

INSTRUCTION MANUAL
BLOCK MANIFOLD
MN4E0 SERIES
SERIAL TRANSMISSION TYPE
N4E0—T7G※

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, **read this instruction manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:

PRECAUTIONS

- Incorrect address settings of serial transmission slave stations could cause the solenoid valve and the cylinder to malfunction.
Before using the product, check the set address of the slave stations.
- For operation of serial transmission slave stations, read the communication system operation manual carefully.
- Do not touch electric wiring connections (exposed live parts) : this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.
- This product does not meet the surge immunity requirements specified in EN61000-4-5 for CE marking. Please provide appropriate protective measures against lightning surges on the device side.
- When the valve power is turned on (i. e., at power-up), the valve lamp may light up momentarily. However, the valve itself is not turned on or as a result of this.

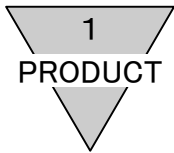
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N4E0-T7G※

Serial Transmission Type

Manual No. SM-P00002-A

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1. PRODUCT

1. 1 General outline of the system

1) N4E0-T7G※

This solenoid valve system is equipped with a remote I/O station (MN4E0-T7G※), the CC-Link open field network system. (This is specified by CC-Link Partner Association. : hereafter referred to as CLPA)

The following features are provided.

- (1) It helps to curtail wiring man-hours as it requires twist pair cables only to connect it with PLC.
- (2) The power supply for the slave station is separated from that for the valve, ensuring easy maintenance work.
- (3) The energized status of the valve power supply can be checked by using the master station through the communication. (Detection function, such as fuse blow-up)
- (4) The slave station output status, if the communication error occurs, can be set using the switch (holding or all points OFF).

2) CC-Link

The CC-Link is Open field network system for FA including remote I/O devices (Sensor and valve, etc.) and intelligent devices (high-speed counters, inverters, etc.), can be configured with reduced wire connections. Moreover, the user can create programs that control these devices installed away from the master station without being aware of the communication protocols.

The CC-Link system has following features :

- (1) 10Mbps network, the fastest network in the industry, is applicable to a sensor and large capacity data communication requiring the high-speed response.
- (2) Remote control handling the bit data and data communication handling word data (analog) can be performed at the same time. The communication is also stable at a high speed.
- (3) “n : n” cyclic transmission can be performed between the controllers, ensuring easy distributed control.

Note: Before using this product, thoroughly read the User's Manual.

This document mainly describes N4E0-T7D※.

Also, read the User's Manual for the master station and other slave stations to be connected to this system.

For this manifold solenoid valve, read this instruction manual, as well as manuals described above to fully understand the functions and performance in order to operate the manifold solenoid valve properly.

If the customer has any question the CC-Link, contact the following home page.

CC-Link Association

Home page address <http://www.cc-link.org>

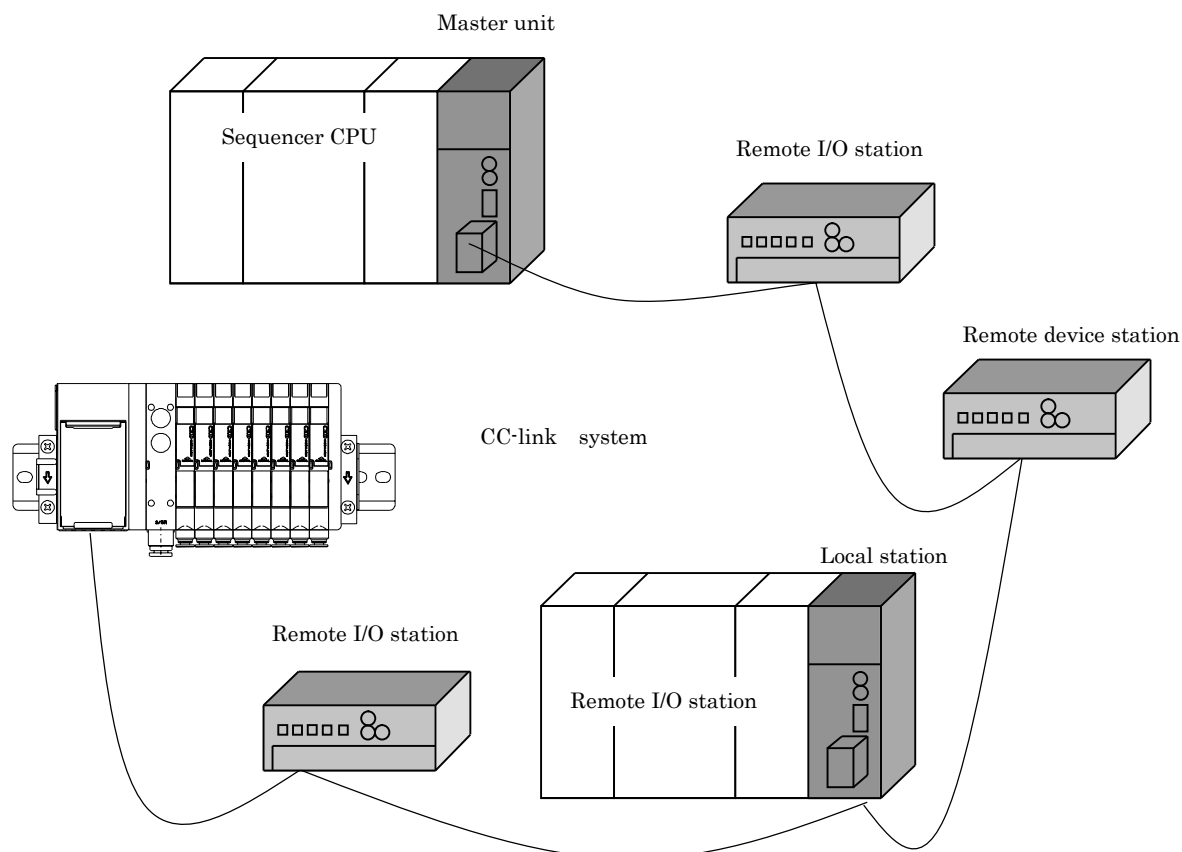
1. 2 Structure of the System

This system chiefly consists of sequencer body, Master station Solenoid valve MN4E0-T7G※ and peripheral equipment.

- Combination sequencer body, Master station.

Type of CPU	Type of Master unit
AnN / AnA / AnU	AJ61BT11
AnS / A2US	A1SJ61BT11
QnA	AJ61QBT11
Q2AS	A1SJ61QBT11
Q	QJ61BT11
Others	CC-Link Type of Master unit

- Fundamental structure of system



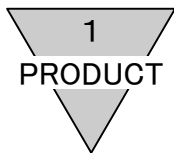
Master station Station controlling remote I/O station, remote device stations, and local stations.

Remote I/O station Remote station that handles ON/OFF data only.

Remote device station Remote station that handles ON/OFF data and numerical data.

Local station Station that has its own CPU and can communicate with the master station and other local station.

Intelligent device station Station informed by the transmission (including the local station).



1. 3 Specifications

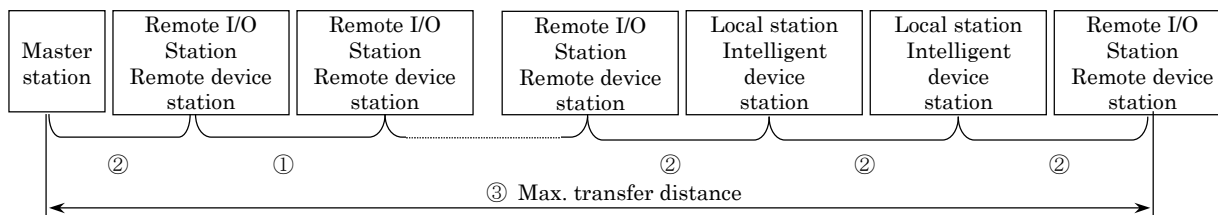
1) Transmission specifications

Item	Specofocations
Transfer rate	10M / 5M / 2.5M / 625k / 156k bps (selectable)
Max. transfer distance(overall cable length)	Depends on transfer rate (※1)
Call processing	Polling
Synchronization	Frame synchronization
Encoding	NRZI
Bus	RS485
Data transfer format	HDLC
Error detection	CRC ($X^{16} + X^{12} + X^5 + 1$)
Cable	Shielded twist pair cable (See4.1"Wiring".)

※1 "Max. transfer distance"

The following explains the relationships between the transfer rate and the maximum transfer distance.

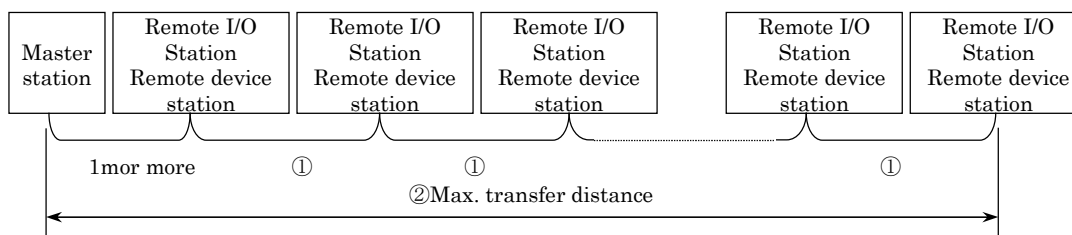
● System Configuration including local station and intelligent device station



B RATE	Transfer rate	Cable exclusively for CC-Link (KURAMO DENKOU : FANC-SBH, etc)			High-performance Cable exclusively for CC-Link (KURAMO DENKOU : FANC-SBH, etc)				
		①※	②	③	① ※	②	③		
4	10Mbps	1.0mor more	2mor more	100mor more	1.0mor more	2mor more	80mor more		
		0.6m or more		80mor more	0.7mor more		50mor more		
		0.3mor more		50mor more	—	—	—		
3	5Mbps	0.6mor more		150mor more	0.6mor more	2mor more	150mor more		
		0.3mor more		110mor more	0.3mor more		110mor more		
2	2.5Mbps	0.3mor more		200mor more	0.3mor more		200mor more		
1	625kbps			600mor more			600mor more		
0	156kbps			1200mor more			1200mor more		

※ The length shown in Conditions ① above indicates the length of a cable getting between the remote I/O station or remote device station, and the cable length when the master station, local station and intelligent station are connected to either one at least is as shown in Condition.

● System comprising the remote I/O station and remote device station only

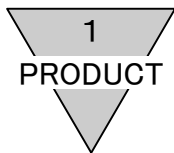


B RATE (Transfer rate)	No. of total remote	①	Cable exclusively for CC-Link (KURAMO DENKOU : FANC-SBH, etc)	High-performance Cable exclusively for CC-Link (KURAMO DENKOU : FANC-SBH, etc)
			②	②
4(10Mbps)	64 or less	1.0mor more	100mor more	100mor more
		0.7mor more	80mor more	100mor more
		0.6mor more	80mor more	30mor more
		0.4mor more	50mor more	30mor more
		0.3mor more	50mor more	20mor more
	48 or less	0.4mor more	50mor more	100mor more
		0.3mor more	50mor more	80mor more
3(5Mbps)	32 or less	0.3mor more	50mor more	100mor more
	64 or less	0.6mor more	150mor more	160mor more
		0.3mor more	110mor more	160mor more
2(2.5Mbps)		0.3mor more	200mor more	400mor more
1(625kbps)			600mor more	900mor more
0(156kbps)			1200mor more	1200mor more

※ Since the transfer distance varies, depending on the transfer rate and communication cables used or the like, refer to the CC-Link User's Manual issued by MITSUBISHI ELECTRIC EQUIPMENT CO. LTD. or check it through the cable manufacturer, etc.

Since the number of stations (remote stations) connected differs, depending on the number of occupied stations and conditions of transfer distance or the like, refer to the CC-Link User's Manual issued by MITSUBISHI ELECTRIC EQUIPMENT CO. LTD. check it through the cable manufacturer, etc.

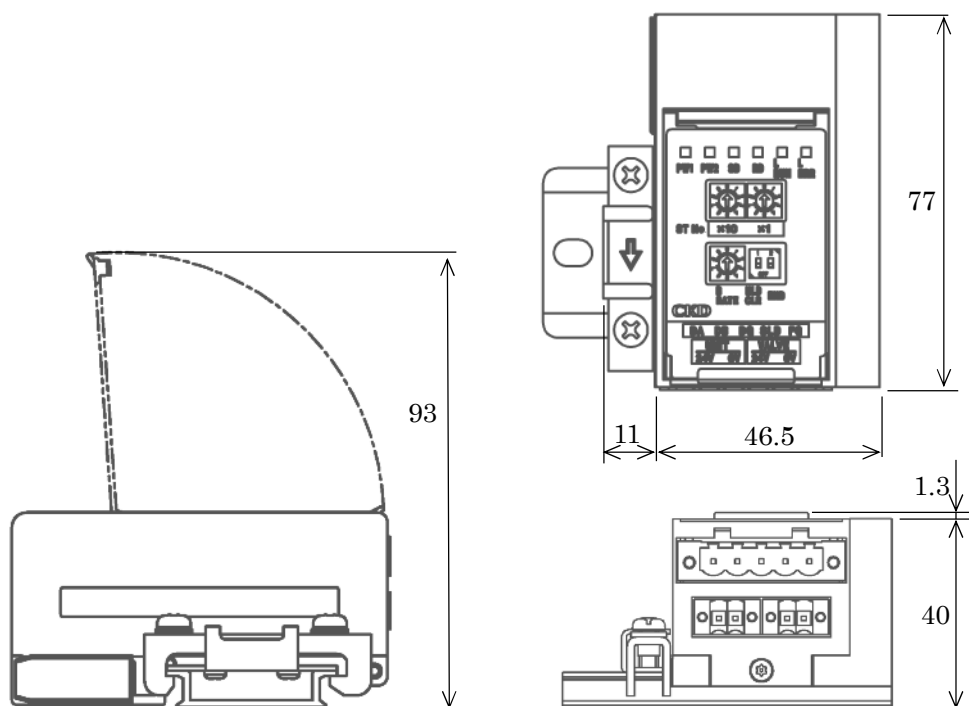
The CC-Link exclusive cable and CC-Link exclusive high performance cable should not be mixed with each other for use.



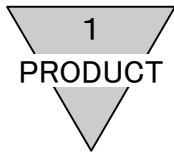
2) Slave station specification

Item		T7G1	T7G2
Power supply voltage (Unit side)		DC21.6V~26.4V (DC24V $\pm 10\%$)	
Consumption current (Unit side)		65mA or Lower (While all points are ON)	90mA or Lower (While all points are ON)
Power supply voltage (Valve side)		DC22.8V~26.4V (DC24V $+10\%$, -5%)	
Consumption current (Valve side)		15mA or Lower (While all points are OFF)	
Insulation resistance		Between all external terminals in a lump and Case 30M Ω or more DC500VM	
Withstand voltage		Between all external terminals in a lump and Case AC500V for 1 minute	
Noise resistance		500Vp-p Pulse width 1 μ sec	
Mechanical vibration proof	Durability	10Hz to 150Hz to 10Hz 1 octave / min. 15 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.75mm or 98m/s ² whichever smaller.	
	Wrong operation	10Hz to 150Hz to 10Hz 1 octave / min. 4 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.5mm or 68.6m/s ² whichever smaller.	
Mechanical shock proof		294m/s ² 3 directions 3 times	
Ambient temperature		5~55°C	
Ambient humidity		30~85%RH (No dew fall)	
Working environment		No corrosive gas	
Communication object		CC-Link Ver1.10	
Transfer rate		10M / 5M / 2.5M / 625k / 156k bps (Selectable)	
No. of output points		0 / 16	0 / 32
Output insulation type		Photo coupler insulation	
Max. load current		40mA/1 point	
Leak current		0.1mA point	
Residual voltage		0.5V point	
Output model		NPN Transistor, Open collector output	
Fuse		Unit source: 24V 1A / Valve source: 24V 2A (Not replaceable)	
Action indicator		LED (Unit status, power supply for valves and communication status indicator only)	
No. of monopolized stations		1 station	

1. 4 Outside view of valve slave station



- ① Monitor lamp
The monitor lamp LED indicates the status of the slave station main body and network.
- ② Setting switches
These switches are used to set a station No. transmission speed, and an output of the slave station when the communication error occurs.
- ③ Switch cover
This switch cover protects the monitor lamp and setting switches.
- ④ Unit source connector
Unit source (24V) is connected to this connector.
- ⑤ Valve source connector
Valve source (24V) is connected to this connector.
- ⑥ Communication connector
The communication cable of the network is connected to this connector.

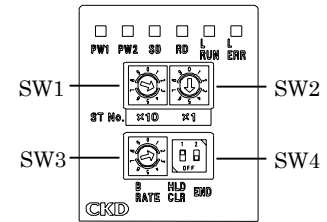


1. 5 Switch & LED display

1) Switch

The address, transfer rate, and output in case of communication error are set for this slave station.

Name of switch		Content of Setting
SW1 SW2	ST NO. $\times 10, \times 1$ (Station number setting)	Sets the slave station numbers within bounds the bounds of 1-64. SW1 takes care of the second digit (10) while SW2 takes care of the first digit (1).
SW3	B RATE (Transfer rate setting)	Sets the transfer rate between the master and slave stations. A value ranging from 0 to 4 is set.
SW4 No.1	HLD CLR (Output mode)	Specify whether to hold (HDL) or clear (CLR) the output when an error occurs.
SW4 No.2	END (End-station)	Set to ON if the slave station is at the end of the comm. ※Turn this switch "OFF" when the high-performance cable exclusively for CC-Link is used, and connect a terminal resistor externally.



※This unit operate with setting Station number, transfer rate when power-on, the unit.

2) LED display

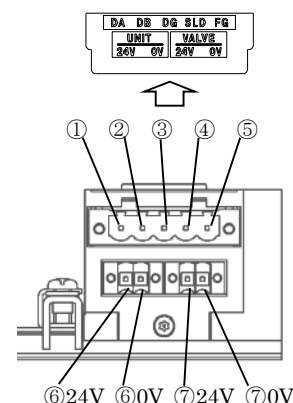
LED shows state of this unit and networks. Reference the following With LED Display.

Name of LED	Content of indication
PW1	Lit when unit power is ON.
PW2	Lit when valve power is ON.
SD	Blinks while Data being output.
RD	Blinks while Data being input.
L RUN	This checks whether or not the slave station correctly exchanges the data with the master station. Lit when data is received normally from the master station. Goes off when data is absent for a preset period of time.
L ERR	Lit when a transmission error (CRC error) is detected. Goes off after a preset period of time. Lit when the user specifies a value out of range when setting the station number or transfer rate. Blinks when the station number or transfer rate setting is modified during operation. (The RUN lamp is lit. The slave station starts operation with the station number setting and transmission speed setting made when the power is turned ON.)

1. 6 Wiring

The following are the functional explanation of each terminal and main places to which the terminal is connected.

	Symbol	Function	Objects to connected	Show Cable color
①	DA	Data terminal	Connect this terminal to the master or other slave communication line "DA"	Blue (DA)
②	DB	Data terminal	Connect this terminal to the master or other slave communication line "DB"	White (DB)
③	DG	Data terminal	Connect this terminal to the master or other slave communication line "DG"	Yellow (DG)
④	SLD	Shield terminal	Connect this terminal to the master or other slave communication line "SLD"	Bare (SLD)
⑤	FG	Ground terminal	Class 3 or higher grounding should be provided. ※1	(FG)
⑥	Source connector	Unit source connection	DC24V $\pm 10\%$	24V 0V
⑦	Source connector	Valve source connection	DC24V $+10\%, -5\%$	24V 0V

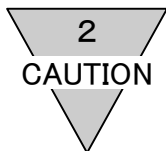


※1 SLD and FG terminals are connected inside the slave station unit.



CAUTION

- Pay special attention so that any tensile force or impact is not applied to the power cable and communication cable. Additionally, if the wiring distance is long, unexpected force due to own weight or shock may be applied, causing the unit to break. Therefore, to prevent such troubles, take appropriate measures, such as securing of the wires and cables to the machine.
- Touching the electrical wiring connection part (bare live part) may cause an electric shock. Before starting the wiring work, always shut-down the power completely. Additionally, do not touch any electrically live part by wet hand.



2. CAUTION

- Refer to User's manual for the master station concerning to transmission delay time. The transmission delay within the entire system depends on the scan time achieved by the PLC unit and on other devices included in the network.
- Solenoid valve responding time, of course, varies depending on model. It is advisable of referring to valve specification.
- As for OFF time, there is another delay factor of approx. 20ms due to flywheel diode being used for surge absorbing circuit to valve slave station.
- Connect the power supply cable and signal cable correctly within the specifications so that any incorrect wiring is not performed.
- Pay special attention so that any tensile force or impact is not applied to the power supply cable and signal cable.
- Before turning ON the power, make sure that the various connection cables and connectors are connected firmly.
- Disassembly, modification, and/or repair made by the customer may cause a trouble or malfunction. Never attempt to disassembly, modify, and/or repair the unit.
- Many precision devices are mounted inside the unit. Do not drop the unit or apply vibration or impact to the unit.
- If any connector is disconnected or connected with the electric power supplied, this may cause a trouble or malfunction. Do not disconnect or connect any connector with the electric power supplied.

3. OPERATION

3. 1 Switch setting

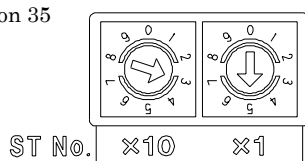
The switches are used for 3 different kinds of setup : setting the station number, setting the transfer rate, and specifying the end station. Since different switches are used for different kinds of setup, you must correctly identify the switch to be used. Before changing the switch positions, be sure to cut the power.

1) Station number setting

Assign a station number to the slave station using a number between 01 and 64.

Can't use the same station No.

ex. Station 35

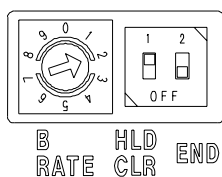


- Use the “×10” switch to specify the 10 column digit in the station number.
- Use the “×1” switch to specify the 1 column digit in the station number.
(Initial setting is “00”)

2) Transfer rate setting

Set the transfer rate for communication between the master and slave stations.

ex. B RATE 2
(2.5M bps)



Position	Transfer rate
0	156kbps
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps



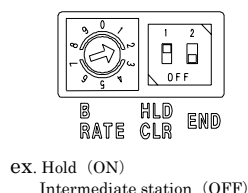
CAUTION

- The transfer rate should be set in the same manner as with all master stations, local stations and remote stations on the network. If this setting differs even one station, no normal data link is possible.

3 OPERATION

3) Other setups

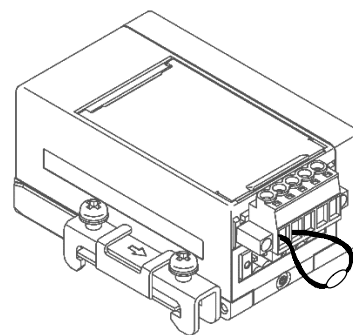
Using this switch, specify whether to hold or clear the output when an error occurs and whether this slave station is the end station (Station furthestmost form the master station) or not.



No.	Function	Position	
		CLR	HLD
1	Specifies whether to hold or clear the output when an error (bus line error, time over, etc) occurs.	Clear	Hold
2	Specifies whether this slave station is the end station or not.	OFF if this Slave station is the intermediate station.	ON if this Slave station is the end station.

※ End-resister setting

This product built in end-resister between the communication connector DA, DB. Turn the terminal SW No.2, this product setting is end-station. Without using end-station. Terminal station setting in using CC-Link exclusive high-performance cable : When the high-performance cable, exclusively for CC-Link (FANC SBH, etc. by KURAMO DENKO) is used for a communication cable, be sure to turn the terminal station setting (No.2) “OFF”, and connect a commercially available resistor or end resistor at cached to mast unit between the communication connectors DA, DB of this slave station. For the resistor lead part, insulation is always required.



ex.
Connecting resistor
between DA・DB

⚠ CAUTION

- If the setting is carried out with the power “ON”, the setting contents may not be recognized. Therefore, set the switch always with the slave station power “OFF”.
- The cover of the slave station unit for the solenoid valve system can easily be opened and closed. Keep the cover closed except when you have to change switch positions or reconnect wires. If you keep the cover open unnecessarily, or the cover may be broken by accidental contact. While the cover is open as you change switch positions or reconnect wires, be careful not to cause the entry of foreign matter.
- Set collect with end-resister, referring user’s manual of master unit. Wrong resister, or wiring lead to transmission-err.
- When connecting end-resister outside the unit, make insulate to percent (short) touching electric wires each other.
- If a terminal resistor is connected externally (on a terminal block), be sure to set this switch to OFF.
- Setting switch has been précis built. Disorderly handling may cause damage of switch. To set station number, never touch internal circuit printed board.

3. 2 Correspondence between slave station input/output No. and PLC address No.

1) PLC address correspondence table

This table shows the correspondence assuming that the serial transmission slave station is set at station No.1.

PLC Buffer memory address		160H																161H															
		RY 00	RY 01	RY 02	RY 03	RY 04	RY 05	RY 06	RY 07	RY 08	RY 09	RY 0A	RY 0B	RY 0C	RY 0D	RY 0E	RY 0F	RY 10	RY 11	RY 12	RY 13	RY 14	RY 15	RY 16	RY 17	RY 18	RY 19	RY 1A	RY 1B	RY 1C	RY 1D	RY 1E	RY 1F
Serial Transmission I/O No.		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Solenoid output No.	T7G1	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16																
	T7G2	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32

※For the T7G2 (32-point output), both allocated buffer memory address, 160 and 161, are shared.

2) Valve No. assignments corresponding to T7G※ solenoid output No. (Example)

※The numbers in valve No. 1a, 2a, 2b... indicate the station No.1 station No.2 and so on, while the alphabets (a) and (b) mean, respectively the solenoid on the side (a) and the solenoid on the side (b). The maximum number of stations on the manifold differs among the models. Refer to the specifications of the model you selected.

<Standard wiring>

● For single solenoid valve

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a	17a	18a	19a	20a	21a	22a	23a	24a	25a	26a	27a	28a	29a	30a	31a	32a

● For double solenoid valve

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

● For mixed installation of single and double solenoid valve stations

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	7a	7b	8a	9a	10a	10b	11a	11b	12a	13a	14a	14b	15a	15b	16a									

<Double wiring>

● For single solenoid valve

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	※1	2a	※1	3a	※1	4a	※1	5a	※1	6a	※1	7a	※1	8a	※1	9a	※1	10a	※1	11a	※1	12a	※1	13a	※1	14a	※1	15a	※1	16a	※1

● For double solenoid valve

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

● For mixed installation of single and double solenoid valve stations

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve No.	1a	※1	2a	※1	3a	3b	4a	4b	5a	※1	6a	※1	7a	7b	8a	※1	9a	※1	10a	※1	11a	11b	12a	12b	13a	※1	14a	※1	15a	15b	16a	※1

※1 : Not used

3. 3 Programming

This slave station unit is seen as a 16-point output unit···T7G1, 32-points output unit ···T7G2, constituting a remote I/O station. (The unit monopolizes the position of a single station.)

When creating programs, refer to the Mitsubishi User's Manual (CC-Link system master/local units).

This slave station provides the special functions, setting of the output status if an error occurs and setting of the end station. However, both settings do not relate to the program.

Additionally, this slave station also has a function that informs the fuse blow-up status of the valve power supply to the master station. By checking relevant bit of the following register (this bit No. may vary depending on the station No.), the fuse blow-up or ON/OFF status of the valve power supply can be understood.

Link special registers	Name	Contents																																																		
SW0088 (688H) . SW0089 (689H) . SW008A (68AH) . SW008B (68BH)	Fuse blow-up status of other station	<p>Fuse blow-up status of each station is stored.</p> <p>0 : Correct 1 : Fuse blow-up occurs</p> <table><tr><td></td><td>b15</td><td>b14</td><td>b13</td><td>b12</td><td>~</td><td>b3</td><td>b2</td><td>b1</td><td>b0</td></tr><tr><td>SW0088</td><td>16</td><td>15</td><td>14</td><td>13</td><td>~</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SW0089</td><td>32</td><td>31</td><td>30</td><td>29</td><td>~</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SW008A</td><td>48</td><td>47</td><td>46</td><td>45</td><td>~</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SW008B</td><td>64</td><td>63</td><td>62</td><td>61</td><td>~</td><td>52</td><td>51</td><td>50</td><td>49</td></tr></table> <p>1 to 64 in the table shows station No.</p>		b15	b14	b13	b12	~	b3	b2	b1	b0	SW0088	16	15	14	13	~	4	3	2	1	SW0089	32	31	30	29	~	20	19	18	17	SW008A	48	47	46	45	~	36	35	34	33	SW008B	64	63	62	61	~	52	51	50	49
	b15	b14	b13	b12	~	b3	b2	b1	b0																																											
SW0088	16	15	14	13	~	4	3	2	1																																											
SW0089	32	31	30	29	~	20	19	18	17																																											
SW008A	48	47	46	45	~	36	35	34	33																																											
SW008B	64	63	62	61	~	52	51	50	49																																											

※ When the master station is AJ61BT11 and A1SJ61BT1 models.

4. INSTALLATION

4. 1 Wiring

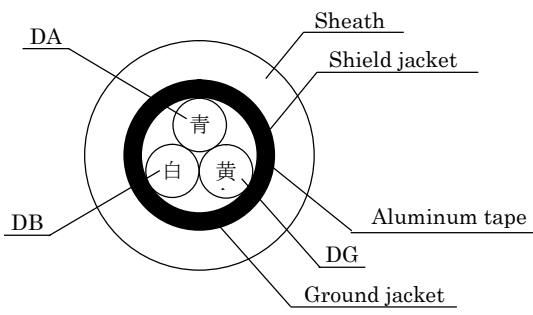
It is required to connect signal circuit with power line to make this model MN4E0-T7G※ function. Erroneous connection causes not only malfunction but in some case, vital transmission damage to this station including other related devices. Read and understand the content of each User's manual for Sequencer and CC-LINK system, product of Mitsubishi Denki CO., Ltd., as well as reading this manual to accomplish correct wiring.

CAUTION

- Pay special attention so that any tensile force or impact is not applied to the power cable and communication cable. Additionally, if the wiring distance is long, unexpected force due to own weight or shock may be applied, causing the unit to break. Therefore, to prevent such troubles, take appropriate measures, such as securing of the wires and cables to the machine.
- Touching the electrical wiring connection part (bare live part) may cause an electric shock. Before starting the wiring work, always shut-down the power completely. Additionally, do not touch any electrically live part by wet hand.

1) Specifications of (twist pair cable) communication line.

The table below illustrates the communication line recommended for use in the CC-Link system. The quality of data transfer in the CC-Link system is guaranteed only if you use the recommended cable. Note the name and specifications of the recommended cable in the table below.

Item	Specifications	
	Cable exclusively for CC-Link	High-performance cable exclusively for CC-Link
Name	FANC-SB	FANC-SBH
Manufacturer	Kuramo Denko Co., Ltd.	
Kind of cable	Twist pair cable with shield	
Conduit sectional area	0.5mm ²	
Conduit sectional (20°C)	37.8Ω / km or less	
Insulation resistance	10000MΩ · km or more	
Withstanding voltage	DC500V 1 minute	
Capacity of Static electricity (1kHz)	60nF / km or less	40nF / km or less
Impedance characteristic (1MHz)	100±15Ω	130±15Ω
Sectional view		
External dimension	7mm	8mm
Approximate weight	65kg/km	60kg/km

Note : A CC-Link special cable other than that described in the above table can be used. However, the transfer distance may vary depending on the type cable. To use such cable, refer to the User's Manual for CC-LINK or contact cable manufacturer.

2) Wiring of Signal Line (Conductor)

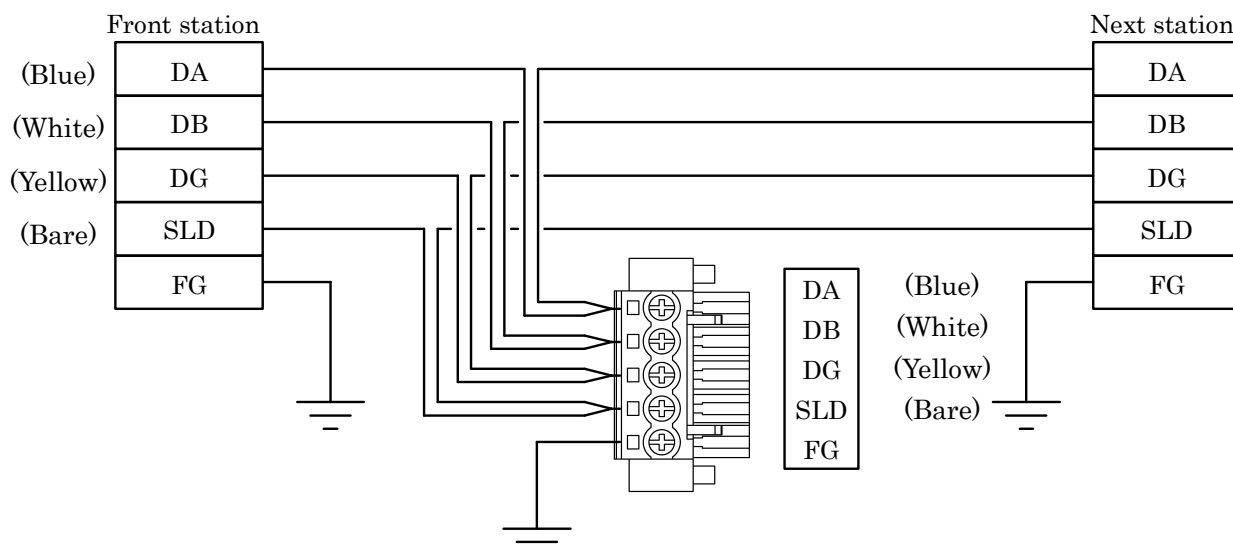
When connecting CC-Link cable to the slave station, follow the procedure described below :

- ① After checking for operational safety, turn the slave station power "OFF".
- ② Insert DA(blue), DB(white), DG(yellow) and SLD(bare) of CC-Link cable into each hole (DA, DB, DG & SLD) while noting the supplied connecting connector (BLZP5.08HC/05/180F SN OR BX) direction.(Refer to the figure below.)
- ③ Firmly tighten each cable, using the cable fixing screw of connecting connector.
(Adequate tightening torque : $0.5\text{N}\cdot\text{m}$).
- ④ After ensuring that the cable name and the name indicated on this product are the same, insert the connecting connector to the slave station, and tighten the connector fixing screw firmly to the tightening torque of $0.3\text{N}\cdot\text{m}$.

<Recommended Connector>

- Supplied Connector

BLZP5.08HC/05/180F SN OR BX (with connector fixing screw) Weidmüller



※This figure is wiring of multi-drop connection About, T-branch connection, refer with users manual attached with master unit.

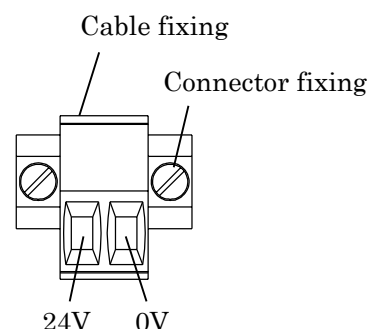
3) Power Line Wiring

When connecting the power cable to the slave station, follow the procedure described below.

- ① Turn off unit and valve power with make sure of safety.
- ② Insert power cable to each connector with confirmation of connector direction.
- ③ Clamp cables surely with cable clamp screw of connector. (0.25N·m)
- ④ Please note the installation position of the connector when the unit power supply and the valve power supply are different. Please tighten the screw for the connector fixation firmly after inserting the connector in this product. (0.25N·m)

<Recommended Connector>

- Supplied Connector
BL3.5/2F (No.160664) Weidmüller



CAUTION

- For the signal line, be sure to use the cable conforming to the DeviceNet specification.
- Run the communication cable far from the power cable and high-voltage cable.
- When inserting a cable into the connector, the cable may intrude into not the connector tightening side but the rear side; it is, therefore, necessary to keep the cable fixing screw satisfactorily loose.
- For the connector provided with a connector fixing screw, be sure to firmly tighten the connector fixing screw when inserting the connector. If it is only inserted, the connector will come off, thereby causing malfunctions. When no connector fixing screw is provided, ensure that the connector claw is engaged securely.
- Keep a sufficient bending radius of the communication cable and do not bend the communication cable forcibly.
- After checking the polarities and rated voltage carefully, perform the connections.
- Select a power cable after calculating the current consumption.
- When designing the system to supply power to duplex number of slave stations and remote I/O stations, choose and wire the source of power cord with a consideration of voltage drop.
- Secure ample voltage within rating by providing dual wiring, if necessary, to keep as small voltage loss of single system as possible or installing source of power near-by solenoid.
- To avoid any problems due to noise, observe the following when wiring:
 - ① If it is predicted that the noise may affect, provide a power source for every manifold solenoid valve wherever possible, and provide wiring individually.
 - ② Minimize the wiring distance whenever possible.
 - ③ Do not share a common power source with equipment such as an inverter or motor, etc. which can be a possible source of noise.
 - ④ Do not wire the power line and signal line in parallel with another power line.

5. MAINTENANCE

5. 1 Dismantling portion of Slave station for valve

- (1) Turn the slave station power and communication power OFF.
- (2) Exhaust remained pressure in manifold by cutting off the pressure supply.
- (3) Loosen the DIN rail fixing screw, and push down the connecting key using a pointed tool or the like.
- (4) Slide a slave station on the DIN rail keeping pushed down the connecting key, and make sure to valve piping port and wiring connector are out of joint.
- (5) Lift up the slave station from DIN rail and put out the power-supply connector, communication connector with make sure of power supply to station is cut.

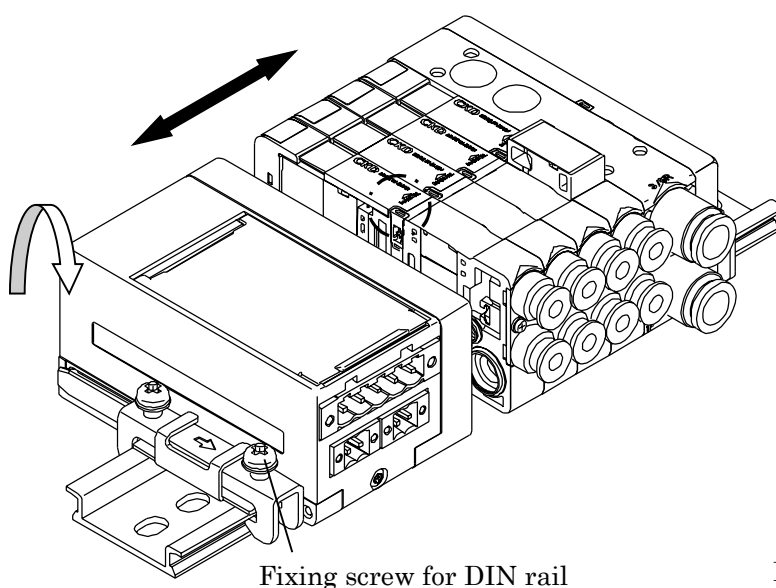
5. 2 Mounting portion of Slave station for valve

- (1) Set slave station No., transfer rate and output at abnormal communication.
- (2) Insert power-supply connector and communication connector to slave station and fix certainly with make sure the slave station power "OFF".
- (3) Put the slave station on DIN rail, and joint surely.
When jointing the slave station make sure the wiring connector joint surely and connecting key has returned up to the groove on the block top surface.
- (4) Slide the reitainer to piping port side and ensure that the end reitainer claw is hooked on both sides of DIN rail and tighten the fixing screw with a screwdriver.
The adequate tightening torque is $1.4\text{N}\cdot\text{m}$.
- (5) Ensure safety and supply air pressure and electric power source.

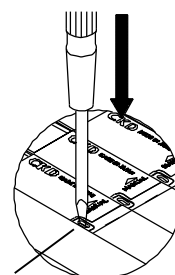


CAUTION

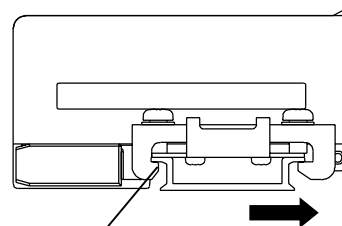
- Before turning the unit power ON, check the slave station address, transfer rate and output setting during abnormal communication.
- Touching the electrical wiring connection part (bare live part) may cause an electric shock.



Fixing screw for DIN rail



Inter lock key

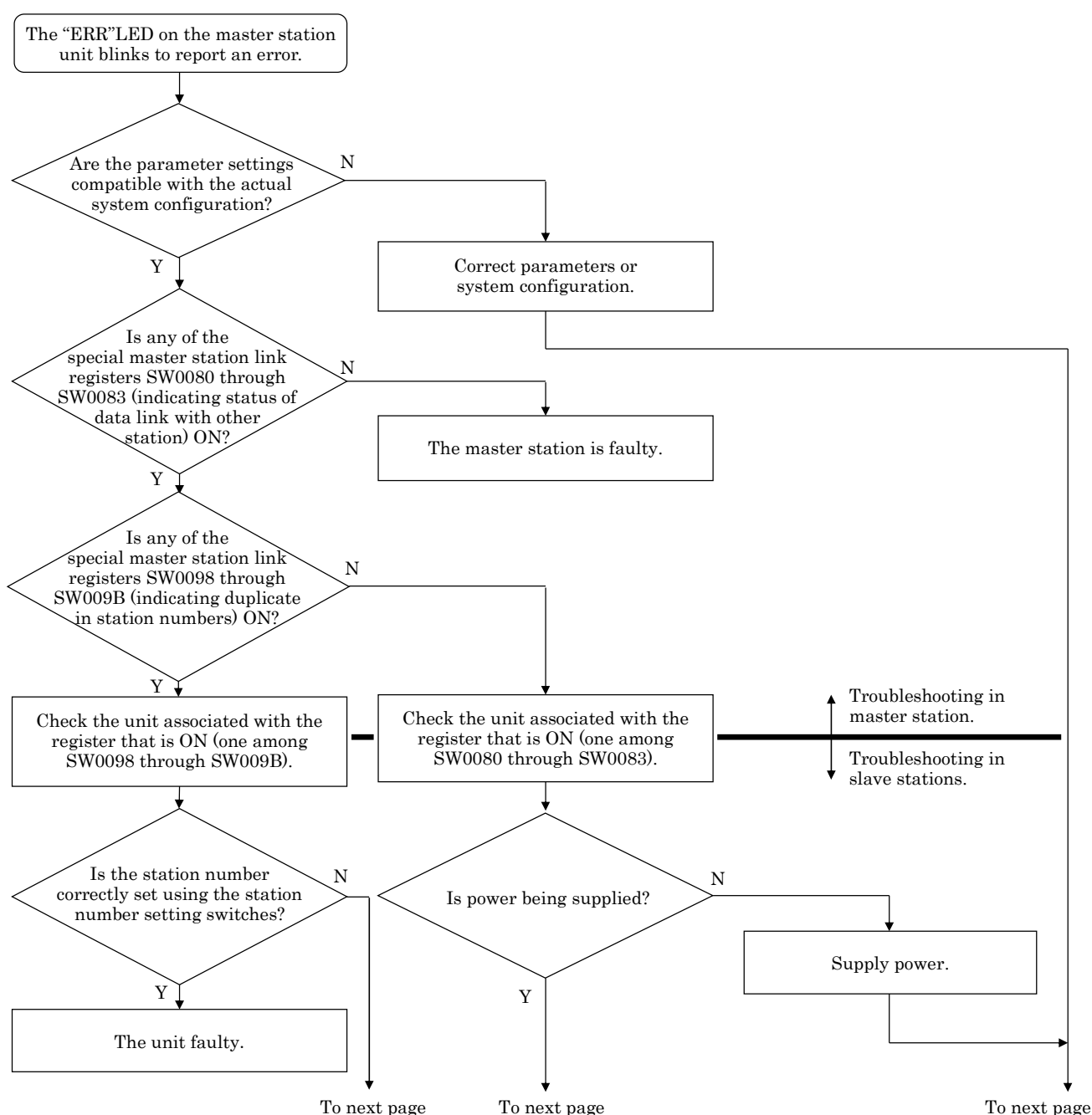


Retainer claw is hooked on DIN rail

5. 3 Troubleshooting

Troubleshooting should address the entire system rather than a particular slave station. This slave station unit has its LED indicators similar to those provided on a Mitsubishi remote I/O station. Looking at these indicators and the indicators on the master station unit, you can determine the cause and take corrective action. During such troubleshooting operations, refer to Chapter 13 “Troubleshooting” of the Mitsubishi User’s Manual (CC-Link system master/ local units).

Moreover, VALVE LED is a peculiar LED display to this product. If only this LED is off, check the voltage of the power supply to the valve power.



5
MAINTENANCE

