INSTRUCTION MANUAL

TOTALIZED PULSE INPUT MODULE, 8 points (DeviceNet)

MODEL **R7D-PA8**

BEFORE USE ....

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below.
If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

■ PACKAGE INCLUDES:

Totalized pulse input module .....(1)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

■ EDS FILE

EDS files are downloadable at M-System's web site: http://www.m-system.co.jp

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- The equipment must be mounted inside the instrument panel of a metal enclosure.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.

■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, turn off the power supply and input signal for safety.
- DO NOT set the switches on the module while the power is supplied. The switches are used only for maintenance without the power.

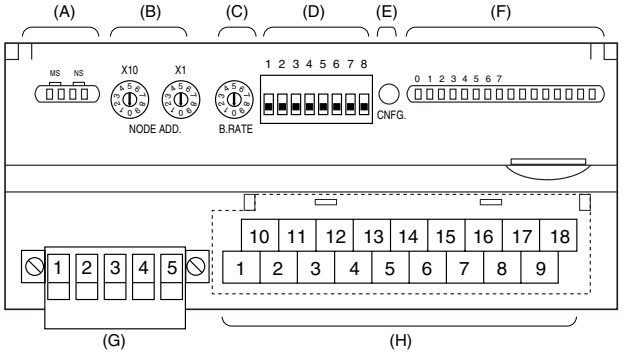
■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

COMPONENT IDENTIFICATION



(A) Status Indicator LED
(B) Node Address Setting Rotary SW
(C) Baud Rate Setting Rotary SW
(D) Operating Mode Setting DIP SW (SW1)
(E) PC Configurator Jack
(F) Input Status Indicator LED
(G) DeviceNet, Power Supply Terminals
(H) Input Terminals

■ STATUS INDICATOR LED

ID	STATE	FUNCTION
MS	Green	Operating in a normal condition
	Blinking Green	Standby (needs commissioning)
	Red	Critical failure
	Blinking Red	Minor failure
	OFF	No power supplied
NS	Green	Link on-line and connections in the established state
	Blinking Green	Link on-line but no connections in the established state
	Red	Critical link failure
	Blinking Red	Minor link failure
	OFF	No power supplied

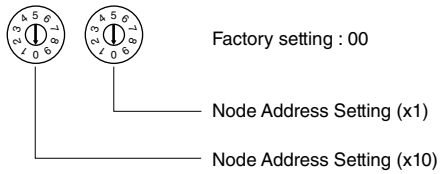
■ PULSE INPUT STATUS INDICATOR LED

LED indicators showing input signal status.

ON : LED ON
OFF : LED OFF

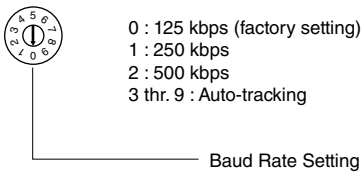
■ NODE ADDRESS

Node Address is selected between 1 and 63 in decimal. The left switch determines the tenth place digit, while the right switch does the ones place digit of the address.



■ BAUD RATE

Baud Rate is selected with the rotary switch.



The R7D communicates in the baud rate setting detected at the startup with the switch set to the positions 0 (125 kbps), 1 (250 kbps) or 2 (500 kbps).
For the settings 3 through 9, it analyzes the PLC' s network to determine the baud rate on the network.

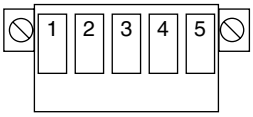
■ OPERATING MODE

• Extension (SW1-1, 1-2)

SW1-1	SW1-2	EXTENSION
OFF	OFF	No extension (*)
ON	OFF	Discrete input, 8 or 16 points
OFF	ON	Discrete output, 8 or 16 points

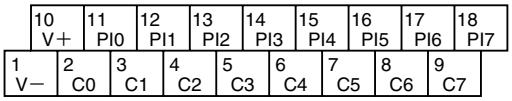
(*) Factory setting
Note: Be sure to set unused SW1-3 through 1-8 to OFF.

■ DeviceNet TERMINAL ASSIGNMENT



NO.	ID	FUNCTION, NOTES
1	V+	Network power supply +
2	CAN_H	Network data High
3	Drain	Shield
4	CAN_L	Network data Low
5	V–	Network power supply –

■ INPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	V–	Power (–)	10	V+	Power (+)
2	C0	Common	11	PI0	Input 0
3	C1	Common	12	PI1	Input 1
4	C2	Common	13	PI2	Input 2
5	C3	Common	14	PI3	Input 3
6	C4	Common	15	PI4	Input 4
7	C5	Common	16	PI5	Input 5
8	C6	Common	17	PI6	Input 6
9	C7	Common	18	PI7	Input 7

■ EXTENSION MODULE

Combinations with all extension modules are selectable.

PC CONFIGURATOR

With configurator software, settings shown below are available.
Refer to the software manual of R7CON for detailed operation.

■ INTERFACE MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Communication Timeout	0.0 – 3276.7 (sec.)	1.0 (sec.)
Status Data	ON: Disable OFF: Enable	OFF: Enable
Serial ID	English one-byte characters within 8 characters	

■ CHANNEL INDIVIDUAL SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Max	1 000 – 4 294 967 295	9 999 999
Carry	0, 1	0
Preset	0 – 4 294 967 295	

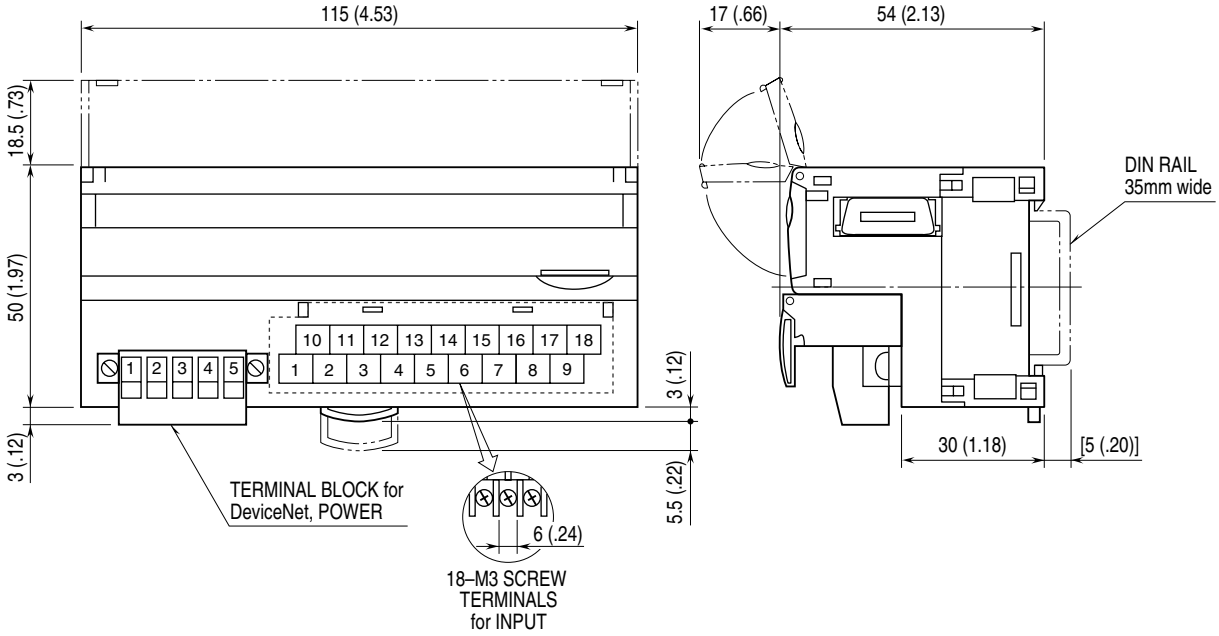
■ EXTENSION MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Output Hold/Clear	Output Hold Output Clear	Output Hold

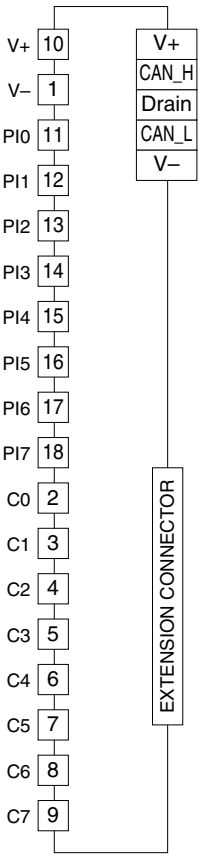
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

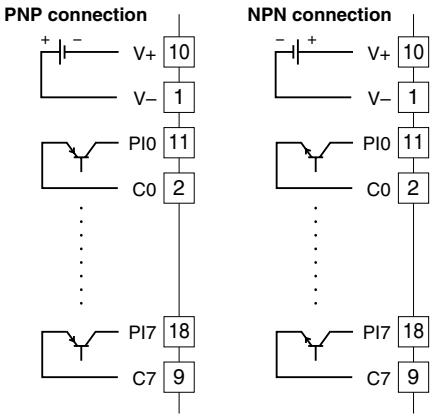
■ EXTERNAL DIMENSIONS unit: mm (inch)



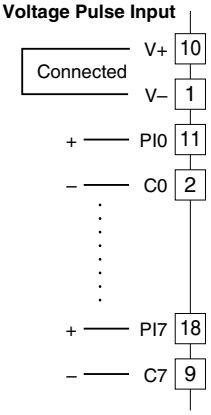
■ CONNECTION DIAGRAM



■ Input Connection Examples



Voltage Pulse Input



DATA ACQUISITION & SETTING

The table below shows data allocation of R7D-PA8. Parameter preset and other settings are available with command setting of R7D-PA8. Set the commands according to the procedure explained next.
Parameter of each channel is two-word integer not signed. Make sure that data is written or read in a two-word unit.
When overflowing, the value to which response can be set is "0" or "1". The maximum range available is 1000 to 4294967295. (Factory setting: 9999999)
Parameters may be preset to a value between the overflow response value and the maximum value.

OUTPUT DATA

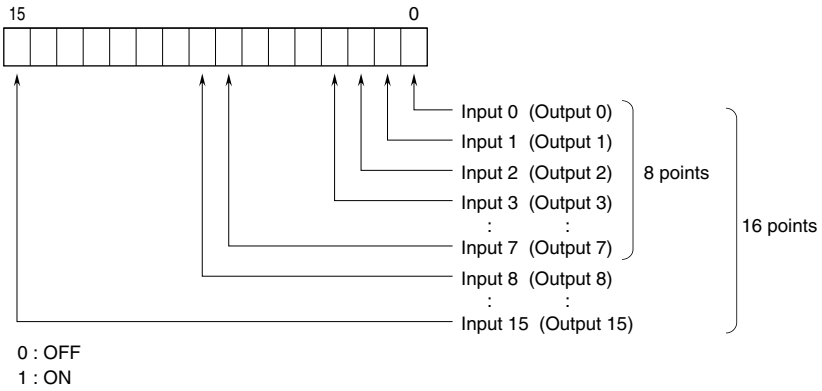
	15	0
Begin +0	Data to write (upper)	CH0
+1	Data to write (lower)	CH0
+2	Data to write (upper)	CH1
+3	Data to write (lower)	CH1
+4	Data to write (upper)	CH2
+5	Data to write (lower)	CH2
+6	Data to write (upper)	CH3
+7	Data to write (lower)	CH3
+8	Data to write (upper)	CH4
+9	Data to write (lower)	CH4
+10	Data to write (upper)	CH5
+11	Data to write (lower)	CH5
+12	Data to write (upper)	CH6
+13	Data to write (lower)	CH6
+14	Data to write (upper)	CH7
+15	Data to write (lower)	CH7
+16	Command setting • Command address CH0: Bit 0, 1 CH1: Bit 2, 3 CH2: Bit 4, 5 CH3: Bit 6, 7 CH4: Bit 8, 9 CH5: Bit 10, 11 CH6: Bit 12, 13 CH7: Bit 14, 15 • Command 00: Read data 01: Preset 10: Overflow response value 11: Maximum value	
+17	Extension discrete output data	
+18	–	

INPUT DATA

	15	0
Begin + 0	Data to read (upper)	CH0
+1	Data to read (lower)	CH0
+2	Data to read (upper)	CH1
+3	Data to read (lower)	CH1
+4	Data to read (upper)	CH2
+5	Data to read (lower)	CH2
+6	Data to read (upper)	CH3
+7	Data to read (lower)	CH3
+8	Data to read (upper)	CH4
+9	Data to read (lower)	CH4
+10	Data to read (upper)	CH5
+11	Data to read (lower)	CH5
+12	Data to read (upper)	CH6
+13	Data to read (lower)	CH6
+14	Data to read (upper)	CH7
+15	Data to read (lower)	CH7
+16	Command setting • Command address CH0: Bit 0, 1 CH1: Bit 2, 3 CH2: Bit 4, 5 CH3: Bit 6, 7 CH4: Bit 8, 9 CH5: Bit 10, 11 CH6: Bit 12, 13 CH7: Bit 14, 15 • Command 00: Read data 01: Preset 10: Overflow response value 11: Maximum value	
+17	Extension discrete input data	
+18	Status	

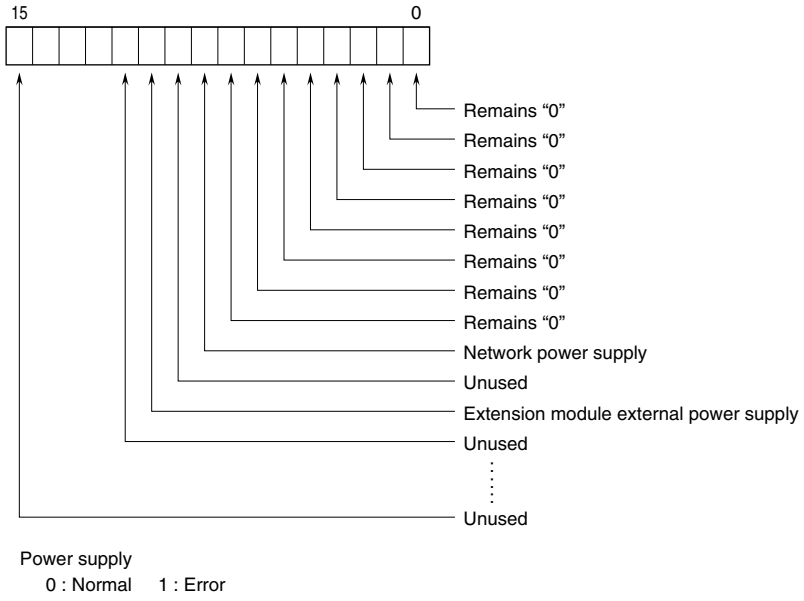
I/O DATA DESCRIPTIONS

■ DISCRETE I/O



■ STATUS

Bit 0 to 7: Totalized pulse input module shows '0' at the same address.
Bit 8 to 10: Shows the power supply status.



TRANSMISSION DATA DESCRIPTIONS

■ BASIC MODULE

Transmitted data (word) depends upon the modules types.

MODEL	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
R7D-PA8	17	17

■ EXTENSION MODULE

Transmitted data (word) for the extension module is added.

MODEL	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
R7D-EAx	1	0
R7D-ECx	0	1

■ STATUS

Status signal can be included in the transmission data when the setting is enabled using the PC Configurator software (model: R7CON). For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

STATUS	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
Enabled	1	0
Disabled	0	0

*1. Output Data means those sent to the master.
*2. Input Data means those received from the master.

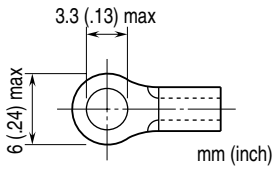
WIRING INSTRUCTIONS

■ SCREW TERMINAL (Input)

Torque: 0.5 N·m

• SOLDERLESS TERMINAL

Refer to the drawing below for recommended ring tongue terminal size. Spade tongue type is also applicable.
Applicable wire size: 0.25 to 1.65 mm² (AWG 22 to 16)
Recommended manufacturer: Japan Solderless Terminal MFG. Co., Ltd, Nichifu Co., Ltd



■ EURO TYPE CONNECTOR TERMINAL (DeviceNet)

Applicable wire size: 0.2 – 2.5 mm²
Stripped length: 7 mm