

## GT60 Series Laser Displacement Sensors

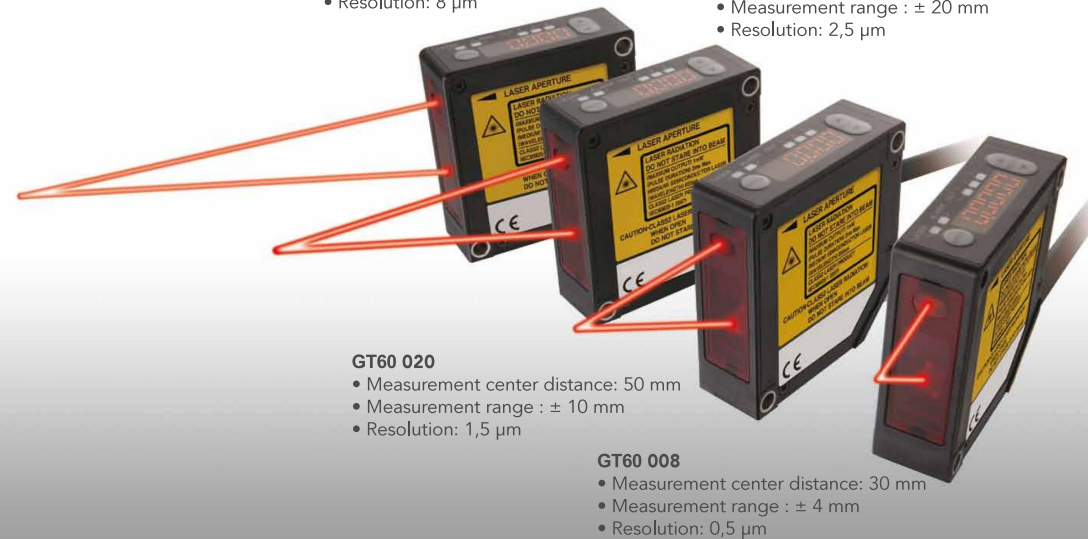


### GT60 120

- Measurement center distance: 120 mm
- Measurement range:  $\pm 60$  mm
- Resolution:  $8 \mu\text{m}$

### GT60 040

- Measurement center distance: 85 mm
- Measurement range :  $\pm 20$  mm
- Resolution:  $2,5 \mu\text{m}$



### GT60 020

- Measurement center distance: 50 mm
- Measurement range :  $\pm 10$  mm
- Resolution:  $1,5 \mu\text{m}$

### GT60 008

- Measurement center distance: 30 mm
- Measurement range :  $\pm 4$  mm
- Resolution:  $0,5 \mu\text{m}$



### GT60 Series

The sensors in the GT60 series can hardly be beaten in regard to accuracy. Resolutions from  $0,5 \mu\text{m}$  and measuring frequencies of up to 5,000 Hz clearly demonstrate how powerful this series is. Thanks to latest laser technologies and the CMOS sensor, high levels of colour independence are guaranteed even where difficult surfaces are concerned. But the sensors' features are also con-

vincing: an integrated distance display, serial RS-422 and RS-485 ports and – depending on the version – voltage or current output. Which means that these – with 110 grams particularly light-weight sensors – possess three transistor outputs. The serial ports allow sensors in the GT60 series to be connected to a separate specially adapted display.

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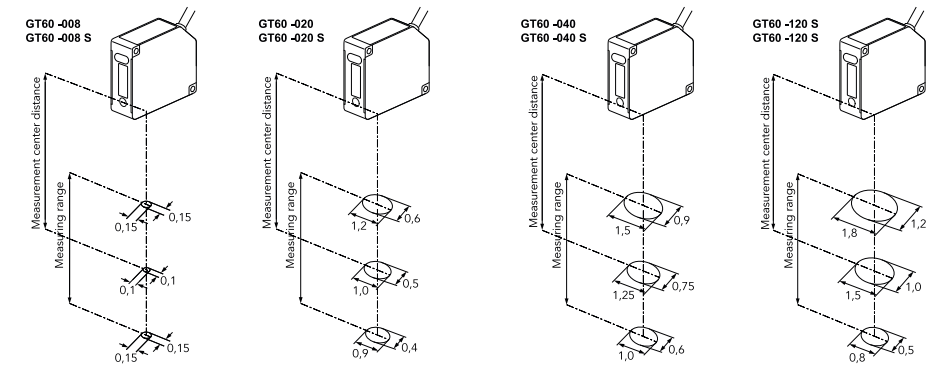
## Specifications

Typ	Standard typ				High functionality type			
	GT60 -008	GT60 -020	GT60 -040	GT60 -120	GT60 -008 S	GT60 -020 S	GT60 -040 S	GT60 -120 S
Ordercode	GT60 -008	GT60 -020	GT60 -040	GT60 -120	GT60 -008 S	GT60 -020 S	GT60 -040 S	GT60 -120 S
Measurement center distance	30 mm	50 mm	85 mm	120 mm	30 mm	50 mm	85 mm	120 mm
Measuring range	±4 mm	±10 mm	±20 mm	±60 mm	±4 mm	±10 mm	±20 mm	±60 mm
Resolution	0,5 μm	1,5 μm	2,5 μm	8 μm	0,5 μm	1,5 μm	2,5 μm	8 μm
Beam diameter (Note 2)	0,1 x 0,1 mm	0,5 x 1 mm	0,75 x 1,25 mm	1,0 x 1,5 mm	0,1 x 0,1 mm	0,5 x 1 mm	0,75 x 1,25 mm	1,0 x 1,5 mm
Linearity error	0,008 mm	0,02 mm	0,04 mm	0,12 mm	0,008 mm	0,02 mm	0,04 mm	0,12 mm
Temperature characteristics	±0,08 % F.S. / °C							
Light source	Red semiconductor laser, Class 2 (IEC / JIS), Class II (FDA, Laser Notice No. 50) Max. output: 1 mW (Peak emission wavelength: 655 nm)							
Receiving-element	CMOS image sensor							
Supply voltage	24 V DC ±10 % including ripple 0.5 V (P-P)							
Current consumption	100 mA or less							
Sampling rate	5000 Hz, 2000 Hz, 1000 Hz, 500 Hz							
Analog output Voltage	Output range: 0 ~ 10.5 V (normal), 11 V (alarm) Output impedance: 100 Ω							
Analog output Current	Output range: 3.2 ~ 20.8 mA (normal), 21.6 mA (alarm) Load impedance: 300 Ω or less							
Output	Judgment output or alarm output (Setting can be selected.) Selectable NPN transistor open-collector or PNP transistor open-collector							
NPN output	<ul style="list-style-type: none"> <li>• Maximum sink current : 50 mA</li> <li>• Applied voltage : 3 ~ 24 V DC (between output and 0 V)</li> <li>• Residual voltage : 2 V or less (at 50 mA of sink current)</li> </ul>							
PNP output	<ul style="list-style-type: none"> <li>• Maximum source current : 50 mA</li> <li>• Residual voltage : 2.8 V or less (at 50 mA of source current)</li> </ul>							
Output operation	Opened when the amount of light is insufficient.							
Short circuit protection	Incorporated (automatic restoration)							
Output polarity setting input	NPN open collector output operates when 0 V is connected. PNP open collector output operates when 24 V DC is connected.							
Timing input	NPN output operates when 0 V is connected and NPN is set. (It depends on the setting.) PNP output operates when external power + is connected and PNP is set. (It depends on the setting.)							
Multi input	Zero set , zero set off, reset, teaching, and laser control according to the input time. In case NPN output is selected, Function varies according to the time 0 V is connected NPN. In case PNP output is selected, Function varies according to the time external power + is connected.							
Communication interface	RS-422 or RS-485 Baud rate: 9,600 / 19,200 / 38,400 / 115,200 / 230,400 / 460,800 / 921,600 bps Data length 8 bit, Stop bit length 1 bit, Without parity check, BCC check, Termination code: CR							

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Ordercode	GT60 -008	GT60 -020	GT60 -040	GT60 -120	GT60 -008 S	GT60 -020 S	GT60 -040 S	GT60 -120 S
Laser emission indicator	Green LED (lights up during laser emission)							
Alarm indicator	Orange LED lights up when this product cannot measure because of insufficient light intensity.							
Measurement range indicator	Three yellow LED							
Digital display	Red LED 5 digit display							
Protection	IP67							
Ambient temperature	-10 ~ +45 °C (No dew condensation), Storage: -20 ~ +60 °C							
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 (Note 3)							
Ambient altitude	2,000 m or less							
Pollution degree	2							
Insulation resistance	20 MΩ, or more, with 250 V DC between all supply terminals connected together and enclosure							
Voltage withstandability	1,000 V AC one min. between all supply terminals connected together and enclosure							
Vibration resistance	10 to 55 Hz (period: 1 min.) frequency, 1.5 mm amplitude in X,Y and Z directions for two hours each							
Shock resistance	500 m/s <sup>2</sup> acceleration (50 G approx.) in X,Y and Z directions for three times each							
Material	Enclosure: PBT, Front cover: Acrylic, Cable: PVC							
Cable	0.1 mm <sup>2</sup> 10-core cable, 5 m long				14-core cable with connector, 0.5 m long			
Cable extension	-				Extension up to total 20 m is possible with optional cable.			
Weight	Net weight: 70 g approx. (not including cable), 320 g approx. (including cable), Gross weight: 380 g approx.				Net weight: 70 g approx. (not including cable), 110 g approx. (including cable), Gross weight: 160 g approx.			
Accessory	Warning label: 1 set							

## Beam diameter (Unit: mm)



## Analog output lines

Pin No.	Signal name	Function	Lead wire color
7	A (V)	Analog voltage output	Shielded single conductor
8	AGND	Analog ground	Black
9	A (I)	Analog voltage output	Shielded single conductor
10	AGND	Analog ground	Gray

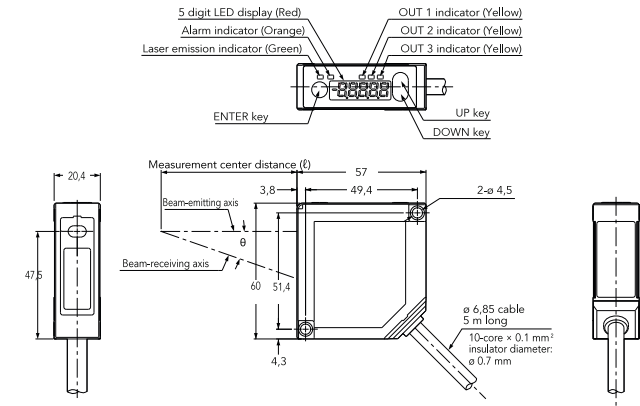
## I/O terminal block

Pin No.	Signal name	Function	Lead wire color
1	OUT1	Judgment output 1	Black
2	OUT2	Judgment output 2	White
3	OUT3	Judgment output 3 or alarm output	Gray
4	TM	Timing input	Pink
5	MI	Multifunction input: Zero set, zero set OFF, reset, change memory, teach, save, and laser control	Violet
6	NP	NPN/PNP type switching input (default = NPN)	Pink/Violet
11	+SD	Transmission data	Green (before Dec 2010: Black)
12	-SD	Transmission data	Sky blue (before Dec 2010: White)
13	+RD	Reception data	Orange (wire color has not changed)
14	-RD	Reception data	Yellow (before Dec 2010: White)
15	GGND	RS422/485 shield	
16	+V	24V DC input for power supply	Brown
17	0V	Power supply ground	Blue

## Dimensions (Unit: mm)

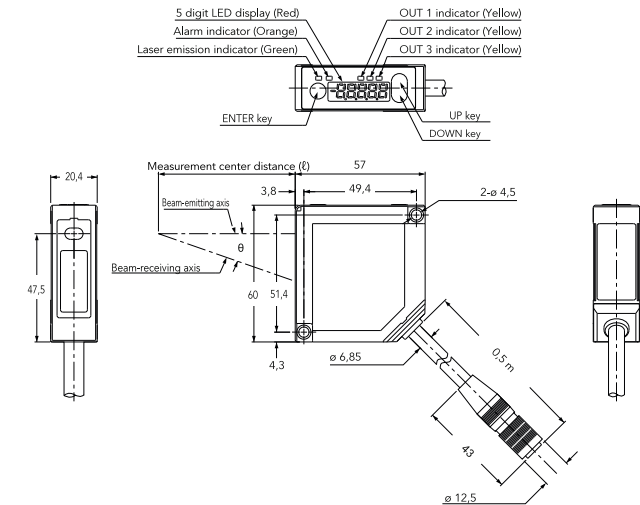
### Standard type

Order code	Measurement center distance (ℓ)	θ
GT60 -008	30 mm	30°
GT60 -020	50 mm	21°
GT60 -040	85 mm	15°
GT60 -120	120 mm	11°



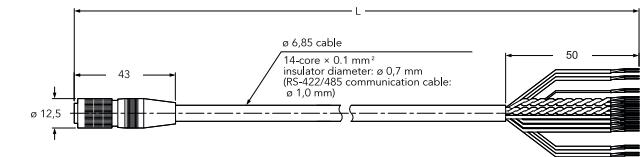
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GT60 -008 S	30 mm	30°
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GT60 -120 S	120 mm	11°



### Extension cable (Optional)

Order code	L
KBL GT60 -2	2m
KBL GT60 -5	5m
KBL GT60 -10	10m
KBL GT60 -20	20m



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