LCD Multi Panel Meters

# MX4W Series

INSTRUCTION MANUAL

TCD210071AA

Autonics

Thank you for choosing our Autonics product.
**Read and understand the instruction manual and manual thoroughly before using the product.**
**For your safety, read and follow the below safety considerations before using.**
**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

## Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

**⚠ Warning** Failure to follow instructions may result in serious injury or death.

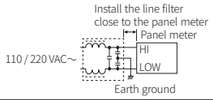
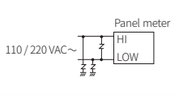
**01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)**
Failure to follow this instruction may result in personal injury, economic loss or fire.
**02. Do not use the unit in the place where flammable / explosive / corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.
**03. Install on a device panel to use.**
Failure to follow this instruction may result in fire or electric shock.
**04. Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire or electric shock.
**05. Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
**06. Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire or electric shock.

**⚠ Caution** Failure to follow instructions may result in injury or product damage.

**01. When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm²) to AWG 15 (1.65 mm²) cable or over and tighten the terminal screw with a tightening torque of 0.78 to 0.98 N·m.**
Failure to follow this instruction may result in fire or malfunction due to contact failure.
**02. Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
**03. Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire or electric shock.
**04. Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
Failure to follow this instruction may result in fire or product damage.

## Cautions during Use

- Follow instructions in 'Cautions during Use'.
  Otherwise, It may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- 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 |
|---|---|
|  |  |





- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

## Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics webstie.

**MX 4 W - ❶ - F ❷**

**❶ Input type**
V: DC / AC voltage
A: DC / AC current

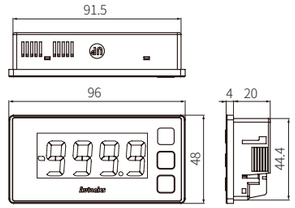
**❷ Preset output**
N: Indicator
1: NPN open collector
2: PNP open collector

## Product Components

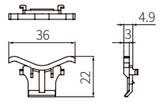
- Product
- Bracket × 2
- Instruction manual
- Terminal cover × 1

## Dimensions

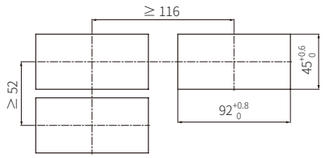
- Unit: mm, For the detailed drawings, follow the Autonics website.




### ■ Bracket



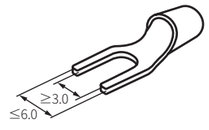

### ■ Panel cut-out




### ■ Terminal cover


## Cautions during Wiring

- Unit: mm, Use terminals of size specified below.



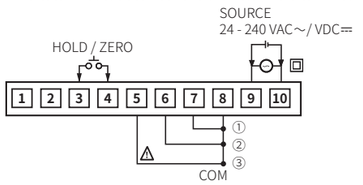

- Input and output are insulated from the power.

| Option output and hold / zero | | | | ADC input circuit and display part | | | | Power | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

## Connections

### ■ Input

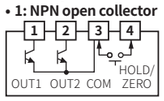
- For using DC power, connect wires regardless of polarity.
- Indicator model does not have the hold / zero terminal.



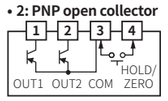

| | | MX4W-V-F□ | MX4W-A-F□ |
|---|---|---|---|
| ① | DC | ± 500 mVDC⎓ / ± 200 mVDC⎓ / ± 50 mVDC⎓ | ± 20 mA / 4 - 20 mA / ± 5 mA / ± 2 mA |
| | AC | 0 - 500 mVAC~ / 0 - 200 mVAC~ / 0 - 50 mVAC~ | 0 - 20 mA / 0 - 5 mA / 0 - 2 mA |
| ② | DC | ± 20 VDC⎓ / ± 5 VDC⎓ / 1 - 5 VDC⎓ / ± 2 VDC⎓ | ± 500 mA / ± 200 mA / ± 50 mA |
| | AC | 0 - 20 VAC~ / 0 - 5 VAC~ / 0 - 2 VAC~ | 0 - 500 mA / 0 - 200 mA / 0 - 50 mA |
| ③ | DC | ± 500 VDC⎓ / ± 200 VDC⎓ / ± 50 VDC⎓ | ± 5 A / ± 2 A |
| | AC | 0 - 500 VAC~ / 0 - 200 VAC~ / 0 - 110 VAC~ / 0 - 50 VAC~ | 0 - 5 A / 0 - 2 A |

### ■ Output

- **1: NPN open collector**




- **2: PNP open collector**



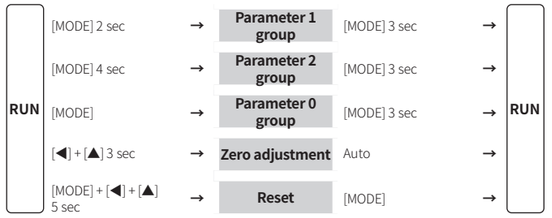

## Specifications

| Model | MX4W-V-F□ | MX4W-A-F□ |
|---|---|---|
| **Input type** | DC / AC voltage | DC / AC current |
| **Max. allowable input** | Dependent on the input type | |
| +DC input | ≈ -10 to 110 % F.S. for each measured input range | |
| -DC input | ≈ -110 to 110 % F.S. for each measured input range | |
| AC input | ≈ 110 % F.S. for each measured input range | |
| **Display method** | 12-segment LCD[01]<br>- measurement value display part: white, character height: 19 mm<br>- other display parts: red, green, yellow (indicator: white) | |
| **Display accuracy** | Dependent on the ambient temperature | |
| 23 ± 5 °C (DC input) | ± 0.1 % F.S. rdg ± 2-digit | ± 0.1 % F.S. rdg ± 2-digit[02] |
| 23 ± 5 °C (AC input) | ± 0.3 % F.S. rdg ± 3-digit | ± 0.3 % F.S. rdg ± 3-digit |
| 0 to 50 °C | ± 0.5 % F.S. rdg ± 3-digit | ± 0.5 % F.S. rdg ± 3-digit[03] |
| **Display cycle** | 0.2 to 5.0 sec (select per 0.1 sec) | |
| **Display scale** | -9999 to 9999 (4-digit) | |
| **A / D conversion method** | ΣΔ (Sigma Delta) analog-to-digital converter | |
| **Sampling cycle (DC input)** | 50 ms | |
| **Sampling cycle (AC input)** | 16.6 ms | |
| **Resolution** | 1 / 20,000 | |
| **Preset output** | NPN / PNP open collector output model | |
| Load voltage | ≤ 30 VDC⎓ | |
| Load current | ≤ 100 mA | |
| Residual voltage | NPN open collector output: ≤ 1 VDC⎓ /<br>PNP open collector output: ≤ 2 VDC⎓ | |
| **Unit weight (packaged)** | ≈ 77 g (≈ 100 g) | |
| **Approval** | CE cULus | |

01) When using the unit at low temperature (below 0 °C), display cycle is slow due to charateristics of LCD. Control output operates normally.
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3-digit
03) 5 A terminal: ± 1 % F.S. rdg ± 3-digit

| | |
|---|---|
| **Power supply** | 24 - 240 VDC⎓ ± 10 %, 24 - 240 VAC~ ± 10 % 50 / 60 Hz |
| **Power consumption** | DC: ≤ 3 W, AC: ≤ 5 VA |
| **Insulation resistance** | ≥ 100 MΩ (500 VDC⎓ megger) |
| **Dielectric strength** | Between all terminals and case: 3,000 VAC~ 50 / 60 Hz for 1 min |
| **Noise immunity** | ± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator |
| **Vibration** | 0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours |
| **Vibration (malfunction)** | 0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min |
| **Shock** | 300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times |
| **Shock (malfunction)** | 100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times |
| **Ambient temperature** | -10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation) |
| **Ambient humidity** | 35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation) |
| **Insulation type** | Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV) |

## Mode Setting




## Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- If any key is not entered for 60 sec in each parameter, it returns to RUN mode.
- After returning to RUN mode, press the [MODE] key within 2 sec, it returns to previous parameter.
- [MODE] key: Saves current setting value and moves to the next parameter.
  [◀] key: Checks fixed value / Changes setting digits.
  [▲] key: Changes setting values.

### ■ Parameter 1 group

| Parameter | | Display | Defaults | Setting range | Display condition |
|---|---|---|---|---|---|
| 1-1 | Input type | dCAC | dC | DC, -DC, AC | - |
| 1-2 | Input range[01] | IN-R | 5000 | [MX4W-V-F□]<br>• Refer to Input Range and Display Range | 1-1 Input type: DC, AC |
| | | | -5000 | | 1-1 Input type: -DC |
| | | | 5.000 | [MX4W-A-F□]<br>• Refer to Input Range and Display Range | 1-1 Input type: DC, AC |
| | | | -5.000 | | 1-1 Input type: -DC |
| 1-3 | Display method | diSP | StNd | STND: standard, SCAL: scale, FREQ: frequency*, PF: power factor** | *1-1 Input type: AC<br>**1-1 Input type: ±DC |
| 1-4 | Measurement method | IN-t | RMS | AVG, RMS | 1-1 Input type: AC |
| 1-5 | High-limit display value gradient correction | SPAN | 1000 | 0.100 to 9.999 % | 1-3 Display method: STND |
| 1-6 | Low-limit display value deviation correction | ZERo | 00 | -99 to 99 | |
| 1-7 | Decimal point position | dot | 0000 | [DC / AC voltage model]<br>0, 0.0, 0.00, 0.000 | 1-3 Display method: SCAL & * 1-7 Decimal point position: 0.0, 0.00, 0.000 |
| | | | 0.000 | [DC / AC current model]<br>0, 0.0, 0.00, 0.000 | |
| 1-8 | High-limit scale | H-SC | - | Display value against max. measurement input* | |
| 1-9 | Low-limit scale | L-SC | - | Display value against min. measurement input* | |
| 1-10 | High-limit display value gradient correction | SPAN | 1000 | 0.100 to 9.999 % | |
| 1-11 | Low-limit display value deviation correction[02] | ZERo | 00 | -99 to 99 | |
| 1-12 | Decimal point position[03] | dot | 0000 | [DC / AC voltage model]<br>0, 0.0, 0.00, 0.000 | 1-3 Display method: FREQ |
| | | | 0.000 | [DC / AC current model]<br>0, 0.0, 0.00, 0.000 | |
| 1-13 | High-limit display value gradient correction | SPAN | 1000 | 0.100 to 9.999 | |
| 1-14 | Exponent of SPAN | E.SPN | 10-0 | 10-0: $10^0$, 10-1: $10^{-1}$, 10-2: $10^{-2}$, 10 1: $10^1$ | |
| 1-15 | High-limit input value | H-PG | - | Max. value of input range | 1-3 Display method: PF |
| 1-16 | Low-limit input value | L-PG | - | Min. value of input range | |
| 1-17 | Display unit | dUNt | V | [DC / AC voltage model]<br>V, MV, OFF | - |
| | | | A | [DC / AC current model]<br>A, MA, HZ, OFF | |

01) When changing input range, the following parameters are reset.
- Parameter 1 group: display method, measurement method, decimal point position, high / low-limit scale, high-limit display value gradient correction, exponent of span, high / low-limit input value, display unit
- Parameter 2 group: OUT1 / 2 output operation mode, OUT1 / 2 hysteresis
- Parameter 0 group: OUT1 / 2 high-limit output setting value, OUT1 / 2 low-limit output setting value, max. / min. peak value

02) Low-limit display value deviation correction range is within -99 to 99 for $D^0$, $D^{-1}$ digit regardless of decimal point position.
03) Display range is variable according to decimal point position.

| Dot | Display range | Frequency measurement range |
|---|---|---|
| 0 | -9999 to 9999 | 1 to 1200 Hz |
| 0.0 | -999.9 to 999.9 | 0.1 to 999.9 Hz |
| 0.00 | -99.99 to 99.99 | 0.10 to 99.99 Hz |
| 0.000 | -9.999 to 9.999 | 0.100 to 9.999 Hz |

## ■ Parameter 2 group

| Parameter | | Display | Defaults | Setting range | Display condition |
|---|---|---|---|---|---|
| 2-1 | OUT1 operation mode | oU1t | oFF | [Preset output model]<br>OFF, HIGH, LOW, HL, HL-G | - |
| 2-2 | OUT2 operation mode | oU2t | oFF | [Preset output model]<br>OFF, HIGH, LOW, HL, HL-G | - |
| 2-3 | OUT1 hysteresis | HYS.1 | 00.1 | [DC / AC voltage model]<br>Within 10 % of max. display range, digit | 2-1 OUT1 operation mode: except OFF |
| | | | 0.001 | [DC / AC current model]<br>Within 10 % of max. display range, digit | |
| 2-4 | OUT2 hysteresis | HYS2 | 00.1 | [DC / AC voltage model]<br>Within 10 % of max. display range, digit | 2-2 OUT2 operation mode: except OFF |
| | | | 0.001 | [DC / AC current model]<br>Within 10 % of max. display range, digit | |
| 2-5 | Startup compensation time | StAt | 000 | 00.0 to 99.9 sec | - |
| 2-6 | Peak monitoring delay time | PEAK | 005 | 00 to 30 sec | - |
| 2-7 | Display cycle | di St | 0.2 5 | 0.2 to 5.0 sec | - |
| 2-8 | External input terminal | di -t | Hold | [Preset output model]<br>HOLD, ZERO | - |
| 2-9 | Lock | LoC | oFF | OFF: unlock,<br>LOC1: lock parameter 1,<br>LOC2: lock parameter 1, 2,<br>LOC3: lock parameter 0, 1 and 2 | - |

## ■ Parameter 0 group

| Parameter | | Display | Defaults | Setting range [01] | Display condition |
|---|---|---|---|---|---|
| 0-1 | OUT1 high-limit output setting value | oU1H | 5000 | [DC / AC voltage & preset output model] | 2-1 OUT1 operation mode: HIGH, HL, HL-G |
| | | | 5.000 | [DC / AC current & preset output model] | |
| 0-2 | OUT1 low-limit output setting value | oU1L | 0000 | [DC / AC voltage & preset output model] | 1-1 Input type: DC, AC & 2-1 OUT1 operation mode: LOW, HL, HL-G |
| | | | 0.000 | [DC / AC current & preset output model] | |
| | | | -5000 | [DC / AC voltage & preset output model] | 1-1 Input type: -DC & 2-1 OUT1 operation mode: LOW, HL, HL-G |
| | | | -5.000 | [DC / AC current & preset output model] | |
| 0-3 | OUT2 high-limit output setting value | oU2H | 5000 | [DC / AC voltage & preset output model] | 2-2 OUT2 operation mode: HIGH, HL, HL-G |
| | | | 5.000 | [DC / AC current & preset output model] | |
| 0-4 | OUT2 low-limit output setting value | oU2L | 0000 | [DC / AC voltage & preset output model] | 1-1 Input type: DC, AC & 2-2 OUT2 operation mode: LOW, HL, HL-G |
| | | | 0.000 | [DC / AC current & preset output model] | |
| | | | -5000 | [DC / AC voltage & preset output model] | 1-1 Input type: -DC & 2-2 OUT2 operation mode: LOW, HL, HL-G |
| | | | -5.000 | [DC / AC current & preset output model] | |
| 0-5 | Display max. peak value [02] | HPEK | 0.0 | Max. peak value in run mode | 2-1 OUT1 operation mode: except OFF or 2-2 OUT2 operation mode: except OFF & 2-6 Peak monitoring delay time: except 00 |
| 0-6 | Display min. peak value [02] | LPEK | 0.0 | Min. peak value in run mode | |

01) Setting range of OUT1 / 2 high / low-limit output setting value
1-1 input type +DC = -10 to 110 % of display range
1-1 input type -DC = -110 to 110 % of display range
1-1 input type AC = 0 to 110 % of display range
02) Reset: Press [◀] + [▲] key for over 1 sec

# Input Range and Display Range

When the max. input value is over the 100 %, it may result in input terminal damage.

## ■ DC / AC voltage model (input type: DC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| 0.0 - 500.0 VDC⎓ | 0.0 to 500.0 | 5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 4.062 MΩ |
| 0 - 500 VDC⎓ | 0 to 500 | 500 | | |
| 0.0 - 200.0 VDC⎓ | 0.0 to 200.0 | 2000 | | |
| 0 - 200 VDC⎓ | 0 to 200 | 200 | | |
| 0.00 - 50.00 VDC⎓ | 0.00 to 50.00 | 5000 | | 162 kΩ |
| 0.0 - 50.0 VDC⎓ | 0.0 to 50.0 | 500 | | |
| 0.00 - 20.00 VDC⎓ | 0.00 to 20.00 | 2000 | | |
| 0.0 - 20.0 VDC⎓ | 0.0 to 20.0 | 200 | | |
| 0.000 - 5.000 VDC⎓ | 0.000 to 5.000 | 5000 | | |
| 0.00 - 5.00 VDC⎓ | 0.00 to 5.00 | 500 | | |
| 1.000 - 5.000 VDC⎓ | 1.000 to 5.000 | 1-5A | | |
| 1.00 - 5.00 VDC⎓ | 1.00 to 5.00 | 1-5b | | |
| 0.000 - 2.000 VDC⎓ | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 VDC⎓ | 0.00 to 2.00 | 200 | | |
| 0.0 - 500.0 mVDC⎓ | 0.0 to 500.0 | 5000 | | 4 kΩ |
| 0 - 500 mVDC⎓ | 0 to 500 | 500 | | |
| 0.0 - 200.0 mVDC⎓ | 0.0 to 200.0 | 2000 | | |
| 0 - 200 mVDC⎓ | 0 to 200 | 200 | | |
| 0.00 - 50.00 mVDC⎓ | 0.00 to 50.00 | 5000 | | |
| 0.0 - 50.0 mVDC⎓ | 0.0 to 50.0 | 500 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

## ■ DC / AC voltage model (input type: -DC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| -500.0 - 500.0 VDC⎓ | -500.0 to 500.0 | -5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 4.062 MΩ |
| -500 - 500 VDC⎓ | -500 to 500 | -500 | | |
| -200.0 - 200.0 VDC⎓ | -200.0 to 200.0 | -2000 | | |
| -200 - 200 VDC⎓ | -200 to 200 | -200 | | |
| -50.00 - 50.00 VDC⎓ | -50.00 to 50.00 | -5000 | | 162 kΩ |
| -50.0 - 50.0 VDC⎓ | -50.0 to 50.0 | -500 | | |
| -20.00 - 20.00 VDC⎓ | -20.00 to 20.00 | -2000 | | |
| -20.0 - 20.0 VDC⎓ | -20.0 to 20.0 | -200 | | |
| -5.000 - 5.000 VDC⎓ | -5.000 to 5.000 | -5000 | | |
| -5.00 - 5.00 VDC⎓ | -5.00 to 5.00 | -500 | | |
| -2.000 - 2.000 VDC⎓ | -2.000 to 2.000 | -2000 | | |
| -2.00 - 2.00 VDC⎓ | -2.00 to 2.00 | -200 | | |
| -500.0 - 500.0 mVDC⎓ | -500.0 to 500.0 | -5000 | | 4 kΩ |
| -500 - 500 mVDC⎓ | -500 to 500 | -500 | | |
| -200.0 - 200.0 mVDC⎓ | -200.0 to 200.0 | -2000 | | |
| -200 - 200 mVDC⎓ | -200 to 200 | -200 | | |
| -50.00 - 50.00 mVDC⎓ | -50.00 to 50.00 | -5000 | | |
| -50.0 - 50.0 mVDC⎓ | -50.0 to 50.0 | -500 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

## ■ DC / AC voltage model (input type: AC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| 0.0 - 500.0 VAC~ | 0.0 to 500.0 | 5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 4.062 MΩ |
| 0 - 500 VAC~ | 0 to 500 | 500 | | |
| 0.0 - 200.0 VAC~ | 0.0 to 200.0 | 2000 | | |
| 0 - 200 VAC~ | 0 to 200 | 200 | | |
| 0.0 - 110.0 VAC~ | 0.0 to 110.0 | 1100 | | |
| 0 - 110 VAC~ | 0 to 110 | 110 | | |
| 0.00 - 50.00 VAC~ | 0.00 to 50.00 | 5000 | | 162 kΩ |
| 0.0 - 50.0 VAC~ | 0.0 to 50.0 | 500 | | |
| 0.00 - 20.00 VAC~ | 0.00 to 20.00 | 2000 | | |
| 0.0 - 20.0 VAC~ | 0.0 to 20.0 | 200 | | |
| 0.000 - 5.000 VAC~ | 0.000 to 5.000 | 5000 | | |
| 0.00 - 5.00 VAC~ | 0.00 to 5.00 | 500 | | |
| 0.000 - 2.000 VAC~ | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 VAC~ | 0.00 to 2.00 | 200 | | |
| 0.0 - 500.0 mVAC~ | 0.0 to 500.0 | 5000 | | 4 kΩ |
| 0 - 500 mVAC~ | 0 to 500 | 500 | | |
| 0.0 - 200.0 mVAC~ | 0.0 to 200.0 | 2000 | | |
| 0 - 200 mVAC~ | 0 to 200 | 200 | | |
| 0.00 - 50.00 mVAC~ | 0.00 to 50.00 | 5000 | | |
| 0.0 - 50.0 mVAC~ | 0.0 to 50.0 | 500 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

## ■ DC / AC current model (input type: DC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| 0.000 - 5.000 A | 0.000 to 5.000 | 5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 0.02 Ω |
| 0.00 - 5.00 A | 0.00 to 5.00 | 500 | | |
| 0.000 - 2.000 A | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 A | 0.00 to 2.00 | 200 | | |
| 0.0 - 500.0 mA | 0.0 to 500.0 | 5000 | | 0.87 Ω |
| 0 - 500 mA | 0 to 500 | 500 | | |
| 0.0 - 200.0 mA | 0.0 to 200.0 | 2000 | | |
| 0 - 200 mA | 0 to 200 | 200 | | |
| 0.00 - 50.00 mA | 0.00 to 50.00 | 5000 | | |
| 0.0 - 50.0 mA | 0.0 to 50.0 | 500 | | |
| 0.00 - 20.00 mA | 0.00 to 20.00 | 2000 | | 21.87 Ω |
| 0.0 - 20.0 mA | 0.0 to 20.0 | 200 | | |
| 4.00 - 20.00 mA | 4.00 to 20.00 | 4A20 | | |
| 4.0 - 20.0 mA | 4.0 to 20.0 | 4b20 | | |
| 0.000 - 5.000 mA | 0.000 to 5.000 | 5000 | | |
| 0.00 - 5.00 mA | 0.00 to 5.00 | 500 | | |
| 0.000 - 2.000 mA | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 mA | 0.00 to 2.00 | 200 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

## ■ DC / AC current model (input type: -DC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| -5.000 - 5.000 A | -5.000 to 5.000 | -5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 0.02 Ω |
| -5.00 - 5.00 A | -5.00 to 5.00 | -500 | | |
| -2.000 - 2.000 A | -2.000 to 2.000 | -2000 | | |
| -2.00 - 2.00 A | -2.00 to 2.00 | -200 | | |
| -500.0 - 500.0 mA | -500.0 to 500.0 | -5000 | | 0.87 Ω |
| -500 - 500 mA | -500 to 500 | -500 | | |
| -200.0 - 200.0 mA | -200.0 to 200.0 | -2000 | | |
| -200 - 200 mA | -200 to 200 | -200 | | |
| -50.00 - 50.00 mA | -50.00 to 50.00 | -5000 | | |
| -50.0 - 50.0 mA | -50.0 to 50.0 | -500 | | 21.87 Ω |
| -20.00 - 20.00 mA | -20.00 to 20.00 | -2000 | | |
| -20.0 - 20.0 mA | -20.0 to 20.0 | -200 | | |
| -5.000 - 5.000 mA | -5.000 to 5.000 | -5000 | | |
| -5.00 - 5.00 mA | -5.00 to 5.00 | -500 | | |
| -2.000 - 2.000 mA | -2.000 to 2.000 | -2000 | | |
| -2.00 - 2.00 mA | -2.00 to 2.00 | -200 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

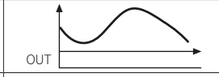
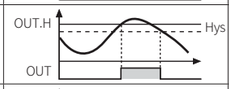
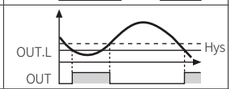
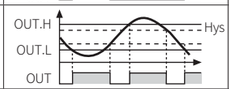
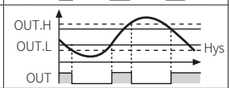
## ■ DC / AC current model (input type: AC)

| Input range | Display range | | | Input impedance |
|---|---|---|---|---|
| | Diaplay method: STND (fixed) | | Diaplay method: SCAL [01] | |
| 0.000 - 5.000 A | 0.000 to 5.000 | 5000 | Decimals / Display range<br>0 -9999 to 9999<br>0.0 -999.9 to 999.9<br>0.00 -99.99 to 99.99<br>0.000 -9.999 to 9.999 | 0.02 Ω |
| 0.00 - 5.00 A | 0.00 to 5.00 | 500 | | |
| 0.000 - 2.000 A | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 A | 0.00 to 2.00 | 200 | | |
| 0.0 - 500.0 mA | 0.0 to 500.0 | 5000 | | 0.87 Ω |
| 0 - 500 mA | 0 to 500 | 500 | | |
| 0.0 - 200.0 mA | 0.0 to 200.0 | 2000 | | |
| 0 - 200 mA | 0 to 200 | 200 | | |
| 0.00 - 50.00 mA | 0.00 to 50.00 | 5000 | | |
| 0.0 - 50.0 mA | 0.0 to 50.0 | 500 | | |
| 0.00 - 20.00 mA | 0.00 to 20.00 | 2000 | | 21.87 Ω |
| 0.0 - 20.0 mA | 0.0 to 20.0 | 200 | | |
| 0.000 - 5.000 mA | 0.000 to 5.000 | 5000 | | |
| 0.00 - 5.00 mA | 0.00 to 5.00 | 500 | | |
| 0.000 - 2.000 mA | 0.000 to 2.000 | 2000 | | |
| 0.00 - 2.00 mA | 0.00 to 2.00 | 200 | | |

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

# Output Operation Mode

- The below describes based on OUT1.
- OUT1 and OUT2 of output operations are same. It operates individually by the set output operation mode.
- When changing output operation mode, high-limit / low-limit output setting value, hysteresis are reset.

| MODE | Output operation | Preset output | |
|---|---|---|---|
| | | ON | OFF |
| oFF |  | No output | |
| HI GH |  | OU1.H ≤ Display value | OU1.H - HYS.1 ≥ Display value |
| LoW |  | OU1.L ≥ Display value | OU1.L + HYS.1 ≤ Display value |
| HL |  | OU1.L ≥ Display value / OU1.H ≤ Display value | OU1.L + HYS.1 ≤ Display value / OU1.H - HYS.1 ≥ Display value |
| HL-G |  | OU1.L ≤ Display value ≤ OU1.H + HYS.1 | OU1.L - HYS.1 ≥ Display value / OU1.H + HYS.1 ≤ Display value |

# Reset

**01. Press the [◀] + [▲] + [▼] keys for over 5 sec. in run mode, INIT and NO flash alternately for 0.5 sec in turn.**
**02. Change the setting value as YES by pressing the direction keys.**
**03. Press the [MODE] key to reset all parameter values as default and to return to run mode.**

# Error

Error display is released automatically when it is in the measured and display range.

| Display | Description | Troubleshooting |
|---|---|---|
| HHHH | Flashes when measurement input is exceeded the max. allowable input (110 %) | Disconnect power supply and check the cables. |
| LLLL | Flashes when measurement input is exceeded the min. allowable input (-DC: -110 % / DC, AC: -10 %) | |
| d-HH | Flashes when measurement input is exceed the max. display value (9999) | Reset within the display range. |
| d-LL | Flashes when measurement input is exceed the min. display value (-9999) | |
| F-HH | Flashes when input frequency is exceeded the max. display value of measured range | - |
| PF-H | Flashes when power factor display value to measured input is over than LAG 0.50 | |
| PF-L | Flashes when power factor display value to measured input is less than LEAD -0.50 | |
| oVER | Flashes twice when it exceeds zero range (±99) and returns to run mode | Reset within the zero range. |

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