

BALLUFF

sensors worldwide

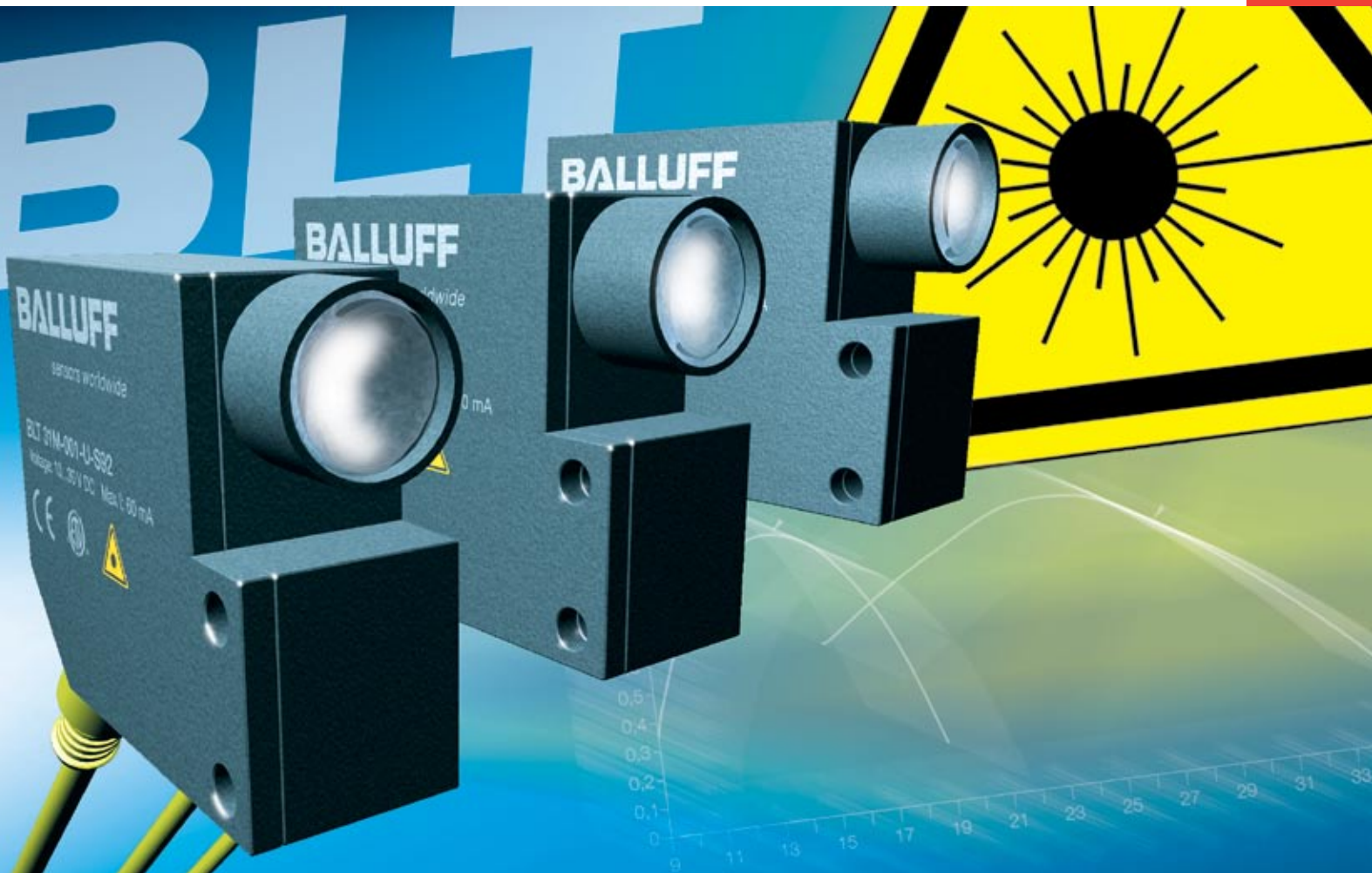
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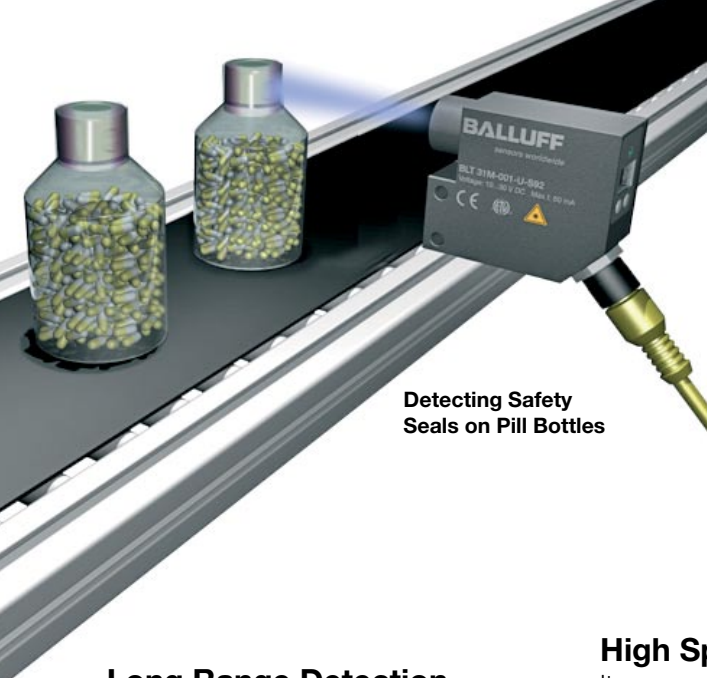
SENSORS **INCORPORATED**

507 Kelsey Street • Delano, MN 55328
Phone 763-972-1040 Fax 763-972-1041
Toll Free 888-920-0939
Sensorsincorporated.com

BLT 31M

Long range luminescence sensors





Detecting Safety Seals on Pill Bottles

BLT 31M

Long range luminescence sensors

Balluff BLT 31M sensors effectively detect the presence or absence of UV luminescent materials and markers. When the pulsed UV light source of the BLT 31M is directed towards a target, visible light is reflected back and the intensity of the returned light is measured.

Long Range Detection

The Balluff BLT 31M sensor offers the longest range of any luminescence sensor on the market, with 100 mm and 300 mm range units. This extended sensing range allows the sensor to be mounted out of the way of the manufacturing process, avoiding incidental contact.

Easy to Set-Up

Unlike competing sensors, the BLT 31M includes both auto-teach and manual programming. The sensor has both an analog (0-5 V) output and a discrete output. The analog output provides the intensity of the returned signal, allowing users to track process variations.

The BLT 31M has a numerical display for a visible representation of the relative intensity of the returned signal from 00 to 50. When the reflected light level exceeds the preset threshold, the discrete output changes state.

High Speed

Its unequalled switching frequency (6 kHz) makes this sensor ideal for high-speed applications. The faster the sensor can detect a target, the faster the manufacturing process can run.

Small Part Detection

The BLT 31M uses adjustable light projection and high resolution to allow for small part detection. With the assistance of an optional 50 mm lens, the projected UV light can be directed into a 2 mm spot. With this small spot size, the sensor is capable of detecting targets as small as a single stitch in fabric.

Features

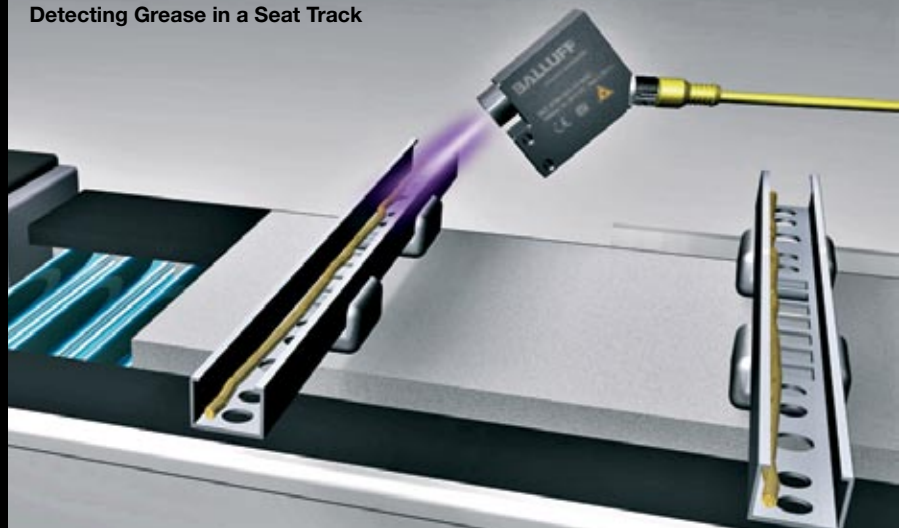
- Long range detection (up to 300 mm)
- High speed detection (6 kHz switching frequency)
- One discrete (auto-sensing PNP/NPN) and one analog (0-5 V) output
- Auto-teach or manual programming
- Numerical display indicates intensity of reading
- Adjustable UV LED intensity

Applications

The BLT 31M can be used in industrial applications to sense the presence or absence of UV materials and markers. Some targets naturally contain luminescence, and in other cases pigment may be added to the process.

- Detect UV ink used to mark part orientation
- Detect glue on packaging cartons
- Detect presence of tamper-proof seals
- Detect UV crayon marks used to grade lumber
- Detect presence of lubricating grease

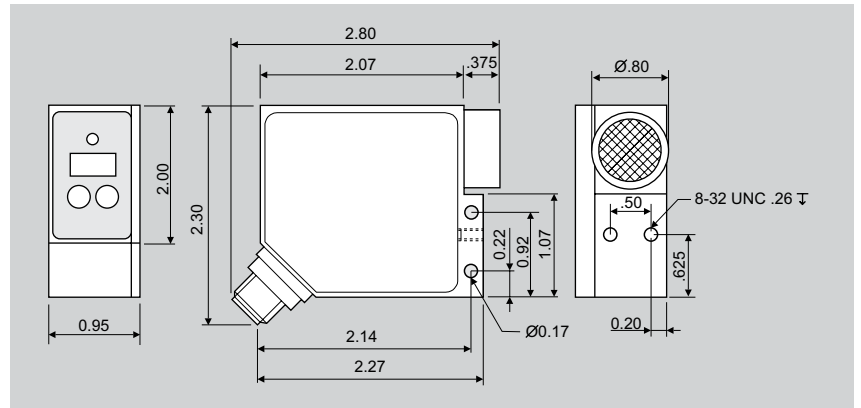
Detecting Grease in a Seat Track



| | |
|---------------|---------|
| Series | BLT 31M |
| Sensing range | 100 mm |

| | |
|---------------|---------|
| Series | BLT 31M |
| Sensing range | 300 mm |

| | |
|---------------|---------|
| Series | BLT 31M |
| Sensing range | 300 mm |



0-5 Vdc Analog Output, PNP/NPN Auto-Select, NO/NC Selectable

| | |
|-------------------------------------|---------|
| Supply voltage U_e | |
| Ripple | |
| Rated output current I_e | |
| Current consumption I_o (no load) | |
| Emitter light source | |
| LED intensity | |
| Light spot diameter | |
| Power indicator | |
| Relative intensity indication | |
| Output indicator | |
| Programming indicator | |
| LED Switching frequency f | |
| Response time (on/off delay) | |
| Outputs | Digital |
| | Analog |
| Output function | |
| Output pulse stretch | |
| Sensitivity | |
| Hysteresis | |
| Security | |
| Ambient temperature range T_a | |
| Degree of protection per IEC 60529 | |
| Short circuit protection | |
| Overload protection | |
| Housing material | |
| Lens material | |
| Emitter life | |
| Connection | |
| Recommended connector | |
| Weight | |

| BLT 31M-001-U-S92 |
|---------------------------------|
| 10...24 Vdc |
| <10% |
| 100 mA |
| < 60 mA |
| UV 370 nm |
| 3 levels (low, medium and high) |
| 5 mm @ 100 mm |
| 7 segment display indicator |
| 00...50 |
| Red LED |
| Green LED |
| 6 kHz |
| <150 μ s |
| Auto-Detect PNP/NPN |
| 0-5 Vdc |
| NO/NC selectable |
| 0...90 ms (10 steps) |
| 2 Levels |
| Programmable (10 steps) |
| Remote lock/unlock |
| -20° C...+55° C |
| IP 67 |
| Yes |
| Yes |
| Metal alloy |
| Glass |
| 100,000 hours |
| M12 5-pin connector |
| C04 AEQ-00-VY-050M |
| 95 g |

| BLT 31M-002-U-S92 |
|---------------------------------|
| 10...24 Vdc |
| <10% |
| 100 mA |
| < 60 mA |
| UV 370 nm |
| 3 levels (low, medium and high) |
| 16 mm @ 300 mm |
| 7 segment display indicator |
| 00...50 |
| Red LED |
| Green LED |
| 6 kHz |
| <150 μ s |
| Auto-Detect PNP/NPN |
| 0-5 Vdc |
| NO/NC selectable |
| 0...90 ms (10 steps) |
| 2 Levels |
| Programmable (10 steps) |
| Remote lock/unlock |
| -20° C...+55° C |
| IP 67 |
| Yes |
| Yes |
| Metal alloy |
| Glass |
| 100,000 hours |
| M12 5-pin connector |
| C04 AEQ-00-VY-050M |
| 95 g |

Light Spot Diameter with Standard Lens

| Sensing Distance | Spot Size | |
|------------------|-------------------|-------------------|
| | BLT 31M-001-U-S92 | BLT 31M-002-U-S92 |
| 20 mm | 18 mm | 18 mm |
| 50 mm | 6 mm | 6 mm |
| 100 mm | 5 mm | 5 mm |
| 150 mm | | 4 mm |
| 200 mm | | 8 mm |
| 250 mm | | 15 mm |
| 300 mm | | 16 mm |

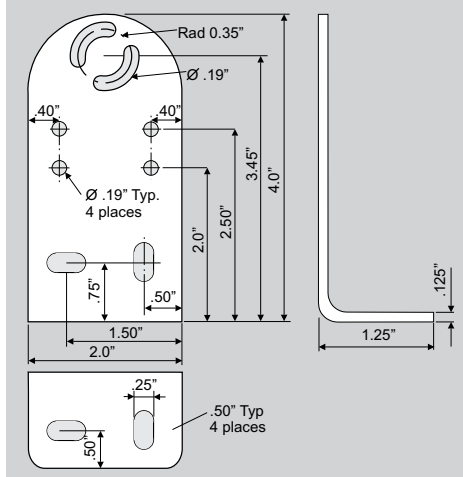
Light Spot Diameter with 50 mm Lens (BLT 31M-PK-1)

| Sensing Distance | Spot Size | |
|------------------|-------------------|-------------------|
| | BLT 31M-001-U-S92 | BLT 31M-002-U-S92 |
| 20 mm | 8 mm | 8 mm |
| 38 mm | 2 mm | 2 mm |
| 50 mm | 4 mm | 4 mm |
| 75 mm | 8 mm | 8 mm |
| 100 mm | 13 mm | 13 mm |
| 150 mm | | 22 mm |

Description



Bracket



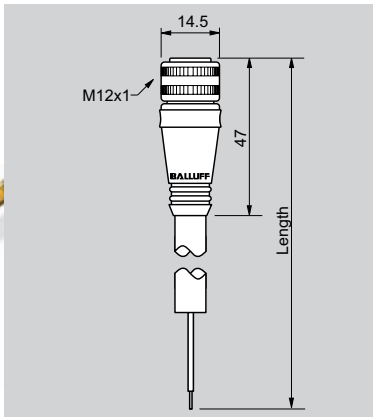
Ordering Code

BLT 31M-HW-1

Description



M12 5-pin connector
5 m straight cable



Ordering Code

C04 AEQ-00-VY-050M

Voltage rating (non-LED)

250 Vac/Vdc

Amperage

4 Amps

Wire gauge

22 AWG

Jacket

Yellow PVC

Coupling nut (std. material)

Black epoxy coated zinc

Protection

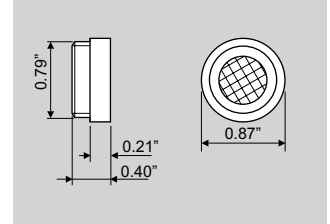
IP 68, NEMA 6P

Ambient operating temp.

-4 to 221° F

Description

Focal lens, 50 mm



Ordering Code

BLT 31M-PK-1

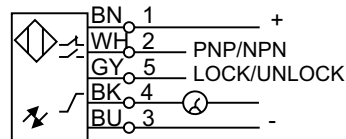
Caution:

The BLT 31M-PK-1 lens extends 0.015" beyond the back surface of the BLT 31M Luminescence Sensor.

Note:

In some cases it may be necessary to mount the BLT 31M to a flat surface. If using the BLT 31M-PK-1 lens in this type of installation please note that a spacer may be required.

Wiring Diagram



www.balluff.com

USA

Balluff Inc.
8125 Holton Drive
Florence, KY 41042
Phone: (859) 727-2200
Toll-free: 1-800-543-8390
Fax: (859) 727-4823
E-Mail: balluff@balluff.com

Canada

Balluff Canada, Inc.
2840 Argentinia Road, Unit #2
Mississauga, Ontario L5N 8G4
Phone: (905) 816-1494
Toll-free: 1-800-927-9654
Fax: (905) 816-1411
E-Mail: balluff.canada@balluff.ca

Mexico

Balluff de Mexico S.A. de C.V.
Prol. Av. Luis M. Vega #109
Col. Ampliacion Cimataro
Queretaro, QRO 76030
Phone: (+52 442) 212-4882, 224-3583, 224-3171
Fax: (+52 442) 214-0536
E-Mail: balluff.mexico@balluff.com