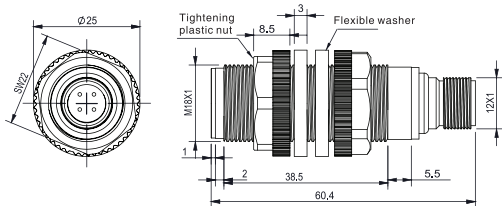




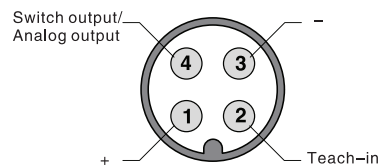
|                                |   |                 |                 |
|--------------------------------|---|-----------------|-----------------|
| Appearance                     |   |                 |                 |
| Sensing type                   | Diffuse reflection  |                 |                 |
| Sensing range                  | 40~300mm  |                 | 60~800mm        |
| Repeat accuracy                | 2%  |                 |                 |
| Hysteresis                     | 2%  |                 |                 |
| Linearity error                | ≤3%   |                 |                 |
| Resolution                     | 2mm   |                 |                 |
| Opening angle                  | 7°±2°   |                 | ±2°             |
| Switch frequency               | 8Hz   |                 | 5Hz             |
| Response time (switch output)  | 12ms  |                 | 80ms            |
| Response time (analog output)  | 500ms   |                 |                 |
| Operating voltage              | 10~30V DC(±5%)  |                 |                 |
| Temperature drift              | ≤5%   |                 |                 |
| Temperature compensation       | Yes   |                 |                 |
| Voltage drop                   | 2.2Vmax (1L=100mA)  |                 |                 |
| Current consumption            | ≤35mA   |                 |                 |
| Max Load Current               | 100mA   |                 |                 |
| Leakage current                | ≤10 μA@30VDC  |                 |                 |
| Sensitivity adjustment         | External teach-in   |                 |                 |
| Time delay before availability | ≤300ms (Switch); ≤900ms(Analog)   |                 |                 |
| Operating temperature          | -20°C~+70°C   |                 |                 |
| Storage temperature            | -35°C~+70°C(No freezing)  |                 |                 |
| Protective circuit             | Reverse polarity protection, Short circuit (auto reset), Over voltage pulses protection |                 |                 |
| Degree of protection           | IP67  |                 |                 |
| Tightening torque              | 1Nm   |                 |                 |
| Housing material               | PBT   |                 |                 |
| Sensing surface material       | Epoxy-glass resin   |                 |                 |
| Weight                         | 15g   |                 |                 |
| Analog output                  | Voltage   | <b>MS18-30V</b> | <b>MS18-90V</b> |
|                                | Current   | <b>MS18-30I</b> | <b>MS18-90I</b> |
| Switch output                  | NPN   | <b>MS18-30N</b> | <b>MS18-90N</b> |
|                                | PNP   | <b>MS18-30P</b> | <b>MS18-90P</b> |

### Dimensions

Unit: mm



### Wiring Diagram



# Cylindrical Type

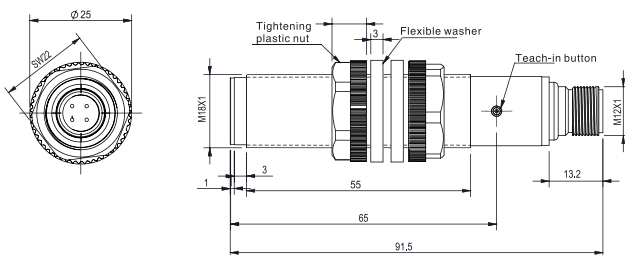
## M18 Plastic Housing Series



|  |   |           |            |            |           |
|--|---|-----------|------------|------------|-----------|
| Appearance                                     |   |           |            |            |           |
| Sensing type                                   | Diffuse reflection  |           |            |            |           |
| Sensing range                                  | 50~400mm  | 100~900mm | 150~1600mm | 200~2200mm |           |
| Resolution                                     | 3mm   | 2mm       | 3mm        | 3mm        |           |
| Repeat accuracy                                | 0.5%  |           |            |            |           |
| Hysteresis                                     | 1%  |           |            |            |           |
| linearity error                                | 1%  |           |            |            |           |
| Opening angle                                  | ± 8°  | ± 7°      | ± 8°       | ± 7°       |           |
| Switch frequency                               | 10Hz  | 4Hz       | 2Hz        | 1Hz        |           |
| Response time                                  | 500ms   | ≤ 125ms   | 250ms      | 500ms      |           |
| Operating voltage                              | 15~30V DC (± 5%)  |           |            |            |           |
| Temperature compensation                       | Yes   |           |            |            |           |
| Temperature drift                              | 5%  |           |            |            |           |
| Voltage drop                                   | 2.2V max.(1L=100mA)   |           |            |            |           |
| Current consumption                            | ≤ 50mA  |           |            |            |           |
| Output current(Switch output)                  | 100mA   |           |            |            |           |
| Min load resistance (Analog voltage)           | 3k Ω  |           |            |            |           |
| Leakage current                                | ≤ 10 μ A@30V DC   |           |            |            |           |
| Sensitivity adjustment                         | Teach-in  |           |            |            |           |
| Time delay before availability (Switch output) | ≤ 500ms; ≤ 900ms(Dual output)   |           |            |            |           |
| Time delay before availability (Analog output) | ≤ 900ms   |           |            |            |           |
| Operating temperature                          | -20°C~+60°C   |           |            |            |           |
| Storage temperature                            | -35°C~+70°C (No freezing)   |           |            |            |           |
| Protective circuit                             | Reverse polarity protection, Short circuit (auto reset), Over voltage pulses protection |           |            |            |           |
| Degree of protection                           | IP67  |           |            |            |           |
| Tightening torque                              | 50Nm  |           |            |            |           |
| Housing material                               | PBT   |           |            |            |           |
| Sensing surface material                       | Epoxy-glass resin   |           |            |            |           |
| Weight   | 26g   |           |            |            |           |
| Analog output                                  | Voltage   | MC18-40V  | MC18-90V   | MC18-160V  | MC18-220V |
|  | Current   | MC18-40I  | MC18-90I   | MC18-160I  | MC18-220I |
| Switch output                                  | NPN   | MC18-40N  | MC18-90N   | MC18-160N  | MC18-220N |
|  | PNP   | MC18-40P  | MC18-90P   | MC18-160P  | MC18-220P |

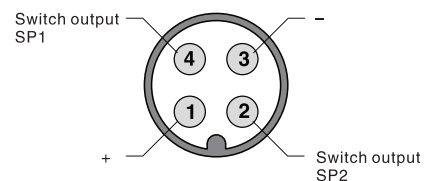
### Dimensions

Unit: mm

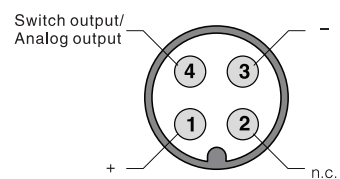


### Wiring Diagram

Dual switch outputs:



Switch / Analog:



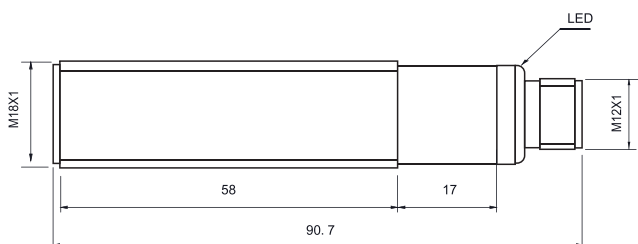


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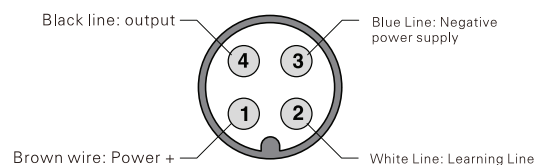
|                                   |  |   |
|-----------------------------------|--|---|
| Appearance                        |  |   |
| Detection methods                 |  | Diffuse reflection                            |
| Detection/reg                     |  | 60~1000mm                                     |
| ulation of blind areas            |  | 0~60mm  |
| Standard Test Panel               |  | 100 x 100mm                                   |
| Angle                             |  | ± 7°  |
| Sensor frequency                  |  | Approx. 200KHz                                |
| No-load Current in Response Delay |  | 100ms   |
| Working Voltage                   |  | 9~30VDC, 10%V                                 |
| Protection Circuit                | Protection against back-connection and instantaneous overvoltage   |   |
| No-load current                   |  | ≤25mA   |
| Rated operating current           | 200mA, Short circuit protection/overload protection  |   |
| LED                               | Red light: no target detected in learning state, normal light; blue light: detected target, flicker in learning state; yellow light: switch state in normal working mode; green light: power indicator light, normal light |   |
| Resolution                        |  | 0.5mm   |
| Repetition accuracy               |  | 0.3% full range                               |
| Temperature drift                 |  | 0.05%/° C (built-in temperature compensation) |
| Linearity                         |  | <1%   |
| Operating temperature             |  | -20°C~+70°C ( 253~343K )                      |
| Storage temperature               |  | -40°C~+85°C(233~358K )                        |
| Electromagnetic compatibility     |  | GB/T17626.2-2006;GB/T17626.4-2008             |
| Protection level                  |  | IP65  |
| Connection method                 |  | V3 connector, 4-pin                           |
| Housing material                  |  | Copper nickel plating                         |
| Weight                            |  | 62g   |
| Line length                       |  | 2m  |
| Analog                            | Voltage output0-5V   | <b>MT18-100V</b>                              |
|                                   | Voltage output0-10V  | <b>MT18-100V2</b>                             |
|                                   | Current output4-20mA   | <b>MT18-100A</b>                              |
| Switch                            | NPN  | <b>MT18-100N</b>                              |
|                                   | NPN Hysteresis mode  | <b>MT18-100N2</b>                             |
|                                   | PNP  | <b>MT18-100P</b>                              |
|                                   | PNP Hysteresis mode  | <b>MT18-100P2</b>                             |
| numerical capacity                | TTL output   | <b>MT18-100T</b>                              |

Dimensions

Unit: mm



Circuit Diagram



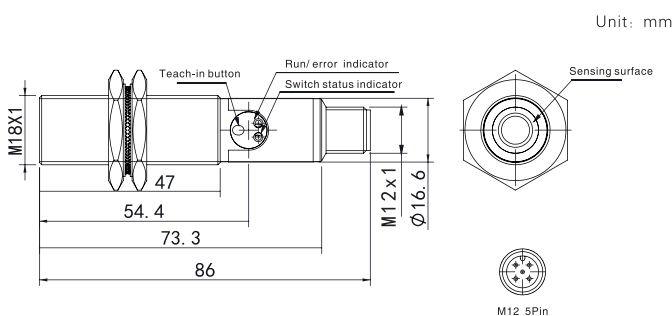
# Cylindrical Type

## M18 Metal Housing Series

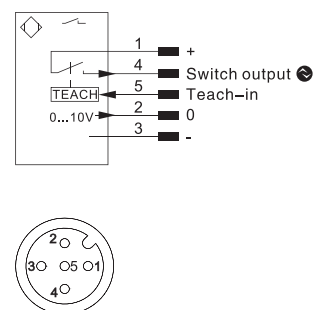


|                                   |                    |
|-----------------------------------|--------------------|
| Appearance                        |                    |
| Sensing type                      | Diffuse reflection |
| Working range                     | 50~400 mm          |
| Sensing range                     | 350 mm             |
| Reproducibility max.              | 1 mm               |
| linearity error                   | 5 mm               |
| Resolution                        | 0.1mm              |
| Ultrasonic frequency              | 300 kHz            |
| Opening angle                     | < 12°              |
| Service life(Tu=+25°C)            | 100000 h           |
| Switch hysteresis                 | 2 mm               |
| Supply voltage                    | 18~30 V DC         |
| Current consumption(Ub=24V)       | <30 mA             |
| Switch frequency                  | 20 Hz              |
| Response time                     | 25 ms              |
| Temperature range                 | -25~+60°C          |
| Switch outputs                    | 1                  |
| Switch output voltage drop        | <2.5 V             |
| PNP switch output/ switch current | 100 mA             |
| Analog output                     | 0~10V              |
| Synchronous mode                  | Up to 40 sensors   |
| Short circuit protection          | Yes                |
| Reverse polarity protection       | Yes                |
| Overload protection               | Yes                |
| Lockable                          | Yes                |
| Interface                         | IO-Link            |
| IO-Link version                   | 1.0                |
| Protection class                  | Class 3            |
| Setting method                    | Teach-in display   |
| Material                          | Stainless steel    |
| Full encapsulation                | Yes                |
| Degree of protection              | IP67               |
| Connection                        | M12*1; 4/5 Pin     |
| PNP NO/ NC switchable             | Yes                |
| Model No.                         | <b>MD18-35V</b>    |

### Dimensions



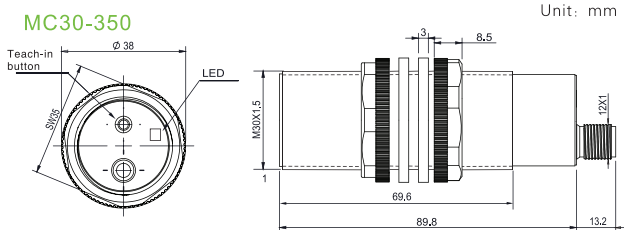
### Wiring Diagram



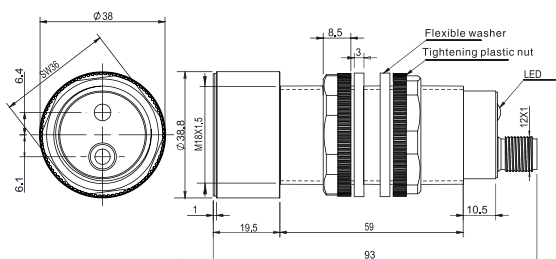


|                          |   |                            |                   |
|--------------------------|---|----------------------------|-------------------|
| Appearance               |   |                            |                   |
| Sensing type             | Diffuse reflection  |                            |                   |
| Sensing range            | 250~3500mm  | 350~6000mm                 |                   |
| Resolution               | 4mm   | 6mm                        |                   |
| Repeat accuracy          | 1%  | 0.5%                       |                   |
| Hysteresis               | 1%  |                            |                   |
| linearity error          | 1%  |                            |                   |
| Opening angle            | ± 7°  | ± 9°                       |                   |
| Switch frequency         | 2Hz   | 1Hz                        |                   |
| Response time            | Switch:250ms, analog:600ms  | Switch:500ms, analog:600ms |                   |
| Operating voltage        | 12~30VDC , Analog voltage output: 15~30VDC(± 5%)  |                            |                   |
| Temperature compensation | Yes   |                            |                   |
| Temperature drift        | ± 8% ( switch output ) , ± 5% ( analog output )   |                            |                   |
| Voltage drop             | 2.2V max.(1L=100mA)   |                            |                   |
| Current consumption      | ≦50mA   |                            |                   |
| Max Load Current         | 100mA   |                            |                   |
| Min. load resistance     | 3k Ω  |                            |                   |
| Leakage current          | ≦10 μ A@30V DC  |                            |                   |
| Sensitivity adjustment   | Teach-in  |                            |                   |
| Operating temperature    | -20°C~+70°C   |                            |                   |
| Storage temperature      | -35°C~+70°C(No freezing)  |                            |                   |
| Protective circuit       | Reverse polarity protection, Short circuit (auto reset), Over voltage pulses protection |                            |                   |
| Degree of protection     | IP67  |                            |                   |
| Housing material         | PBT   |                            |                   |
| Sensing surface material | Epoxy-glass resin   |                            |                   |
| Weight                   | 140g  | 170g                       |                   |
| Analog output            | Voltage   | <b>MC30-350V</b>           |                   |
|                          | Current   | <b>MC30-350I</b>           |                   |
| Switch output            | NPN   | <b>MC30-350N</b>           |                   |
|                          | PNP   | <b>MC30-350P</b>           |                   |
| Dual switch output       | NPN   | <b>MC30-350N2</b>          | <b>MC30-600N2</b> |
|                          | PNP   | <b>MC30-350P2</b>          | <b>MC30-600P2</b> |
| Analog+Switch            | NPN+Current   | <b>MC30-350NI</b>          | <b>MC30-600NI</b> |
|                          | PNP+Current   | <b>MC30-350PI</b>          | <b>MC30-600PI</b> |
|                          | NPN+Voltage   | <b>MC30-350NV</b>          | <b>MC30-600NV</b> |
|                          | PNP+Voltage   | <b>MC30-350PV</b>          | <b>MC30-600PV</b> |

### Dimensions



### MC30-600



### Wiring Diagram

