

# Multi Pulse Meters


## MP5S / MP5Y / MP5W Series



### Features

- 16 operation modes
  - Frequency / revolutions / speed, passing speed, cycle, passing time, time interval
  - Time differential, absolute ratio, error ratio, density, error, length measurement 1 / 2, interval
  - Accumulation, addition / subtraction (individual input), addition / subtraction (phase difference input)
- Various output models
  - Relay triple / quintuple output, NPN / PNP open collector quintuple output
  - BCD Dynamic output, PV transmission output (current output)
  - RS485 communication output (Modbus RTU)
- Various function
  - Prescale, delay monitoring, hysteresis, auto-zero, parameter lock, data bank (MP5W only)
- Display range: -19999 to 99999
- Various display units

### Specifications

| Series                             | MP5S   | MP5Y                               | MP5W                               |
|------------------------------------|--|------------------------------------|------------------------------------|
| <b>Input signal</b> <sup>01)</sup> | Solid state input 1: $\leq 50$ kHz (pulse width: $\geq 10$ $\mu$ s)<br>Solid state input 2 <sup>02)</sup> : $\leq 5$ kHz (spulse width: $\geq 100$ $\mu$ s)<br>Contact input: $\leq 45$ Hz (contact: 12 VDC $\Rightarrow$ $\geq 5$ mA, (pulse width: $\geq 11$ ms) |                                    |                                    |
| <b>Voltage input</b>               | Input impedance: 3.9 k $\Omega$ , [H]: 4.5 - 24 VDC $\Rightarrow$ , [L]: 0 - 1 VDC $\Rightarrow$   |                                    |                                    |
| <b>No-voltage input</b>            | Short-circuit impedance: $\leq 80$ $\Omega$ , residual voltage: $\leq 1$ VDC $\Rightarrow$ , open-circuit impedance: $\geq 100$ k $\Omega$   |                                    |                                    |
| <b>Display method</b>              | 7-segment LED (zero blanking method)   |                                    |                                    |
| <b>Character size</b>              | W 4 $\times$ H 8 mm  | W 7 $\times$ H 14 mm               |                                    |
| <b>Prescale</b>                    | 0.0001 $\times 10^3$ to 9.9999 $\times 10^3$   |                                    |                                    |
| <b>Hysteresis</b>                  | 0 to 9999 <sup>03)</sup>   |                                    |                                    |
| <b>Display cycle</b>               | OFF <sup>04)</sup> , 0.05, 0.5, 1, 2, 4, 8 sec (same as update output cycle)   |                                    |                                    |
| <b>Display range</b>               | -19999 to 99999  |                                    |                                    |
| <b>Output</b>                      | Depending on models  |                                    |                                    |
| Relay                              | 250 VAC $\sim$ 3 A, 30 VDC $\Rightarrow$ 3 A resistive load  |                                    |                                    |
| NPN / PNP open collector           | $\leq 30$ VDC $\Rightarrow$ 30 mA  |                                    |                                    |
| BCD Dynamic                        | NPN open collector $\leq 30$ VDC $\Rightarrow$ 30 mA (Dynamic COM cycle (T) = 40 ms)   |                                    |                                    |
| PV transmission                    | DC 4 - 20 mA (load: $\leq 500$ $\Omega$ , resolution: 8,000 divisions) / DC 0 - 20 mA (load: $\leq 500$ $\Omega$ , resolution: 10,000 divisions)   |                                    |                                    |
| RS485 communication                | Modbus RTU   |                                    |                                    |
| <b>Product components</b>          | Product, instruction manual  |                                    |                                    |
| Bracket                            | Mounted  | $\times 2$                         | $\times 2$                         |
| Unit sticker                       | $\times 1$   | $\times 1$                         | $\times 2$                         |
| <b>Unit weight (package)</b>       | $\approx 132$ g ( $\approx 191$ g)   | $\approx 140$ g ( $\approx 230$ g) | $\approx 210$ g ( $\approx 334$ g) |
| <b>Approval</b>                    | CE  ENEC  |                                    |                                    |

01) Standard duty ratio 1:1

02) Operation mode F7, F8, F9, F10:  $\leq 1$  kHz (pulse width:  $\geq 500$   $\mu$ s)

03) The hysteresis setting range varies according to the decimal point setting position.

04) Only available operation mode F2, F16

| Input                                  | AC voltage   | AC / DC voltage  |
|--|--|--|
| <b>Power supply</b>                    | 100 - 240 VAC $\sim \pm 10$ %<br>50 / 60 Hz  | 24 VAC $\sim \pm 10$ % 50 / 60 Hz,<br>24 - 48 VDC $\Rightarrow \pm 10$ % |
| <b>Power consumption</b>               | Depending on Series / power supply   |  |
| MP5S                                   | $\leq 7.5$ VA  | AC: $\leq 6$ VA, DC: $\leq 4.5$ W  |
| MP5Y                                   | $\leq 9$ VA  | AC: $\leq 7$ VA, DC: $\leq 6.2$ W  |
| MP5W                                   | $\leq 15$ VA   | AC: $\leq 11$ VA, DC: $\leq 7$ W   |
| <b>External power supply</b>           | $\leq 12$ VDC $\Rightarrow \pm 10$ % 80 mA   |  |
| <b>Sub power supply</b> <sup>01)</sup> | $\leq 24$ VDC $\Rightarrow$ 30 mA  |  |
| <b>Memory retention</b>                | Number of inputs: 100,000 operations (non-volatile semiconductor memory type)  |  |
| <b>Relay life cycle</b>                | Mechanical: $\geq 10,000,000$ operations (switching frequency 180 operations / min)<br>Electrical: $\geq 100,000$ operations (250 VAC $\sim$ 3 A, 30 VDC $\Rightarrow$ 3 A resistive load) (switching frequency 20 operations / min) |  |
| <b>Insulation resistance</b>           | $\geq 100$ M $\Omega$ (500 VDC $\Rightarrow$ megger)   |  |
| <b>Dielectric strength</b>             | 2,000 VAC $\sim$ 60 Hz for 1 min   |  |
| <b>Noise immunity</b>                  | $\pm 2$ kV the square wave noise (pulse width: 1 $\mu$ s) by the noise simulator   |  |
| <b>Vibration</b>                       | 0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour  |  |
| <b>Vibration (malfunction)</b>         | 0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min   |  |
| <b>Shock</b>                           | 300m / s <sup>2</sup> ( $\approx 30$ G) in each X, Y, Z direction for 3 times  |  |
| <b>Shock (malfunction)</b>             | 100m / s <sup>2</sup> ( $\approx 30$ G) in each X, Y, Z direction for 3 times  |  |
| <b>Ambient temperature</b>             | -10 to 50 $^{\circ}$ C, storage: -20 to 60 $^{\circ}$ C (no freezing or condensation)  |  |
| <b>Ambient humidity</b>                | 35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)  |  |
| <b>Comm. protocol</b>                  | Modbus RTU (16-bit CRC)  |  |

01) Only for MP5W



View product detail

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