

# FR 18-2

## Photoelectric retro-reflective sensor



### PRODUCT HIGHLIGHTS

- Economical solution for numerous applications
- Range of up to 3.0 m
- Variants with angled light exit
- Polarisation filter for reliable detection of highly reflective surfaces
- Simple adjustment via potentiometer
- 2 through holes as additional mounting possibility

Optical data		Functions	
Operating range	See selection table <sup>1</sup>	Indicator LED, green	Operating voltage indicator
Type of light	See selection table	Indicator LED, yellow	Switching output indicator
Polarising filter	Yes	Sensitivity adjustment	Via potentiometer
		Adjustment possibilities	N.O./N.C. via control input (IN)
		Default settings	Max. scanning distance and N.O.
Electrical data		Mechanical data	
Operating voltage, +U <sub>B</sub>	10 ... 30V DC	Dimensions	See dimensional drawings
No-load current, I <sub>0</sub>	≤ 30 mA	Enclosure rating	IP 67 <sup>2</sup>
Output current, I <sub>e</sub>	≤ 100 mA	Material, housing	Brass, nickel-plated
Protective circuits	Reverse-polarity protection, U <sub>B</sub> / short-circuit protection	Material, front screen	PMMA
Switching output, Q	PNP/NPN (see selection table)	Type of connection	See selection table
Output function	N.O./N.C.	Ambient temperature: operation	-25 ... +55 °C
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	Weight (plug device)	34 g <sup>3</sup> / 36 g <sup>4</sup>
Response time	≤ 1 ms	Weight (cable device)	74 g <sup>3</sup> / 76 g <sup>4</sup>
Control input, IN	+U <sub>B</sub> = teach-in -U <sub>B</sub> = button locked open = normal operation	Max. tightening torque	3 Nm

<sup>1</sup> Reference material: R5 reflector    <sup>2</sup> With connected IP 67 plug    <sup>3</sup> Straight light exit variant    <sup>4</sup> Angled light exit variant

Operating range	Type of light	Light exit	Switching output	Type of connection	Part number	Article number
3.0 m	Red light	Straight	PNP	Metal plug, M12, 4-pin	FR 18-2 RM-PS-L4	741-11014
3.0 m	Red light	Straight	NPN	Metal plug, M12, 4-pin	FR 18-2 RM-NS-L4	741-11015
3.0 m	Red light	Straight	PNP	Cable, 2 m, 4-wire	FR 18-2 RM-PS-K4	741-11016
3.0 m	Red light	Straight	NPN	Cable, 2 m, 4-wire	FR 18-2 RM-NS-K4	741-11017
2.4 m	Red light	90° angle	PNP	Metal plug, M12, 4-pin	FR 18-2 RWM-PS-L4	741-11018
2.4 m	Red light	90° angle	NPN	Metal plug, M12, 4-pin	FR 18-2 RWM-NS-L4	741-11019
2.4 m	Red light	90° angle	PNP	Cable, 2 m, 4-wire	FR 18-2 RWM-PS-K4	741-11020
2.4 m	Red light	90° angle	NPN	Cable, 2 m, 4-wire	FR 18-2 RWM-NS-K4	741-11021

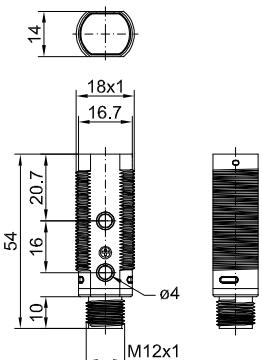
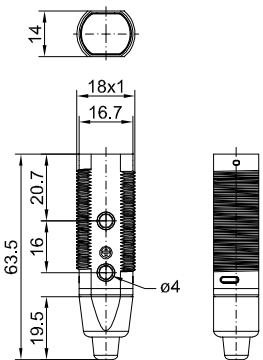
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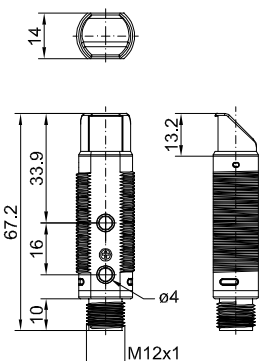
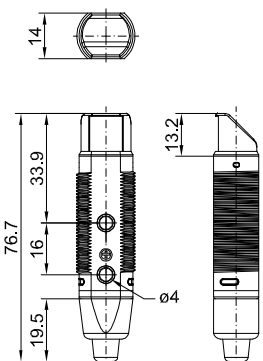


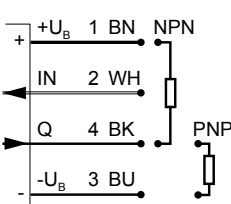
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Plug connection (straight)	Cable connection (straight)
 <p style="text-align: right;">153-00985</p>	 <p style="text-align: right;">153-00984</p>

Plug connection (angled)	Cable connection (angled)
 <p style="text-align: right;">153-00987</p>	 <p style="text-align: right;">153-00986</p>

Connection, 4-pin
 <p style="text-align: right;">154-00312</p>

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Scope of delivery	Accessories	
Sensor	Reflectors	From Page A-18
Reflector: 53.4 x 53.4 mm <sup>2</sup>	Connection cables	From Page A-38
2 x securing nuts	Brackets	From Page A-4

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## Photoelectric retro-reflective sensor



### PRODUCT HIGHLIGHTS

- Economical solution for numerous applications
- Range of up to 3.60 m
- Variants with angled light exit
- Simple adjustment via potentiometer
- 2 through holes as additional mounting possibility

Optical data		Functions	
Operating range	See selection table <sup>1</sup>	Indicator LED, yellow	Switching output indicator
Type of light	See selection table	Sensitivity adjustment	Via potentiometer
Polarising filter	No	Adjustment possibilities	N.O./N.C. via control input (IN)
		Default settings	Max. scanning distance and N.O.
Electrical data		Mechanical data	
Operating voltage, +U <sub>B</sub>	10 ... 30V DC	Dimensions	See dimensional drawings
No-load current, I <sub>0</sub>	≤ 30 mA	Enclosure rating	IP 67 <sup>2</sup>
Output current, I <sub>e</sub>	≤ 100 mA	Material, housing	ABS
Protective circuits	Reverse-polarity protection, U <sub>B</sub> / short-circuit protection	Material, front screen	PMMA
Switching output, Q	PNP/NPN (see selection table)	Type of connection	See selection table
Output function	N.O./N.C.	Ambient temperature: operation	-25 ... +55 °C
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	Weight (plug device)	11 g <sup>3</sup> / 13 g <sup>4</sup>
Response time	≤ 1 ms	Weight (cable device)	55 g <sup>3</sup> / 57 g <sup>4</sup>
Control input, IN	+U <sub>B</sub> = teach-in -U <sub>B</sub> = button locked open = normal operation	Max. tightening torque	3 Nm

<sup>1</sup> Reference material: R5 reflector    <sup>2</sup> With connected IP 67 plug    <sup>3</sup> Straight light exit variant    <sup>4</sup> Angled light exit variant

Operating range	Type of light	Light exit	Switching output	Type of connection	Part number	Article number
3.6 m	Infrared	Straight	PNP	Plug, M12, 4-pin	FR 18-2 I-PS-L4	741-11022
3.6 m	Infrared	Straight	NPN	Plug, M12, 4-pin	FR 18-2 I-NS-L4	741-11023
3.6 m	Infrared	Straight	PNP	Cable, 2 m, 4-wire	FR 18-2 I-PS-K4	741-11024
3.6 m	Infrared	Straight	NPN	Cable, 2 m, 4-wire	FR 18-2 I-NS-K4	741-11025
2.5 m	Infrared	90° angle	PNP	Plug, M12, 4-pin	FR 18-2 IW-PS-L4	741-11026
2.5 m	Infrared	90° angle	NPN	Plug, M12, 4-pin	FR 18-2 IW-NS-L4	741-11027
2.5 m	Infrared	90° angle	PNP	Cable, 2 m, 4-wire	FR 18-2 IW-PS-K4	741-11028
2.5 m	Infrared	90° angle	NPN	Cable, 2 m, 4-wire	FR 18-2 IW-NS-K4	741-11029

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Plug connection (straight)	Cable connection (straight)

Plug connection (angled)	Cable connection (angled)

Connection, 4-pin

Scope of delivery	Accessories	
Sensor	Reflectors	From Page A-18
Reflector: 53.4 x 53.4 mm <sup>2</sup>	Connection cables	From Page A-38
2 x securing nuts	Brackets	From Page A-4

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