

LINEAR GAUGE SENSOR

GS-503

INSTRUCTION MANUAL

Thank you very much for purchasing ONO SOKKI GS-503 Linear Gauge Sensor. To ensure proper operation, read this manual carefully before use.

After reading, keep this manual in a convenient place so that you can consult it at any time.

■ Precautions for Use

- (1) Do not disassemble the linear gauge sensor, or failure might be resulted.

If the cover of the linear gauge sensor or the seal bonded inside the rear cover is removed, chips, cutting oil, dust or other foreign matter may enter to cause failure. Do not remove them to open. Be careful that if the cover or the seal is removed, the product cannot be warranted even within the warranty period.

- (2) Keep the spindle free from oil or dust

If oil or hand grease is applied or stuck on the spindle, it cannot move smoothly. Be sure to avoid oiling the spindle or touching it by bare hand.

To wipe oil (grease) or dust off the spindle, use dry soft cloth or sot cloth wetted with absolute alcohol. (Never use benzene, thinner, gasoline, etc.)

- (3) Do not apply lateral force on the spindle.

Bearing mounting face of the spindle is very precisely machined. If lateral force is applied on the spindle or if the stem is tightened too strongly, the spindle cannot move smoothly.

GS-503 uses the spindle of carbon fiber, the flexural rigidity of which is approximately 5 times as high as that of metal spindle, so that the spindle is improved in the strength against lateral force. This does not mean that it is positively allowed to apply lateral force on the spindle.

But when there is a possibility that lateral force acts on the spindle during measurement, it is recommended to use GS-503.

- (4) Replacement of probe

When replacing the probe, be careful not to apply torsional force on the spindle. If the probe cannot be loosened, wind a rubber band round the spindle, and turn the probe surely holding the spindle via the rubber band. To mount the probe, do the same way.



■ Operation of the spindle

(1) Use the dedicated lifter

If the spindle is operated directly by hand, there arises a danger that dust or oil (grease) sticks on it to cause errors. To avoid this, it is recommended to use the release dedicated to GS-503.

(2) Use the linear gauge sensor within the maximum response speed.

The maximum response speed of GS-503 with respect to the moving speed of the spindle is 1 m/s. Moving faster than this might result in malfunction. In addition, the proper method for making the spindle touch the object to be measured is to drop the spindle after making it come within 1 mm from the object.

(3) Reference point of spindle

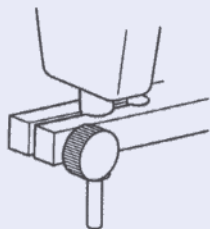
ÉIf the spindle is not made touch the reference plane, no accurate fixed point can be obtained. For measurement, be sure to make the spindle touch the reference plane and make this pushed condition the reference point.

■ How to Mount the Sensor

(1) Fixing by the stem

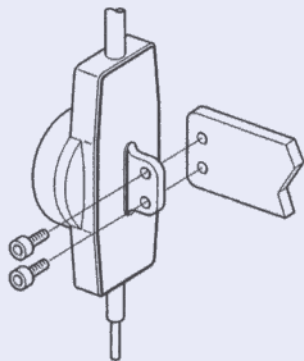
The stem is finished to $\phi 10_{-0.006}^0$ mm in outer diameter.

For this fixing method, prepare a mounting hole of $\phi 10_{+0.01}^{+0.03}$ mm, and tighten carefully so that no excess force acts on the stem.

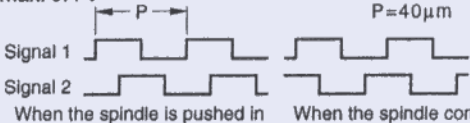
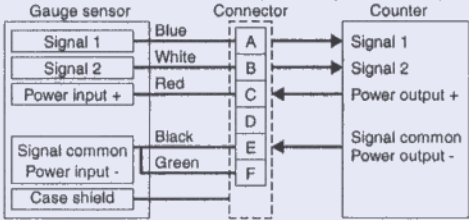


(2) Mounting by the lug

Two holes of $\phi 6.5$ mm are made on the lug that is provided on the rear of this sensor. Using these holes, fix the sensor by M6 screw.

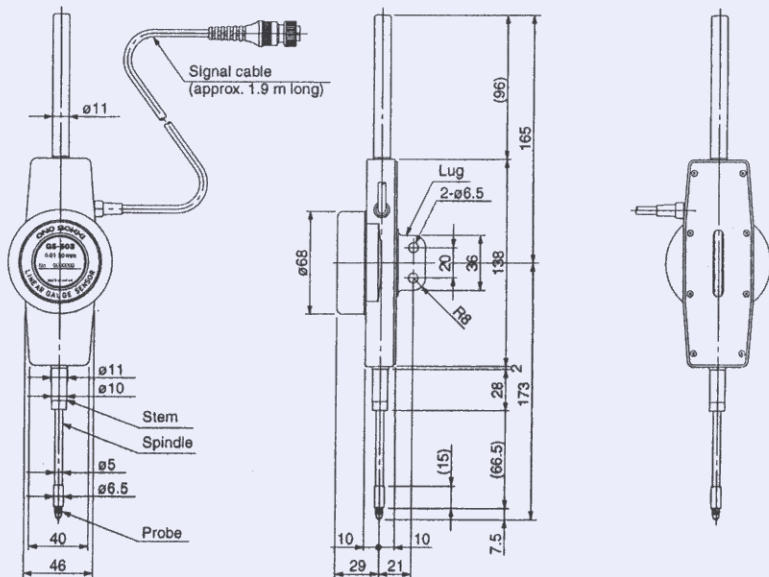


■ Specification

Type code	GS-503	
Measuring range	50 mm	
Measurement unit	10 μm	
Indication accuracy	10 μm (+20°C)	
Maximum response speed	1 m/s	
Measurement force	max. 1.3 N * Measurement force can be changed by option.	
Supply voltage	4.5 to 6 VDC	
Current consumption	approx. 65 mA (under 5 V)	
Output signal	<p>two-phase square wave signal Phase difference: $90^\circ \pm 20^\circ$ (under 5 VDC) Hi: 4.5 to 6 V (in no-load condition) Lo: max. 0.4 V</p>  <p>When the spindle is pushed in When the spindle comes out</p>	
Terminal connector	<p>R03-PB6M (from Tejimi Musen)</p>  <p>* Inside the sensor, the signal common terminal is not connected to the case.</p>	
Operating temperature	+5°C to +40°C	
Storage temperature	-10°C to +55°C	
Cable length	approx. 1.9 m * Can be extended to 30 m with the optional extension cable.	
Mass	approx. 540 g (including cable)	
Accessory	Instruction manual	
Option	Finger lift	AA-969
	Dust-proof rubber	AA-854
	Gauge stand	ST-011, ST-022, ST-044B (Bushing for $\phi 10$ (AA-892) is necessary)
	Others	Extension spindle, various probes

■ Outside Drawing

Unit: mm



■ Omission of Test Qualification Issuance

Since this product has been tested through a series of strict inspections and a complete program of quality control, issuance of the test qualification has been omitted.

Warranty

1. This product is covered by a warranty for a period of one year from the date of purchase.
 2. This warranty covers free-of-charge repair for defects judged to be the responsibility of the manufacturer, i.e., defects occurred while the product is used under normal operating conditions according to descriptions in this manual and notices on the unit label.
 3. For free-of-charge repair, contact either your sales representative or our sales office nearby.
 4. The following failures will be handled on a fee basis even during the warranty period.
 - (a) Failures occurring through misuse, mis-operation, or modification
 - (b) Failures occurring through mishandling (dropping) or transportation
 - (c) Failures occurring through natural calamities (fires, earthquakes, flooding, and lightning), environmental disruption, or abnormal voltage.
- * For repairs after the warranty period expired, contact your sales representative or our sales office nearby.