

# Light Curtains

## Light Curtains for Lift

### Type BFL104x, BFL194x



BFL E



BFL S

- Flexible connecting cables
- According to EN 81-70 requirements
- IP65 versions BFLxxxx200I, IP54 versions BFLxxxx200

- Protective screen for lift doors generated by light curtains
- Height version 200 cm
- Diodes position on the edge and on the side of the profile
- Output type: static opto-mosfet (70 mA) for NPN/PNP and voltage free contact
- Output working mode: NO or NC (selectable)
- 9.7 mm ultra slim PC-ABS plastic housing
- 4 m range
- Light immunity > 100 kLux
- Automatic signal level adjustment
- High speed scanning
- LED indication for power supply ON and system status
- Dynamic mounting (directly on the lift sliding doors)
- Static mounting (on the fixed walls of the lift opening) by optional kit (BFLMOUNT)
- Timeout and blanking functions

## Product Description

The BFL series provides the protection of the lift car/passenger doors through a light curtain of infrared beams between the emitting and receiving units. Whenever a person or an object breaks at least one beam, the system is triggered causing the doors to re-open. In the same way, the BFL can be used for access openings in industrial production, in automatic stores for cargo monitoring and in many other applications.

The transmitting unit (TX) and the receiving unit (RX) are synchronized by the wire and are designed for dynamic and static mounting. The system is able to adjust the power of the signal depending on the distance between the two units, in order to minimise the power consumption and ensure maximum life-span of the components without any set up. No external control box is required.

## Ordering Key

**BFL 194 E 200 I**



## Type Selection

Height	Diodes number	Beams number (max.)	Diode position	Protection degree	Output	Supply 10 to 30 VDC
200 cm	22	104	Edge	IP65	opto-mosfet	BFL 104 E 200I
200 cm	40	194	Edge	IP65	opto-mosfet	BFL 194 E 200I
200 cm	22	104	Edge	IP54	opto-mosfet	BFL 104 E 200
200 cm	40	194	Edge	IP54	opto-mosfet	BFL 194 E 200
200 cm	22	104	Side	IP65	opto-mosfet	BFL 104 S 200I
200 cm	40	194	Side	IP65	opto-mosfet	BFL 194 S 200I
200 cm	22	104	Side	IP54	opto-mosfet	BFL 104 S 200
200 cm	40	194	Side	IP54	opto-mosfet	BFL 194 S 200

## Output Specifications

Output Type	(TX)	NC static: opto-mosfet NO configuration selectable by connecting the NONC black wire on RX to ground. Voltage free contact
Load		$V_{ON}$ 2.5 VAC/DC max 70 mA $V_{max}$ 30 VDC (27 VAC rectified)

## Supply Specifications

Power supply	Rated operational voltage through brown and blue wires	Overvoltage cat. 1 (IEC 60664) 10 to 30 VDC 18 to 27 VAC rectified
Rated operational current	TX RX	max. 50 mA max. 15 mA

## General Specifications

<b>Operating range</b>	0 to 4 m	<b>Timeout function</b>	Enabled connecting the TOBK white wire on RX to GND Function activation time after diode(s) obstruction 10 s ± 2 s
<b>Protected height</b>	20.5 to 1846 mm	<b>Blanking function</b>	Teach-in at power supply on, after connecting the TOBK white wire on RX to VDC
<b>Distance between the diodes</b>	46.8 mm	<b>Distance between bottom beam and bottom of housing</b>	13.7 mm
BFL194x	46.8 mm	<b>Distance between top beam and bottom of housing</b>	1838.7 mm
BFL104x	93.6 mm	<b>LEDs indication</b>	TX 2 red RX 2 red (see details in the LEDs indication tables)
Bottom 4 diodes	46.8 mm	<b>LEDs position indication</b>	Approx. 10 cm from the top of the housing
Top 18 diodes	93.6 mm	<b>Environment</b>	(EN 60529) Degree of protection BFLxxxx200I IP 65 BFLxxxx200 IP 54 Pollution degree 3 Operating temperature -5 to +55°C, R.H. < 95% Storage temperature -20 to +65°C, R.H. < 95%
<b>Beam pattern</b>	Self-adaptive, depending on the signal transmitting level	<b>Housing</b> (TX, RX)	Dimensions (W,H,L) BFLxxxE 29.9 x 2001 x 9.7 mm BFLxxxS 16.4 x 2009 x 26 mm Material Plastic (PC-ABS)
Typical values		<b>Weight</b> (TX, RX)	Approx. 1 Kg
BFL104x		<b>Mounting</b>	Dynamic Standard mounting Static Optional mounting by the BFLMOUNT kit: BFLMOUNT200
< 70 cm:	22 beams (1 beam/LED)	<b>Approvals</b>	UL, CSA
70 to 140 cm:	64 beams (3 beams/LED)	<b>CE Marking</b>	Yes
> 140 cm:	104 beams (5 beams/LED)	<b>EMC</b>	Immunity Electromagnetic Compatibility Emission According to EN 12016 According to EN 12015
BFL194x		<b>According to</b>	Protective height stated in EN 81-70 norm
< 35 cm:	40 beams (1 beam/LED)		
35 to 70 cm:	118 beams (3 beams/LED)		
> 70 cm:	194 beams (5 beams/LED)		
<b>Light immunity</b>	> 100 kLux		
<b>Start-up time</b>	300 ms @ 0 m 1800 ms @ 4 m		
<b>Reaction time</b>			
BFL104x	35 ms @ uniform illum. (L) + 5 ms if  L-Lmax  > 30 kLux		
BFL194x	50 ms @ uniform illum. (L) + 5 ms if  L-Lmax  > 30 kLux		
Alarm OFF delay	500 ms		
<b>Angular mounting tolerance</b>			
Vertical	± 3.5° (@ 3 m)		
Horizontal	± 3.0° (@ 3 m) (see details in the Mounting Tolerance Diagrams)		
<b>Linear mounting tolerance</b>			
Vertical	± 4.0 mm (@ 0 m)		
Horizontal	± 2.0 mm (@ 0 m) (see details in the Mounting Tolerance Diagrams)		
<b>RX-TX synchronisation</b>	By wire		
<b>Transmitting signal power level</b>	Self-adaptive, depending on the distance between TX and RX		
<b>Connecting cable</b>	5 x 24AWG, PVC, not shielded		
Length	4 m		
Diameter	5.2 mm		

## Function Setting

If the NONC (black) wire is not connected, the BFL is in NC output configuration. Select the NO output function by connecting the NONC wire on RX to ground.

If the TOBK (white) wire on RX is not connected, both Timeout and Blanking function are not enabled.

Select the Timeout function by connecting the TOBK wire to GND.

Select the Blanking function by connecting the TOBK wire to VDC.

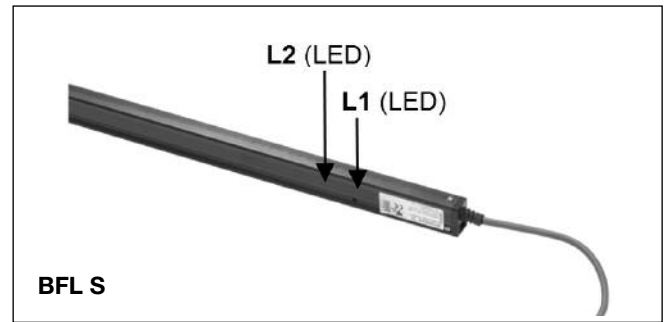
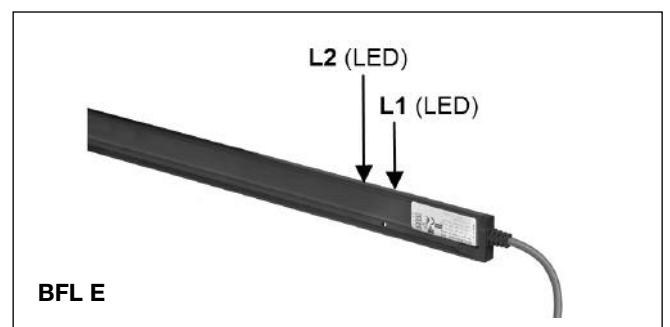
## LEDs Indication

TX LEDs	Status	Description
L1 (red)	OFF ON	<ul style="list-style-type: none"> <li>• Blanking function not enabled</li> <li>• Blanking function enabled</li> </ul>
L2 (red)	ON OFF Flashing	<ul style="list-style-type: none"> <li>• Power supply ON/ Transmitter operating</li> <li>• Unit not supplied</li> <li>• Wrong TX-RX transmission</li> </ul>

RX LEDs (BFLxxxE)	Status	Description
L1 (red)	ON OFF Flashing	<ul style="list-style-type: none"> <li>• Power supply ON/ Receiver operating</li> <li>• Unit not supplied</li> <li>• Alarm condition</li> </ul>
L2 (red)	OFF ON Flashing	<ul style="list-style-type: none"> <li>• Timeout function not enabled</li> <li>• Timeout function enabled</li> <li>• Timeout function enabled and at least 1 diode excluded</li> </ul>

RX LEDs (BFLxxxS)	Status	Description
L1 (red)	OFF ON Flashing	<ul style="list-style-type: none"> <li>• Timeout function not enabled</li> <li>• Timeout function enabled</li> <li>• Timeout function enabled and at least 1 diode excluded</li> </ul>
L2 (red)	ON OFF Flashing	<ul style="list-style-type: none"> <li>• Power supply ON/ Receiver operating</li> <li>• Unit not supplied</li> <li>• Alarm condition</li> </ul>

## LEDs Position



## Mode of Operation

Provided with a height of 200 cm, the BFL series ensures a beam pattern produced by infrared diodes. Depending on the distance between the transmitter (TX) and the receiver (RX) or, in general, depending on the signal transmitting level, each diode produces 1 direct beam, 3 or 5 beams. The BFL can be connected

directly to the lift-controller if it can provide 10 to 30 DC voltage. Otherwise, we recommend to use a suitable power supply unit.

### Timeout function.

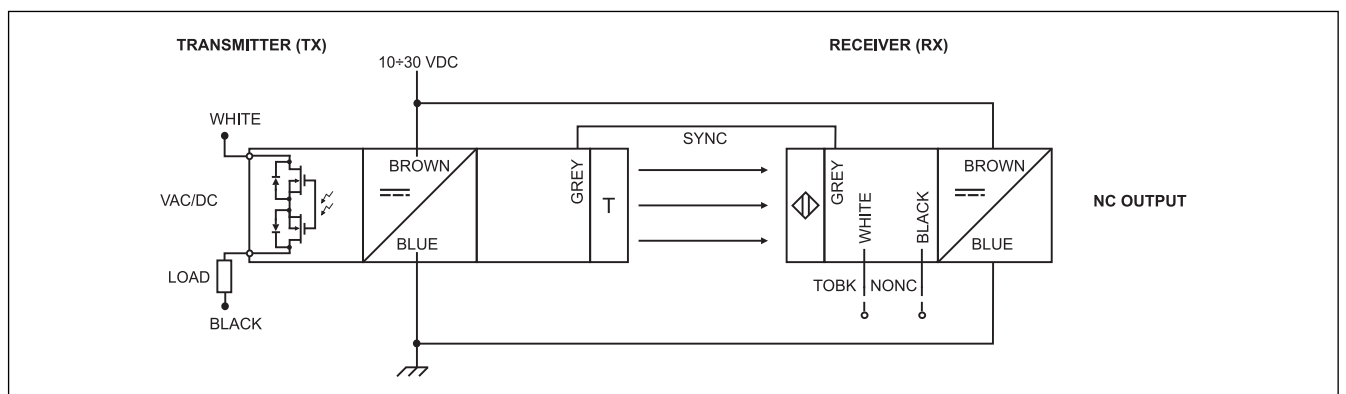
The function is enabled by connecting the TOBK white wire on RX to GND at start up (before supplying the

light curtain). This feature allows up to 5 non-adjacent diodes to be ignored in case they are obstructed for more than 10 seconds, in order to enable detectors defaced by vandalism to continue working until arrangements or replacements.

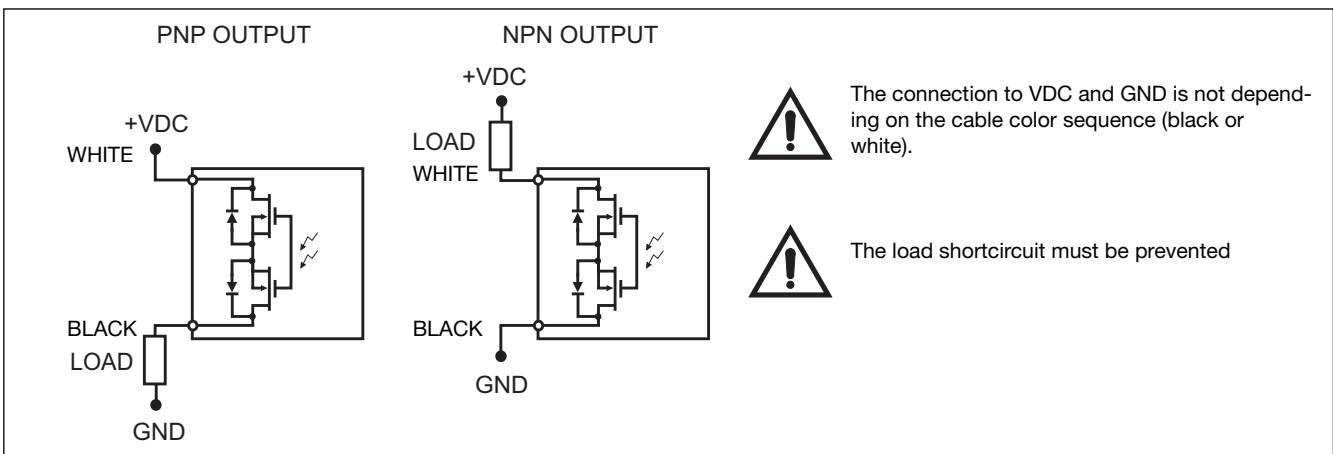
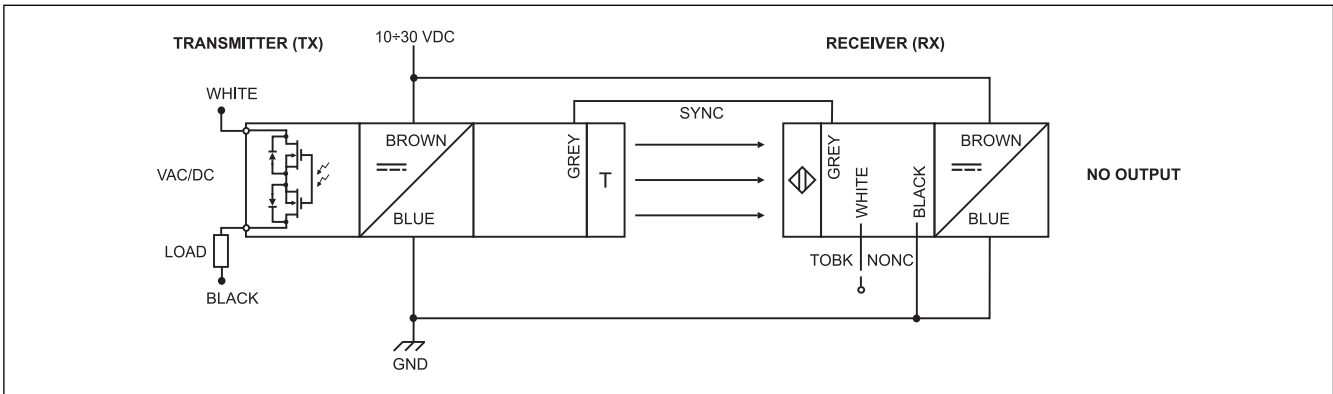
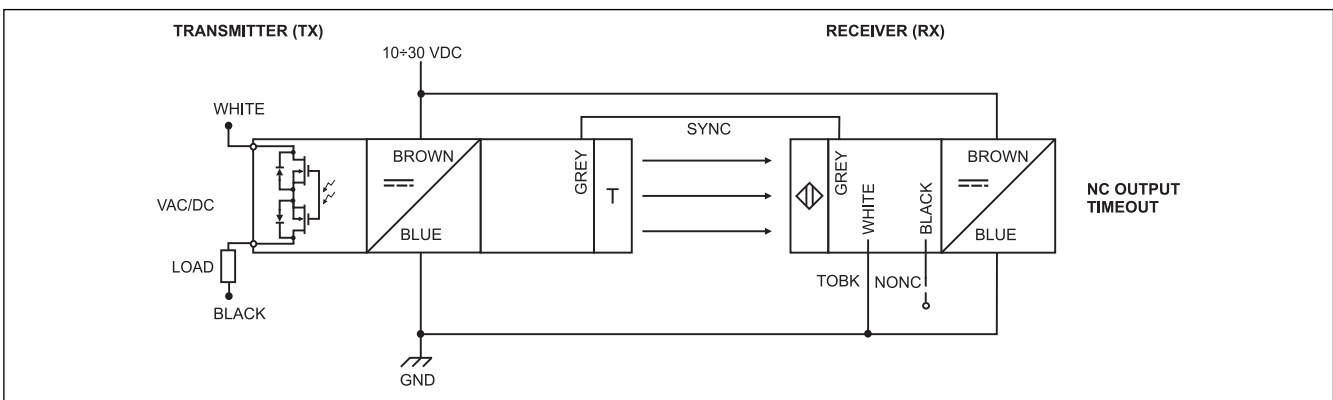
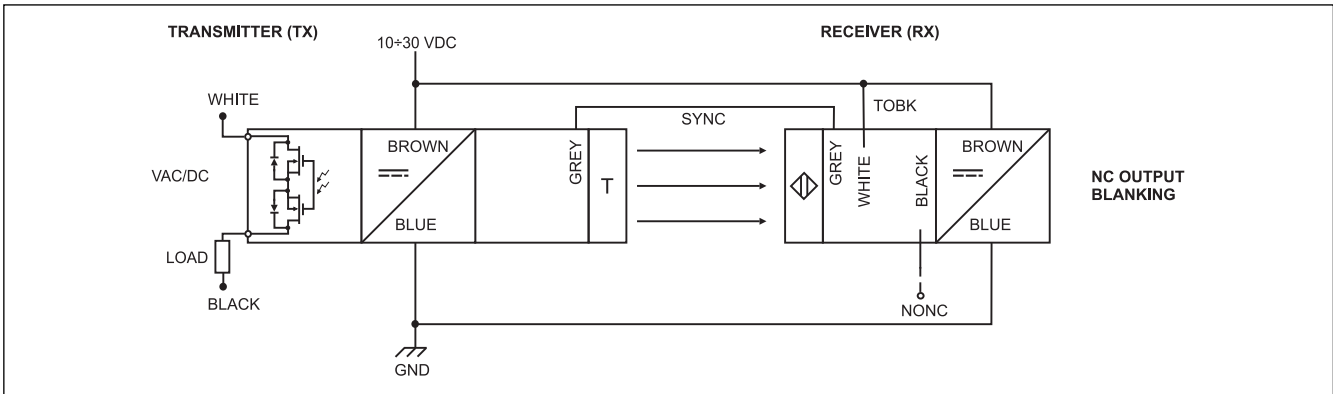
### Blanking function.

This function allows to inhibit parts of the light curtain beam pattern. By connecting to VDC the TOBK wire on RX before supplying BFL, the system permanently saves the configuration (15 seconds of teaching-in are needed). To reset the pattern, it is necessary to disconnect the wire.

## Wiring Diagrams



## Wiring Diagrams (cont.)

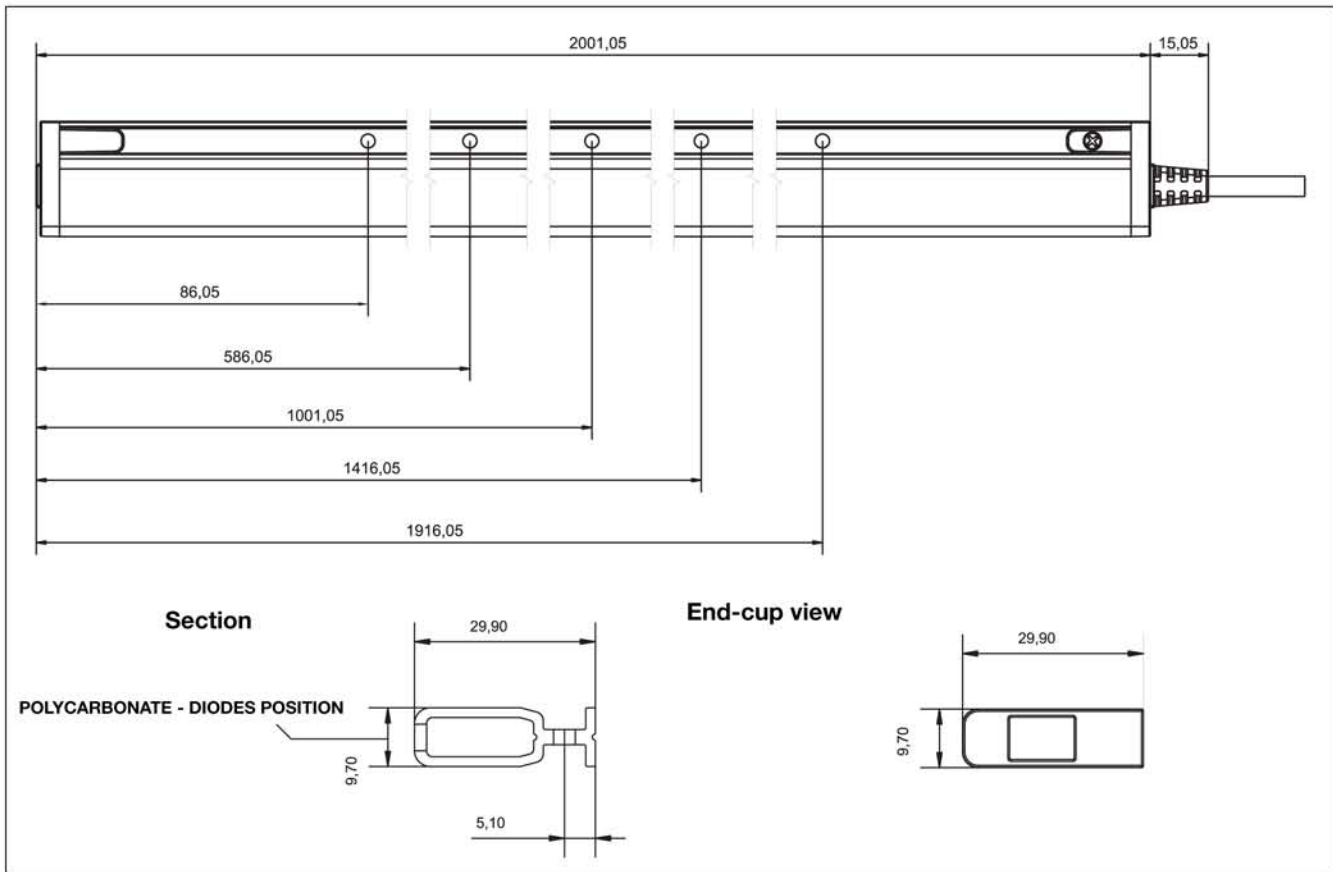


## Beam Pattern

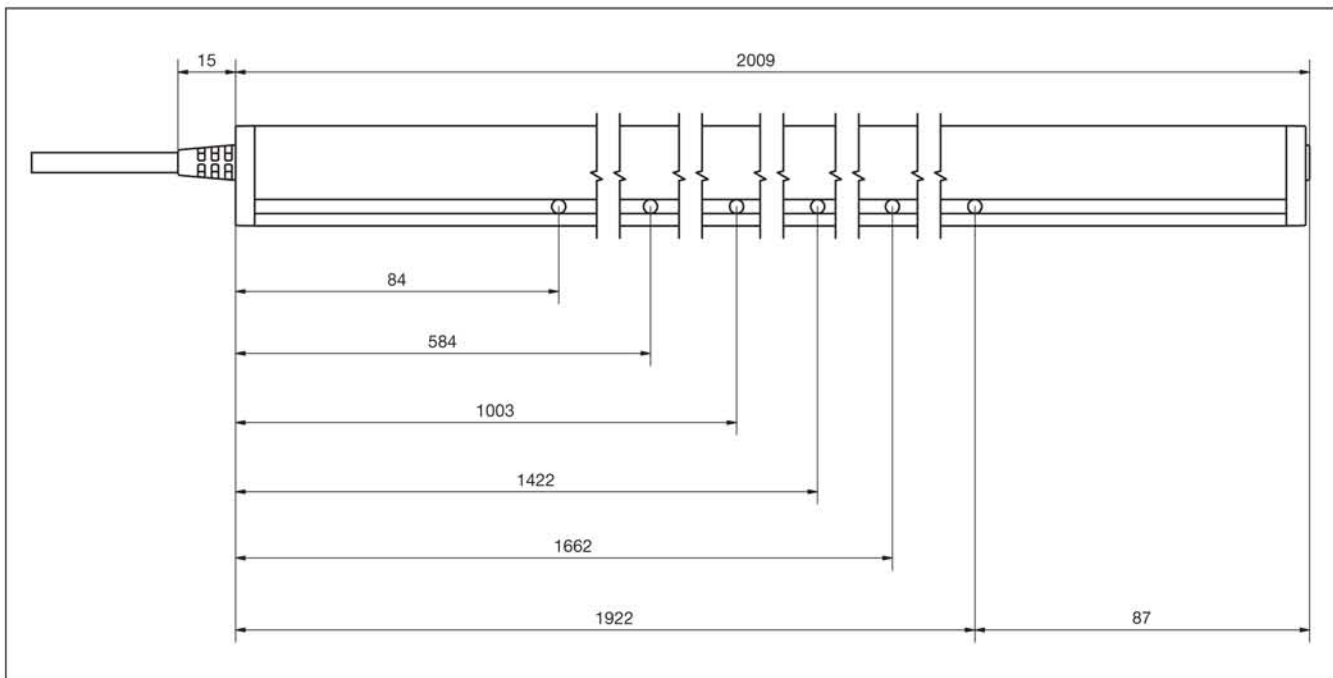




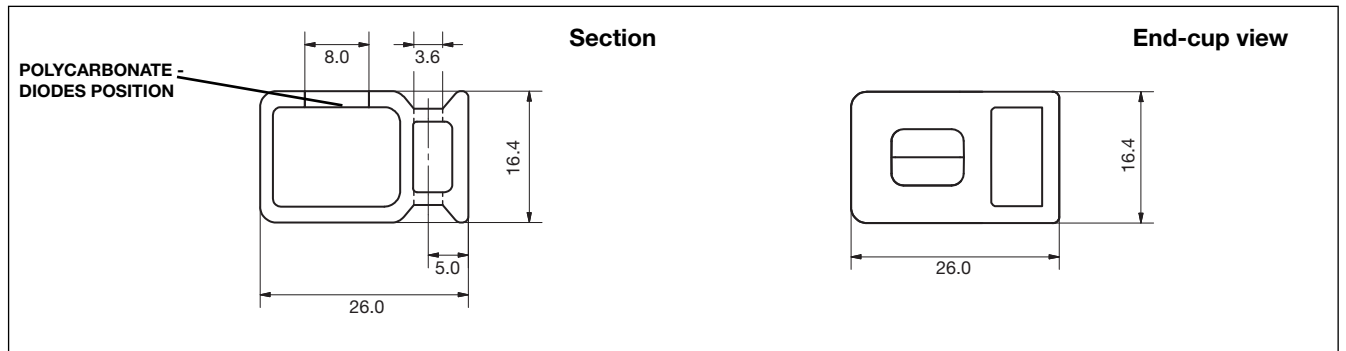
**Dimensions BFLxxxE200x**



**Dimensions BFLxxxS200x**



## Dimensions BFLxxxS200x (cont.)



## Mounting Tolerance Diagrams

