

INSTALLATION GUIDE

Digital Length Gauges GMR

For further information please see the data sheet at www.waycon.biz/products/digital-length-gauges/

SAFETY INSTRUCTIONS

When using this product, be sure to observe all precautions regarding indicated specifications, functions and use. Using this product in any other manner may be detrimental to safety. In the event that the product is damaged, take all appropriate measures to avoid accidents and maintain safety.

- Do not disassemble or modify the product. Doing so will void the warranty.
- Avoid dropping the sensor or subjecting it to extreme forces, such as physical jarring.
- Avoid subjecting the plunger to twisting force or lateral pressure.
- Do not use this product near the high voltage devices. Destruction of electronic components may result. Also avoid the use in environments that are exposed to high levels of electrical noise.
- To avoid damage or malfunction, avoid over-tightening the stem.
- Note that the contact point might mar the surface of the measurement target depending on the target material, measuring force exerted on the contact point, and the contact force applied to the target. Before undertaking measurement, make sure that the measurement will not affect the appearance or accuracy of the target.
- A malfunction may occur if the sensor's cable is bundled with high current power supply cables for other devices. Keep the product's cable away from power supply lines.
- Electrical noise can interfere with proper operation; use a stable, noise-free power source.
- The output connector plug is not water resistant. Do not use the product in any location that is exposed to splashing water or oil.
- Do not use the sensor, if the cable or the rubber bellow is damaged.
- The materials that are used in rubber bellows and seals are not made for use with a broad range of coolants and chemicals.

ELECTROMAGNETIC COMPATIBILITY (EMC)

This product complies with the EU EMC Directive. Note that in environments where electromagnetic interference exceeds EMC requirements defined in this directive, appropriate countermeasures are required to assure product performance.

This product is an industrial product and is not intended to be used in residential environment. If this product is used in residential environment, this product may cause electromagnetic interference with other instruments. In such a case, it is required to take appropriate measures for preventing such electromagnetic interference.

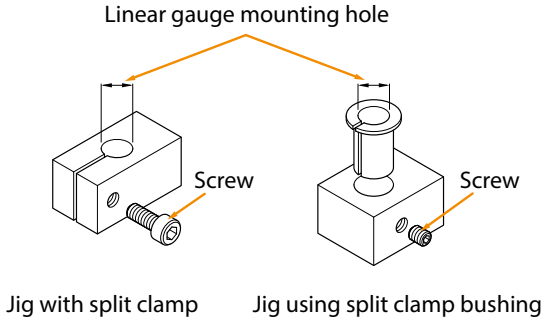
INSTALLATION

Installation instructions

- When mounting the linear gauge, it must be clamped to a tool or jig with the stem.
- The linear gauge can be clamped to the tool or jig using a split clamp.
- When fastening the stem, use a tightening torque of approximately 0.4...0.5 Nm.
- Mount the linear gauge parallel to the intended direction of measurement. A tilted gauge will result in measurement error.

Using a Split Clamp

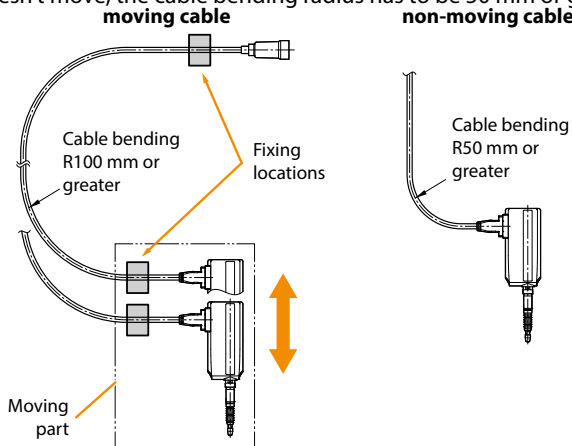
The split clamp can fasten the stem by gripping its outer perimeter.



Measuring range	Mounting hole diameter
10 mm	$\varnothing 8 \text{ mm } (+0.020/+0.005)$
25 mm or 50 mm	$\varnothing 15 \text{ mm } (+0.024/+0.006)$

Fastening the cable

- Fix the cable to the tool or jig so that it does not put any strain on the linear gauge.
- Do not bend the cable more than the cable's rated bending radius. Bends that are too tight can result in broken cable wires. The bending radius is not warranted.
- When the movement of a linear gauge attached to the tool or jig causes repeated flexing of the cable, make sure that the cable is fixed in a manner that maintains a bending radius of at least 100 mm.
- When the cable doesn't move, the cable bending radius has to be 50 mm or greater.

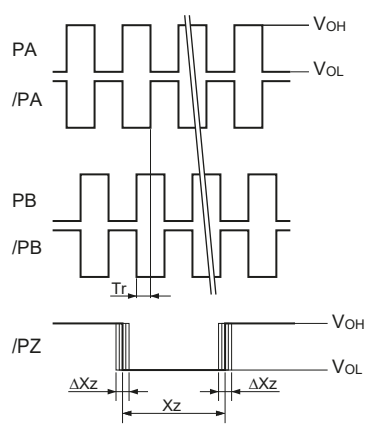




OUTPUT SIGNAL

Digital length gauges of the GMR series provide the following two output signal:

Normal output signal:

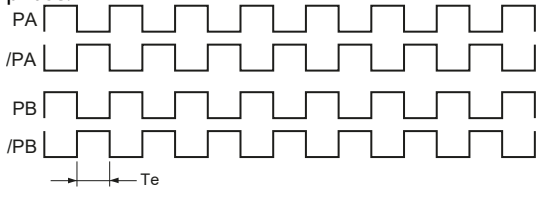


- Output condition:
Speed of rod movement \leq Sensor response speed
- Tr = Edge distance (see table below)
- Output delay time: Not more than 1 μ s
- ΔXz = Repeatability of reference signal $\leq 0.5 \mu$ m
- Xz = Reference signal pulse width approx. 40...60 μ m

$V_{OH} = \text{min. } 2.5 \text{ V}$
 $V_{OL} = \text{max. } 0.5 \text{ V}$

Error output:

If an error occurs, PA, /PA, PB and /PB are put out in phase.



- Output conditions: The sensor enters the error state and the special pattern indicated in the figure above is output under the following conditions:
Speed of rod movement $>$ Sensor response speed
- Te = Edge distance (see table below)

Minimum edge interval under different conditions:

Resolution	Tr	Te
1 μ m	500 ns	500 ns
0.1 μ m	250 ns	500 ns