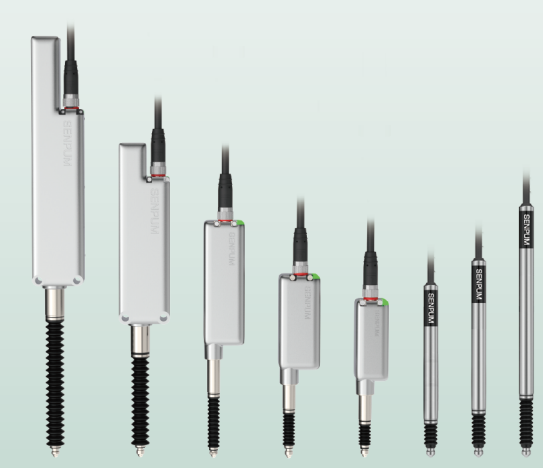


Digital Display

Contact Displacement Sensor

MT1 Series



EtherCAT<sup>®</sup> RS-232C / RS-485

EtherNet/IP<sup>™</sup> Ethernet (TCP/IP)

PROFINET<sup>®</sup>



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Fast Delivery

Standard Models



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LINE

High-precision absolute measurement method

Not only does it offer high precision, but it also overcomes the problems of traditional contact sensors, such as “tracking error” and “inability to detect absolute position.”

Main and expansion controllers are cascaded, saving wiring

The main module can provide power to the expansion modules, which do not need to be powered separately, further saving on wiring.



Easy reading of data

One main module can connect to up to 14 expansion modules, enabling batch data communication and calculation, and outputting real values immediately upon startup.

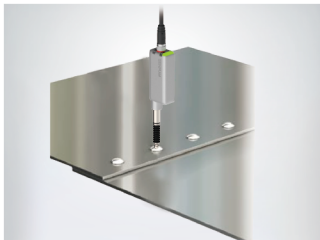
Displayable items

|                     |                  |
|---------------------|------------------|
| Maximum value       | Minimum value    |
| Peak-to-peak value  | Average value    |
| Reference deviation | Distortion value |
| Thickness           | Warpage          |

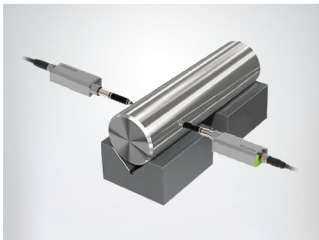
More Features

- Multiple sets of switch outputs.
- Outputs actual values immediately upon startup.
- One main module can connect to up to 14 expansion modules.
- Convenient connection to PLC, computer, and industrial control computer (requires connection via communication module).
- Implement batch data communication and calculation.

Applications



Rivet height differentiation



Shaft diameter measurement



Flatness detection

Product List

Pen-type Sensor Head

| Measuring range | Accuracy                           | Model | Standard spring linear type | Cylinder type |
|-----------------|------------------------------------|-------|-----------------------------|---------------|
| 12mm            | Resolution 0.1 μm<br>Accuracy 1 μm |       | MT1-P12K                    | MT1-PA12K     |
|                 | Resolution 0.5 μm<br>Accuracy 2 μm |       | MT1-P12                     | MT1-PA12      |

Controller

| Controller types | Output method | Model     |
|------------------|---------------|-----------|
|                  | NPN           | MT1-71AN  |
|                  | PNP           | MT1-71AP  |
|                  | NPN/PNP       | MT1-71A   |
|                  | NPN           | MT1-71AMN |
|                  | PNP           | MT1-71AMP |
|                  | NPN/PNP       | MT1-71AM  |
|                  | NPN           | MT1-72AN  |
|                  | PNP           | MT1-72AP  |
|                  | NPN/PNP       | MT1-72A   |

Box-type Sensor Head

| Measuring range | Accuracy                           | Model | Standard spring linear type | Standard flange type | Cylinder type |
|-----------------|------------------------------------|-------|-----------------------------|----------------------|---------------|
| 5mm             | Resolution 0.1 μm<br>Accuracy 1 μm |       | MT1-H5K                     | —                    | —             |
|                 | Resolution 0.5 μm<br>Accuracy 2 μm |       | MT1-H5                      | —                    | —             |
|                 | Resolution 0.5 μm<br>Accuracy 5 μm |       | MT1-H5S                     | —                    | —             |
| 12mm            | Resolution 0.1 μm<br>Accuracy 1 μm |       | MT1-H12K                    | MT1-H12KF            | MT1-A12K      |
|                 | Resolution 0.5 μm<br>Accuracy 2 μm |       | MT1-H12                     | MT1-H12F             | MT1-A12       |
|                 | Resolution 0.5 μm<br>Accuracy 5 μm |       | MT1-H12S                    | —                    | MT1-A12S      |
|                 | Resolution 0.5 μm<br>Accuracy 3 μm |       | MT1-H22                     | —                    | —             |
| 32mm            |                                    |       | MT1-H32                     | —                    | MT1-A32       |
|                 |                                    |       | MT1-H50                     | —                    | MT1-A50       |
| 50mm            | Resolution 0.5 μm<br>Accuracy 5 μm |       |                             | —                    |               |

Digital Contact Sensors

MT1

MT2

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact Sensors

Area Sensors/  
Safety Light Curtains

Laser Scanners

Digital Contact Sensors

Laser Displacement  
Sensors

Laser Micrometers

Confocal Displacement  
Sensors

Barcode Readers

AI Vision Sensors

RFID

Infrared Temperature  
Sensors

Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators



MT1

Digital Display Contact Displacement Sensor

Cable (connection cable between sensor head and controller)

| Appearance                                                                        | Sensor side          | Cable termination | Material                           | Cable length | Model                      |
|-----------------------------------------------------------------------------------|----------------------|-------------------|------------------------------------|--------------|----------------------------|
|  | M8 4-Pin<br>Straight | Controller        | Highly flexible<br>drag chain type | 2 m          | <a href="#">OW-MT2000</a>  |
|                                                                                   |                      |                   |                                    | 5 m          | <a href="#">OW-MT5000</a>  |
|                                                                                   |                      |                   |                                    | 10 m         | <a href="#">OW-MT10M</a>   |
|                                                                                   |                      |                   |                                    | 20 m         | <a href="#">OW-MT20M</a>   |
|  | M8 4PIN<br>L-type    |                   |                                    | 2 m          | <a href="#">OW-MT2000L</a> |
|                                                                                   |                      |                   |                                    | 5 m          | <a href="#">OW-MT5000L</a> |
|                                                                                   |                      |                   |                                    | 10 m         | <a href="#">OW-MT10ML</a>  |
|                                                                                   |                      |                   |                                    | 20 m         | <a href="#">OW-MT20ML</a>  |

Network Communication Unit

| Appearance                                                                          | Network                  | Model                   |
|-------------------------------------------------------------------------------------|--------------------------|-------------------------|
|  | <b>EtherCAT</b>          | <a href="#">OW-EC2A</a> |
|  | <b>PROFINET</b>          | <a href="#">OW-PN2</a>  |
|  | <b>Ethernet (TCP/IP)</b> | <a href="#">OW-EN2</a>  |
|  | <b>EtherNet/IP™</b>      | <a href="#">OW-EP2</a>  |
|  | <b>RS-232C / RS-485</b>  | <a href="#">OW-RS1A</a> |

Specifications

Pen-type (Spring linear type)

| Type                        | Standard spring linear type                                                            |                          |
|-----------------------------|----------------------------------------------------------------------------------------|--------------------------|
| Model                       | <a href="#">MT1-P12</a>                                                                | <a href="#">MT1-P12K</a> |
| Detection distance          | 12 mm                                                                                  |                          |
| Highest resolution          | 0.5 μm                                                                                 | 0.1 μm                   |
| Accuracy (20 °C)            | 2 μm                                                                                   | 1 μm                     |
| Measuring force (20 °C)*1   | Downward mounting: 0.9±0.2 N<br>Side mounting: 0.8±0.2 N<br>Upward mounting: 0.7±0.2 N |                          |
| Mechanical response         | 10 Hz                                                                                  |                          |
| Protection class            | IP67                                                                                   |                          |
| Operating temperature range | 0 to 55 °C                                                                             |                          |
| Storage temperature range   | -10 to +60 °C                                                                          |                          |
| Sensing head                | Steel ball mounting screw M2.5                                                         |                          |
| Weight                      | Approx. 35 g                                                                           |                          |

\*1 At the center of the measurement range.

Pen-type (Cylinder type)

| Type                        | Cylinder type                                                                          |                           |
|-----------------------------|----------------------------------------------------------------------------------------|---------------------------|
| Model                       | <a href="#">MT1-PA12</a>                                                               | <a href="#">MT1-PA12K</a> |
| Detection distance          | 12 mm                                                                                  |                           |
| Highest resolution          | 0.5 μm                                                                                 | 0.1 μm                    |
| Accuracy (20 °C)            | 2 μm                                                                                   | 1 μm                      |
| Measuring force (20 °C)*1   | Downward mounting: 0.9±0.2 N<br>Side mounting: 0.8±0.2 N<br>Upward mounting: 0.7±0.2 N |                           |
| Mechanical response         | 10 Hz                                                                                  |                           |
| Protection class            | IP67                                                                                   |                           |
| Operating temperature range | 0 to 55 °C                                                                             |                           |
| Storage temperature range   | -10 to +60 °C                                                                          |                           |
| Sensing head                | Steel ball mounting screw M2.5                                                         |                           |
| Weight                      | Approx. 35 g                                                                           |                           |

\*1 At the center of the measurement range.



Box-type (Spring linear type)

| Type                        | Standard spring linear type                                                            |         |         |                                                                                        |          |          |                                                                                        |                                                                                        |                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------|---------|---------|----------------------------------------------------------------------------------------|----------|----------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Model                       | MT1-H5                                                                                 | MT1-H5S | MT1-H5K | MT1-H12                                                                                | MT1-H12S | MT1-H12K | MT1-H22                                                                                | MT1-H32                                                                                | MT1-H50                                                                                |
| Detection distance          | 5 mm                                                                                   |         |         | 12 mm                                                                                  |          |          | 22 mm                                                                                  | 32 mm                                                                                  | 50 mm                                                                                  |
| Highest resolution          | 0.5 μm                                                                                 |         | 0.1 μm  | 0.5 μm                                                                                 |          | 0.1 μm   | 0.5 μm                                                                                 |                                                                                        |                                                                                        |
| Accuracy (20 °C)            | 2 μm                                                                                   | 5 μm    | 1 μm    | 2 μm                                                                                   | 5 μm     | 1 μm     | 3 μm                                                                                   |                                                                                        | 5 μm                                                                                   |
| Measuring force (20 °C)*1   | Downward mounting: 0.7±0.2 N<br>Side mounting: 0.6±0.2 N<br>Upward mounting: 0.5±0.2 N |         |         | Downward mounting: 0.9±0.2 N<br>Side mounting: 0.8±0.2 N<br>Upward mounting: 0.7±0.2 N |          |          | Downward mounting: 1.2±0.3 N<br>Side mounting: 1.1±0.3 N<br>Upward mounting: 1.0±0.3 N | Downward mounting: 1.6±0.3 N<br>Side mounting: 1.4±0.3 N<br>Upward mounting: 1.2±0.3 N | Downward mounting: 2.7±0.4 N<br>Side mounting: 2.4±0.4 N<br>Upward mounting: 2.1±0.4 N |
| Mechanical response         | 10 Hz                                                                                  |         |         |                                                                                        |          |          |                                                                                        | 6 Hz                                                                                   | 7 Hz                                                                                   |
| Protection class            | IP67                                                                                   |         |         |                                                                                        |          |          |                                                                                        |                                                                                        |                                                                                        |
| Operating temperature range | 0 to 55 °C                                                                             |         |         |                                                                                        |          |          |                                                                                        |                                                                                        |                                                                                        |
| Storage temperature range   | -10 to +60 °C                                                                          |         |         |                                                                                        |          |          |                                                                                        |                                                                                        |                                                                                        |
| Sensing head                | Steel ball mounting screw M2.5                                                         |         |         |                                                                                        |          |          |                                                                                        |                                                                                        |                                                                                        |
| Weight                      | Approx. 65 g                                                                           |         |         | Approx. 86 g                                                                           |          |          | Approx. 210 g                                                                          | Approx. 240 g                                                                          | Approx. 300 g                                                                          |

\*1 At the center of the measurement range.

Box-type (Standard flange type)

| Type                        | Standard flange type                                                                   |           |
|-----------------------------|----------------------------------------------------------------------------------------|-----------|
| Model                       | MT1-H12F                                                                               | MT1-H12KF |
| Detection distance          | 12 mm                                                                                  |           |
| Highest resolution          | 0.5 μm                                                                                 | 0.1 μm    |
| Accuracy (20 °C)            | 2 μm                                                                                   | 1 μm      |
| Measuring force (20 °C)*1   | Downward mounting: 0.9±0.2 N<br>Side mounting: 0.8±0.2 N<br>Upward mounting: 0.7±0.2 N |           |
| Mechanical response         | 10 Hz                                                                                  |           |
| Protection class            | IP67                                                                                   |           |
| Operating temperature range | 0 to 55 °C                                                                             |           |
| Storage temperature range   | -10 to +60 °C                                                                          |           |
| Sensing head                | Steel ball mounting screw M2.5                                                         |           |
| Weight                      | Approx. 86 g                                                                           |           |

\*1 At the center of the measurement range.

Box-type (Cylinder type)

| Type                        | Cylinder type                                                                          |          |          |                                                                                        |                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------|----------|----------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Model                       | MT1-A12                                                                                | MT1-A12S | MT1-A12K | MT1-A32                                                                                | MT1-A50                                                                                |
| Detection distance          | 12 mm                                                                                  |          |          | 32 mm                                                                                  | 50 mm                                                                                  |
| Highest resolution          | 0.5 μm                                                                                 |          | 0.1 μm   | 0.5 μm                                                                                 |                                                                                        |
| Accuracy (20 °C)            | 2 μm                                                                                   | 5 μm     | 1 μm     | 3 μm                                                                                   | 5 μm                                                                                   |
| Measuring force (20 °C)*1   | Downward mounting: 0.9±0.2 N<br>Side mounting: 0.8±0.2 N<br>Upward mounting: 0.7±0.2 N |          |          | Downward mounting: 1.6±0.3 N<br>Side mounting: 1.4±0.3 N<br>Upward mounting: 1.2±0.3 N | Downward mounting: 2.7±0.4 N<br>Side mounting: 2.4±0.4 N<br>Upward mounting: 2.1±0.4 N |
| Use pressure range          | 0.25 MPa to 0.5 MPa                                                                    |          |          |                                                                                        |                                                                                        |
| Pressure resistance         | 1 MPa                                                                                  |          |          |                                                                                        |                                                                                        |
| Use fluid                   | Dry air                                                                                |          |          |                                                                                        |                                                                                        |
| Protection class            | IP67                                                                                   |          |          |                                                                                        |                                                                                        |
| Operating temperature range | 0 to 55 °C                                                                             |          |          |                                                                                        |                                                                                        |
| Storage temperature range   | -10 to +60 °C                                                                          |          |          |                                                                                        |                                                                                        |
| Sensing head                | Steel ball mounting screw M2.5                                                         |          |          |                                                                                        |                                                                                        |
| Weight                      | Approx. 130 g                                                                          |          |          | Approx. 310 g                                                                          | Approx. 380 g                                                                          |

\*1 At the center of the measurement range.

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact Sensors

Area Sensors/  
Safety Light Curtains

Laser Scanners

Digital Contact Sensors

Laser Displacement  
Sensors

Laser Micrometers

Confocal Displacement  
Sensors

Barcode Readers

AI Vision Sensors

RFID

Infrared Temperature  
Sensors

Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators



MT1

Digital Display Contact Displacement Sensor

Controller

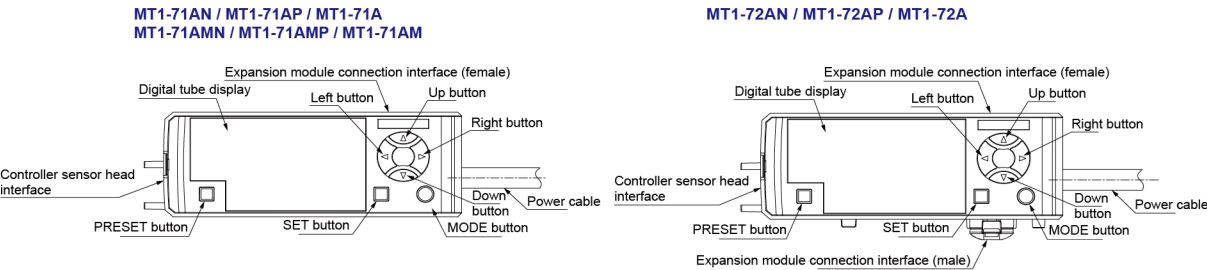
|                                            |                     |                                                                                     |                  |                                                 |
|--------------------------------------------|---------------------|-------------------------------------------------------------------------------------|------------------|-------------------------------------------------|
| Model                                      | NPN                 | MT1-71AN                                                                            | MT1-72AN         | MT1-71AMN                                       |
|                                            | PNP                 | MT1-71AP                                                                            | MT1-72AP         | MT1-71AMP                                       |
|                                            | NPN/PNP             | MT1-71A                                                                             | MT1-72A          | MT1-71AM                                        |
| Main module/Expansion module               |                     | Main module (without analog)                                                        | Expansion module | Main module (with analog)                       |
| Mounting type                              |                     | DIN rail mount type                                                                 |                  |                                                 |
| Number of modules that can be added        |                     | One main module can connect to up to 14 expansion modules                           |                  |                                                 |
| Power voltage**                            |                     | 10 to 30 VDC, Class 2, including ripple (P-P) 10%                                   |                  |                                                 |
| Display range                              |                     | -199.9999 to 199.9999                                                               |                  |                                                 |
| Display resolution                         |                     | 0.1 μm                                                                              |                  |                                                 |
| Current consumption                        |                     | Maximum 1800 mW (at 30 V, maximum 60 mA)                                            |                  |                                                 |
| Response time                              |                     | hsp (3 ms), 5 ms, 10 ms, 100 ms, 500 ms, 1000 ms                                    |                  |                                                 |
| Control input                              | Timer input         | Input time: minimum 40 ms                                                           |                  |                                                 |
|                                            | Preset input        |                                                                                     |                  |                                                 |
|                                            | Reset input         |                                                                                     |                  |                                                 |
|                                            | Channel input       |                                                                                     |                  |                                                 |
| Control output<br>(HH /HIGH/<br>GO/LOW/LL) | NPN output          | NPN open collector 30 V max. 50 mA, residual voltage: max. 1 V                      |                  |                                                 |
|                                            | PNP output          | PNP open collector 30 V max. 50 mA, residual voltage: max. 1.5 V                    |                  |                                                 |
| Voltage output                             |                     | None                                                                                |                  | ±5 V, 1 to 5 V, 0 to 5 V Output impedance 100 Ω |
| Current output                             |                     |                                                                                     |                  | 4 to 20 mA Maximum load resistance 350 Ω        |
| Response time                              |                     |                                                                                     |                  | Specific response time + 1 ms                   |
| Ambient temperature                        |                     | -10 to +50 °C (no freezing)                                                         |                  |                                                 |
| Ambient humidity                           |                     | 35 to 85 % RH (no condensation)                                                     |                  |                                                 |
| Vibration resistance                       |                     | 10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions |                  |                                                 |
| Material                                   | Housing/Front panel | Polycarbonate                                                                       |                  |                                                 |
|                                            | Button              | Polyacetal                                                                          |                  |                                                 |
|                                            | Cable               | PVC                                                                                 |                  |                                                 |
| Weight (including accessories)             |                     | Approx. 140 g                                                                       |                  | Approx. 150 g                                   |

\*1 When connecting extension devices, the following restrictions apply depending on the number of connected units.  
When connecting 2 to 8 units (including the main unit):  
①Power supply voltage: 20 to 30 VDC  
②Control output current: Maximum 20 mA  
When connecting 9 to 15 units (including the main unit):  
①Power supply voltage: 20 to 30 VDC  
②Control output current: Maximum 10 mA



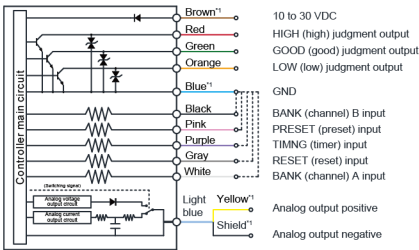
|                                                                                                                                                                              |                                                                                                                                                                          |                                                                                                                                                                             |                                                                                                                                                                            |                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sold Separately                                                                                                                                                              |                                                                                                                                                                          |                                                                                                                                                                             |                                                                                                                                                                            |                                                                                                                                                                          |
| <br>T-type bracket (for 5 mm/12 mm)<br><b>OW-MT3001</b>                                     | <br>Universal bracket (for 5 mm/12 mm)<br><b>OW-MT3002</b>                              | <br>Reinforced bracket (for 5 mm/12 mm)<br><b>OW-MT3003</b>                                | <br>Universal bracket (for 32 mm)<br><b>OW-MT3004</b>                                    | <br>Roller measuring head<br><b>OW-MT2001</b> (d=10 mm)<br><b>OW-MT2002</b> (d=12 mm) |
| <br>Ball head straight needle<br><b>OW-MT-BC Series</b><br>See Selection Table on page 1115 | <br>Ball head bent needle<br><b>OW-MT-BB Series</b><br>See Selection Table on page 1115 | <br>Pointed measuring needle<br><b>OW-MT-JC Series</b><br>See Selection Table on page 1115 | <br>Flat measuring needle<br><b>OW-MT-PC Series</b><br>See Selection Table on page 1115 | <br>Flat measuring head<br><b>OW-MT-PG Series</b><br>See Selection Table on page 1115 |

Control Panel Description

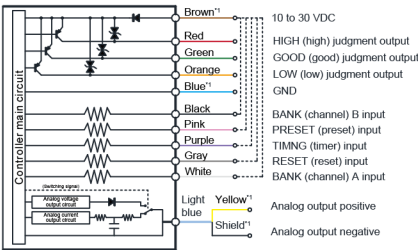


Circuit Diagrams

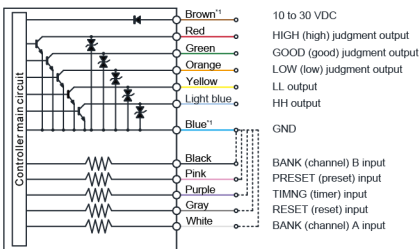
Main module (with analog)  
**MT1-71AMN**  
**NPN**



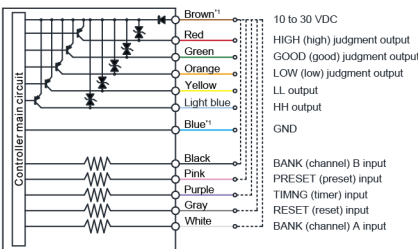
**MT1-71AMP**  
**PNP**



Main module (without analog)/Expansion module  
**MT1-71AN / MT1-72AN**  
**NPN**



**MT1-71AP / MT1-72AP**  
**PNP**



\*1 Brown and blue lines are for main modules only, not for expansion modules.

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact Sensors

Area Sensors/ Safety Light Curtains

Laser Scanners

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RFID

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Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators

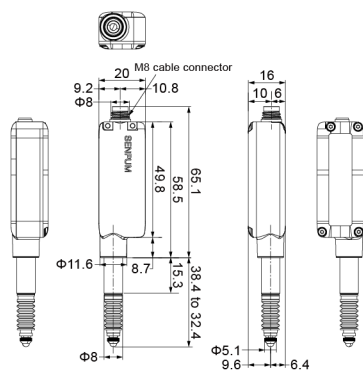
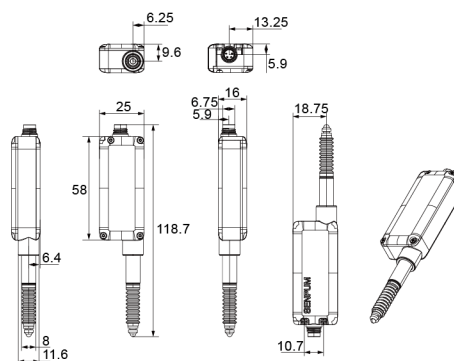
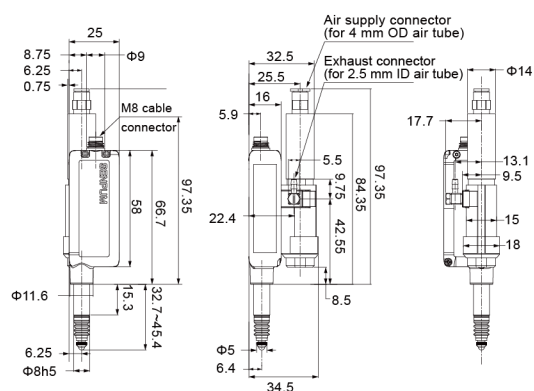


## Dimensions

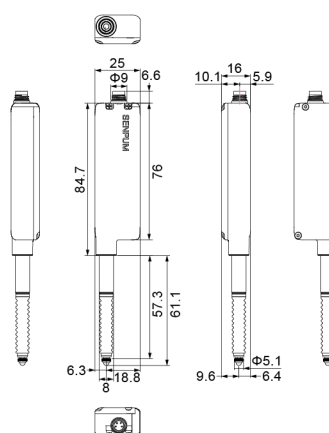
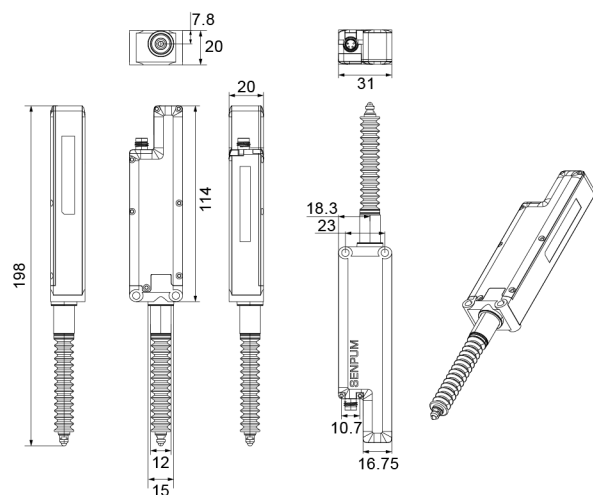
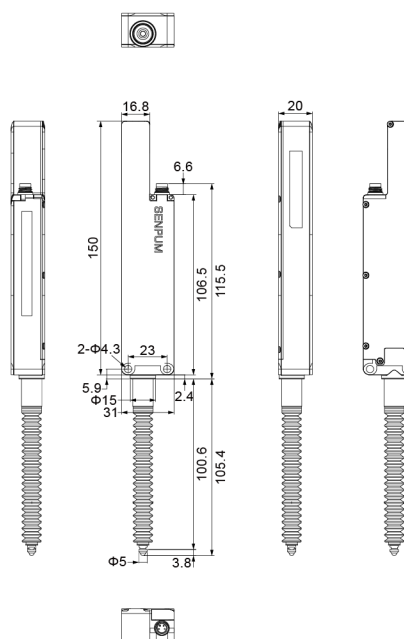
Unit: mm

### Box-type Sensor Head

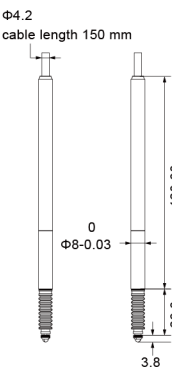
MT1-H5 / H5K / H5S

**MT1-H12K / H12KF / H12 / H12F / H12S****MT1-A12K / A12 / A12S**

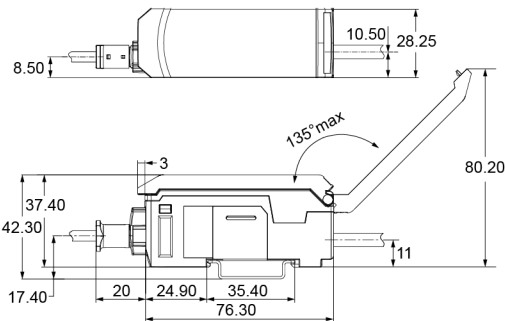
**MT1-H22**

**MT1-H32 / A32****MT1-H50 / A50**

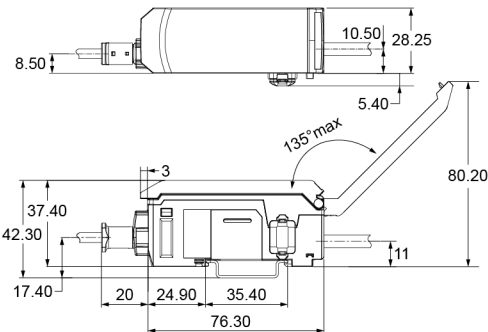
Pen-type Sensor Head  
MT1-P12 / PA12 / P12K / PA12K



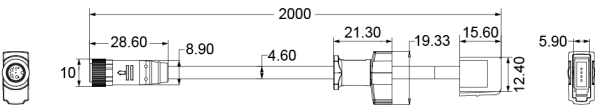
Controller  
MT1-71AN / MT1-71AP / MT1-71A  
MT1-71AMN / MT1-71AMP / MT1-71AM



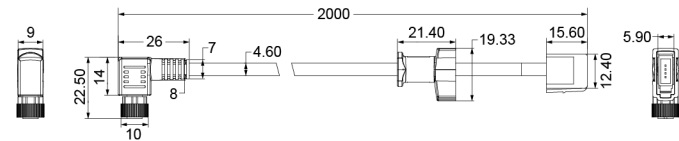
MT1-72AN / MT1-72AP / MT1-72A



Cable  
OW-MT2000 / OW-MT5000 / OW-MT10M / OW-MT20M



OW-MT2000L / OW-MT5000L / OW-MT10ML / OW-MT20ML

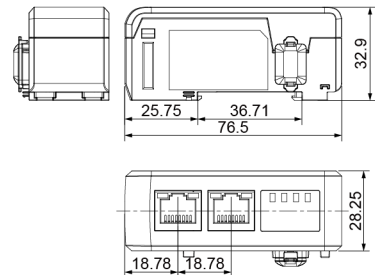


Pin definition

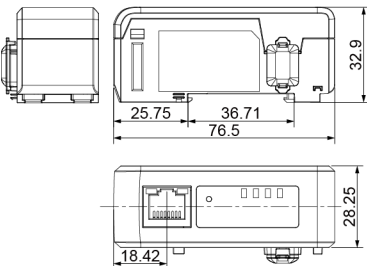


| No. | Jacket color |
|-----|--------------|
| ①   | Brown        |
| ②   | Orange       |
| ③   | Blue         |
| ④   | Black        |

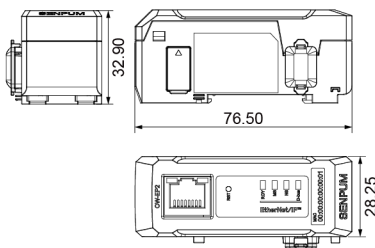
Network Communication Unit  
OW-EC2A



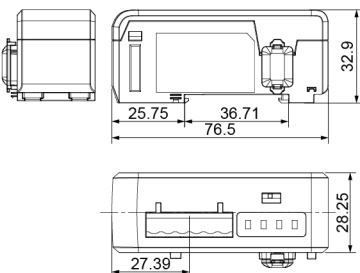
OW-PN2



OW-EN2 / OW-EP2



OW-RS1A



- Fiber Optic Sensors
- Photoelectric Sensors
- Color Sensors
- Laser Sensors
- Proximity Sensors
- Precision Contact Sensors
- Area Sensors/ Safety Light Curtains
- Laser Scanners

Digital Contact Sensors

- Laser Displacement Sensors
- Laser Micrometers
- Confocal Displacement Sensors
- Barcode Readers
- AI Vision Sensors

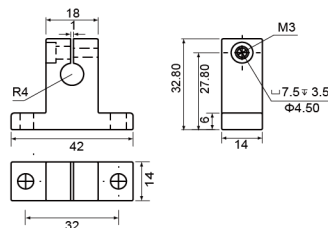
- RFID
- Infrared Temperature Sensors
- Pressure Sensors
- Flow Sensors
- Magnetic Sensors
- Ultrasonic Sensors
- Magnetic Scales
- Static Eliminators



OW-MT3001



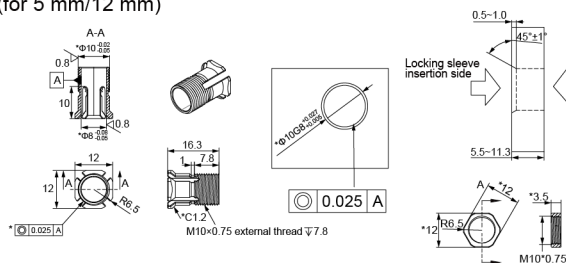
**Material:** Aluminum alloy



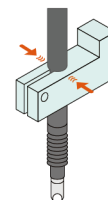
OW-MT3002



Material: SUS304



## OW-MT3001 Installation Diagram



### OW-MT3002 Installation Diagram

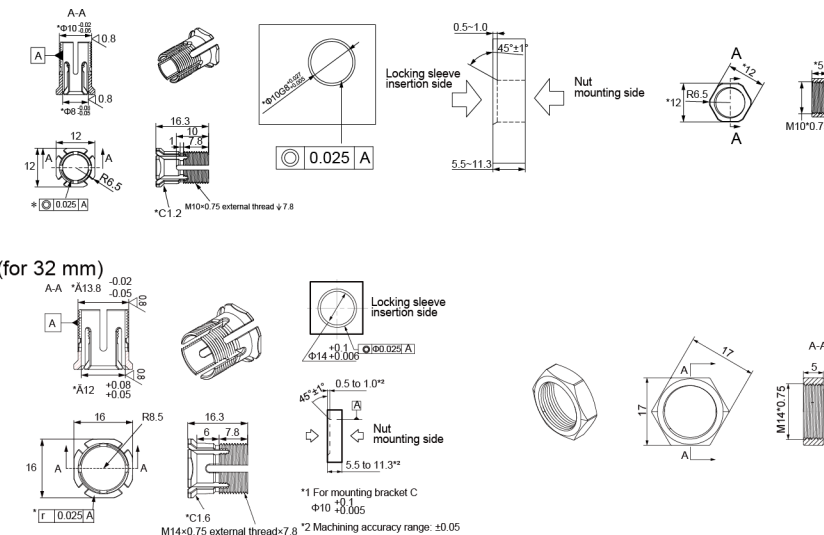
When installing

Flange type



Simply drill a  $\varnothing 10$  mm hole. The flange-type sensor integrates the sensor head and bracket into one unit.

OW-MT3003



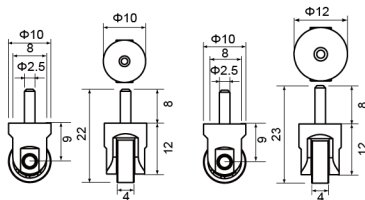
OW-MT3004



OW-MT2001 / OW-MT2002



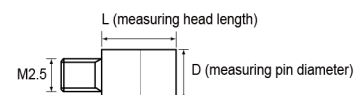
Material: SUS304



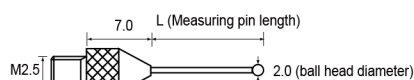
OW-MT2001

OW-MT2002

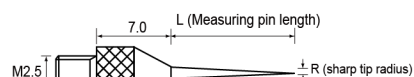
**OW-MT-PG** Series (see selection table for detailed specifications)



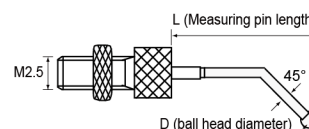
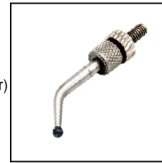
**OW-MT-BC** Series (see selection table for detailed specifications)



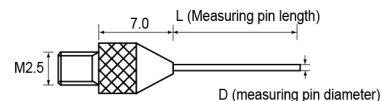
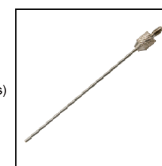
**OW-MT-JC** Series (see selection table for detailed specifications)



**OW-MT-BB** Series (see selection table for detailed specifications)



**OW-MT-PC** Series (see selection table for detailed specifications)



Specifications

Flat measuring head **OW-MT-PG** Series

Ordering Instructions:

|                                                                                                    |                 |          |                        |                      |   |                       |
|----------------------------------------------------------------------------------------------------|-----------------|----------|------------------------|----------------------|---|-----------------------|
|  Ordering Example | Main unit model | Material | Measuring pin diameter | Measuring pin length | ⇒ | Ordering Model        |
|                                                                                                    | <b>OW-MT-PG</b> | <b>T</b> | <b>10</b>              | <b>8</b>             |   | <b>OW-MT-PGT-10-8</b> |

| Series          | Threaded | Material                  | Measuring head diameter (D) | Measuring head length (L) |
|-----------------|----------|---------------------------|-----------------------------|---------------------------|
| <b>OW-MT-PG</b> | M2.5     | <b>W</b> (white steel)    | <b>4 5 6</b>                | <b>8 10 15 20 30</b>      |
|                 |          | <b>B</b> (tungsten steel) | <b>4.3 6.5 9.5 10</b>       | <b>5 8 10</b>             |
|                 |          | <b>T</b> (ceramic)        | <b>4 5 6 8</b>              | <b>8</b>                  |
|                 |          |                           | <b>10</b>                   | <b>3.5 8 10</b>           |
|                 |          | <b>P</b> (plastic)        | <b>4 5 6 8 10</b>           | <b>8</b>                  |

Ball head straight needle **OW-MT-BC** Series

Ordering Instructions:

|                                                                                                    |                 |          |                    |                      |   |                         |
|----------------------------------------------------------------------------------------------------|-----------------|----------|--------------------|----------------------|---|-------------------------|
|  Ordering Example | Main unit model | Material | Ball head diameter | Measuring pin length | ⇒ | Ordering Model          |
|                                                                                                    | <b>OW-MT-BC</b> | <b>B</b> | <b>2.0</b>         | <b>20</b>            |   | <b>OW-MT-BCB-2.0-20</b> |

| Series          | Threaded | Main unit material        | Ball head diameter (D) | Measuring pin total length (L) |
|-----------------|----------|---------------------------|------------------------|--------------------------------|
| <b>OW-MT-BC</b> | M2.5     | <b>B</b> (tungsten steel) | <b>2.0</b>             | <b>10 20 30 40 50</b>          |

Ball head bent needle **OW-MT-BB** Series

Ordering Instructions:

|                                                                                                      |                 |          |                    |                      |   |                         |
|------------------------------------------------------------------------------------------------------|-----------------|----------|--------------------|----------------------|---|-------------------------|
|  Ordering Example | Main unit model | Material | Ball head diameter | Measuring pin length | ⇒ | Ordering Model          |
|                                                                                                      | <b>OW-MT-BB</b> | <b>S</b> | <b>1.0</b>         | <b>20</b>            |   | <b>OW-MT-BBS-1.0-35</b> |

| Series          | Threaded | Bendability | Main unit material         | Ball head material | Ball head diameter (D) | Measuring pin total length (L) |
|-----------------|----------|-------------|----------------------------|--------------------|------------------------|--------------------------------|
| <b>OW-MT-BB</b> | M2.5     | 45°         | <b>S</b> (stainless steel) | Tungsten steel     | <b>1.0 2.0</b>         | <b>17 30 35</b>                |

Pointed measuring needle **OW-MT-JC** Series

Ordering Instructions:

|                                                                                                      |                 |          |                        |                      |   |                          |
|------------------------------------------------------------------------------------------------------|-----------------|----------|------------------------|----------------------|---|--------------------------|
|  Ordering Example | Main unit model | Material | Measuring pin diameter | Measuring pin length | ⇒ | Ordering Model           |
|                                                                                                      | <b>OW-MT-JC</b> | <b>W</b> | <b>0.15</b>            | <b>13</b>            |   | <b>OW-MT-JCW-0.15-13</b> |

| Series          | Threaded | Material                  | Tip radius (R) | Measuring pin length (L) |
|-----------------|----------|---------------------------|----------------|--------------------------|
| <b>OW-MT-JC</b> | M2.5     | <b>W</b> (white steel)    | <b>0.15</b>    | <b>7 13 22 30 40</b>     |
|                 |          | <b>B</b> (tungsten steel) | <b>0.2</b>     | <b>13 22 30 40 50</b>    |

Flat measuring needle **OW-MT-PC** Series

Ordering Instructions:

|                                                                                                      |                 |          |                        |                      |   |                         |
|------------------------------------------------------------------------------------------------------|-----------------|----------|------------------------|----------------------|---|-------------------------|
|  Ordering Example | Main unit model | Material | Measuring pin diameter | Measuring pin length | ⇒ | Ordering Model          |
|                                                                                                      | <b>OW-MT-PC</b> | <b>B</b> | <b>0.8</b>             | <b>20</b>            |   | <b>OW-MT-PCB-0.8-20</b> |

| Series          | Threaded | Material                  | Measuring pin diameter (D)     | Measuring pin length (L) |
|-----------------|----------|---------------------------|--------------------------------|--------------------------|
| <b>OW-MT-PC</b> | M2.5     | <b>W</b> (white steel)    | <b>1.0 1.5 2.0 3.0</b>         | <b>10 20 30 40 50</b>    |
|                 |          | <b>B</b> (tungsten steel) | <b>0.5 0.8 1.0 1.5 2.0 3.0</b> | <b>10 20 30 40 50</b>    |
|                 |          | <b>T</b> (ceramic)        | <b>1.0 1.5 2.0</b>             | <b>10 20 30 40 50</b>    |

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact Sensors

Area Sensors/  
Safety Light Curtains

Laser Scanners

Digital Contact Sensors

Laser Displacement  
Sensors

Laser Micrometers

Confocal Displacement  
Sensors

Barcode Readers

AI Vision Sensors

RFID

Infrared Temperature  
Sensors

Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators

