Conforming to protection class IP66G (GS-4700/4800 series) and IP64 (GS-6700/6800 series), the GS-4700/4800 and GS-6700/6800 series sensors are designed to be used in harsh environments.

A resolution of either 1 µm or 10 µm can be selected in accordance with the measurement application.

All models are compatible with our DG-4000 series of digital gauge counters which have comparator, offset, peak hold, multiplying, and other functions depending on the model.
Digital Linear Gauge Sensors

A selection of eight models suitable for installation in production lines with environments subject to dust, water splashes or/oil splashes.

Features
- Conforming to environmental protection class IP64 or IP66G.
- Various optional parts.
- Compatible with DG-4000 series.
- Compact and small body with high accuracy.
- High cost performance.

Structure Conforms to the IP64/66G Protection Class
The IP64/66G International Protection number code indicates the protection class with respect to the penetration of dust, water, and oil.

IP6X indicates that the enclosure is dust-tight, with no ingress of dust.

IPRX indicates that the enclosure is protected against drops of water and splashing water. Water splashed against the enclosure from any direction shall have no harmful effect.

IPRXG indicates that the enclosure is protected against oil drops and oil splashes. Oil splashed against the enclosure from any direction shall have no harmful effect.

Compatible digital counters
DG-4120 BCD output
DG-4140 Comparator output (BCD, Color backlight)
DG-4190 Comparator output (Analog, Color backlight)
DG-4240 Comparator output (Upper & Lower)
DG-4280 Comparator output (4-preset)

A Brief Explanation of Terms

Display Accuracy
This is the measurement error inherent in a linear gauge sensor. The error (the amount of difference from the actual value) is measured at each specified measurement value, and, when the overall length of the spindle movement is considered, the sum of the absolute values of the maximum error in the positive direction and of the maximum error in the negative direction becomes the display accuracy of that gauge sensor (see Fig. 1). Measurement of the accuracy is performed by making comparisons with a reference displacement meter. The difference between the reading value at the time that the lowest order digit of the target sensor changed and the value of the reference displacement meter is taken as the error. This is the reason why the display accuracy of a sensor with a resolution of 10µm is lower than that of a sensor with a resolution of 3µm (see Fig. 2).

Measurement force
The force used to hold down the workpiece is called the measurement force. Since our gauge sensors feature an internal spring-return mechanism for the spindle, the measurement force is the force measured at the maximum extension limit. The force unit is expressed as N (Newton). The measurement force can be changed by replacing the spring. Please specify your requirements when placing your order. Please note that depending on the modification, there may be times when the attachment does not return completely if it is facing upwards or sideways. Likewise, you will need to consult us if modification to a fixed value for a linear gauge sensor with a measurement range of 13mm was made, the measurement force for the amount moved within the 0 to 13mm range becomes a fixed value (variation of ±0.4%)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Line color</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SIG 1 (Yellow)</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>SIG 2 (White)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>+5V IN (Orange)</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>COM (Gray)</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>COM (Pink)</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>COM (Green)</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>COM (Blue)</td>
<td></td>
</tr>
</tbody>
</table>

* At Ono Sokki, we recommend the use of a linear gauge sensor together with a digital gauge counter. If you plan to use a linear gauge sensor without an Ono Sokki digital gauge counter, please refer to the specifications in the user’s manual for the sensor and/or other materials to design your own.
### Contact tip

<table>
<thead>
<tr>
<th>Model name</th>
<th>AA-0200</th>
<th>AA-0210</th>
<th>AA-0220</th>
<th>AA-0230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer dimensions</td>
<td><img src="DIAGRAM1" alt="Diagram" /></td>
<td><img src="DIAGRAM2" alt="Diagram" /></td>
<td><img src="DIAGRAM3" alt="Diagram" /></td>
<td><img src="DIAGRAM4" alt="Diagram" /></td>
</tr>
<tr>
<td>Tip ball material</td>
<td>Steel ball</td>
<td>SKS3</td>
<td>SKS3</td>
<td>SKS3</td>
</tr>
</tbody>
</table>

*1 When affixing a flat gauge head such as the AA-0220/0240/0250/921 to a gauge with a measurement resolution of 0.05µm/1µm, adjustment of the degree of parallelization to match that of the surface of the measurement stand is required. In this case, the gauge head and stand must be purchased as a pair (additional cost required).

*2 When affixing a roller gauge head such as the AA-827/828 to a gauge with a measurement resolution of 1µm, there may be times when the precision specification cannot be achieved. The AA-827/828 uses a bearing, but as the gap cannot be eliminated, an error of approximately 10µm may appear.

### Extension spindle

<table>
<thead>
<tr>
<th>Model name</th>
<th>AA-0320</th>
<th>AA-0400</th>
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</thead>
<tbody>
<tr>
<td>Outer dimensions</td>
<td><img src="DIAGRAM5" alt="Diagram" /></td>
<td><img src="DIAGRAM6" alt="Diagram" /></td>
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<tr>
<td>Material</td>
<td>SKS3</td>
<td>SUJ2</td>
</tr>
</tbody>
</table>

### Others

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Model Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger lifter</td>
<td>AA-969</td>
</tr>
<tr>
<td>Lug back</td>
<td>AA-3310</td>
</tr>
<tr>
<td>Extension cable</td>
<td>AA-8801 (5m)</td>
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<tr>
<td></td>
<td>AA-8802 (10m)</td>
</tr>
<tr>
<td></td>
<td>AA-8803 (20m)</td>
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<tr>
<td></td>
<td>AA-8804 (30m)</td>
</tr>
<tr>
<td>Gauge stand</td>
<td>ST-0230</td>
</tr>
</tbody>
</table>

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Optional accessories and parts

- Outer appearance and specifications are subject to change without prior notice.
- URL: [http://www.onosokki.co.jp/English/english.htm](http://www.onosokki.co.jp/English/english.htm)

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