

DIGITAL PANEL METER  
M4M SERIES  
M A N U A L



Thank you very much for selecting Autonics products.  
For your safety, please read the following before using.

Caution for your safety

- ※Please keep these instructions and review them before using this unit.
- ※Please observe the cautions that follow;
- Warning** Serious injury may result if instructions are not followed.
- Caution** Product may be damaged, or injury may result if instructions are not followed.
- ※The following is an explanation of the symbols used in the operation manual.  
⚠caution: Injury or danger may occur under special conditions.

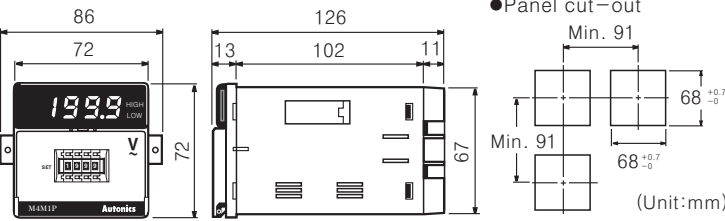
Warning

- In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required.**  
It may result in serious damage, fire or human injury.
- It must be mounted on panel.**  
It may give an electric shock.
- Do not repair or check up when power on.**  
It may give an electric shock.
- Do not disassemble and modify this unit, when it requires. If needs, please contact us.**  
It may give an electric shock and cause a fire.
- Please check the number of terminal when connect power line or measuring input.**  
It may cause a fire.

Caution

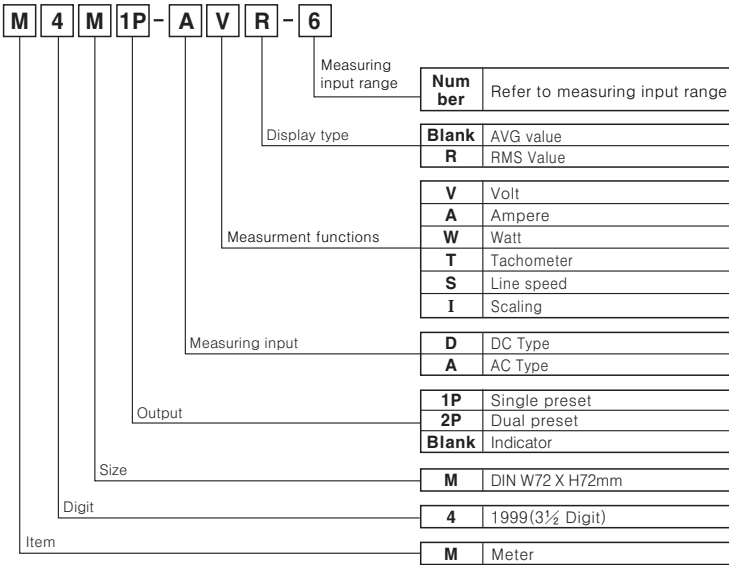
- This unit shall not be used outdoors.**  
It might shorten the life cycle of the product or give an electric shock.
- When wire connection, AWG 20(0.50mm<sup>2</sup>) should be used and screw bolt on terminal block with 0.74N·m to 0.90N·m strength.**  
It may result in malfunction or fire due to contact failure.
- Please observe specification rating.**  
It might shorten the life cycle of the product and cause a fire.
- Do not use the load beyond rated switching capacity of Relay contact.**  
It may cause insulation failure, contact melt, contact failure, relay broken, fire etc.
- In cleaning the unit, do not use water or an oil-based detergent.**  
It might cause an electric shock or fire that will result in damage to this product.
- Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray the sun, radiant heat, vibration, impact etc.**  
It may cause explosion.
- Do not inflow dust or wire dregs into inside of this unit.**  
It may cause a fire or mechanical trouble.
- Please connect properly after checking the polarity of measuring terminals.**  
It may cause a fire or explosion.

Dimensions



※The above specifications are subject to change without notice.

Ordering information



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	—	1999rpm	1999rpm	1: 0 to 10VDC Measuring input 2: 0 to 10VAC measuring input X: Measuring input except 1, 2						
S	—	1999/min	1999/min							
DI*2	1999	—								Option

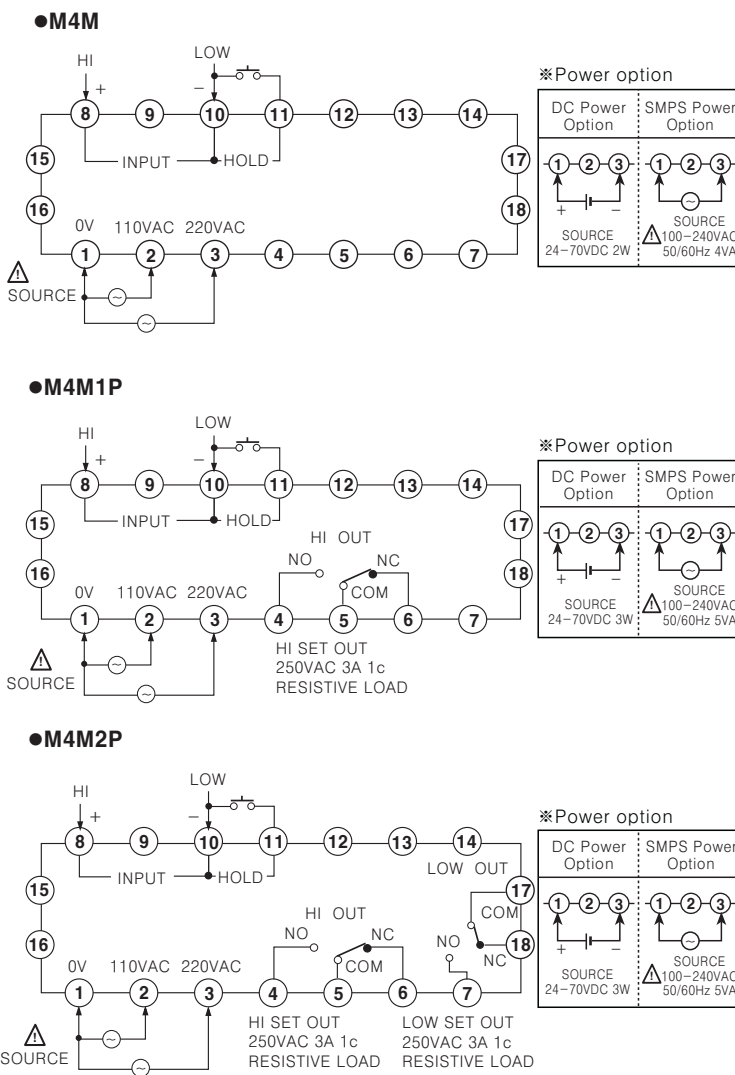
- ※1: When the output of power converter is 10VDC, measuring input value is maximum. In case that output is DC4~20mA, scaling meter should be used.
- ※2: 1~5VDC measuring input is optional.
- ※Power converter should be used with Watt meter and Tachometer/Line speed meter should be used with Tacho-generator.

Specifications

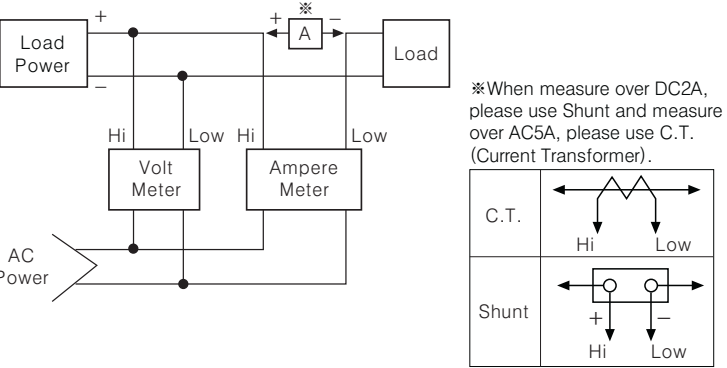
Model	M4M-DV-□ M4M1P-DV-□ M4M2P-DV-□	M4M-AV-□ M4M1P-AV-□ M4M2P-AV-□	M4M-DA-□ M4M1P-DA-□ M4M2P-DA-□	M4M-AA-□ M4M1P-AA-□ M4M2P-AA-□	M4M-W-□ M4M1P-W-□ M4M2P-W-□	M4M-T-□-□ M4M1P-T□-□ M4M2P-T□-□	M4M-S-□-□ M4M1P-S□-□ M4M2P-S□-□	M4M-DI M4M1P-DI M4M2P-DI
Max. input	Max. 300VDC	Max. 400VAC	Max. DC 2A	Max. AC 5A	Max. 10VDC	Max. 10VDC, Max. 10VAC		DC4-20mA
	150% for input spec.(At 400VAC:120%)							
Max. display range	Max. 1999							
Measurement function	DC Voltage	AC Voltage	DC Ampere	AC Ampere	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	Min. 100MΩ (at 500VDC megger)							
Dielectric strength	2000VAC 50/60Hz for 1 minute							
Noise strength	±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 of X, Y, Z directions for 1 hour						
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes						
Shock	Mechanical	300m/s <sup>2</sup> (Approx. 30G) 3 times at X, Y, Z direction						
	Malfunction	100m/s <sup>2</sup> (Approx. 10G) 3 times at X, Y, Z direction						
Environment	Ambient temperature	-10 to 50℃, Storage temperature: -25 to 65℃						
	Ambient humidity	35 to 85%RH, Storage humidity: 35 to 85%RH						
Output capacity		M4M:Non, M4M1P: 250VAC 3A 1c, M4M2P: 250VAC 3A 1c×2						
Relay	Mechanical	Min. 10,000,000 times						
life cycle	Electrical	Min.100,000 times(250VAC 3A resistive load)						
Display accuracy		DC: F.S. ±0.2% rdg ±1Digit 23℃ ±5℃, AC: F.S. ±0.5% rdg ±1Digit 23℃ ±5℃						
Weight		M4M:Approx. 262g, M4M1P:Approx. 290g, M4M2P:Approx. 316g						

※Environment resistance is rated at no freezing or condensation.

Connections

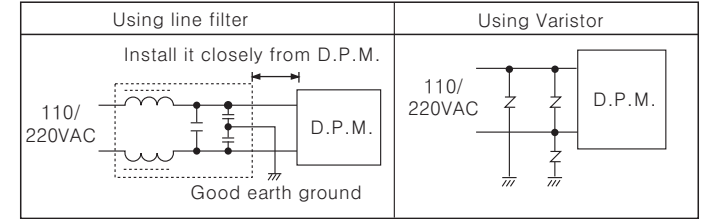


General block diagram

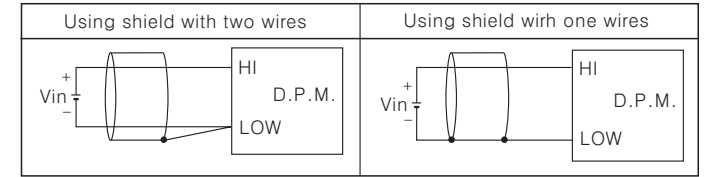


Caution for using

- Please use the terminal (Pitch: 7.2mm max.) when connecting the AC power supply.
- Please use separated line from high voltage line or power line in order to avoid inductive noise.
- Please use power switch or circuit breaker in order to turn OFF the power.
- The switch or circuit breaker should be installed near by users for safety.
- Be sure to avoid using this unit near by machinery makes strong high frequency noise. (Welding machine, high capacity SCR unit etc.)
- When input applied, if "1999" or "4999" are displayed, it has some trouble with measuring input, please check the line after power off.
- Noise inflow from power line can be serious problem for products driving of D.P.M. (Digital panel meter) by AC power. Even though there is condenser for protecting noise between lines in power transformer, but this display unit as small size product, it is very difficult to install protection components. Therefore, please install line filter, varistor or noise absorber in external lines when voltage failure occurred by power relay or magnet S/W operation, spark with high voltage.



- Input line: Shield wire must be used when the measuring input line is getting longer or there are lots of noises.



- Installation environment

- ①It shall be used indoor
- ②Altitude Max. 2000m
- ③Pollution Degree 2
- ④Installation Category II.

※It may cause malfunction if above instructions are not followed.

Major products

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Graphic/Logic panels
- Temperature controllers
- Tachometer/Pulse(Rate) meters
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system(CO<sub>2</sub>, Nd:YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers

**Autonics Corporation**  
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