

QD Series

Mini Photoelectric Switch

- Miniature cubic photoelectric sensors
- High performance with long sensing distance
- 2kHz max. switching frequency
- Available with cable and M8 plug exit
- Selectable LO/DO output state
- Complete protection against electrical damage
- IP67
- Resin filled
- Background suppression with mechanical adjustment
- Wide range of models available - see options and ordering codes



Options & Ordering Codes

	QD	R	D3	/	0	P	-	0	A	
Series	Mini photoelectric sensor									Cable
	QD									A 2m cable exit
										F M8 4 pin plug exit
Emission										Housing
RED emission		R								0 Plastic
Infrared emission		I								
Detection Method										Output
Direct diffuse with sens. adj. 100mm (R)			D1							0 Emitter
Direct diffuse with sens. adj. 400mm (R - I)			D2							P PNP output
Direct diffuse with sens. adj. 1000mm (R)			D3							N NPN output
Direct diffuse with sens. adj. 1500mm (R - I)			D4							
5m retro-reflective with sensitivity adjustment			P1							
7m polarised with sensitivity adjustment			P2							
0.05...1.5m (R) or 0.05...1m (I) for transparent objects with adjustment			CM1							0 Emitter without check, LO/DO selectable
0.4...4m for transparent objects with adjustment			CM2							
20m (R) or 30m (I) emitter + receiver kit with adjustment* ¹			ER							
Emitter with adjustment			E							
20m (R) or 30m (I) receiver without adjustment ¹			R							
30...200mm (R) or 30...400mm (I) background suppression			BS							

*¹ Kits contains one receiver and one emitter

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Available Models

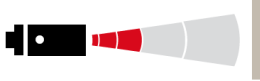


Function	Distance	Emission	Adjustment	Output Type	Models	
					PNP + NO/NC	NPN + NO/NC
Direct Diffuse	100mm	Red	yes	cable	QDRD1/0P-0A	QDRD1/0N-0A
				M8 connector	QDRD1/0P-0F	QDRD1/0N-0F
	400mm	Red		cable	QDRD2/0P-0A	QDRD2/0N-0A
				M8 connector	QDRD2/0P-0F	QDRD2/0N-0F
	400mm	IR		cable	QDID2/0P-0A	QDID2/0N-0A
				M8 connector	QDID2/0P-0F	QDID2/0N-0F
	1000mm	Red		cable	QDRD3/0P-0A	QDRD3/0N-0A
	1000mm	Red		M8 connector	QDRD3/0P-0F	QDRD3/0N-0F
1500mm			IR	cable	QDID4/0P-0A	QDID4/0N-0A
	M8 connector	QDID4/0P-0F		QDID4/0N-0F		
Polarised Retro-reflective	5m	Red	cable	QDRP1/0P-0A	QDRP1/0N-0A	
Retro-reflective	7m	IR	M8 connector	QDRP1/0P-0F	QDRP1/0N-0F	
			cable	QDIP2/0P-0A	QDIP2/0N-0A	
Transparent Objects	0.05 - 1.5m	Red	M8 connector	QDIP2/0P-0F	QDIP2/0N-0F	
			cable	QDRCM1/0P-0A	QDRCM1/0N-0A	
	0.05 - 1.0m	IR	M8 connector	QDRCM1/0P-0F	QDRCM1/0N-0F	
			cable	QDICM1/0P-0A	QDICM1/0N-0A	
	0.4 - 4m	Red	M8 connector	QDICM1/0P-0F	QDICM1/0N-0F	
			cable	QDRCM2/0P-0A	QDRCM2/0N-0A	
M8 connector	Red	QDRCM2/0P-0F	QDRCM2/0N-0F			
		Emitter	20m	Red	cable	QDRE/00-0A
M8 connector	QDRE/00-0F					
Receiver	20m	Red	No	cable	QDRR/0P-0A	QDRR/0N-0A
Emitter + Receiver				yes	M8 connector	QDRR/0P-0F
	Emitter	30m	IR		yes	cable
M8 connector				QDIE/00-0F		
Receiver	30m	IR	No	cable	QDIR/0P-0A	QDIR/0N-0A
Emitter + Receiver				Yes	M8 connector	QDIR/0P-0F
	Background Suppression	30 - 200mm	Red		Yes	cable
M8 connector				QDIER/0P-0F		QDIER/0N-0F
30 - 400mm		IR	cable	QDRBS/0P-0A		QDRBS/0N-0A
			M8 connector	QDRBS/0P-0F		QDRBS/0N-0F
Background Suppression	30 - 400mm	IR	Yes	cable	QDIBS/0P-0A	QDIBS/0N-0A
				M8 connector	QDIBS/0P-0F	QDIBS/0N-0F

QD Series

Mini Photoelectric Switch

Technical Specifications
(Direct Diffuse Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDRD1/0*-0*	QDRD2/0*-0*	QDRD3/0*-0*
			
Nominal working distance	100mm *1	400mm *1	1000mm *2
Minimum working distance	-		
Sensitivity adjustment	Yes		
Emission	Red (630nm)		
Differential travel	≤ 10%		
Repeat accuracy	5%		
Light-dark selection	Yes		
Operating voltage	10...30VDC		
Ripple	≤ 10%		
No-load supply current	≤ 10 μA		
Load current	≤ 100 mA		
Supply current	≤ 30 mA		
Output voltage drop	2 V max @ 100 mA		
Maximum load current	≤ 100 mA		
Output type	PNP or NPN NO or NC		
Switching frequency	1 kHz	2 kHz	1 kHz
Time delay before availability	≤ 100 ms		
Supply electrical protection	Polarity reversal, over voltage pulses		
Output electrical protection	Short circuit (auto reset), over voltage pulses		
Operating temperature	-25°C... +70°C (without freeze)		
LED indicators	Yellow (LO/DO output state), Green (excess gain)		
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)		
Protection degree	IP67 (EN60529) *3		
Housing material	PA66		
Optic material	PMMA		
Tightening torque	1 Nm *4		
Weight (approx)	52g cable, 10g M8 plug		

*1 - White target Kodak 90% 200 x 200 mm

*2 - White target Kodak 90% 400 x 400 mm

*3 - Protection guaranteed only with plug cable correctly secured



*4 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

Mini Photoelectric Switch

Technical Specifications
(Direct Diffuse Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDID2/0*-0*	QDID4/0*-0*
		
Nominal working distance	400mm *1	1,500mm *2
Minimum working distance	-	
Sensitivity adjustment	Yes	
Emission	Infrared (850nm)	
Differential travel	≤ 10%	
Repeat accuracy	5%	
Light-dark selection	Yes	
Operating voltage	10...30VDC	
Ripple	≤ 10%	
No-load supply current	≤ 45 mA	
Load current	≤ 100 mA	
Supply current	≤ 10 μA	
Output voltage drop	2 V max @ 100 mA	
Maximum load current	≤ 100 mA	
Output type	PNP or NPN NO or NC	
Switching frequency	2 kHz	1 kHz
Time delay before availability	≤ 100 ms	
Supply electrical protection	Polarity reversal, over voltage pulses	
Output electrical protection	Short circuit (auto reset), over voltage pulses	
Operating temperature	-25°C... +70°C (without freeze)	
LED indicators	Yellow (LO/DO output state), Green (excess gain)	
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)	
Protection degree	IP67 (EN60529)*3	
Housing material	PA66	
Optic material	PMMA	
Tightening torque	1 Nm *4	
Weight (approx)	52g cable, 10g M8 plug	

*1 - White target Kodak 90% 200 x 200 mm

*2 - White target Kodak 90% 400 x 400 mm

*3 - Protection guaranteed only with plug cable correctly secured



*4 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

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Technical Specifications
(Background Supression Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDRBS/0*-0*	QDIBS/0*-0*
		
Nominal working distance	30...200mm *1	30...400mm *1
Minimum working distance	30 mm	
Sensitivity adjustment	Yes	
Emission	Red (630nm)	Infrared (850nm)
Differential travel	≤ 10%	
Repeat accuracy	5%	
Light-dark selection	Yes	
Operating voltage	10...30VDC	
Ripple	≤ 10%	
No-load supply current	≤ 30 mA	≤ 45 mA
Load current	≤ 100 mA	
Supply current	≤ 10 μA	
Output voltage drop	2 V max @ 100 mA	
Maximum load current	≤ 100 mA	
Output type	PNP or NPN NO or NC	
Switching frequency	1 kHz	
Time delay before availability	≤ 100 ms	
Supply electrical protection	Polarity reversal, over voltage pulses	
Output electrical protection	Short circuit (auto reset), over voltage pulses	
Operating temperature	-25°C... +70°C (without freeze)	
LED indicators	Yellow (LO/DO output state)	
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)	
Protection degree	IP67 (EN60529)*2	
Housing material	PA66	
Optic material	PMMA	
Tightening torque	1 Nm *3	
Weight (approx)	52g cable, 10g M8 plug	

*1 - White target Kodak 90% 200 x 200 mm

*2 - Protection guaranteed only with plug cable correctly secured

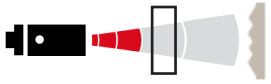
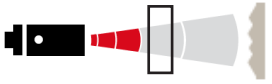

*3 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

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Technical Specifications
(Models for Transparent Objects) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDRCM1/0*-0*	QD1CM1/0*-0*	QDRCM2/0*-0*
			
Nominal working distance	1.5m	1m	4m
Minimum working distance	0.05m		0.4m
Sensitivity adjustment	Yes		
Emission	Red (630nm)	Infrared (850nm)	Red (630nm)
Differential travel	≤ 10%		
Repeat accuracy	5%		
Light-dark selection	Yes		
Operating voltage	10...30VDC		
Ripple	≤ 10%		
No-load supply current	≤ 30 mA	≤ 45 mA	≤ 30 mA
Load current	≤ 100 mA		
Supply current	≤ 10 μA		
Output voltage drop	2 V max @ 100 mA		
Maximum load current	≤ 100 mA		
Output type	PNP or NPN NO or NC		
Switching frequency	2 kHz		
Time delay before availability	≤ 100 ms		
Supply electrical protection	Polarity reversal, over voltage pulses		
Output electrical protection	Short circuit (auto reset), over voltage pulses		
Operating temperature	-25°C... +70°C (without freeze)		
LED indicators	Yellow (LO/DO output state)		
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)		
Protection degree	IP67 (EN60529)*1		
Housing material	PA66		
Optic material	PMMA		
Tightening torque	1 Nm *2		
Weight (approx)	52g cable, 10g M8 plug		


*1 - Protection guaranteed only with plug cable correctly secured

*2 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

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Technical Specifications
(Polarised Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7


Models	QDRP1/0*-0*
	
Nominal working distance	5 m *1
Minimum working distance	0.02 m @ RL 110
Sensitivity adjustment	Yes
Emission	Red (630nm)
Differential travel	≤ 10%
Repeat accuracy	5%
Light-dark selection	Yes
Operating voltage	10...30VDC
Ripple	≤ 10%
No-load supply current	≤ 30 mA
Load current	≤ 100 mA
Supply current	≤ 10 μA
Output voltage drop	2 V max @ 100 mA
Maximum load current	≤ 100 mA
Output type	PNP or NPN NO or NC
Switching frequency	2 kHz
Time delay before availability	≤ 100 ms
Supply electrical protection	Polarity reversal, over voltage pulses
Output electrical protection	Short circuit (auto reset), over voltage pulses
Operating temperature	-25°C... +70°C (without freeze)
LED indicators	Yellow (LO/DO output state), Green (excess gain)
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)
Protection degree	IP67 (EN60529)*2
Housing material	PA66
Optic material	PMMA
Tightening torque	1 Nm *3
Weight (approx)	52g cable, 10g M8 plug

*1 - With RL 110 reflector EG = 2

*2 - Protection guaranteed only with plug cable correctly secured


*3 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

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Technical Specifications
(Retroreflection Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDIP2/0*-0*
	
Nominal working distance	7 m *1
Minimum working distance	0.02 m @ RL 110
Sensitivity adjustment	Yes
Emission	Infrared (850nm)
Differential travel	≤ 10%
Repeat accuracy	5%
Light-dark selection	Yes
Operating voltage	10...30VDC
Ripple	≤ 10%
No-load supply current	≤ 45 mA
Load current	≤ 100 mA
Supply current	≤ 10 μA
Output voltage drop	2 V max @ 100 mA
Maximum load current	≤ 100 mA
Output type	PNP or NPN NO or NC
Switching frequency	2 kHz
Time delay before availability	≤ 100 ms
Supply electrical protection	Polarity reversal, over voltage pulses
Output electrical protection	Short circuit (auto reset), over voltage pulses
Operating temperature	-25°C... +70°C (without freeze)
LED indicators	Yellow (LO/DO output state), Green (excess gain)
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)
Protection degree	IP67 (EN60529)*2
Housing material	PA66
Optic material	PMMA
Tightening torque	1 Nm *3
Weight (approx)	52g cable, 10g M8 plug

*1 - With RL 110 reflector EG = 2

*2 - Protection guaranteed only with plug cable correctly secured



*3 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

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Technical Specifications
(Through Beam Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDRE/00-0*	QDRR/0*-0*
		
Nominal working distance	20m *1	
Minimum working distance	-	
Sensitivity adjustment	Yes	-
Emission	Red (630nm)	-
Differential travel	≤ 10%	
Repeat accuracy	5%	
Light-dark selection	Yes	
Operating voltage	10...30VDC	
Ripple	≤ 10%	
No-load supply current	≤ 30 mA	
Load current		≤ 100 mA
Supply current		≤ 10 μA
Output voltage drop		2 V max @ 100 mA
Maximum load current		≤ 100 mA
Output type		PNP or NPN NO or NC
Switching frequency	2 kHz	
Time delay before availability	≤ 100 ms	
Supply electrical protection	Polarity reversal, over voltage pulses	
Output electrical protection	Short circuit (auto reset), over voltage pulses	
Operating temperature	-25°C... +70°C (without freeze)	
LED indicators	Yellow (LO/DO output state), Green (excess gain)	
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)	
Protection degree	IP67 (EN60529)*2	
Housing material	PA66	
Optic material	PMMA	
Tightening torque	1 Nm *3	
Weight (approx)	52g cable, 10g M8 plug	

*1 - With RL 110 reflector EG = 2

*2 - Protection guaranteed only with plug cable correctly secured



*3 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

Mini Photoelectric Switch

Technical Specifications
(Through Beam Models) according to IEC EN 60947-5-2 and IEC EN 60947-5-7



Models	QDIE/00-0*	QDIR/0*-0*
		
Nominal working distance	30m *1	
Minimum working distance	-	
Sensitivity adjustment	Yes	-
Emission	Infrared (850nm)	-
Differential travel	≤ 10%	
Repeat accuracy	5%	
Light-dark selection	Yes	
Operating voltage	10...30VDC	
Ripple	≤ 10%	
No-load supply current	≤ 45 mA	
Load current		≤ 100 mA
Supply current		≤ 10 μA
Output voltage drop		2 V max @ 100 mA
Maximum load current		≤ 100 mA
Output type		PNP or NPN NO or NC
Switching frequency	2 kHz	
Time delay before availability	≤ 100 ms	
Supply electrical protection	Polarity reversal, over voltage pulses	
Output electrical protection	Short circuit (auto reset), over voltage pulses	
Operating temperature	-25°C... +70°C (without freeze)	
LED indicators	Yellow (LO/DO output state), Green (excess gain)	
Interference external light	10,000 Lux (sunlight), 3,000 Lux (incandescent lamp)	
Protection degree	IP67 (EN60529)*2	
Housing material	PA66	
Optic material	PMMA	
Tightening torque	1 Nm *3	
Weight (approx)	52g cable, 10g M8 plug	

*1 - With RL 110 reflector EG = 2

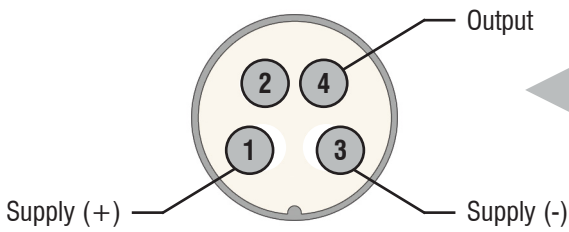
*2 - Protection guaranteed only with plug cable correctly secured

*3 - Screw, nuts and mounting brackets are not included with the sensor (accessories)

QD Series

Mini Photoelectric Switch

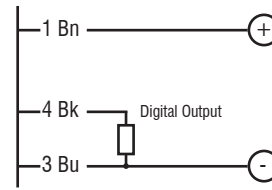
Wiring Connections & Outputs



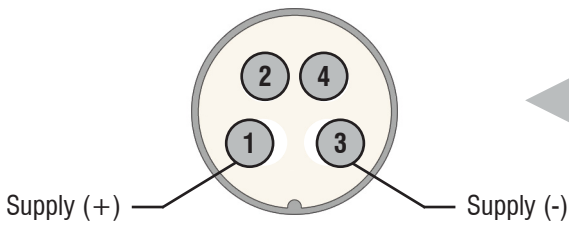
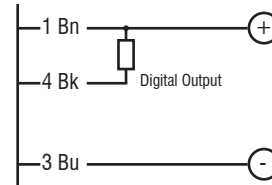
M8 - 4 pin

QDR*/O*-OF
QDI*/O*-OF

PNP

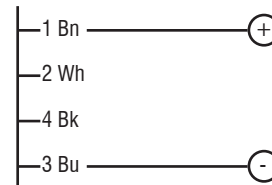


NPN

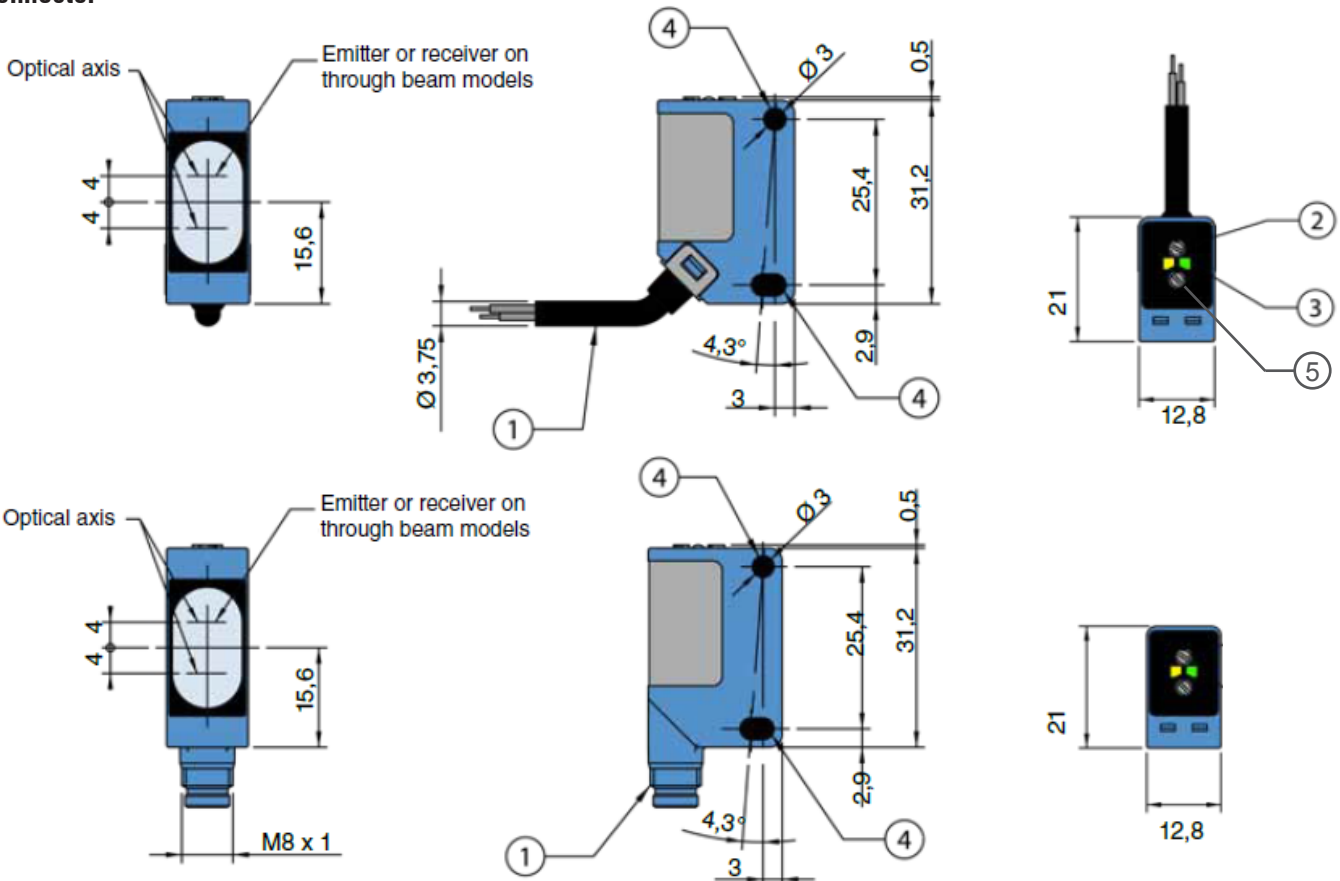


QDRE*/O*-OF
QDIE*/O*-OF

Emitter



Connector

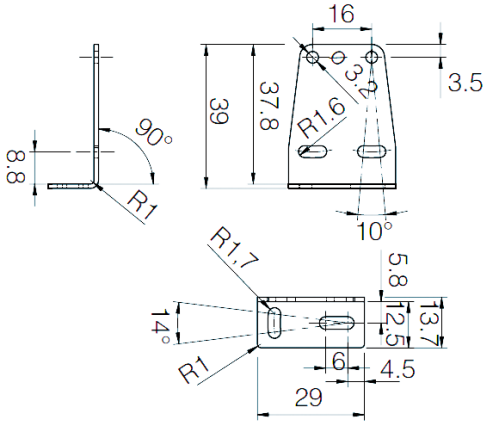


- ① Cable Exit / M8 Plug
- ② LO/DO Selector
- ③ LED
- ④ Mounting Holes
- ⑤ Trimmer

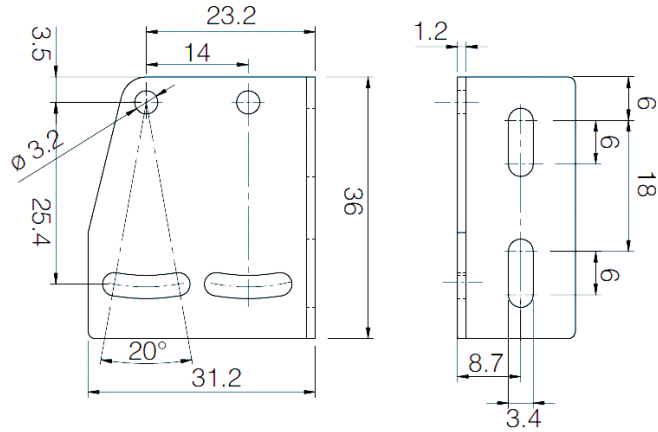
QD Series Mini Photoelectric Switch

Accessories

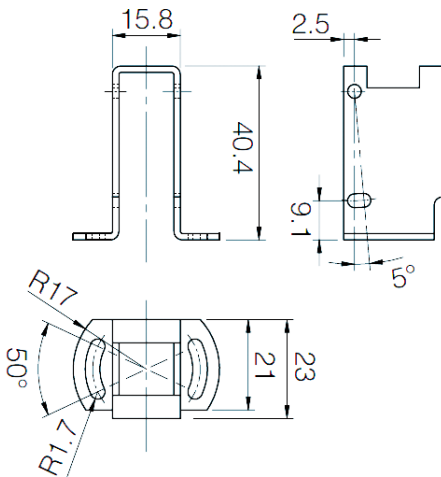
ST101 - "L" vertical mounting bracket



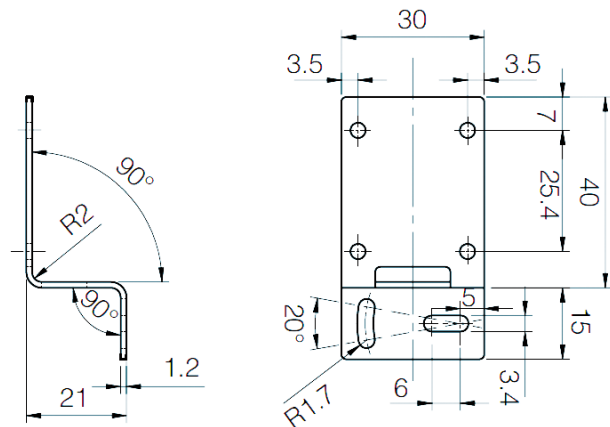
ST102 - "L" side mounting bracket



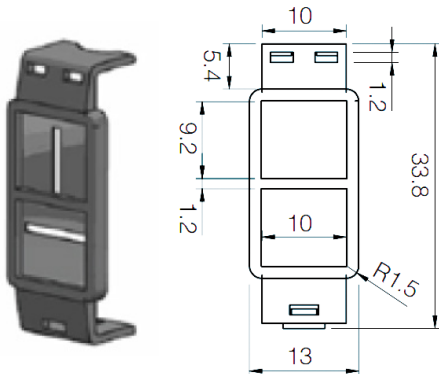
ST103 - Vertical mounting bracket with protective cover



ST104 - Horizontal mounting bracket with protective cover

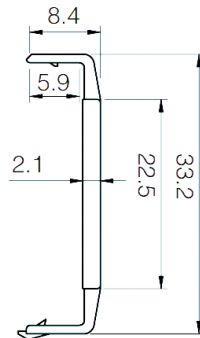


STQMO - Vertical and horizontal slots



Vertical and horizontal slotted mask (0.5 - 1.2)
2 Units per pack

STQMS - Screw, nuts, lockwashers



20 Cross-slotted screw M3x20
20 Hexagon nuts M3
20 Lockwashers Ø3