



TM18

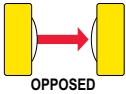
Heavy-Duty Metal Barrel Sensors

Robust die-cast metal sensors provide reliable sensing without adjustments in high-pressure washdown environments. The TM18 easily fits in tight places for added sensor protection.

- Extremely bright LED red sensing beam for easy alignment
- Quick-disconnect models available
- Fixed-field models have enhanced immunity to fluorescent lights
- Polarized/fixed-field models have crosstalk avoidance so two sensors can be in close proximity
- Cordsets and brackets see page 172


Opposed TM18, 10-30 V DC

➔ Visible Red LED


Sensing Mode	Range	Connection	Output Type	Models NPN	Models PNP
	20 m	2 m	—	TM186E Emitter	
		4-pin Euro QD	—	TM186EQ8 Emitter	
		2 m	LO	TM18AN6R	TM18AP6R
		4-pin Euro QD	LO	TM18AN6RQ8	TM18AP6RQ8
		2 m	DO	TM18RN6R	TM18RP6R
		4-pin Euro QD	DO	TM18RN6RQ8	TM18RP6RQ8
	2 m	LO/DO	TM18VN6R	TM18VP6R	
	4-pin Euro QD	LO/DO	TM18VN6RQ8	TM18VP6RQ8	

Polar Retro TM18, 10-30 V DC

➔ Visible Red LED

Sensing Mode	Range	Connection	Output Type	Models NPN	Models PNP
	5.5 m [†]	2 m	LO	TM18AN6LP	TM18AP6LP
		4-pin Euro QD	LO	TM18AN6LPQ8	TM18AP6LPQ8
		2 m	DO	TM18RN6LP	TM18RP6LP
		4-pin Euro QD	DO	TM18RN6LPQ8	TM18RP6LPQ8
		2 m	LO/DO	TM18VN6LP	TM18VP6LP
		4-pin Euro QD	LO/DO	TM18VN6LPQ8	TM18VP6LPQ8

For more specifications see page 173.

 **Connection options:** A model with a QD requires a mating cordset (see page 172).

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **TM186E W/30**).

QD models: For a 4-pin 150 mm Euro-style pigtail QD, add suffix **Q5** to the 2 m model number (example, **TM186EQ5**).

Diffuse TM18, 10-30 V DC

Visible Red LED

Sensing Mode	Range	Connection	Output Type	Models NPN	Models PNP
 DIFFUSE	500 mm	2 m	LO	TM18AN6DV	TM18AP6DV
		4-pin Euro QD		TM18AN6DVQ8	TM18AP6DVQ8
		2 m	DO	TM18RN6DV	TM18RP6DV
		4-pin Euro QD		TM18RN6DVQ8	TM18RP6DVQ8
		2 m	LO/DO	TM18VN6DV	TM18VP6DV
		4-pin Euro QD		TM18VN6DVQ8	TM18VP6DVQ8

Fixed-Field TM18, 10-30 V DC

Visible Red LED
 Infrared LED

Sensing Mode	Range	Connection	Output Type	Models NPN	Models PNP
 FIXED-FIELD	25 mm	2 m	LO	TM18AN6FF25NEW	TM18AP6FF25
		4-pin Euro QD		TM18AN6FF25Q8	TM18AP6FF25Q8
		2 m	LO/DO	TM18VN6FF25	TM18VP6FF25
		4-pin Euro QD		TM18VN6FF25Q8	TM18VP6FF25Q8
	50 mm	2 m	LO	TM18AN6FF50	TM18AP6FF50
		4-pin Euro QD		TM18AN6FF50Q8	TM18AP6FF50Q8
		2 m	LO/DO	TM18VN6FF50	TM18VP6FF50
		4-pin Euro QD		TM18VN6FF50Q8	TM18VP6FF50Q8
	100 mm	2 m	LO	TM18AN6FF100	TM18AP6FF100
		4-pin Euro QD		TM18AN6FF100Q8	TM18AP6FF100Q8
		2 m	LO/DO	TM18VN6FF100	TM18VP6FF100
		4-pin Euro QD		TM18VN6FF100Q8	TM18VP6FF100Q8
25 mm	2 m	LO	TM18AN6FF25IR	TM18AP6FF25IR	
	4-pin Euro QD		TM18AN6FF25IRQ8	TM18AP6FF25IRQ8	
	2 m	LO/DO	TM18VN6FF25IR	TM18VP6FF25IR	
	4-pin Euro QD		TM18VN6FF25IRQ8	TM18VP6FF25IRQ8	
50 mm	2 m	LO	TM18AN6FF50IR	TM18AP6FF50IR	
	4-pin Euro QD		TM18AN6FF50IRQ8	TM18AP6FF50IRQ8	
	2 m	LO/DO	TM18VN6FF50IR	TM18VP6FF50IR	
	4-pin Euro QD		TM18VN6FF50IRQ8	TM18VP6FF50IRQ8	
100 mm	2 m	LO	TM18AN6FF100IR	TM18AP6FF100IR	
	4-pin Euro QD		TM18AN6FF100IRQ8	TM18AP6FF100IRQ8	
	2 m	LO/DO	TM18VN6FF100IR	TM18VP6FF100IR	
	4-pin Euro QD		TM18VN6FF100IRQ8	TM18VP6FF100IRQ8	







For more specifications see page 173.


Connection options: A model with a QD requires a mating cordset (see page 172).
For 9 m cable, add suffix **W/30** to the 2 m model number (example, **TM18AP6FF25 W/30**).**QD models:** For a 4-pin 150 mm Euro-style pigtail QD, add suffix **Q5** to the 2 m model number (example, **TM18AP6FF25Q5**).

Cordsets

Euro QD (for Q models)

See page 906

Length	Threaded 4-Pin	
	Straight	Right-Angle
1.83 m	 MQDC-406	 MQDC-406RA
4.57 m	 MQDC-415	 MQDC-415RA
9.14 m	 MQDC-430	 MQDC-430RA

 Additional cordset information available. See page 902.

Brackets


T18

See page 867

See page 859

See page 864

SMBT18Y	SMB18A	SMBAMS18P
		

 Additional brackets and information available. See page 846.

Other Accessories

Reflectors

Apertures



See page 940

See page 966



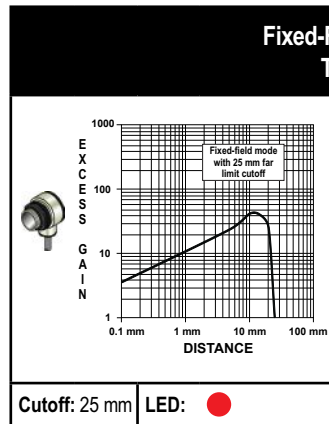
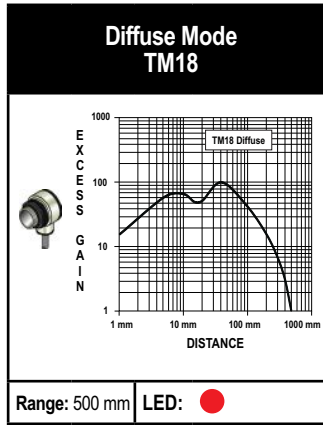
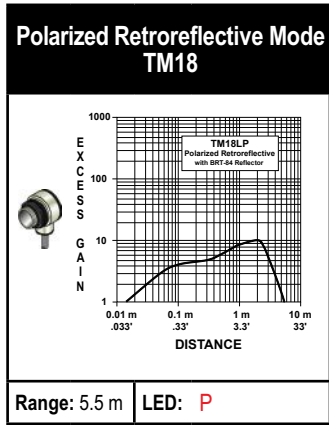
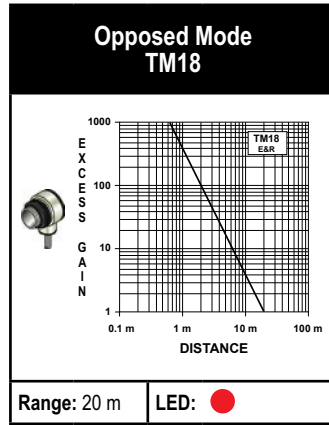
Opposed, Polar Retroreflective,
Diffuse and Fixed-Field Models
Suffix E, R, LP, DV and FF

TM18 Specifications

Supply Voltage and Current	10 to 30 V dc (10% max. ripple within specified limits); supply current (exclusive of load current): Opposed Emitters: 25 mA Opposed Receivers: 20 mA Polarized Retroreflector: 20 mA Diffuse and Fixed-Field: 35 mA
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid-state dc switch; NPN (current sinking) or PNP (current sourcing), depending on model Light Operate: Output conducts when sensor sees its own (or the emitter's) modulated light Dark Operate: Output conducts when sensor does not see its own (or the emitter's) modulated light
Output Rating	150 mA max. each output at 25° C, derated to 100 mA at 70° C (derate about 1 mA per °C) OFF-state leakage current: less than 1 µA @ 30 V dc ON-state saturation voltage: less than 1 V @ 10 mA dc; less than 1.5 V @ 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs
Output Response Time	Opposed: 1.5 milliseconds ON, 0.75 milliseconds OFF Polarized Retroreflective: 1 milliseconds ON/OFF Diffuse and Fixed-Field: 3 milliseconds ON, 1.5 milliseconds OFF
Delay at Power-up	100 milliseconds Outputs do not conduct during this time
Repeatability	Opposed: 190 microseconds Polarized Retroreflective: 585 microseconds Diffuse and Fixed-Field: 185 microseconds
Adjustments	Diffuse models only: single turn rear panel sensitivity control
Indicators	4-wire Two LEDs: Solid Green: Power ON Solid Yellow: Output energized Flashing Green: output overloaded Flashing Yellow: marginal excess gain 3-wire Two LEDs: Solid Green: Power ON Solid Yellow: Output energized
Construction	Housing: Zinc die-cast with nickel plating Lens: PC or PMMA Black Cover: PBT polyester housing; polycarbonate (opposed mode) or acrylic lens
Environmental Rating	Leakproof design rated NEMA 6; IP67, IP69K QD models and cable models when PVC jacket is protected
Connections	2 m or 9 m attached cable, or 4-pin Euro-style integral or pigtail QD, depending on model. QD cordsets are ordered separately. See page 172.
Operating Conditions	Temperature: -40° to +70° C Relative humidity: 90% @ 50° C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max., double amplitude 0.06" acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	  LISTED (class 2 supply required)

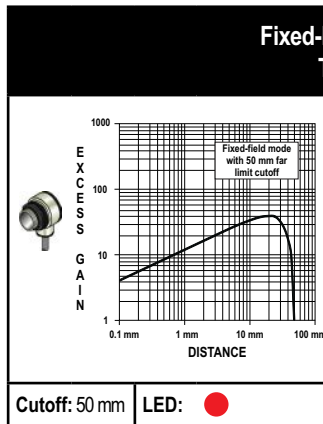
Excess Gain Curves

● = Visible Red LED P = Visible Red LED Polarized



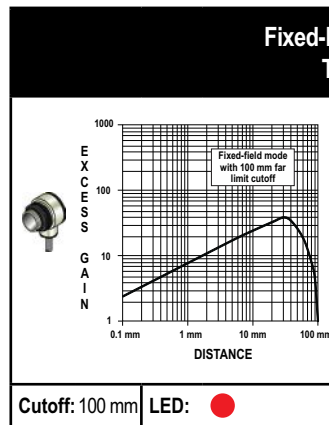
Ø 10 mm spot size @ 10 mm focus
 Ø 10 mm spot size @ 25 mm cutoff

† Using 18% gray test card: Cutoff distance will be 95% of value shown.
 † Using 6% black test card: Cutoff distance will be 90% of value shown.



Ø 10 mm spot size @ 25 mm focus
 Ø 10 mm spot size @ 50 mm cutoff

† Using 18% gray test card: Cutoff distance will be 90% of value shown.
 † Using 6% black test card: Cutoff distance will be 85% of value shown.



Ø 10 mm spot size @ 50 mm focus
 Ø 10 mm spot size @ 100 mm cutoff

† Using 18% gray test card: Cutoff distance will be 85% of value shown.
 † Using 6% black test card: Cutoff distance will be 75% of value shown.

Beam Patterns

● = Visible Red LED P = Visible Red LED Polarized

