4 Digit Multi Panel Meters

M4NN Series

INSTRUCTION MANUAL

TCD210072AD

Autonics

Thank you for choosing our Autonics product.
Be sure to read and fully understand the instruction manual and other manuals before using the product.
For your safety, read and follow the safety precautions, warnings, cautions, and handling instructions listed in the instruction manual, other manuals, and the Autonics website.
Keep this document in a location where it can be easily accessed.

Visit the Autonics website (www.autonics.com or QR code) for the latest information. Manuals, CAD files, certifications, software, etc. are available. The dimensions, specifications, certifications, etc. are subject to change without notice for product improvement. Certain models may be discontinued without notice.

Safety Precautions

- 'Safety Precautions' are provided to ensure safe and proper use of the product and to prevent accidents or hazards. Please make sure to follow them carefully.
- ⚠ symbol indicates a caution, warning of potential hazards under certain conditions.

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

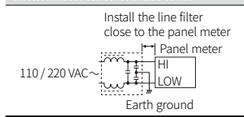
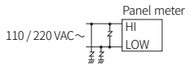
01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. Do not use or store 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.
03. Install on a device panel to use.
Failure to follow this instruction may result in fire.
04. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire.
05. Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
06. 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.

01. When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm²) to AWG 20 (0.50 mm²) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.90 N m.
Failure to follow this instruction may result in fire or malfunction due to contact failure.
02. Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
03. 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.
04. 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 N N - ❶ - ❷ ❸

❶ Input type
DV: DC voltage
DA: DC current
AV: AC voltage
AA: AC current

❷ Power supply
1: 5 - 24 VDC

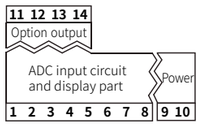
❸ Preset output
N: Indicator
1: NPN open collector
2: PNP open collector

Product Components

- Product (+ bracket)
- Unit sticker
- Instruction manual

Cautions during Wiring

- Input and output are insulated from the power.



Specifications

Model	M4NN-DV-1□	M4NN-DA-1□	M4NN-AV-1□	M4NN-AA-1□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	Dependent on the input type			
+DC input	≈ -10 to 110 % F.S. for each measured input range		-	
-DC input	≈ -110 to 110 % F.S. for each measured input range		-	
AC input	-		≈ 110 % F.S. for each measured input range	
Display method	7-segment (red) LED (character height: 11 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2-digit	± 0.1 % F.S. rdg ± 2-digit [02]	± 0.3 % F.S. rdg ± 3-digit	± 0.3 % F.S. rdg ± 3-digit
-10 to 50 °C	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]
Display cycle	0.1 to 5.0 sec (select per 0.1 sec)			
Display scale	-1999 to 9999 (4-digit)			
A / D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	50 ms		16.6 ms	
Resolution	1 / 12,000			
Preset output	NPN / PNP open collector output model			
Load voltage	≤ 30 VDC⎓			
Load current	≤ 100 mA			
Residual voltage	NPN open collector output: ≤ 1 VDC⎓ / PNP open collector output: ≤ 2 VDC⎓			
Protection rating	IP53 (front part, IEC standard)			
Unit weight (packaged)	≈ 46.8 g (≈ 83.7 g)		≈ 46.9 g (≈ 83.8 g)	
Certification	CE UK EAC		CE UK EAC	

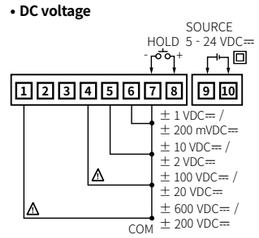
01) Available frequency display
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3-digit
03) 5 A terminal: ± 1 % F.S. rdg ± 3-digit

Power supply	5 - 24 VDC⎓
Permissible voltage range	90 to 110 % of rated voltage (low-limit: 5 VDC⎓ fixed)
Power consumption	≤ 3 W
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between the charging part and the case: 3,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)
Connection	Plug type - socket type terminal

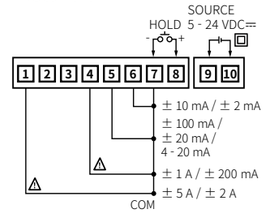
Connections

■ Input

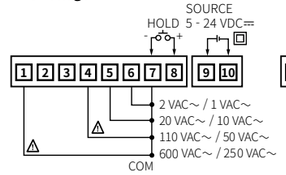
• DC voltage



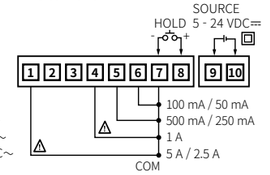
• DC current



• AC voltage

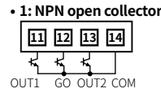


• AC current

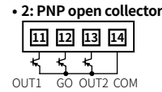


■ Output

• 1: NPN open collector



• 2: PNP open collector



Error

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

Display	Description	Troubleshooting
HHHH	Flashes when measurement input is exceeded the max. allowable input (110 %)	Disconnect power supply and check the cables.
LLLL	Flashes when measurement input is exceeded the min. allowable input (minus input display as ON: -110 % / minus input display as OFF: -10 %)	
d-HH	Flashes when measurement input is exceed the max. display value (9999)	Reset within the display range.
d-LL	Flashes when measurement input is exceed the min. display value (-1999)	
F-HH	Flashes when input frequency is exceed the max. measured range (10 kHz) and display range (9999)	-
PF-H	Flashes when power factor display value to measured input is over than LAG 0.50	
PF-L	Flashes when power factor display value to measured input is less than LEAD -0.50	
ouEr	Flashes twice when it exceeds zero range (±99) and returns to run mode	Reset within the zero range.

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