

**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.

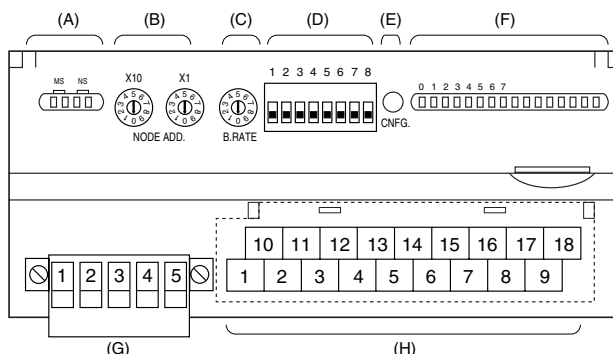
**ENVIRONMENT**

- 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

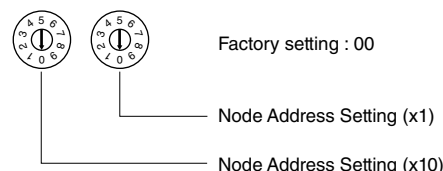
**PULSE INPUT STATUS INDICATOR LED**

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.



0 : 125 kbps (factory setting)  
1 : 250 kbps  
2 : 500 kbps  
3 thr. 9 : Auto-tracking

Baud Rate Setting

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

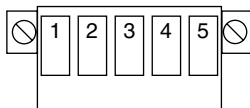
### • Extension (SW1-1, 1-2)

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

10	11	12	13	14	15	16	17	18
V+	PI0	PI1	PI2	PI3	PI4	PI5	PI6	PI7
1	2	3	4	5	6	7	8	9
V-	C0	C1	C2	C3	C4	C5	C6	C7

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	

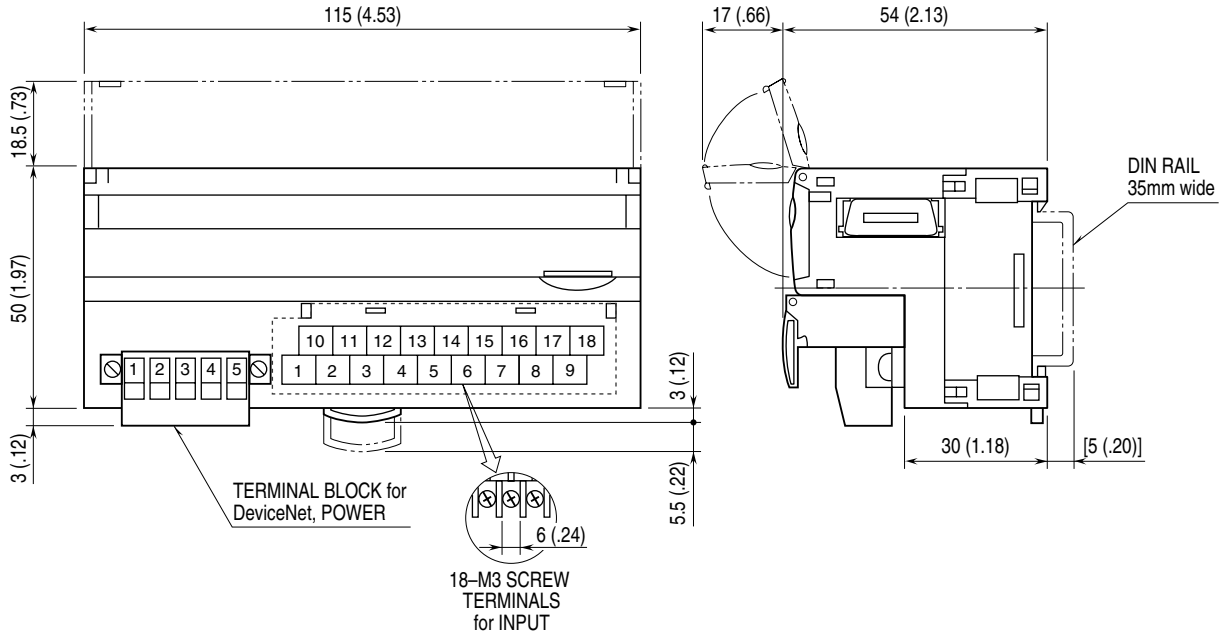
### ■ EXTENSION MODULE SETTING

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

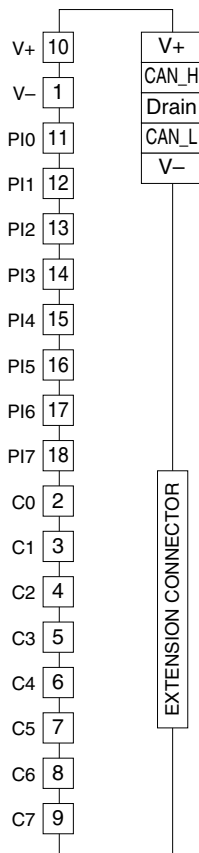
# TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

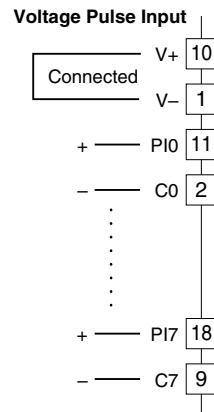
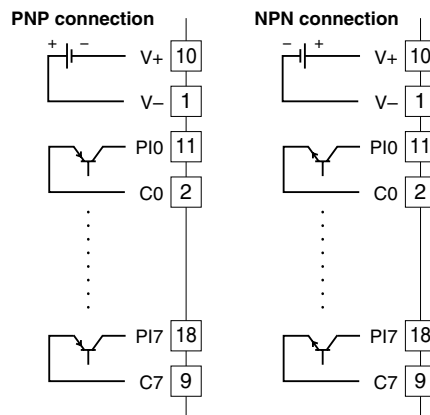
## EXTERNAL DIMENSIONS unit: mm (inch)



## CONNECTION DIAGRAM



## Input Connection Examples



## 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.

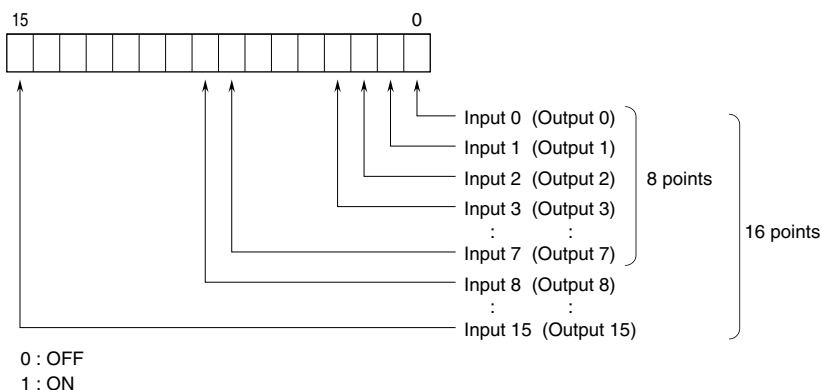
When overflowing, the value to which response can be set is "0" or "1". The maximum range available is 1000 to 4294967295. (Factory setting: 9999999)

Parameters may be preset to a value between the overflow response value and the maximum value.

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

## I/O DATA DESCRIPTIONS

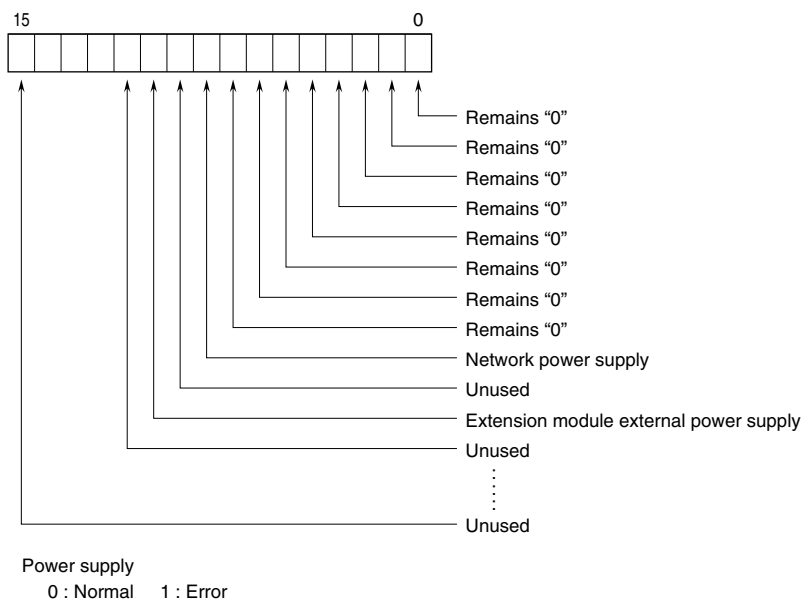
### ■ DISCRETE I/O



### ■ 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	INPUT DATA*2
	(R7D to Master)	(Master to R7D)
R7D-PA8	17	17

### ■ EXTENSION MODULE

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

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

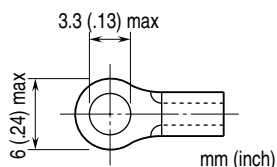
Torque: 0.5 N·m

#### • 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 mm<sup>2</sup> (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 mm<sup>2</sup>

Stripped length: 7 mm