

Loop-Power Panel Meters (Indicator)

M4NS, M4YS Series

INSTRUCTION MANUAL

TCD210074AA

Autonics

Thank you for choosing our Autonics product.

Read and understand the instruction manual and manual thoroughly before using the product.

For your safety, read and follow the below safety considerations before using.

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

Keep this instruction manual in a place where you can find easily.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Follow Autonics website for the latest information.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ▲ symbol indicates caution due to special circumstances in which hazards may occur.

▲ Warning Failure to follow instructions may result in serious injury or death.

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
- Do not use the unit in the place where flammable / explosive / corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.
- Install on a device panel to use.**
Failure to follow this instruction may result in fire.
- Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
- Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.

▲ Caution Failure to follow instructions may result in injury or product damage.

- When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm²) to AWG 15 (1.65 mm²) cable or over and tighten the terminal screw with a tightening torque of 0.98 to 1.18 N m.**
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
Failure to follow this instruction may result in fire or product damage.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.

| Connection with the line filter | Connection with the varistor |
|---------------------------------|------------------------------|
| | |

- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics webstie.

M 4 ① S - N A

① Size

N: DIN W 48 × H 24 mm

Y: DIN W 72 × H 36 mm

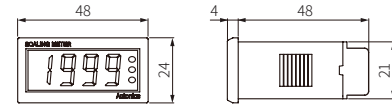
Product Components

| Model | M4NS-NA | M4YS-NA |
|--------------------|-----------------------------|---------|
| Product components | Product, instruction manual | |
| Bracket | × 1 | × 2 |

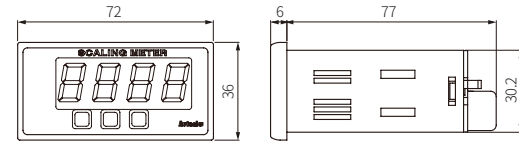
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

• M4NS-NA

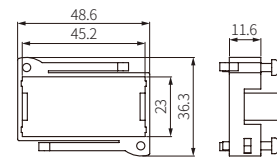
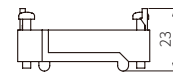


• M4YS-NA

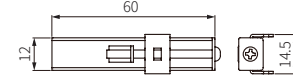
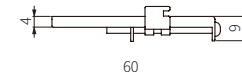


■ Bracket

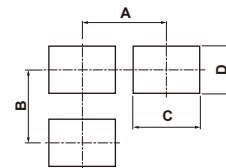
• M4NS-NA



• M4YS-NA



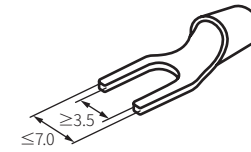
■ Panel cut-out



| | A | B | C | D |
|---------|------|------|--------------------|----------------------|
| M4NS-NA | ≥ 60 | ≥ 37 | 45 ^{+0.3} | 22.2 ^{+0.3} |
| M4YS-NA | ≥ 91 | ≥ 40 | 68 ^{+0.7} | 31.5 ^{+0.5} |

Cautions during Wiring

- Unit: mm, Use terminals of size specified below.



Connections

• M4NS-NA



• M4YS-NA



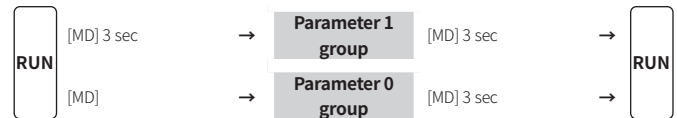
Specifications

| Model | M4NS-NA | M4YS-NA |
|--|---|---|
| Input type | DC 4 - 20 mA | |
| Impedance between input lines ⁰¹⁾ | ≤ 600 Ω | |
| Display method | 7-segment (red) LED (character height: 10 mm) | 7-segment (red) LED (character height: 14 mm) |
| Display accuracy | Dependent on the ambient temperature | |
| 25 ± 5 °C | 0.3 % F.S. rdg ± 1-digit | |
| -10 to 50 °C | 0.4 % F.S. rdg ± 1-digit | |
| Display scale | -1999 to 9999 (4-digit) | |
| Display cycle | 0.5, 1, 2, 3, 4, 5 sec | |
| Resolution | 1 / 12,000 | |
| Unit weight | ≈ 44 g | ≈ 110 g |
| Approval | ERL | |

01) Based on input power 24VDC=

| | |
|-------------------------|---|
| Power supply | Loop powered type |
| Insulation resistance | ≥ 100 MΩ (500 VDC= megger) |
| Dielectric strength | 2,000 VAC~ 50 / 60 Hz for 1 min |
| Vibration | 0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours |
| Vibration (malfunction) | 0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min |
| Shock | 300 m/s ² (≈ 30 G) in each X, Y, Z direction for 3 times |
| Shock (malfunction) | 100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times |
| Ambient temperature | -10 to 50 °C, storage: -25 to 60 °C (no freezing or condensation) |
| Ambient humidity | 35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation) |

Mode Setting



Parameter Setting

- If any key is not entered for 60 sec in each parameter, it returns to RUN mode.
- [MD] key: Saves current setting value and moves to the next parameter.
- [◀] key: Checks fixed value / Changes setting digits.
- [▲] key: Changes setting values.

■ Parameter 1 group

| Parameter | Display | Defaults | Setting range |
|-----------|-------------------------------------|----------|---|
| 1-1 | Low-limit scale | L - 5C | 0400 -1.999 to 9.999, -19.99 to 99.99, -199.9 to 999.9, -1999 to 9999 • Low-limit display value for 4 mA input |
| 1-2 | High-limit scale | H - 5C | 2000 -1.999 to 9.999, -19.99 to 99.99, -199.9 to 999.9, -1999 to 9999 • High-limit display value for 20 mA input |
| 1-3 | Decimal point position | d o t | 00.00 0000, 000.0, 00.00, 0.000 |
| 1-4 | Low-limit display value correction | l o b.t | 0000 -100 to 100 digit |
| 1-5 | High-limit display value correction | h o b.H | 1000 0.900 to 1.100 % |
| 1-6 | Peak monitoring delay time | P E t.t | 0 1 5 0 to 30 sec |
| 1-7 | Display cycle | d t 5.t | 0.5 5 0.5, 1.0, 2.0, 3.0, 4.0, 5.0 sec |
| 1-8 | Error display range | E.P t.t | 3 0: HHHH / LLLL are displayed when input current is over 0 % out DC 4 - 20 mA by high / low-limit 1: HHHH / LLLL are displayed when input current is over 1 % out DC 4 - 20 mA by high / low-limit 2: HHHH / LLLL are displayed when input current is over 2 % out DC 4 - 20 mA by high / low-limit 3: HHHH / LLLL are displayed when input current is over 3 % out DC 4 - 20 mA by high / low-limit 4: L-SC / H-SC are displayed when input current is out of DC 4-20 mA |
| 1-9 | Lock | L o C | o F F ON, OFF • Disable to change or set parameter but enable to check the setting value in parameter group. |

■ Parameter 0 group

| Parameter | Display | Defaults | Reset | Display condition |
|-----------|-------------------------|----------|-------|---|
| 0-1 | Display max. peak value | P E t.H | 2000 | Press the [◀] key to reset. 1-6 Peak monitoring delay time: except 0 |
| 0-2 | Display min. peak value | P E t.L | 400 | |

Error

Error display is released automatically when it is in the measured and display range.

| Display | Description |
|---------|--|
| HHHH | Turns on when the current display value exceeds the range of max. display value (9999 / 1999) |
| LLLL | Turns on when the current display value exceeds the range of min. display value (-1999 / 9999) |

The error display range is different depending on the setting value of the 1-8 Error display range. ⁰¹⁾

01) DC 4-20 mA (16 mA scale) input, based on 1-8 Error display range = 3
If the input current is 3 % higher than 20 mA, 16 mA × 3 % = 0.48 mA → 20 mA + 0.48 mA = 20.48 mA, so HHHH is displayed when the input current is over 20.48 mA.
If the input current is 3 % lower than 4 mA, 16 mA × 3 % = 0.48 mA → 4 mA - 0.48 mA = 3.52 mA, so LLLL is displayed when the input current is below 3.52 mA.