INSTRUCTION MANUAL

TOTALIZED PULSE INPUT MODULE, 4 points
(High-speed Link System, e-CON connector, non-isolated)

MODEL **R7HL-PA4E**

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.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVE

- Use dual-shield cables (Shinko Seisen Industry Model ZHY262 PBA) for the network. If it is not sufficient, use a ferrite core (Kitagawa Industries Model GRFC-13) for the network cable.
- 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.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
  24V DC rating: 24V ±10%, approx. 50mA

■ 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.

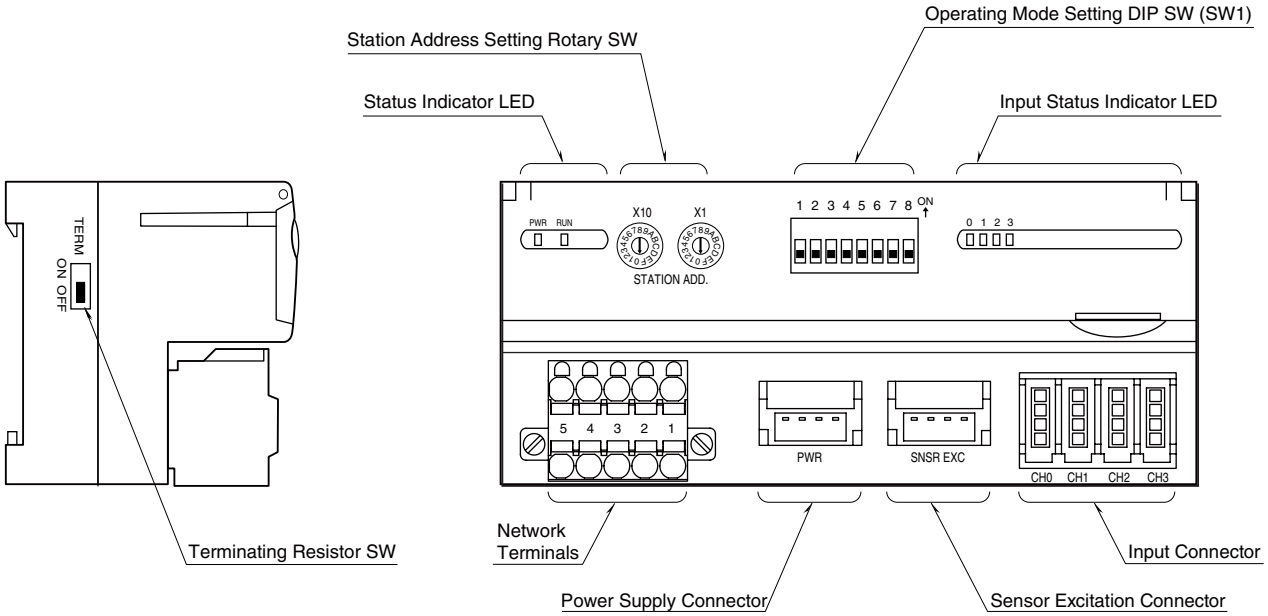
■ AND ....

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

■ SIDE VIEW

■ FRONT VIEW



■ STATUS INDICATOR LED

ID	COLOR	FUNCTION
PWR	Green	Turns on when the internal 5V is supplied normally.
RUN	Green	Turns on when the refresh data is received normally.

■ INPUT STATUS INDICATOR LED

LED indicators shows signal status.

ON (Lo between GND and IN0 thr. IN3): LED ON (red)

OFF: LED OFF

■ STATION ADDRESS

The left switch determines the sixteenths place digit, while the right switch does the ones place digit of the address. Data allocation is 4.

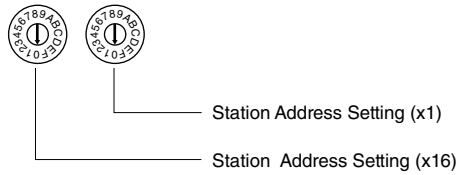
• Full-duplex communication

When the switch setting is n, the addresses will be n, n+2, n+4 and n+6. (Range: 01H to 39H)

• Half-duplex communication

The addresses will be continuous four from the switch setting. (Range: 01H to 3CH)

Address Allocation	CH0	CH1	CH2	CH3
Full-duplex	n	n+2	n+4	n+6
Half-duplex	n	n+1	n+2	n+3



■ OPERATION MODE

• Transfer rate (SW1-8)

SW1-8	TRANSFER RATE
OFF	12 Mbps (*)
ON	6 Mbps

(*) Factory setting

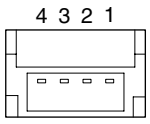
Note: Be sure to set unused SW1-1 through 1-7 to OFF.

■ TERMINATING RESISTOR

To use the terminating resistor, turn the switch ON, and OFF to invalidate. (Factory setting OFF)

■ POWER SUPPLY, SENSOR EXCITATION

Recommended cable connector: 38104-00x-000FL*2 (3M)
(not included in the package)



No.	ID (Power Supply)	ID (Sensor Excitation)
4	0V	GND
3	0V	GND
2	24 V DC	+24 V
1	24 V DC	+24 V

■ NETWORK

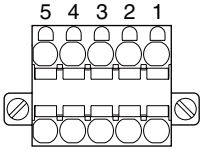
Recommended cable connector: TFKC2,5/5-STF-5,08AU
(Phoenix Contact) (included in the package)

Applicable wire size: 0.2 – 2.5 mm²; stripped length 10 mm

Recommended solderless terminal

For ZHY262PS, ZHT262PS and ZHY262PBA: TUB-0.5
(Japan Solderless Terminal MFG. Co., Ltd.)

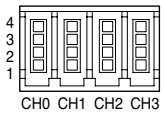
For ZHY221PS: AI0,5-10WH (Phoenix Contact)



No.	ID (Full-duplex)	ID (Half-dulex)
5	RXD-	NC
4	RXD+	NC
3	TXD-	TRD-
2	TXD+	TRD+
1	SHIELD	SHIELD

■ **INPUT**

Recommended cable connector: 37104-x-000FL*2 (3M)
(not included in the package)



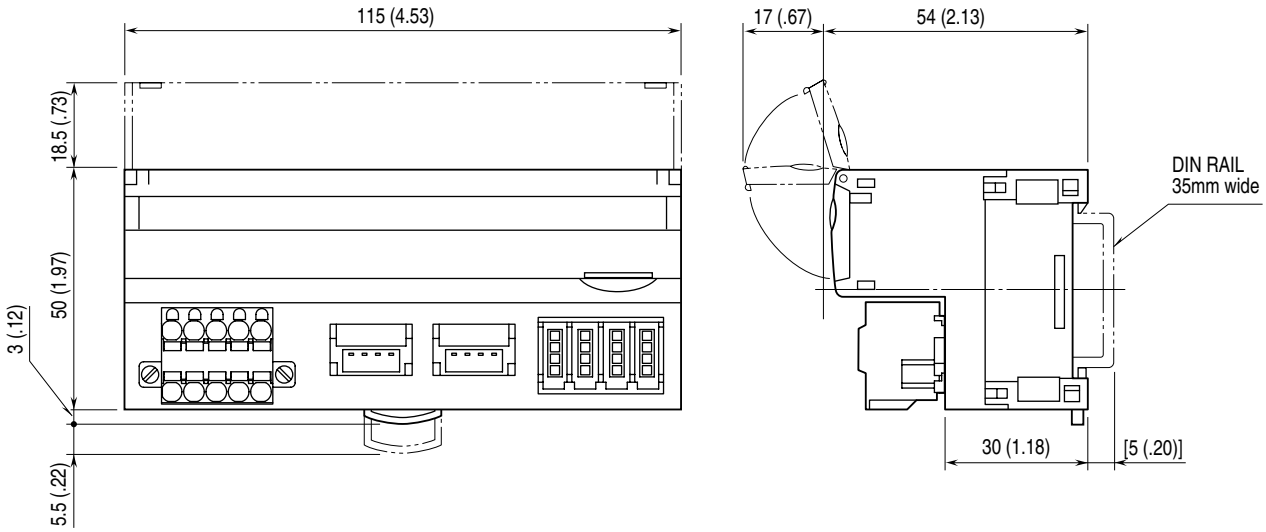
No.	ID	FUNCTION
4	IN0 through IN3	Input 0 through 3
3	GND	GND
2	NC	No connection
1	+24V	Sensor excitation

*2 'x' shows wire size. Refer to the manufacturer's catalogue.

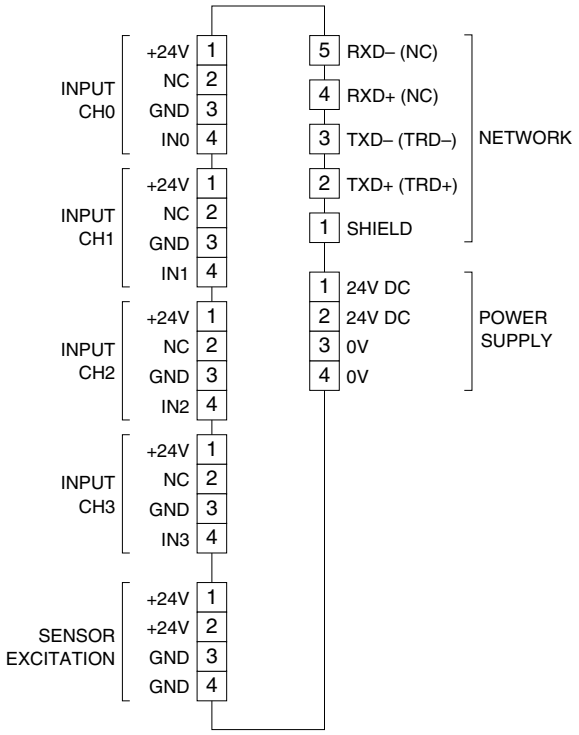
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

■ **EXTERNAL DIMENSIONS unit: mm (inch)**

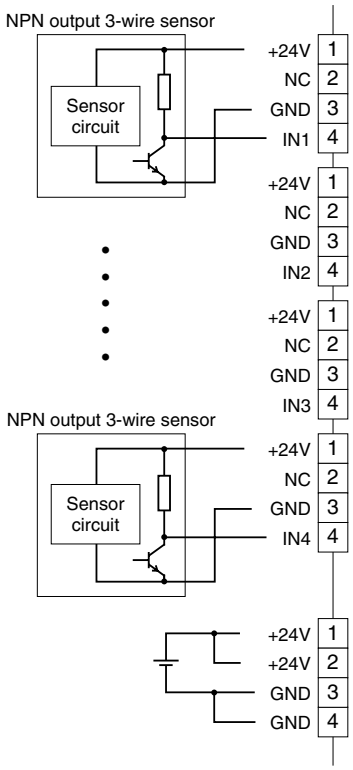


■ CONNECTION DIAGRAM

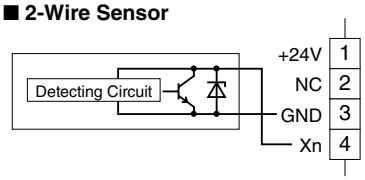


Note: Terminal numbers in parentheses are for half-duplex communication model.

■ Input Connection Examples



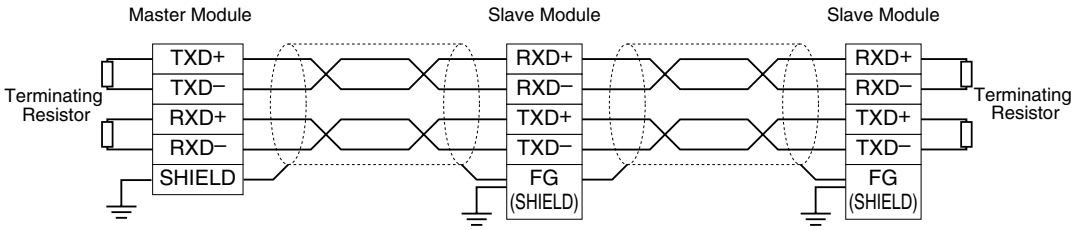
■ 2-Wire Sensor



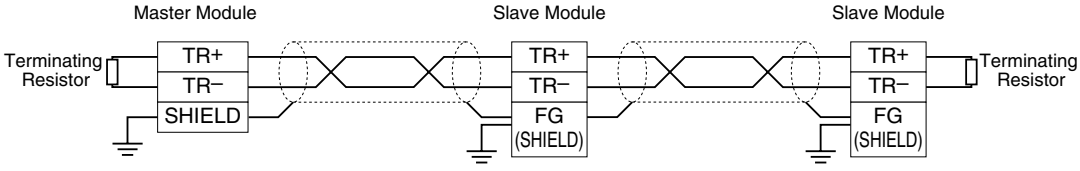
COMMUNICATION CABLE CONNECTIONS

■ MASTER CONNECTION

• Full-duplex communication



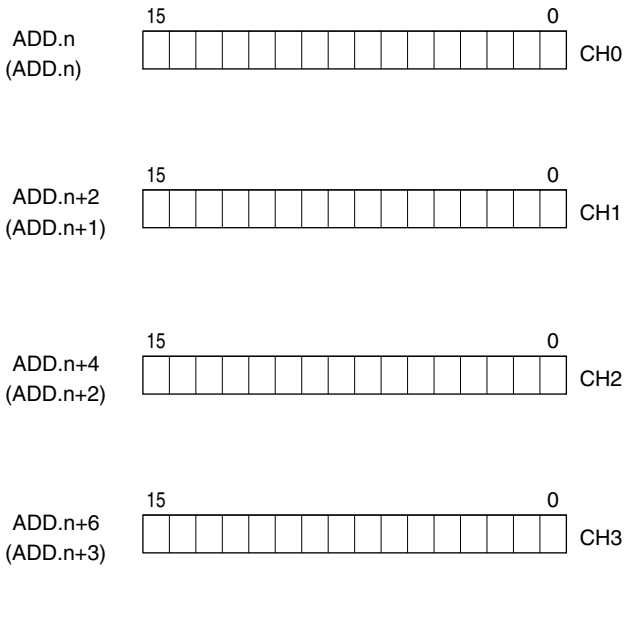
• Half-duplex communication



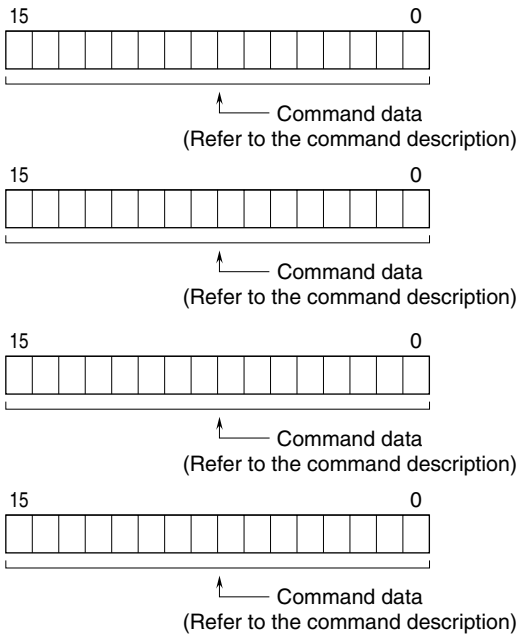
Note: Be sure to turn ON the switch of the terminating resistor located at both ends of the modules.

I/O DATA DESCRIPTIONS

• Di area



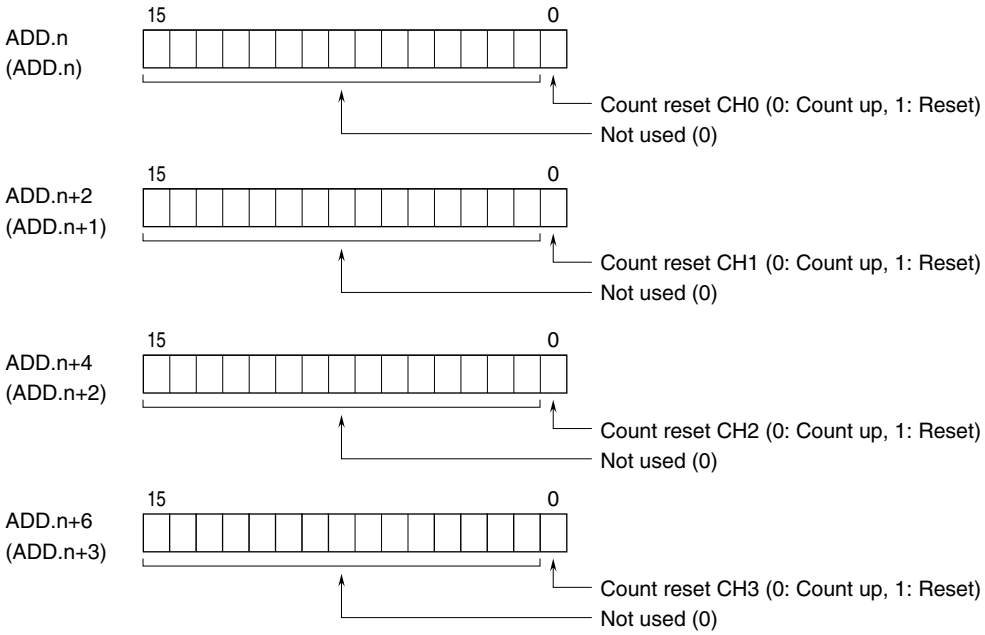
• Do area



The data is 16-bit binary.
Addresses in parentheses are for half-duplex mode.

COMMAND DESCRIPTION

• Do area



Addresses in parentheses are for half-duplex mode.