

# M4N Series

## DIN W48×H24mm Small Size Digital Panel Meter

### ■ Features

- Max. display: 1999
- Auto Zero function and Hold function
- 7 Segment LED Display
- Power supply: 5VDC, 12-24VDC

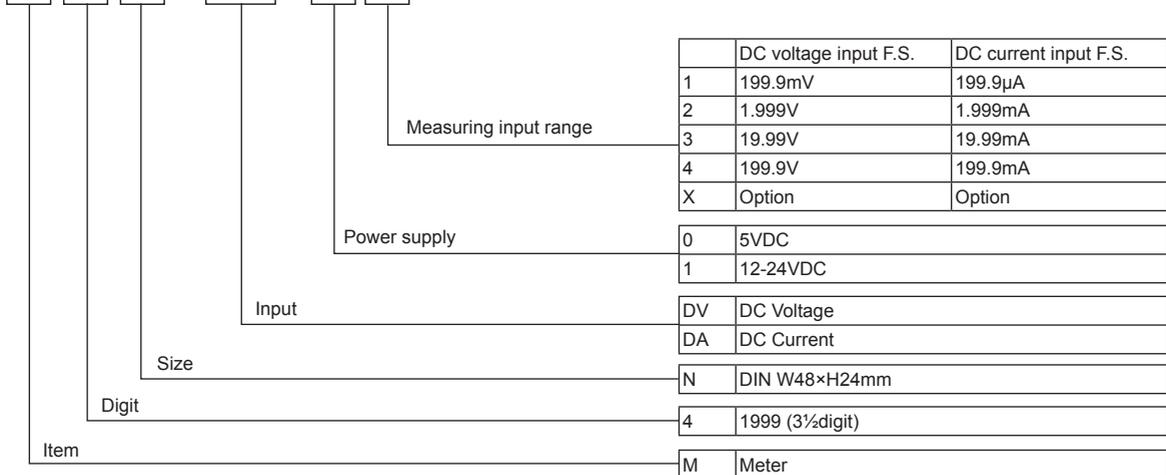
 Please read "Caution for your safety" in operation manual before using.



### ■ Ordering Information

#### ◎ DC VOLTAGE METER / DC CURRENT METER

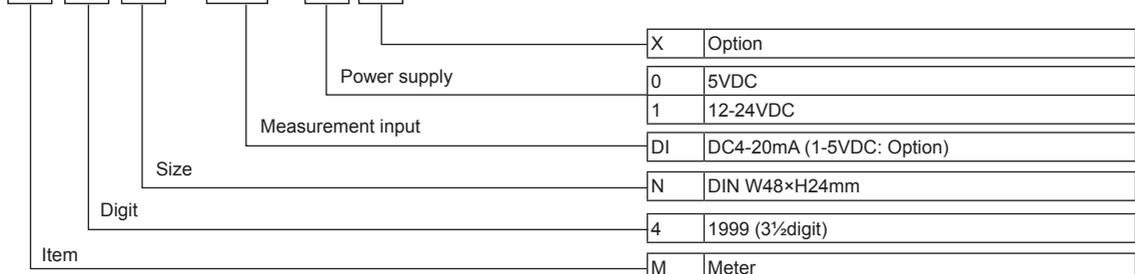
**M 4 N - DV - 0 1**



- ※M4N series is to measure DC only. AC voltage and AC current is not available to be measured.
- ※Measuring range for direct connection is max. 200VDC, max. DC200mA.

#### ◎ DIGITAL SCALING METER

**M 4 N - DI - 0 X**



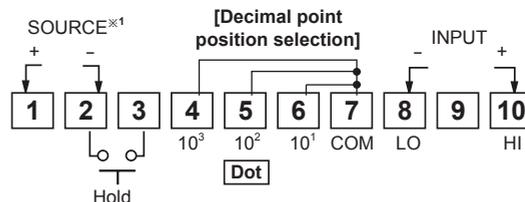
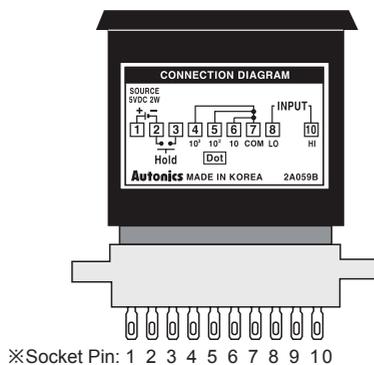
- ※1-5VDC measuring input is optional.
- If there is no additional order, its factory default is DC4-20mA.

## Specifications

Model	M4N-DV-□□	M4N-DA-□□	M4N-DI-□□
Measurement input	DC voltage	DC current	DC4-20mA
Power supply	5VDC, 12-24VDC		
Allowable voltage range	90 to 110% of rated voltage		
Power consumption	2W		
Display method	7 Segment red LED display (Character height: 10mm)		
Max. display range	Max. 1999		
Display accuracy	F-S $\pm 0.2\%$ rdg $\pm 1$ digit		
Sampling period	300ms		
A/D switching method	Dual integral method		
Response time	Approx. 2sec. (0 to 1999)		
Max. allowable input	150% of measurement input range		
Sampling time	2.5 times/sec.		
Insulation resistance	Min. 100M $\Omega$ (at 500VDC megger)		
Dielectric strength	2000VAC 50/60Hz for 1 minute		
Noise strength	$\pm 100$ V the square wave noise (pulse width: 1 $\mu$ s) by the noise simulator		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 1hour	
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 10min.	
Shock	Mechanical	300m/s <sup>2</sup> (approx. 30G) in each X, Y, Z direction for 3 times	
	Malfunction	100m/s <sup>2</sup> (approx. 10G) in each X, Y, Z direction for 3 times	
Environment	Ambient temperature	-10 to 50°C, storage: -20 to 60°C	
	Ambient humidity	35 to 85%RH, storage: 35 to 95%RH	
Unit weight	Approx. 44g		

※Environment resistance is rated at no freezing or condensation.

## Connection



※1: 5VDC, 12-24VDC

※In case of changing position of decimal point, disconnect switching pattern point on PCB and connect terminal contact according point to be changed.

※Socket pin 9, NC terminal, is not connected at inside.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

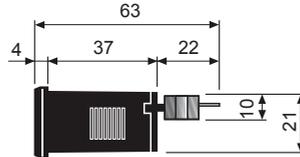
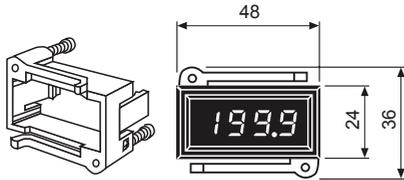
(T) Software

# M4N Series

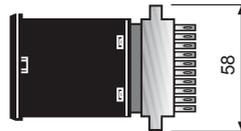
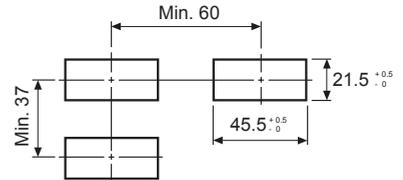
## ■ Dimensions

(unit: mm)

### ● Bracket

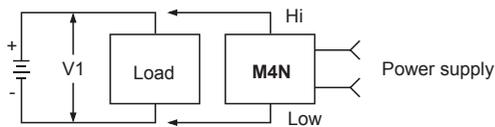


### ● Panel cut-out

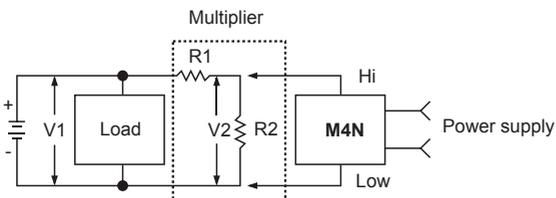


## ■ Connections

### ◎ DC volt meter connection



(Fig. 1) Measuring input (V1) is under 200VDC

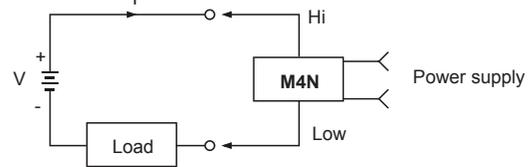


(Fig. 2) Measuring input (V1) is under 200VDC

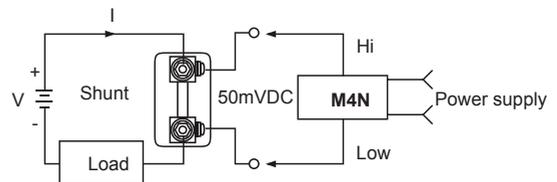
※When the measuring voltage is over 200VDC, please select R1 and R2 in order to make V2 less than max. measuring voltage using multiplier.

$$V2 = \frac{R2}{R1+R2} \times V1 \quad R1 > R2$$

### ◎ DC current meter connection



(Fig. 3) Measuring current is under DC200mA

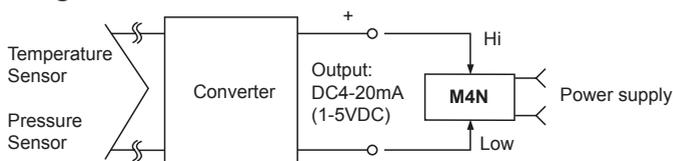


(Fig. 4) Measuring current is 50mVDC

※When the current is higher than DC200mA, please use shunt.

※Second section of shunt is DC50mV.

### ◎ Scaling meter connection



※1-5VDC output of converter is sold separately.

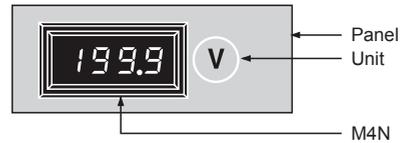
# Compact Panel Meter

## ■ Proper Usage

### ◎ Caution for selecting and using products

- Be careful customized product by requirement cannot be replaced.
- When power is applied, it may display arbitrary number, because measuring input terminal is opened. If connect Low terminal of measuring input to GND, it displays "000".
- If it indicates 1 or -1 during input signal is ON, please turn OFF the power and check the connection condition, because the input signal is too low or high.
- When measuring voltage is higher than 200VDC, please divide the voltage with multiplying resistance to make lower than 200VDC.  
(Refer to the connection method of DC volt meter in the application of connections)  
E.g.)Measuring 1000VDC  
As the above connection figure of DC volt meter, select the R1 value to make 200VDC on R2.  
(Generally R1 value will be higher than R2 value.)  
Order the D.P.M indicating 1000V for 300VDC.
- Select another item or use shunt for over than DC200mA of measured value.  
(See the connection method of DC current for the application of using shunt.)  
E.g.)In case of measuring 20ADC  
Use the shunt used for 20ADC/50mVDC and the specification  
should be ordered as M4N-DV-X 50mVDC/19.99.  
※Our company does not sell a shunt. Please connect our distributor to purchase the item.
- M4N series is produced for 5VDC and 12-24VDC. Therefore, before you order the item please check the model again.
- The specification of measurement input, which is indicated in model ordering, is a standard specification, 1:1 of measurement input and processing value. The additional specifications can be customizable.  
\* The application of M4N-DV/M4N-DA  
M4N - DV - 0X 10VDC / 100.0  
M4N - DA - 0X DC50mA / 199.9  
\* The application of M4N-DI  
M4N - DI - 0X DC4-20mA / 100.0  
(Note)If measurement input is 1-5VDC, please indicate it. Other wise, it will be produced with DC4-20mA.

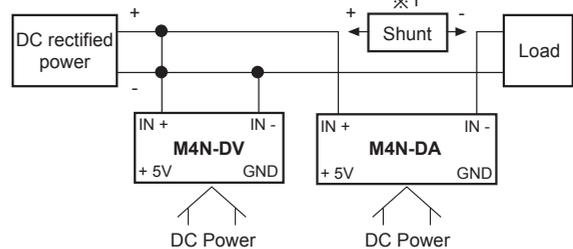
- Indicating method of unit  
M4N is not indicated a unit on the product, therefore please indicate it in panel.



- Display of decimal point  
The displaying decimal point is set in the product by your order.  
(The prior products display the decimal point by using jump line in external connector like as connection figures.)  
After purchasing the product, do not change the decimal point. If you need to change it, please connect us or distributor.

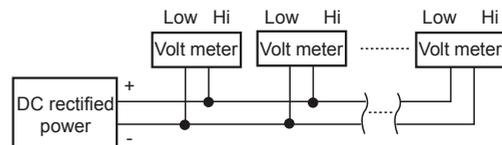
### ◎ Caution for connecting M4N

- In case of using both volt meter and current meter  
**Because the connection of measurement input terminal and power terminal is not insulated,** when you use volt meter and current meter by connecting one set, please provide individual power.  
In case of using same power, it may damage the product.



- ※1: If measure higher current than measuring input range, please use a shunt. If measure higher voltage than measuring input range, please use multiplier.
- ※If use a voltage measurement function meter and a current measurement function meter to a set, please use DC power 1EA individually.
- ※Power - terminal and measurement input terminal are shorted inside of the product.

- It is available using several volt meters with providing one DC power. However, the potential difference between - of measurement input and - of power may cause an error.



- ※Current meter cannot be used with above connection. Please provide power separately.

- Make sure to check the polarity of provided power before turn ON the power.  
(If the polarity is connected reversely, internal circuit could be damaged.)
- Please check if the pin numbers are changed after connecting.

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(B)	Fiber Optic Sensors
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(D)	Proximity Sensors
(E)	Pressure Sensors
(F)	Rotary Encoders
(G)	Connectors/ Sockets
(H)	Temperature Controllers
(I)	SSRs / Power Controllers
(J)	Counters
(K)	Timers
(L)	Panel Meters
(M)	Tacho / Speed / Pulse Meters
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