate con or supply pins)	resisti resisti resist of tents cting thin . (Male ting thin m the LN tents reproof terproof	or ON ibited OFF.) e V side 4 pins) e DUT side f cap wh e to 34 N ver to th ver to th ver to th separate o 118 N	hen J.cm) e load, bins) Hy) wh .cm)
5) 6) 7) 8)	setting switch Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input connection *2 FG metal fitting Communication	Watu Be s not in Whe	OFF ON en shipp a LII b LIN c	Silk Silk [ K [C] Silk ΠΤΡΟ AUX AUX FG te FG te conne	OOOOON the !	N N Factory, Conne transm (mastec Conne transm sure tc Conne Conne c	ctor f f nissio er stat sissio attac use. ( ening cctor f lale 5 ction AGC ction a AGC ction nge: 2	130 Settir ettings ar Con or conne n line froi or conne n line froi con conne n line froi con conne froi stor conne froi con supply froi con supply froi froi froi froi froi froi froi froi	resisti reg prohi e set to tents cting thin (Male tetring thin n the IN (Male tetring thin n the C tetrproo spins) ing pow (sold s (.cm) ge: 78 t ing swi	or ON ibited OFF.) e V side 4 pins) e PUT side of cap wh P to 34 N ver to th ver to th ver to a male 5 p separate o 118 N tch setti	hen J.cm) e load, bins) Hy) wh .cm)
5) 6) 7)	Setting switch Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input connection *2 FG metal fitting	Watu Be s not ii For r Whe	OFF ON en shipp a LII b LIN c	E Silk Silk K C Silk K C Silk IT PO AUX AUX AUX Connec AUX	OOOOON the t	N N Factory, Conne transm (mastec Conne transm not in not not in not modulu Conne etc. (N conne etc. (N conne etc. (N conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm modulu conne transm tran	ctor f f iissio r staf use. ( ening ctor f lale 5 ction A A C nge: 2 ing to online on ada	130 Settir ettings ar Con or conne n line froi con conne n line froi con conne n line froi ch the wa Female & Con for supply ale 5 pins or supply pins) Input sign cAP-WP2 29 to 34 h rque rang or chang apter with	resisti reg prohi e set to tents cting thin (Male tetring thin n the IN (Male tetring thin n the C tetrproo spins) ing pow (sold s (.cm) ge: 78 t ing swi	or ON ibited OFF.) e V side 4 pins) e PUT side of cap wh P to 34 N ver to th ver to th ver to a male 5 p separate o 118 N tch setti	hen J.cm) e load, bins) Hy) wh .cm)
5) 6) 7) 8) 9)	Setting switch Waterproof connector for transmission line *2 Waterproof connector for power line *2 Waterproof connector for input connection *2 FG metal fitting Communication adapter fixing	Watu Be s not ii For r Whe attac (Tigh	OFF ON en shipp a LIN b LIN c	Silk Silk Κ C Silk Κ C Silk Κ C Silk Silk Silk Silk Conne ttach Tighte FG te cing the ve theoretory of the second FG te	OOOON the !	N N Factory, Conne transm sure tc conne transm sure tc not in not not in not not in not not in not conne etc. (W conne etc. (W	ctor f issio r stal r stal r stal r stal solute. ( ening use. ( ening e. (Ma ctor f lale 5 tion b A6C ction f b A6C change: 2 ction f b A6C change 2 ction f change 2 ction f ction f b A6C change 2 ction f change 2 ction f change 2 ction f change 2 ction f ction f ctio	130 Settir ettings ar Con or conne n line froi con conne n line froi con conne n line froi ch the wa Female & Con for supply ale 5 pins or supply pins) Input sign cAP-WP2 29 to 34 h rque rang or chang apter with	resisti resisting prohi- e set to tents cting thin the link (Male titing thin the Could the tents resisting the tents resisting pow- resisting pow- resisting pow- resisting the tents resisting pow- resisting the tents resisting the tents resistin	or ON ibited OFF.) e V side 4 pins) e OUT side of cap wh o to 34 N ver to th ver to th ver to a male 5 p separate o 118 N tch setti rew.	hen J.cm) e load, bins) Hy) wh .cm)

\*1: Duplicate station number cannot be set.

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