



DENKI SEIGYO

DSPS-20M-TDP / DSPS-20M-TDN

THROUGH-BEAM PHOTOELECTRIC SENSOR



1. PRODUCT OVERVIEW

The **Denki Seigyo DSPS Series Through-Beam Photoelectric Sensors** are compact high-performance optical sensors designed for long-distance and reliable object detection in industrial automation systems.

The DSPS series uses a separate transmitter and receiver configuration to achieve stable detection over long sensing distances with high immunity to dust, ambient light, and target surface variations.

With a compact rectangular housing, visible red LED light source, and selectable Light ON / Dark ON operation, the DPS series is ideal for conveyors, packaging machinery, robotics, and material handling systems.

- ✓ Long sensing distance up to **20 meters**
- ✓ High-speed response and stable detection
- ✓ Compact industrial housing
- ✓ PNP / NPN output models available

2. KEY FEATURES

- Through-beam photoelectric sensing principle
- Long sensing range up to **20 m**
- Visible red LED light source
- PNP / NPN output options
- Light ON / Dark ON selectable
- High switching frequency
- Reverse polarity protection
- Short-circuit protection
- Compact ABS housing
- IP67 protection rating
- Potentiometer sensitivity adjustment



3. MODEL STRUCTURE

Example:

DSPS-20M-TDP

Code	Description
DS	Denki Seigyo
PS	Square Photo Sensor
20M	20 meter sensing distance
T	Through-beam type
D	DC type
P	PNP output
N	NPN output

4. AVAILABLE MODELS

Model	Output Type	Sensing Principle	Sensing Distance
DSPS-20M-TDP	PNP	Through-beam	20 m
DSPS-20M-TDN	NPN	Through-beam	20 m

5. TECHNICAL SPECIFICATIONS

General Specifications

Parameter	Specification
Functional Principle	Through-beam photoelectric sensor
Sensing Distance	0 – 20 m
Light Source	Red LED
Wavelength	650 nm
Adjustment	Potentiometer



Electrical Specifications

Parameter	Specification
Supply Voltage	10 – 30V DC
Ripple	±10%
Current Consumption	≤ 30 mA
Output Current	≤ 100 mA
Response Time	< 0.5 ms
Switching Frequency	1000 Hz
Protection	Reverse polarity / Overcurrent / Short circuit

Output Specifications

Model	Output
DSPS-20M-TDP	PNP
DSPS-20M-TDN	NPN

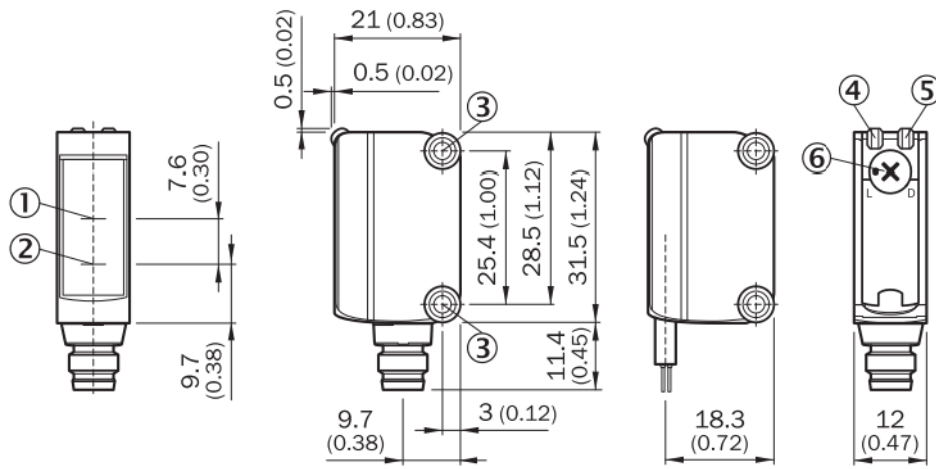
Switching Modes

- Light ON
- Dark ON

Mechanical Specifications

Parameter	Specification
Housing Type	Rectangular
Housing Material	ABS / PC
Front Cover	PMMA
Connection	3-wire cable, 2 m
Cable Material	PVC

Dimensions



Dimensions in mm (inch)

Environmental Specifications

Parameter	Specification
Protection Class	IP67
Operating Temperature	−25°C to +55°C
Storage Temperature	−40°C to +70°C
Humidity	35–85% RH

6. INDICATORS & ADJUSTMENT

Indicator	Function
Green LED	Power indicator
Yellow LED	Output status

Adjustment Functions

- Sensitivity adjustment potentiometer
- Light/Dark operation selector



7. CONNECTION DIAGRAM

Transmitter

Wire Colour	Function
Brown	+V
Blue	0V
Black	Not connected

Receiver (PNP)

Wire Colour	Function
Brown	+V
Blue	0V
Black	Output

Receiver (NPN)

Wire Colour	Function
Brown	+V
Blue	0V
Black	Output

8. CHARACTERISTIC FEATURES

Light Spot Size

Distance	Spot Size
0 m	Ø 7.5 mm
4 m	Ø 130 mm
8 m	Ø 250 mm
12 m	Ø 310 mm
20 m	Ø 480 mm



9. APPLICATIONS

The DPS series is suitable for:

- Conveyor systems
- Packaging machinery
- Industrial automation
- Material handling systems
- Robotics
- Object counting and positioning
- Production line detection

10. ACCESSORIES

Accessory	Description
Mounting Bracket	Stainless steel mounting bracket
Sensor Cable	3-wire cable
Mounting Hardware	Included

11. ORDERING INFORMATION

Model	Output	Distance	Connection
DSPS-20M-TDP	PNP	20 m	Cable
DSPS-20M-TDN	NPN	20 m	Cable