



## Description

The LaserSight 9000 is a Class 1 visible red laser sensor designed for the detection of small parts in the packaging, material handling and semi-conductor industries. This sensor offers multiple sensing modes suitable for general purpose detection that can be easily set up by using the single-turn potentiometer and the highly visible user interface.

## Features

- Small spot size suitable for high precision sensing
- Class 1 visible laser beam for ease of alignment
- Precision long distance object detection in polarized and transmitted beam sensing modes
- Selectable light operate or dark operate
- Solid-state DC output and SPDT relay output models
- IP69K rated

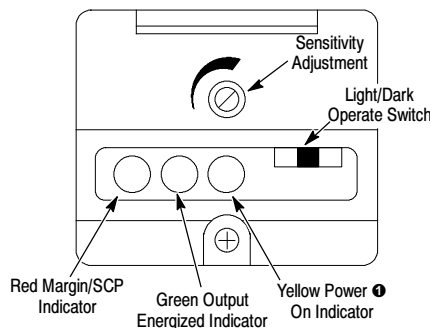
## Specifications

Environmental	
Certifications	cULus and CE Marked for all applicable directives
Operating Environment	NEMA 3,4X,6P,12,13; IP67(IEC529) 1200 psi (8270 kPa) washdown, IP69K
Operating Temperature [C (F)]	-10...+50° (14...+122°)
Vibration	10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2
Shock	30 g with 1 ms pulse duration, meets or exceeds IEC 60947-5-2
Relative Humidity	5...95%
Ambient Light Immunity	Incandescent light 5000 lux
Optical	
Sensing Modes	Diffuse, polarized retroreflective and transmitted beam
Light Source	Visible red laser (650 nm)
LED Indicators	See User Interface Panel below
Adjustments	Single-turn potentiometer for sensitivity
Electrical	
Voltage	10...30V DC , 105...132V AC models, 10...264 V AC/DC models
Current Consumption	45 mA max (DC models), 10 mA max (AC/DC models), 70 mA max AC models
Sensor Protection	Overload (DC only), short circuit (DC only), reverse polarity, false pulse
Outputs	
Response Time	DC: 0.5 ms (diffuse and polarized retro), 5 ms (transmitted beam) AC: 25 ms (transmitted beam)
Output Type	PNP and NPN, SPDT EM relay
Output Mode	Light operate or dark operate selectable
Output Current	250 mA (DC), SPDT: 2 A @ 120V AC, 1 A @ 240V AC; 3 A @ 28V DC
Output Leakage Current	10 µA max
Mechanical	
Housing Material	Valox®
Lens Material	Acrylic
Cover Material	Neoprene
Connection Types	2 m 300V AC cable, 4-pin DC micro QD, 4-pin DC mini QD, 5-pin DC micro QD
Supplied Accessories	129-130 mounting kit
Optional Accessories	See mounting brackets, reflectors, and cordsets on page 1-10

## User Interface Panel

Label	Color	State	Status
Margin/SCP	Red	OFF	Margin < 2
		ON	Margin > 2
		Flashing	Output SCP active
Output	Green	OFF	Output not activated
		ON	Output activated
Power	Yellow ①	OFF	Sensor not powered
		ON	Sensor powered

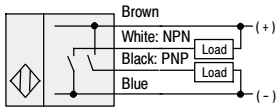
① Red for transmitted beam emitter.



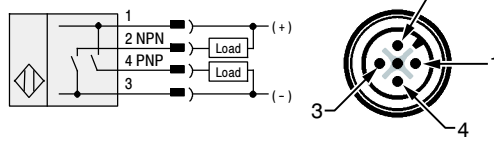
Wiring Diagrams

DC Models

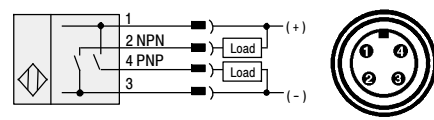
Cable Model: 42GR\_-9\_L0



4-pin DC Micro QD Model: 42GR\_-9\_L0-QD

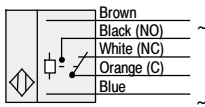


4-pin DC Mini QD Model: 42GR\_-9\_L0-QD1

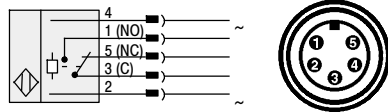


AC Models

Cable Model: 42GR\_-9\_L2



5-pin AC Mini QD Model: 42GR\_-9\_L2-QD

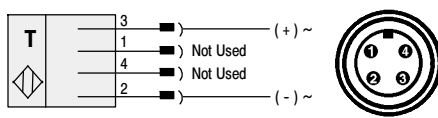


Transmitted Beam Source

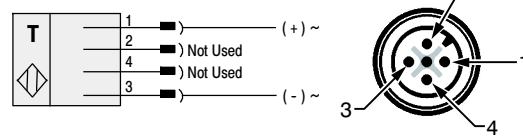
Cable Model: 42GRL-90L0



AC/DC Mini QD Model: 42GRL-90L2-QD

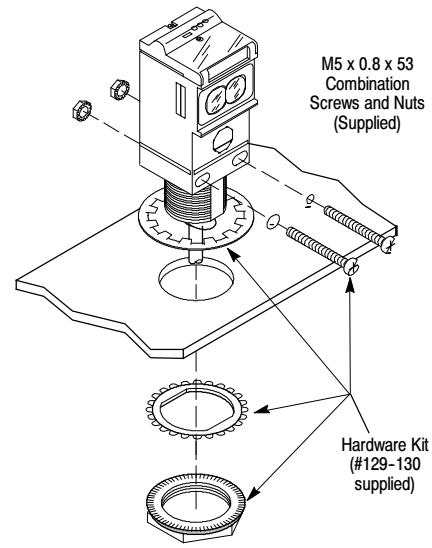
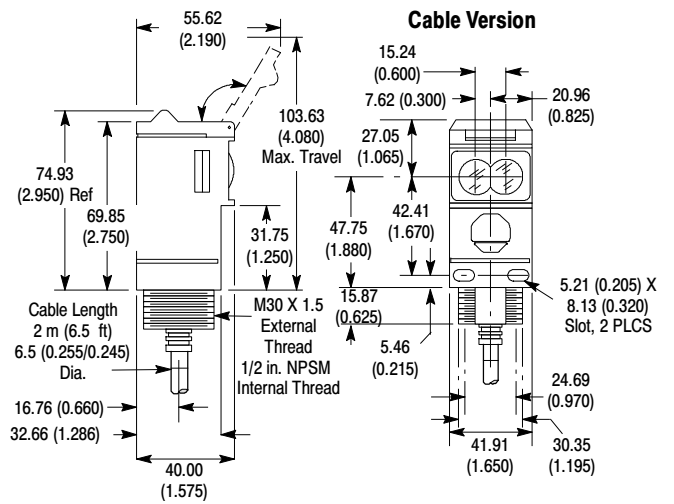


DC Micro QD Model: 42GRL-90L0-QD



Approximate Dimensions [mm (in.)]

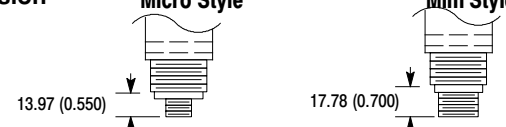
All Versions



Connector Version

Micro Style

Mini Style



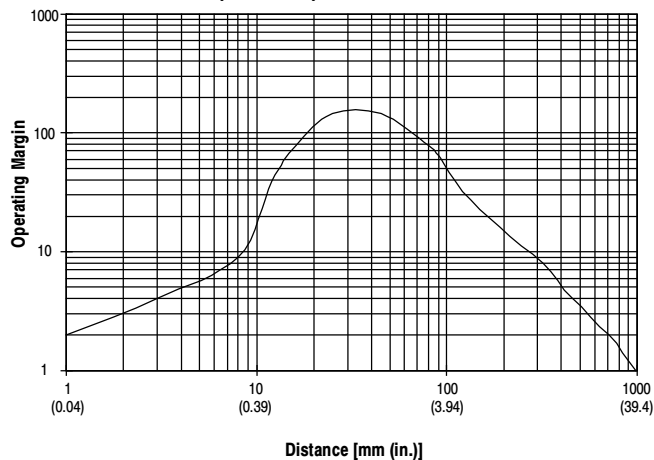
Thread Size

Micro Style	M12 x 1 1 Keyway
Mini Style	7/8-16 UN 1 Keyway

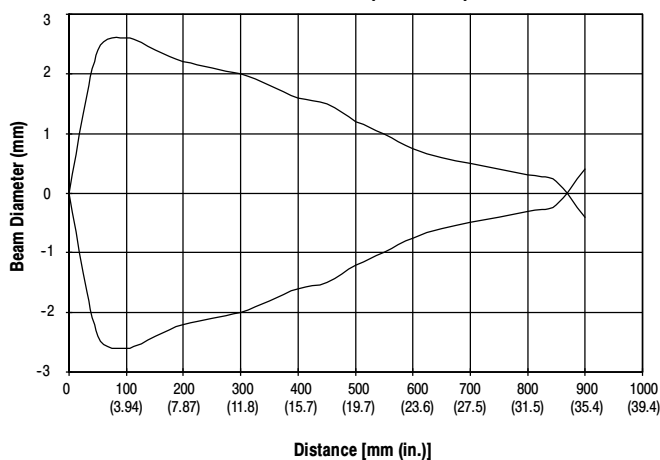
Refer to [www.ab.com/e-tools](http://www.ab.com/e-tools) or Proposal Works for 2D and 3D CAD drawings.

Typical Response Curve

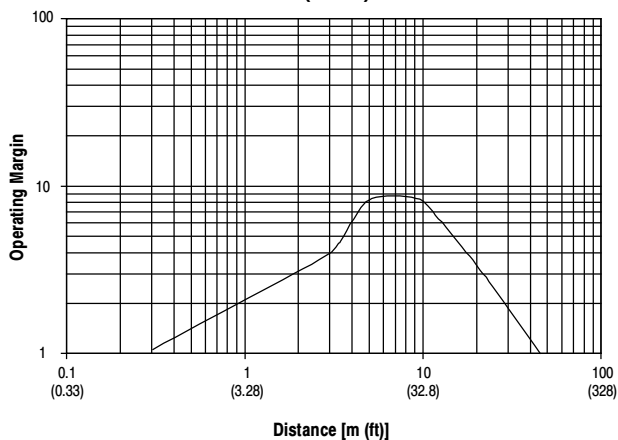
Standard Diffuse (800 mm)



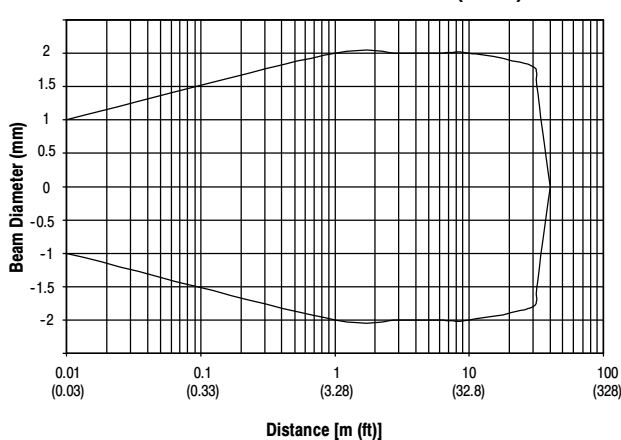
Beam Pattern—Standard Diffuse (800 mm)



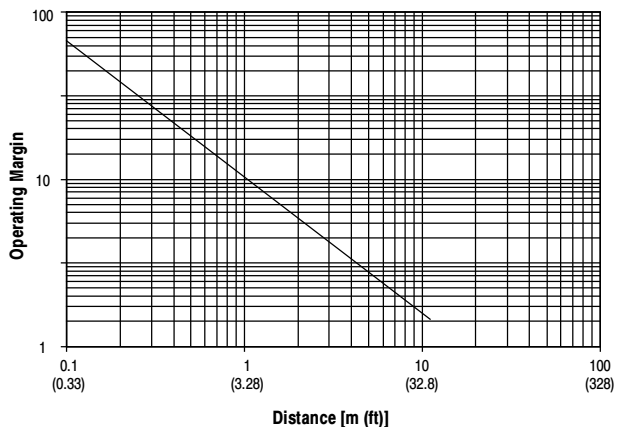
Polarized Retroreflective (40 m)



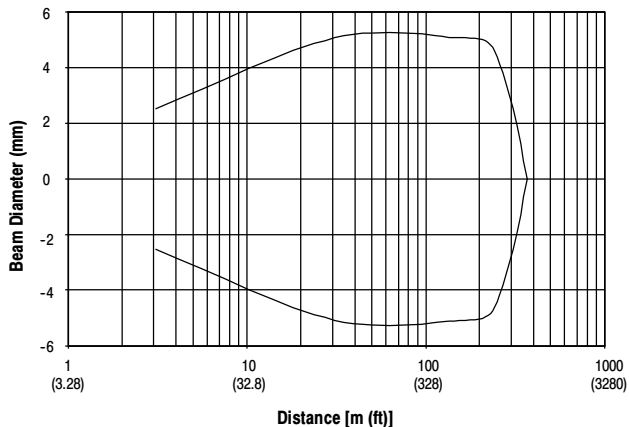
Beam Pattern—Polarized Retroreflective (40 m)



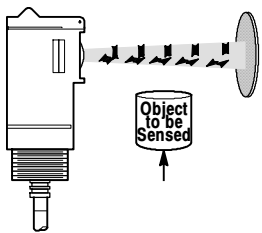
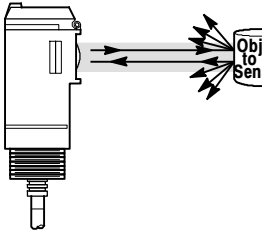
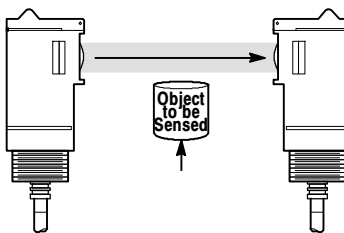
Transmitted Beam (300 m)



Beam Pattern—Transmitted Beam (300 m)



Product Selection

Sensing Mode	Operating Voltage	Sensing Distance	Output Type/ Output Current	Response Time	Cat. No.❶
 <p><i>Polarized Retroreflective</i></p> <p><b>Spot Size:</b> 20 x 25 mm @ 40 m (0.78 x 0.98 in.) @ (131 ft)</p> <p><b>Emitter LED:</b> Visible Laser, 650 nm</p>	10...30V DC	0.3...40 m ② (1...130 ft)	NPN and PNP /250 mA	0.5 ms	42GRU-92L0-QD
	105...132V AC		SPDT EM Relay 2 A @ 120V AC 1 A @ 240V AC 3 A @ 28V DC	15 ms	42GRU-92L2-QD
 <p><i>Standard Diffuse</i></p> <p><b>Spot Size:</b> 2 x 3.5 mm @ 800 mm (0.07 x 0.14 in. @ 31.5 in.)</p> <p><b>Emitter LED:</b> Visible Laser, 650 nm</p>	10...30V DC	1...800 mm (0.03...31.5 in.)	NPN and PNP 250 mA	0.5 ms	42GRP-92L0-QD
	105...132V AC		SPDT EM Relay 2 A @ 120V AC 1 A @ 240V AC 3 A @ 28V DC	15 ms	42GRP-92L2-QD
 <p><i>Transmitted Beam</i></p> <p><b>Spot Size:</b> 140 x 175 mm @ 300 m (0.07 x 0.14 in. @ 1000 ft)</p> <p><b>Emitter LED:</b> Visible Laser, 650 nm</p>	10...264V AC/DC	300 m (1000 ft)	NA Light Source	NA Light Source	42GRL-90L0-QD
	10...40V DC		NPN and PNP 250 mA	5 ms	42GRR-90L0-QD
	70...264V AC/DC		SPDT EM Relay 2 A @ 120V AC 1 A @ 240V AC 3 A @ 28V DC	23 ms	42GRR-90L2-QD

❶ For termination options the suffix “-QD” denotes a 4-pin DC micro (M12) connection style for DC models and a 5-pin mini QD connection style for AC. For a 4-pin mini QD connection (DC only) replace the suffix “-QD” with “-QD1” (e.g., 42GRP-92LQ-QD1) . For a 2 m cable without QD remove the suffix “-QD” (e.g., 42GRP-92LO).

❷ Sensing range with 92-118 reflector (included with polarized retroreflective).

Cordsets and Accessories

Description	Cat. No.	Description	Cat. No.
1.8 m (6 ft) 5-pin mini QD cordset	889N-F5AF-6F	Reflector, 34 mm diameter with adhesive mounting	92-114
2 m (6.5 ft) 4-pin DC micro (M12) QD cordset	889D-F4AC-2	Reflector, 34 mm diameter with snap fit mounting	92-115
2 m (6.5 ft) 4-pin DC micro (M12) QD cordset (stainless steel coupling)	889DS-F4AC-2	Reflector, 34 mm diameter with threaded mounting	92-116
Series 9000 tilt/swivel bracket	60-2439	Reflector, 40.5 x 60 mm rectangular with mounting tabs	92-117
Series 9000 mounting kit	129-130	Reflector, 51 x 61 mm rectangular with mounting tabs	92-118