

PHOTOSWITCH 45DMS Distance Measurement Sensor



A Compact, Flexible and Cost-Effective Measurement Solution

Features and Benefits

- Embedded IO-Link communication protocol helps minimize downtime and increase productivity
- Eye Safe Class 1 laser helps alignment and installation
- Sensing ranges:
 - 60 mm to 5 m (2.36 in. to 16.40 ft) 90% white target
 - 50 mm to 3 m (1.97 in. to 9.84 ft) 6% black target
- Accurate to:
 - ± 30 mm (± 1.18 in.) Linearity
 - ± 1 mm (± 0.039 in.) Resolution
- 3-in-1 Sensing mode can be easily interchanged in a single unit for distance measurements, background suppression and background reflection
- IP67 and IP69k rated enclosures

What is IO-Link?

IO-Link is a worldwide open-standard peer-to-peer serial communication protocol (IEC 61131-9) that allows sensors to easily integrate into The Connected Enterprise.

Benefits of IO-Link technology include:

- Reduced inventory and operating costs
- Increased uptime/productivity
- Simplified design, installation, setup and maintenance
- Enhanced flexibility and scalability

IO-Link enabled sensors offer advanced features and diagnostics that can only be accessed through an IO-Link master.

- Real-time diagnostics and sensor health
- Automatic Device Configuration (ADC)
- Multiple profiles and trending
- Descriptive tags
- Device specific parameters



Smart Photoelectric Sensor

Rockwell Automation announces the new Allen-Bradley® PHOTOSWITCH® 45DMS Distance Measurement Sensor which includes embedded IO-Link functionality. IO-Link allows sensors to easily integrate into The Connected Enterprise, delivering data from the sensor directly into a control system in a very cost-efficient and easy-to-use manner via an IO-Link Master and EtherNet/IP™.

The PHOTOSWITCH distance measurement photoelectric sensor features a 3-in-1 sensing mode which can be easily interchanged.

Distance Measurement provides precise distance location data in a user friendly way without having to use conversions.

Background Suppression accurately detects a target within a specified range and has the ability to ignore objects around and beyond that specified range.

Background Reflection (also known as Foreground Suppression) enables operators to use the surface of a background (for example, a conveyor) as a reflector. The detection of a target occurs once an object blocks the visual path between the sensor and the background.

The compact housing is ideal for measurement applications in space-limited environments, such as food and beverage, material handling and packaging plants.

This smart sensor is capable of internally processing measurement information which minimizes the potential for error of noise and ground loops. This provides you with robust and highly reliable measurements.

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45DMS IO-Link Benefits

- Ability to change from Background Suppression to Background Reflection sensing modes
- Averaging filter function stabilizes the signal to provide a more constant measurement
- Measured distance in mm eliminates the need to convert data
- Signal strength indicates the reflectivity level of the target that is being measured
- Ability to change the 4-20 mA to 0-10V DC on the analog output models

45DMS Selection

Sensing Mode	Light Source	Sensing Distance	Sensitivity Adjustment	Output Type	Catalog Number
Background Suppression	Class 1 Laser	0.06...5 m (90% white) 0.06...3 m (6% black)	One Push Button	Auto PNP or NPN	45DMS-B8LAT1-D4
Background Reflection		0.1...5 m (90% white) 0.1...3 m (6% black)	Two Push Buttons	Auto PNP or NPN and 4-20 mA	45DMS-B8LGT1-D5

45DMS Specifications

Specifications	
Certifications	c-UL-us and CE marked for all applicable directives
Optical	
Sensing range	45DMS-B8LGT1-D5 – 60 mm...5 m (2.36 in. to 16.40 ft) 45DMS-B8LAT1-D4 – 50 mm...3 m (1.97 in. to 9.84 ft)
Resolution	Analog: Less than 5 mm (0.2 in.); IO-Link: 1.2 mm (0.05 in.)
Linearity	+/- 30 mm (1.18 in.)
Repeatability	1.2 mm (0.05 in.)
Hysteresis	20 mm (0.79 in.)
Laser type (IEC 60825-1)	Class 1 Eye Safe Laser
Electrical	
Voltage	18...30V DC
Response time	2 ms for both Q and QA
Output type	Auto PNP or NPN on power-up
Load current	100 mA max
IO-Link	
Cycle time	2.7 ms, min
Process data bit length	24 bits (3 bytes)
Specifications	1.1
Environmental	
Enclosure type rating	IP67 and IP69K rated enclosure
Operating temperature	-40...+ 60 °C (-40...+140 °F)
Connection type	270° rotatable integral M12 QD

Accessories

Description	Catalog Number
L-shaped stainless steel mounting bracket	60-BDMS-LS
Bracket for Ø 12 mm mounting rod and 10x10 mm square profile	60-BDMS-RS
Protective stainless steel mounting bracket	60-BDMS-US
Stainless steel precision mounting bracket	60-BDMS-PS
2 m 4-pin M12 QD cordset	889D-F4AC-2
2 m 5-pin M12 QD cordset	889D-F5AC-2

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