Autonics DIGITAL PANEL METER
M4Y 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, use AWG 24(0.20mm²) to AWG 15(1.65mm²) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.**
   Failure to follow this instruction may result in fire or malfunction due to contact failure.
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)

● Panel cut-out

85
72
100
7 80 13
36
30
Min. 91
31 +0.5 -0
Min. 40
67 +0.5 -0
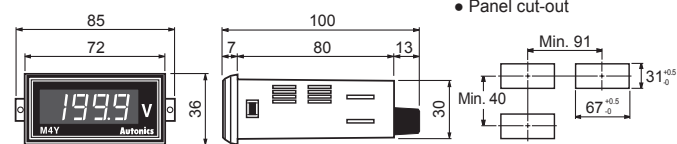
※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

■ Ordering Information

| M | 4 | Y | - | M | 4 | Y | - | 6 | Measuring input range |

	Measuring input range	
	Number	Refer to Measuring input range
Display type	**Blank**	AVR value
	R	RMS value
Measuring function	**V**	Voltage
	A	Current
	W	Watt
	T	Tachometer
	S	Line Speed
	I	Scaling
Measuring input	**D**	DC Type
	A	AC Type
Size	**Y**	DIN W72×H72mm
Digit	**4**	1999(3½ Digit)
Item	**M**	Meter

● Measuring input range

Input\Function	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	—	—	—	—	Option
T(R)	—	1999rpm	1999rpm	1: 0 to 10VDC measurement input						Option
S(R)	—	1999 m/min	1999 m/min	2: 0 to 10VAC measurement input						
D※2	1999	—		X: measurement input except 1, 2						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.
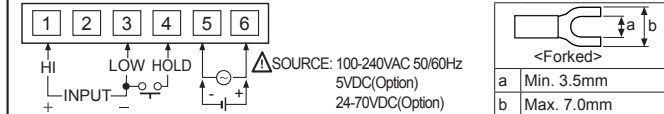※When "1999" or "1999" is flashes with a certain measurement input, disconnect power supply and then check the cables.

■ Specifications

Model	M4Y-DV-□ M4Y-AV-□-□	M4Y-DA-□ M4Y-AA-□-□	M4Y-W-□	M4Y-T□-□ M4Y-S□-□	M4Y-DI
Measurement function	DC, AC voltage	DC, AC current	AC watt	rpm, speed	Scaling
Max. allowable input	Max. 400VAC~ Max. 300VDC=	Max. AC 5A Max. DC 2A	Max. 10VDC=	Tacho-generator output(0-10V)	DC4-20mA
	150% for each input specification(at 400VAC~:120%)				
Max.display range	Max. 1999				
Power supply	100-240VAC~ ±10% 50/60Hz(Option:5VDC= ±10%, 24-70VDC= ±10%)				
Power consumption	DC: 2W, AC: 4VA				
Display method	7Segment LED Display(Character height: 14mm)				
Display accuracy	DC: F.S.±0.2% rdg ±1digit, AC: F.S.±0.5% rdg ±1digit				
Sampling cycle	300ms				
A/D conversion method	Dual slope intergal method				
Response time	2sec(0 to 1999)				
Sampling time	2.5 times/sec				
Insulation resistance	Over 100MΩ (at 500VDC megger)				
Dielectric strength	2000VAC 50/60Hz for 1 minute				
Noise immunity	±2kV 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 1hour			
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 10minutes			
Shock	Mechanical	300m/s²(approx. 30G) in each X, Y, Z direction for 3times			
	Malfunction	100m/s²(approx. 10G) in each X, Y, Z direction for 3times			
Environment	Ambient temperature	-10 to 50℃, storage: -25 to 65℃			
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH			
Unit weight	Approx. 144g				

※Environment resistance is rated at no freezing or condensation.

■ Connections

※Use terminals of size specified below.

| 1 | 2 | 3 | 4 | 5 | 6 |

HI LOW HOLD
INPUT
⚠SOURCE: 100-240VAC 50/60Hz
5VDC(Option)
24-70VDC(Option)

<Forked>
| a | Min. 3.5mm |
| b | Max. 7.0mm |

■ Connections of Applications

◎ **Simultaneous connection of voltmeter and ammeter**

● **For DC power supply**

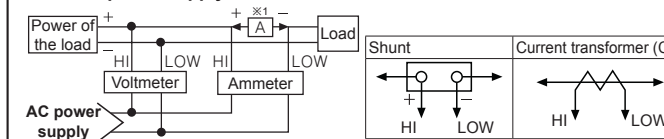Power of the load
Load
HI LOW HI LOW
Voltmeter Ammeter
DC power supply 1 **DC power supply 2**

※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.
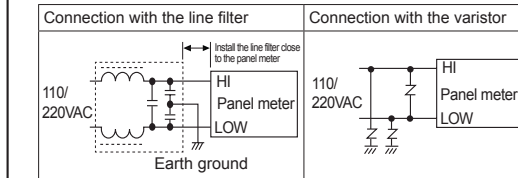
● **For AC power supply**

Power of the load
Load
HI LOW HI LOW
Voltmeter Ammeter
AC power supply

Shunt
HI LOW

Current transformer (CT)
HI LOW

※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. 5VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
4. 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
110/220VAC — Install the line filter close to the panel meter — HI Panel meter LOW — Earth ground	110/220VAC — HI Panel meter LOW

5. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation 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, CO₂, 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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