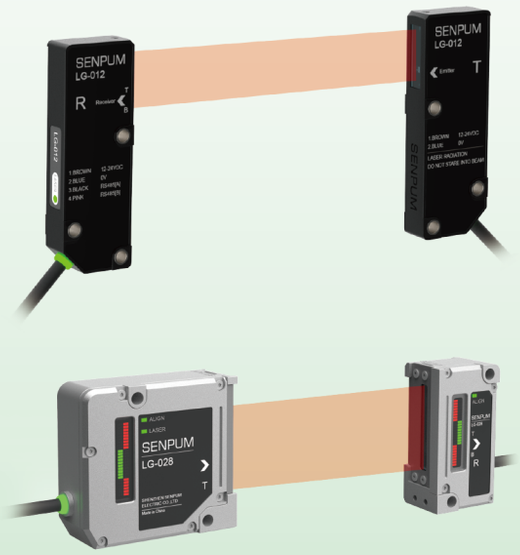
Multi-Function High-Precision Laser Micrometer LG Series



EtherCAT RS-232C / RS-485 PROFINET
EtherNet/IP™ Ethernet (TCP/IP)

Ask SENPUM

+86-755-83330055

Fast Delivery **Standard Models**

Most products are in stock. Upon receiving your order, we will arrange prompt shipment to minimize your downtime-related costs and losses.

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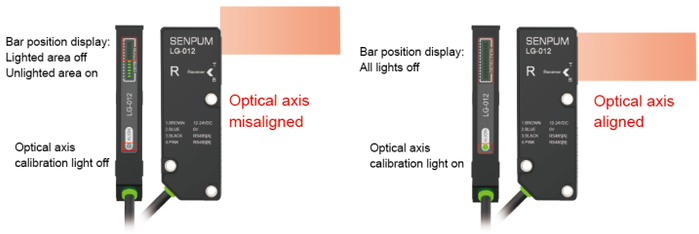
Easier optical axis calibration

With the optical axis alignment indicator, alignment and mounting of the transmitter and receiver can be easily accomplished.



Ultra-thin and ultra-compact size

Ultra-thin and ultra-compact size for different application requirements.

Supports various communication networks

Various communication modules can be connected to realize the reading and writing of parameters through the network.

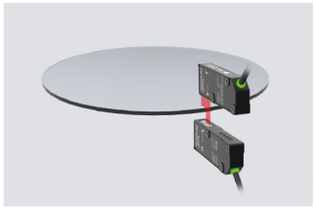
12 mm measuring range, maximum mounting distance 500 mm

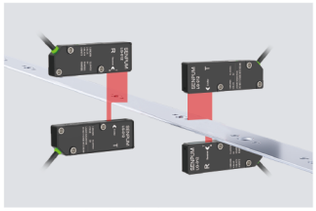
Maximum sampling period up to 150 μs; maximum repeatability up to ±3 μm.

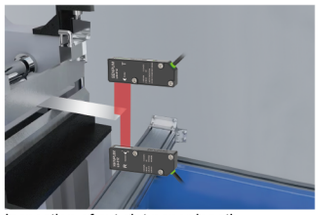
More Features

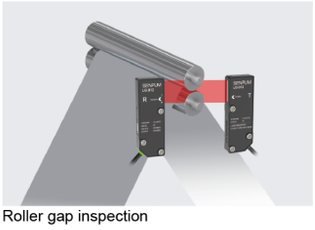
- Equipped with a variety of measurement functions, edge control and positioning, OD/width detection, ID/gap detection, transparent target edge detection, etc., as well as a wealth of calculation functions.
- Multi-sensor cascade for combined computation.

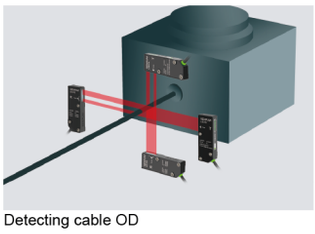
Applications

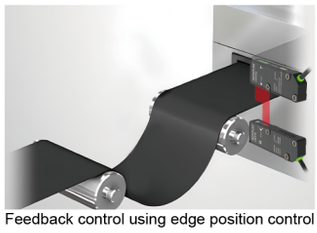

Positioning of transparent glass substrates


Detection of pole piece damage


Inspection of cut slot paper length


Roller gap inspection


Detecting cable OD


Feedback control using edge position control

Product List

Sensor Head

Appearance	Detection range (mm)	Linearity	Repeatability	Model
 Thrubeam type	12 mm	±0.28% F.S. (±34 μm)	±3 μm	LG-012
			±1 μm	LG-012K
 Thrubeam type	28 mm	±0.1% F.S. (±28 um)	±2 μm	LG-028

Controller

Appearance	Type	Output method	Model
 Main module	DIN rail mounting	NPN/PNP	LG-1000
 Expansion module		NPN/PNP	LG-1050

Communication Cable (for connecting the sensor head to the controller)

Appearance	Sensor side	Cable termination	Material	Length	Model
	M8 4-Pin Straight	Controller	Highly flexible drag chain type	2 m	OW-LG2000EM
				5 m	OW-LG5000EM
				10 m	OW-LG10MEM

Sensor Cable (for stand-alone use of sensor head)

Appearance	Length	Model
	2 m	OW-LG2000
	5 m	OW-LG5000
	10 m	OW-LG10M

Network Communication Unit

Appearance	Network	Model
	EtherCAT	OW-EC2A
	PROFINET	OW-PN2
	Ethernet (TCP/IP)	OW-EN2
	EtherNet/IP™	OW-EP2
	RS-232C / RS-485	OW-RS1A

CAD Technical Data Download: www.senpum.com/en

LG Multi-Function High-Precision Laser Micrometer

Specifications

Sensor Head

Model		LG-012	LG-012K	LG-028
Type		Thrubeam type		
Measuring range		12 mm		28 mm
Sensor head mounting distance		0.2 to 500 mm		0.1 to 1500 mm
Repeatability*1*2		±3 µm	±1 µm*4	±2 µm
Linear accuracy*1*2		±0.28% F.S. (±34 µm)		±0.1% F.S. (±28 µm)
Temperature characteristics*1*2		±0.016% F.S./°C (±2 µm)		±0.007% F.S./°C (±2 µm)
Light source		Red semiconductor laser Class 1 Maximum output: 250 uW, beam wavelength: 650 nm		Red semiconductor laser Class 1 Maximum output: 380 uW, beam wavelength: 660 nm
Spot size		3 x 14 mm		12 x 34mm
Sampling period*3		150 µs*3	150 µs*3*4	490 µs*3
Indicator	Transmitter	Output indicator: red-green ring light; Laser status indicator: green		Power indicator: green; Optical axis calibration light: green; Bar position indicators: green × 28; Bar position indicators: red × 28
	Receiver	Output indicator: red-green ring light; Optical axis calibration light: green; Bar position indicators: green × 12		Optical axis calibration light: green; Bar position indicators: green × 28; Bar position indicators: red × 28
Current consumption		Transmitter: 20 mA or less (at DC 12 V)		Transmitter: 50 mA or less (at DC 12 V)
		Receiver: 40 mA or less (at DC 12 V)		Receiver: 150 mA or less (at DC 12 V)
Communication method		RS485		-
Power voltage		DC 12 to 24 V ±10%		
Connection form		Connector: M8 4-pin connector with 200 mm cable		
Operating ambient temperature/humidity		-10 to +50 °C/35 to 85% RH (no frost, no icing)		
Storage ambient temperature/humidity		-20 to +60 °C/35 to 85% RH (no frost, no icing)		
Protection class		IP67		
Operating ambient illumination*1		Sunlight: 10,000 lux or less; Incandescent lamp: 10,000 lux or less		
Vibration resistance		10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions		
Shock resistance		Approx. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directions		
Material		Housing: PBT; Transmitter-Receiver lens: Float glass		Lower housing: Zinc die casting; Upper housing: PBT; Transmitter-Receiver lens: Float glass
Weight		Transmitter, Receiver: approx. 20 g each (incl. 200 mm cable)		Transmitter, Receiver: approx. 500 g each (incl. 200 mm cable)

*1 Measurement of SENPUM standard target (steel sheet), in edge measurement mode.
*2 When the mounting distance is 100 mm.
*3 In edge measurement mode, when high speed (hsp) is selected for the number of averages.
*4 When the speed gear is set to low speed (L-sp).
*5 When the speed gear is set to high speed (H-sp).

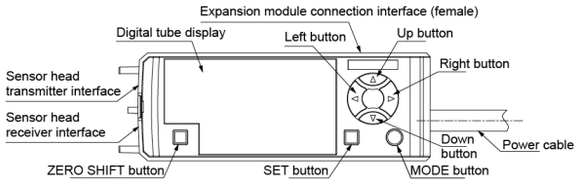
Controller

Model	NPN/PNP	LG-1000	LG-1050
Controller types		Main module	Expansion module
Mounting type		DIN rail mounting	
Sensing head compatibility		Available	
Number of modules that can be added		Up to 3 expansion modules can be added to 1 main module	
Display	Minimum display unit	1 µm, 10 µm, 100 µm, 1000 µm	
	Display range	-99.999 mm to +99.999 mm, -99.99 mm to +99.99 mm, -99.9 mm to +99.9 mm, -99 mm to +99 mm	
	Display rate	Approx. 10 times/sec	
Analog voltage output		±5 V, 1 to 5 V, 0 to 5 V Output impedance 100 Ω	None
Analog current output		4 to 20 mA Maximum load resistance 350 Ω	
Control input	Channel switching input	NPN: On at 0 V, OFF at 24 V PNP: On at 24 V, OFF at 0 V	
	Zero drift input		
	Laser emission stop input		
	Timer input		
	Reset input		
	Gain input		
Control output*1	Judgment output	Open collector, 50 mA max (NPN/PNP; normally open/closed, switchable)	
	Edge confirmation output		
Power voltage		15 to 30 VDC, including ripple (P-P) 10%	Power supply through the main unit
Power consumption (without load)		2400 mW or less (at 30 V, 80 mA maximum)	2250 mW or less (at 30 V, 75 mA maximum)
Operating ambient temperature		-10 to +50 °C (no freezing)	
Operating ambient humidity		35 to 85% RH (no condensation)	
Vibration resistance		10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions	
Material		Housing: Polycarbonate, Buttons: Polyacetal, Cable: PVC	
Weight (including accessories)		Approx. 160 g	

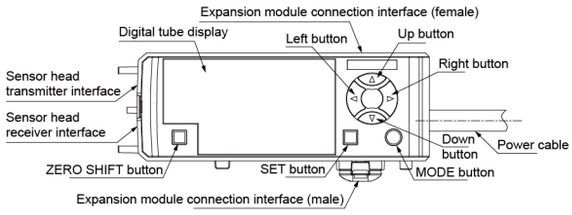
*1 When connecting to the expansion unit:
- Power voltage: 20 to 30 VDC
- Control output current: 20 mA max.

Control Panel Description

LG-1000



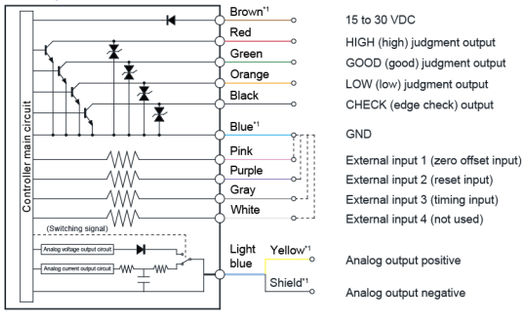
LG-1050



I/O Circuit Diagrams

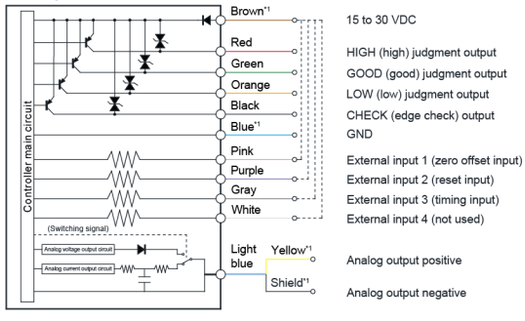
Controller

NPN input



*1 Main unit only.

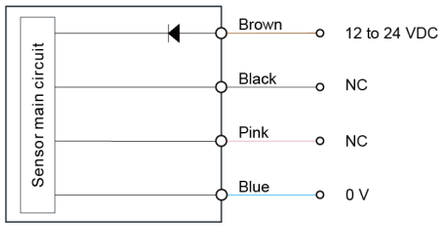
PNP input



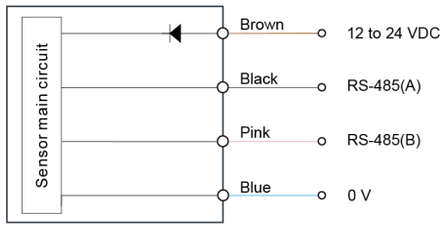
*1 Main unit only.

When the sensing head is used alone (LG-012/LG-012K only)

Transmitter



Receiver



LG Multi-Function High-Precision Laser Micrometer

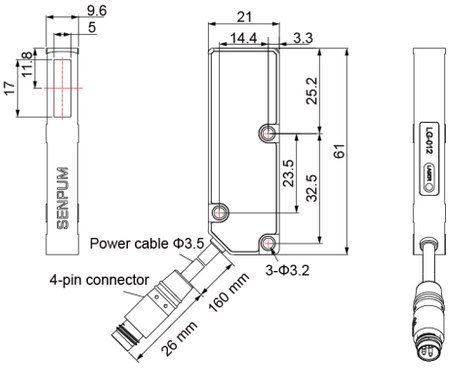
Dimensions

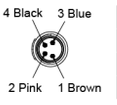
Unit: mm

Sensor Head

LG-012 / LG-012K

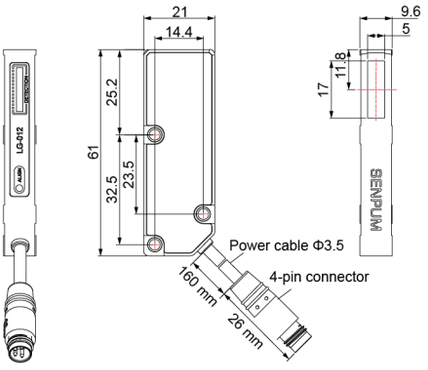
Transmitter

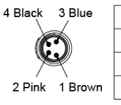




1. Brown - Power positive
2. Pink-RS485(B)
3. Blue - Power negative
4. Black-RS485(A)

Receiver

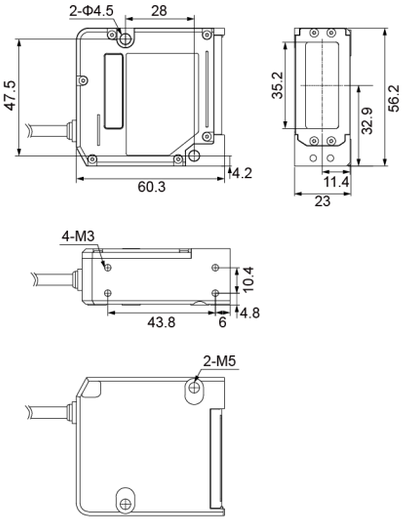




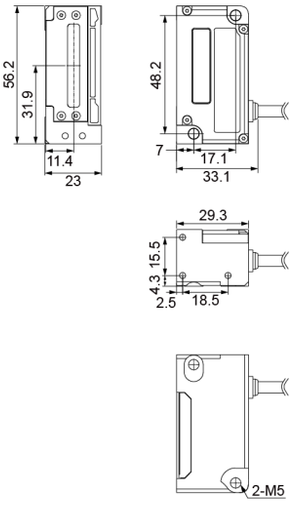
1. Brown - Power positive
2. Pink-RS485(B)
3. Blue - Power negative
4. Black-RS485(A)

LG-028

Transmitter

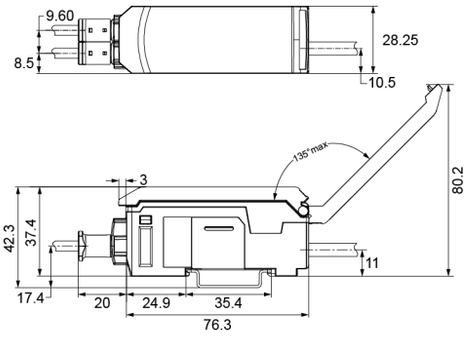


Receiver

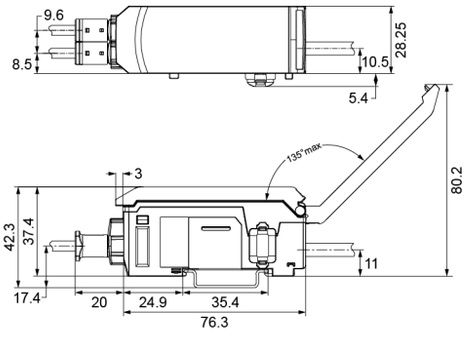


Controller

LG-1000

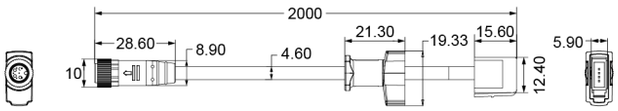


LG-1050



Communication Cable

OW-LG2000EM / OW-LG5000EM / OW-LG10MEM

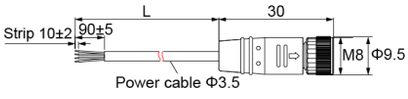


Pin definition

No.	Jacket color
①	Brown
②	Orange
③	Blue
④	Black

Sensor Cable

OW-LG2000 / OW-LG5000 / OW-LG10M



Model	L (length)
OW-LG2000	2 m
OW-LG5000	5 m
OW-LG10M	10 m

Pin definition

No.	Jacket color
①	Brown
②	Pink
③	Blue
④	Black