



DENKI SEIGYO

DSQ2-150DP / DSQ2-150DN



Miniature Laser Diffuse Photoelectric Sensor with Background Suppression

Category
Miniature Photoelectric Sensors
Manufacturer: Denki Seigyo

PRODUCT OVERVIEW

The **Denki Seigyo DSQ2 Series** is an ultra-compact **laser diffuse photoelectric sensor with background suppression (BGS)** designed for precision object detection in confined industrial spaces.

Utilizing a highly focused visible red laser emitter and advanced background suppression technology, the sensor reliably detects objects regardless of background color or reflectivity. Its compact housing allows installation where conventional photoelectric sensors cannot fit.

With a sensing distance of **up to 150 mm**, fast response, and IP67 protection, the DSQ2 Series is ideal for electronics assembly, packaging machines, semiconductor equipment, robotics, pharmaceutical production, and high-speed automation.

MODEL CODE STRUCTURE

Example

DSQ2-150DP

Code	Description
D	Denki Seigyo
SQ2	Miniature Square Photoelectric Sensor
150	150 mm Sensing Distance
D	DC Supply
P	PNP Output
N	NPN Output



MODEL SPECIFICATION

Model	Output	Operating Mode	Sensing Distance
DSQ2-150DP	PNP	Light ON / Dark ON (Selectable)	2–150 mm
DSQ2-150DN	NPN	Light ON / Dark ON (Selectable)	2–150 mm

KEY FEATURES

- Miniature housing (7.7 × 27.5 × 13.5 mm)
- Laser diffuse sensing with background suppression
- Maximum sensing distance up to 150 mm
- Visible red laser spot
- Stable detection of black, shiny, and colored objects
- PNP or NPN output
- Light ON / Dark ON selectable
- High-speed response (<0.6 ms)
- Fine sensitivity adjustment
- Reverse polarity protection
- Short-circuit protection
- Overcurrent protection
- IP67 protection
- Compact cable exit for easy installation

TECHNICAL SPECIFICATIONS

Optical Specifications

Parameter	Specification
Detection Method	Diffuse Reflection with Background Suppression
Light Source	Visible Red Laser
Wavelength	650 nm (Typical)
Sensing Distance	10–150 mm
Adjustable Distance	Yes
Light Spot	Approx. Ø3 mm @ 50 mm

Electrical Specifications

Parameter	Specification
Supply Voltage	10–30 VDC
No-load Current	≤20 mA
Output Type	PNP / NPN
Output Current	Max. 50 mA
Voltage Drop	≤2 V
Response Time	<0.6 ms
Switching Frequency	800 Hz
Operation Mode	Light ON / Dark ON Selectable



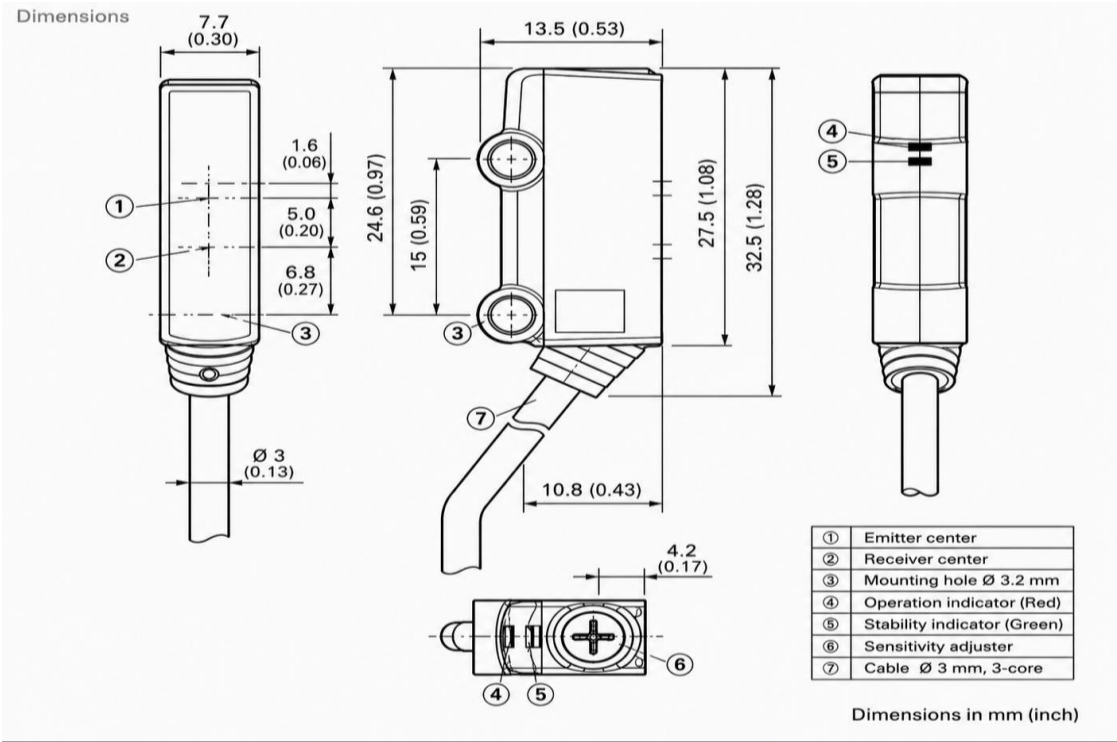
Mechanical Specifications

Parameter	Specification
Housing Material	ABS Engineering Plastic
Lens Material	PMMA
Dimensions	7.7 × 27.5 × 13.5 mm
Connection	2 m PVC Cable
Cable Diameter	Ø3 mm
Weight	Approx. 35 g

Environmental Specifications

Parameter	Specification
Protection Rating	IP67
Operating Temperature	-25°C to +50°C
Storage Temperature	-40°C to +75°C
Ambient Humidity	35–95% RH (Non-condensing)
EMC	IEC Industrial Standard

MECHANICAL DIMENSIONS

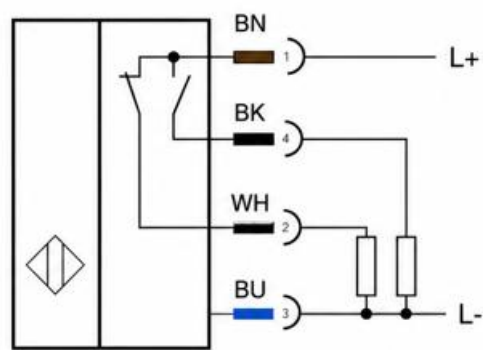




INDICATORS

LED	Function
Green	Power ON
Yellow	Output Status

WIRING DIAGRAM



- BN (1) Brown - L+
- BK (4) Black - Output
- WH (2) White - Output
- BU (3) Blue - L-

APPLICATIONS

- Electronics Assembly
- Semiconductor Manufacturing
- Pharmaceutical Packaging
- Food & Beverage Machinery
- Pick-and-Place Machines
- Robotics
- PCB Inspection
- Packaging Equipment
- High-Speed Conveyor Systems
- Small Parts Detection
- Automation Cells

11. PRODUCT SUMMARY

The **Denki Seigyo DSQ2-150DP / DSQ2-150DN** miniature laser photoelectric sensors combine **background suppression, precise laser detection**, and an **ultra-compact design** for reliable object detection in space-constrained industrial applications. With **10–30 VDC operation, PNP/NPN output options, fast 0.6 ms response, IP67 protection**, and a sensing distance of up to **150 mm**, the DSQ2 Series delivers high accuracy and dependable performance for modern factory automation.