

## Plug-in Signal Conditioners M-UNIT

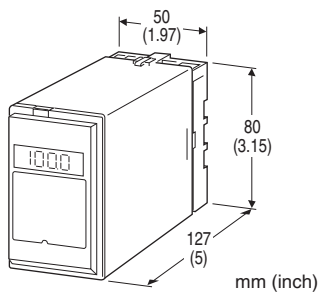
### ANGLE SENSOR TRANSMITTER

#### Functions & Features

- Converting a voltage input from Angle Sensor (model: NRA) into a standard process signal proportional to the angle
- Isolation up to 2000 V AC
- 50 % zero/span adjustments
- LCD meter
- Highdensity mounting

#### Typical Applications

- Tank levels
- Positions



## MODEL: PNS-[1][2]-[3][4]

### ORDERING INFORMATION

- Code number: PNS-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].  
(e.g. PNS-1A-B/E/Q)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [1] ACTION

- 1: Direct (output increases with input increase)
- 2: Reverse (output increases with input decrease)

#### [2] OUTPUT

##### Current

- A: 4 - 20 mA DC (Load resistance 750 Ω max.)
- B: 2 - 10 mA DC (Load resistance 1500 Ω max.)
- C: 1 - 5 mA DC (Load resistance 3000 Ω max.)
- D: 0 - 20 mA DC (Load resistance 750 Ω max.)
- E: 0 - 16 mA DC (Load resistance 900 Ω max.)
- F: 0 - 10 mA DC (Load resistance 1500 Ω max.)
- G: 0 - 1 mA DC (Load resistance 15 kΩ max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

##### Voltage

- 1: 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Load resistance 100 Ω min.)
- 4: 0 - 10 V DC (Load resistance 1000 Ω min.)
- 5: 0 - 5 V DC (Load resistance 500 Ω min.)
- 6: 1 - 5 V DC (Load resistance 500 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 2000 Ω min.)
- 5W: -5 - +5 V DC (Load resistance 1000 Ω min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

### [3] POWER INPUT

#### AC Power

- B: 100 V AC
- C: 110 V AC
- D: 115 V AC
- F: 120 V AC
- G: 200 V AC
- H: 220 V AC
- J: 240 V AC

#### DC Power

- S: 12 V DC
- R: 24 V DC
- V: 48 V DC
- P: 110 V DC

### [4] OPTIONS (multiple selections)

#### Input Signal Indicator

- blank: Without
- /E: With (0.0 - 100.0 % display)

#### Other Options

- blank: none
- /Q: Option other than the above (specify the specification)

### SPECIFICATIONS OF OPTION: Q (multiple selections)

#### COATING (For the detail, refer to M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

#### TERMINAL SCREW MATERIAL

- /S01: Stainless steel

### RELATED PRODUCTS

- Brushless angle sensor (model: NRA)

### GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Screw terminal: Chromated steel (standard) or stainless

steel

**Housing material:** Flame-resistant resin (black)

**Isolation:** Input to output to power

**Zero adjustment:** 0 - 50 % of linearity-assured range of the angle sensor (front)

**Span adjustment:** 50 - 100 % of linearity-assured range of the angle sensor (front)

■ **DISPLAY (Input indicator)**

**LCD digital display:** 0.0 - 100.0 % (min. digit 0.1 %)

(No scaling)

## INPUT SPECIFICATIONS

**Input:** 2 - 3 V DC (output from Angle Sensor)

**Excitation:** 5 V DC  $\pm 2$  %

## OUTPUT SPECIFICATIONS

■ **DC Current:** 0 - 20 mA DC

**Minimum span:** 1 mA

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 15 V max.

■ **DC Voltage:** -10 - +12 V DC

**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 10 mA max.; 5 mA for negative voltage output; at  $\geq 0.5$  V

## INSTALLATION

**Power input**

• **AC:** Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 2 VA

• **DC:** Operational voltage range: rating  $\pm 10$  %, or 85 - 150 V for 110 V rating (ripple 10 % p-p max.) approx. 2 W (80 mA at 24 V)

**Operating temperature:** -5 to +60°C (23 to 140°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail

**Weight:** 300 g (0.66 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1$  %

**Display accuracy:**  $\pm(0.1$  % of FS + 1 digit)

**Temp. coefficient:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F)

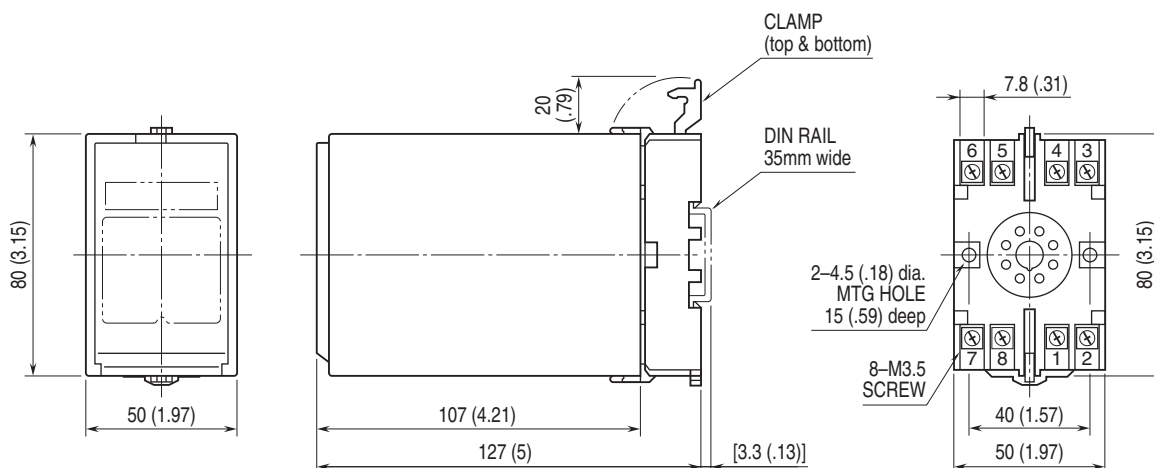
**Response time:**  $\leq 0.5$  sec. (0 - 90 %)

**Line voltage effect:**  $\pm 0.1$  % over voltage range

**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC

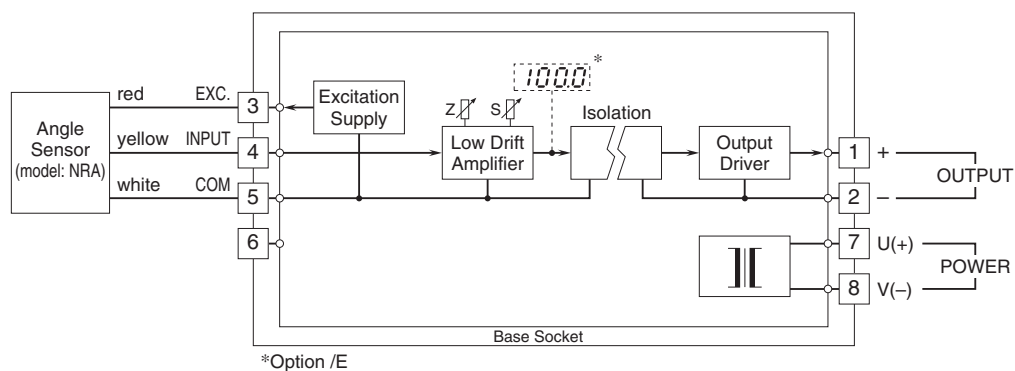
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.