DIGITAL SCALING METER
M4V 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

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.**
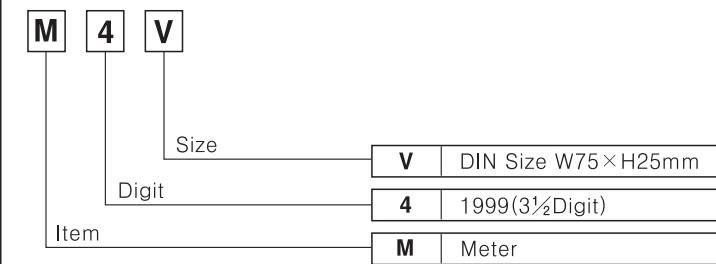   It may result in serious damage, fire or human injury.

⚠ Caution

1. **It must be mounted on panel.**
   It may give an electric shock.
2. **Do not repair, check up or connect when power on and measuring input applied.**
   It may give an electric shock.
3. **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.
4. **This unit shall not be used outdoors.**
   It might shorten the life cycle of the product or give an electric shock.
5. **Please observe specification rating.**
   It might shorten the life cycle of the product and cause a fire.
6. **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.
7. **Please separate the power supply when use it as Volt meter and Ampare meter at the same time.**
   It may cause mechanical trouble of measuring target or result in product damage.
8. **Please wire properly after check polarity of power.**
   It may cause a fire or explosion and result in product damage.
9. **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.
10. **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.
11. **Do not inflow dust or wire dregs into inside of this unit.**
    It may cause a fire or mechanical trouble.

※ **The above specifications are subject to change and some models may be discontinued without notice.**
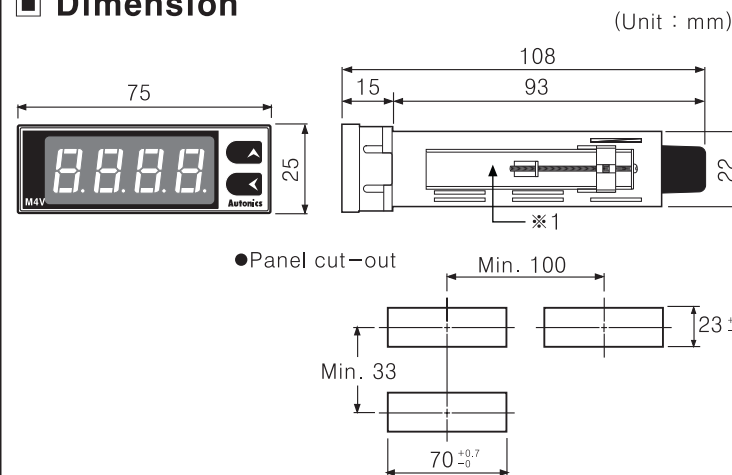
☐ Ordering information

M	4	V		

Size
| | V | DIN Size W75×H25mm |

Digit
| | 4 | 1999(3½Digit) |

Item
| | M | Meter |

☐ Specification

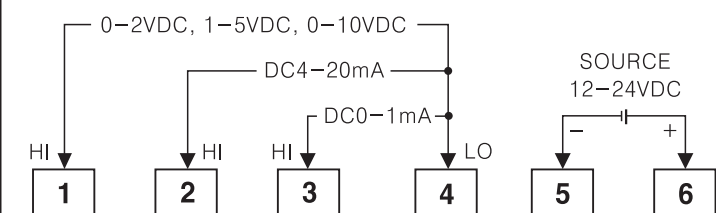| Model	M4V	
Measurment function	DC volt	DC ampere
Measuring input range	0~2VDC 1~5VDC 0~10VDC	DC0~1mA DC4~20mA
Max. allowable input	110% of measurment input	
Power supply	12~24VDC	
Operating voltage	90 to 110% of rated voltage	
Power consumption	2W	
Display method	7 Segment red LED display(Character height: 14mm)	
Display accuracy	0 to 50℃ : F.S. ±0.2% rdg ±1digit / −10 to 0℃ : F.S. ±0.3% rdg ±1digit	
Sampling time	500ms	
Setting method	Scale set by front swithces	
Input method	Sec <Input chart> and <Connection>	
Set−diagnosis	Error indication	
Insulation resistance	100MΩ Min. (at 500VDC megger)	
Dielectric strength	2000VAC 50/60Hz for 1 minute	
Noise strength	±300V the square wave noise(pulse width:1μs) by the noise simulator	
Vibra −tion	Mecanical	0.75mm amplitude at frequency of 10 to 50Hz in each of X, Y, Z directions for 1hour
	Malfunction	0.5mm amplitude at frequency of 10 to 50Hz in each of X, Y, Z directions for 10minute
Shock	Mecanical	300m/s² (30G) in X, Y, Z direction for 3 times
	Malfunction	100m/s² (10G) in X, Y, Z directions for 3 times
Environ −ment	Ambient temperature	−10 to 50℃(at non−freezing status)
	Storage Humidity	35~85%RH, Storage humidity: 35~85%RH
Weight	Approx. 83g	

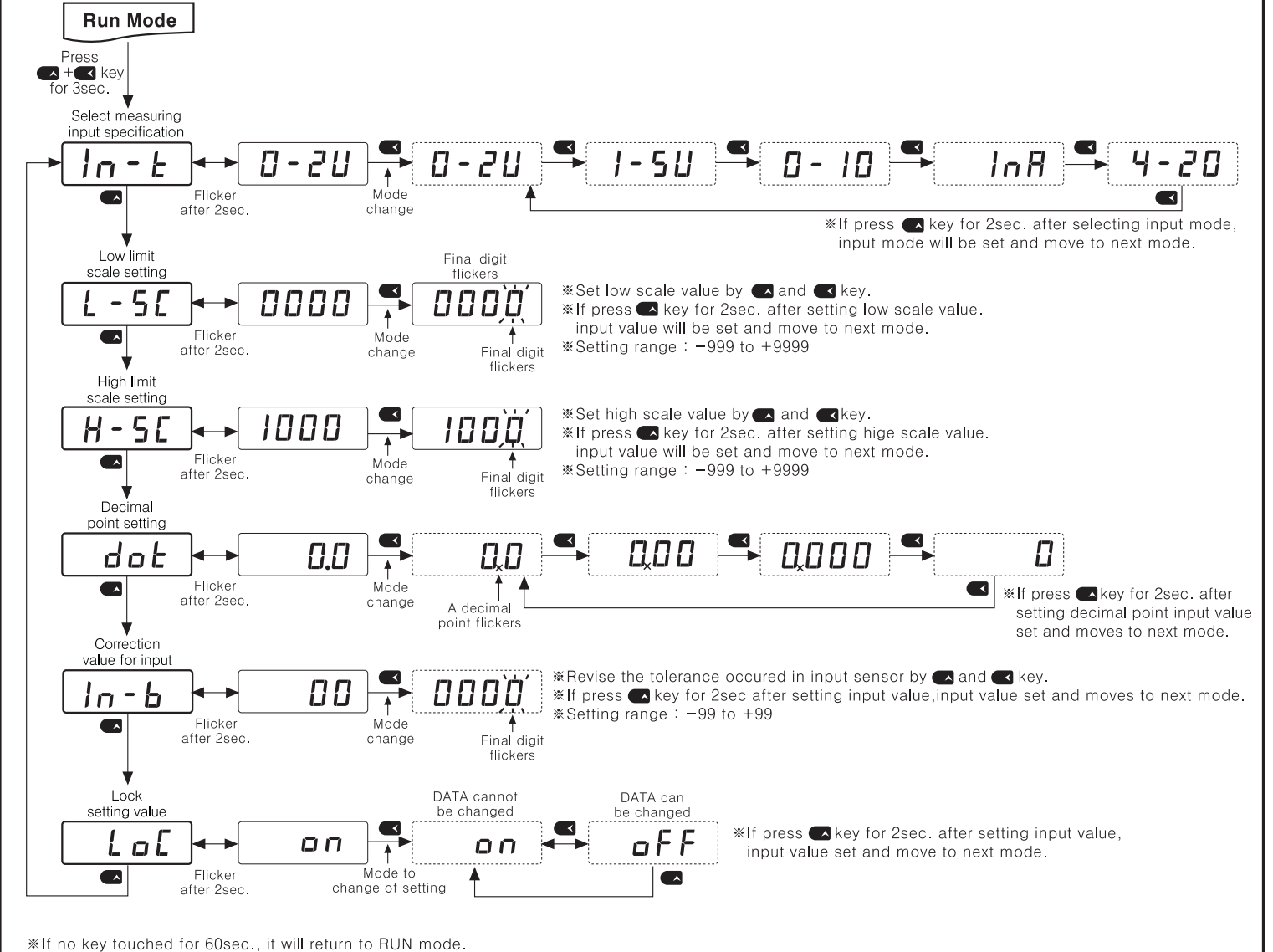※Environment resistance is rated at no freezing or condensation.

☐ Dimension

(Unit : mm)

●Panel cut−out

※1: It is attached on mosaic graphic panel. Please mount the unit prpperly on general panel.

☐ Connection

0~2VDC, 1~5VDC, 0~10VDC
DC4~20mA
DC0~1mA
SOURCE 12~24VDC

HI	HI	HI	LO	−	+
1	2	3	4	5	6

☐ Programming

Run Mode

Press ▲ + ◄ key for 3sec.

Select measuring input specification

In - t → 0-2U | 0-2U | 1-5U | 0-10 | InA | 4-20

※If press ◄ key for 2sec. after selecting input mode, input mode will be set and move to next mode.

Low limit scale setting
L - SC → 0000 | 0000'
※Set low scale value by ▲ and ◄ key.
※If press ◄ key for 2sec. after setting low scale value. input value will be set and move to next mode.
※Setting range : −999 to +9999

High limit scale setting
H - SC → 1000 | 1000'
※Set high scale value by ▲ and ◄ key.
※If press ◄ key for 2sec. after setting hige scale value. input value will be set and move to next mode.
※Setting range : −999 to +9999

Decimal point setting
dot → 0.0 | 0.0 | 0.00 | 0.000 | 0
※If press ◄ key for 2sec. after setting decimal point input value set and moves to next mode.

Correction value for input
In - b → 00 | 0000'
※Revise the tolerance occured in input sensor by ▲ and ◄ key.
※If press ◄ key for 2sec after setting input value,input value set and moves to next mode.
※Setting range : −99 to +99

Lock setting value
LoC → on | on | oFF
DATA cannot be changed / DATA can be changed
※If press ◄ key for 2sec. after setting input value, input value set and move to next mode.

※If no key touched for 60sec., it will return to RUN mode.

☐ ERROR display

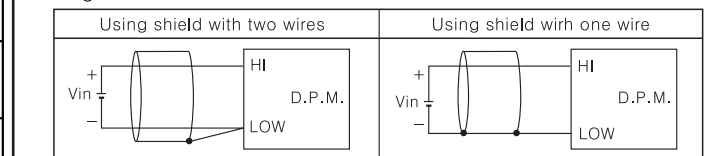Display indicates "ERROR" when wrong measuring input value is applied.

Indication	Description	Clearance of ERROR
Flicker "LLLL"	In case of lower value than measuring input value.(In case of applying 2mA when measuring input range is selected as 4 to 20mA)	Promptly change the input to a value that falls within the specified range.
Flicker "HHHH"	In case of higher value than measuring input value.(In case of applying 22mA when measuring input range is selected as 4 to 20mA)	
Flicker "ouEr"	In case of wrong wiring or measuring input error	Please cut off the power and then check measuring input.
Flicker "Er-E"	In case of damaging the memory chip by hige frequency noise, strong surge noise,	Consult your Autonics sales representative.

☐ Input chart

Input	Input voltage	Display
Voltage	0~2VDC	0-2U
	1~5VDC	1-5U
	0~10VDC	0-10
Current	DC0~1mA	InA
	DC4~20mA	4-20

☐ Caution for using

1. Please use separated line from high voltage line or power line in order to avoid inductive noise.
2. Please use power switch or circuit breaker in order to turn OFF the power.
3. The switch or circuit breaker should be installed near by users for safety.
4. Be sure to avoid using this unit near by machinery makes strong high frequency noise.(Welding machine, high capacity SCR unit etc.)
5. When input applied, if "HHHH" or "LLLL" are displayed, it has some trouble with measuring input, please check the line after power off.
6. Input line : Shield wire must be used when the measuring input line is getting longer or there are lots of noises.

Using shield with two wires	Using shield wirh one wire
HI / Vin / D.P.M. / LOW	HI / Vin / D.P.M. / LOW

7. Please use insulated transformer for power supply.
※**It may cause malfunction if above instructions are not followed.**

☐ Main products

■ Photoelectric sensors	■ Temperature controllers
■ Fiber optic sensors	■ Temperature/Humidity transducers
■ Door sensors	■ SSR/Power controllers
■ Door side sensors	■ Counters
■ Area sensors	■ Timers
■ Proximity sensors	■ Panel meters
■ Pressure sensors	■ Tachometer/Pulse(Rate) meters
■ Rotary encoders	■ Display units
■ Connector/Sockets	■ Sensor controllers

■ 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/soldering system