

Instruction Manual

Manifold

M4G Series

MN4G Series

Serial Transmission Type

N4G*R-T8D**

(4GR-OPP7-*D-*)

【Compatible with DeviceNet】

- Please read this instruction manual thoroughly before using the product.
- In particular, carefully read the contents related to safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

Safety precautions

When designing and manufacturing devices using CKD products, the manufacturer is obligated to ensure that the safety of the mechanism, pneumatic control circuit and/or fluid control circuit and the system that runs the electrical controls are secured.

It is important to select, use, handle and maintain CKD products appropriately to ensure their safe usage.

Observe warnings and precautions to ensure device safety. Check that device safety is ensured, and manufacture a safe device.



Warning

1. This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience.
2. Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product. This product is intended for use in general industrial machinery, equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments. (Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid dangers in the event of problems.)

Not intended for following applications:

 - (1) Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
 - (2) Use for applications where life or assets could be significantly affected, and special safety measures are required.
3. Observe organization standards and regulations, etc., related to the safety of the device design and control, etc.

ISO4414, JIS B 8370 (General rules for pneumatic systems)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.
4. Do not handle, pipe, or remove devices before confirming safety.
 - (1) Inspect and service the machine and devices after confirming safety of the entire system related to this product.
 - (2) Note that there may be hot or charged sections even after operation is stopped.
 - (3) When inspecting or servicing the device, turn OFF the energy source (air supply or fluid supply), and turn OFF power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
 - (4) When starting or restarting a machine or device that incorporates pneumatic components, make sure to secure system safety, such as pop-out prevention measures.
5. Observe the warnings and cautions on the following pages to prevent accidents.

■ Precautions are ranked as “DANGER”, “WARNING”, and “CAUTION” in this section.



DANGER:

In the case where the product operation is mishandled and/or when the urgency of a dangerous situation is high, it may lead to fatalities or serious injuries.



WARNING:

A dangerous situation may occur if handling is mistaken, leading to fatal or serious injuries.



CAUTION:

A dangerous situation may occur if handling is mistaken, leading to minor injuries or property damage.

Note that some items indicated with “CAUTION” may lead to serious results depending on the conditions.

All items contain important information and must be observed.

Limited warranty and disclaimer

- **Warranty period**

This warranty is valid for one (1) year after delivery to the customer’s designated site.

- **Scope of warranty**

In case any defect clearly attributable to CKD is found during the warranty period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part and at no cost, according to its own judgment.

Note that the following failures are excluded from the warranty scope:

- (1) Failures due to use outside the conditions and environments set forth in the catalog or these specifications.
- (2) Failures resulting from factors other than this product
- (3) Failures caused by improper use of the product.
- (4) Failures resulting from modifications or repairs made without CKD consent.
- (5) Failures caused by matters that could not be predicted with the technologies in practice when the product was delivered.
- (6) Failures resulting from natural disasters or accidents for which CKD is not liable.

The warranty covers the actual delivered product, as a single unit, and does not cover any damages resulting from losses induced by malfunctions in the delivered product.

- **Compatibility check**

The customer is responsible for confirming the compatibility of CKD products with the customer’s systems, machines and equipment.



WARNING:

- If the product must be used under conditions that are different from the specified conditions or if the product is to be used for a special application, consult CKD before utilizing the product.
- Before performing maintenance, turn off the power, cut off the compressed air supply, and make sure there is no residual pressure.
- Before increasing or decreasing the number of stations (valves) on the manifold, turn off the power and release pressure.
- Before disassembling or assembling the manifold, read this instruction manual carefully with full understanding of its content.
- Before performing electrical wiring, read this instruction manual carefully with full understanding of its content.



CAUTION:

- Regularly perform daily and periodic inspections to correctly maintain product performance.
- Confirm the working voltage and polarity before wiring and turning the power ON.
- Do not touch the electrical wiring connections (exposed live parts); as there is a risk of electric shock. During wiring, keep the power OFF. Also, do not touch these live parts with wet hands.
- Before using the serial transmission slave unit, read the manual for the applicable communication system carefully with full understanding of its content.
- System components such as valves and cylinders could malfunction if the serial transmission slave unit address setting is incorrect. Always check the address setting before starting use.
- This product does not meet the surge immunity requirements specified in EN61000-4-5 for CE marking. Please provide appropriate protective measures on the device side.
- The valve status lamp may flicker momentarily when the valve power of the slave unit turns ON (i.e., when the power voltage starts to rise). This will not cause the valve itself to turn ON or OFF.

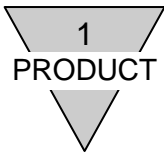
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1. PRODUCT

1.1 General outline of the system

1) N4G*R-T8D**

The N4G*R-T8D** is a slave unit for 4G series which can establish connection to the DeviceNet open field network system managed by Open DeviceNet Vendor Association, Inc. (or ODVA).

The N4G*R-T8D** slave unit has the following features:

- (1) It is connected to the PLC with only a DeviceNet cable, allowing a significant reduction of man-hours in wiring.
- (2) It has separate power supplies for the network and the valve, ensuring ease of maintenance.
- (3) When a communication error occurs, the slave unit output state can be set either hold or clear, ON or OFF with a HC switch. With software setting mode, Explicit Message allows operation being set for every one point at a communication error.
- (4) The slave unit is mounted by inserting it into a slot on the manifold block and secured with just one screw, allowing reduction of man-hours in maintenance.
- (5) The slave unit is available in +COM or -COM output types and 16 or 32 output points, allowing for use in a wide variety of applications.

2) DeviceNet

DeviceNet is a multi-bit, multi-vendor network that combines controls and data on a machine/line-control level.

It is maintained and managed by ODVA (Open DeviceNet Vendor Association, Inc).

Note: Before using this slave unit, thoroughly read all relevant users' manuals.

This instruction manual mainly describes N4G*R-T8D**.

For information on the master unit and slave units to be connected to the system, read the manuals provided by their manufacturers.

For information on the manifold solenoid valves, read this instruction manual as well as the manuals provided with the solenoid valves to fully understand their functions and performance for their proper operation.

If you have any questions concerning the DeviceNet system, refer to the following website run by ODVA:

ODVA (Open DeviceNet Vendor Association, Inc)

Website: <http://www.odva.org>.

1.2 Network structure

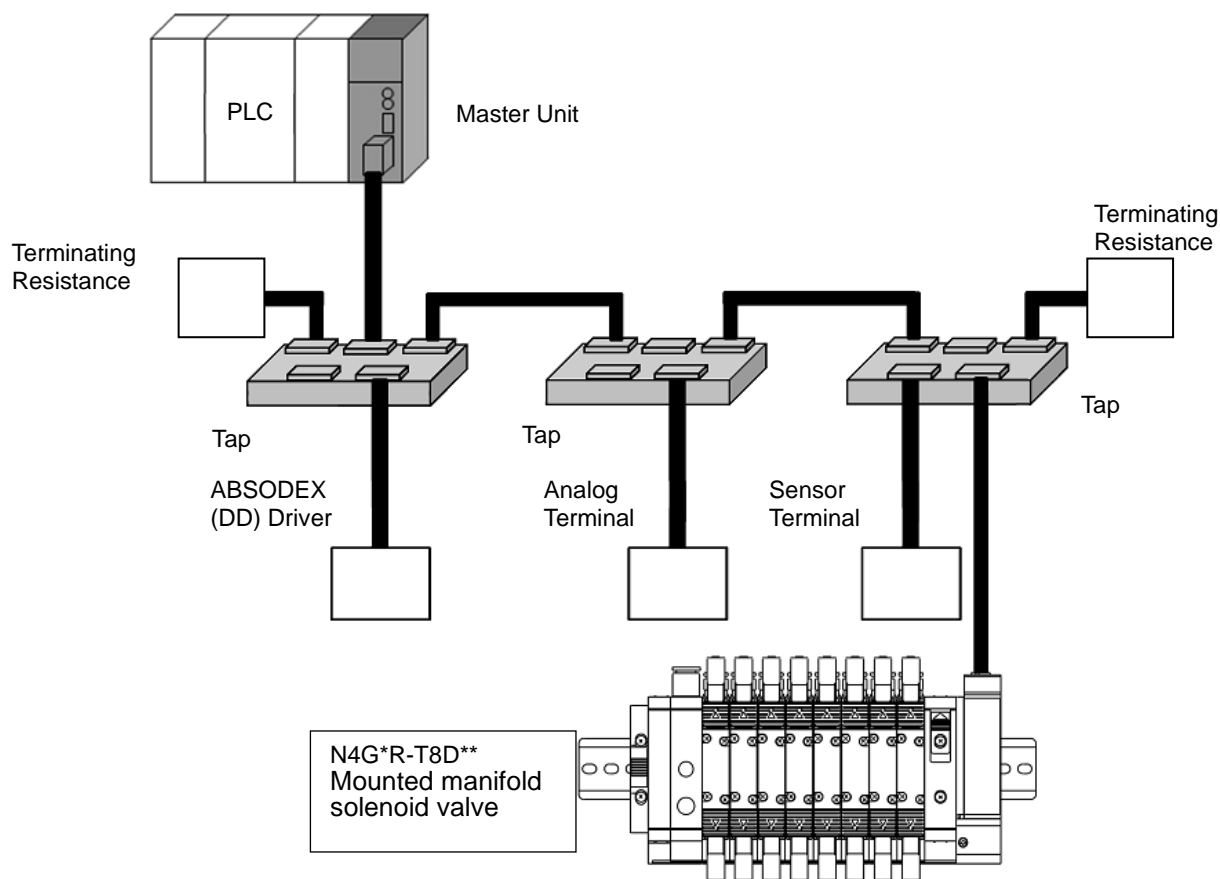
DeviceNet system chiefly consists of PLC, master unit, N4G*R-T8D*** mounted manifold solenoid valve, and peripheral equipment.

1) PLC and master unit combination examples

PLC Manufacturer	Compatible PLC	Master unit model
OMRON Corporation	NJ Series	CJ1W-DRM21
	CJ Series	
	CS1 Series	CS1W-DRM21
Rockwell Automation Inc.	1756-L75	1756-DNB
Other DeviceNet compatible master units		

2) Fundamental structure of the system

DeviceNet System



Master unit... This device requests to open connection and controls slave units (devices)

Tap This device is used for branching point (connection)



1.3 Specifications

1) Communication specifications

Item	Specifications			
Communication protocol	DeviceNet compliant			
Baud rate	125kbps /250kbps /500kbps /automatic setting			
Transmission media (Network cable)	Special 5-wire cable for DeviceNet (2 signal lines, 2 power lines, 1 shielded line)			
Communication distances	Baud rate	Network length	Branch line length	Total branch line length
	125kbps	500m max.*1	6m max.	156m max.
	250kbps	250m max.*1	6m max.	78m max.
	500kbps	100m max.*1	6m max.	39m max.
Communication power supply	11.0 VDC to 25.0 VDC			
Error control	CRC error check			

Note (1*): These are for thick cables. Keep the maximum length to 100m or less when using thin cables.



CAUTION:

- Baud rate must correspond to the connecting DeviceNet unit. If they do not correspond, communication will become unstable and a link may not be established correctly.
- Upon selecting the network cable, consider the ambient conditions such as noise and temperature.

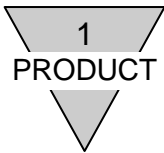
2) N4G*R-T8D*** specifications

Always operate this slave unit within its product specifications.

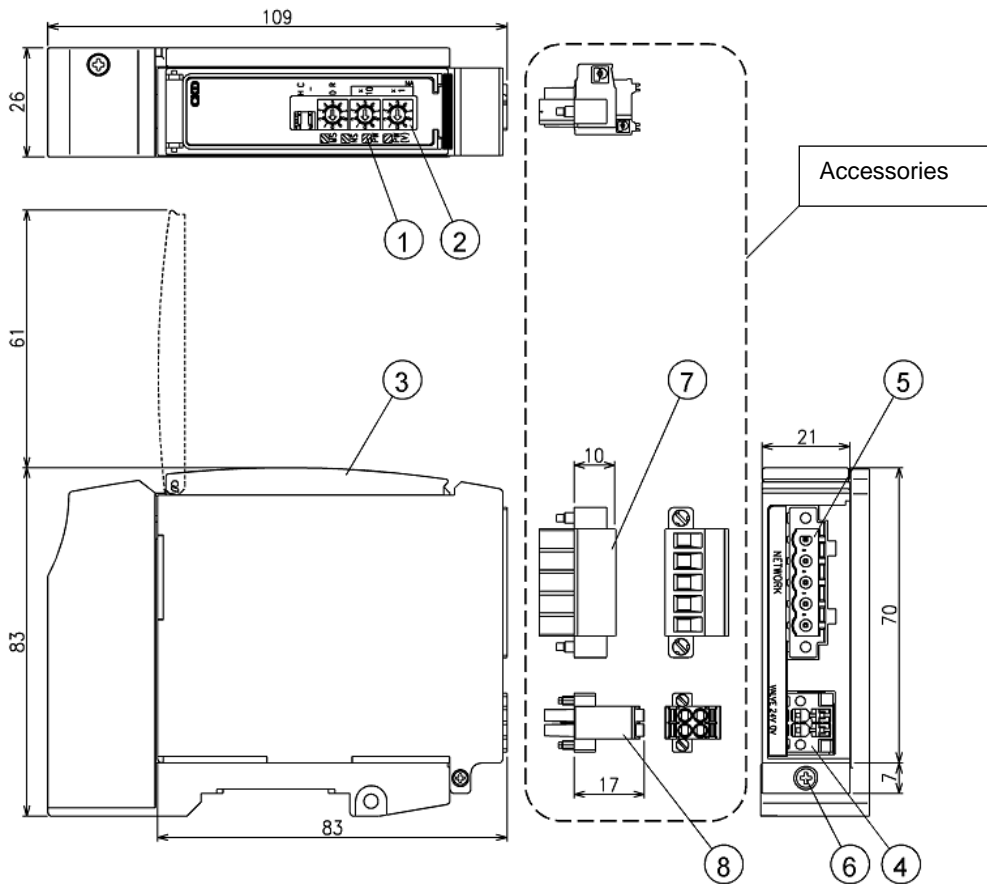
Item	Specifications			
Model No.	N4G*R-T8D1	N4G*R-T8D2	N4G*R-T8DP1	N4G*R-T8DP2
Communication power supply voltage	11.0 VDC to 25.0 VDC			
Communication power supply current consumption	70mA or less (at 24.0 VDC with all points ON)			
Valve power supply voltage	22.8 VDC to 26.4 VDC (24VDC +10%, -5%)			
Valve power current consumption	10mA or less (with all points OFF) 15mA or less (with all points ON and without load)			
Output type	+COM (NPN)		-COM (PNP)	
Number of output points	16	32	16	32
Nord address setting	Switch (hardware) setting / software setting			
Output setting when communication error occurs *1	Hold (maintains final output of all points) / Clear (clears outputs of all points) *2			
Insulation resistance	30 MΩ or more with 500 VDC between external terminals and case			
Withstand voltage	500 VAC for 1 minute between external terminals and case			
Noise immunity	1000 Vp-p Pulse duration: 1 μs			
Shock resistance	294.0m/s ² in 3 directions, 3 times each			
Storage temperature	-20°C to 70°C			
Storage humidity	30 to 85%RH (no dew condensation)			
Ambient temperature	-5 to 55°C			
Ambient humidity	30 to 85%RH (no dew condensation)			
Ambient atmosphere	No corrosive gas			
Communication protocol	DeviceNet compliant			
Baud rate	125kbps /250kbps /500kbps /automatic setting /software setting			
Output isolation type	Photocoupler isolation			
Max. load current	40mA per output point			
Leakage current	0.1mA or less			
Residual voltage	0.5V or less			
Fuse rating	Communication power supply: 24V, 1A / Valve power 24V, 3A (both fuses are not replaceable)			
Status indicator	LED (communication status, communication power supply and valve power statuses*2)			
Number of occupied stations	1 station			
Degree of protection	IP20			
Vibration proof	Durability	10Hz to 150Hz to 10Hz, 1 octave/min, 15 sweeps each in X, Y, Z directions at half-amplitude of 0.75 mm or acceleration of 98.0 m/s ² , whichever is smaller		
	Malfunction	10Hz to 150Hz to 10Hz, 1 octave/min, 4 sweeps each in X, Y, Z directions at half-amplitude of 0.5 mm or acceleration of 68.6 m/s ² , whichever is smaller		

*1. In software setting mode, output setting can be made for each output point.

*2. Power status can be monitored only when the voltage within the specified range is supplied to communication power supply.



1.4 Parts of slave unit



- ① **Status monitoring light**
Indicates slave unit status and network status by LEDs.
 - ② **Switches**
Sets the output at a communication error, the slave unit nord address, and baud rate.
 - ③ **Cover**
Protects the status monitoring lights and the switches.
 - ④ **Socket for powering the unit/ valve**
Connects the plug for powering the unit/ valve (included in the unit).
 - ⑤ **Network connector socket**
Connects the network connector plug (included in the unit).
 - ⑥ **Mounting screw (M2.5 tapping screw)**
Secures the slave unit to the connecting block.
- [Accessories]
- ⑦ **Network connector plug (included in the unit)**
Connects network cable (special for DeviceNet).
 - ⑧ **Plug for powering the unit/valve (included in the unit)**
Connects power cable to the unit/valve (24 VDC).

1.5 Switches and LED indicators

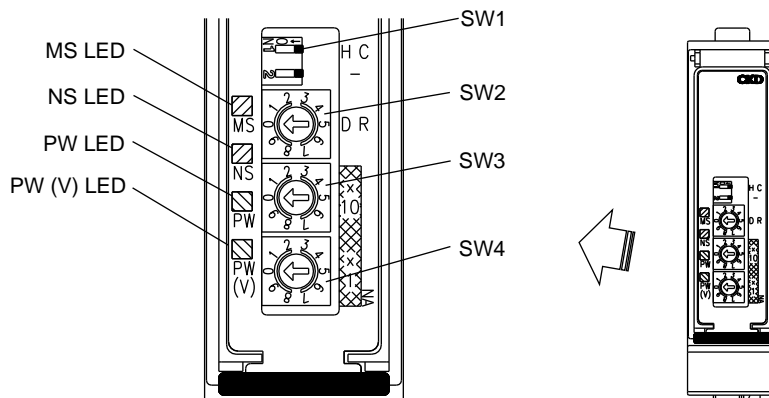
CAUTION: • Discharge static electricity that has built up on your body before touching the slave unit. Otherwise, static electricity can cause damage to the slave unit.

1) Switches

The switches are used to set the output mode at a communication error, the slave unit nord address, and the baud rate. The slave unit functions according to the output mode at a communication error, and the nord address at power-up.

Marking	Name of Switch	Purpose
SW1 – No.1	HC [Output mode setting]	Use to specify whether to hold (H) or clear (C) the output status at a communication error.
SW2	DR [Baud rate setting]	Use to specify the baud rate to the master unit.
SW3, SW4	NA x10, x1 [Node address setting]	Use to set the NA part of the nord address to a value between 0 and 63. Tens place digit is set with the SW3 (X 10) switch and ones place digit is set with the SW4 (X 1) switch.

Note: The SW1-No.2 switch is not used.



2) LED Indicators for module status (MS) and network status (NS)

These LEDs indicate slave unit status and network status. See table below for their descriptions.

MS LED	NS LED	Status		Comments
ON (green)	ON (green)	I/O communications in progress	I/O data is being communicated between master and slave unit.	Operating normally.
ON (green)	OFF	Node address duplication checking	Waiting for node address duplication checking at master to be completed.	In case the certain slave unit is in this condition, restart the slave unit after checking if the baud rate is the same as master unit.
ON (green)	Flashing (green)	Connection waiting	Waiting for connection establishment from the master.	
ON (red)	OFF	Watchdog timer error	Watchdog timer error occurred in the slave unit.	Replace the slave unit.
Flashing (red)	ON (green)	Switch setting change during I/O communications	Rotary and DIP switch setting during I/O communications had been changed.	Switch setting had been changed during I/O communications. Put back the switch to the former position or update the slave unit setting by restarting. MS LED will then become green from red flashing.
Flashing (red)	OFF	Improper switch setting	Rotary switch setting is not correct.	Restart the slave unit after checking the switch setting.
ON (green)	ON (red)	Duplicate nord address	Nord address is duplicated.	After re-setting the node address to avoid duplicate, restart the slave unit.
ON (green)	ON (red)	Busoff error	Busoff (communications stop status by multiple data error) error occurred.	Check the following and restart the slave unit. - Same baud rates for master and slave unit. - Proper cable lengths (trunk and branch lines) - Broken or loose cables - Both ends only terminating resistors at the trunk line - Excessive noise
ON (green)	Flashing (red)	Communication time out		
OFF	OFF	No communication power supply		After checking both nord address and baud rate are set properly, supply the communication power supply.

3) Power LED (PW) Indicators

Valve LED PW(V)	Purpose
ON (green)	Communication power supply is ON.
OFF	Communication power supply is OFF.

4) Valve LED (PW(V)) Indicators

Valve LED PW(V)	Purpose
ON (green)	Valve power supply is ON.
OFF	Valve power supply is OFF.

2. PRECAUTIONS

- To correspond to the requirements of the relevant EC Directive, use AC/DC adapter (e.g., switching power supplies) complying with EMC standards for the valve and communication power supplies.
- Before turning the power ON or OFF, ensure the safety of the surroundings as the components in the system, including the valve (cylinder), may move unexpectedly.
- Refer to the user's manual provided with the master unit concerning the communication delay time.
The transmission delay within the entire system depends on the scan time achieved by the PLC and on other devices included in the system.
- Solenoid valve response time varies by the model. Refer to the valve specification for the delay in response time.
- The time it takes for the solenoid valve to turn OFF is delayed by approximately 20 msec since there is a surge absorbing circuit incorporated in the slave unit.
- Make sure the power cables and network cables are connected according to the specifications to avoid any incorrect wiring.
- Do not subject the power cables and network cables to tension and impact.
- Before turning the power ON, make sure that all cables and connectors are connected firmly.
- Never attempt to disassemble, modify, and/or repair the slave unit. Doing so may result in failure or malfunction of the slave unit.
- Do not drop, apply unusual vibration or impact the unit as the inside of the slave unit is a precision construction.
- Do not connect or disconnect any connectors while the power is being supplied. Doing so may result in failure or malfunction.
- Mold and rust can develop on the product if it is exposed to high humidity during transportation. Include moisture absorbers and tightly seal the package.
- Install the slave unit at least 200 mm away from high-voltage cables and power lines, or lay the high-voltage cables and power lines in grounded metal tubings.

3
OPERATION

3. OPERATION

3.1 Switch settings



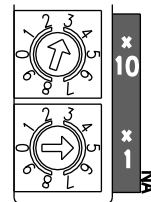
CAUTION:

- Discharge static electricity that has built up on your body before touching the slave unit. Otherwise, static electricity can cause damage to the slave unit.
- The slave unit will not identify the setting if the power is supplied. Make sure the power of communication is turned OFF upon setting as they are read into the unit only at power-up.
- The cover on the slave unit is an easy-to-open one that requires only one finger to flip it open. Keep the cover closed at all times except when setting the switches. Otherwise, foreign matter may enter into the internal circuit and cause unexpected failure, or the cover itself may get damaged. Be extremely careful not to allow any foreign matter to enter the slave unit when setting the switches.
- Be sure not to touch the internal circuit board when setting the switches as they are precisely built and can be damaged if mishandled.

1) Node address setting (hardware setting mode: enable when DR switch is set 0, 1, 2, or 4)

Note: With the software setting mode (DR switch is set 5), the value of node address switch is disabled.

Name of switch	NA [node address] x10: Sets tens place digit of the address x1: Sets ones place digit of the address
Setting range	0 to 63 (in decimal)



Node address is read into memory at power-up.
Duplicate node address cannot be assigned.

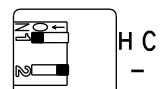
[Example] Node address: 35

2) Output mode setting (hardware setting mode: enable when DR switch is set 0, 1, 2, or 4)

Set output data at a communication error.

Note: With the software setting mode (DR switch is set 5), the value of output mode setting switch is disabled.

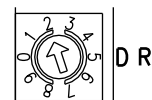
Name of switch	Purpose
HC (Output mode setting)	Ssts the output status at a communication error (such as bus line error or timeout). OFF: Clear mode ON (being slid in the direction of the arrow): Hold mode



3) Baud rate setting

Set baud rate. With the DR switch setting to 5, software setting mode is toggleable.

Name of switch	DR switch setting	Baud rate
DR (Setting baud rate)	0	125kbps
	1	250kbps
	2	500kbps
	3	unable
	4	Auto setting
	5	Software setting mode
	6 to 9	unable



[Example] Baud rate: 250kbps

Note: With the DR switch setting to 5 (software setting mode), both output mode setting HC (SW1) and node address setting NA (SW3, SW4) are disabled.

3.2 Settings by Explicit Message

Using the Explicit Message enables the items of setting below with this slave unit.

- 1) MAC ID (node address): Possible with the software setting mode only (DR switch is set 5)

Set node address. After sending message, the slave unit is reset and the node address is applied. (NA switch setting is ignored)

Class	Instance	Attribute	Value
0x03 (DeviceNet)	0x01	0x01	0 to 63

- 2) Quick Connect

Class	Instance	Attribute	Value
0x03 (DeviceNet)	0x01	0x10	0 : disable 1 : enable

Note: Check if the node address is not duplicated in the same network before the setting.

- 3) Fault Action: Possible with the software setting mode only (DR switch is set 5)

Set whether output the Fault Value or hold the last output status when error occurs.

Class	Instance	Attribute	Value
0x09 (Discrete Output Point)	0x01 to 0x20	0x05	0 : Fault Value set value 1 : hold output

- 4) Fault Value: Possible with the software setting mode only (DR switch is set 5)

Set output status when communications error occurs.

Class	Instance	Attribute	Value
0x09 (Discrete Output Point)	0x01 to 0x20	0x06	0 : output OFF 1 : output ON

3.3 Correspondence between the slave unit output No. and PLC memory address No.

1) PLC memory address correspondence tables

The tables below describe the correspondence using PLC manufactured by OMRON Corporation as a typical example.

◆N4G*R-T8D*1 (16-point output specification)

PLC allocated memory address	Output Bit 00-15															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Slave unit output No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16

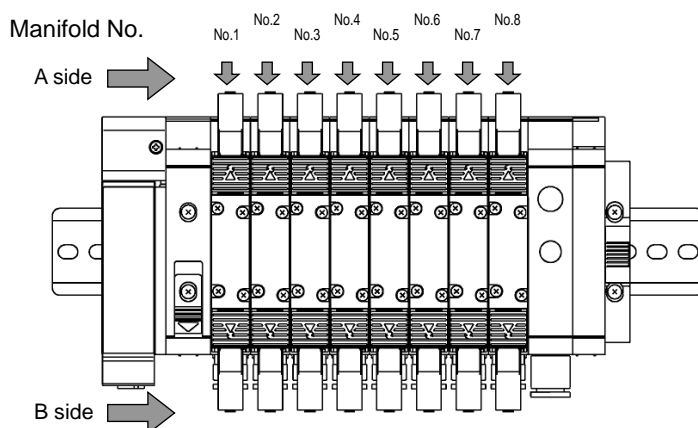
◆N4G*R-T8D*2 (32-point output specification)

PLC allocated memory address	Output Bit 00-15																Output Bit 16-31															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Slave unit output 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.	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

2) Examples of Valve No. assignments corresponding to the slave unit T8D* solenoid output No

The valve No. 1a, 1b, 2a, 2b, ... indicate the station numbers such as station No.1, station No.2, and so on; while the alphabets 'a' and 'b' mean, respectively, the solenoid on the a-side and the solenoid on the b-side of the "double-solenoid type" valve. Manifold is numbered from left side facing toward piping port. The appearance and the maximum number of stations will vary depending on the valve model.

◆N4G*R-T8D*1 (16-point output specification)



Note: The figure is an example of double-solenoid type valves mounting 8 stations on the manifold. There is no solenoid on the b-side for single-solenoid type.

[Standard wiring]

- When all valves mounted on the manifold are single solenoids:

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a

- When all valves mounted on the manifold are double solenoids:

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b

- When both single and double solenoids valves are mounted on the manifold (an example is shown above):

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	7a	7b	8a	9a	10a	10b	11a	11b

[Double wiring] (Note: "B" indicates a blank station)

- When all valves mounted on the manifold are single solenoids:

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	B	2a	B	3a	B	4a	B	5a	B	6a	B	7a	B	8a	B

- When all valves mounted on the manifold are double solenoids:

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b

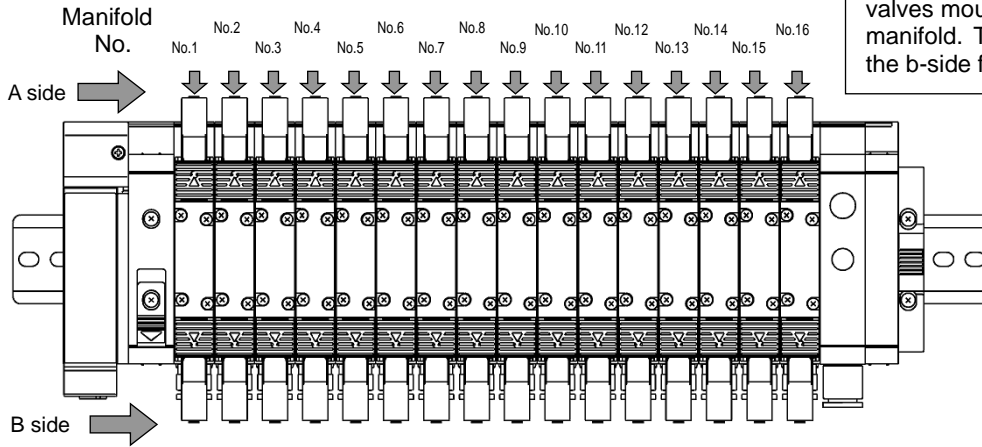
- When both single and double solenoids valves are mounted on the manifold (an example is shown above):

Solenoid output No.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
Valve No.	1a	B	2a	B	3a	3b	4a	4b	5a	B	6a	B	7a	7b	8a	B

3 OPERATION

◆N4G*R-T8D*2 (32-point output specification)

Note: The figure below is an example of double-solenoid type valves mounting 16 stations on the manifold. There is no solenoid on the b-side for single-solenoid type.



[Standard wiring]

- When all valves mounted on the manifold are single-solenoid types:

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

- When all valves mounted on the manifold are double-solenoid types:

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

- When both single and double solenoids valves are mounted on the manifold (an example is shown above):

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] (Note: "B" indicates a blank station)

- When all valves mounted on the manifold are single-solenoid types:

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	B	2a	B	3a	B	4a	B	5a	B	6a	B	7a	B	8a	B	9a	B	10a	B	11a	B	12a	B	13a	B	14a	B	15a	B	16a	B

- When all valves mounted on the manifold are double-solenoid types:

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

- When both single and double solenoids valves are mounted on the manifold (an example is shown above):

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	B	2a	B	3a	3b	4a	4b	5a	B	6a	B	7a	7b	8a	B	9a	B	10a	B	11a	11b	12a	12b	13a	B	14a	B	15a	15b	16a	B

3.4 Programming

This slave unit is treated as a slave unit device with 16 output points: T8D*1 and 32 output points: T8D*2. There are 2 types of I/O data: output data transmitted from a master unit to a slave unit (with 16 output points: T8D*1 and 32 output points: T8D*2) and input data transmitted from a slave unit device to a master unit.

This slave unit acts as an output device which transmits output data to valves after receiving it from the master unit. Regardless of the model, the input data is transmitted to the master unit as 2 bytes of reserved data.

When programming, refer to the PLC manufacturer's manual, and to the tables shown below for I/O mapping. The characteristics of this slave unit such as output status setting when error occurs, and the +COM/-COM output specifications, have no relevance to the programming.

Output data mapping

I/O Points		Output data	Bit															
T8D*2	T8D*1		<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>
32	16	2bytes	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
	—	4bytes	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Input data mapping

Input data	Bit															
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>
2bytes	Reserved data															

Use the I/O Assembly instance for the DeviceNet connection configuration. And refer to the Instance in the table below for the connection setting of this slave unit as pneumatic valves generally use this instance.

I/O Assembly instance

Item		Specifications			
Model		T8D1	T8D 2	T8DP1	T8DP2
Slave unit		OPP7-1D	OPP7-2D	OPP7-1D-P	OPP7-2D-P
Output data	Instance	35 (Dec)	37 (Dec)	35 (Dec)	37 (Dec)
	Size	2 (bytes)	4 (bytes)	2 (bytes)	4 (bytes)

3.5 Device profile and object implementation

1) Device profile

General device data	Compatible with DeviceNet Specifications	Volume One – Edition 3.21 Volume Three – Edition 1.14
	Vendor name(ID)	CKD Corporation (ID=0xC9)
	Device/product type	Pneumatic Valve(s)
	Manual No.	SM-P00121-A
Physical conformance data	Communication power supply current consumption	70mA or less at 24.0 VDC
	Connector style	Open plug
	Insulation at physical layer	No
	Supported indicators	Module, Network
	MAC ID setting	Rotary switch
	Default MAC ID	1
	Baud rate setting	Rotary switch
Communication data	Supported baud rate	125kbps /250kbps /500kbps
	Predefined Master/Slave connection set	Group 2 Only Server
	Dynamic connections support (UCMM)	No
	Explicit Message fragmentation support	Yes

2) Object implementation

● Identity Object (0x01)

Object class	Attributes	Not supported
	Services	Not supported

	Attributes		ID content	Explicit Message transmission		Value			
	Dec	Hex		Get	Set	T8D1	T8D2	T8DP1	T8DP2
Object instance 1 (0x01)	1	0x01	Vender ID	Yes	No	201(0xC9)			
	2	0x02	Device Type	Yes	No	27(0x1B) Pneumatic Valve(s)			
	3	0x03	Product Code	Yes	No	70	71	73	74
	4	0x04	Revision	Yes	No	20.04	20.04	20.04	20.04
	5	0x05	Status	Yes	No	bit 0 only	bit 0 only	bit 0 only	bit 0 only
	6	0x06	Serial Number	Yes	No	Unique for each Unit	Unique for each Unit	Unique for each Unit	Unique for each Unit
	7	0x07	Product Name	Yes	No	OPP7-1D	OPP7-2D	OPP7-1D-P	OPP7-2D-P
Services	DeviceNet Services		Parameter options						
	0x05	Reset	No						
	0x0E	Get_Attribute_Single	Yes						

● Message Router Object (0x02)

Object class	Attributes	Not supported
	Services	Not supported
Object instance	Attributes	Not supported
	Services	Not supported
Vendor specific additions		No

• DeviceNet Object (0x03)

Object class	Attributes		ID content	Explicit Message transmission		Value
	Dec	Hex		Get	Set	
	1	0x01	Revision	Yes	No	2
Services	DeviceNet Services		Parameter options			
	0x0E	Get_Attribute_Single	Yes			

Object instance 1 (0x01)	Attributes		ID content	Explicit Message transmission	
	Dec	Hex		Get	Set
	1	0x01	MAC ID	Yes	Yes**
	2	0x02	Baud rate	Yes	Yes**
	3	0x03	BOI	No	No
	4	0x04	Bus-off Counter	Yes	No
	5	0x05	Allocation information	Yes	No
	9	0x09	Switch Change or Switch Value	Yes	No
10	0x0A	Quick Connected	Yes	Yes	
Services	DeviceNet Services		Parameter option		
	0x0E	Get_Attribute_Single	Yes		
	0x10	Set_Attribute_Single	Yes		

** "Set" is possible only at software setting mode.

• Assembly Object (0x04)

Object class	Attributes		ID content	Explicit Message transmission		Value
	Dec	Hex		Get	Set	
	1	0x01	Revision	Yes	No	2
Services	DeviceNet Services		Parameter options			
	0x0E	Get_Attribute_Single	Yes			
	0x10	Set_Attribute_Single	Yes			

Object instance	Attributes		ID content	Explicit Message transmission			
	Dec	Hex		T8D1/T8DP1		T8D2/T8DP2	
			Get	Set	Get	Set	
35 (0x23)	3	0x03	Data	Yes	Yes	-	-
37 (0x25)	3	0x03	Data	-	-	Yes	Yes
Services	DeviceNet Services		Parameter options				
	0x0E	Get_Attribute_Single	Yes				
	0x10	Set_Attribute_Single	Yes				

3
OPERATION

• Connection Object (0x05)

Object class	Attributes	Not supported
	Services	Not supported

	Attributes		ID content	Explicit Message transmission		Value
	Decimal (Dec)	Hexadecimal (Hex)		Get	Set	
Object instance 1 (0x01) Explicit			-			
	1	0x01	State	Yes	No	
	2	0x02	Instance Type	Yes	No	0x00
	3	0x03	Transport class trigger	Yes	No	0x83
	4	0x04	Produced connection ID	Yes	No	
	5	0x05	Consumed connection ID	Yes	No	
	6	0x06	Initial comm characteristics	Yes	No	0x21
	7	0x07	Produced connection size	Yes	No	0x1200
	8	0x08	Consumed connection size	Yes	No	0x1200
	9	0x09	Expected packed rate	Yes	Yes	
	12	0x0C	Watchdog time-out action	Yes	No	1
	13	0x0D	Produced connection path length	Yes	No	0
	15	0x0F	Consumed connection path length	Yes	No	
	17	0x11	Production inhibit time	Yes	No	0
18	0x12	Connection_timeout_multiplier	Yes	No	0	
Services	DeviceNet Services		Parameter options			
	0x0E	Get_Attribute_Single	Yes			
	0x10	Set_Attribute_Single	Yes			

	Attributes		ID content	Explicit Message transmission		Value				
	Dec	Hex	-	Get	Set	T8D1	T8D2	T8DP1	T8DP2	
Object instance 2 (0x02) Poll	1	0x01	State	Yes	No					
	2	0x02	Instance Type	Yes	No	0x01	0x01	0x01	0x01	
	3	0x03	Transport class trigger	Yes	No	0x82	0x82	0x82	0x82	
	4	0x04	Produced connection ID	Yes	No					
	5	0x05	Consumed connection ID	Yes	No					
	6	0x06	Initial comm characteristics	Yes	No	0x01	0x01	0x01	0x01	
	7	0x07	Produced connection size	Yes	No	0x0000	0x0000	0x0000	0x0000	
	8	0x08	Consumed connection size	Yes	No	0x0200	0x0400	0x0200	0x0400	
	9	0x09	Expected packed rate	Yes	No					
	12	0x0C	Watchdog time-out action	Yes	No					
	13	0x0D	Produced connection path length	Yes	No	0	0	0	0	
	15	0x0F	Consumed connection path length	Yes	No	6	6	6	6	
	16	0x10	Consumed connection path	Yes		20_04_24_23_30_03 (Hex)	20_04_24_25_30_03 (Hex)	20_04_24_23_30_03 (Hex)	20_04_24_25_30_03 (Hex)	
	17	0x11	Production inhibit time	Yes	No	0	0	0	0	
	Service			DeviceNet Services	Parameter options					
		0x0E	Get_Attribute_Single		Yes					
		0x10	Set_Attribute_Single		No					

●Discrete Output Point Object (0x09)

Object class	Attributes	Not supported
	Services	Not supported

Object instance 1 (0x01) to 32 (0x20)	Attributes		ID content	Explicit Message transmission		Value
	Dec	Hex	-	Get	Set	
	3	0x03	Value	Yes	Yes	
	5	0x05	Fault Action	Yes	Yes**	
	6	0x06	Fault Value	Yes	Yes**	
Service			DeviceNet Services	Parameter options		
	0x0E	Get_Attribute_Single		Yes		
	0x10	Set_Attribute_Single		Yes		

** "Set" is possible only at software setting mode.

3.6 Network configuration with EDS (Electronic Data Sheets) file

In order for the DeviceNet device to join the Network, network configuration is necessary using the EDS file which describes the communication specification of the device. Refer to the user's manual provided by the master unit manufacturer for the configuration. Also, to ensure a suitable network configuration, use the latest EDS file complying with the model or product version.

How to configure the device

Check the address and specifications (model name) of the device before configuration, as both the device and EDS file will need to be matched first. Configure the device specifications and EDS file by referring to the following table.

Specifications and model names in the EDS file

Item	Specifications			
Model	T8D1	T8D2	T8DP1	T8DP2
Slave unit	OPP7-1D	OPP7-2D	OPP7-1D-P	OPP7-2D-P
Output polarity	+COM(NPN)		-COM(PNP)	
No. of outputs	16 output pts	32 output pts	16 output pts	32 output pts
Name of EDS file	CKD_OPP7_1D	CKD_OPP7_2D	CKD_OPP7_1D_P	CKD_OPP7_2D_P

4. INSTALLATION

The network cables and power cables must be connected to the N4G*R-T8D** to function. Incorrect connection causes not only malfunctions but in some cases, critical transmission damage to this slave unit as well as other related devices. Before use, make sure to read this instruction manual as well as the user's manuals of the PLC and other devices for correct connections.



CAUTION:

- Discharge static electricity that has built up on your body by touching a grounded metal object before handling the DeviceNet device. Failure to do so may damage the slave unit.
- Do not touch electrical wiring connections (exposed live parts) as there is a risk of electric shock. Always disconnect the power supply before wiring. Also, never touch live parts with wet hands.
- Do not subject the power cables and network cables to tension and impact. Long cables can exert unexpected momentum and impact due to its weight, and this can consequently damage the connectors and devices. Take preventative measures such as securing the cables to the machine or device in the midway.
- To prevent noise problems, keep the following in mind when wiring:
 - (1) If noise is likely to have an influence, make efforts to provide a separate power supply for each manifold solenoid valve and wire them independently.
 - (2) Do not make the power and FG cables needlessly long, but wire them with the shortest possible lengths.
 - (3) Do not share power with noise generating devices such as inverters and motors.
 - (4) Do not lay the power cables, network cables, and other power lines parallel to each other.
- Make sure the power cables and network cables are connected correctly within the specifications to avoid any incorrect wiring. Incorrect wiring can cause the slave unit to malfunction or to be damaged.
- Make sure that all cables and connectors are connected firmly before turning the power ON.

4 INSTALLATION

4.1 Connecting and wiring to the network connector socket

The network connector plug is included with this slave unit. Wire the DeviceNet cables to the connector plug and connect it to the network connector socket on the unit.

[Network connector socket]

CC2,5/5-GF-5,08P26AUTHR(model No.1702177) 5-pole socket Mfd by Phoenix Contact

[Network connector plug (included)]

MSTB2,5/5-STF-5,08AUM (model No.5880008) 5-pole plug Mfd by Phoenix Contact

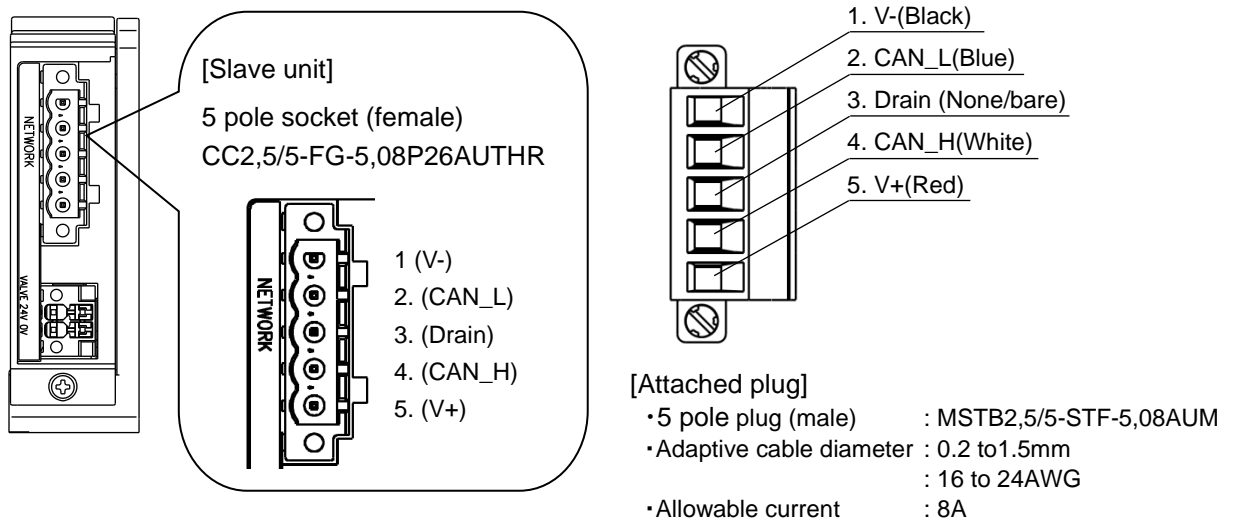
[Adaptive power supply cable]

Adaptive cable diameter: 0.2 to 2.5 mm², 12 to 30AWG

Allowable current: 12A

Connect the DeviceNet cable(s) to the slave unit according to the following steps.

- (1) After confirming safety, power off the power supply connected to the slave unit.
- (2) Attach a terminal such as a ferrule to the DeviceNet cable, when needed.
- (3) Mind the correct orientation and connect the DeviceNet cables CAN_H(white), CAN_L(blue), V+(red), V-(black) and Drain (bare) connected to the attached plug to each pole of the slave unit (CAN_H, CAN_L, V+, V-, Drain) .



Pin No.	Signal	Function	Cable color
1	V-	Network power supply (-)	Black
2	CAN_L	Network terminal (L)	Blue
3	Drain	Shielded terminal	(none/bare)
4	CAN_H	Network terminal (H)	White
5	V+	Network power supply (+)	Red



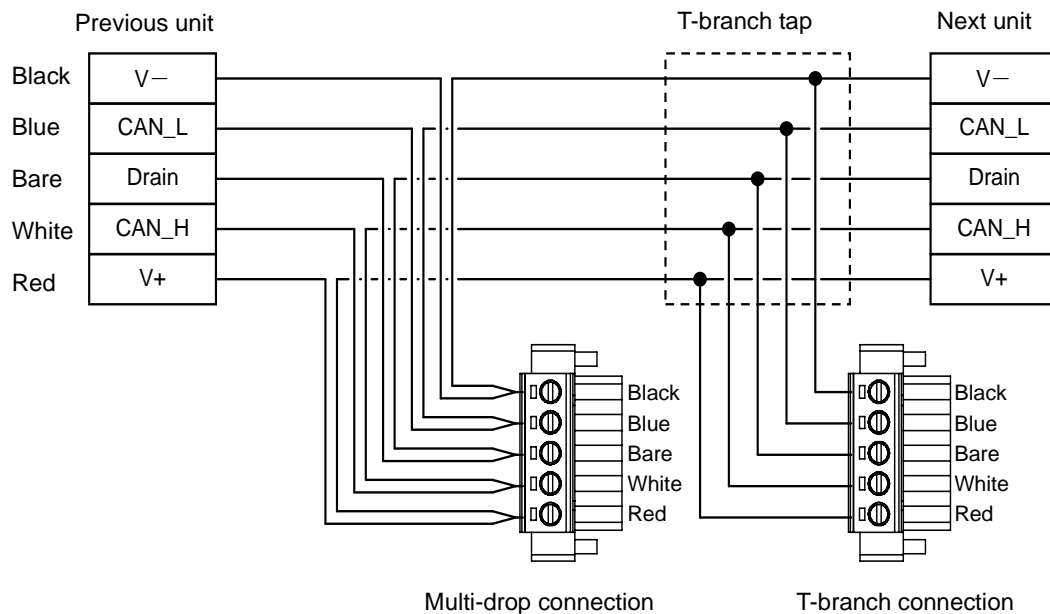
CAUTION:

- Be sure to use DeviceNet compliant cables for the network cable.
- Make sure that the network cables have a sufficient bending radius, and do not forcibly bend them.
- Keep the network cables away from the power cables as well as high-voltage cable(s).
- Loosen the cable fixing screws sufficiently to prevent cable going into the reverse side and not the side of plug clamping when the cable is connected to the plug.
- For the slave units with plug fixing screw, tighten the screw firmly when connect the plug. Inserting the plug only may cause malfunction when the plug comes off. Be sure to hook the connector latch firmly if the plug does not have fixing screw.

[Network cable wiring]

Wiring of multi-drop connection is described in below.

For T-branch connection, refer to the user's manual of master unit.



4 INSTALLATION

4.2 Connecting and wiring to the valve power socket

Valve power plug is included with this slave unit. Wire the valve power cable to the power plug and connect them to the power socket on the slave unit.

[Valve power supply]

Power to operate the solenoid valves.

Prepare a 22.8 to 26.4 VDC power with the least noise.

[Power plug (included)]

DFMC1,5/2-STF-3,5 (1790292) 4 contacts Mfd by Phoenix Contact

[Recommended ferrules and crimping tool]

Ferrule (without sleeve): A0.5 to 1,5-10 Mfd by Phoenix Contact

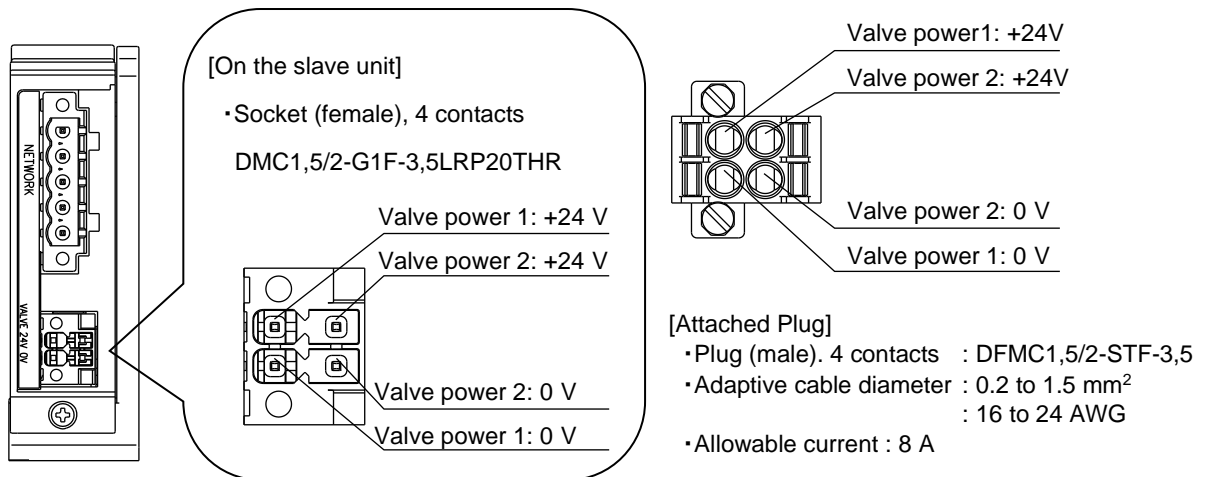
Ferrule (with sleeve): A10.25 to 0.75-10 Mfd by Phoenix Contact

Crimping tool (in common): CRIMPFOX6 (1212034) Mfd by Phoenix Contact

Connecting the power cable

Connect the valve power cable to the power plug according to the following steps.

- (1) After confirming safety, power off the power supply connected to the slave unit.
- (2) Attach a terminal such as a ferrule to the power cable when needed.
- (3) Connect the power cable's 24 V power line to the power plug's 24 V terminal and the 0 V power line to the 0 V terminal according to the illustrations below.
- (4) After connecting the power plug to the power socket, secure the flanges on the plug with proper torque (0.25N•m).



Note: valve power supply 1 and 2 are short circuited within the slave unit.



CAUTION:

- Carefully check the polarities and rated voltage before making any connections.
- Calculate the current consumption before selecting the appropriate power cable.
- Keep in mind that a voltage drop may occur from powering multiple slave units from one power supply, when selecting and wiring the cables.
- Secure the specified power supply voltage by taking countermeasures, such as wiring the power cables in multiple systems or installing other power supplies if a voltage drop cannot be avoided.
- Wire the power cables at the terminal block placed in front of the power plug, when daisy chain.

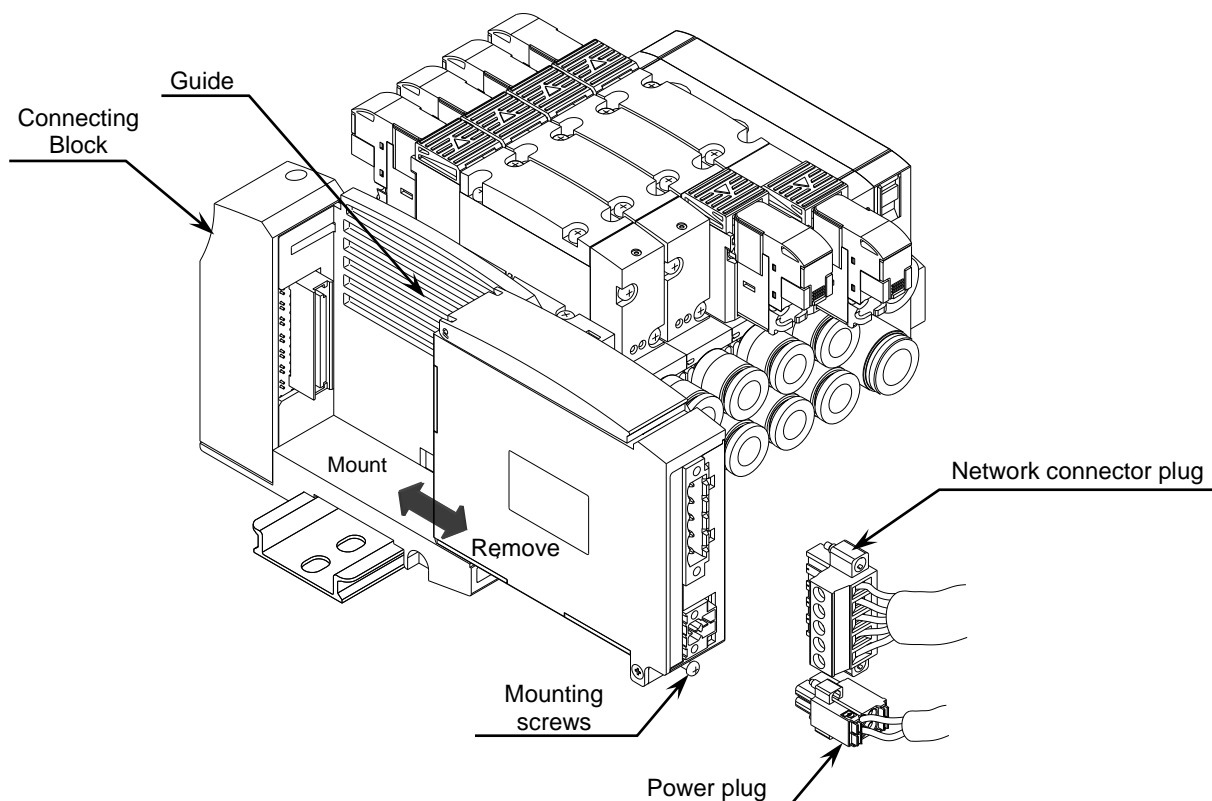
5. MAINTENANCE

5.1 Removing the slave unit

- (1) After confirming safety, stop network communication and power off all the peripheral devices when needed.
- (2) After confirming safety, power off the power supply of valves and network when needed.
- (3) Remove the slave unit's mounting screws. Because of a fall-prevention type, stop loosening the screw as soon as it detaches from the slave unit connecting block.
- (4) Hold the slave unit and remove by applying a lateral force.
- (5) Remove the network connector plug and the power plug.

5.2 Mounting the slave unit

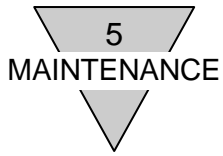
- (1) Set the nord address of the slave unit.
- (2) After ensuring the safety of the surroundings and that the power to the valve and network are OFF, install the network connector plug and the power plug. Installing the plug while the power is ON may cause danger as the system operates unexpectedly.
 [Network connector plug] Reference tightening torque: 0.3N·m
 (Confirm with the plug maker as the torque may differ depending on the plug.)
 [Power plug] Proper tightening torque: 0.25N·m
- (3) Hold the slave unit and mount it along the guide of the connecting block slowly from the near side.
- (4) Make sure that the slave unit and the connecting block are connected and firmly tighten together with the mounting screws. (Proper tightening torque: 0.5N·m)
- (5) After confirming safety, turn each power supply ON.





CAUTION:

- Before turning the power ON or OFF, ensure the safety of the surroundings as the components in the system and the valves (cylinders) may move unexpectedly.
- Confirm the output setting at a communication error and the unit's IP address, upon turning the slave unit's power ON.
- Do not touch electrical wiring connections (exposed live parts) as there is a risk of electric shock.
- Do not drop, apply unusual vibration or impact the unit as the inside of the slave unit is a precision construction.
- Do not connect or disconnect any connector plugs while the power is being supplied. Doing so may result in failure or malfunction.
- Do not remove the slave unit by pulling cable or connector that may result in device's damage or wire breakage.
- When removing the plug, make sure to loosen the plug mounting screws sufficiently. When inserting the plug, make sure to tighten the plug mounting screws firmly.



5.3 Troubleshooting

Troubleshooting needs to be conducted on the system as a whole rather than just on a single unit. Depending on the communication status, the system may move suddenly, and so when conducting maintenance, be sure to exercise ample caution and ensure safety.

[Problem 1] MS LED and NS LED: do not light green
(Not in the I/O communications status)

- Refer to the [1.5 Switches and LED indicators] section.

[Problem 2] PW and PW (V): does not light up

- Make sure if both the power and network cables are connected and not broken.
- Check if the supplied power voltage is within the specified range.

[Problem 3] NA switches(x 10, x 1) and HC switch: values are not applied

- Power on the switch again after setting.
- Make sure that the DR switch is not set as "5".
(The value of NA and HC switches is not read into memory with software setting mode "5".)

5.4 Maintenance of the device

This section describes the daily maintenance of devices; methods of cleaning and inspection, as well as replacing the slave unit.

1) Cleaning

Clean the device periodically in the following manner to ensure its optimum state.

- (1) For daily cleaning, wipe the device with a dry, soft cloth.
- (2) If dirt remains even after wiping with a dry cloth, use a damp cloth with 2% diluted detergent that has been firmly wrung out.
- (3) Rubber, vinyl, and tape products may stain the slave unit if they are left on for long periods of time. Remove such items during regular cleaning.

2) Inspection

Always perform periodic inspections to ensure that everything is in an optimum state. Periodic inspections should be carried out at least once every 6 to 12 months; however, for a slave unit used in environments subject to high temperatures, humidity and/or excessive dust, inspections should be carried out more frequently.

■ Inspection items

Periodically inspect the following items to ensure that they do not deviate from the criteria.

If the items deviate from the criteria, improve the ambient environment to fall within the criteria or adjust the slave unit itself.

Inspection Items	Inspection details	Criteria	Inspection method
Environment	Are the ambient and in-panel temperatures suitable?	Refer to the specifications of the slave unit.	Thermometer
	Are the ambient and in-panel humidity suitable?	Refer to the specifications of the slave unit.	Hygrometer
	Is there any accumulated dust?	There should be no dust.	Visual check
Condition of installation	Is the slave unit securely mounted?	There should be no looseness.	Phillips screwdriver
	Is the power cable connector fully inserted?	There should be no looseness.	Flat-blade screwdriver
	Is the network cable connector fully inserted?	There should be no looseness.	Flat-blade screwdriver
	Are there any damages to the connection cables?	There should be no external abnormalities.	Visual check

3) Replacing the slave unit

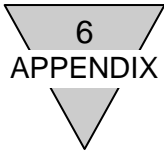
The Network consists of devices (master units, slave units), and as any malfunctioning device can affect the entire network, such unit must be replaced immediately. To restore network functions as soon as possible, it is recommended to keep spare units on hand for the replacement.

■ Precautions

When replacing the unit after a periodic inspection has revealed a problem, check that the new unit does not have any errors after replacement.

■ Setting the new slave unit after replacement

After replacing the slave unit, make necessary changes to the switches and other settings so that they are the same as before the slave unit was replaced.



6. APPENDIX (EDS FILE)

6.1 OPP7-1D (T8D1)

\$ EZ-EDS Version 3.11.1.20151008 Generated Electronic Data Sheet

[File]

```
DescText = "CKD_OPP7_1D";
CreateDate = 01-20-2017;
CreateTime = 11:15:00;
ModDate = 02-15-2017;
ModTime = 11:49:39;
Revision = 1.1;
HomeURL = "http://www.ckd.co.jp";
```

[Device]

```
VendCode = 201;
VendName = "CKD Corporation";
ProdType = 27;
ProdTypeStr = "Pneumatic Valve(s)";
ProdCode = 70;
MajRev = 20;
MinRev = 4;
ProdName = "OPP7-1D";
Icon = "opp7.ico";
DNetQC =
    0x0001,
    1060;
```

[Device Classification]

```
Class1 = DeviceNet;
```

[IO_Info]

```
Default = 0x0001;      $ Default I/O Connection is Poll
PollInfo =
    0x0001,            $ Poll Information
    0,                 $ Default Input = empty
    1;                 $ Default Output = Output1
Output1 =
    2,                 $ 2 byte
    0,                 $ All bit is significant
    0x0001,            $ Poll used this data
    "Solenoid Output", $ Data name
    6,                 $ Path size
    "20 04 24 23 30 03", $ Connection Path
    "";
```

6.2 OPP7-2D (T8D2)

\$ EZ-EDS Version 3.11.1.20151008 Generated Electronic Data Sheet

[File]

```
DescText = "CKD_OPP7_2D";
CreateDate = 01-20-2017;
CreateTime = 11:15:00;
ModDate = 02-15-2017;
ModTime = 11:51:02;
Revision = 1.1;
HomeURL = "http://www.ckd.co.jp";
```

[Device]

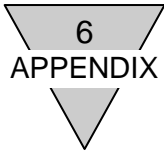
```
VendCode = 201;
VendName = "CKD Corporation";
ProdType = 27;
ProdTypeStr = "Pneumatic Valve(s)";
ProdCode = 71;
MajRev = 20;
MinRev = 4;
ProdName = "OPP7-2D";
Icon = "opp7.ico";
DNetQC =
    0x0001,
    1060;
```

[Device Classification]

```
Class1 = DeviceNet;
```

[IO_Info]

```
Default = 0x0001;      $ Default I/O Connection is Poll
PollInfo =
    0x0001,           $ Poll Information
    0,                $ Default Input = empty
    1;                $ Default Output = Output1
Output1 =
    4,                $ 4 byte
    0,                $ All bit is significant
    0x0001,           $ Poll used this data
    "Solenoid Output", $ Data name
    6,                $ Path size
    "20 04 24 25 30 03", $ Connection Path
    "";
```



6.3 OPP7-1D-P (T8DP1)

\$ EZ-EDS Version 3.11.1.20151008 Generated Electronic Data Sheet

[File]

DescText = "CKD_OPP7_1D";
CreateDate = 01-20-2017;
CreateTime = 11:15:00;
ModDate = 02-15-2017;
ModTime = 11:49:39;
Revision = 1.1;
HomeURL = "http://www.ckd.co.jp";

[Device]

VendCode = 201;
VendName = "CKD Corporation";
ProdType = 27;
ProdTypeStr = "Pneumatic Valve(s)";
ProdCode = 70;
MajRev = 20;
MinRev = 4;
ProdName = "OPP7-1D";
Icon = "opp7.ico";
DNetQC =
 0x0001,
 1060;

[Device Classification]

Class1 = DeviceNet;

[IO_Info]

Default = 0x0001; \$ Default I/O Connection is Poll
PollInfo =
 0x0001, \$ Poll Information
 0, \$ Default Input = empty
 1; \$ Default Output = Output1
Output1 =
 2, \$ 2 byte
 0, \$ All bit is significant
 0x0001, \$ Poll used this data
 "Solenoid Output", \$ Data name
 6, \$ Path size
 "20 04 24 23 30 03", \$ Connection Path
 "";

6.4 OPP7-2D-P (T8DP2)

\$ EZ-EDS Version 3.11.1.20151008 Generated Electronic Data Sheet

[File]

```
DescText = "CKD_OPP7_2D_P";
CreateDate = 01-20-2017;
CreateTime = 11:15:00;
ModDate = 02-15-2017;
ModTime = 11:51:36;
Revision = 1.1;
HomeURL = "http://www.ckd.co.jp";
```

[Device]

```
VendCode = 201;
VendName = "CKD Corporation";
ProdType = 27;
ProdTypeStr = "Pneumatic Valve(s)";
ProdCode = 74;
MajRev = 20;
MinRev = 4;
ProdName = "OPP7-2D-P";
Icon = "opp7.ico";
DNetQC =
    0x0001,
    1060;
```

[Device Classification]

```
Class1 = DeviceNet;
```

[IO_Info]

```
Default = 0x0001;      $ Default I/O Connection is Poll
PollInfo =
    0x0001,           $ Poll Information
    0,                $ Default Input = empty
    1;                $ Default Output = Output1
Output1 =
    4,                $ 4 byte
    0,                $ All bit is significant
    0x0001,           $ Poll used this data
    "Solenoid Output", $ Data name
    6,                $ Path size
    "20 04 24 25 30 03", $ Connection Path
    "";
```