BALLUFF

# New Solutions for Detecting Invisible Marks

*LDμ luminescence sensing*

## LDμ Series

### *The LDμ family... Sensing the Invisible*

The LDμ family of microprocessor based luminescence detectors can see fluorescent or luminescent marks on all types of materials. As the emitted ultraviolet light (at a wavelength of 380nm) from the sensor strikes a luminescent mark or object, it is converted into visible light (See figure 1). The reflection of the visible light is detected by the receiver of the LDμ through a special filter which only detects visible light in the range of 450 to 700nm.

By pressing the "MARK" and "BKGD" keys, the sensor can be easily programmed to detect a visible or invisible luminescent target on virtually any material, regardless of its color or shine. Two highly visible LEDs are present on the sensor, GREEN to indicate a "READY" condition and RED to indicate "OUPUT".

The LDμ series is constructed in a solid metal housing with IP 67 protection. The compact 58x81x31 block style housing can be ordered with either a 90° rotatable M12 connector or a 3 meter cable.

All models of the LDμ are NPN / PNP selectable and are overload and short circuit protected. In addition to the NPN / PNP output, each model comes equipped with a 0 to 7 volt analog output. A 20ms delay feature is also available through an internal DIP switch.

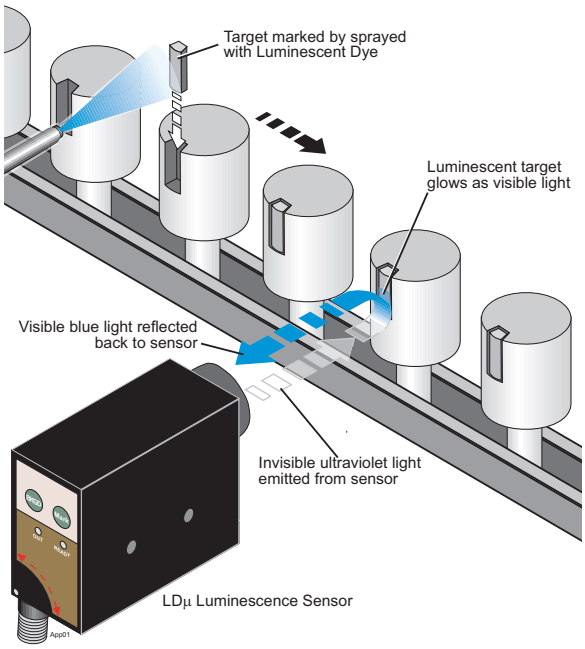
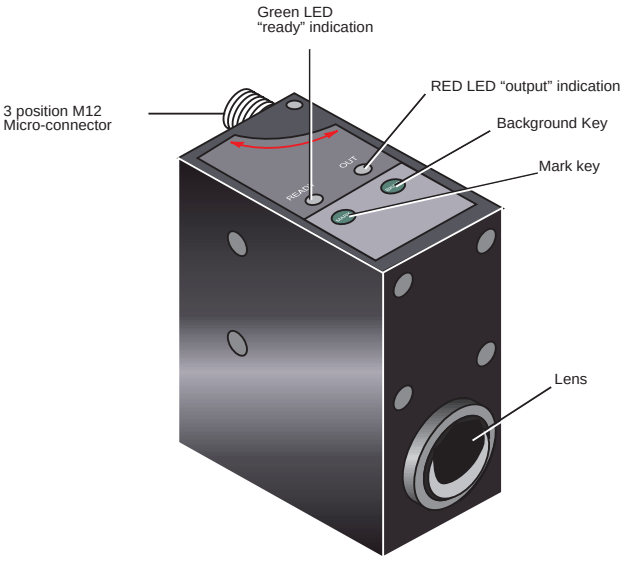



Figure 1: Operating principles of the LDμ.

## FEATURES

- Target accuracy insured by microprocessor based control
- Solid-state LED light source for exceptional long life
- Simple setup – auto learning
- Time delay available in all models
- Connector or cable versions available
- Compact metal housing with rotatable connector and IP 67 protection
- 2 kHz Switching frequency for high-speed applications



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## APPLICATIONS

Detect invisible florescent targets such as...

- Sort / reject marks on any material
- Threads in the textile industry
- Application of glue during packaging
- Detection of safety seals
- Part present verification in embedded locations

## TECHNICAL DATA

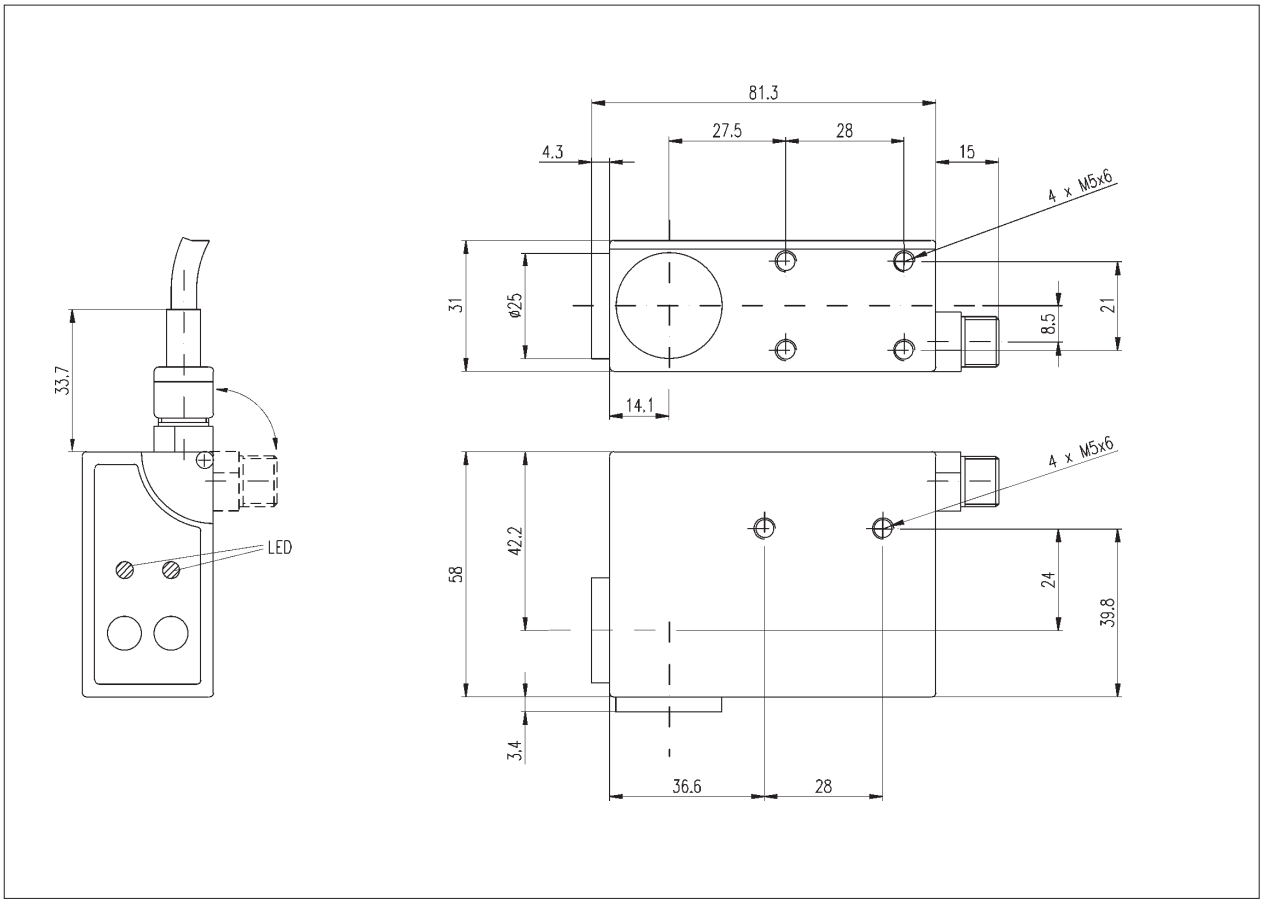
| Model Number | Sensing Type | Sensing Distance | Connection |
|---|---|---|---|
| BOS-LDu-011 | Diffuse - Luminescence Detector | 9 – 18mm | 3 m cable |
| BOS-LDu-015 | Diffuse - Luminescence Detector | 9 – 18mm | M12 connector (S4-DC Micro) |
| BOS-LDu-061 | Diffuse - Luminescence Detector | 15 – 30mm | 3 m cable |
| BOS-LDu-065 | Diffuse - Luminescence Detector | 15– 30mm | M12 connector (S4-DC Micro) |

| Specification | |
|---|---|
| Power Supply | 10 – 30Vdc; 2 Vpp ripple max |
| Consumption | 80 mA max (output current excluded) |
| Output Type | Selectable NPN/PNP |
| Output Current | 200 mA max, overload and short circuit protected |
| Output Voltage | NPN =+V-1V; PNP = +V-2V @ maximum current |
| Response Time | 250 µs; max switching frequency 2 KHz |
| Delay | Selectable 20 ms at the output turnoff |
| Analog Output | 0 to 7 Vdc; output resistance 2.2k min. |
| Setting | MARK and BACKGROUND buttons; REMOTE function in cable models |
| Indicators | OUTPUT and Ready LED's |
| Data Retention | EEPROM non-volataile memory |
| Operating temperature | -20 to +55 °C |
| Storage Temperature | -20 to +70 °C |
| Electrical Protection | Class1 |
| Emission Type | 380nm UV LED (life 100.000 hours) |
| Operating Distance | Model 9 to 18mm; or 15 to 30mm |
| Spot Dimension | Ø5mm with ob. 9 to 18 mm , Ø7mm with ob. 15 to 30mm |
| Housing | Aluminum alloy |
| Mechanical Protection | IP 67 |
| Connections | M12 - 4 pin connector(S4); or 6 wire 3 meter cable |

## ACCESSORIES

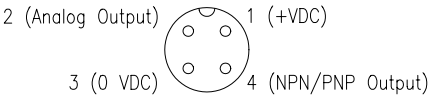
| Model Number | Description |
|---|---|
| DLM-Z/BOC-596 | Lens No.9 – 9 to 18mm range – 5mm spot |
| DLM-Z/BOC-597 | Lens No.18 – 15 to 30mm range – 7mm spot |
| DLM-Z/32-1154 | Lens No. 28 – 25 to 45mm range – 10mm spot |
| DLM-Z/BOC-511 | Lens No. 50 – 40 to 80mm range – 12mm spot |

## DIMENSIONAL DRAWING



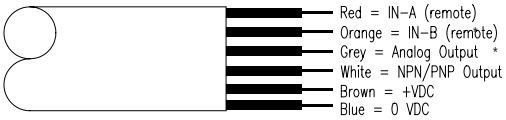

## CONNECTION

Quick Disconnect




M12 Connector

Cable Version




*connect to 0V if not used

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