

### Scanning Range

400 mm  
(1800 mm max.)



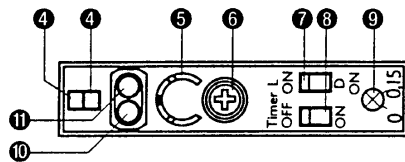
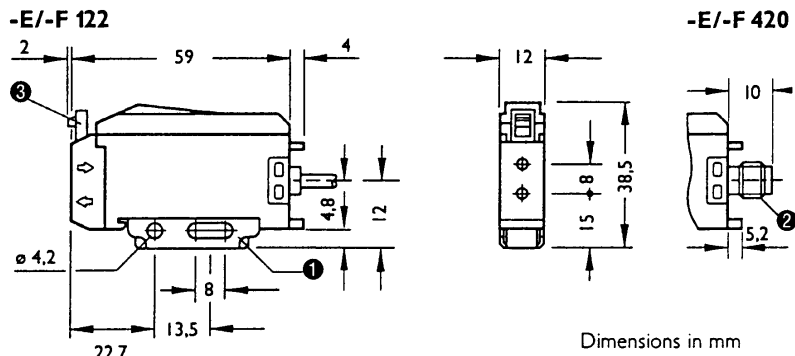
70 mm max.



### Features:

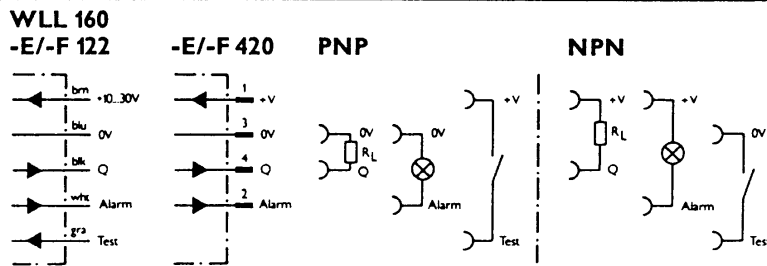
- LLK plastic fiber-optic cable
- Easy adaptation of fiber-optic cables
- Spot control for ease of alignment
  - Red sender light
    - high system reserve
  - Orange sender light
    - system reserve fallen below
  - Green sender light
    - test active
- Connecting cable or 4-pin M8 plug
- OFF delay adjustable from 0 - 100 ms
- Switching frequency 1.5 Hz
- Alarm output
- Test input to test the device and the complete system
- Overturn-protected sensitivity control (4-turn) with scale
- Light-/dark-switching selector
- CE / /

### WLL 160



- 1 Mounting bracket (see Accessories)
- 2 M8 plug, 4-pin (for cable receptacles see Accessories)
- 3 Lock for fiber-optic cable
- 4 Indicator: correct seating of fiber-optic cable
- 5 Sensitivity scale
- 6 Sensitivity control (4-turn)
- 7 Light-/Dark-switching selector
- 8 ON/OFF switch: time delay
- 9 OFF delay: 0 to 100 ms
- 10 Green reception indicator (signals high system reserve)
- 11 Red reception indicator  
(ON = intensity of received light above switching threshold)

### Connection Diagram



brn	blu	blk	wht	gra
brown	blue	black	white	gray

# WLL 160 Photoelectric Switch with Fiber-optic Cables

WLL 160	-E	-F
<b>Part No.</b>	see Selection Table	
<b>Operating range</b>	see Selection Table for LLK Fiber-optic Cables (page 69, 70)	
<b>Supply voltage <math>V_S</math><sup>1)</sup></b>	10 to 30 V DC	
Current consumption (without load)	$\leq 30$ mA	
Ripple, max. <sup>2)</sup>	5 V <sub>PP</sub>	
<b>Light sender</b>		
Light reception without system reserve	LED, red/orange (spot control)	
Light reception with system reserve	LED, red (spot control)	
Light receiver switching mode	Light/Dark-switching, switch-selectable	
Light receiver sensitivity	adjustable (4-turn)	
Switching outputs, open collector	NPN	PNP
Signal voltage HIGH	approx. $V_S$	$V_S - (\leq 1.5$ V)
Signal voltage LOW	$\leq 1.5$ V	ca. 0 V
Output current max.	$\leq 100$ mA	
Alarm output (statical)	$\leq 100$ mA	
Time delay	OFF delay: 0 to 100 ms; can be switched on/off	
Test input <sup>3)</sup>	Sender deactivated 0 V	Sender deactivated + $V_S$
Response time, switching frequency max.	$\leq 350$ $\mu$ s; 1500/s	
<b>VDE protection class<sup>4)</sup></b>	II	
Enclosure rating	IP 66	
Circuit protection <sup>5)</sup>	A, B, C, D	
Ambient operating temperature	- 25 to + 55 °C	
Storage temperature	- 40 to + 70 °C	
Connecting cable	2 m, 5 x 0.2 mm <sup>2</sup> , diam. 4.2 mm	
Equipment plug	M 8, 4-pin	
Weight	30 g with plug, 80 g with connecting cable	

- 1) Limit values  
 2) Must be within  $V_S$  tolerances  
 3) No test input on models with plug  
 4) Withstand voltage 50 V

- 5) A = Supply connections reverse-polarity protected  
 B = In/Outputs reverse-polarity protected  
 C = Interference pulse suppression  
 D = Outputs overload and short-circuit protected

## Selection Table

	with connecting cable, 2 m	with M 8 plug, 4-pin
NPN type	WLL 160-E 122	WLL 160-E 420
Part No.	6009 981	6009 982
PNP type	WLL 160-F 122	WLL 160-F 420
Part No.	6009 989	6009 990

## Diagram of Functions

