Through the Roller Sensor Family

Datasheet

- Reliable leading edge detection of letters, thin packages, poly bags, totes, boxes or other product on roller conveyors
- Mounts between conveyor roller gap to standard hex or round side rail holes with no extra hardware required or on the T-Slot with customer supplied bracket and hardware
- Spring loaded end caps reduce installation and alignment time for reduced labor costs
- Built to order with specified length and beam spacing: 200 mm to up to 1500 mm (8 in to up to 59 in) depending on mounting configuration, with 2 to 10 sensors for maximum flexibility
- Robust aluminum housing, ambient light and ESD resistance for enhanced durability

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

Model Name	Between Frame Distance (mm)	Output Type	Special Feature	Beam Spacing	No. of Beams	End Cap Style		Cable Length (m)	Connector Style	First Beam Distance from Cable End Cap (mm)
TTR	384	AP	S	A	6	T	-	2.0	FL	CTR

- Model Name: TTR
- Between Frame Distance (mm): 384
  - End Cap Style T: 200-1500mm
  - End Cap Styles A, B, D and E: 200-915mm
  - End Cap Styles C, F, and G: 200-750mm
- Output Type: AP
  - BM = Bimodal
  - AP = Light Operate PNP
  - AN = Light Operate NPN
  - RP = Dark Operate PNP
  - RN = Dark Operate NPN
- Special Feature: S
  - S = Standard Range (120mm White Card Range)
  - G = Standard Gain (120mm White Card Range) with Ground Strap
  - W = Low Gain (85mm White Card Range) with Ground Strap
  - X = Low Gain (85mm White Card Range)
  - Y = Low Gain (100mm White Card Range) with Ground Strap
  - Z = Low Gain (100mm White Card Range)
- Beam Spacing: A
  - A = 54 mm
  - B = 93.1 mm
  - C = 108 mm
  - D = 162 mm
  - E = 186.2 mm
  - F = 75 mm
  - G = 150 mm
- No. of Beams: 6
  - 2,3,4,5,6,7,8,9,10
- End Cap Style: T
  - A,B,C,D,E,F,G,T
- Cable Length (m): 2.0
  - 0.5 m, 1.0 m, 2.0 m
- Connector Style: FL
  - FL = Flying Leads
  - RJ = RJ11
  - Q5 = M12
  - Q3 = M8 Snap
- First Beam Distance from Cable End Cap (mm): CTR
  - CTR = Beams centered between frames
  - 059-200 = First beam distance from cable end cap

Model Name = TTR 384 AP S A 6 T - 2.0 FL CTR

Note: For definition of the End Cap Styles, see Table 1 on page 2.

Note: Sensors with more than 7 beams have higher minimum supply voltage requirements, see Specifications on page 5.

Configurations

Figure 1. Spring End Cap Configuration

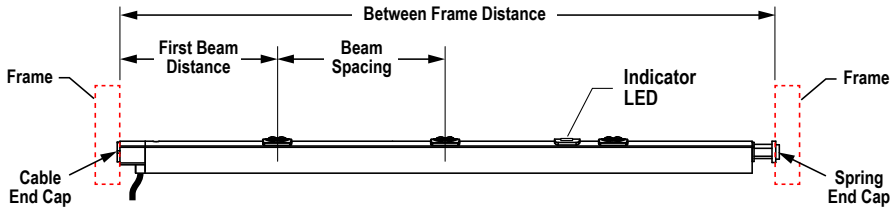


Figure 2. T-Slot Configuration

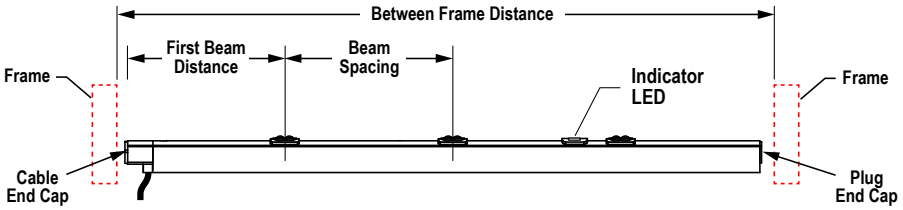


Figure 3. Adhesive End Cap Configuration

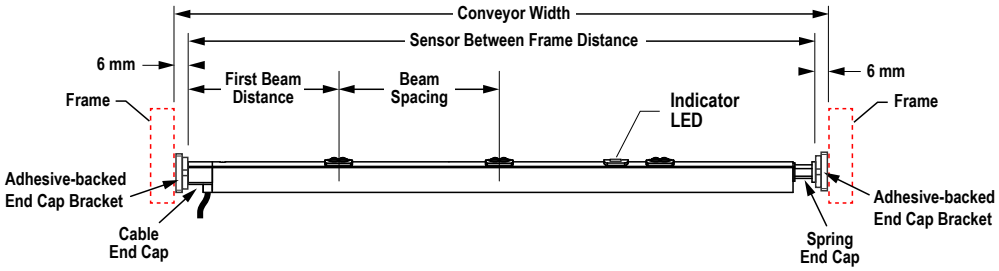
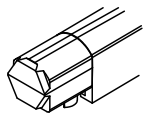
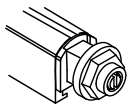
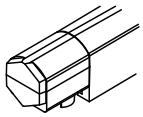
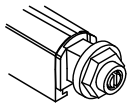
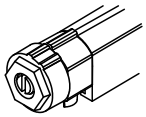
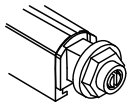
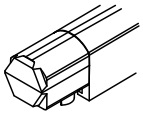
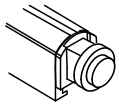
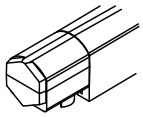
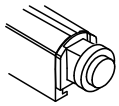
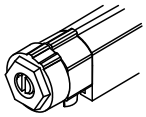
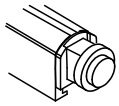
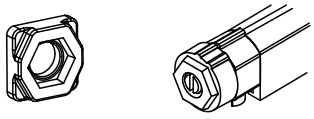
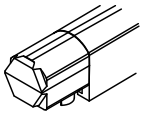
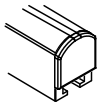


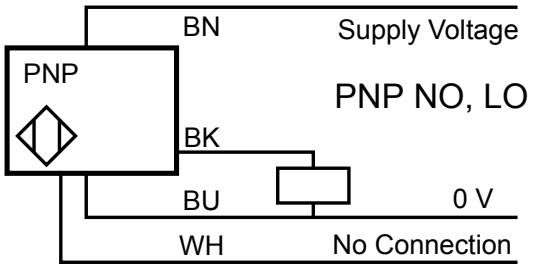
Table 1: End Cap Styles

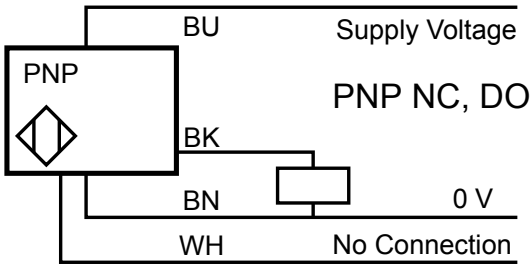
End Cap Style	End 1		End 2	
A	11 mm Hex, flat side up		Spring 11 mm hex / 8 mm round	
B	11 mm Hex, point up		Spring 11 mm hex / 8 mm round	
C	Adjustable 11 mm Hex, can be positioned in 10 degree increments		Spring 11 mm hex / 8 mm round	
D	11 mm Hex, flat side up		Spring 8 mm round	
E	11 mm Hex, point up		Spring 8 mm round	
F	Adjustable 11 mm Hex, can be positioned in 10 degree increments		Spring 8 mm round	
G	Adjustable 11 mm Hex, can be positioned in 10 degree increments / adhesive backed bracket		Spring 11 mm hex / 8 mm round / adhesive backed bracket	
T	11 mm Hex, flat side up		Plug	

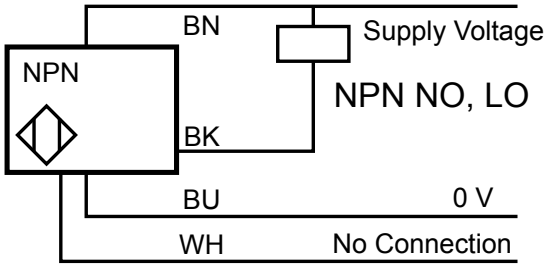
Note: T-Slot mounted sensors with the **T** End Cap Style are 6 mm shorter than the specified Between Frame Distance.

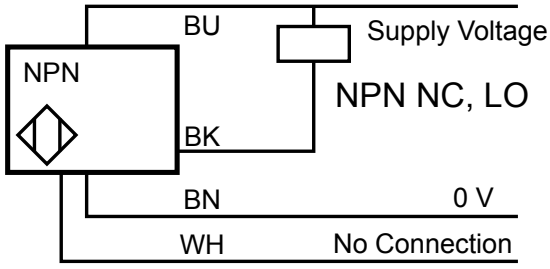
Wiring

Bimodal Output Wiring Diagrams

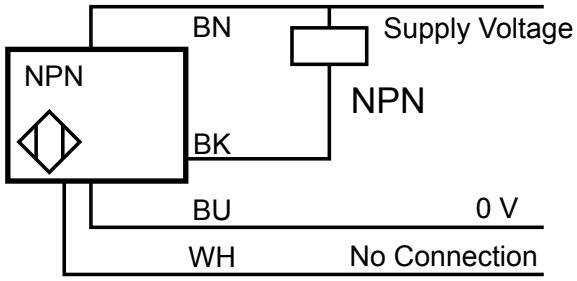


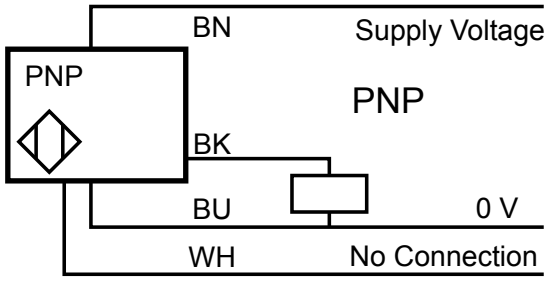




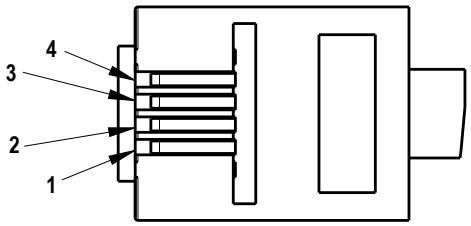


Fixed NPN and PNP Output Wiring Diagrams: Light and Dark Operate by Model Number





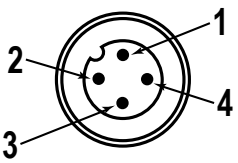
RJ-11 Pinout



RJ-11 Key

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

M12 Pinout



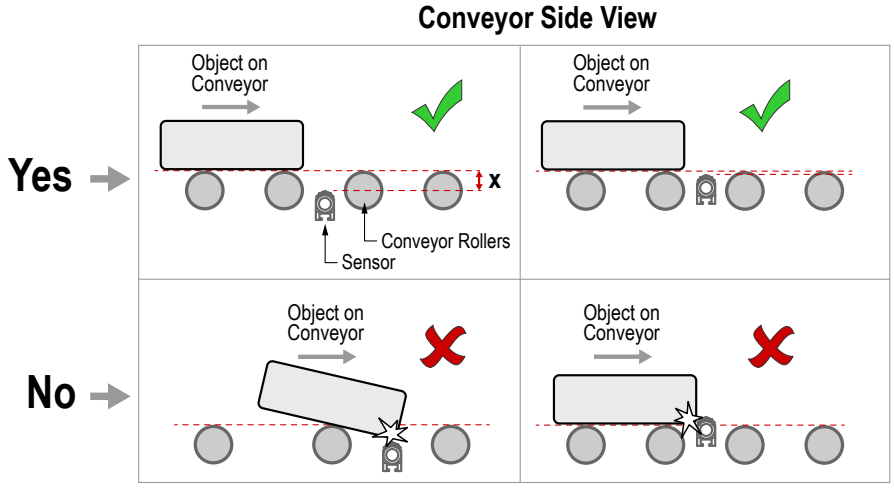
M12 Key

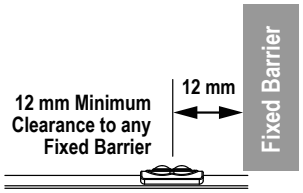
1. Brown
2. White
3. Blue
4. Black

M8 Snap Connector Pinout	M8 Key
	1. Brown 2. White 3. Blue 4. Black

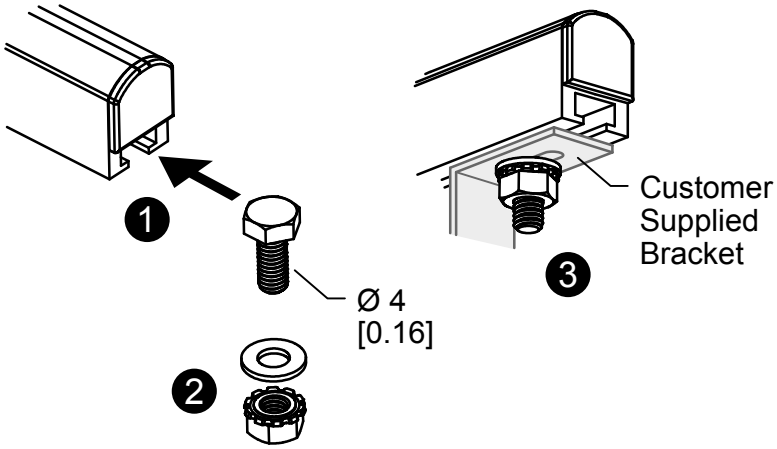
Installation

Mounting Considerations





T-Slot Installation



Specifications

Supply Voltage

Number of Sensing Beams	Supply Voltage with 10% Maximum Ripple
2, 3, 4, 5, 6, 7	18 V DC to 30 V DC
8	22 V DC to 30 V DC
9	24 V DC to 30 V DC
10	26 V DC to 30 V DC

Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)

Supply Current
45 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Wavelength
Infrared LED, 940 nm

Output Response
1 ms on/off

Output Configuration
Rating: 100 mA max output at 25 °C
Output Voltage High: Greater than Vsupply – 2.5 V
Output Voltage Low: Less than 2.5 V
For loads less than 1 Meg Ohm
Protected against false pulse on power-up and continuous overload or short-circuit of output

Indicators
Amber on: Light sensed

Sensing Mode
Diffuse, Infrared, 940 nm

Range

Special Feature Type	Range		
	90% White Card	18% Gray Card	6% Black Card
S and G	0 to ≥ 120 mm	0 to ≥ 50 mm	≤ 3 to ≥ 30 mm
Y and Z	0 to ≥ 100 mm	0 to ≥ 40 mm	≤ 4 to ≥ 25 mm
W and X	0 to ≥ 85 mm	0 to ≥ 35 mm	≤ 6 to ≥ 20 mm

Operating Conditions
–10 °C to +55 °C (+14 °F to +131 °F)

Environmental Rating
IP50

Vibration and Mechanical Shock
All models meet IEC 60068-2-6, IEC 60947-5-2, UL491 Section 40, MIL-STD-202F, Method 201A (Vibration: 10 Hz to 60 Hz, 0.5 mm peak-to-peak)
Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

Cable
Minimum static bend radius: 20 mm
Flex life > 10,000 cycles at flexing bend radius > 40 mm

Certifications

Banner Engineering Europe Park Lane, Culliganlaan 2F bus 3, 1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House, Blenheim Court, Wickford, Essex SS11 8YT, Great Britain

IND. CONT. EQ. E224071

Performance Curves

Note: The Beam Pattern and Excess Gain performance curve diagrams represent the Standard Gain (Special Feature S and G) models.