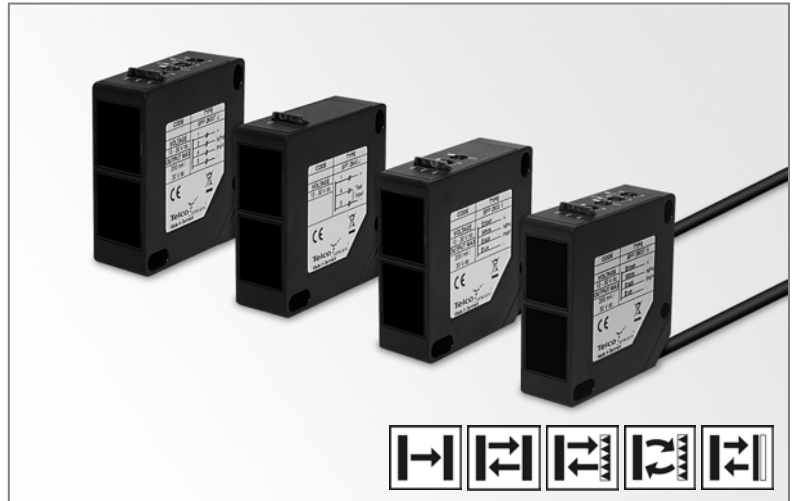


Description

- Operation mode and max sensing range:
Thru beam: 0-45 m
Diffuse proximity: 0-5 m
Retro reflective: 0-12 m
Polarised retro reflective: 0-10 m
Background suppression: 0-2 m
- Compact rectangular housing (50 x 50mm)
- Cable or plug connection
- Sensitivity adjustment via potentiometer
- Switch selectable light or dark function
- Adjustable on/off time delay
- Power, output and signal level indicators
- 10-30 V dc or 12 – 240 V ac / dc supply voltage
- 4 wire, NPN/PNP transistor output or 5 wire relay output




The SP 2000 series consists of a self-contained transmitter SPT and receiver SPR, which are to be used in thru beam mode, an SPP for diffuse proximity, SPRR for retro-reflective, SPRR for polarised retro-reflective and SPBS for background suppression. All are offered with sensitivity adjustment via integral potentiometer with either cable or rotatable plug connection.

The test input in the 10-30 V dc, SPT is intended to be used for disabling or enabling the transmitter power temporarily for test purposes or for multiplexing applications.

The complete series is available either as a 4 wire, NPN/PNP transistor output with 10-30 V dc supply voltage or as a 5 wire, relay output with a 12-240 V ac/dc supply voltage both offering switch selectable light or dark function and potentiometer adjustable 0-10 sec on/off time delay.

The dc series is protected against reverse polarity of power supplies, test input and output signals. The output is protected against short circuit and inductive loads.

Technical Data		SPT	SPR	SPP	SPRR	SPPR	SPBS
Supply voltage	ac	12- 240V dc/ 20-240 V ac					
	dc	10 – 30 V dc					
Voltage ripple		+/- 15 %					
Output	Relay	-	1 open / 1 close, 240 V ac / 3 A				
	Transistor	-	200 mA / 30 V dc				
Reverse polarity protected	dc	Yes					
Short circuit protected	dc	-	Yes				
Current consumption	ac	< 70 mA					
	dc	< 65 mA					
Maximum operation frequency	ac	-	25 Hz				25 Hz (2901 Model)
							13 Hz (2902 Model)
	dc	-	250 Hz	250 Hz (2603 Model)	250 Hz		250 Hz (2601 Model)
				100 Hz (2605 Model)			13 Hz (2602 Model)
Response time t _r / t _f	ac	-	20 ms / 20 ms				20 ms / 20 ms (2901 Model)
							40 ms / 40 ms (2902 Model)
	dc	-	2 ms / 2 ms	2 ms / 2 ms (2603 Model)	2 ms / 2 ms		2 ms / 2 ms (2601 Model)
				5 ms / 5 ms (2605 Model)			40 ms / 40 ms (2602 Model)
Delay t _r /t _f		-	0 – 10 sec, adjustable				
Power on indicator		Green LED					
Output indicator		Yellow LED					
Signal status indicator		Red LED					
Hysteresis		-	20-30 %	5-15 %	Approx. 11 %	Approx. 11 %	3-10 %
Light source		Infra Red (880 nm)	-	Infra Red (880 nm)		Visible Red (670nm)	Infra Red (880 nm)
Opening angle		-	+/- 2,5°	+/- 5°	+/- 1,5°	+/- 1,5°	+/- 5°
Emission angle		+/- 2°	-	+/- 1,5°	+/- 2°	+/- 2°	+/- 1,5°
Housing material		Polycarbonate					

Environmental Data		SPT	SPR	SPP	SPRR	SPPR	SPBS
Vibration		10 – 55 Hz, 0.5 mm					
Shock		30 g					
Light immunity	@ 5° incidence	-	25 000 lux	-	25 000 lux		-
	@ 15° incidence	-	-	25 000 lux			25 000 lux
Temperature, operation		-20 to + 55 ° C					
Temperature, storage		-40 to + 80 ° C					
Sealing class		IP 67					
Approvals	ac						
	dc						

Available Types								
	Type	Power supply	Control Feature	Time Delay	Connection	5 m cable	4 pin, M12 Plug	Range
						Order Reference		
Transmitter	2618	10 – 30 V dc	Test input	-	-	SPT 2618 5	SPT 2618 J	20 m
	2918	12 – 240 V dc	-			SPT 2918 5	SPT 2618 J	
	2645	10 – 30 V dc	Test input			SPT 2645 5	SPT 2645 J	45 m
	2945	12 – 240 V ac / dc	-			SPT 2945 5	SPT 2945 J	

Receiver	2618	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPR 2618T 5	SPR 2618T J	0 – 20 m
				-		SPR 2618 5	SPR 2618 J	
	2918	12 -240 V ac / dc		On/Off delay	Relay	SPR 2918T 5	-	
				-		SPR 2918 5	-	
	2645	10 – 30 V dc		On/Off delay	NPN/PNP	SPR 2645T 5	SPR 2645T J	0 – 45 m
				-		SPR 2645 5	SPR 2645T J	
	2945	12 – 240 V ac / dc		On/Off delay	Relay	SPR 2945 5	-	
				-		SPR 2945 5	-	

Diffuse Proximity	2603	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPP 2603T 5	SPP 2603T J	0 – 3 m
				-		SPP 2603 5	SPP 2603 J	
	2903	12 – 240 V ac / dc		On/Off Delay	Relay	SPP 2903T 5	-	
				-		SPP 2903 5	-	
	2605	10 – 30 V dc		On/Off Delay	NPN/PNP	SPP 2605T 5	SPP 2605T J	0 – 5 m
				-		SPP 2605 5	SPP 2605 J	
	2905	12 – 240 V ac / dc		On/Off Delay	Relay	SPP 2905T 5	-	
				-		SPP 2905 5	-	

Retro Reflective	2612	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPRR 2612T 5	SPRR 2612T J	0 – 12 m
				-		SPRR 2612 5	SPRR 2612 J	
	2912	12 – 240 V ac / dc		On/Off Delay	Relay	SPRR 2912T 5	-	
				-		SPRR 2912 5	-	

Note: Reflector to be ordered separately

Polarised Retro-Reflective	2610	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPPR 2610T 5	SPPR 2610T J	0 – 10 m
				-		SPPR 2610 5	SPPR 2610 J	
	2910	12 – 240 V ac / dc		On/Off Delay	Relay	SPPR 2910T 5	-	
				-		SPPR 2910 5	-	

Note: Reflector to be ordered separately

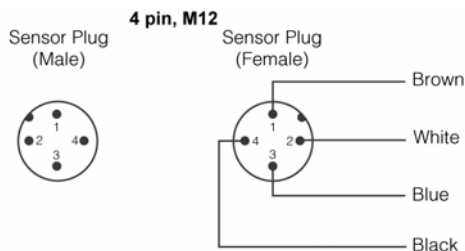
Background Suppression	2601	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPBS 2601T 5	SPBS 2601T J	0 – 1,5 m
				-		SPBS 2601 5	SPBS 2601 J	
	2901	12 – 240 V ac / dc		On/Off Delay	Relay	SPBS 2901T 5	-	
				-		SPBS 2901 5	-	

Available Types

Background Suppression	2602	10 – 30 V dc	Sensitivity potentiometer and light/dark switch	On/Off Delay	NPN/PNP	SPBS 2602T 5	SPBS 2602T J	0 – 2 m
				-		SPBS 2602 5	SPBS 2602 J	
	2902	12 – 240 V ac / dc		On/Off Delay	Relay	SPBS 2902T 5	-	
				-		SPBS 2902 5	-	

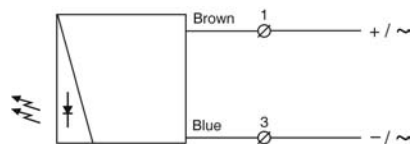
Connections

	Cable	M12 Plug / Cable
Supply +	Brown	Pin 1 / Brown
Supply -	Blue	Pin 3 / Blue
SPT test input	Black	Pin 4 / Black
Output NPN	White	Pin 2 / White
Output PNP	Black	Pin 4 / Black
Output NC	Grey	-
Output NO	Black	-
Output C	White	-

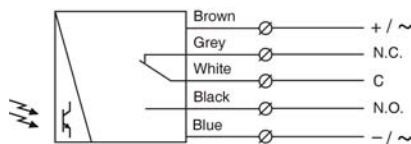


Wiring Diagrams

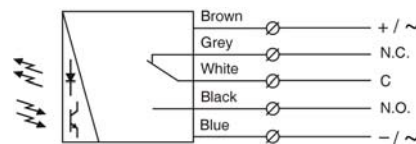
AC/DC Models



SPT 29xx

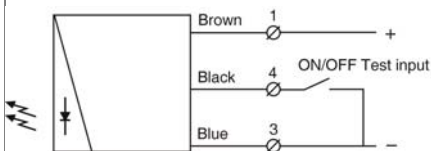


SPR 29xx

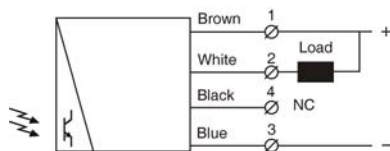


SPP/SPRR/SPPR/SPBS 29xx

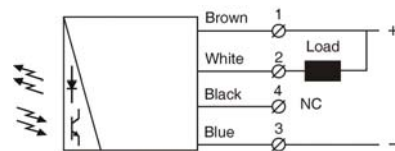
DC Models



SPT 26xx



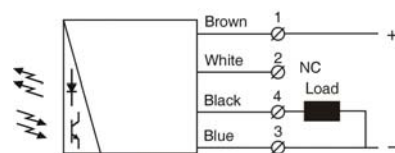
SPR 26xx (load as NPN)



SPP/SPRR/SPPR/SPBS 26xx (load as NPN)

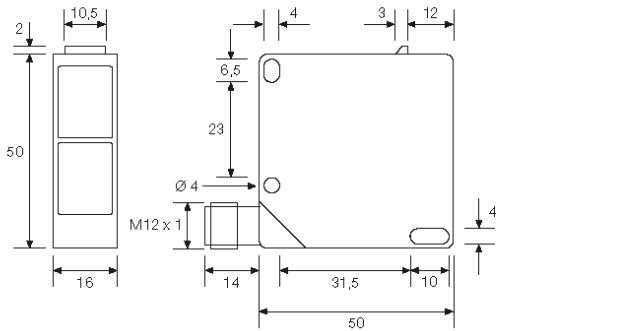


SPR 26xx (load as PNP)

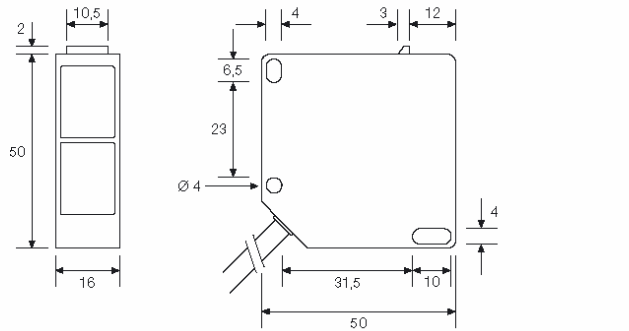


SPP/SPRR/SPPR/SPBS 26xx (load as PNP)

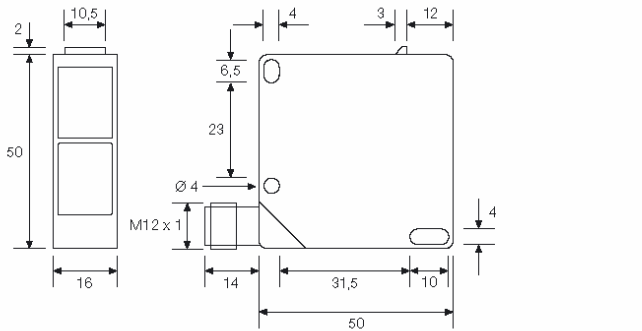
Dimensions and Descriptions



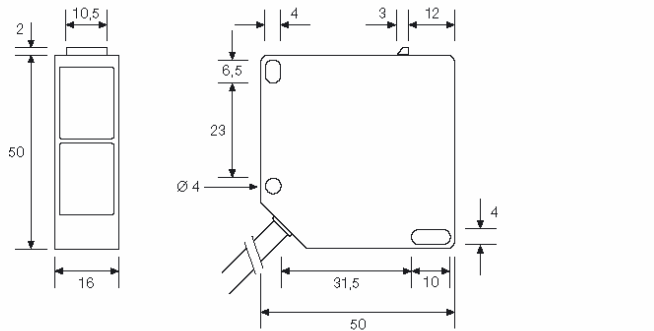
SPT 2645 J



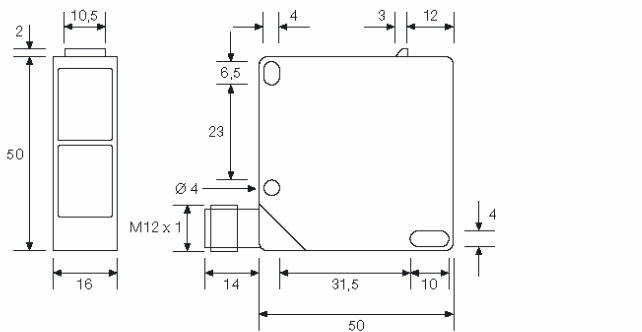
SPT 2x45 5



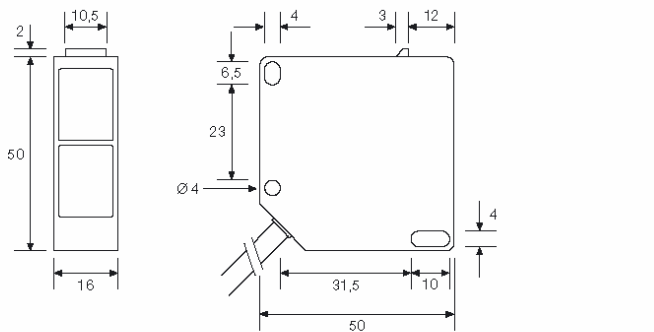
SPR/SPP/SPRR/SPPR/SPBS 26xx J



SPR/SPP/SPRR/SPPR/SPBS 2xx 5



SPR/SPP/SPRR/SPPR/SPBS 26xxT J



SPR/SPP/SPRR/SPPR/SPBS 2xxT 5

(Units in mm)