

# Photoelectric Special Sensors

## Luminescence sensors BLT

### Product overview



Photoelectric sensors

Photoelectric standard sensors

Photoelectric special sensors

Optical fiber base units

Fiber optics

Contrast sensor

**Luminescence sensor**

Color sensors

Fork sensors

Angle sensors

Dynamic optical windows

Light grids

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors

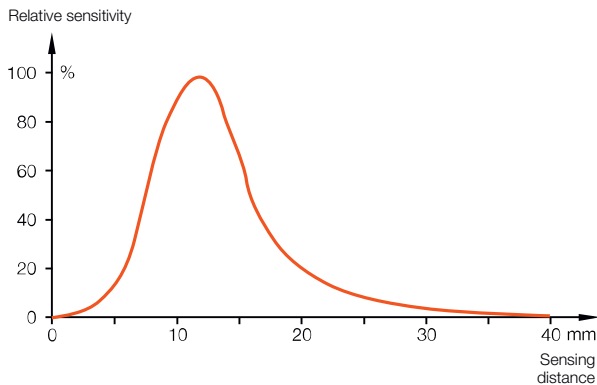
Type

Type	Sensing distance	Light type		Output			Switching type		Switching frequency	U <sub>s</sub>	Connection		Page
		UV light		PNP transistor	NPN transistor	Analog output	Light switching	Dark switching			10...30V DC	M12 plug, 4-pin	
<b>Luminescence sensors</b>													
<b>BLT0004</b>	BLT 18KF-001-P-S4	8...20 mm	■	■			■	■	1 kHz	■	■		295
<b>BLT0003</b>	BLT 18KF-001-P-02	8...20 mm	■	■			■	■	1 kHz	■		■	295
<b>BLT0009</b>	BLT 21M-001-P-S4	0...40 mm	■	■			■	■	2 kHz	■	■		297
<b>BLT0008</b>	BLT 21M-001-N-S4	0...40 mm	■		■		■	■	2 kHz	■	■		297
<b>BLT0006</b>	BLT M-15-U-S4	9...18 mm	■	■	■	■	■	■	1 kHz	■	■		299
<b>BLT0005</b>	BLT M-11-U-03	9...18 mm	■	■	■	■	■	■	1 kHz	■		■	299
<b>BLT0007</b>	BLT M-55-U-S4	20...40 mm	■	■	■	■	■	■	2 kHz	■	■		301

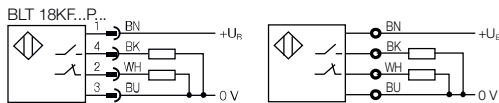
The luminescence sensor **BLT 18KF** detects any type of luminescent markings on any surface and automatically adjusts to ambient conditions. The sensor is calibrated with the simple push of a button. (Markings with a luminescence greater than the background are detected.)

A precise setting is available for slightly luminescent markings. The switching type can be freely selected in this case.

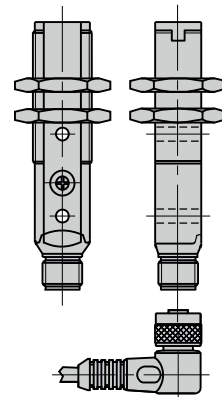
### Function diagram



### Wiring diagrams



### Connector orientation



### Recommended accessories

(please order separately)

Description	Ordering code
① Mounting bracket	<b>BAM00RY</b>
② Mounting clamp	<b>BAM00T3</b>



You can find special accessories for diffuse sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog starting on page 379.

**More mechanical accessories:** You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

### Suitable connector

(please order separately)



Size	Design	Cable material	Color	Length	Ordering code
M12, 4-pin	Straight	PUR	Black	2 m	<b>BCC032F</b>
M12, 4-pin	Straight	PVC	Gray	2 m	<b>BCC0367</b>
M12, 4-pin	Angled	PUR	Black	2 m	<b>BCC032Y</b>
M12, 4-pin	Angled	PVC	Gray	2 m	<b>BCC036N</b>

Connectors without LED are suitable for PNP and NPN sensors.

**More electrical accessories:** You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity** catalog.

# Photoelectric Special Sensors

## Luminescence sensors BLT 18KF



Photoelectric sensors

Photoelectric standard sensors

Photoelectric special sensors

Optical fiber base units

Fiber optics

Contrast sensor

**Luminescence sensor**

Color sensors

Fork sensors

Angle sensors

Dynamic optical windows

Light grids

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

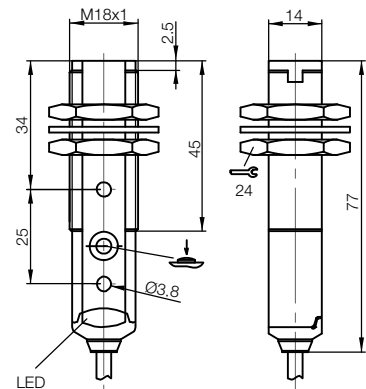
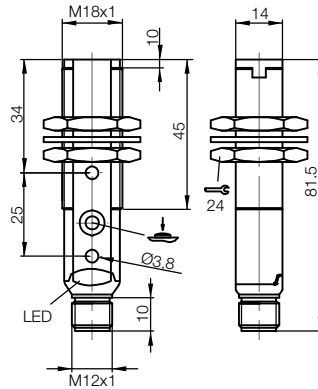
Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

Photoelectric distance sensors for analog distance measurement

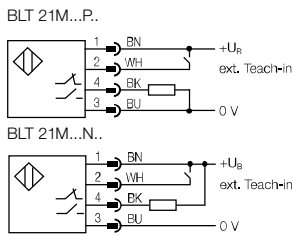
Series	BLT	BLT
Working range	8...20 mm	8...20 mm
PNP NC/NO	<b>Ordering code</b> BLT0004	<b>BLT0003</b>
	Part number BLT 18KF-001-P-S4	BLT 18KF-001-P-02
Supply voltage $U_B$	10...30 V DC	10...30 V DC
No-load supply current $I_0$ max.	$\leq 25$ mA	$\leq 25$ mA
Output current	100 mA	100 mA
Switching type	Light and dark switching	Light and dark switching
Polarity reversal/short-circuit protected	Yes/Yes	Yes/Yes
Settings	Teach-in	Teach-in
Emitter, light type	LED, UV	LED, UV
Wavelength	370 nm	370 nm
Light spot diameter	approx. 3 mm at 20 mm	approx. 3 mm at 20 mm
Output function indicator	Yellow LED	Yellow LED
Power/error indicator	Green/red LED	Green/red LED
Response time	0.5 ms	0.5 ms
Switching frequency	1 kHz	1 kHz
Degree of protection as per IEC 60529	IP 67	IP 67
Ambient temperature $T_a$	-25...+55 °C	-25...+55 °C
Permissible ambient light	EN 60947-5-2	EN 60947-5-2
Material	Housing: PBT Optical surface: PMMA	PBT PMMA
Connection	M12 connector, 4-pin	2 m PVC cable, 4x0.14 mm <sup>2</sup>



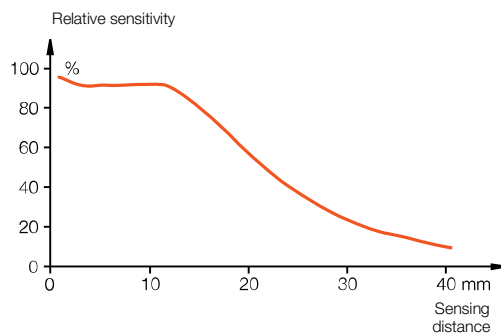
The luminescence sensor **BLT 21M** detects any type of luminescent markings on any surface and automatically adjusts to ambient conditions. The sensor is calibrated with the simple push of a button. (Markings with a luminescence greater than the background are detected.)

A precise setting is available for slightly luminescent markings. The switching type can be freely selected in this case.

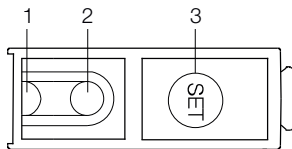
**Wiring diagrams**



**Function diagram**



**Indicators and operating elements**



- 1 Output function indicator (yellow)
- 2 Power-/error indicator (green/red)
- 3 SET- button

**Recommended accessories**  
 (please order separately)

Description	Ordering code
① Mounting bracket	<b>BAM00T9</b>
② Mounting bracket	<b>BAM00TA</b>
③ Clamp holder	<b>BAM00TF</b>
④ Clamp holder	<b>BAM00TH</b>



**Suitable connector**  
 (please order separately)



Size	Design	Cable material	Color	Length	Ordering code
M8, 4-pin	Straight	PUR	Black	2 m	<b>BCC02N2</b>
M8, 4-pin	Straight	PVC	Gray	2 m	<b>BCC02PL</b>
M8, 4-pin	Angled	PUR	Black	2 m	<b>BCC02NC</b>
M8, 4-pin	Angled	PVC	Gray	2 m	<b>BCC02PZ</b>

Connectors without LED are suitable for PNP and NPN sensors.

You can find special accessories for diffuse sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog starting on page 379.

**More mechanical accessories:** You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

**More electrical accessories:** You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity catalog**.

# Photoelectric Special Sensors

## Luminescence sensors BLT 21M



Photoelectric sensors

Photoelectric standard sensors

Photoelectric special sensors

Optical fiber base units

Fiber optics

Contrast sensor

**Luminescence sensor**

Color sensors

Fork sensors

Angle sensors

Dynamic optical windows

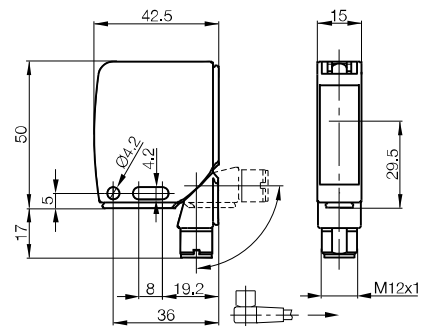
Light grids

Photoelectric distance sensors

for analog distance measurement

Special accessories for photoelectric sensors

Series		<b>BLT</b>
Working range		<b>0...40 mm</b>
PNP NC/NO	<b>Ordering code</b>	<b>BLT0009</b>
	Part number	BLT 21M-001-P-S4
NPN NC/NO	<b>Ordering code</b>	<b>BLT0008</b>
	Part number	BLT 21M-001-N-S4
Supply voltage $U_B$		10...30 V DC
No-load supply current $I_0$ max.		$\leq 30$ mA
Output current		100 mA
Switching type		Light and dark switching (adjustable in precise mode)
Polarity reversal/short-circuit protected		Yes/Yes
Settings		Teach-in
Emitter, light type		LED, UV
Wavelength		370 nm
Light spot diameter		ca. 1.5 mm at 10 mm
Output function indicator		Yellow LED
Power/error indicator		Green/red LED
Response time		250 $\mu$ s
Switching frequency		2 kHz
Time function		20 ms off-delay
Degree of protection as per IEC 60529		IP 67
Ambient temperature $T_a$		-10...+55 °C
Permissible ambient light		EN 60947-5-2
Material	Housing	GD-Zn/Al
	Optical surface	Glass
Connection		M12 connector, 4-pin

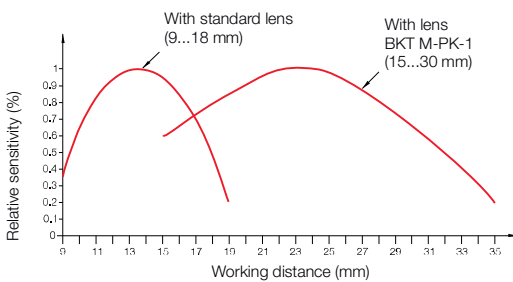


The Balluff luminescence sensor BLT is equipped with a state-of-the-art UV source, which means no external UV lamp is needed. Controlled by a microcontroller, the sensor performs its evaluation via teach-in. By simply pressing a button, the BLT learns the difference between the fluorescent marking and the background. If the difference is too slight and cannot be reliably discerned, this is indicated by an error message (flashing LED). The sensing distance is typically from 9 to 18 mm, but can be increased by using additional lenses. Configuring two internal DIP switches allows you to set a turn-off delay of 20 ms or disable the buttons. The PNP/NPN output wiring can also be configured. An analog signal in proportion to the reflected light rounds out the BLT's functions.

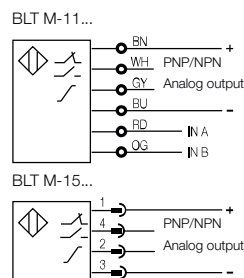
### Features

- UV source: LED, 100,000 hour service life
- Push-button setting
- Automatic setting of light/dark switching
- Time delay selectable
- Analog output 0...7 V DC standard
- Switchable M12 plug (3 positions)
- Button locking possible

### Function diagram



### Wiring diagrams



### Recommended accessories

(please order separately)

Description	Ordering code
Lens	<b>BAM0120</b>



You can find special accessories for diffuse sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog starting on page 379.

**More mechanical accessories:** You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

### Suitable connector

(please order separately)



Size	Design	Cable material	Color	Length	Ordering code
M12, 4-pin	Straight	PUR	Black	2 m	<b>BCC032F</b>
M12, 4-pin	Straight	PVC	Gray	2 m	<b>BCC0367</b>
M12, 4-pin	Angled	PUR	Black	2 m	<b>BCC032Y</b>
M12, 4-pin	Angled	PVC	Gray	2 m	<b>BCC036N</b>

Connectors without LED are suitable for PNP and NPN sensors.

**More electrical accessories:** You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity catalog**.

# Photoelectric Special Sensors

## Luminescence sensors BLT M



Photoelectric sensors

Photoelectric standard sensors

Photoelectric special sensors

Optical fiber base units

Fiber optics

Contrast sensor

**Luminescence sensor**

Color sensors

Fork sensors

Angle sensors

Dynamic optical windows

Light grids

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

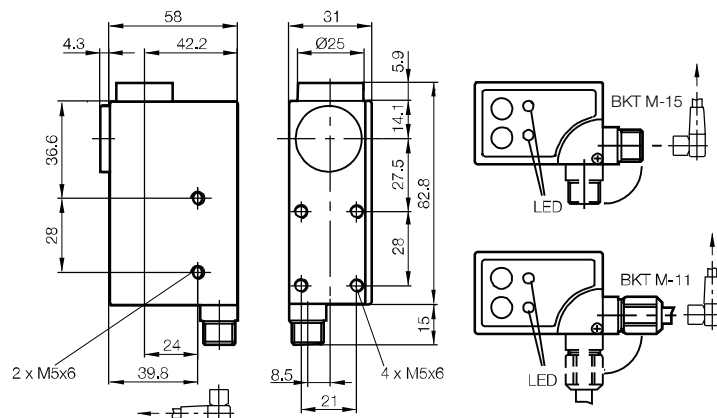
Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Series	BLT	BLT
Working range	9...18 mm	9...18 mm
Working range with lens PK-1	15...30 mm	15...30 mm
PNP	<b>Ordering code</b> BLT0006	<b>BLT0005</b>
NPN NC/NO	Part number BLT M-15-U-S4	BLT M-11-U-03
Supply voltage $U_B$	10...30 V DC	10...30 V DC
No-load supply current $I_0$ max.	≤ 80 mA	≤ 80 mA
Output current	200 mA	200 mA
Switching type	Light/dark switching (selectable)	Light/dark switching (selectable)
Polarity reversal/short-circuit protected	Yes/Yes	Yes/Yes
Analog output	0...7 V DC	0...7 V DC
Settings	Teach-in	Teach-in
Additional functions	Disable buttons	Disable buttons
Emitter, light type	LED, UV	LED, UV
Wavelength	380 nm	380 nm
Light spot diameter	5 mm at focal point	5 mm at focal point
Ready indicator	Green LED	Green LED
Output function indicator	Red LED	Red LED
Response time	0.5 ms	0.5 ms
Switching frequency	1 kHz	1 kHz
Time function	20 ms off-delay selectable	20 ms off-delay selectable
Degree of protection as per IEC 60529	IP 67	IP 67
Ambient temperature $T_a$	-10...+55 °C	-10...+55 °C
Permissible ambient light	EN 60947-5-2	EN 60947-5-2
Material	Housing: GD-Zn Optical surface: Glass	Housing: GD-Zn Optical surface: Glass
Connection	M12 connector, 4-pin	3 m cable, PVC 6×0.34 mm <sup>2</sup> with shield

### Please note!

Lenses not interchangeable for BLT M.



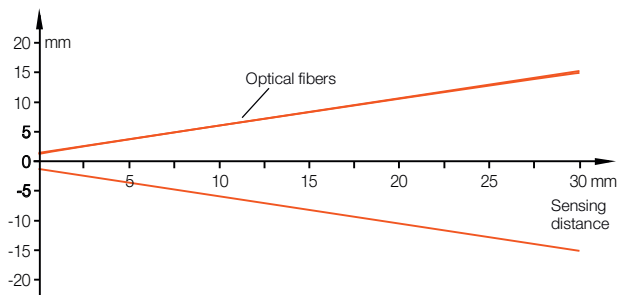
The Balluff luminescence sensor **BLT M-55-...** is equipped with a high-power UV LED. Thus, large sensing distances can be achieved using special target objects. An adaptable optical fiber provides additional solution options for tight mounting conditions.

### Features

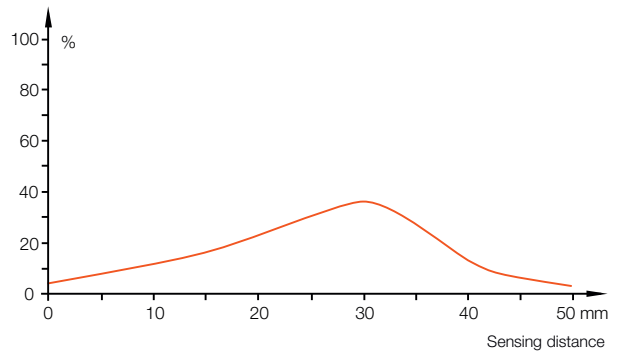
- High-power UV LED
- High switching frequency of 2 kHz
- Optical fiber compatibility
- Push-button setting
- Analog output 0...7 V DC standard

### Function diagrams

Detection range

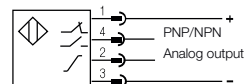


Relative sensitivity



### Wiring diagram

BLT M-55-...



### Recommended accessories

(please order separately)

Description	Ordering code
Optical fibers	<b>BFO LTS-...-TAF-00-__</b>



### Suitable connector

(please order separately)



Size	Design	Cable material	Color	Length	Ordering code
M12, 4-pin	Straight	PUR	Black	2 m	<b>BCC032F</b>
M12, 4-pin	Straight	PVC	Gray	2 m	<b>BCC0367</b>
M12, 4-pin	Angled	PUR	Black	2 m	<b>BCC032Y</b>
M12, 4-pin	Angled	PVC	Gray	2 m	<b>BCC036N</b>

Connectors without LED are suitable for PNP and NPN sensors.

You can find special accessories for photoelectric sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog on page 379.

**More mechanical accessories:** You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

**More electrical accessories:** You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity** catalog.



# Photoelectric Special Sensors

## Luminescence sensors BLT M



Photoelectric sensors

Photoelectric standard sensors

Photoelectric special sensors

Optical fiber base units

Fiber optics

Contrast sensor

**Luminescence sensor**

Color sensors

Fork sensors

Angle sensors

Dynamic optical windows

Light grids

Photoelectric distance sensors

for analog distance measurement

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Special accessories for photoelectric sensors

Series	<b>BLT</b>	
Working range	<b>20...40 mm</b>	
Working range with optical fibers	<b>0...30 mm</b>	
PNP/NPN	NC/NO	<b>Ordering code</b>
		<b>BLT007</b>
	Part number	BLT M-55-U-S4
Supply voltage $U_B$	10...30 V DC	
No-load supply current $I_0$ max.	$\leq 80$ mA	
Output current	200 mA	
Switching type	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected	Yes/Yes	
Analog output	0...7 V DC	
Settings	Teach-in	
Additional functions	Disable buttons	
Emitter, light type	LED, HP UV	
Wavelength	370 nm	
Light spot diameter	3 mm at focal point	
Ready indicator	Green LED	
Output function indicator	Red LED	
Response time	250 $\mu$ s	
Switching frequency	2 kHz	
Time function	20 ms off-delay selectable	
Degree of protection as per IEC 60529	IP 67	
Ambient temperature $T_a$	-10...+55 °C	
Permissible ambient light	EN 60947-5-2	
Material	Housing	GD-Zn
	Optical surface	Glass
Connection	M12 connector, 4-pin	

**Please note! Lenses not interchangeable for BLT M.**

