MT4Y/MT4W Series

Multi Panel Meter

DIN W72×H36mm, W96×H48mm, digital multi panel meter

**Features**
- Super version of panel meter
- Various output options (Default: Indicator)
  - RS485 Communication output, Low speed serial output, Current(4-20mA), BCD output, NPN/PNP open collector output, Relay output
- Max. measuring input specification: 500VDC, 500VAC, 5ADC, 5ACA
- Max. display range: -1999 to 9999
- High/Low scale function
- **AC frequency measurement function**: 0.1 to 9999Hz
- Various functions: Monitoring function for max. and min. display value function, display cycle delay function, Zero function, High display correction function, Current output scale function
- Wide range of power supply: 12-24VDC, 100-240VAC

⚠️ Please read “Caution for your safety” in operation manual before using.

**Ordering information**

<table>
<thead>
<tr>
<th>MT</th>
<th>4</th>
<th>W</th>
<th>DV</th>
<th>4</th>
<th>N</th>
</tr>
</thead>
</table>

**Output**

- N Indicator (Without output function)
- 0 Relay contact output
- 1 NPN open collector output
- 2 PNP open collector output
- 3\*1 Relay contact output + Transmission output (DC4-20mA)
- 4\*1 Relay contact output + RS485 communication output
- 5 BCD dynamic output
- 6 Low speed serial output

\*Output (0 to 6): Option
\*1: Relay contact output of 3, 4 is able only to Low out.

**Power supply**

- 1 12-24VDC
- 4 100-240VAC

**Input**

- DV DC Voltage
- DA DC Ampere
- AV AC Voltage
- AA AC Ampere

**Size**

- Y DIN W72×H36mm
- W DIN W96×H48mm

**Digit**

- 4 9999 (4-digit)

**Other**

- MT Multi meter

※To measure the current over DC 5A, please select DV type because the shunt should be used.

※In case of selecting frequency display, no output will be provided even if it is output support models. (Main output, Sub output and RS485 output)
## Specifications

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Measurement input</td>
<td>DC voltage, amperes, Frequency</td>
<td>AC voltage, amperes, Frequency</td>
<td>DC voltage, amperes, Frequency</td>
<td>AC voltage, amperes, Frequency</td>
<td>DC voltage, amperes, Frequency</td>
<td>AC voltage, amperes, Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>100-240VAC 50/60Hz (Allowable voltage range: 90 to 110%)</td>
<td>12-24VDC (Allowable voltage range: 90 to 110%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Power consumption</td>
<td>5VA 5W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display method</td>
<td>7 Segment LED display (Character height: 14.2mm)</td>
<td></td>
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</tr>
</tbody>
</table>
| Display accuracy | • 23°C to 55°C - DC Type: F.S. ±0.1% rdg±2digit / AC Type: F.S. ±0.3% rdg±3digit DC/AC Type: F.S. ±0.3% rdg±3digit max only for 5A terminal.  
• -10°C to 50°C - DC/AC Type: F.S. ±0.5% rdg±3digit |
| Max. allowable input | 110% F.S for each measured input range |
| A/D conversion method | Practical oversampling using successive approximation ADC |
| Sampling cycle | DC Type: 50ms, AC type: 16.6ms |
| Max. indication range | -1999 to 9999 (4digit) |
| Preset output | • Relay output - Contact capacity: 250VAC 3A, 30VDC 3A / Contact composition: N.O(1a)  
• NPN/PNP Open collector output - 12-24VDC ±2V 50mA Max. (Resistive load) |
• Serial/BCD output - NPN Open collector output: 12-24VDC Max. 50mA (Resistive load)  
• DC4-20mA output - Resolution: 12,000 division (Load resistance max. 600Ω) |
| AC measuring function | Selectable RMS or AVG |
| Frequency measurement function | Measurement range: 0.100 to 9999Hz (Variable by decimal point position) |
| Hold function | Includes (External hold function) |
| Insulation resistance | Min. 100MΩ (at 500VDC megger) between external terminal and case |
| Dielectric strength | 2,000VAC for 1 minute between external terminal and case |
| Noise strength | ±2kV the square wave noise (pulse width: 1 μs) by the noise simulator |
| Vibration | Mechanical 0.75mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each of X, Y, Z directions for 2 hours |
| Shock | Mechanical 0.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each of X, Y, Z directions for 10 minutes |
| Insulation type | Double insulation or reinforced insulation (Mark: ☐, dielectric strength between the measuring input part and the power part: 1kV) |
| Approval | CCE |
| Unit weight | Approx. 134g | Approx. 211g |

※1: AC measuring function, and frequency measuring function are only for AC measuring input type.  
If only frequency input the AC type (display method of measuring input) which option is in MT4W, MT4W will operate the only indicating type.  
※2: MT4Y-□-4N model has no hold function.  
※Environment resistance is rated at no freezing or condensation.

## Front panel identification

### MT4Y Series

1. HI : High output indication of preset  
2. GO : GO output indication of preset  
3. LO : Low output indication of preset

### MT4W Series

1.  
2.  
3.  
4.  
5.  
6. Unit label part

※There is no 1, 2, 3 on a display panel of MT4Y-□-4N, 45, 46 and MT4W-□-4N.  
※In MT4Y-□3, □4, OUT is used for Go output display and there is no 1, 3 in display panel.
**Multi Panel Meter**

**Connections**

© Measuring input connection of MT4Y Series

- **MT4Y-DV-4**

  1 2 3 4 5 6 7

  250mV/500mV/10V

  50V/100V/5V

- **MT4Y-DA-4**

  1 2 3 4 5 6 7

  5mA/2mA

  50mA/200mA

  5A/2.5A

- **MT4Y-AA-4**

  1 2 3 4 5 6 7

  190mA/500mA

  250mA/500mA

  1A

  5A/2.5A

© Output terminal of connection of MT4Y Series

- **MT4Y-4N (Indicator)**

  1 2 3 4 5 6 7

- **MT4Y-42**

  (Triple PNP O.C output)

  8 9 10 11 12 13

  HI GO LO COM

  Hold/Zero

- **MT4Y-43**

  (Relay output + Transmission output)

  8 9 10 11 12 13

  DC4-20mA Load

  600Ω max.

  HOLD

- **MT4Y-44**

  (Relay + RS485 communication output)

  8 9 10 11 12 13

  B (+)

  A (-)

  OUT

  OUT

  Hold/Zero

© Measuring input connection of MT4W Series

- **MT4W-DV-**

  1 2 3 4 5 6 7 8 9

  250mV/500mV/10V

  50V/100V/5V

- **MT4W-DA-**

  1 2 3 4 5 6 7 8 9

  5mA/2mA

  50mA/200mA

  5A/2.5A

- **MT4W-AA-**

  1 2 3 4 5 6 7 8 9

  190mA/500mA

  250mA/500mA

  1A

  5A/2.5A

SOURCE

100-240VAC

50/60Hz 5VA
Output terminal connection of MT4W Series

- **MT4W-0** (Triple relay contact output + Transmission output)

- **MT4W-1** (Triple relay contact output)

- **MT4W-2 / MT4W-3** (Triple NPN/PNP open collector output + BCD output)

- **MT4W-4 / MT4W-5** (Triple NPN/PNP open collector output + Transmission output)

- **MT4W-6 / MT4W-7** (Triple NPN/PNP open collector output + Low speed serial output)

- **MT4W-8 / MT4W-9** (Triple NPN/PNP open collector output + RS485 output)

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**Note:** Hirose connector pin header model of the unit: HIF3BA-20PA-2.54DS

**Note:** Contact Hirose Electric to purchase socket and wires of Hirose connector. [Socket: HIF3BA-20D-2.54R]

**Note:** POL: When a display value is "-", the signal of "-" will be outputted.
Multi Panel Meter

Dimensions

- MT4Y-[4N, 45, 46]
  ![Image]
  - Panel cut-out

- MT4Y-[43, 44]
  ![Image]

- MT4Y-[40, 41, 42]
  ![Image]

- MT4W-[N] (Indicator)
  ![Image]
  - Panel cut-out

- MT4W-[0 to 9]
  ![Image]

Parameter setting

- Press KEY in RUN status, it will advance to [PR0](Parameter 0) group.
- Press KEY for 2 sec. in RUN mode, [PR0] is displayed.
- Press KEY for 4 sec. in RUN mode, [PR2] is displayed after [PR0].

When pressing KEY continually, it stops displaying at [PR2].
- It is advanced to current display parameter releasing KEY at [PR0] or [PR2].
- Press KEY for 3 sec., it is returned to RUN at any position.
- If any key is not touched for 60 sec. in each parameter, it returns to RUN mode.
- After return to RUN mode, press KEY within 2 sec., it returns to previous parameter.(Refer to the below descriptions for set parameter.)
- It cannot advance to [PR0] when preset output operation mode of [PR2] is [FF].
Parameter 1 group

Press [MODE] key for 3sec.

Select measuring input specification by ☆

- Refer to "Specification of measuring input and range".

Select the display method of measuring input.

- Refer to measuring input specification and range chart.
  (FREQ mode is only for AC measuring type.)

Select measuring method for AC.

Select [DISP] is [STND] [SCAL] [FREQ]

(When selecting the decimal point position,
"H-SC", "L-SC" have decimal point position.
It shows Max. display value of standard specification.
Display value is fixed.

Set frequency measuring range, it is decided as the decimal point position.

When [SP] is [FREQ]

(It is only displayed for AC measuring type.)

Set deviation value.

Setting range: 0.100 to 9.999Hz

(Change setting value)

When selecting the decimal point
position, "H-SC", "L-SC" have decimal point position.

Display value is fixed.

Set display value against max. measuring input.

: Shift the digit

Set max. display value.

Set display value against min. measuring input.

: Shift the digit

Set min. display value.

Select decimal point position.

: When selecting the decimal point position,
"H-SC", "L-SC", "L-SC" have decimal point position.

Select measuring method for AC.

Select [RU] (Average: AVG/Root mean square: RMS)

(This parameter will be displayed only for AC measuring models. In case of selecting frequency display, it will not be displayed.)

Selecting output function (Main output, Sub output and RS485 output).

(Refer to zero point function)

Select decimal point position.

Setting range: 0.100 to 9.999Hz

(Change the decimal point position)

SetinbH 1000

SetinbL 00

InbH 1000

InbL 00

After setting each mode, press [MODE] key for 2 sec. to return to RUN.

If any key is untouched for 60 sec. after advance to Parameter, it will return to RUN.

Factory defaults

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-R</td>
<td>500u</td>
<td>5R</td>
<td>500u</td>
<td>5R</td>
<td>INbH</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>d SP</td>
<td>Stnd</td>
<td>Stnd</td>
<td>Stnd</td>
<td>Stnd</td>
<td>INbL</td>
<td>00</td>
<td>00</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>IN-B</td>
<td>—</td>
<td>—</td>
<td>RuG</td>
<td>RuG</td>
<td>dot</td>
<td>00</td>
<td>0000</td>
<td>00</td>
<td>0000</td>
</tr>
<tr>
<td>Stnd</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>inbE</td>
<td>—</td>
<td>10-0</td>
<td>10-0</td>
<td>10-0</td>
</tr>
</tbody>
</table>
Parameter 2 group

- **RUN**
  - Press [MODE] key for 5sec.
  - Move after 1sec.

- **OUT**
  - Select Preset output mode. Selectable: off, L5b, H5b, LHSb, HHSb, LL5b, Ld5b

- **HYS**
  - Set startup compensation time. (Shift the digit, change setting value)
  - Setting range: 0.0 to 99.9sec.

- **STb**
  - Set monitoring delay time. (Shift the digit, change setting value)
  - Setting range: 00 to 30sec.

- **PET**
  - Set a display cycle. (Shift the digit, change setting value)
  - Setting range: 0.1 to 5.0sec.

- **d1ST**
  - Select zero function with operation at front. (Set with key)
  - When +key key are pressed for 3 sec. to set -YES-, it will be zero function and the deviation value is saved automatically at -INbL- mode.

- **EIn**
  - Select input with 6, 7(MT4W) [12, 13(MT4Y)] terminal or zero function for external signal.

- **Ero**
  - Set the high limit value, output point of current output 20mA.

- **Eu In**
  - Set the low limit value, output point of current output 4mA.

- **D1sT**
  - Set the address of RS485 communication output.

- **ZERO**
  - Set the response wait time of RS485 communication. Set range: 5 to 99

- **EV1N**
  - Select key lock function and select from 4 types.

- **PA1**
  - Set key lock function and select from 4 types.

- **LOC**
  - Set parity bit of RS485 communication.

- **BPS**
  - Set stop bit of RS485 communication.

- **STP**
  - Set response wait time of RS485 communication. Set range: 5 to 99

- **INbL**
  - Set key lock function and select from 4 types.

Factory defaults

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MT4Y/W-DV</th>
<th>MT4Y/W-DA</th>
<th>MT4Y/W-AV</th>
<th>MT4Y/W-AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
</tr>
<tr>
<td>HYS</td>
<td>001</td>
<td>001</td>
<td>001</td>
<td>001</td>
</tr>
<tr>
<td>STb</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>PET</td>
<td>005</td>
<td>005</td>
<td>005</td>
<td>005</td>
</tr>
<tr>
<td>d1ST</td>
<td>025</td>
<td>025</td>
<td>025</td>
<td>025</td>
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<tr>
<td>Ero</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Eu In</td>
<td>Hold</td>
<td>Hold</td>
<td>Hold</td>
<td>Hold</td>
</tr>
<tr>
<td>FS-H</td>
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<td>5000</td>
<td>5000</td>
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<tr>
<td>FS-L</td>
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<tr>
<td>Pln</td>
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<td>STEP</td>
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<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>INbL</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
</tr>
</tbody>
</table>

※The dotted mode is only displayed for output type.
※After setting each mode, press [MODE] key for 2 sec. to return to RUN mode.
※If any key is untouched for 60sec. advance to PARAMETER, it will return to RUN mode.

Factory defaults

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MT4Y/W-DV</th>
<th>MT4Y/W-DA</th>
<th>MT4Y/W-AV</th>
<th>MT4Y/W-AA</th>
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</thead>
<tbody>
<tr>
<td>OUT</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
</tr>
<tr>
<td>HYS</td>
<td>001</td>
<td>001</td>
<td>001</td>
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<tr>
<td>STb</td>
<td>000</td>
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</tr>
<tr>
<td>PET</td>
<td>005</td>
<td>005</td>
<td>005</td>
<td>005</td>
</tr>
<tr>
<td>d1ST</td>
<td>025</td>
<td>025</td>
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<td>025</td>
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<tr>
<td>STEP</td>
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<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>INbL</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
</tr>
</tbody>
</table>
### Parameter 0 group

- **Set preset High-limit value.** (Set with \( \text{hSET, lSET} \) key)
  - It is displayed when set the preset only.
  - When set \( \text{OFF} \) in \( \text{OUT} \) mode if PA-2, the parameter is not displayed.

- **Set preset Low-limit value.** (Set with \( \text{hPEK, lPEK} \) key)
  - It is displayed when set the preset only.
  - When set \( \text{OFF} \) in \( \text{OUT} \) mode if PA-2, the parameter is not displayed.

- It shows High-limit monitoring value while it is in RUN mode.
  - It will be reset by pressing \( \text{hSET, lSET} \) key.

- It shows Low-limit monitoring value while it is in RUN mode.
  - It will be reset by pressing \( \text{hPEK, lPEK} \) key.

- \( \text{hPEK} \) and \( \text{lPEK} \) modes will not be displayed if “00” is set in \( \text{PEKT} \) mode of PA-2.

- If any key is untouched for 60sec. after advance to Parameter, it will return to RUN mode.

### Factory defaults

- **Parameter MT4Y/W-DV**| MT4Y/W-DA | MT4Y/W-AV | MT4Y/W-AA
- **hSET** | 5000 | 5000 | 5000 | 5000 | **hPEK** | 00 | 0000 | 00 | 0000
- **lSET** | 0000 | 0000 | 0000 | 0000 | **lPEK** | 00 | 0000 | 00 | 0000

### Measuring input and range

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring input and range</th>
<th>Input impedance</th>
<th>Display range ([\text{V, mA, etc.}])</th>
<th>Prescale display range ([\text{SCRL}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Volt</td>
<td>0-500V ([500V])</td>
<td>4.33MΩ</td>
<td>0.0 to 500.0</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-100V ([100V])</td>
<td>4.33MΩ</td>
<td>0.0 to 100.0</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-50V ([50V])</td>
<td>433.15kΩ</td>
<td>0.00 to 50.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-10V ([10V])</td>
<td>433.15kΩ</td>
<td>0.00 to 10.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-5V ([5V])</td>
<td>43.15kΩ</td>
<td>0.000 to 5.000</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-1V ([1V])</td>
<td>43.15kΩ</td>
<td>0.000 to 1.000</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-250mV ([0.25V])</td>
<td>2.15kΩ</td>
<td>0.0 to 250.0</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-50mV ([0.5V])</td>
<td>2.15kΩ</td>
<td>0.00 to 50.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-5A ([5A])</td>
<td>0.01Ω</td>
<td>0.000 to 5.000</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-2A ([2A])</td>
<td>0.01Ω</td>
<td>0.000 to 2.000</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-50mA ([0.5A])</td>
<td>0.1Ω</td>
<td>0.000 to 50.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-200mA ([2A])</td>
<td>0.1Ω</td>
<td>0.000 to 200.0</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-5mA ([5mA])</td>
<td>1.0Ω</td>
<td>0.000 to 50.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-2mA ([2mA])</td>
<td>10.0Ω</td>
<td>0.000 to 20.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-500V ([500V])</td>
<td>4.98MΩ</td>
<td>0.0 to 500.0</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-250V ([250V])</td>
<td>4.98MΩ</td>
<td>0.0 to 250.0</td>
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<tr>
<td>DC Ampere</td>
<td>0-100V ([100V])</td>
<td>1.08MΩ</td>
<td>0.0 to 440.0</td>
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</tr>
<tr>
<td>DC Ampere</td>
<td>0-50V ([50V])</td>
<td>1.08MΩ</td>
<td>0.00 to 50.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-20V ([20V])</td>
<td>20kΩ</td>
<td>0.00 to 20.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-10V ([10V])</td>
<td>20kΩ</td>
<td>0.00 to 10.00</td>
<td></td>
</tr>
<tr>
<td>DC Ampere</td>
<td>0-2V ([2V])</td>
<td>0.000 to 2.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC Volt</td>
<td>0-1V ([1V])</td>
<td>20kΩ</td>
<td>0.000 to 1.000</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-5A ([5A])</td>
<td>0.01Ω</td>
<td>0.000 to 5.000</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-2.5A ([2.5A])</td>
<td>0.01Ω</td>
<td>0.000 to 2.500</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-1A ([1A])</td>
<td>0.05Ω</td>
<td>0.000 to 1.000</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-50mA ([0.5A])</td>
<td>0.1Ω</td>
<td>0.00 to 50.00</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-250mA ([0.25A])</td>
<td>0.1Ω</td>
<td>0.00 to 250.0</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-100mA ([0.1A])</td>
<td>0.5Ω</td>
<td>0.00 to 10.00</td>
<td></td>
</tr>
<tr>
<td>AC Ampere</td>
<td>0-50mA ([5mA])</td>
<td>0.5Ω</td>
<td>0.00 to 50.00</td>
<td></td>
</tr>
</tbody>
</table>

- (The display range is changed according to the decimal point position.)
- Please connect proper terminal its max. input voltage is within 30 to 100% of input terminal.
- When it is higher than input voltage, it may cause a breakdown of terminal and over display range and the accuracy is decreased when it is connected to the terminal under 30%.
- \(110P\) is standard specification 440V/110VAC P.T.
Functions

AC frequency measurement function [PA 1 group: d! SP]
It measures input signal frequency when it is AC input. It uses fixed decimal point [PA 1: d! b], measured range can be changed by setting and measured range of decimal point position is as below chart. It is available to adjust the upper gradient at [PA 1: .1 bH] and [PA 1: .1 bE]. In order to measure frequency normally, input signal, over 10% F.S. of the measured range, should be supplied. Please select the proper point of measuring range.

<table>
<thead>
<tr>
<th>Decimal point position</th>
<th>0.000</th>
<th>0.00</th>
<th>0.0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>0.100</td>
<td>0.10</td>
<td>0.1</td>
<td>1</td>
</tr>
</tbody>
</table>

※ Accuracy of frequency measurement:
Below 1kHz, F.S. ±0.1rdg ±2digit.
From 1kHz to 10kHz, F.S. ±0.3rdg ±2digit.

Zero adjustment function
(Deviation correction function of low limit display value)
It adjusts the display value of the optional configured input value as zero by force, zero point error can be adjusted with 3 ways as below. When zero point adjustment with front key and Hold terminal is finished normally, zero point of measurement terminal is displayed and the adjusted value at saved in .1 bL automatically.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Input correction value</th>
<th>Front panel key</th>
<th>External input signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>PA 1: Direct input correction value method at .1 bL mode.</td>
<td>Press both .1, .2 keys for 3 sec. at the measuring mode.</td>
<td>Short-circuit external hold terminal no. 11, 12 (no. 6, 7 (MT4W)) over min. 50m. If it is enable to use in option mode.</td>
</tr>
</tbody>
</table>

※ Refer to “ Error correction function”, “ Error display function” and “ Parameter 2” for function and error.

Current output (DC4-20mA) scale function [PA 2 group: F5-H / F5-L]
It sets current output for the display value at the output current DC 4-20mA.
It sets display value for 4mA at F5-L and 20mA at F5-H and the range between F5-H and F5-L should be 10%
※ When min. set interval between F5-H and F5-L is set as under 10% F.S., it changed as over 10% F.S. automatically.
※ Preset display value is fixed to output as 4mA at under F5-L and 20mA at over F5-H.

Initialization function
It initializes as the factory default status. If press .1, .2, .3 keys together for 2sec. in RUN mode, .1 bL mode and the setting value (n α) is displayed every 0.5 sec. and it will be initialized as the factory default when press .1 EX key after change n α → YES.

Startup compensation time function [PA 2 group: SbRb]
This time function limits the operation of an output until the measured input (overvoltage or inrush current) is stable at moment of power on. All outputs are off during startup compensation time setting after power is applied. Setting range: 0.00 to 99.9 (unit: sec). Factory default: 00.0

Error display function

<table>
<thead>
<tr>
<th>Display</th>
<th>Error Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH HH</td>
<td>Flashing when measuring input is exceeded the max. allowable input(10%)</td>
</tr>
<tr>
<td>L L L L</td>
<td>Flashing when measuring input is exceeded the min. allowable input(-10%)</td>
</tr>
<tr>
<td>d- HH</td>
<td>Lights when display input is exceeded the max. display range(9999) or H - SC setting value</td>
</tr>
<tr>
<td>d- LL</td>
<td>Lights when display input is exceeded the min. display range(-9999) or - SC setting value</td>
</tr>
<tr>
<td>F- HH</td>
<td>Flashing when measuring frequency is exceeded max. measured value (9999)</td>
</tr>
<tr>
<td>o u E r</td>
<td>Flashing when it exceeds zero adjustment range(±99)</td>
</tr>
</tbody>
</table>

※ Error display is released automatically when it is in the measured and display range.
※ " LL LL " is displayed when the measuring input is 4-20mA. After flashing " o u E r " 2 times when it exceeds the zero range, it returns to RUN mode.

Display scale function [PA 1 group: H-SC L-SC]
This function is to display setting (-9999 to 9999) of particular High/Low-limit value in order to display High/Low limit value of measured input. If measured inputs are 'a' and 'b' and particular values are 'A' and 'B', it will display a=A, b=B as below graphs.

Gradient correction function [PA 1 group: .1 bH]
This function is to correct a gradient of prescale value and display value. (Fig.1) Display value Y can be used as α, β times against X input value by correction function[.1 bH].
And also can be used as correction function of max. display value(± SC). Adjustment range is 0.100 to 5.000 and multiply current gradient.
Ex: Input = DC200mV, Display = 3.000 for MT4W-DV

<table>
<thead>
<tr>
<th>Display value</th>
<th>Display value for measuring input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>X Input value</td>
</tr>
<tr>
<td>15.000</td>
<td>0.2 0.4 0.6 0.8 1.0</td>
</tr>
<tr>
<td>12.000</td>
<td></td>
</tr>
<tr>
<td>9.000</td>
<td></td>
</tr>
<tr>
<td>6.000</td>
<td></td>
</tr>
<tr>
<td>3.000</td>
<td></td>
</tr>
</tbody>
</table>

Multi Panel Meter

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/ Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching mode power supply
(Q) Stepper motor/ Driver/Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Software
(U) Other
① Select 0-1VDC for measuring input in Parameter1.
② Standard specification in input : 0-1VDC and 1.000 therefore it has to be 15.000 (H-5C) for 1VDC(input) in order to display 3.000 for DC200mV(input). But it is dis- able due to setting range is 9.999
③ In this case, please check below chart.
Please set as \( L_{\text{nbH}} \times H-5C = 15.000 \)

### MT4Y/MT4W Series

#### ② Error correction function
**[PA 1 group : \( \frac{i_{\text{nbH}}}{i_{\text{nbL}}} \)]**

It corrects display value error of measured input.

\[
 i_{\text{nbH}} : \pm 99 \text{ (Adjust deviation of low value)}
\]

\[
 i_{\text{nbL}} : 5.000 \text{ to } 0.100 \text{ [Correct gradient(%) of high value]}
\]

Display value=\[
 (\text{Measured value} \times \frac{i_{\text{nbH}}}{i_{\text{nbL}}}) + i_{\text{nbL}}
\]

**Ex)** Low voltage correction

When there is an application where there is a residual voltage of 1.2V, but a 0V display is desired, then it is possible by adjusting the \( i_{\text{nbL}} \) parameter setting to 12 (offset correcting value or equal to 1.2V without decimal) that the desired display value of 0 can be achieved.

**Ex)** High voltage correction

When there is an application where the high actual value of display is 501 and exceeds the 500V display range, then it is possible by adjusting the \( i_{\text{nbH}} \) parameter setting to 0.998 (calculated by desired value of 500/actual value of 501), that the desired value can be achieved.

※ The offset correction range of \( i_{\text{nbL}} \) is within -99 to 99 for D-0, D-1 digit regardless of decimal point.

#### ⑤ Display cycle delay function
**[PA 2 group : \( d_{15C} \)]**

In some applications the measured input may fluctuate which in turn causes the display to fluctuate. By adjusting the display cycle delay function in the \( d_{15C} \) mode in parameter 2, the operator can adjust the display time within a range of 0.1 sec to 5 sec. For example, if the operator sets the display cycle time to 4.0 sec., the display value displayed will be the average input value over 4 sec. and also will show any changes for any 4 sec.

#### ⑦ Monitoring peak display value function
**[PA 0 group : \( \text{HPEV} \), \( \text{LPEV} \) \( \text{PA 2 group :} \text{PEV} \)]**

It monitors max./min. value of display value based on the current displays value and then displays the data at \( \text{HPEV} \), \( \text{LPEV} \) of parameter 0. Set the delay time(0 to 30 sec.) at \( \text{PEV} \) of parameter 2 in order to prevent malfunction caused by initial overcurrent or overvoltage, when monitoring the peak value. Delay time is 0 to 30 sec. and it starts to monitor the peak value after the set time. When pressing any one of [ ] [ ] keys at \( \text{HPEV} \), \( \text{LPEV} \) of parameter 0, the monitored data is initialized.

※ Monitoring function is not indicate when the delay time is set at "GO 5" at \( \text{PEV} \) of parameter 2.
**Time chart of BCD output and Serial output**

- **BCD output (Negative logic)**

```
Digit signal

<table>
<thead>
<tr>
<th>Input Data</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Digit

<table>
<thead>
<tr>
<th>D3</th>
<th>D2</th>
<th>D1</th>
<th>D0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>dot</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
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<tr>
<td>H</td>
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<td>H</td>
</tr>
</tbody>
</table>

Display

4 3 2 1
```

- **Serial output (Negative logic)** - Clock frequency: 50Hz

```
Latch

<table>
<thead>
<tr>
<th>Clock</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cn-1</td>
<td>Dn-1</td>
</tr>
<tr>
<td>Cn</td>
<td>Dn</td>
</tr>
</tbody>
</table>

Input ordering 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

<table>
<thead>
<tr>
<th>DP</th>
<th>D</th>
<th>C</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
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<tr>
<td>H</td>
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<td>H</td>
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<td>H</td>
</tr>
</tbody>
</table>

Display

4 3 2 1
```