DTT-A-100 DISPLACEMENT TRANSDUCER INSTRUCTION MANUAL

Thank you for purchasing the KYOWA product. Before using it, read this instruction manual carefully. Also, keep the manual within easy reach so that you can refer to whenever necessary.
Specifications and dimensions described in this manual could be changed without notice. Please visit our website for the latest version.

1. Calling the operator's attention

The following cautionary symbols and headlines are used to invite the operator's attention. Be sure to observe the accompanying precautions in order to safeguard the operator and preserve the performance of the instrument.

⚠ **Warning**	Improper handling can cause serious injury to the operator.
Caution	Cautions are given to invite the operator's attention, in order to avoid instrument failure or mal-function.

2. Important notice

Unless specified, the transducer must not be used under hydrogen environment.

3. Safety Precautions

⚠ Warning

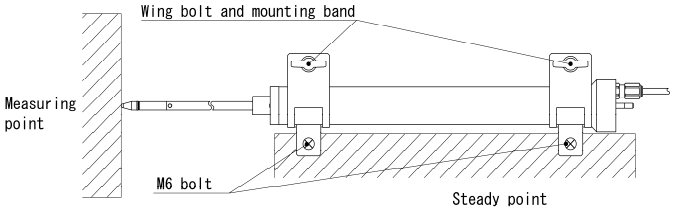
- As you push the rod inward, the rod returns to its initial position by reaction force. Handle the product with care to avoid eye poking.

4. Handling Precautions

Caution

- Do not apply excessive axial or bending force on the rod.
- Do not rotate the rod. (For replacing accessories, see 9.)
- Do not disassemble the product.
- Do not use the product under water and dusty environment.
- Use the product under environment without vibration.
- Pay similar attentions toward the product as one gives to regular dial gages.
- Always keep the rod clean.
- Make sure that the bending radius of cable is longer than 10 times of a diameter of the cable.

5. Installation



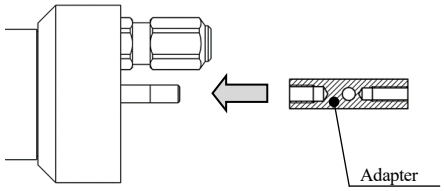
5.1 Fix the DTT-A to the fixed point by using the accessory 2 mounting bands (FXBP-100A), 2 wing bolts (M4×12) and M6 bolt.
The M6 bolt is not included.

5.2 Make sure the displacement of 0.5 mm or more is applied to the DTT-A.

5.3 The DTT-A and dial gage measures data by contacting the probe onto the measuring point. However, some DTT-A rods may not track dynamic data correctly. Make sure the rods works correctly.

5.4 To fix the rod to the measuring point, remove the prove and fix the rod to the measuring point by using a screw (M2.5).

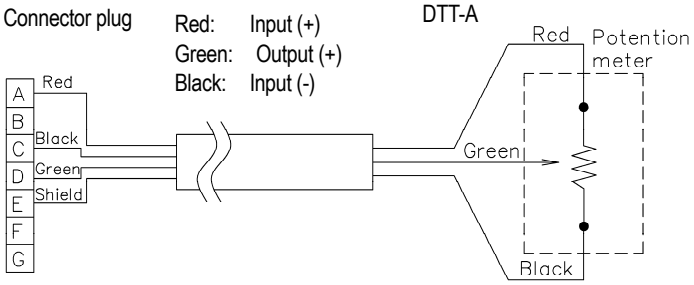
5.5 To measure displacement by pulling the rod, connect the accessory adapter into the rod end.



6. Connection

6.1 Connect the DTT-A to a measuring instrument.

6.2 Connect the connector plug as follows.

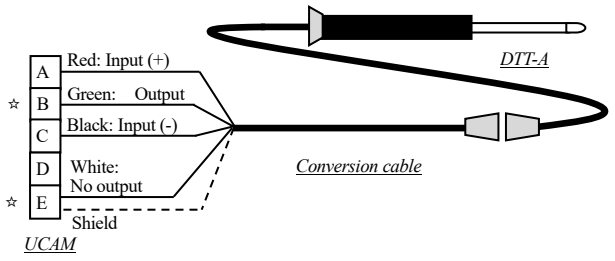


(Shield is not connected to the chassis.)

6.3 After the power ON, always preheat the product for approximately 5 to 10 minutes.

Caution

- When using the UCAM series, since the output terminals of the DTT-A do not match with that of the UCAM series, you are not able to connect the connector plug. In this case, connect the conversion cable (U-17, bared at the tip, optional). Connect the green wire (output +) into the B terminal of the UCAM series. Since the white wire outputs no data, connect the shield wire and white wire. Connect the white wire (no output) into the E terminal of the UCAM series. Make sure the measuring mode of the UCAM series is "Potentiometer-type displacement transducer."



7. Conversion

7.1 Use the calibration constant described on the Test Data Sheet to convert a measured value into a displacement value.

7.2 You are able to calculate a displacement value by using the measured value and calibration constant described on the Test Data Sheet. The Test Data Sheet has displacement, corresponding to 1 (V/V). You are able to calculate a displacement value by them.

Displacement (mm) = Output voltage (V) / Bridge excitation (V) × Calibration constant (mm/1V/V)

8. Maintenance and inspection

8.1 Avoid water, dust and oil from the product.

8.2 Recommend calibrate the product once a year or so. (Contact your KYOWA representative.)

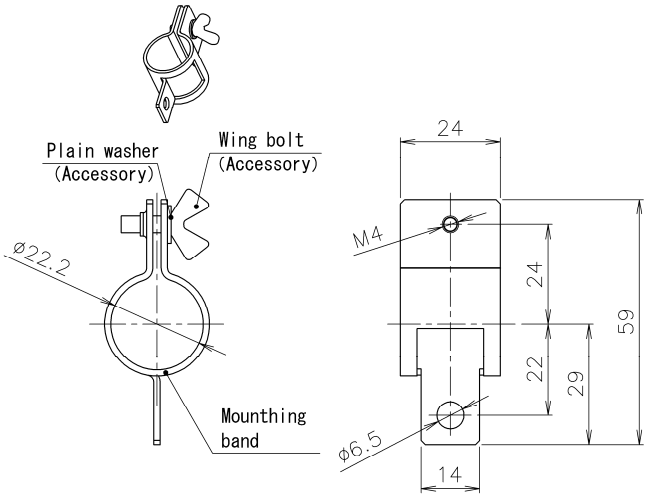
8.3 If an abnormal initial value or reading appears, measure the resistance (between red and black) and insulation resistance (100 MΩ or higher). If abnormal resistance is found, the DTT-A may be failure. Contact KYOWA or our representatives.

Caution

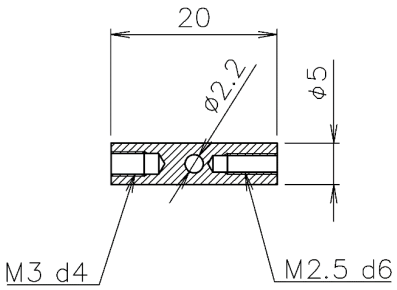
- To measure insulation resistance, apply a voltage lower than 50V to the insulation resistance tester.

9. Standard Accessories

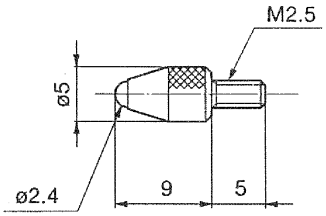
- Mounting band: FXBP-100A



- Adapter



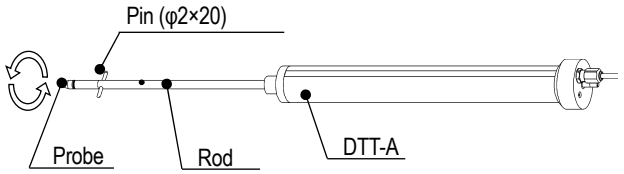
- Ballpoint probe: X-1-DT

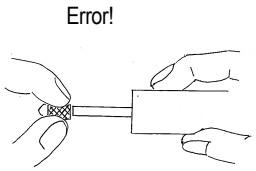


10. Special Accessories (Optional)

Caution

- Before installing probes and screws, be sure to insert the accessory pin (φ2×20) into the rod hole. While installing probes and screws, hold the pin tightly instead of holding the product. Do not apply excessive axial or bending force on the rod. Or, the product may be damaged.



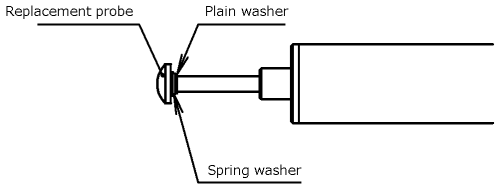


(Supplement)
Do not rotate the probe by holding the product. Do not rotate the rod. Or, the product may be damaged.

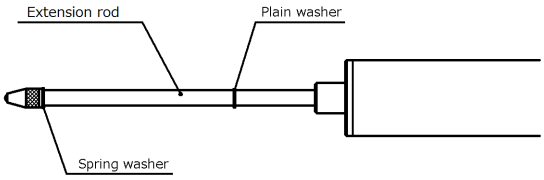
10.1 To install the replacement probe (optional), use the spring washer and plain washer.

10.2 After installing the replacement probe or extension rod (optional), some rods may not work correctly depending on the DTT-A direction. Before measuring data, make sure the rods works correctly.

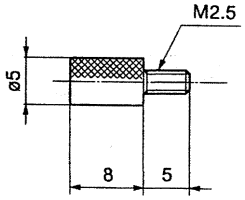
- To install the replacement probe



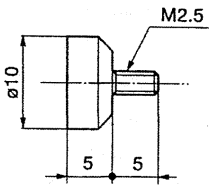
- To install the extension rod



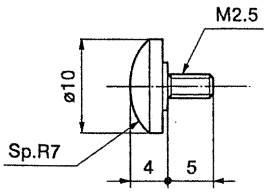
- Flat probe: XS-2-DT



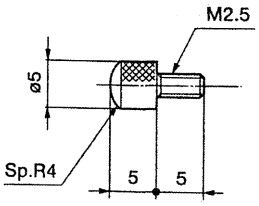
- Flat probe: XS-5-DT



- Spheric probe: XS-6-DT

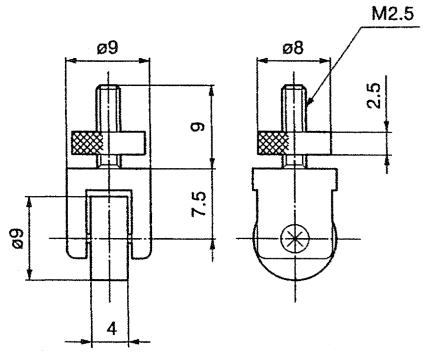


- Spheric probe: XS-105-DT

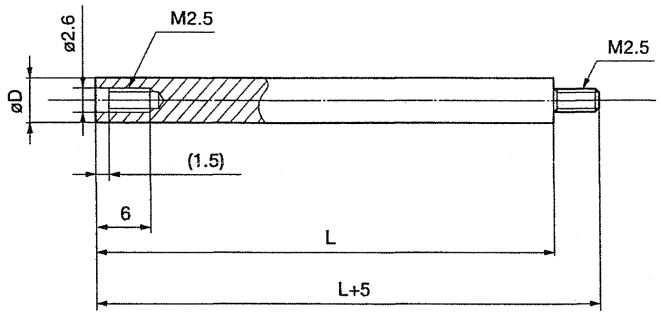


[NOTE]
When the object to be measured is sphere, use the XS-5-DT and XS-2-DT.

● Roller-equipped probe: SH-2-DT



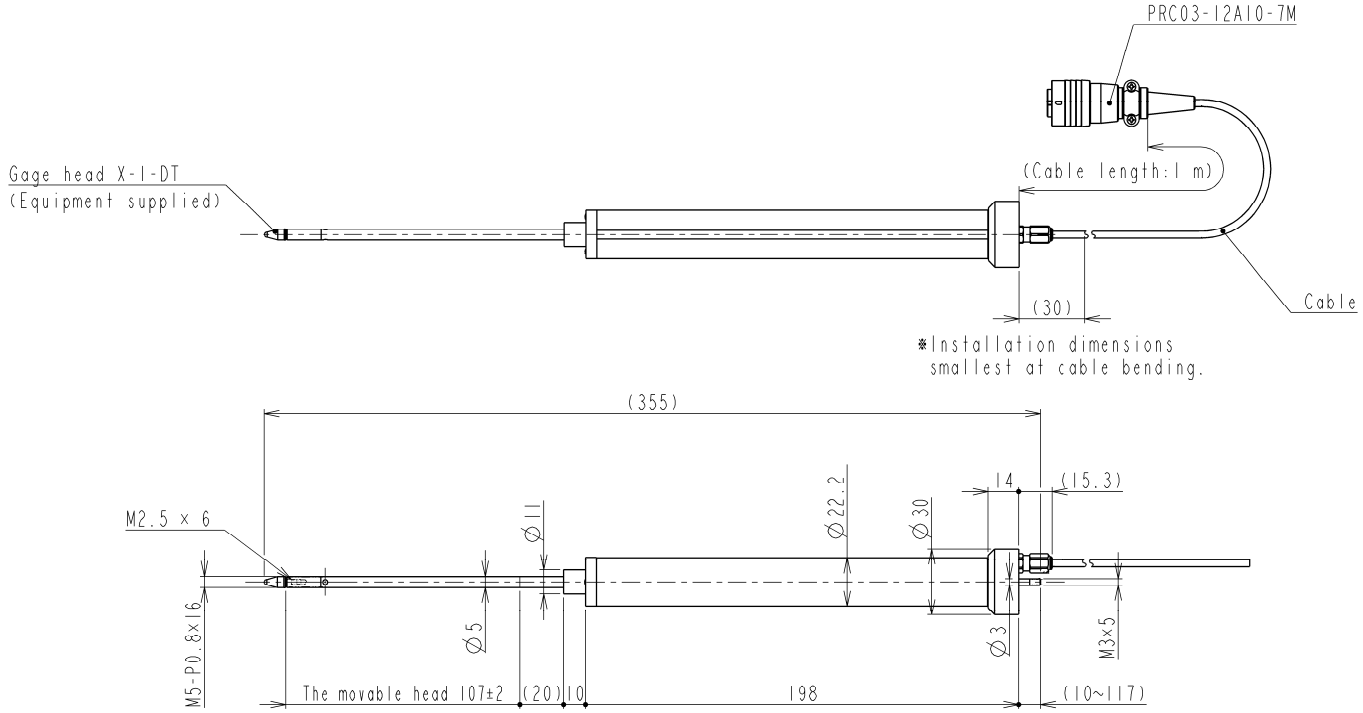
● Extension rod



Model	øD	L
EB-50	4	50
EB-100	5	100
EB-200	6	200
EB-300	6	300

● Conversion cable: U-17
4-conductor (0.3mm^2) chloroprene shielded cable, 7.6mm diameter by 0.5m long, terminated with a connector plug PRC03-32A10-7F and bared at the tip.

11. Outside Drawing



12. Specifications

◆Performance

Rated Capacity	100 mm
Nonlinearity	Within ±0.2%RO
Hysteresis	Within ±0.2%RO
Repeatability	0.1%RO or less
Rated Output	0.9V/V ±10% (Voltage Output)

◆Environmental Characteristics

Safe Temperature	-10 to 70℃(Non-condensing)
Compensated Temperature	0 to 60℃ (Non-condensing)
Temperature Effect on Zero	Within ±0.05%RO/℃
Temperature Effect on Output	Within ±0.05%/℃

◆Electrical Characteristics

Safe Excitation	36 VDC (23℃)
Recommended Excitation	2 to 10 VDC
Resistance	1kΩ±20%
Cable	4-conductor (0.08mm^2) vinyl shielded cable, 3.2mm diameter by 1m long, terminated with a connector plug (PRC03-12A10-7M) (Shield is not connected to the chassis.)

◆Mechanical Properties

Frequency Response	DC to 6Hz(When the tip is touching to the testing machine, displacement : 100mm) (Reference : DC to approx. 50Hz, when the tip is fixed, displacement:30mm)
Measuring Force	Approx. 5 N
Weight	Approx.110g (Excluding Cable)
Degree of protection	IP40 (IEC 60529)
Compliance	Directive 2011/65/EU, (EU) 2015/863 (10 restricted substances) (RoHS)

[NOTE]
Products with CE Marking are compliant European RoHS Directive.

◆Accessories

Adapter	1
Pin (φ2×20)	1
Ballpoint probe (X-1-DT)	1
Mounting band (FXBP-100A)	2
Mounting band	1 ×2
Wing bolt (M4×12)	1 ×2
Plain washer (M4)	1 ×2
Test Data Sheet	1
Instruction manual	1 (This book)

◆Optional Accessories

Extension Rods	EB-50,100,200,300
Mounting Band	FXBP-100A
Replacement Probes	X,XS,SH