DRW160941AA

Autonics

DIGITAL SCALING METER

RusAutomation

# M4V SERIES

**INSTRUCTION MANUAL**


Thank you for choosing our Autonics product.
**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 personal injury, fire, or economic loss.

### ⚠ Caution

**1. The unit must be installed on a device panel before use.**
Failure to follow this instruction may result in electric shock.

**2. Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in electric shock.

**3. Do not disassemble or modify the unit. Please contact us if necessary.**
Failure to follow this instruction may result in electric shock or fire.

**4. Do not use the unit outdoors.**
Failure to follow this instruction may result in electric shock or shortening the life cycle of the unit.

**5. Use the unit within the rated specifications.**
Failure to follow this instruction may result in electric shock or shortening the life cycle of the unit.

**6. Be sure that there is not insulated between measuring input terminal and power terminal.**
Failure to follow this instruction may result in product damage, or measured unit malfunction.

**7. Separate the power supply when use it as Volt meter and Ampare meter at the same time.**
Failure to follow this instruction may result in product damage, or measured unit malfunction.

**8. Check the polarity of the terminal before wiring the unit.**
Failure to follow this instruction may result in product damage, fire or explosion

**9. Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.**
Failure to follow these instructions may result in electric shock or fire.

**10. Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, and impact may be present.**
Failure to follow this instruction may result in fire or explosion.

**11. Keep dust and wire residue from flowing into the unit.**
Failure may result in fire or product malfunction.

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

## ▣ Ordering Information

| M | 4 | V |
|---|---|---|

Item
Digit
Size

| | | |
|---|---|---|
| Size | **V** | DIN W75×H25mm |
| Digit | **4** | 9999 (4-digit) |
| Item | **M** | Meter |

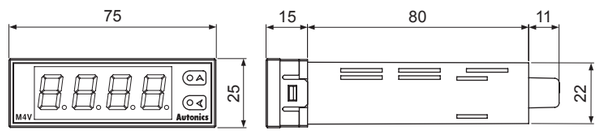
## ▣ Specifications

| Model | | **M4V** | | | | |
|---|---|---|---|---|---|---|
| Measurment function | | DC voltage | | | DC current | |
| Measuring input | | 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 | | Max. 2W | | | | |
| Display method | | 7-segment LED display (red) (character height: 14mm) | | | | |
| Display accuracy | | 0 to 50℃: F.S. ±0.2% rdg ±1-digit<br>-10 to 0℃: F.S. ±0.3% rdg ±1-digit | | | | |
| Display cycle | | 500ms | | | | |
| Setting type | | Setting type with the front keys | | | | |
| Set-diagnosis function | | Error display function | | | | |
| Insulation resistance | | Over 100MΩ (at 500VDC megger) | | | | |
| Dielectric strength | | 2,000VAC 50/60Hz for 1 min | | | | |
| Noise immunity | | ±300V the square wave noise (pulse width:1μs) by the noise simulator | | | | |
| Vibration | Mecanical | 0.75mm amplitude at frequency of 10 to 50Hz (for 1 min) in each X, Y, Z direction for 1 hour | | | | |
| | Malfunction | 0.5mm amplitude at frequency of 10 to 50Hz (for 1 min) in each X, Y, Z direction for 10 min | | | | |
| Shock | Mecanical | 300m/s$^2$ (approx. 30G) in each X, Y, Z direction for 3 times | | | | |
| | Malfunction | 100m/s$^2$ (approx. 10G) in each X, Y, Z direction for 3 times | | | | |
| Environ-ment | Ambient temp. | -10 to 50℃, storage: 20 to 60℃ | | | | |
| | Ambient humi. | 35 to 85%RH, storage: 35 to 85%RH | | | | |
| Unit weight※1 | | Approx. 83g | | | | |

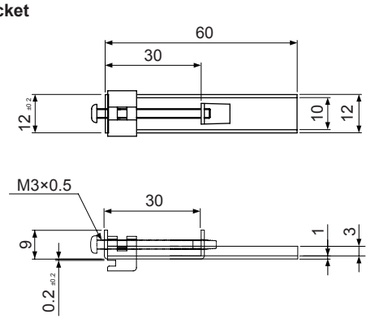
※Environment resistance is rated at no freezing or condensation.

## ▣ Dimensions

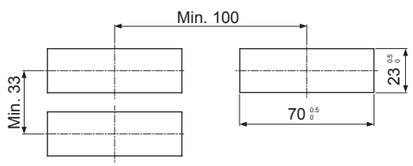
(unit : mm)



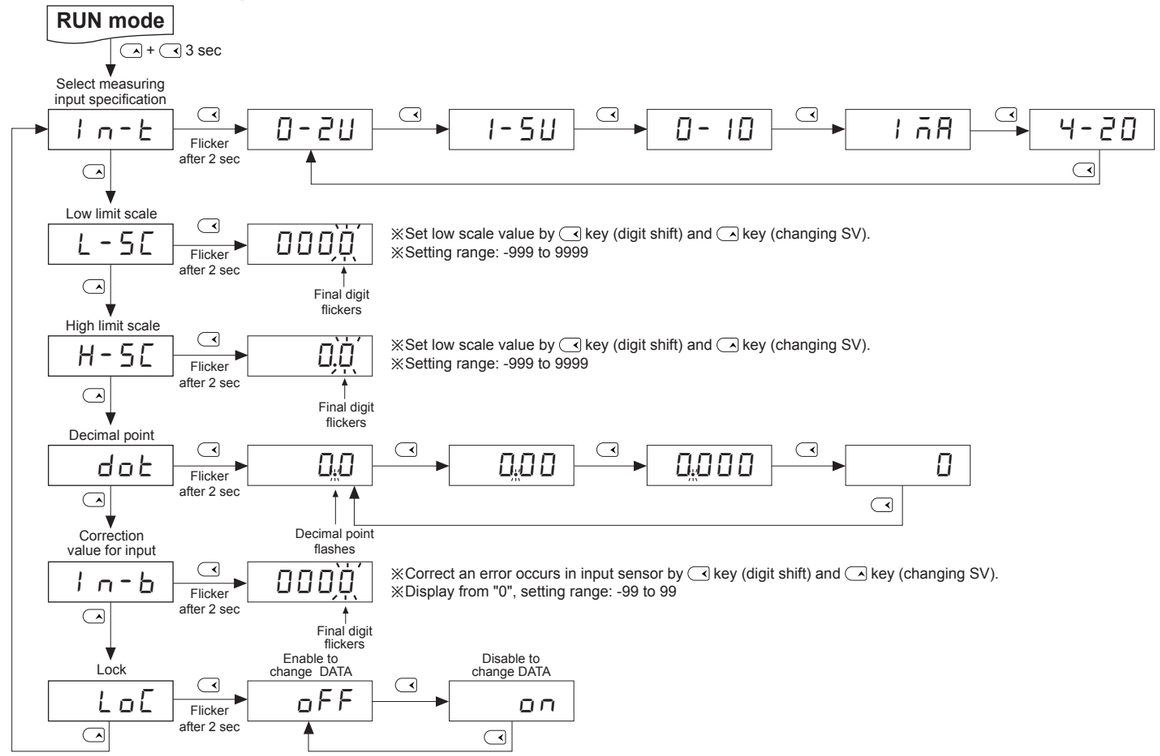

● **Bracket**




● **Panel cut-out**




## ▣ Parameter Description




**• How to change the setting value**

1. When advance to MODE, change digit flashing by key then set DATA value by key.
2. After complete DATA value setting, please press key for 2 sec then it will move to next MODE saving DATA.
3. Press key for 2 sec to return RUN mode after changing (setting) DATA value in each MODE.

※Press key for 2 sec, then it will return to RUN without change setting value.
※When checking the setting value only in each mode. Press key for 2 sec, then press for 2 sec again.
(If press continuously, it will not advance to next mode and return to RUN mode)
※If any key is untouched for 60 sec, it will return to RUN mode.

## ▣ Input And Connection

| Input | | Display | Connection |
|---|---|---|---|
| Voltage | 0-2VDC | 0 2U | 0-2VDC, 1-5VDC, 0-10VDC SOURCE HI LOW − + 1 2 3 4 5 6 |
| | 1-5VDC | 1 5U | |
| | 0-10VDC | 0 10 | |
| Current | DC0-1mA | 1mA | DC0-1mA SOURCE HI LOW − + 1 2 3 4 5 6 |
| | DC4-20mA | 4 20 | DC4-20mA SOURCE HI LOW − + 1 2 3 4 5 6 |

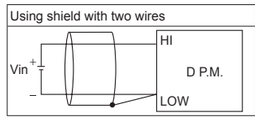
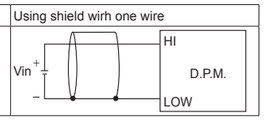
## ▣ Error Display

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

| Indication | Description | Clearance of Error |
|---|---|---|
| LLLL | In case of lower value than measuring input value (in case of applying DC2mA when measuring input range is selected as DC4 to 20mA) | Promptly change the input to a value that falls within the specified range. |
| HHHH | In case of higher value than measuring input value (in case of applying DC22mA when measuring input range is selected as DC4 to 20mA) | |
| ouEr | In case of wrong wiring or measuring input error | Please cut off the power and then check measuring input. |
| Er E | In case of damaging the memory chip by hige frequency noise, strong surge noise | Consult your Autonics sales representative. |

## ▣ Cautions During Use

1. Please use separated line from high voltage line or power line in order to avoide 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 |
|---|---|
|  |  |



7. Please use insulated transformer for power supply.

※**Failure to follow these instructions may result in product damage.**

## ▣ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/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, $CO_2$, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse(Rate)Meters
- Display Units
- Sensor Controllers