

ENCODER SIGNAL DISTRIBUTOR
(rotary encoder use, BNC connection)

MODEL **WRPPB**

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:

- Signal conditioner (body + base socket).....(1)
- BNC cap.....(4)
- (Use BNC cap to close unused I/O connector)

■ 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 DIRECTIVES

- This equipment is suitable for Pollution Degree 2 and Installation Category II (transient voltage 2500V). Reinforced insulation (input or output 1 or output 2 to power input: 300V) and basic insulation (input to output 1 to output 2: 300V) are maintained. Prior to installation, check that the insulation class of this unit satisfies the system requirements.
- Altitude up to 2000 meters.
- The equipment must be mounted inside a panel.
- The equipment must be installed such that appropriate clearance and creepage distances are maintained to conform to CE requirements. Failure to observe these requirements may invalidate the CE conformance.
- 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.
- Install lightning surge protectors for those wires connected to remote locations.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:

100 – 240V AC rating: 85 – 264V, 47 – 66 Hz,
 approx. 4VA at 100V
 approx. 5VA at 200V
 approx. 6VA at 240V

24V DC rating: 24V ±10%, approx. 3W

110V DC rating: 85 – 150V, approx. 3W

■ OPERATION AT THE POWER ON AND OFF

- Shortly after the power on and off, as operation is unstable, there may be a unwanted pulse (50msec. max.) at output.

■ GENERAL PRECAUTIONS

- Before you remove the unit from its base socket or mount it, turn off the power supply and input signal for safety.
- If strong force is applied to the wiring for BNC connector, the face plate comes off or being distorted. Be aware that extraordinary force is not applied to the wiring.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside a 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 -5 to +55°C (23 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

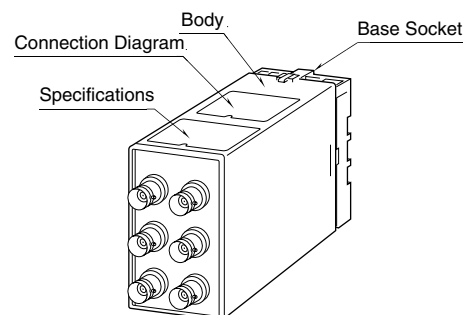
■ WIRING

- 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

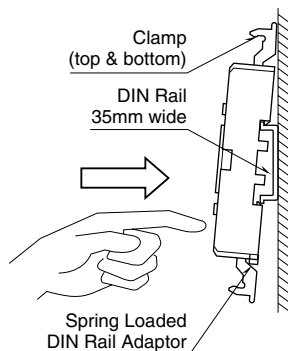


INSTALLATION

Detach the yellow clamps located at the top and bottom of the unit for separate the body from the base socket.

■ DIN RAIL MOUNTING

Set the base socket so that its DIN rail adaptor is at the bottom. Position the upper hook at the rear side of base socket on the DIN rail and push in the lower. When removing the socket, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



■ WALL MOUNTING

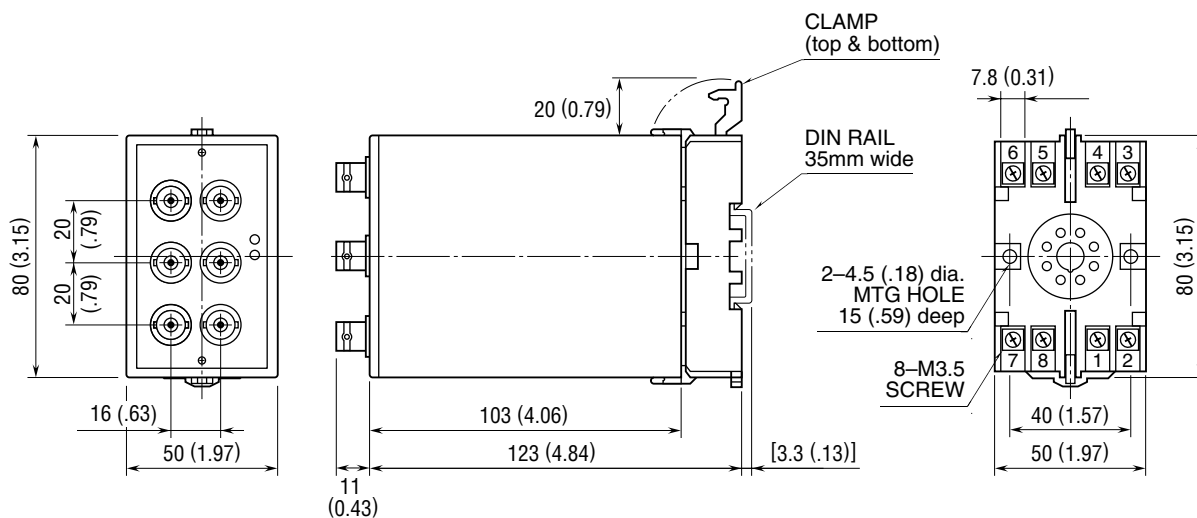
Refer to "EXTERNAL DIMENSIONS."

Shape and size of the base socket are slightly different with various socket types.

TERMINAL CONNECTIONS

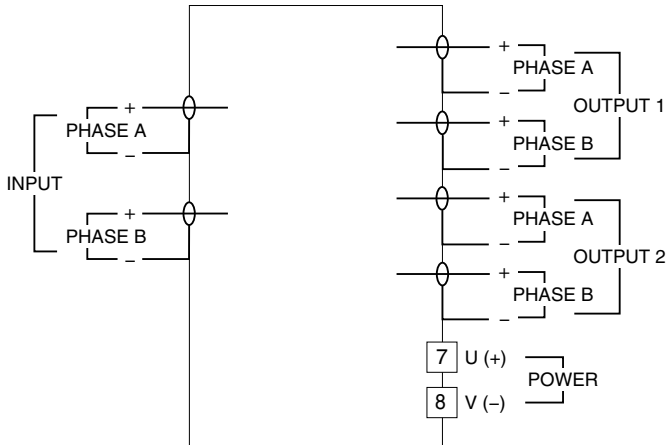
Connect the unit as in the diagram below or refer to the connection diagram on the top of the unit.

■ EXTERNAL DIMENSIONS unit: mm (inch)



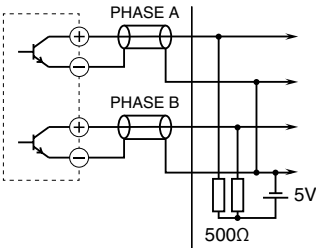
• When mounting, no extra space is needed between units.

CONNECTION DIAGRAM

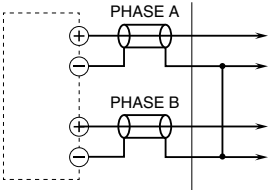


[Input Connection Examples]

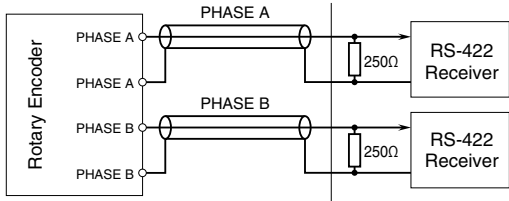
• Dry Contact Input



• Voltage Pulse Input

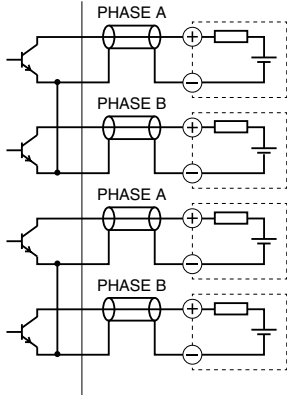


• RS-422 Line Driver Pulse Input

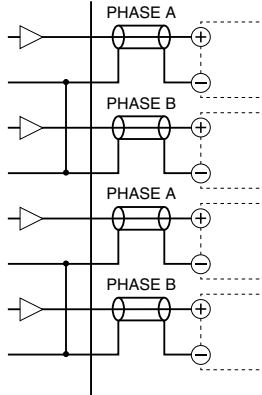


[Output Connection Examples]

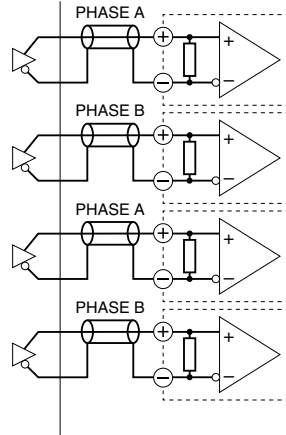
• Open Collector Output



• Voltage Pulse Output



• RS-422 Line Driver Pulse Output



FUNCTIONS & OPERATIONS

The unit is designed to isolate two phase pulse from a rotary encoder and distribute it into two outputs.

- Capable of handling voltage pulse, dry contact and RS-422 line driver pulse input signals.
- Capable of handling voltage pulse, open collector and RS-422 line driver pulse output signals.
- Kinds of signals (input, output 1 and output 2) are selectable.
- Maximum available frequency is 1 MHz. (It varies depending on kinds of signals.)

OUTPUT LOGIC

Input \ Output		Voltage pulse RS-422 line driver pulse	Dry contact
		H L	OFF ON
Voltage pulse or RS-422 line driver pulse	Non-inverted	H L	H L
	Inverted	H L	H L
Open collector	Non-inverted	OFF ON	OFF ON
	Inverted	OFF ON	OFF ON

CHECKING

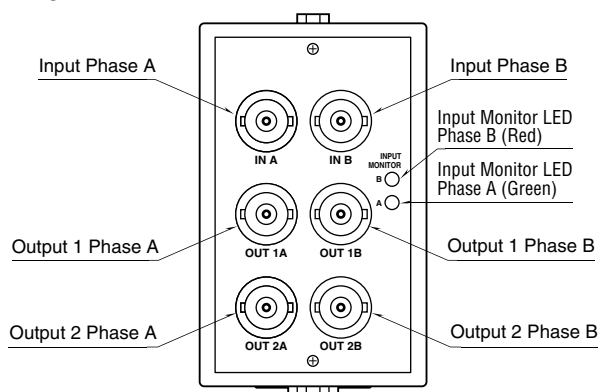
- Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
- Power input voltage: Check voltage across the terminal 7 – 8 with a multimeter.
- Input:
 - Check that the frequency is within the range described below.
 Dry contact, 12 V / 24 V pulse: ≤ 100 kHz
 3.3 V, RS-422 line driver pulse: ≤ 1 MHz
 5 V pulse: ≤ 500 kHz
 And also, check that it doesn't exceed the maximum frequency of output signal.
 - When operating at frequencies close to the maximum frequency, use pulse duty at approx. 50%.
- Output: Check that the load voltage meets the specifications described in the table below.

OUTPUT SIGNAL	LOAD VOLTAGE
Open Collector	50 V DC \leq 100 mA
Voltage Pulse (except 12 V pulse)	Equivalent value same as output impedance
12 V pulse	$\geq 600 \Omega$

- Open the front cover to check the input pulse status with monitor LEDs.

Phase A: Green, Phase B: Red, Input low: LED on
(LED on/off is not defined at input opened.)

FRONT VIEW



LIGHTNING SURGE PROTECTION

M-System offers a series of lightning surge protector for protection against induced lightning surges. Please contact M-System to choose appropriate models.