

Plug-in Signal Conditioners M-UNIT

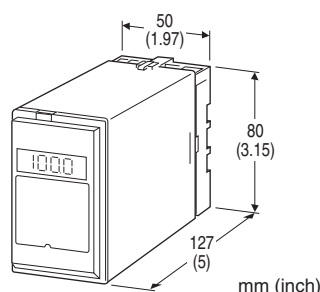
ANGLE SENSOR TRANSMITTER

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 k Ω max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1: 0 - 10 mV DC (Load resistance 10 k Ω min.)
- 2: 0 - 100 mV DC (Load resistance 100 k Ω 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 ± 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 ≥ 0.5 V

INSTALLATION

Power input

- **AC:** Operational voltage range: rating ± 10 %, 50/60 ± 2 Hz, approx. 2 VA
- **DC:** Operational voltage range: rating ± 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: ± 0.1 %

Display accuracy: $\pm (0.1 \text{ \% of FS} + 1 \text{ digit})$

Temp. coefficient: $\pm 0.015 \text{ \%}/^{\circ}\text{C}$ ($\pm 0.008 \text{ \%}/^{\circ}\text{F}$)

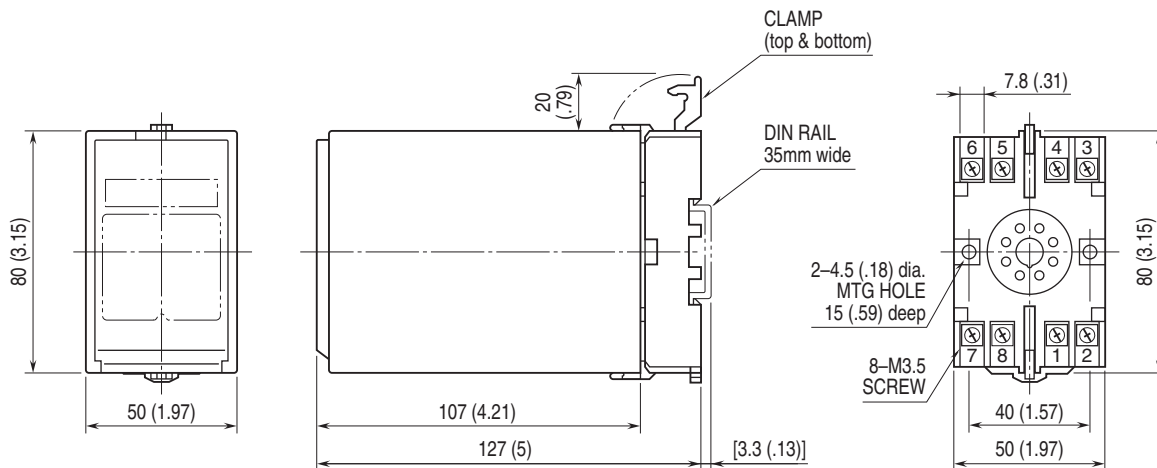
Response time: ≤ 0.5 sec. (0 – 90 %)

Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

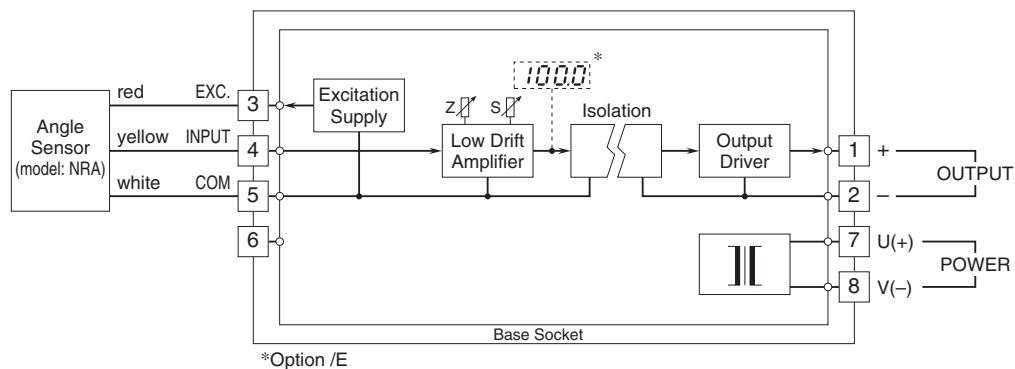
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

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.