

**Autonics**

**DIGITAL PANEL METER  
M4M SERIES**

**INSTRUCTION MANUAL**



Thank you for choosing our Autonics products.  
Please read the following safety considerations before use.

**■ Safety Considerations**

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※Safety considerations are categorized as follows.

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

**⚠Caution** Failure to follow these instructions may result in personal injury or product damage.

※The symbols used on the product and instruction manual represent the following.  
⚠ symbol represents caution due to special circumstances in which hazards may occur.

**⚠ Warning**

- 1. 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 fire, personal injury, or economic loss.

- 2. Install on a device panel to use.**  
Failure to follow this instruction may result in electric shock or fire.

- 3. Do not connect, repair, or inspect the unit while connected to a power source.**  
Failure to follow this instruction may result in electric shock or fire.

- 4. Check 'Connections' before wiring.**  
Failure to follow this instruction may result in fire.

- 5. Do not disassemble or modify the unit.**  
Failure to follow this instruction may result in electric shock or fire.

**⚠ Caution**

- 1. When connecting the power/measurement input and relay output, use AWG 24 (0.20mm<sup>2</sup>) to AWG 15(1.65mm<sup>2</sup>) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.**  
Use proper cables for the rated load current.

- 2. Use the unit within the rated specifications.**  
Failure to follow this instruction may result in fire or product damage.

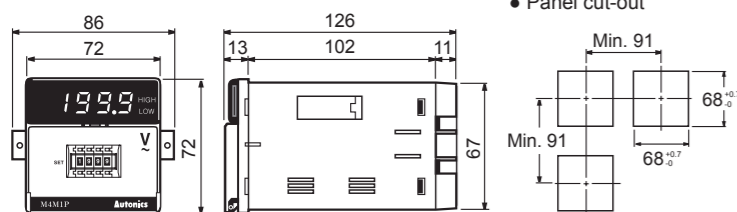
- 3. Use dry cloth to clean the unit, and do not use water or organic solvent.**  
Failure to follow this instruction may result in electric shock or fire.

- 4. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**  
Failure to follow this instruction may result in fire or explosion.

- 5. Keep metal chip, dust, and wire residue from flowing into the unit.**  
Failure to follow this instruction may result in fire or product damage.

**■ Dimensions**

(unit: mm)



※The above specifications are subject to change and some models may be discontinued without notice.  
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

**■ Ordering Information**

M 4 M 1P - A V R - 6

Measuring input range	Num ber	Refer to measuring input range
Display type	Blank	AVG value
	R	RMS Value
Measurement function	V	Voltage
	A	Current
	W	Watt
	T	Tachometer
	S	Line Speed
	I	Scaling
Measuring input	D	DC Type
	A	AC Type
Output	1P	Single preset
	2P	Dual preset
	Blank	Indicator
Size	M	DIN W72×H72mm
Digit	4	1999(3¼ Digit)
Item	M	Meter

**● Measuring input range**

Range Model	Blank	1	2	3	4	5	6	7	8	X
AV(R)	—	199.9mV	1.999V	19.99V	199.9V	—	400V	—	—	Option
AA(R)	—	19.99mA	199.9mA	1.999A	19.99A	199.9A	1999A	—	—	Option
DV	—	199.9mV	1.999V	19.99V	199.9V	300V	—	—	—	Option
DA	—	199.9µA	1.999mA	19.99mA	199.9mA	1.999A	19.99A	199.9A	1999A	Option
W*1	—	199.9W	1.999kW	19.99kW	199.9kW	1999kW	—	—	—	Option
T(R)	—	1999rpm	1999rpm	—	—	—	—	—	—	Option
S(R)	—	1999m/min	1999m/min	—	—	—	—	—	—	Option
D*2	1999	—	—	—	—	—	—	—	—	Option

※1: When the output of power converter is 10VDC, measuring input value is maximum. In case that output is DC4-20mA, scaling meter should be used.  
※2: 1-5VDC measuring input is optional.  
※Power converter should be used with Watt meter and Tachometer/Line speed meter should be used with Tacho-generator.  
※When "1999" or "4999" is flashes with a certain measurement input, disconnect power supply and then check the cables.

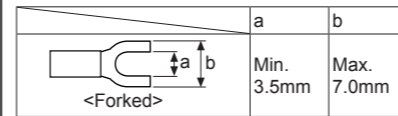
**■ Specifications**

Model	M4M-DV-□	M4M-AV-□	M4M-DA-□	M4M-AA-□	M4M-W-□	M4M-T-□□	M4M-S-□□	M4M-DI
	M4M1P-DV-□	M4M1P-AV-□	M4M1P-DA-□	M4M1P-AA-□	M4M1P-W-□	M4M1P-T-□□	M4M1P-S-□□	M4M1P-DI
	M4M2P-DV-□	M4M2P-AV-□	M4M2P-DA-□	M4M2P-AA-□	M4M2P-W-□	M4M2P-T-□□	M4M2P-S-□□	M4M2P-DI
Max. input	Max. 300VDC=		Max. 400VAC~	Max. DC 2A	Max. AC 5A	Max. 10VDC=	Max. 10VDC=, Max. 10VAC~	DC4-20mA
	150% for each input specification(at 400VAC~:120%)							
Max. display range	Max. 1999							
Measurement function	DC voltage	AC voltage	DC current	AC current	AC watt	rpm	Speed	Scaling meter
Power supply	110/220VAC~ 50/60Hz(Option:100-240VAC~ 50/60Hz, 24-70VDC=)							
Allowable voltage range	90 to 110% of rated voltage							
Power consumption	DC: 2W, AC: 4VA (At 1P, 2P-DC: 3W, AC: 5VA)							
Display method	7Segment LED Display(Character height: 10mm)							
Sampling cycle	300ms							
A/D conversion method	Dual slope intergal method							
Response time	2sec(0 to 1999)							
Sampling times	2.5 times/sec							
Insulation resistance	Over 100MΩ(at 500VDC megger)							
Dielectric strength	2000VAC 50/60Hz for 1 minute							
Noise immunity	±1kV the square wave noise(pulse width:1µs) by the noise simulator							
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 1 hour						
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 10 minutes						
Shock	Mechanical	300m/s²(approx. 30G) in each X, Y, Z direction for 3 times						
	Malfunction	100m/s²(approx. 10G) in each X, Y, Z direction for 3 times						
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 65°C						
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH						
Output capacity	M4M: Non, M4M1P: 250VAC 3A 1c, M4M2P: 250VAC 3A 1c×2							
Relay life cycle	Mechanical	Min. 10,000,000 times						
	Electrical	Min. 100,000 times(250VAC 3A resistive load)						
Display accuracy	DC: F.S. ±0.2% rdg ±1Digit 23°C ±5°C, AC: F.S. ±0.5% rdg ±1Digit 23°C ±5°C							
Unit weight	M4M: Approx. 262g, M4M1P: Approx. 290g, M4M2P: Approx. 316g							

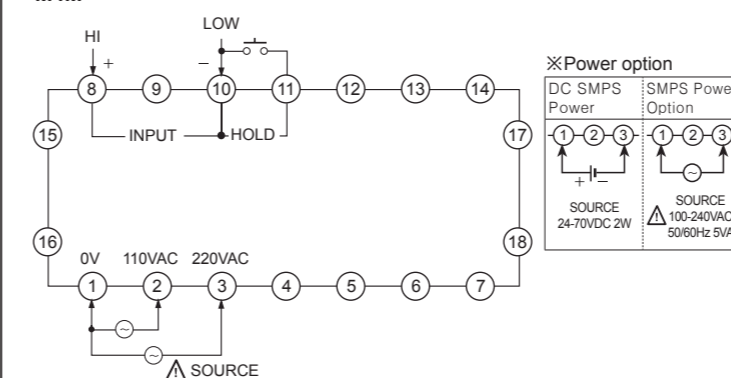
※Environment resistance is rated at no freezing or condensation.

**■ Connections**

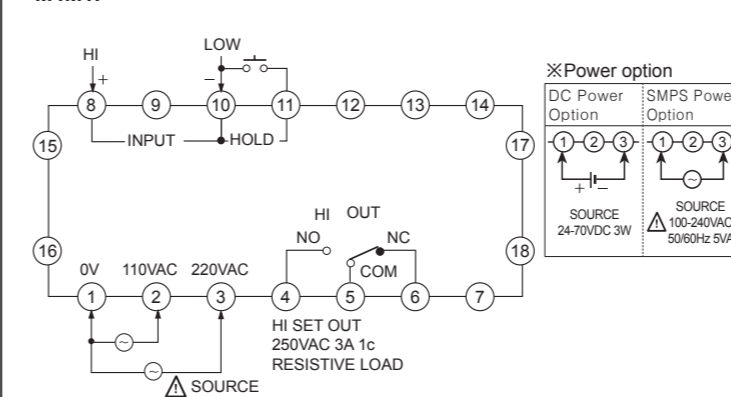
※Use terminals of size specified below.



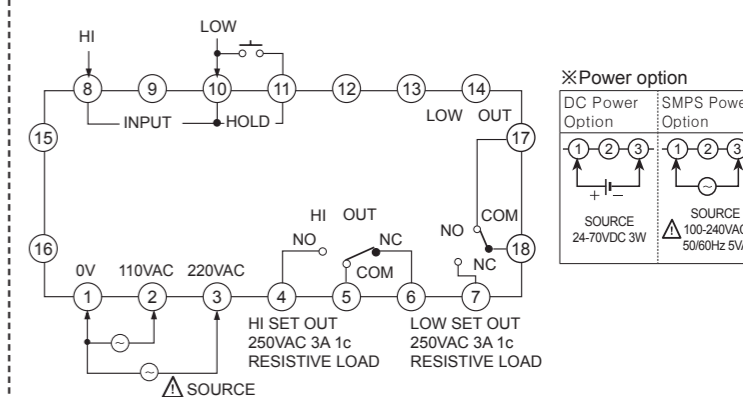
**● M4M**



**● M4M1P**



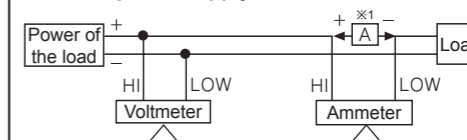
**● M4M2P**



**■ Connections of Applications**

**○ Simultaneous connection of voltmeter and ammeter**

**● For DC power supply**

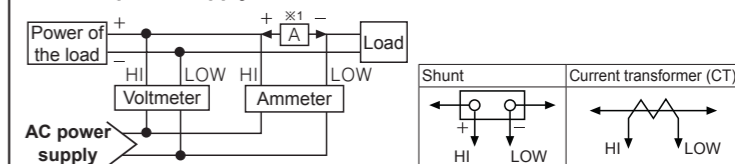


**DC power supply 1 DC power supply 2**  
※1: Compared to measurement input range, higher measuring voltage needs a multiplier and lower measuring voltage needs a shunt.

※When using voltmeter and ammeter simultaneously, connect the separated power supply each.

※(-) terminal of the power and (-) terminal of measurement input are shorted.

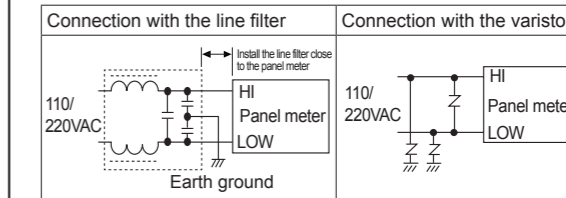
**● For AC power supply**



※1: When measuring higher current than measurement input, use a shunt for DC current and a current transformer (CT) for AC current.

**■ Cautions during Use**

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
3. 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.



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

**■ Major products**

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co., Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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