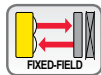
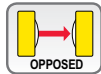


T30 Right-Angle Barrel-Mount Sensors

- Features EZ-BEAM® technology, with specially designed optics and electronics for reliable sensing without adjustments
- Features T-style plastic housing with 30 mm threaded lens in opposed, retroreflective and fixed-field modes
- Completely epoxy-encapsulated to provide superior durability, even in harsh sensing environments
- Uses an innovative dual-indicator system to take the guesswork out of monitoring sensor performance
- Available in models for ac or dc power
- Includes advanced diagnostics to warn of marginal sensing conditions or output overload (dc models)



ACCESSORIES
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ONLINE
AUTOCAD, STEP, IGES & PDF

T30, 10-30V dc

Infrared LED Visible Red LED

Sensing Mode/LED	Range	Connection	Models NPN	Models PNP	Excess Gain	Beam Pattern
 OPPOSED	60 m	2 m	T306E Emitter		EGC-1 (p. 174)	BP-1 (p. 174)
		4-Pin Euro QD	T306EQ Emitter			
		2 m	T30SN6R	T30SP6R		
		4-Pin Euro QD	T30SN6RQ	T30SP6RQ		
 POLAR RETRO	6 m [†]	2 m	T30SN6LP	T30SP6LP	EGC-2 (p. 174)	BP-2 (p. 174)
		4-Pin Euro QD	T30SN6LPQ	T30SP6LPQ		

More on next page

Connection options: A model with a QD requires a mating cordset (see page 173).

For 9 m cable, add suffix **W30** to the 2 m model number (example, T30SN6LP W30).

[†] Retroreflective range is specified using a BRT-3 retroreflector. Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.

T30, 10-30V dc (cont'd)

Infrared LED

Sensing Mode/LED	Range	Connection	Models NPN	Models PNP	Excess Gain	Beam Pattern
 FIXED-FIELD	0 - 200 mm Cutoff	2 m	T30SN6FF200	T30SP6FF200	EGC-3 (p. 174)	—
		4-Pin Euro QD	T30SN6FF200Q	T30SP6FF200Q		
	0 - 400 mm Cutoff	2 m	T30SN6FF400	T30SP6FF400	EGC-4 (p. 174)	—
		4-Pin Euro QD	T30SN6FF400Q	T30SP6FF400Q		
	0 - 600 mm Cutoff	2 m	T30SN6FF600	T30SP6FF600	EGC-5 (p. 174)	—
		4-Pin Euro QD	T30SN6FF600Q	T30SP6FF600Q		

T30, 20-250V ac

Infrared LED Visible Red LED

Sensing Mode/LED	Range	Connection	Models LO	Models DO	Excess Gain	Beam Pattern
 OPPOSED	60 m	2 m	T303E Emitter		EGC-1 (p. 174)	BP-1 (p. 174)
		4-Pin Micro QD	T303EQ1 Emitter			
		2 m	T30AW3R	T30RW3R		
		4-Pin Micro QD	T30AW3RQ1	T30RW3RQ1		
 POLAR RETRO	6 m [†]	2 m	T30AW3LP	T30RW3LP	EGC-2 (p. 174)	BP-2 (p. 174)
		4-Pin Micro QD	T30AW3LPQ1	T30RW3LPQ1		
 FIXED-FIELD	0 - 200 mm Cutoff	2 m	T30AW3FF200	T30RW3FF200	EGC-3 (p. 174)	—
		4-Pin Micro QD	T30AW3FF200Q1	T30RW3FF200Q1		
	0 - 400 mm Cutoff	2 m	T30AW3FF400	T30RW3FF400	EGC-4 (p. 174)	—
		4-Pin Micro QD	T30AW3FF400Q1	T30RW3FF400Q1		
	0 - 600 mm Cutoff	2 m	T30AW3FF600	T30RW3FF600	EGC-5 (p. 174)	—
		4-Pin Micro QD	T30AW3FF600Q1	T30RW3FF600Q1		

Connection options: A model with a QD requires a mating cordset (see page 173).

For 9 m cable, add suffix W/30 to the 2 m model number (example, T30AW3FF200 W/30).

[†] Retroreflective range is specified using a BRT-3 retroreflector.

Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.

Photoelectronics Sensors

- Fiber Optic Sensors
- Special Purpose Sensors
- Measurement & Inspection Sensors
- Vision
- Wireless
- Lighting & Indicators
- Safety Light Screens
- Safety Laser Scanners

- Fiber Optic Safety Systems

- Safety Controllers & Modules

- Safety Two-Hand Control Modules

- Safety Interlock Switches

- Emergency Stop & Stop Control

ACCESSORIES
page 173

MINIATURE

COMPACT

MIDSIZE

WORLD-BEAM QS30

S30

SM30/SMI30

T30

Q40

PicoDot

QM42/QMT42


FULLSIZE

T30 DC Specifications

Supply Voltage and Current	10 to 30V dc (10% max. ripple); Supply current (exclusive of load current): Opposed Emitters: 25 mA Opposed Receivers: 20 mA Polarized Retroreflective: 30 mA Fixed-field: 35 mA
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid-state dc switch; three-wire hookup; choose light operate (LO) or dark operate (DO) models Light operate: Output conducts when the sensor sees its own (or the emitter's) modulated light Dark operate: Output conducts when sensor sees dark
Output Rating	150 mA max. (each) in standard hookup; When wired for alarm output, the total load may not exceed 150 mA OFF-state leakage current: less than 1 µA at 30V dc ON-state saturation voltage: less than 1V at 10 mA dc; less than 1.5V at 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs

More on next page


T30 DC Specifications (cont'd)

Output Response Time	Opposed: 3 milliseconds ON; 1.5 milliseconds OFF Polarized Retroreflective and Fixed-field: 3 milliseconds ON/OFF
Delay at Power-up	100 milliseconds; outputs are non-conducting during this time
Repeatability	Opposed: 375 microseconds Polarized Retroreflective and Fixed-field 750 microseconds Repeatability and response are independent of signal strength.
Indicators	Two LEDs: Green: Power ON Yellow: Light operate (LO) output energized
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; one jam nut included.
Environmental Rating	Leakproof design rated NEMA 6P, IP67. QD models rated IP69K per DIN 40050-9.
Connections	2 m or 9 m attached cable, or 4-pin Euro-style quick-disconnect fitting. QD cordsets are ordered separately. See page 173.
Operating Conditions	Temperature: -40° to +70° C Relative humidity: 90% at 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-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	
Hookup Diagrams	Emitters: DC02 (p. 744) NPN Models: DC05 (p. 745) PNP Models: DC06 (p. 745)

T30 AC Specifications

Supply Voltage and Current	20 to 250V ac (50/60 Hz). Average current: 20 mA Peak current: 200 mA at 20V ac, 500 mA at 120V ac, 750 mA at 250V ac
Supply Protection Circuitry	Protected against transient voltages
Output Configuration	Solid-state ac switch; three-wire hookup; choose light operate (LO) or dark operate (DO) models Light operate: Output conducts when the sensor sees its own (or the emitter's) modulated light Dark operate: Output conducts when sensor sees dark
Output Rating	300 mA max. (continuous) Fixed-field: derate 5 mA/° C above +50° C Inrush capability: 1 amp for 20 milliseconds, non-repetitive OFF-state leakage current: less than 100 µA ON-state voltage drop: 3V at 300 mA ac; 2V at 15 mA ac
Output Protection Circuitry	Protected against false pulse on power-up
Output Response Time	Opposed: 16 milliseconds ON; 8 milliseconds OFF Polarized Retroreflective and Fixed-field: 16 milliseconds ON/OFF
Delay at Power-up	100 milliseconds
Repeatability	Opposed: 2 milliseconds Polarized Retroreflective and Fixed-field: 4 milliseconds Repeatability and response are independent of signal strength.
Indicators	Two LEDs: Green: Power ON Yellow: Light sensed
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; one jam nut included.
Environmental Rating	Leakproof design rated NEMA 6P, IP67. QD models rated IP69K per DIN 40050-9.
Connections	2 m or 9 m attached cable, or 4-pin Micro-style quick-disconnect fitting. QD cordsets are ordered separately. See page 173.
Operating Conditions	Temperature: -40° to +70° C Relative humidity: 90% at 50° C (non-condensing)

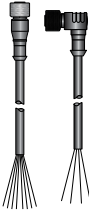


T30 AC Specifications (cont'd)	
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max, double amplitude 0.06-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	
Hookup Diagrams	Cabled Emitters: AC03 (p. 750) Cabled Models: AC05 (p. 751) QD Emitters: AC07 (p. 751) QD Models: AC06 (p. 751)


- Photoelectrics Sensors
- Fiber Optic Sensors
- Special Purpose Sensors
- Measurement & Inspection Sensors
- Vision
- Wireless
- Lighting & Indicators
- Safety Light Screens
- Safety Laser Scanners
- Fiber Optic Safety Systems
- Safety Controllers & Modules
- Safety Two-Hand Control Modules
- Safety Interlock Switches
- Emergency Stop & Stop Control


Cordsets

Euro QD		
See page 682		
Threaded 4-Pin		
Length	Straight	Right-Angle
1.83 m	MQDC-406	MQDC-406RA
4.57 m	MQDC-415	MQDC-415RA
9.14 m	MQDC-430	MQDC-430RA

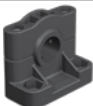





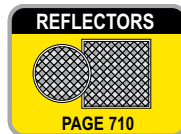
Micro QD		
See page 698		
Threaded 4-Pin		
Length	Straight	Right-Angle
1.83 m	MQAC-406	MQAC-406RA
4.57 m	MQAC-415	MQAC-415RA
9.14 m	MQAC-430	MQAC-430RA




 Additional cordset information available. See page 679.

Brackets

T30			
			
pg. 637	pg. 639	pg. 640	pg. 648
SMB1815SF	SMB30A	SMB30FA..	SMBAMS30P



 Additional brackets and information available. See page 620.

- MINIATURE
- COMPACT
- MIDSIZE
- WORLD-BEAM QS30
- S30
- SM30/SMI30
- T30
- Q40
- PicoDot
- QM42/QMT42
- FULLSIZE

Excess Gain Curves (Fixed-field mode performance based on 90% reflectance white test card)

○ = Infrared LED P = Visible Red LED Polarized

<p>Opposed Mode T30</p> <p>EGC-1</p> <p>Range: 60 m LED: ○</p>	<p>Polarized Retroreflective Mode T30</p> <p>EGC-2</p> <p>Range: 6 m LED: P</p>	<p>Fixed-Field Mode T30</p> <p>EGC-3</p> <p>Cutoff: 200 mm LED: ○</p>	<p>Ø 16 mm spot size @ 35 mm focus Ø 20 mm spot size @ 200 mm cutoff</p> <p>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.</p>
<p>Fixed-Field Mode T30</p> <p>EGC-4</p> <p>Cutoff: 400 mm LED: ○</p>	<p>Ø 17 mm spot size @ 35 mm focus Ø 25 mm spot size @ 400 mm cutoff</p> <p>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.</p>	<p>Fixed-Field Mode T30</p> <p>EGC-5</p> <p>Cutoff: 600 mm LED: ○</p>	<p>Ø 17 mm spot size @ 35 mm focus Ø 30 mm spot size @ 600 mm cutoff</p> <p>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.</p>

Beam Patterns

○ = Infrared LED P = Visible Red LED Polarized

<p>Opposed Mode T30</p> <p>Effective Beam: 23 mm</p> <p>BP-1</p> <p>Range: 60 m LED: ○</p>	<p>Polarized Retroreflective Mode T30</p> <p>BP-2</p> <p>Range: 6 m LED: P</p>
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DC Hookups

DC01	Current Sinking (NPN)	Key
		1 = Brown 3 = Blue 4 = Black
Current Sourcing (PNP)		
3-Pin Pico		

DC02	Emitter	Key	
		1 = Brown 2 = White† 3 = Blue 4 = Black† † Not Used	
3-Pin Pico	4-Pin Pico	4-Pin Euro	4-Pin Mini

DC03	Complementary Current Sinking (NPN)	Key
		1 = Brown 2 = White 3 = Blue 4 = Black
Complementary Current Sourcing (PNP)		
4-Pin Pico	4-Pin Euro	4-Pin Mini

DC04	Bipolar (NPN + PNP)	Key
		1 = Brown 2 = White 3 = Blue 4 = Black
4-Pin Pico	4-Pin Euro	



DC Hookups

Accessories

Reference

Hookups

Wiring Diagrams

Glossary

International Reps

DC05 Complementary Current Sinking (NPN) Standard Hookup	
	Key
Current Sinking (NPN) Plus Current Sinking Alarm	
	1 = Brown 2 = White 3 = Blue 4 = Black
4-Pin Pico	4-Pin Euro

DC06 Complementary Current Sourcing (PNP) Standard Hookup	
	Key
Current Sourcing (PNP) Plus Current Sourcing Alarm	
	1 = Brown 2 = White 3 = Blue 4 = Black
4-Pin Pico	4-Pin Euro

DC07 Current Sinking (NPN)	
	Key
Current Sourcing (PNP)	
	1 = Brown 2 = White 3 = Blue 4 = Black
4-Pin Pico	4-Pin Euro

DC08 Bipolar (NPN + PNP)	
	Key
1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray 6 = Pink †	
† Not Used	
6-Pin Pico	5-Pin Euro

*NOTE: For some QS30 models, gray wire is used for LO/DO Select. See data sheet.
 ** Bussable Power models are 12-30V dc



AC Hookups

AC01	2-wire AC	Key
		<p>1 = Brown 3 = Blue</p>
<p>NOTE: Wire a load in series before powering up sensor.</p>		

AC02	2-wire AC with Quick-Disconnect Cable	Key
		<p>1 = Green† 2 = Red/Black 3 = Red/White</p> <p>† Not Used</p>
<p>NOTE: Wire a load in series before powering up sensor.</p>		

3-Pin Micro

AC03	Emitters	Key
		<p>1 = Brown 3 = Blue</p>

AC04	Emitters with Quick-Disconnect Cable	Key
		<p>1 = Green† 2 = Red/Black 3 = Red/White</p> <p>† Not Used</p>

3-Pin Mini	5-Pin Mini

3-Pin Micro	3-Pin Mini



AC Hookups

Accessories

Reference

Hookups

Wiring Diagrams

Glossary

International Repts

AC05	3-wire AC	Key
		<p>1 = Brown 3 = Blue 4 = Black</p>
3-Pin Mini		

AC06	3-wire AC with Quick-Disconnect Cable	Key
		<p>1 = Red/Black 2 = Red/White 3 = Red 4 = Green†</p> <p>† Not Used</p>
4-Pin Micro		

AC07	Emitters with Quick-Disconnect Cable	Key
		<p>1 = Red/Black 2 = Red/White 3 = Red† 4 = Green†</p> <p>† Not Used</p>
4-Pin Micro		

AC08	SPDT Electromechanical Relay Output	Key
		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Yellow</p>
5-Pin Mini		

