GS-4500/4600 series GS-6500/6600 series

Conforming to protection class IP64G (GS-4500/4600 series) and IP64 (GS-6500/6600 series), the GS-4500/4600 and GS-6500/6600 series sensors are designed to be used in harsh environments.

A resolution of either 1 μ m or 10 μ m 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.

ONO SOKKI

Digital Linear Gauge Sensors $\overline{\mathbf{Y}}$

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

Features

Conforming to environmental protection class IP64G or IP64. Various optional parts.

Compatible with DG-4000 series.

Compact and small body with high accuracy.

Low price.

Structure Conforms to the IP64G Protection Class

The IP64G 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

IPX4 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.

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

DG-4240

(Comparator function)

1634

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Compatible counters

DG-4140 (Comparator function)

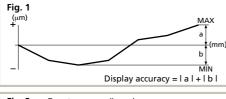


A Brief Explanation of Terms

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 10 μm is lower than that of a sensor with a resolution of 3 µm. (see Fig. 2).



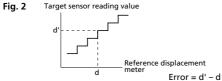
DG-4280

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(Preset function)



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 spindle (except for HS Series models). 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 (see*1 below) is required.

*1: If, for example, modification to a fixed value for a linear sensor gauge with a measurement range of 13 mm was made, the measurement force for the amount moved within the 0 to 13 mm range becomes a fixed value (variation of ±10gf)



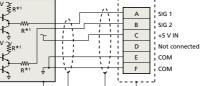
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GS-4500/4600/6500/6600 series

Output signal circuit

GS-4513/4530/4630/6513/6530/6630 R03-PB6M

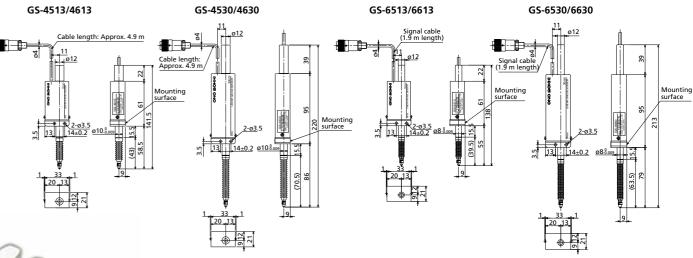


* At Ono Sokki, we recommend the use of a linear gauge sensor together with a digital gauge counter. If you plan to use a linear gauge sensor without an Ono Sokki digital counter, please refer to the specifications in the user's manual for the sensor and/or other materials to design your own.

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Dimensional outline drawings

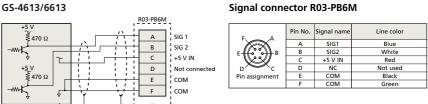


Specifications

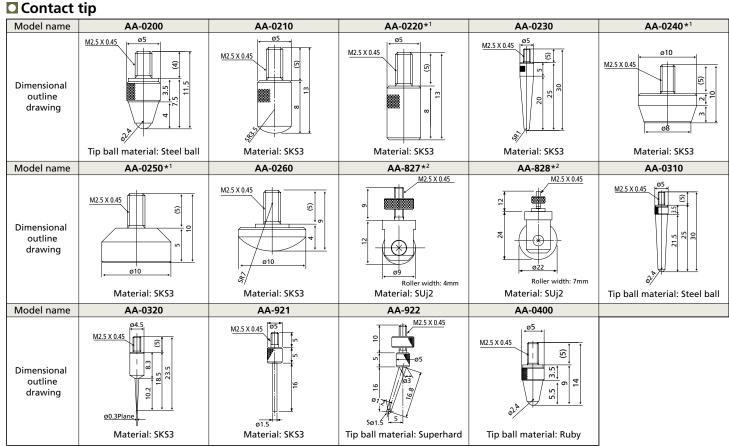
Model name Item	GS-4513	GS-4530	GS-4613	GS-4630	GS-6513	GS-6530	GS-6613	GS-6630
Measuring range	13 mm	30 mm	13 mm	30 mm	13 mm	30 mm	13 mm	30 mm
Resolution	10 µm		1 µm		10 µm		1 μm	
Display accuracy (at +20°C)	3 μm		2 μm	3 μm	3 μm	3 μm	2 μm	3 μm
Maximum response speed*1	1 (4) m/s		0.3 (1.2) m/s		1 (4) m/s		0.3 (1.2) m/s	
Measurement force (downward)	3.0 N	4.0 N	3.0 N	4.0 N	1.5 N	2.0 N	1.5 N	2.0 N
Measurement force	Approx. 2.3 to	Approx. 2.8 to	Approx. 2.3 to	Approx. 2.8 to	Approx. 0.65 to	Approx. 0.85 to	Approx. 0.65 to	Approx. 0.85 t
(optional modification range)	3 N or less*2	4.3 N or less*2	3 N or less*2	4.3 N or less*2	1.45 N or less*2	2.25 N or less*2	1.45 N or less*2	2.25 N or less
Number of strokes (measured according to our specified conditions)	At least 5 million							
Protection class (excluding the connector section)	IP64G				IP64			
Stem diameter	ø10 ⁺⁰ 0.009 mm				ø8+0 mm			
Power supply				4.5 to 6	5.0 VDC			
Current consumption (when 5 VDC)	50 mA or less		100 mA or less		50 mA or less		100 mA or less	
Signal output (when 5 VDC)		Two-phase squ	are wave, Phase d	ifference: 90° ± 20	°, Output voltage	Hi: At least 4.5 V	Lo: 0.4V or less	
Output impedance	Approx. 140 Ω		Approx. 470 Ω	Approx. 440 Ω	Approx. 140 Ω		Approx. 470 Ω	Approx. 440
Vibration resistance	196 m/s ² In each of the three axial directions (for 75 minutes each)			minutes each)	147 m/s ² In each of the three axial directions (for 75 minutes each)			
(when the power is off)*3	10 to 150 Hz sweep				10 to 150 Hz sweep			
Shock resistance	1960 m/s ² On each face and in each of the three axial directions				1471 m/s ² On each face and in each of the three axial directions			
(when the power is off)*4	Three times each in the \pm X, Y, Z directions Total of 18 times Half sine wave				Three times each in the ± X, Y, Z directions Total of 18 times Half sine wave			
Operating temperature range				0 to +	⊦40 °C			
Storage temperature range	-10 to +55 ℃							
Cable length	Approx. 4.9 m			Approx. 1.9 m (up to 30 m if the extension option is used)				
Weight (including cables and connectors)	Approx. 270 g	Approx. 310 g	Approx. 270 g	Approx. 310 g	Approx. 190 g	Approx. 220 g	Approx. 190 g	Approx. 220

*1: Maximum spindle velocity when using our gauge counter: the figures in parentheses represent the maximum response speed when using the DG-4140. *2: Due to the modifications, the attachment may not return completely if it is facing upwards.
 *3: The 196 m/s² vibration resistance and 1960 m/s² shock resistance values are not guaranteed during a measurement operation (GS-4500/4600 Series) *4: The 147 m/s² vibration resistance and 1471 m/s² shock resistance values are not guaranteed during a measurement operation (GS-6500/6600 Series)





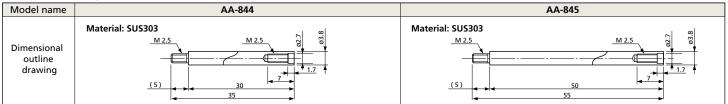
Signal connector R03-PB6M



*1 When affixing a flat gauge head such as the AA-0220/0240/0250 to a gauge with a measurement resolution of 1/1000 mm (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 1/1000 mm (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 10 µm may appear.

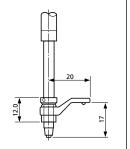
Extension spindle



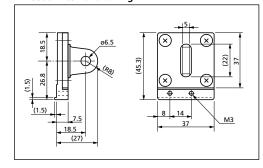
Others

Part Name	Model Name		
Finger lifter	AA-969		
Lug back	AA-3300		
Air lifter	AA-6100 (for GS-6513/6613)		
	AA-6101 (for GS-6530/6630)		
Extension cable	AA-801 (5m)		
	AA-802 (10m)		
	AA-803 (20m)		
	AA-804 (30m)		
Gauge Stand	ST-022, ST-044B, ST-055		
	*AA-891 stand bush is required when		
	a GS-4500/4600 series model mounted on the ST-044B.		
	*AA-892 stand bush is required when		
	a GS-6500/6600 series model mounted on the ST-044B.		

AA-969 External drawing



AA-3300 External drawing



* Outer appearance and specifications are subject to change without prior notice.

URL: http://www.onosokki.co.jp/English/english.htm

U.S.A. & CANADA

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