

DS18[†] Series

Miniature self-contained photoelectric sensors in a universal housing

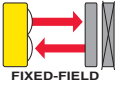
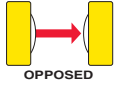
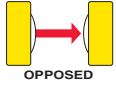




Features

- Multiple mounting options accommodate almost any mounting requirements
- Exceptional optical performance, comparable to larger "MINI-style" or barrel sensors
- Patented wide-beam retroreflective models for enhanced ease of alignment
- 10 to 30V dc operation, with solid-state complementary NPN or PNP outputs, light operate or dark operate, depending on model
- Bright output LED indicates object is within the sensor's field of view
- Rugged sealed housing with protected circuitry, rated IP67/NEMA 6
- All models feature 18 mm threaded barrel and base for easy, versatile mounting
- Choose 2 m (6.5') or 9 m (30') cable, or 4-pin Euro-style or Pico-style integral QD fitting or 150 mm (6") pigtail QD

[†] U.S. Patent(s) issued or pending

Models

	Sensing Mode	Models*	Range	Output		Sensing Mode	Models*	Range	Output
Opposed	940 nm Infrared	DS186E	20 m (66')	N/A	Fixed-Field 	660 nm Visible Red	DS18VN6FF50	50 mm (2")	NPN
	Effective Beam: 13 mm (0.5")	DS18VN6R		NPN			DS18VP6FF50		PNP
		DS18VP6R		PNP			DS18VN6FF100	100 mm (4")	NPN
Polarized Retro	660 nm Visible Red	DS18VN6LP	3.5 m (12')	NPN			DS18VP6FF100		PNP
		DS18VP6LP		PNP					
Wide-Angle Polarized	660 nm Visible Red	DS18VN6LPW	3.0 m (10')	NPN					
		DS18VP6LPW		PNP					

* Only standard 2 m (6.5') cable models are listed. For 9 m (30') cable, add suffix "W/30" to the model number (e.g., **DS186E W/30**).

QD models:

- For 4-pin integral Euro-style QD, add suffix "Q8" (e.g., **DS186EQ8**).
- For 4-pin integral Pico-style QD, add suffix "Q7" (e.g., **DS186EQ7**).
- For 4-pin Euro-style 150 mm (6") pigtail QD, add suffix "Q5" (e.g., **DS186EQ5**).
- For 4-pin Pico-style 150 mm (6") pigtail QD, add suffix "Q" (e.g., **DS186EQ**).



WARNING . . . Not To Be Used for Personnel Protection



Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.



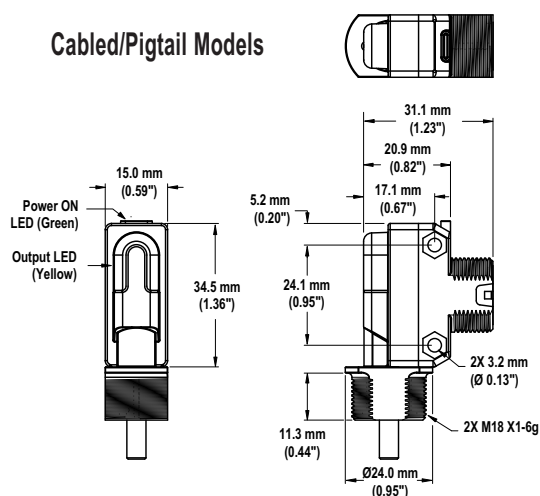
DS18 Series

Specifications

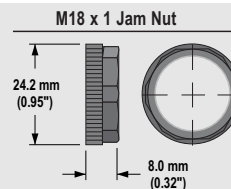
Supply Voltage	10 to 30V dc (10% maximum ripple) at less than 20 mA, exclusive of load Protected against reverse polarity and transient voltages
Output Configuration	Solid-state complementary; NPN or PNP (current sinking or sourcing), depending on model Rating: 100 mA combined load from -20° to +60° C Linearly derate combined load from 100 to 50 mA at temperatures from +60° to 70° C Off-state leakage current: NPN: less than 200 μ A @ 30V dc (See Application Note 1) PNP: less than 10 μ A @ 30V dc ON-state saturation voltage: NPN: < 1.6V @ 100 mA PNP: < 3V @ 100 mA Protected against false pulse on power-up and continuous overload or short circuit of outputs
Output Response Time	Opposed Mode: 800 microseconds ON; 400 microseconds OFF All others: 2 milliseconds ON/OFF NOTE: 100 millisecond delay on power-up; outputs do not conduct during this time
Repeatability	Opposed Mode: 100 microseconds All others: 350 microseconds
Indicators	2 LED indicators (see dimensions below) Green steady: Power ON Yellow (back cover) ON: Black wire (pin 4) is conducting; an object is within sensor's field of view
Construction	ABS housing, 3 mm mounting hardware included
Environmental Ratings	Rated IEC IP67; NEMA 6; UL Type 1
Connections	Depending on model: 2 m (6.5') 4-wire PVC cable 4-pin Pico-style integral QD 4-pin Pico-style Pigtail QD 9 m (30') 4-wire PVC cable 4-pin Euro-style integral QD 4-pin Euro-style Pigtail QD
Operating Conditions	Temperature: -20° to +70° C (-4° to +158° F) Relative Humidity: 90% @ 50° C (non-condensing)
Application Notes	1. NPN off-state leakage current is < 200 μ A for load resistances > 3 k Ω or optically isolated loads. For load current of 100 mA, leakage is < 1% of load current.
Certifications	  (UL listing applies to "Q8" models only) LISTED 3TJJ

Dimensions

Cabled/Pigtail Models

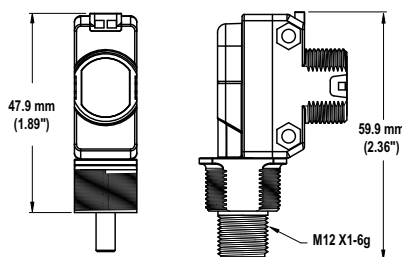


Packing List:
Sensor
1 – M18 x 1 jam nut
M3 Hardware Packet

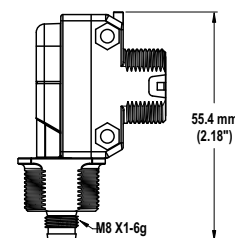


M3 Hardware Packet Contents:
2 – M3 x 0.5 x 20 mm SS Screw
2 – M3 x 0.5 SS-Hex Nut
2 – M3 SS Washer

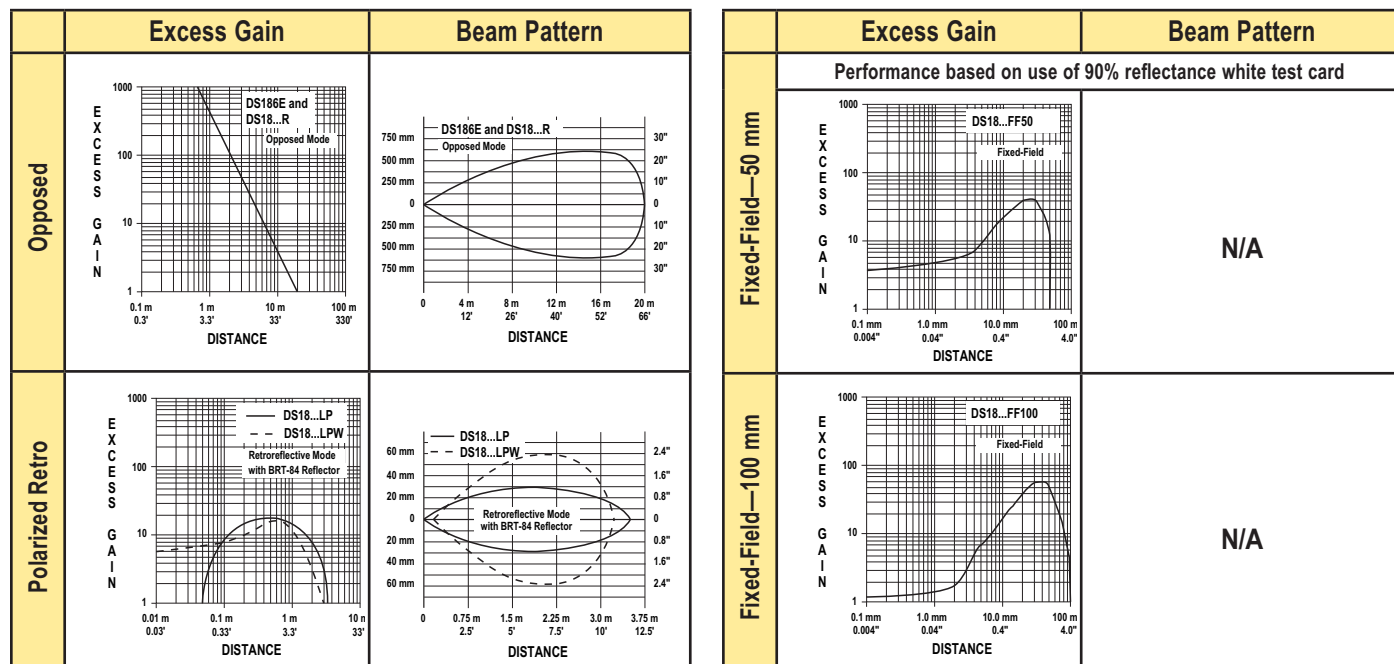
Euro-Style
Integral QD Models



Pico-Style
Integral QD Models



Performance Curves



Hookups

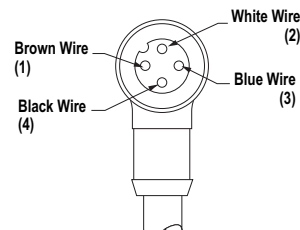
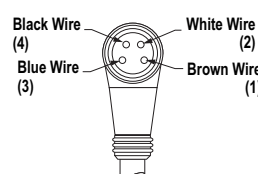
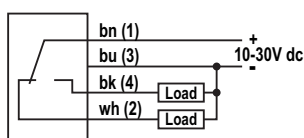
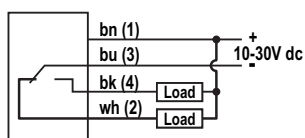
NPN (Sinking) Outputs

PNP (Sourcing) Outputs

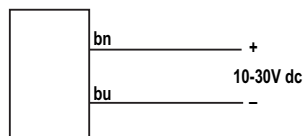
4-Pin Pico-Style Pinout (Cable Connector Shown)

4-Pin Euro-Style Pinout (Cable Connector Shown)

State of sensor outputs when no object is present



Emitters

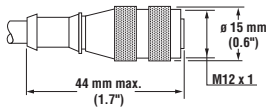
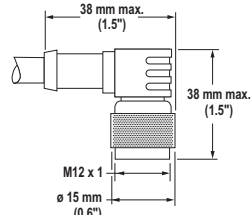
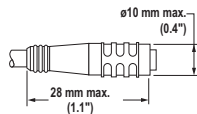
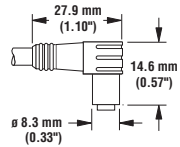


Overcurrent Protection

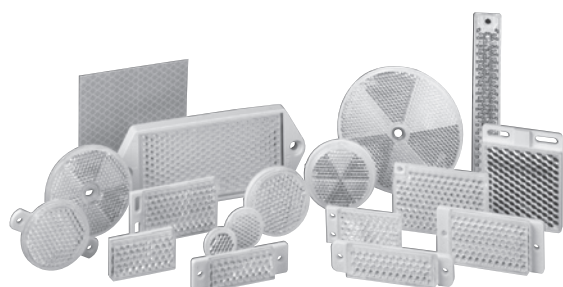
Conductor Size		Maximum ampere rating of the overcurrent protection
AWG	mm ²	
20	0.52	5
22	0.32	3
24	0.20	2
26	0.13	1
28	0.08	0.8
30	0.05	0.5

DS18 Series

Quick-Disconnect Cables

Style	Model	Length	Dimensions
4-pin Euro-style Straight	MQDC-406 MQDC-415 MQDC-430	2 m (6.5') 5 m (15') 9 m (30')	
4-pin Euro-style Right-angle	MQDC-406RA MQDC-415RA MQDC-430RA	2 m (6.5') 5 m (15') 9 m (30')	
4-pin Pico-style Straight	PKG4-2	2 m (6.5')	
4-pin Pico-style Right-angle	PKW4-2		

Retroreflective Targets



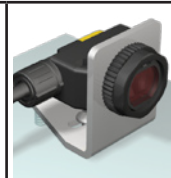
See the Accessories section of your current Banner Sensors catalog for complete information.

NOTE: Polarized sensors require corner cube type retroreflective targets only.

Mounting Bracket

SMB18A

- 12-gauge, stainless steel
- Right-angle mounting bracket



Refer to your current Banner Sensors catalog for more 18 mm barrel mounting bracket options.



WARRANTY: Banner Engineering Corp. warrants its products to be free from defects for one year. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.