# ⊙DATALOGIC™

## LD46-UL
*Luminescence sensor*

## INSTRUCTION MANUAL

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## CONTROLS

**OUT LED (yellow)**
The yellow LED indicates the output status.

**READY LED (green)**
During functioning, the green LED permanently ON indicates a normal operating condition and blinking indicates an output overload condition.

⊙ **DELAY LED (orange)**
The orange DELAY LED ON indicates the timing function activation on the digital output.

🔒 **KEYLOCK LED (orange)**
The orange KEYLOCK LED ON indicates the active keyboard status.

**BARGRAPH**
The reading sensitivity level is signalled on the bargraph.

(SET) **PUSH-BUTTON (white)**
The pressing of the (SET) push-button unlocks the keyboard, memorises the sensitivity and activates the digital output timing.

(+) **(red) and** (−) **(green) push-buttons**
The sensitivity adjustment procedure is activated by pressing the (+) and (−) push-buttons.

**See the "SETTING" paragraph for setup procedure indications.**

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## INSTALLATION

The sensor can be positioned by means the two Ø3.5mm housing's holes using or threaded M5 holes with 6 mm max. depth.
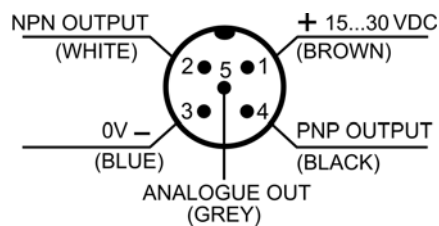**Warning:** the use of excessively long screws can damage the product.

The connector can be oriented at five different positions by rotating the block. The position chosen is guaranteed by a mechanical blocking system.
The rotation can be carried-out even after sensor installation as the connector block is completely self-contained inside the housing.
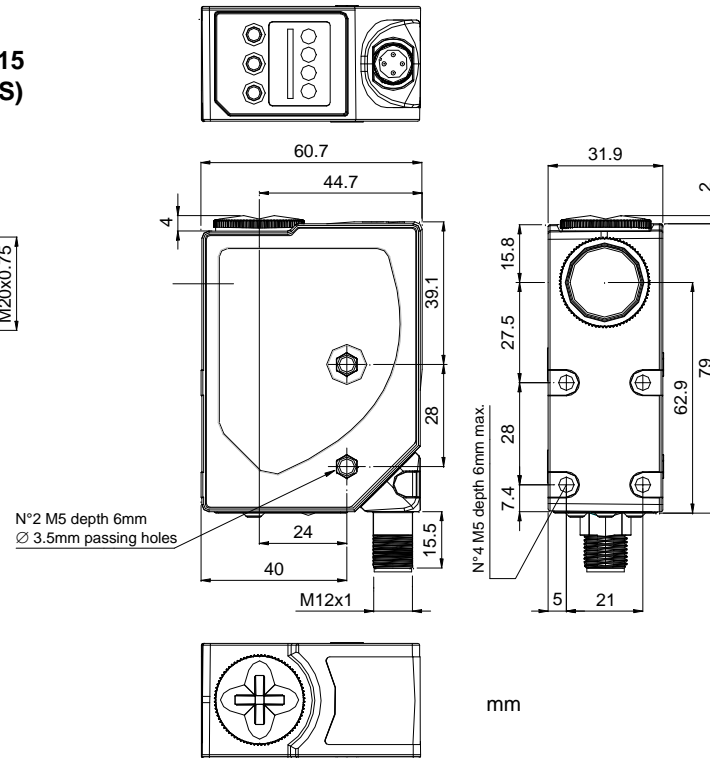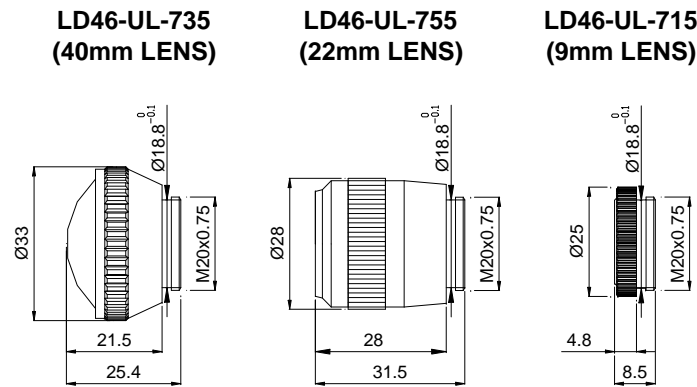
Operating distance is rated starting from the lens front face.

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## CONNECTIONS

NPN OUTPUT (WHITE)
+ 15...30 VDC (BROWN)
0V (BLUE)
PNP OUTPUT (BLACK)
ANALOGUE OUT (GREY)

2 5 1
3 4

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## DIMENSIONS

**LD46-UL-735 (40mm LENS)**
Ø18.8 ₀⁻⁰·¹
M20x0.75
Ø33
21.5
25.4

**LD46-UL-755 (22mm LENS)**
Ø18.8 ₀⁻⁰·¹
M20x0.75
Ø28
28
31.5

**LD46-UL-715 (9mm LENS)**
Ø18.8 ₀⁻⁰·¹
M20x0.75
Ø25
4.8
8.5

60.7
44.7
4
39.1
15.8
31.9
2
27.5
28
79
62.9
28
7.4
5 21
M12x1
15.5
24
40

N°2 M5 depth 6mm
Ø 3.5mm passing holes

N°4 M5 depth 6mm max.

mm

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## TECHNICAL DATA

| | |
|---|---|
| Power supply: | 15…30 Vdc limits value |
| Ripple: | 2 Vpp max. |
| Consumption *(output current excluded):* | 50mA max @ 24Vcc |
| Output: | 1 PNP output<br>1 NPN output |
| Output current: | 100 mA max. |
| Output saturation voltage: | ≤ 2 V |
| Analogue output: | 0.75 … 5.5 V max. |
| Analogue output impedance: | 2.2 kΩ *(short-circuit protection)* |
| Response time: | 250 µs |
| Switching frequency: | 2 kHz |
| Delay: | 0 / 20 ms selectable *(no-delay default configuration)* |
| Indicators: | OUT LED (yellow) / READY LED (green)<br>DELAY LED and KEYLOCK LED (orange)<br>5-segment bargraph |
| Push-buttons: | +, SET, - |
| Operating temperature: | -10 … 55 °C |
| Storage temperature: | -20 … 70 °C |
| Electric shock protection: | double insulation ▱ |
| Operating distance: | 10 … 20 mm (LD46-UL-715)<br>20 … 40 mm (LD46-UL-755)<br>30 … 50 mm (LD46-UL-735) |
| Minimum spot dimension: | 2 x 8 mm @10mm (LD46-UL-715)<br>3x11 mm @ 24mm (LD46-UL-755)<br>4x15 mm @ 50mm(LD46-UL-735) |
| Emission type: | UV 375nm LEDs, Class 1 |
| Ambiente light rejection: | according to EN 60947-5-2 |
| Vibrations: | 0.5 mm amplitude, 10 … 55 Hz frequency, per each axis (EN60068-2-6) |
| Shock resistance: | 11 ms (30 G) 6 shock per each axis (EN60068-2-27) |
| Housing material: | Aluminium |
| Lens material: | Glass |
| Mechanical protection: | IP67 |
| Connections: | M12 5-pole connector |
| Weight: | 180 g. max. |

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## SETTING

**KEYLOCK function (patent-covered)**
The KEYLOCK function deactivates the keyboard thus avoiding accidental changes in the sensor setting.
At sensor powering the keyboard is blocked (KEYLOCK LED OFF). To activate it, press (SET) for 5 seconds until the KEYLOCK LED (orange) turns ON.
The keyboard is automatically blocked if not used for 2 minutes.
Unblock the keyboard to proceed with sensor adjustment.

OUT RDY ⊙ 🔒    5 sec.    OUT RDY ⊙ 🔒    2 min.    OUT RDY ⊙ 🔒
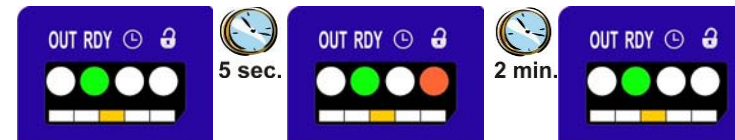
**NORMAL FUNCTIONING**
During normal functioning a LED on the bargraph visualises the sensitivity level.

OUT RDY ⊙ 🔒
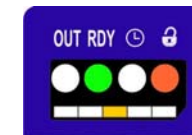
**SENSITIVITY ADJUSTMENT**
This mode regulates the sensor reading sensitivity, i.e. the capability of detecting objects with different luminescence degrees.

The sensitivity is increased or decreased by pressing the (+) or (−) push-buttons.

OUT RDY ⊙ 🔒

The adjustment speed is increased by keeping the (+) or (−) push-buttons pressed.

The sensitivity level which is being set blinks on the bargraph during this phase.

| Sensitivity | Bargraph |
|---|---|
| Low | |
| Medium-Low | |
| Medium | |
| Medium-High | |
| High | |
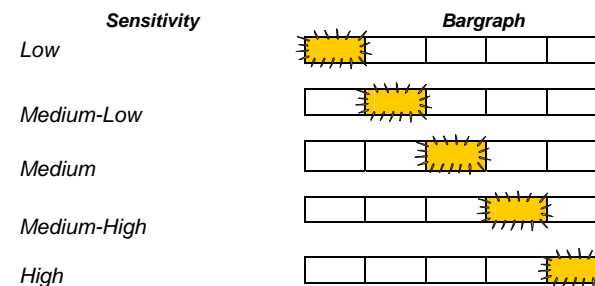
Press (SET) to memorise the new threshold value or wait 30sec for automatic save.

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## DELAY SETTING

The DELAY extends the minimum active output status duration to 20ms, allowing even slower interface systems to detect shorter pulses.
The delay is signalled by the corresponding orange LED ON.

ON
OUT without DELAY
OFF
ON
OUT with DELAY
OFF
20ms  20ms
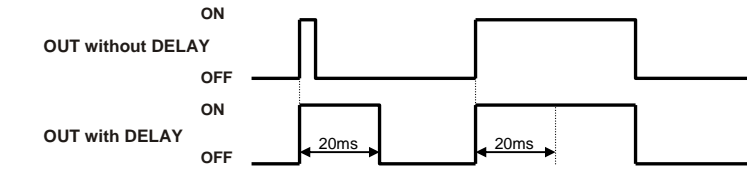
*Delay activation*
- Press (SET) for 2 sec until DELAY LED turns ON.

2 sec.    OUT RDY ⊙ 🔒

*Delay deactivation*
- Press (SET) for 2 sec until DELAY LED turns OFF.
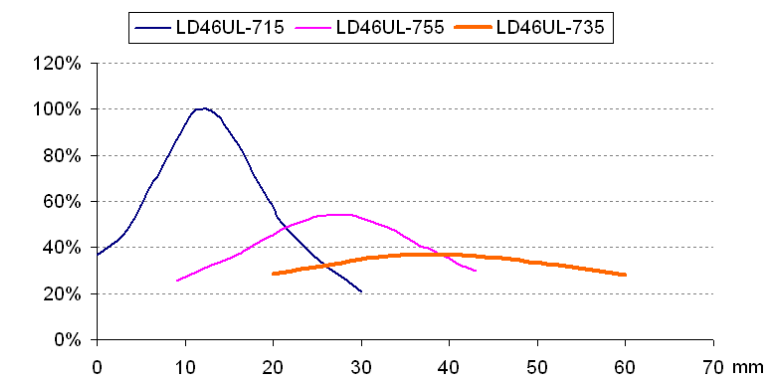
2 sec.    OUT RDY ⊙ 🔒

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## OUTPUT OVERLOAD
The digital output overload is signalled by the rapid blinking of the READY LED.

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## ANALOGUE OUTPUT
The analogue output supplies a voltage proportional to the signal received by the sensor. The voltage supplied is 0.75 ÷ 5.5V.

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## DETECTION DIAGRAM

Legend: LD46UL-715, LD46UL-755, LD46UL-735

Y-axis: 0% 20% 40% 60% 80% 100% 120%
X-axis: 0 10 20 30 40 50 60 70 mm

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**EX-II-3DG IP67 T6**

| | |
|---|---|
| Temperature class: | T6 (<85°C) |
| Max. Power consumption: | 1500 mW at 30 Vdc |
| Max. Internal capacitance: | 380 pF |
| Internal inductance: | negligible |

(Ex)