# TM18 Series Sensors Product Manual

Original Instructions
p/n: 155853 Rev G
31-Jul-26
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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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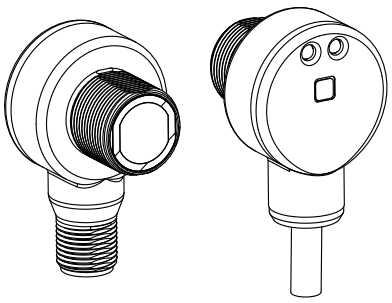
# Chapter 1 Features



- Heavy duty metal housing with 18 mm threaded barrel mount and integral metal QD prevents sensor damage during machine assembly, transport, maintenance, and operation
- Right angle T-mounting fits in tight places, prevents sensor damage, and avoids personnel catch points
- Models with dedicated 3-wire output NPN or PNP for OEM machine builders — designed to work with I/O block splitters for reduced wiring costs
- Models with 4-wire complementary NPN or PNP outputs available
- Featuring EZ-BEAM technology provides reliable sensing without adjustments
- Visible red LED models available in opposed, polarized retroreflective, diffuse, and fixed-field (background suppression) modes
- Infrared models available in fixed-field (background suppression) mode
- Completely epoxy encapsulated electronics to provide superior durability, especially in harsh sensing environments
- Sensors rated IP69K for resistance to intermittent high pressure wash-down
- Innovative dual indicator systems takes the guess work out of sensor performance monitoring
- Enhanced immunity to fluorescent lights on fixed field and diffuse sensors
- Cross talk avoidance allows two sensors to be used in close proximity on polarized retro, diffuse, and fixed field sensors

**WARNING:**

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

# Models

*Opposed mode sensors*

| Model Number | Range | Emitter/Receiver | Output | Connection |
|---|---|---|---|---|
| TM186E | 20 m | Emitter | None | 2 m (6.5 ft) cable |
| TM186EQ5 | | | | 150 mm cable with a 4-pin M12 male quick disconnect (QD) |
| TM186EQ8 | | | | 4-pin M12 male QD |
| TM18AP6R | | Receiver | PNP, LO 3-wire | 2 m (6.5 ft) cable |
| TM18AP6RQ8 | | | PNP, LO 3-wire | 4-pin M12 male QD |
| TM18RP6RQ5 | | | PNP, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18RP6RQ8 | | | PNP, DO 3-wire | 4-pin M12 male QD |
| TM18VP6R | | | PNP, LO/DO 4-wire | 2 m (6.5 ft) cable |
| TM18VP6RQ5 | | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6RQ8 | | | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18RN6RQ8 | | | NPN, DO 3-wire | 4-pin M12 male QD |
| TM18VN6RQ8 | | | NPN, LO/DO 4-wire | 4-pin M12 male QD |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*Polarized retroreflective mode sensors*

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6LPQ8 | 5.5 m [1] | PNP, LO 3-wire | 4-pin M12 male QD |
| TM18RP6LPQ5 | | PNP, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18RP6LPQ8 | | PNP, DO 3-wire | 4-pin M12 male QD |
| TM18VP6LP | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6LPQ5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6LPQ8 | | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18VN6LPQ8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |

*Fixed-field background suppression mode sensors*

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6FF25Q8 | 25 mm | PNP, LO 3-wire | 4-pin M12 male QD |
| TM18VP6FF25Q8 | | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AN6FF25 | | NPN, LO 3-wire | 2 m cable |
| TM18AP6FF50Q5 | 50 mm | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF50Q8 | | | 4-pin M12 male QD |
| TM18VP6FF50Q8 | | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18VN6FF50Q8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AP6FF100Q5 | 100 mm | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF100Q8 | | | 4-pin M12 male QD |
| TM18VP6FF100Q5 | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6FF100Q8 | | | 4-pin M12 male QD |
| TM18AN6FF100 | | NPN, LO 3-wire | 2 m cable |
| TM18AN6FF100Q5 | | | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6FF100Q8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AN6FF25IR | 25 mm | NPN, LO 3-wire | 2 m cable |
| TM18VP6FF50IRQ8 | 50 mm | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AP6FF100IRQ5 | 100 mm | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF100IRQ8 | | | 4-pin M12 male QD |
| TM18VP6FF100IRQ5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6FF100IRQ8 | | | 4-pin M12 male QD |
| TM18VN6FF100IRQ8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |

*Diffuse (visible red) mode sensors*

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6DV | 500 mm | PNP, LO 3-wire | 2 m cable |
| TM18AP6DVQ5 | | | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6DVQ8 | | | 4-pin M12 male QD |
| TM18VP6DVQ5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6DVQ8 | | | 4-pin M12 male QD |
| TM18AN6DVQ5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |

Continued on page 5

[1] Range specified with BRT-84 reflector.


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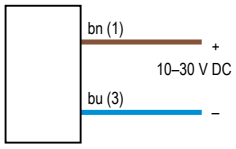
Continued from page 4

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18RN6DVQ5 | | NPN, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18RN6DVQ8 | | | 4-pin M12 male QD |
| TM18VN6DV | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6DVQ5 | | | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6DVQ8 | | | 4-pin M12 male QD |

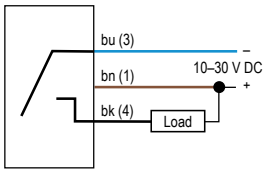
For a list of discontinued models, see "TM18 Discontinued Models" on page 11.

# Wiring

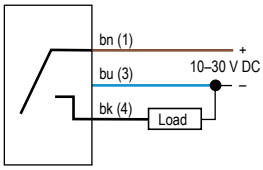
*Cabled emitters*




*NPN LO 3-Wire*




*PNP LO 3-Wire*

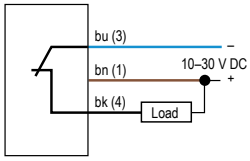



**Wiring Key**

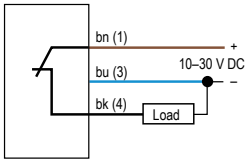
1 = Brown
2 = White
3 = Blue
4 = Black

QD and cabled emitter wiring functionality is identical; black and white wires have no connection when not shown.

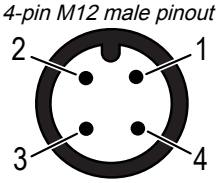
*NPN DO 3-Wire*



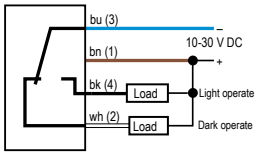

*PNP DO 3-Wire*



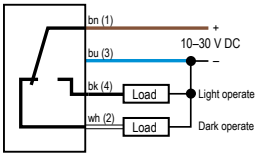

*4-pin M12 male pinout*




*NPN LO/DO 4-Wire*




*PNP LO/DO 4-Wire*




In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In **opposed and retroreflective sensing modes**, light operate is active when the beam is unblocked. In **diffuse, fixed field, and adjustable field sensor modes**, light operate is active when the target is present.

In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/taught target. In **opposed and retroreflective sensing modes**, dark operate is active when the beam is blocked. In **diffuse, fixed field, and adjustable field sensor modes**, dark operate is active when the target is absent.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# Chapter 2 Specifications

**Supply Voltage and Current - Class 2**

10 V DC to 30 V DC (10% max. ripple within specified limits); supply current (exclusive of load current):

**Emitters:** 25 mA

**Receivers:** 20 mA

**Polarized Retroreflective:** 20 mA

**Diffuse and Fixed-Field:** 35 mA

**Supply Protection Circuitry**

Protected against reverse polarity and transient voltages

**Output Configuration**

NPN or PNP, depending on model

**Light Operate:** Output conducts when sensor receives its own (or the emitter's) modulated light

**Dark Operate:** Output conducts when sensor does not receive it own (or the emitter fts) modulated light

**Effective Beam**

13 mm for opposed mode sensors

**Adjustments**

**Diffuse models only:** single turn rear panel sensitivity control

**LED**

Opposed (emitter) mode models: Visible red 625 nm

Polarized retroreflective (LP) mode models: Visible red 624 nm

Fixed-field background suppression (FFxxx) mode models: Visible red 660 nm

Fixed-field background suppression (FFxxxIR) mode models: Infrared, 880 nm

Diffuse (DV) mode models: Visible red 660 nm

**Connections**

2 m (6.5 ft) integral PVC-jacketed cable or 9 m (30 ft) integral PVC cable

Integral 4-pin M12 male quick-disconnect connector

150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector

**Construction**

**Housing:** Zinc die cast with nickel plating

**Lens:** PMMA or PC (opposed mode only)

**Black Cover:** PBT polyester housing

**Required Overcurrent Protection**

**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

**Output Protection Circuitry**

Protected against output short-circuit, continuous overload, and false pulse on power-up

**Output Rating**

150 mA maximum each output at 25 °C, derated to 100 mA at 70 °C (derate about 1 mA per °C)

**OFF-state leakage current:** < 1 microamp at 30 V DC

**ON-state saturation voltage:** < 1 V at 10 mA DC; < 1.5 V at 150 mA DC

**Output Response Time (TM18)**

**Opposed mode:** 1.5 ms ON, 0.75 ms OFF

**Retro:** 3 ms ON and OFF

**Diffuse and Fixed Field:** 3 ms ON, 1.5 ms OFF

**Note:** 100 ms delay on power-up; outputs do not conduct during this time.

**Repeatability (TM18)**

**Opposed mode:** 190 µs

**Retro:** 585 µs

**Diffuse and Fixed Field:** 185 µs

**Operating Conditions**

–40 °C to +70 °C (–40 °F to +158 °F)

90% at +50 °C maximum relative humidity (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 in acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)

**Environmental Rating**

IP67; quick disconnect models are IP69K per ISO 20653 when mated with a wash-down rated (IP69K per ISO 20653) cordset

**Certifications**

c UL us LISTED

Class 2 supply Required

CE

| Supply Wiring (AWG) | Required Overcurrent Protection (A) | Supply Wiring (AWG) | Required Overcurrent Protection (A) |
|---|---|---|---|
| 20 | 5.0 | 26 | 1.0 |
| 22 | 3.0 | 28 | 0.8 |
| 24 | 2.0 | 30 | 0.5 |


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**Indicators**

Two LEDs (green and amber)

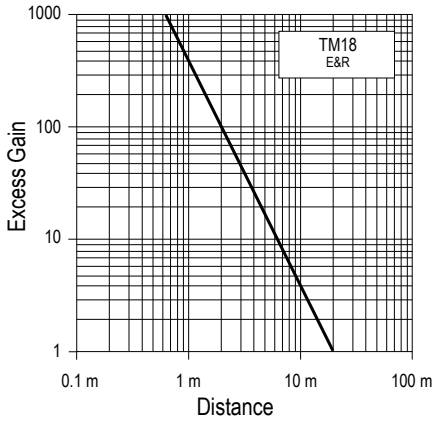
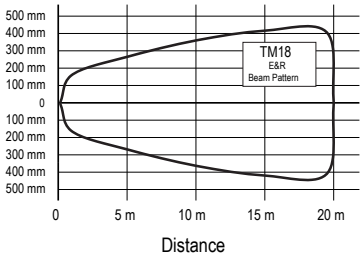
| Complementary (4-Wire) Models | |
|---|---|
| **Indicator** | **Description** |
| Green ON | Power ON |
| Green Flashing* | Output is overloaded |
| Amber ON | N.O. Output is conducting |
| Amber Flashing* | Marginal excess gain (1 to 1.5x) |

* Not valid for Diffuse or Fixed Field Models.

| Single Output (3-Wire) Models | |
|---|---|
| **Indicator** | **Description** |
| Green ON | Power ON |
| Green Flashing | N.A. |
| Amber ON | Output is conducting |
| Amber Flashing | N.A. |

# Performance Curves

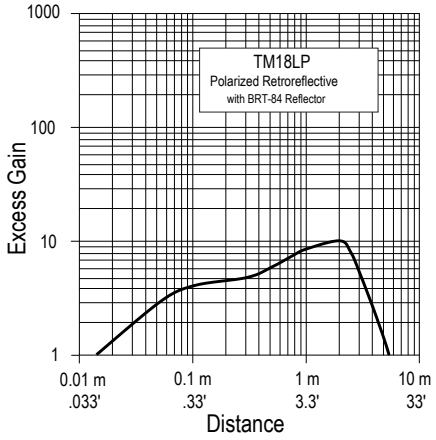
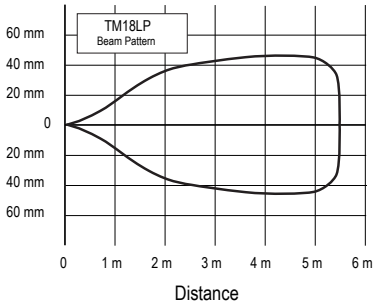
*Opposed mode sensors*

| Excess Gain | Beam Pattern |
|---|---|
|  |  |





*Polarized retroreflective mode sensors*

| Excess Gain | Beam Pattern |
|---|---|
|  |  |



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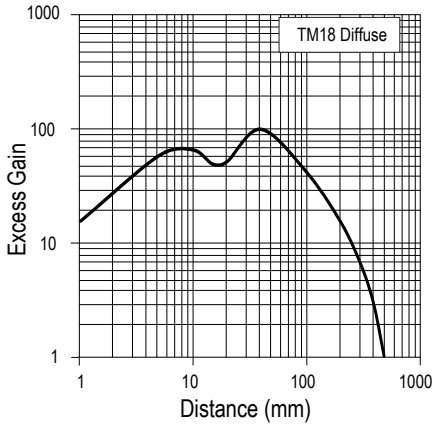
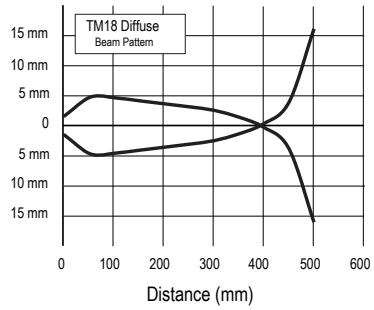
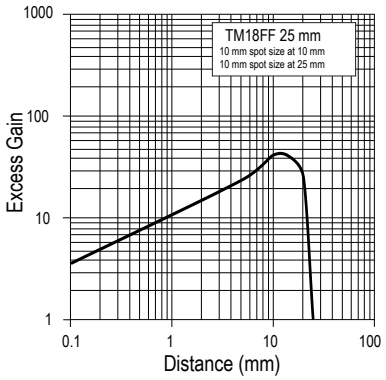
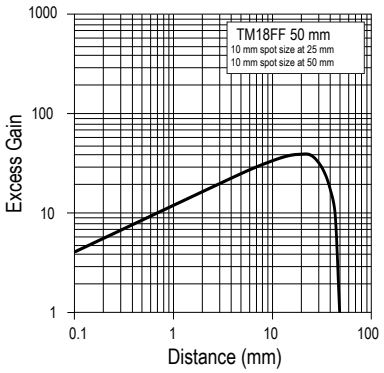
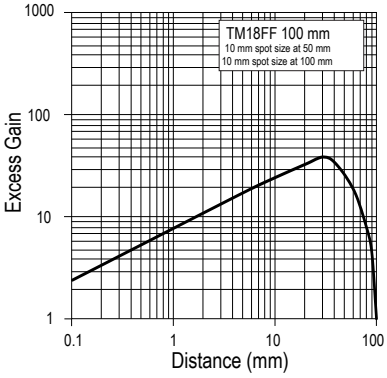
*Diffuse mode sensors*

| Excess Gain | Beam Pattern |
|---|---|
|  |  |





*Fixed-field mode sensors (visible red and infrared)*

| Excess Gain | | |
|---|---|---|
| **25 mm** | **50 mm** | **100 mm** |
|  |  |  |
| • **Using 18% gray test card:** Cutoff distance will be 95% of the value shown.<br>• **Using 6% black test card:** Cutoff distance will be 90% of the value shown. | • **Using 18% gray test card:** Cutoff distance will be 90% of the value shown.<br>• **Using 6% black test card:** Cutoff distance will be 85% of the value shown. | • **Using 18% gray test card:** Cutoff distance will be 85% of the value shown.<br>• **Using 6% black test card:** Cutoff distance will be 75% of the value shown. |





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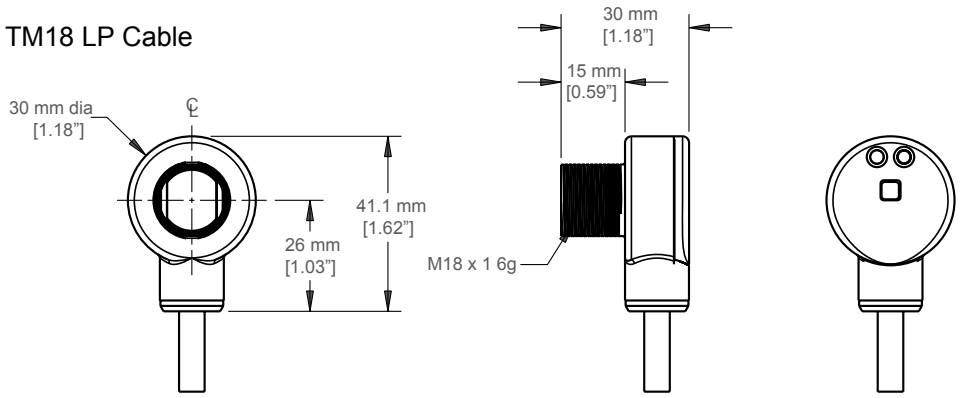
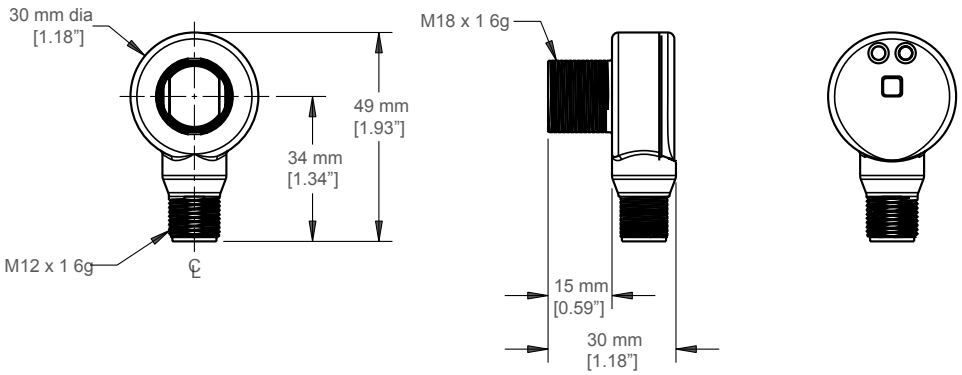
# Dimensions

TM18 LP Cable




TM18 LP QD




Maximum Torque specification: 5.6 nm or 50 in-lbs. Lockwasher and M18 nut included.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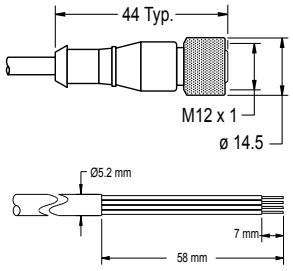
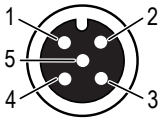
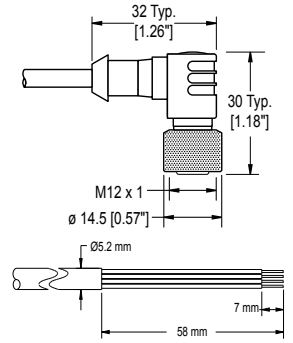
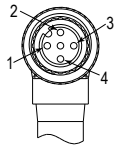
# Chapter 3 Accessories

## Cordsets

| 4-Pin Single-Ended M12 Female Cordsets | | | | | |
|---|---|---|---|---|---|
| **Model** | **Length** | **Style** | **Dimensions** | **Pinout (Female)** | |
| **MQDC-406** | 2 m (6.56 ft) | Straight |  |  | 1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black<br>5 = Not used<br>c UL us |
| **MQDC-415** | 5 m (16.4 ft) | | | | |
| **MQDC-430** | 9 m (29.5 ft) | | | | |
| **MQDC-450** | 15 m (49.2 ft) | | | | |
| **MQDC-406RA** | 2 m (6.56 ft) | Right-Angle |  |  | |
| **MQDC-415RA** | 5 m (16.4 ft) | | | | |
| **MQDC-430RA** | 9 m (29.5 ft) | | | | |
| **MQDC-450RA** | 15 m (49.2 ft) | | | | |

## Apertures

**AP18SCN** Aperture Kit

Kit includes black acetal round apertures of 0.5 mm (0.02 in), 1.0 mm (0.04 in), and 2.5 mm (0.10 in) diameter.

Used with T18, TM18 models.



**AP18SRN** Aperture Kit

Kit includes black acetal rectangular apertures of 0.5 mm (0.02 in), 1.0 mm (0.04 in), and 2.5 mm (0.10 in) wide. Each kit also includes a thread-on housing, Teflon® FEP® lens, and o-ring.

Used with T18, TM18



**APG18S** Aperture Kit

Kit with glass lens to protect plastic sensor lens from chemical environments and weld splatter damage.

Used with S18, M18, T18, TM18, and Q4X

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# Chapter 4 Product Support and Maintenance

## TM18 Discontinued Models

The following models are no longer available for order but are still covered by the information in this document.

*Opposed mode sensors*

| Model Number | Output | Connection |
|---|---|---|
| TM186E W/30 | None | 9 m cable |
| TM18AP6R W/30 | PNP, LO 3-wire | 9 m cable |
| TM18AP6RQ5 | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male quick disconnect (QD) |
| TM18RP6R | PNP, DO 3-wire | 2 m cable |
| TM18AN6R | NPN, LO 3-wire | 2 m cable |
| TM18AN6RQ5 | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6RQ8 | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18RN6R | NPN, DO 3-wire | 2 m cable |
| TM18RN6RQ5 | NPN, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6R | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6R W/30 | NPN, LO/DO 4-wire | 9 m cable |
| TM18VN6RQ8 | NPN, LO/DO 4-wire | 4-pin M12 male QD |

*Polarized retroreflective mode sensors*

| Model Number | Output | Connection |
|---|---|---|
| TM18AP6LP | PNP, LO 3-wire | 2 m cable |
| TM18AP6LP W/30 | PNP, LO 3-wire | 9 m cable |
| TM18AP6LPQ5 | PNP, LO 3-wire | |
| TM18RP6LP | PNP, DO 3-wire | 2 m cable |
| TM18RP6LP W/30 | PNP, DO 3-wire | 9 m cable |
| TM18VP6LP W/30 | PNP, LO/DO 4-wire | 9 m cable |
| TM18AN6LP | NPN, LO 3-wire | 2 m cable |
| TM18AN6LPQ5 | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6LPQ8 | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18RN6LP | NPN, DO 3-wire | 2 m cable |
| TM18RN6LPQ5 | NPN, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18RN6LPQ8 | NPN, DO 3-wire | 4-pin M12 male QD |
| TM18VN6LP | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6LP W/30 | NPN, LO/DO 4-wire | 9 m cable |
| TM18VN6LPQ5 | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |

*Fixed-field background suppression mode sensors*

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6FF25 | 25 mm | PNP, LO 3-wire | 2 m cable |

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| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6FF25 W/30 | | PNP, LO 3-wire | 9 m cable |
| TM18AP6FF25Q5 | | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6FF25 | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6FF25Q5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF25Q5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF25Q8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF25 | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF25Q5 | | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6FF25Q8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AP6FF50 | 50 mm | PNP, LO 3-wire | 2 m cable |
| TM18AP6FF50 W/30 | | PNP, LO 3-wire | 9 m cable |
| TM18VP6FF50 | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6FF50Q5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF50 | | NPN, LO 3-wire | 2 m cable |
| TM18AN6FF50Q5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF50Q8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF50 | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF50Q5 | | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF100 | 100 mm | PNP, LO 3-wire | 2 m cable |
| TM18VP6FF100 | | PNP, LO/DO 4-wire | 2 m cable |
| TM18AN6FF100Q8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF100 | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF100Q5 | | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF25IR | 25 mm | PNP, LO 3-wire | 2 m cable |
| TM18AP6FF25IRQ5 | | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF25IRQ8 | | PNP, LO 3-wire | 4-pin M12 male QD |
| TM18VP6FF25IR | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6FF25IRQ5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VP6FF25IRQ8 | | PNP, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AN6FF25IRQ5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF25IRQ8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF25IR | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF25IRQ5 | | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6FF25IRQ8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AP6FF50IR | 50 mm | PNP, LO 3-wire | 2 m cable |
| TM18AP6FF50IR W/30 | | PNP, LO 3-wire | 9 m cable |

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| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6FF50IRQ5 | | PNP, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AP6FF50IRQ8 | | PNP, LO 3-wire | 4-pin M12 male QD |
| TM18VP6FF50IR | | PNP, LO/DO 4-wire | 2 m cable |
| TM18VP6FF50IRQ5 | | PNP, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF50IR | | NPN, LO 3-wire | 2 m cable |
| TM18AN6FF50IRQ5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF50IRQ8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF50IR | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF50IRQ5 | | NPN, LO/DO 4-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18VN6FF50IRQ8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |
| TM18AP6FF100IR | 100 mm | PNP, LO 3-wire | 2 m cable |
| TM18VP6FF100IR | | PNP, LO/DO 4-wire | 2 m cable |
| TM18AN6FF100IR | | NPN, LO 3-wire | 2 m cable |
| TM18AN6FF100IRQ5 | | NPN, LO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18AN6FF100IRQ8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18VN6FF100IR | | NPN, LO/DO 4-wire | 2 m cable |
| TM18VN6FF100IRQ8 | | NPN, LO/DO 4-wire | 4-pin M12 male QD |

*Diffuse (visible red) mode sensors*

| Model Number | Range | Output | Connection |
|---|---|---|---|
| TM18AP6DV W/30 | 500 mm | PNP, LO 3-wire | 9 m cable |
| TM18RP6DV | | PNP, DO 3-wire | 2 m cable |
| TM18RP6DVQ5 | | PNP, DO 3-wire | 150 mm cable with a 4-pin M12 male QD |
| TM18RP6DVQ8 | | PNP, DO 3-wire | 4-pin M12 male QD |
| TM18VP6DV | | PNP, LO/DO 4-wire | 2 m cable |
| TM18AN6DV | | NPN, LO 3-wire | 2 m cable |
| TM18AN6DVQ8 | | NPN, LO 3-wire | 4-pin M12 male QD |
| TM18RN6DV | | NPN, DO 3-wire | 2 m cable |

# Repairs and Translations (No Field-Replaceable Parts)

**English**

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

```
IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return
shipping is not covered by warranty.
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Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.


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**Deutsch**

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

**WICHTIG:** Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihre Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

**Français**

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

**Important :** Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts occasionnés pendant le transport de retour ne sont pas couverts par la garantie.

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local our appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

**Italiano**

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

**Importante:** Se si ricevono istruzioni di rispedire il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

**Español**

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

**Importante:** Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

**中国人**

如需对本装置进行故障排查，请联系邦纳。**请勿尝试自行维修该邦纳装置；本装置不包含任何可在现场更换的部件或组件。** 若经邦纳应用工程师确认设备、设备部件或组件存在缺陷，他们将告知您邦纳退货授权 (RMA) 流程。

**重要注意事项：** 如被要求退回装置，请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164，以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳，获取翻译成您母语的资料。


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> **重要 ：** 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バナーのウェブサイト（www.bannerengineering.com）でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

**čeština**

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamační RMA protokol.

> **Důležité:** Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé při dopravě není považováno za záruční opravu.

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

**Polski**

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

> **Ważne:** Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe podczas odsyłki nie są objęte gwarancją.

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

**Português**

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

> **Importante:** Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos no transporte de devolução não são cobertos pela garantia.

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.


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# Contact Us

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For worldwide locations and local representatives, visit www.bannerengineering.com.

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