Indicator / Thumbwheel Switch Panel Meters

M4M Series INSTRUCTION MANUAL

TCD210079AB

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.
- ullet symbol indicates caution due to special circumstances in which hazards may

⚠ 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.) ow this instruction may result in personal injury, economic loss or fire.
- 02. 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.

re 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.
- 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

- 02. Use the unit within the rated specifications.
- illure 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.
- 04. Keep the product away from metal chip, dust, and wire residue which flow

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. ussonmetring 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

Connection with the line filter	Connection with the varistor		
Install the line filter close to the panel meter close to the panel meter HI LOW 110/220 VAC~ HOW DOWN Earth ground	Panel meter 110 / 220 VAC~ HI LOW		

- 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 M 0 - 2 3 - 4

Output No mark: Indicator 1P: Single setting

2P: Dual setting

Input type DV: DC voltage AV: AC voltage

DI: Scaling (DC 4 - 20 mA)

DA: DC current AA: AC current W: Power

T: Rotation S: Speed

No mark: AVG

R: RMS

Measurement input

Refer to measurement input specifications.

Measurement Input Specifications

Measurement	Input type							
input	DV	AV	DA	AA	W ⁰¹⁾	T 02)	S 02)	DI
No mark	-	-	-	-	-	-	-	1999
1	199.9 mVD-	199.9	199.9 µA	19.99	199.9 W	1999 rpm	1999 m/min	-
_	C==	mVAC~	133.5 μπ	mA		0 - 10 VDC==	0 - 10 VDC==	
2	1.999	1.999	1.999	199.9	1.999 kW	1999 rpm	1999 m/min	-
2	VDC=	VAC~	mA	mA		0 - 10 VAC~	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	199.9 kW	-	-	-
5	300 VDC=	-	1.999 A	199.9 A	-	-	-	-
6	-	400 VAC~	19.99 A	1999 A	-	-	-	-
7	-	-	199.9 A	-	-	-	-	-
8	-	-	1999 A	-	-	-	-	-
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.

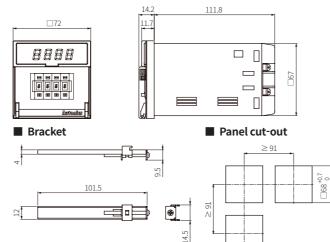
Product Components

Product

- · Instruction manual
- Bracket X 2

Dimensions

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



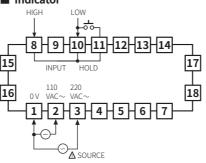
Cautions during Wiring

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

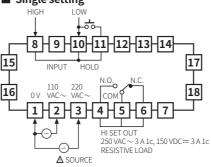


Connections

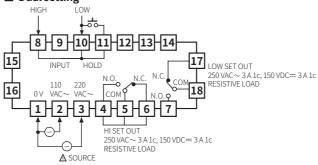
Indicator



■ Single setting



■ Dual setting



Power option 1 2 3

24 - 70 VDC=



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	≤AC5A	≤ 10 VDC==	≤ 10 VDC== ≤ 10 VAC~	DC 4 - 20 mA
	≈ 150 % H	S. for eacl	h measured	d input rang	ge ⁰¹⁾		
Display method	7-segmen	t (red) LED	(character	height: 10	mm)		
Display accuracy	Dependent on the input type						
DC input	\pm 0.2 % F.S. rdg \pm 1-digit						
AC input	\pm 0.5 % F.S. rdg \pm 1-digit						
Display scale	1999						
Sampling time	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						
Indicator	≈ 262 g						
Single setting	≈ 290 g						
Dual setting	≈ 316 g						
Certification [H]							
01) Δ+ 400 VΔC ~ input	≈ 120 % F S	for each me	asured innut	range			

Output	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, 250 VAC~ 3 A 150 VDC== 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 $\sim 50/60$ Hz for 1 min				
Noise immunity	\pm 1 kV square wave noise (pulse width: 1 μ s) 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 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)	$100 \text{ m/s}^2 (\approx 10 \text{ G})$ 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 \sim 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.

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