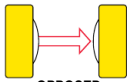
QM42
Right-Angle Sensor with Mounting Versatility

The QM42 has a robust housing and is an ideal replacement for hundreds of other sensor styles. It is available in five modes with a compact housing for limited space setups.

- Versatile sensor with several mounting options
- Meets IP67 and NEMA 6 standards for harsh environment
- Universal housing design
- Cordsets and brackets see page 151

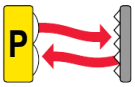
Opposed QM42, 10-30 V DC

Infrared LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 OPPOSED	10 m	2 m		QM426E Emitter
		4-Pin Euro QD		QM426EQ Emitter
		2 m	QM42VN6R	QM42VP6R
		4-Pin Euro QD	QM42VN6RQ	QM42VP6RQ

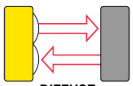
Polar Retro QM42, 10-30 V DC

Visible Red LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 POLAR RETRO	3 m†	2 m	QM42VN6LP	QM42VP6LP
		4-Pin Euro QD	QM42VN6LPQ	QM42VP6LPQ

Diffuse QM42, 10-30 V DC

Infrared LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 DIFFUSE	400 mm	2 m	QM42VN6D	QM42VP6D
		4-Pin Euro QD	QM42VN6DQ	QM42VP6DQ

For more specifications see page 152.

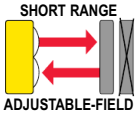
Connection options: A model with a QD requires a mating cordset (see page 151).

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **QM42VN6LP W/30**).

† Tested using a BRT-3 retroreflector. Actual range depends on the efficiency and reflective area of the retroreflector in use. See Accessories for more information.

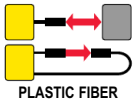
Adjustable-Field QM42, 10-30 V DC

Visible Red LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
	5 mm to Cutoff point (adjustable from 50 to 150 mm)	2 m	QM42VN6AFV150	QM42VP6AFV150
		4-Pin Euro QD	QM42VN6AFV150Q	QM42VP6AFV150Q

Plastic Fibers QM42, 10-30 V DC

Visible Red LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
	Range varies by sensing mode and fiber optics used	2 m	QM42VN6FP	QM42VP6FP
		4-Pin Euro QD	QM42VN6FPQ	QM42VP6FPQ

QM42 Opposed, Retroreflective, Short-range Diffuse, and Short-range Adjustable-Field Model Suffix E, R, LP, D, AFV150 and FP

Cordsets

Euro QD (for Q models)

See page 906

Length	Threaded 4-Pin Straight	Threaded 4-Pin 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

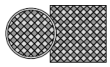
Q25

See page 866	See page 868	See page 868
SMB30SK	SMB46S	SMB46L

Additional brackets and information available.
See page 852.

Other Accessories

Reflectors	Apertures
See page 932	See page 958



QMT42 Long-range Diffuse,
Fixed-Field and Adjustable-Field Model
Suffix DX, FF and AFV400

QM42 and QMT42 Specifications

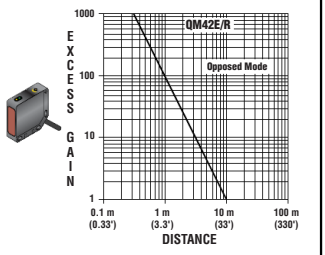
Sensing Beam	**Opposed, Diffuse, Retroreflective, Fixed-Field and Fiber Optic:** Infrared, 880 nm; Visible Red, 660 nm **Adjustable-Field:** Visible Red, 680 nm
Supply Voltage and Current	10 to 30 V dc (10% max. ripple) at less than: **Opposed:** 30 mA (emitter), 10 mA (receiver) **Short-range diffuse and retroreflective:** 20 mA **Fiber optic:** 30 mA **Adjustable-Field:** 50 mA **Fixed-Field and long-range diffuse:** 40 mA
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid-state complementary; choose NPN (current sinking) or PNP (current sourcing) models
Output Rating	100 mA max. (each output) **OFF-state leakage current:** less than 5 µA at 30 V dc **ON-state saturation voltage:** less than 1 V at 10 mA dc; less than 1.5 V at 100 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs Overload trip point ≥ 150 mA, typical at 20º C
Output Response Time	**Opposed:** 1 millisecond ON; 0.5 millisecond OFF **Diffuse, Retroreflective, Adjustable-Field and Fixed-Field:** 1 millisecond ON/OFF **Plastic Fiber Optic:** 0.25 millisecond ON/OFF
Delay at Power-up	100 milliseconds; outputs are non-conducting during this time
Repeatability	**Opposed:** 120 microseconds **Diffuse, Retroreflective, Adjustable-Field and Fixed-Field:** 250 microseconds **Fiber Optic:** 60 microseconds. Repeatability and response are independent of signal strength
Sensing Hysteresis	**Long-range diffuse:** less than 20% of set sensing distance **Adjustable-Field:** less than 7% of set cutoff distance **Fixed-Field:** **2000 mm models** – less than 5% of set cutoff distance **1500 mm models** – less than 4% of set cutoff distance **1000 mm models** – less than 3% of set cutoff distance **750 mm models** – less than 2% of set cutoff distance **500 mm models** – less than 1% of set cutoff distance
Cutoff Point Tolerance	**Fixed-Field:** ±10% of nominal cutoff distance
Adjustments	**All models (except emitters, Adjustable-Field, Fixed-Field and Long-range Diffuse):** 15-turn slotted brass GAIN (sensitivity) adjustment potentiometer **150 mm Adjustable-Field:** 12-turn slotted brass cutoff distance adjustment potentiometer **400 mm Adjustable-Field:** 15-turn slotted brass cutoff distance adjustment potentiometer **Long-range diffuse:** 4-turn slotted GAIN (sensitivity) adjustment potentiometer **Fixed-Field:** No adjustments See datasheet for detailed information
Indicators	**Two LEDs:** Green and Yellow **Solid Green:** Power ON; Opposed emitters: Green power ON **Solid Yellow:** Light sensed; Light Operate (LO) **Green Flashing:** output overloaded **Yellow Flashing:** marginal excess gain See datasheet for detailed information
Construction	Housings are die-cast zinc alloy with black acrylic polyurethane finish; lenses are acrylic
Environmental Rating	IP67; NEMA 6
Connections	2 m or 9 m attached cable, or 4-pin Euro-style quick-disconnect fitting. QD cordsets are ordered separately. See page 151.
Operating Conditions	**Temperature:** **Long-range Diffuse, Adjustable-Field and Fixed-Field:** -20° to +55° C **All others:** -20° to +70° C **Relative humidity:** 90% at 50° C (non-condensing)
Certifications	CE c UL us

Excess Gain Curves

(Diffuse, Adjustable-Field and Fixed-Field mode performance based on 90% reflectance white test card)

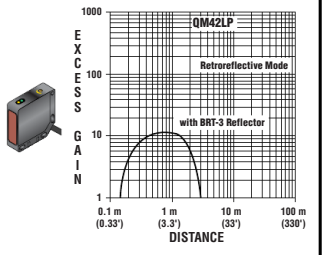
○ = Infrared LED ● = Visible Red LED P = Visible Red LED Polarized

Opposed Mode QM42



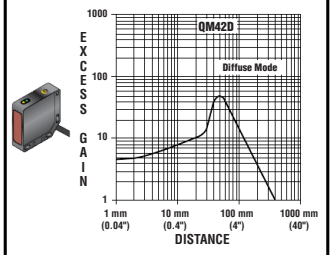
Range: 10 m | **LED:** ○

Polarized Retroreflective Mode QM42



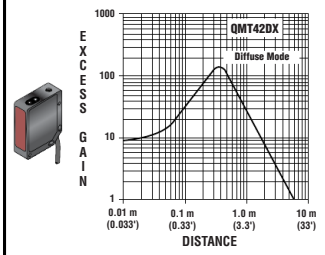
Range: 3 m | **LED:** P

Diffuse Mode QM42



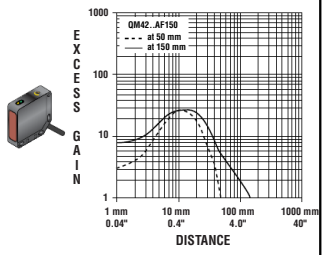
Range: 400 mm | **LED:** ○

Diffuse Mode QMT42



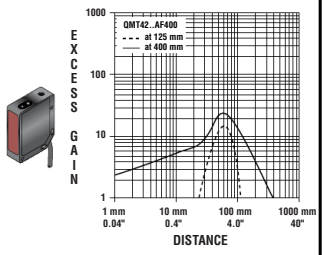
Range: 6 m | **LED:** ○

Adjustable-Field Mode QM42



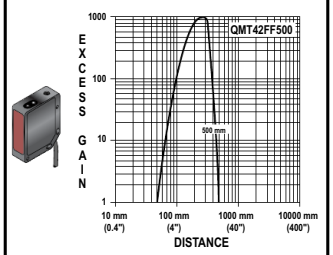
Cutoff: 50- 150 mm | **LED:** ●

Adjustable-Field Mode QMT42



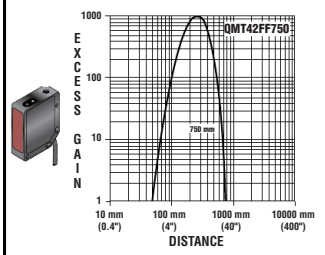
Cutoff: 125- 400 mm | **LED:** ●

Fixed-Field Mode QMT42



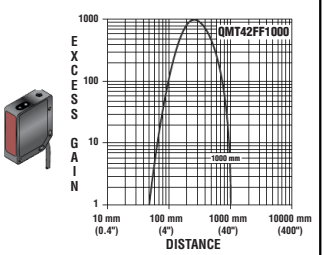
Cutoff: 500 mm | **LED:** ○

Fixed-Field Mode QMT42



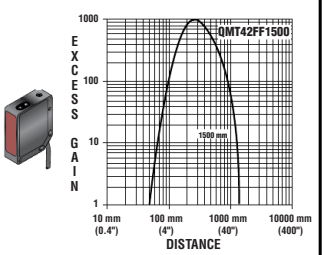
Cutoff: 750 mm | **LED:** ○

Fixed-Field Mode QMT42



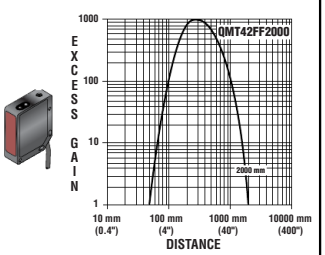
Cutoff: 1000 mm | **LED:** ○

Fixed-Field Mode QMT42



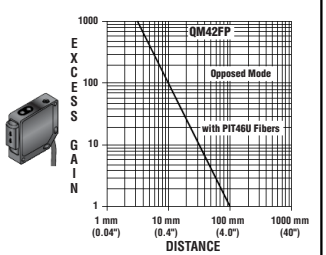
Cutoff: 1500 mm | **LED:** ○

Fixed-Field Mode QMT42



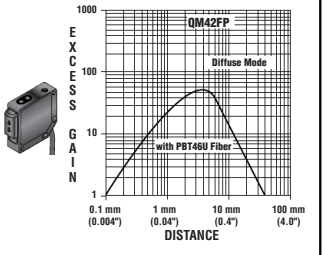
Cutoff: 2000 mm | **LED:** ○

Opposed Mode—Plastic Fiber QM42



Range: Varies | **LED:** ●

Diffuse Mode—Plastic Fiber QM42



Range: Varies | **LED:** ●

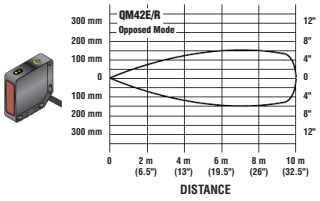
Beam Patterns

(Diffuse mode performance based on 90% reflectance white test card)

○ = Infrared LED ● = Visible Red LED P = Visible Red LED Polarized

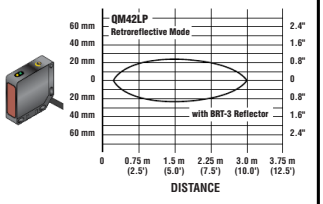
Opposed Mode QM42

Effective Beam: 8 mm



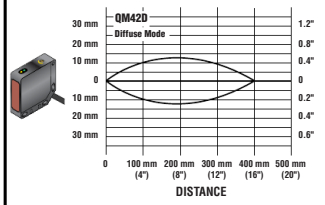
Range: 10 m | **LED:** ○

Polarized Retroreflective Mode QM42



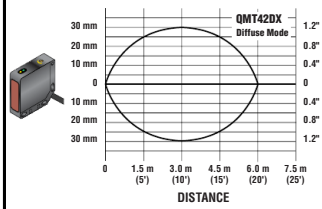
Range: 3 m | **LED:** P

Diffuse Mode QM42



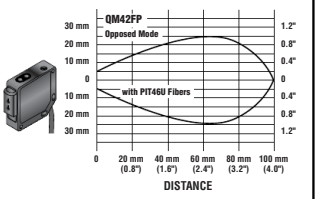
Range: 400 mm | **LED:** ○

Diffuse Mode QMT42



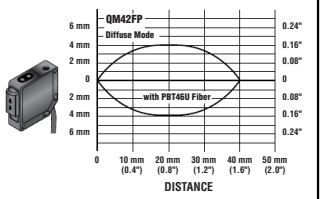
Range: 6 m | **LED:** ○

Opposed Mode—Plastic Fiber QM42



Range: Varies | **LED:** ●

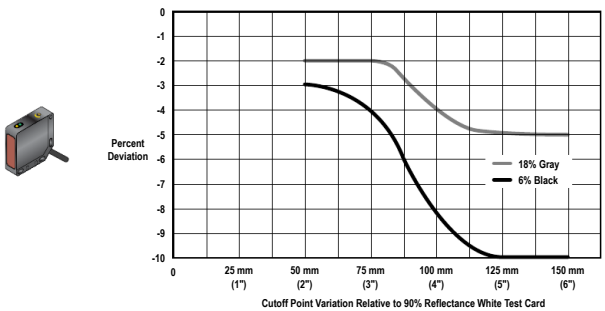
Diffuse Mode—Plastic Fiber QM42



Range: Varies | **LED:** ●

Cutoff Point Deviations

QM42 Adjustable-Field – 150 mm



QMT42 Adjustable-Field – 400 mm