

Description

- Operation mode and max sensing range:
Thru-beam: 1-6 m
- Cable or plug connection
- Sensitivity adjustment via control input
- Wide variety of housings
- Power and output indicators
- High tolerance to hostile environments
- 10 – 32 V dc supply voltage
- 3 wire, NPN or PNP output or
4 wire, NPN/PNP opto isolated output
- 5 or 0,5 ms response time
- Low current consumption



The 6000 series consists of a self-contained transmitter SMT, and a receiver SMR, which are to be used in thru-beam mode. The complete series is available in a wide range of housings with either plug or cable connection.

The SMR is supplied with a 10-32 V dc supply voltage with either a 3 wire, NPN or PNP or as a 4 wire, NPN/PNP opto-isolated transistor output with a choice between light or dark function. The SMR is available with either a 0.5 ms response time and a 2 metre range, or with a 5 ms

response time and a 6 metre range. The control input in the SMT may be used for either disabling or enabling the transmitting power temporarily for test purpose, multiplexing applications or as a gradual regulation of the transmitting power level.

Both the transmitter and receiver are protected against reverse polarity of power supplies, control input and output signals. The output is also protected against short circuit and inductive loads.

Technical Data				
		SMT	SMR	
			6x02	6x06
Supply voltage		10 – 32 V dc		
Voltage ripple		15 %		
Reverse polarity protected		Yes		
Short circuit protected		-	Yes	
Current consumption		max. 320 mW		
Maximum output load		-	100 mA	
Maximum residual voltage		-	2,5 V	
Maximum operation frequency		-	1000 Hz	100 Hz
Response time t _{ON} / t _{OFF}		-	0,5 ms / 0,5 ms	5 ms / 5 ms
Power on indicator		Green LED	-	
Output indicator		-	Yellow LED	
Hysteresis		-	Approx. 30%	
Light source		Infrared (880 nm)	-	
Opening angle		-	+/- 6°	
Emission angle		+/- 10°	-	
Housing material	Sensor housing	Stainless Steel (V4A) or Plastic		
	Front lens	Polycarbonate		
Cable, PVC Ø 4,0 mm		3 x 0,14 mm ²	3/4 x 0,14 mm ²	

Environmental Data

	SMT	SMR
Vibration		10 – 55 Hz, 0,5 mm
Shock		30 g
Light immunity, @ 5° incidence	-	> 50 000 lux
Temperature, operation		-20 to +60 °C
Temperature, storage		-40 to +80 °C
Sealing class		IP 67
Approvals		CE

Available Types

	Type	Control Feature	Output	Connection		5 m cable	3 pin, M8 plug	4 pin, M8 plug	4 pin, M12 plug	Range
				Housing Material	Housing Type					
Transmitter	6000	Adjustable range and test input	-	Polycarbonate	Ø10	SMT 6000 AP 5	SMT 6000 AP T3	-	-	1-6 m
					M12 x 1	SMT 6000 TP 5	SMT 6000 TP T3	-	-	
				Stainless Steel	Ø10	SMT 6000 AS 5	SMT 6000 AS T3	SMT 6000 AS T4	-	
					M12 x 1	SMT 6000 TS 5	SMT 6000 TS T3	SMT 6000 TS T4	SMT 6000 TS J	
Polyester	□ 9,5 x 11,5	SMT 6000 SG 5 ¹	SMT 6000 SG T3	-	-					

Receiver	6006	NPN, NC (light operated)	-	Polycarbonate	Ø10	SMR 6006 AP 5	SMR 6006 AP T3	-	-	6 m
					M12 x 1	SMR 6006 TP 5	SMR 6006 TP T3	-	-	
				Stainless Steel	Ø10	SMR 6006 AS 5	SMR 6006 AS T3	-	-	
					M12 x 1	SMR 6006 TS 5	SMR 6006 TS T3	-	SMR 6006 TS J ²	
	Polyester	□ 9,5 x 11,5	SMR 6006 SG 5 ¹	SMR 6006 SG T3	-	-				
	6106	NPN, NO (dark operated)	-	Polycarbonate	Ø10	SMR 6106 AP 5	SMR 6106 AP T3	-	-	
					M12 x 1	SMR 6106 TP 5	SMR 6106 TP T3	-	-	
				Stainless Steel	Ø10	SMR 6106 AS 5	SMR 6106 AS T3	-	-	
					M12 x 1	SMR 6106 TS 5	SMR 6106 TS T3	-	SMR 6106 TS J	
	Polyester	□ 9,5 x 11,5	SMR 6106 SG 5 ¹	SMR 6106 SG T3	-	-				
	6206	PNP, NC (light operated)	-	Polycarbonate	Ø10	SMR 6206 AP 5	SMR 6206 AP T3	-	-	
					M12 x 1	SMR 6206 TP 5	SMR 6206 TP T3	-	-	
				Stainless Steel	Ø10	SMR 6206 AS 5	SMR 6206 AS T3	-	-	
					M12 x 1	SMR 6206 TS 5	SMR 6206 TS T3	-	SMR 6206 TS J	
	Polyester	□ 9,5 x 11,5	SMR 6206 SG 5 ¹	SMR 6206 SG T3	-	-				
	6306	PNP, NO (dark operated)	-	Polycarbonate	Ø10	SMR 6306 AP 5	SMR 6306 AP T3	-	-	
					M12 x 1	SMR 6306 TP 5	SMR 6306 TP T3	-	-	
				Stainless Steel	Ø10	SMR 6306 AS 5	SMR 6306 AS T3	-	-	
					M12 x 1	SMR 6306 TS 5	SMR 6306 TS T3	-	SMR 6306 TS J	
	Polyester	□ 9,5 x 11,5	SMR 6306 SG 5 ¹	SMR 6306 SG T3	-	-				
	6406	NPN/PNP, NO (dark operated)	-	Stainless Steel	Ø10	-	-	SMR 6406 AS T4	-	
					M12 x 1	-	-	SMR 6406 TS T4	SMR 6406 TS J	
	6506	NPN/PNP, NC (light operated)	-	Stainless Steel	Ø10	-	-	SMR 6506 AS T4	-	
					M12 x 1	-	-	SMR 6506 TS T4	SMR 6506 TS J	

Note: Sensors marked ¹ do not have power on or output indicators incorporated.

	Type	Control Feature	Output	Connection		5m cable	3 pin, M8 plug	4 pin, M8 plug	4 pin, M12 plug	Range	
				Housing Material	Housing Type						Order Reference
Receiver	6002	-	NPN, NC (light operated)	Polycarbonate	Ø10	SMR 6002 AP 5	SMR 6002 AP T3	-	-	2 m	
					M12 x 1	SMR 6002 TP 5	SMR 6002 TP T3	-	-		
				Stainless Steel	Ø10	SMR 6002 AS 5	SMR 6002 AS T3	-	-		
					M12 x 1	SMR 6002 TS 5	SMR 6002 TS T3	-	SMR 6002 TS J		
	Polyester		□ 9,5 x 11,5	SMR 6002 SG 5 ¹	SMR 6002 SG T3	-	-				
	6102		-	NPN, NO (dark operated)	Polycarbonate	Ø10	SMR 6102 AP 5	SMR 6102 AP T3	-		-
						M12 x 1	SMR 6102 TP 5	SMR 6102 TP T3	-		-
		Stainless Steel			Ø10	SMR 6102 AS 5	SMR 6102 AS T3	-	-		
					M12 x 1	SMR 6102 TS 5	SMR 6102 TS T3	-	SMR 6102 TS J		
	Polyester	□ 9,5 x 11,5		SMR 6102 SG 5 ¹	SMR 6102 SG T3	-	-				
	6202	-		PNP, NC (light operated)	Polycarbonate	Ø10	SMR 6202 AP 5	SMR 6202 AP T3	-	-	
						M12 x 1	SMR 6202 TP 5	SMR 6202 TP T3	-	-	
			Stainless Steel		Ø10	SMR 6202 AS 5	SMR 6202 AS T3	-	-		
					M12 x 1	SMR 6202 TS 5	SMR 6202 TS T3	-	SMR 6202 TS J		
	Polyester		□ 9,5 x 11,5	SMR 6202 SG 5 ¹	SMR 6202 SG T3	-	-				
	6302		-	PNP, NO (dark operated)	Polycarbonate	Ø10	SMR 6302 AP 5	SMR 6302 AP T3	-	-	
						M12 x 1	SMR 6302 TP 5	SMR 6302 TP T3	-	-	
		Stainless Steel			Ø10	SMR 6302 AS 5	SMR 6302 AS T3	-	-		
					M12 x 1	SMR 6302 TS 5	SMR 6302 TS T3	-	SMR 6302 TS J		
	Polyester	□ 9,5 x 11,5		SMR 6302 SG 5 ¹	SMR 6302 SG T3	-	-				
6402	-	NPN/PNP, NO (dark operated)		Stainless Steel	Ø10	-	-	SMR 6402 AS T4	SMR 6402 AS J		
					M12 x 1	-	-	SMR 6402 TS T4	SMR 6402 TS J		
6502			-		NPN/PNP, NC (light operated)	Stainless Steel	Ø10	-	-	SMR 6502 AS T4	SMR 6502 AS J
							M12 x 1	-	-	SMR 6502 TS T4	SMR 6502 TS J

Note: Sensors marked ¹ do not have power on or output indicators incorporated.

Connections			
	Cable	M8 Plug / Cable	M12 Plug / Cable
Supply +	Brown	Pin 1 / Brown	Pin 1 / Brown
Supply -	Blue	Pin 3 / Blue	Pin 3 / Blue
Control/output	Black	Pin 4 / Black	Pin 4 / Black
SMR output	White	Pin 2 / White	Pin 2 / White

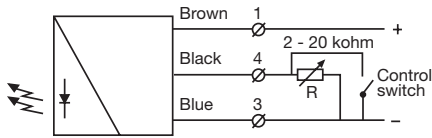
3 pin, M8

4 pin, M8

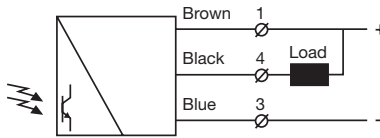
4 pin, M12

Refer to page 155 for extension cables

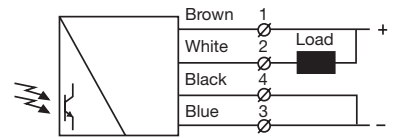
Wiring Diagrams



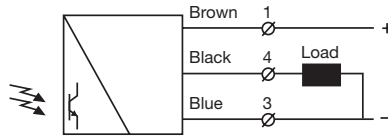
SMT 6000 1-6 m
Variable range and ON/OFF switch for transmitting power



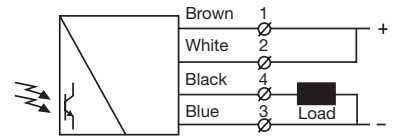
SMR 600x / 610x



SMR 640x / 650x (load as NPN)

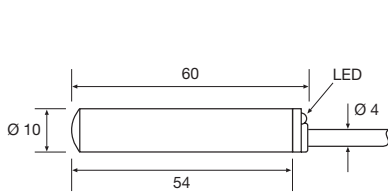


SMR 620x / 630x

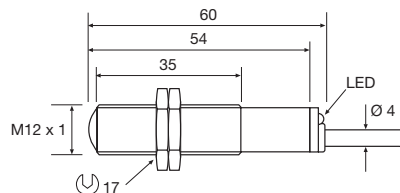


SMR 640x / 650x (load as PNP)

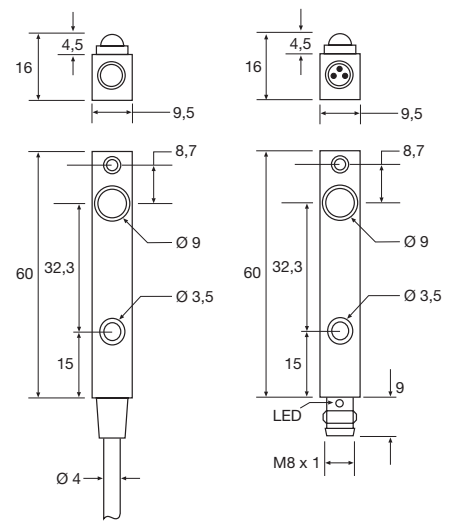
Dimensions and Descriptions



AP/AS 5

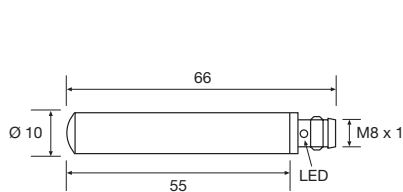


TP/TS 5

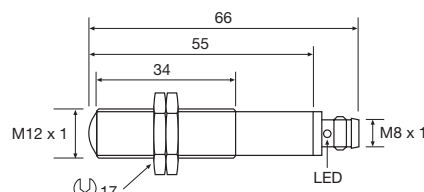


SG 5

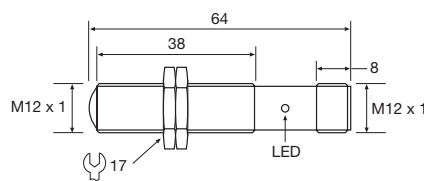
SG T3



AP/AS T3/T4



TP/TS T3/T4

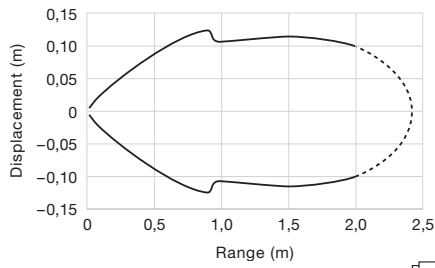


TS J

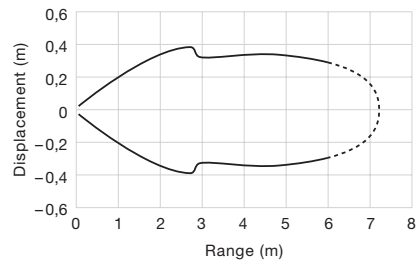
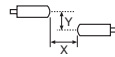
(Units in mm)

Sensing Characteristics

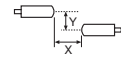
Parallel Displacement



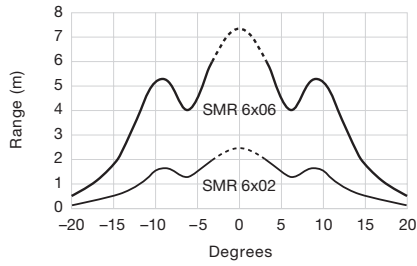
SMT 6000 and SMR 6x02



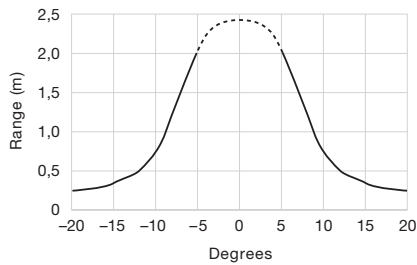
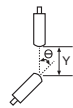
SMT 6000 and SMR 6x06



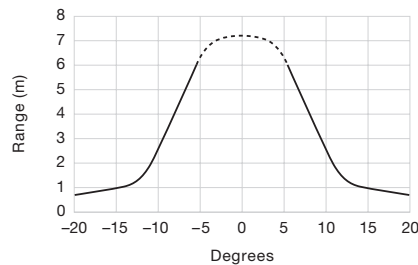
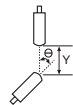
Angular Displacement



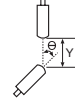
SMT 6000



SMR 6x02



SMR 6x06



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