

Specifications

Type		Measurement center 30mm type	Measurement center 50mm type
Model No.	NPN output	HG-C1030	HG-C1050
	PNP output	HG-C1030-P	HG-C1050-P
Applicable regulations and certifications		CE Marking (EMC Directive, RoHS Directive), UKCA Regulations, RoHS Regulations), FDA Regulations Certification (Note 4)	
Measurement center distance		30 mm 1.181 in	50 mm 1.969 in
Measurement range		±5 mm 0.197 in	±15 mm 0.591 in
Repeatability		10 µm 0.394 mil	30 µm 1.181 mil
Linearity		±0.1 % F.S.	
Temperature characteristic		0.03 % F.S./°C	
Light source		Red semiconductor laser Class 2 [IEC/EN/JIS/GB/IEC] output: 1 mW, emission peak wavelength: 655 nm	
Beam diameter (Note 3)		ø50 µm 1.969 mil approx.	ø70 µm 2.756 mil approx.
Supply voltage		12 to 24 V DC ±10 %, Ripple P-P 10 % or less	
Power consumption		40 mA or less (at 24 V DC supply voltage), 65 mA (at 12 V DC supply voltage)	
Control output		<NPN output type> NPN open-collector transistor <ul style="list-style-type: none"> • Maximum sink current: 50 mA • Applied voltage: 30 V DC or less (Between control output and ground) • Residual voltage: 1.5 V or less (At 50 mA sink current) • Leakage current: 0.1 mA or less 	

Type		Measurement center 30mm type	Measurement center 50mm type
Model No.	NPN output	HG-C1030	HG-C1050
	PNP output	HG-C1030-P	HG-C1050-P
		<PNP output type> PNP open-collector transistor <ul style="list-style-type: none"> • Maximum source current: 50 mA • Applied voltage: 30 V DC or less (Between contr • Residual voltage: 1.5 V or less (At 50 mA source • Leakage current: 0.1 mA or less 	
	Output operation	Switchable between either Light-ON or Dark-ON	
	Short-circuit protection	Incorporated (Auto reset type)	
Analog output		Analog voltage output <ul style="list-style-type: none"> • Output range: 0 to 5 V (at alarm: +5.2 V) • Output impedance: 100Ω Analog current output <ul style="list-style-type: none"> • Output range: 4 to 20mA (at alarm: 0mA) • Output impedance: 300Ω or less 	
Response time		Switchable between 1.5 ms / 5 ms / 10 ms	

Type		Measurement center 30mm type	Measurement center 50mm type
Model No.	NPN output	HG-C1030	HG-C1050
	PNP output	HG-C1030-P	HG-C1050-P
External input		<p><NPN output type> NPN non-contact input</p> <ul style="list-style-type: none"> Input conditions Invalid: +8 to +V DC or Open Valid: 0 to +1.2 V DC Input impedance: 10 kΩ approx. <p><PNP output type> PNP non-contact input</p> <ul style="list-style-type: none"> Input conditions Invalid: 0 to +0.6 V DC or Open Valid: +4 to +V DC Input impedance: 10 kΩ approx. 	
Pollution degree		2	
Operating altitude		2,000 m 6561.680 ft or less	
Environmental resistance	Protection	IP67 (IEC)	
	Ambient temperature	-10 to +45 °C -14 to 113 °F (No dew condensation Storage: -20 to +60 °C -4 to 140 °F	
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH	
	Ambient illuminance	Incandescent light : 3,000 lx or less at the light-r	
	Vibration resistance	10 to 55 Hz (period: 1 min.) frequency, 1.5 mm 0.1	
	Shock resistance	500 m/s ² acceleration (50 G approx.) in X, Y and Z each	
Cable		0.2 mm ² 5-core composite cable, 2 m 6.5617 ft lo	

Type		Measurement center 30mm type	Measurement center 50mm type
Model No.	NPN output	HG-C1030	HG-C1050
	PNP output	HG-C1030-P	HG-C1050-P
Cable extension		Extension up to total 10 m 393.701 ft is possible with cable.	
Material		Enclosure: Aluminum die-cast, Front cover: Acrylic	
Weight		Net weight: 35 g approx. (without cable), 85 g approx. (with cable)	

Note1 :Supply voltage: 24V DC, ambient temperature: +20°C [+68°F](#), response time: 10ms, and analog output value of measurement center distance are used for unspecified measurement conditions. The subject is white ceramics.

Note2 :This product complies with the FDA regulations (FDA 21 CFR 1040.10 and 1040.11) in accordance with FDA Laser Notice No. 56, except for complying with IEC 60825-1 Ed. 3.

Note3 :This is the size in the measurement center distance. These values were defined by using 1/e² (13.5% approx.) of the center light intensity. Due to leak light outside the specified area, the reflectance around the detecting point may be higher than at the point and this may affect the measurement value.

Note4 :The UL/c-UL certified products have been shipped since April, 2017.

Type		Measurement center 200mm type	Measurement center 400mm type
Model No.	NPN output	HG-C1200	HG-C1400
	PNP output	HG-C1200-P	HG-C1400-P
Applicable regulations and certifications		CE Marking (EMC Directive, RoHS Directive), UKCA Marking (EMC Regulations, RoHS Regulations), FDA Regulations, UL/c-UL Recognition Certification (Note 4)	

Type		Measurement center 200mm type	Measurement center 400mm type
Model No.	NPN output	HG-C1200	HG-C1400
	PNP output	HG-C1200-P	HG-C1400-P
Measurement center distance		200 mm 7.874 in	400 mm 15.748 in
Measurement range		±80 mm 3.150 in	±200 mm 7.874 in
Repeatability		200 µm 7.874 mil	300 µm 11.811 mil (Measuring distance 200 to 400 mm 7.874 to 15.748 in) 800 µm 31.496 mil (Measuring distance 400 to 600 mm 15.748 to 23.622 in)
Linearity		±0.2 % F.S.	±0.2 % F.S. (Measuring distance 200 to 400 mm 7.874 to 15.748 in) ±0.3 % F.S. (Measuring distance 400 to 600 mm 15.748 to 23.622 in)
Temperature characteristic		0.03 % F.S./°C	
Light source		Red semiconductor laser Class 2 [IEC/EN/JIS/ GB/KS/FDA (Note 2)] Max. output: 1 mW, emission peak wavelength: 655 nm 0.026 mil	
Beam diameter (Note 3)		ø300 µm 11.811 mil approx.	ø500 µm 19.685 mil approx.
Supply voltage		12 to 24 V DC ±10 %, Ripple P-P 10 % or less	
Power consumption		40 mA or less (at 24 V DC supply voltage), 65 mA or less (at 12 V DC supply voltage)	

Type		Measurement center 200mm type	Measurement center 400mm type
Model No.	NPN output	HG-C1200	HG-C1400
	PNP output	HG-C1200-P	HG-C1400-P
Control output		<p><NPN output type> NPN open-collector transistor</p> <ul style="list-style-type: none"> • Maximum sink current: 50 mA • Applied voltage: 30 V DC or less (Between control output to 0V) • Residual voltage: 1.5 V or less (At 50 mA sink current) • Leakage current: 0.1 mA or less <p><PNP output type> PNP open-collector transistor</p> <ul style="list-style-type: none"> • Maximum source current: 50 mA • Applied voltage: 30 V DC or less (Between control output to +V) • Residual voltage: 1.5 V or less (At 50 mA source current) • Leakage current: 0.1 mA or less 	
	Output operation	Switchable between either Light-ON or Dark-ON	
	Short-circuit protection	Incorporated (Auto reset type)	
Analog output		<p>Analog voltage output</p> <ul style="list-style-type: none"> • Output range: 0 to 5 V (at alarm: +5.2 V) • Output impedance: 100Ω <p>Analog current output</p> <ul style="list-style-type: none"> • Output range: 4 to 20mA (at alarm: 0 mA) • Output impedance: 300Ω or less 	
Response time		Switchable between 1.5 ms / 5 ms / 10 ms	

Type		Measurement center 200mm type	Measurement center 400mm type
Model No.	NPN output	HG-C1200	HG-C1400
	PNP output	HG-C1200-P	HG-C1400-P
External input		<p><NPN output type> NPN non-contact input</p> <ul style="list-style-type: none"> Input conditions Invalid: +8 to +V DC or Open Valid: 0 to +1.2 V DC Input impedance: 10 kΩ approx. <p><PNP output type> PNP non-contact input</p> <ul style="list-style-type: none"> Input conditions Invalid: 0 to +0.6 V DC or Open Valid: +4 to +V DC Input impedance: 10 kΩ approx. 	
Pollution degree		2	
Operating altitude		2,000 m 6561.680 ft or less	
Environmental resistance	Protection	IP67 (IEC)	
	Ambient temperature	-10 to +45 °C -14 to 113 °F (No dew condensation or icing allowed), Storage: -20 to +60 °C -4 to 140 °F	
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH	
	Ambient illuminance	Incandescent light: 3,000 lx or less at the light-receiving face	
	Vibration resistance	10 to 55 Hz (period: 1 min.) frequency, 1.5 mm 0.059 in double amplitude in X, Y and Z directions for two hours each	
	Shock resistance	500 m/s ² acceleration (50 G approx.) in X, Y and Z directions three times each	

Type		Measurement center 200mm type	Measurement center 400mm type
Model No.	NPN output	HG-C1200	HG-C1400
	PNP output	HG-C1200-P	HG-C1400-P
Cable		0.2 mm ² 5-core composite cable, 2 m 6.5617 ft long	
Cable extension		Extension up to total 10 m 393.701 ft is possible with 0.3 mm ² , or more, cable.	
Material		Enclosure: Aluminum die-cast, Front cover: Acrylic	
Weight		Net weight: 35 g approx. (without cable), 85 g approx. (including cable)	

Note1 :Supply voltage: 24V DC, ambient temperature: +20°C +68°F, response time: 10ms, and analog output value of measurement center distance are used for unspecified measurement conditions. The subject is white ceramics.

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