Autonics

DIGITAL PANEL METER
M4Y SERIES
M A N U A L

Thank you very much for selecting Autonics products.
Please read this manual carefully before you use this unit.

▣ 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

1. **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.
2. **It must be mounted on panel.**
   It may give an electric shock.
3. **Do not repair, check up or connect when power on and measuring input applied.**
   It may give an electric shock.

⚠ Caution

1. **This unit shall not be used outdoors.**
   It might shorten the life cycle of the product or give an electric shock.
2. **Please observe specification rating.**
   It might shorten the life cycle of the product and cause a fire.
3. **Be sure that there is not insulated between measuring input terminal and power terminal.**
   It may cause mechanical trouble of measuring target or result in product damage.
4. **Please separate the power supply when use it as Volt meter and Ampere meter at the same time.**
   It may cause mechanical trouble of measuring target or result in product damage.
5. **Please wire properly after check polarity of power.**
   It may cause a fire or explosion and result in product damage.
6. **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.
7. **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.
8. **Do not inflow dust or wire dregs into inside of this unit.**
   It may cause a fire or mechanical trouble.
9. **Please connect properly after checking the polarity of measuring terminals.**
   It may cause a fire or explosion.

※The above specification are changeable without notice anytime.

▣ Ordering information

M 4 Y - D V □ - X

X	Measuring range by each specification
Indication type	
	Mean value
R	RMS value
V	Volt Meter
A	Ampere Meter
W	Watt Meter
T	Tachometer
S	Line Speed Meter
I	Scaling Meter
F	Frequency Meter
D	DC Type
A	AC Type
Y	DIN Size W72 × H36mm
4	3½digit
M	Meter

●Measuring rane

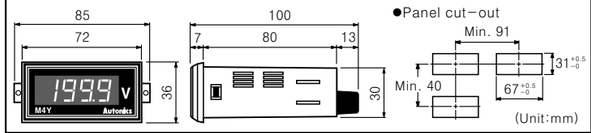
Type \ Range	1	2	3	4	5	6	7	8	X
AV(R)	199.9mV	1.999V	19.99V	199.9V		400V			Option
AA(R)	19.99mA	199.9mA	1.999A	19.99A	199.9A	1999A			Option
DV	199.9mV	1.999V	19.99V	199.9V	300V				Option
DA	199.9㎂	1.999mA	19.99mA	199.9mA	1.999A	19.99A	199.9A	1999A	Option
W	199.9W	1.999kW	19.99kW	199.9kW					Option
T(R)	1999rpm	1999rpm	Range 1 : 0 to 10VDC measurement input Range 2 : 0 to 10VAC measurement input Range X : measurement input except range1, range2						
S(R)	1999 m/min	1999 m/min							
I	Option(Display 0 to 1999)								
F	Indicate 0.5~300Hz when it is 30~300VAC.								

1. When measure over DC 2A, please use Shunt and measure over AC 5A, please use C • T (Current Transformer).
2. Power converter should be used with Watt meter and Tacho/Speed meter should be used with Tacho-generator.

▣ Specification

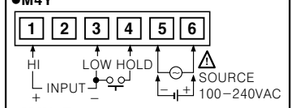
Model	M4Y-DV-□ M4Y-AV-□-□	M4Y-DA-□ M4Y-AA-□-□	M4Y-W-□	M4Y-T□-□ M4Y-S□-□	M4Y-DI	M4Y-F
Measurement function	DC, AC voltage	DC, AC current	AC watt	rpm, speed	Scaling	Frequency
Max. allowable input	Max. AC400V Max. DC300V	Max. AC5A Max. DC2A	Max. DC10V	Tacho-generator output(0-10V)	DC1-5V DC4-20mA	0.5 to 3000Hz, 30-300VAC
	150% per each range(AC400V:120%)					——
Max.display range	Max. 1999(Fixed decimal point)					
Power supply	100-240VAC ±10% 50/60Hz(Option:5VDC ±10%, 24-70VDC ±10%)					
Power consumption	DC:2W, AC:4VA					
Display method	7Segment LED Display					
Display accuracy	DC:F • S±0.2% rdg ±1digit, AC:F • S±0.5% rdg ±1digit					F • S±0.05% rdg ±1digit
Sampling cycle	300ms					
A/D conversion method	Dual slope intergal method					
Response time	2sec.(0 to Max.)					
Sampling time	2.5 times/sec.					
Insulation resistance	100MΩ Min. (at 500VDC)					
Dielectric strength	2000VAC 50/60Hz for 1 minute					
Noise strength	±2kV the square wave noise(pulse width:1㎲) by the noise simulator					
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions 1hour				
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions 10minutes				
Shock	Mechanical	300m/s² (30G) in X, Y, Z direction				
	Malfunction	100m/s² (10G) in X, Y, Z direction				
Ambient temperature	-10 to 50℃(at non-freezing condition)					
Storage temperature	-25 to 65℃(at non-freezing condition)					
Ambient humidity	35 to 85%RH					
Weight	Approx. 170g					

▣ Dimension

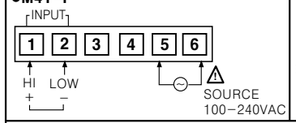


▣ Connection

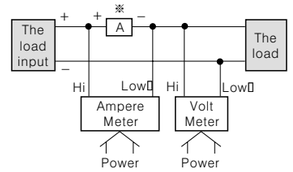
●M4Y



●M4Y-F



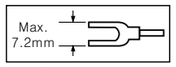
▣ General block diagram



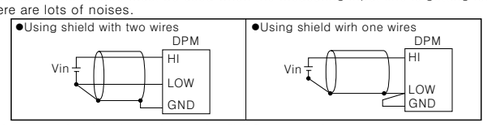
※When measure over DC 2A, please use Shunt and measure over AC 5A, please use C • T (Current Transformer).

▣ Caution for using

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



2. Please use the terminal(M3.5, Max.7.2mm) when connect the AC power source.
3. Please use separated line from high voltage line or power line in order to avoide inductive noise.
4. Please install power switch or circuit breaker in order to cut the power supply.
5. The switch or circuit breaker should be installed near by users for safety.
6. Be sure to avoid using this unit near by machinery makes strong high frequency noise. (Welding machine, high capacity SCR unit etc.)
7. When input applied, if "1999" or "-1999" are displayed, it has some trouble with measuring input, please check the line after power off.
8. Noise inflow from power line can be serious problem for products driving of DPM 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.
9. Input line : Shield wire must be used when the measuring input line is getting longer or there are lots of noises.



10. Please use insulated transformer for 5VDC type product.

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

▣ Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHOMETER
- LINE SPEED METER
- DISPLAY UNIT
- PROXIMITY SWITCH
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER

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NO20020604-EP-KE-04-0020D