Indicator / Thumbwheel Switch Panel Meters

M4W Series

INSTRUCTION MANUAL

TCD210077AC

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.

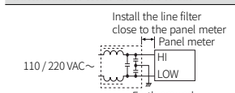
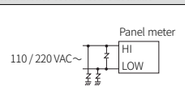
01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)
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 or electric shock.
04. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire or electric shock.
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 or electric shock.

⚠ 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 15 (1.65 mm²) cable or over and tighten the terminal screw with a tightening torque of 0.98 to 1.18 N m.
Use the wiring suitable for the load current capacity.
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 or electric shock.
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.
- 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 website.

M 4 W ❶ - ❷ ❸ - ❹

❶ Output
No mark: Indicator
1P: Single setting
2P: Dual setting

❷ Input type
DV: DC voltage
AV: AC voltage
DA: DC current
AA: AC current
W: Power
T: Rotation
S: Speed
DI: Scaling (DC 4 - 20 mA)

❸ AC measurement method
No mark: AVG
R: RMS

❹ Measurement input
Refer to measurement input specifications.

Measurement Input Specifications

Measurement input	Input type							
	DV	AV	DA	AA	W 01)	T 02)	S 02)	DI
No mark	-	-	-	-	-	-	-	1999
1	199.9 mVDC⎓	199.9 mVAC～	199.9 μA	19.99 mA	199.9 W	1999 rpm 0 - 10 VDC⎓	1999 m / min 0 - 10 VDC⎓	-
2	1.999 VDC⎓	1.999 VAC～	1.999 mA	199.9 mA	1.999 kW	1999 rpm 0 - 10 VAC～	1999 m / min 0 - 10 VAC～	-
3	19.99 VDC⎓	19.99 VAC～	19.99 mA	1.999 A	19.99 kW	-	-	-
4	199.9 VDC⎓	199.9 VAC～	199.9 mA	19.99 A 03)	199.9 kW	-	-	-
5	300 VDC⎓	-	1.999 A	199.9 A 03)	-	-	-	-
6	-	400 VAC～	19.99 A 04)	1999 A 03)	-	-	-	-
7	-	-	199.9 A 04)	-	-	-	-	-
8	-	-	1999 A 04)	-	-	-	-	-
DX	-	-	-	-	-	DC input option		-
AX	-	-	-	-	-	AC input option		-
XX	Option	Option	Option	Option	Option	-	-	Option

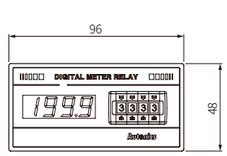
01) This specification is based on the transducer with 0 - 10 VDC⎓ output.
When the output of transducer is DC 4 - 20 mA or 1 - 5 VDC⎓, use the scaling meter.
02) This specification is based on the tacho generator with 0 - 10 VDC⎓ or 0 - 10 VAC～ output.
03) Displayed when a C.T for AC 5 A output is used.
04) Displayed when a shunt for 50 mVDC⎓ output is used.

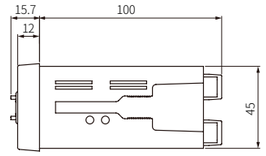
Product Components

- Product (+ bracket)
- Instruction manual

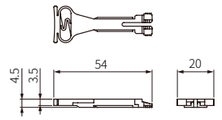
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- Following items are based on single setting model.

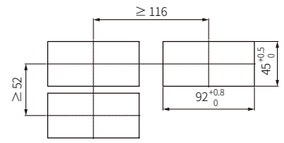




■ Bracket

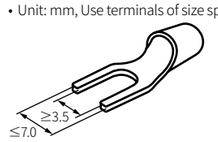


■ Panel cut-out



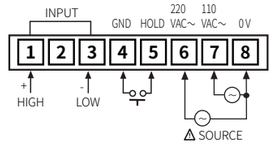
Cautions during Wiring

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

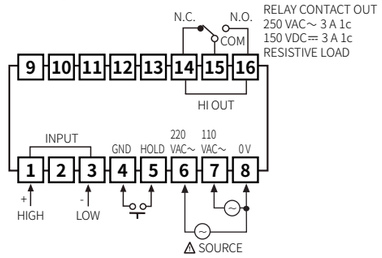


Connections

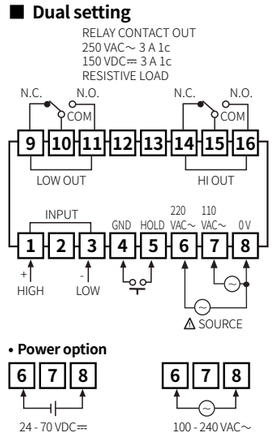
■ Indicator



■ Single setting



■ Dual setting



• Power option

Specifications

Input type	DC voltage	AC voltage	DC current	AC current	Power	Rotation, speed	Scaling
Max. allowable input	≤ 300 VDC⎓	≤ 400 VAC～	≤ DC 2 A	≤ AC 5 A	≤ 10 VDC⎓	≤ 10 VDC⎓ ≤ 10 VAC～	DC 4 - 20 mA
	≈ 150 % F.S. for each measured input range 01)						
Display method	7-segment (red) LED (character height: 14 mm)						
Display accuracy	Dependent on the input type						
DC input	± 0.2 % F.S. rdg ± 1-digit					± 0.3 % F.S. rdg ± 1-digit	
AC input	± 0.5 % F.S. rdg ± 1-digit						
Display scale	1999						
Display rate	2.5 times / sec						
Response speed	≈ 2 sec (0 to 1999)						
Sampling cycle	300 ms						
Operation method	Dual integral method						
Unit weight	Dependent on the output type						
Indicator	≈ 168 g						
Single setting	≈ 253 g						
Dual setting	≈ 278 g						
Certification	EAC						

01) At 400 VAC～ input: ≈ 120 % F.S. for each measured input range

Output type	Indicator	Single setting	Dual setting
Power supply 01)	110 / 220 VAC～ 50 / 60 Hz		
Permissible voltage range	90 to 110 % of rated voltage		
Power consumption	Dependent on the input type		
DC input	2 W	3 W	3 W
AC input	4 VA	5 VA	5 VA
Contact capacity	-	250 VAC～ 3 A, 150 VDC⎓ 3 A	250 VAC～ 3 A, 150 VDC⎓ 3 A
Contact composition	-	1c × 1	1c × 2
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	± 1 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 1 hour		
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		
Relay life cycle	Mechanical: ≥ 10,000,000 operations Electrical: ≥ 100,000 operations (250 VAC～ 3A resistive load)		
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		

01) Power supply 24 - 70 VDC⎓, 100 - 240 VAC～ 50 / 60 Hz options are also available to order.

Error

- When 1999 or -1999 flashes with a certain measurement input, disconnect power supply and then check the cables.

18, Bansong-ro 513Beon-gil, Haeundae-gu, Busan, Republic of Korea, 48002
www.autonics.com | +82-2-2048-1577 | sales@autonics.com

Autonics