

**Description**

- Operation mode and max sensing range:  
**Thru-beam:** 0-20 m  
**Diffuse proximity:** 0-1,0 m  
**Retro reflective:** 0,1-3 m  
**Fibre:** Dependent on fibre optic
- Cable or plug connection
- Sensitivity adjustment via potentiometer
- Switch selectable light or dark function
- Power and output indicators
- High tolerance to hostile environments
- 10-30 V dc or 20-250 V ac supply voltage
- 3 wire, NPN or PNP transistor output or 2 wire, SCR output
- Test input
- Available with optional  ATEX approval



The 8000 series consists of a self-contained transmitter SMT, and a receiver SMR which are to be used in thru-beam mode, an SMP for diffuse proximity, SMRR for retro reflective and an SMPF for use with fibre optic cables. All are offered with sensitivity adjustment via integral potentiometer, and with either cable or plug connection.

The complete series is available either as 3 wire, NPN or PNP transistor output with a 10-30 V dc supply voltage, or as 2 wire, SCR output with a

20-250 V ac supply voltage both offering switch selectable light or dark function. The control input in the 10-30 V dc SMT is intended to be used for disabling or enabling the transmitting power temporarily for test purpose or for multiplexing applications.

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

Technical Data		SMT	SMR		SMP	SMPF	SMRR
			8x20	8x00			
Supply voltage	ac	20-250 V ac					
	dc	10-30 V dc					
Voltage ripple		Max. 15 %					
Reverse polarity protected	dc	Yes					
Short circuit protected	dc	-	Yes				
Current consumption	ac	3 mA	2 mA				
	dc	15 mA	5 mA		14 mA		
Maximum output load	ac	-	200 mA				
	dc	-	120 mA @ 30 V dc				
Maximum residual voltage	ac	-	8 V				
	dc	-	1,5 V				
Max. operation frequency	ac	-	20 Hz				
	dc	-	100 Hz	250 Hz			
Response time t <sub>ON</sub> / t <sub>OFF</sub>	ac	-	25 ms / 25 ms				
	dc	-	5 ms / 5 ms	2 ms / 2 ms			
Power on indicator		Green LED					
Output indicator		-	Yellow LED				
Hysteresis		-	Approx. 10-30 %		Approx. 5-15 %		
Light source		Infrared (880 nm)	-		Infrared (880 nm)		
Opening angle		-	+/- 6°		+/- 4°		+/- 3,5°
Emission angle		+/- 2°	-				
Housing material	Sensor housing	Stainless Steel (AISI 316 / 1.4401) or Polycarbonate					
	Front lens	Polycarbonate					
Cable, PVC	ac	Ø 5,2 mm, 2 x 0,25 mm <sup>2</sup>					
	dc	Ø 4,0 mm, 3 x 0,14 mm <sup>2</sup>					

**Environmental Data**

	SMT	SMR		SMP	SMPF	SMRR	
		8x20	8x00				
Vibration	10-55 Hz, 0,5 mm						
Shock	30 g						
Light immunity	@ 5° incidence	-	7 000 lux	10 000 lux	-		
	@ 15° incidence	-	-		40 000 lux	25 000 lux	
Temperature, operation	-20 to +60 °C						
Temperature, storage	-40 to +80 °C						
Sealing class	IP 67						
Approvals	ac	CE				UL	
	dc	CE					

**Available Types**

Transmitter	Type	Power Supply	Control Feature	Output	Connection		5 m cable	3 pin, M8 plug	4 pin, M12 plug	Range
					Housing Material	Housing Type				
	Order Reference									
8000	8000	10-30 V dc	Test Input	-	Polycarbonate	M18 x 1	SMT 8000 PG 5	SMT 8000 PG T3	SMT 8000 PG J	20 m
					Stainless Steel		SMT 8000 MG 5 <sup>2</sup>	SMT 8000 MG T3	SMT 8000 MG J	
	8600	20-250 V ac	-		Polycarbonate		SMT 8600 PG 5	-	-	7 m
					Stainless Steel		SMT 8600 MG 5	-	-	
	8600H				Polycarbonate		SMT 8600H PG 5	-	-	20 m
					Stainless Steel		SMT 8600H MG 5	-	-	

Receiver	Type	Power Supply	Control Feature	Output	Connection		5 m cable	3 pin, M8 plug	4 pin, M12 plug	Range	
					Housing Material	Housing Type					
	Order Reference										
8400	8400	10-30 V dc	Sensitivity pot. and light/dark switch	NPN	Polycarbonate	M18 x 1	SMR 8400 PG 5	SMR 8400 PG T3	SMR 8400 PG J	0-7 m	
					Stainless Steel		SMR 8400 MG 5 <sup>2</sup>	SMR 8400 MG T3	SMR 8400 MG J		
	8500				PNP		Polycarbonate	SMR 8500 PG 5	SMR 8500 PG T3		SMR 8500 PG J
							Stainless Steel	SMR 8500 MG 5 <sup>2</sup>	SMR 8500 MG T3		SMR 8500 MG J
	8420				NPN		Polycarbonate	SMR 8420 PG 5	SMR 8420 PG T3		SMR 8420 PG J
							Stainless Steel	SMR 8420 MG 5 <sup>2</sup>	SMR 8420 MG T3		SMR 8420 MG J
	8520			PNP	Polycarbonate		SMR 8520 PG 5	SMR 8520 PG T3	SMR 8520 PG J		
					Stainless Steel		SMR 8520 MG 5 <sup>2</sup>	SMR 8520 MG T3	SMR 8520 MG J		
	8800			SCR	Polycarbonate		SMR 8800 PG 5	-	-	7 m	
					Stainless Steel		SMR 8800 MG 5	-	-		
	8820			SCR	Polycarbonate		SMR 8820 PG 5	-	-	20 m	
					Stainless Steel		SMR 8820 MG 5	-	-		

Proximity	Type	Power Supply	Control Feature	Output	Connection		5 m cable	3 pin, M8 plug	4 pin, M12 plug	Range	
					Housing Material	Housing Type					
	Order Reference										
8400	8400	10-30 V dc	Sensitivity pot. and light/dark switch	NPN	Polycarbonate	M18 x 1	SMP 8400 PG 5	SMP 8400 PG T3	SMP 8400 PG J	0-0,5 m	
					Stainless Steel		SMP 8400 MG 5 <sup>2</sup>	SMP 8400 MG T3	SMP 8400 MG J		
	8500				PNP		Polycarbonate	SMP 8500 PG 5	SMP 8500 PG T3		SMP 8500 PG J
							Stainless Steel	SMP 8500 MG 5 <sup>2</sup>	SMP 8500 MG T3		SMP 8500 MG J
	8800			SCR	Polycarbonate		SMP 8800 PG 5	-	-		
					Stainless Steel		SMP 8800 MG 5	-	-		
	8401	NPN		Polycarbonate	SMP 8401 PG 5		SMP 8401 PG T3	SMP 8401 PG J			
				Stainless Steel	SMP 8401 MG 5 <sup>2</sup>		SMP 8401 MG T3	SMP 8401 MG J			
	8501	PNP		Polycarbonate	SMP 8501 PG 5		SMP 8501 PG T3	SMP 8501 PG J			
				Stainless Steel	SMP 8501 MG 5 <sup>2</sup>		SMP 8501 MG T3	SMP 8501 MG J			
	8801	SCR		Polycarbonate	SMP 8801 PG 5		-	-			
				Stainless Steel	SMP 8801 MG 5		-	-			

Note: 1. Reflector to be ordered separately.  
 2. SM 8000 Series with stainless steel housing and cable connection is available to comply with ATEX II 3 G Ex nA IIC T6 Gc and II 3D Ex tc IIIC T100 °C Dc. Add "/EX" after the series number e.g. SMT 8000/EX MG 5. Sensors marked <sup>2</sup> are available to comply with ATEX approval.

Available Types

Fibre Sensor	Type	Power Supply	Control Feature	Output	Connection		5 m cable	3 pin, M8 plug	4 pin, M12 plug	Range
					Housing Material	Housing Type				
	Order Reference									
8400	10-30 V dc	Sensitivity pot. and light/dark switch	NPN	Polycarbonate	M18 x 1	SMPF 8400 PG 5	SMPF 8400 PG T3	SMPF 8400 PG J	Refer to Glass Fibre Optics datasheet	
				Stainless Steel		SMPF 8400 MG 5 <sup>2</sup>	SMPF 8400 MG T3	SMPF 8400 MG J		
	PNP		Polycarbonate	SMPF 8500 PG 5		SMPF 8500 PG T3	SMPF 8500 PG J			
			Stainless Steel	SMPF 8500 MG 5 <sup>2</sup>		SMPF 8500 MG T3	SMPF 8500 MG J			
	SCR		Polycarbonate	SMPF 8800 PG 5		-	-			
			Stainless Steel	SMPF 8800 MG 5		-	-			

Note: Glass fibre optic cable to be ordered separately.

Retro Reflective	8400	10-30 V dc	Sensitivity pot. and light/dark switch	NPN	M18 x 1	SMRR 8400 PG 5	SMRR 8400 PG T3	SMRR 8400 PG J	0,1-3 m
						Stainless Steel	SMRR 8400 MG 5 <sup>2</sup>	SMRR 8400 MG T3	
	PNP	Polycarbonate	SMRR 8500 PG 5	SMRR 8500 PG T3	SMRR 8500 PG J				
		Stainless Steel	SMRR 8500 MG 5 <sup>2</sup>	SMRR 8500 MG T3	SMRR 8500 MG J				
	SCR	Polycarbonate	SMRR 8800 PG 5	-	-				
		Stainless Steel	SMRR 8800 MG 5	-	-				

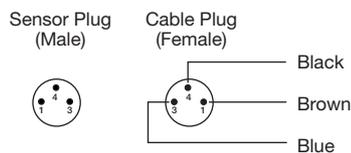
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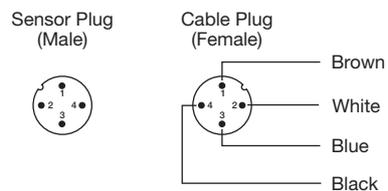
Connections

	Cable	M8 Plug / Cable	M12 Plug / Cable
AC supply	Blue & Brown	-	-
Supply +	Brown	Pin 1 / Brown	Pin 1 / Brown
Supply -	Blue	Pin 3 / Blue	Pin 3 / Blue
SMT test input	Black	Pin 4 / Black	Pin 4 / Black
Output	Black	Pin 4 / Black	Pin 4 / Black

3 pin, M8

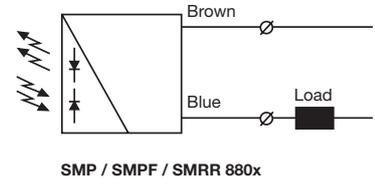
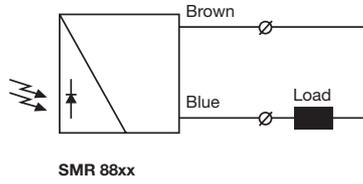
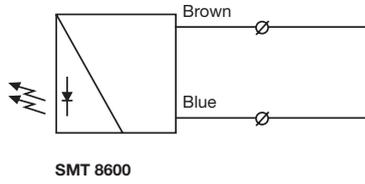


4 pin, M12

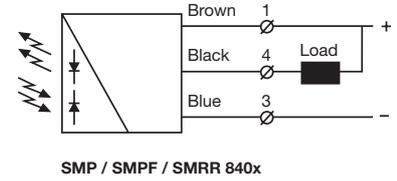
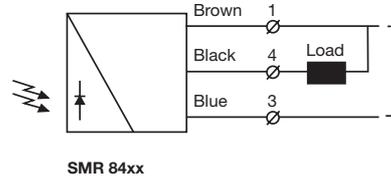
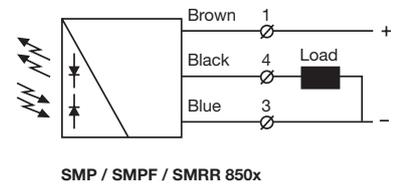
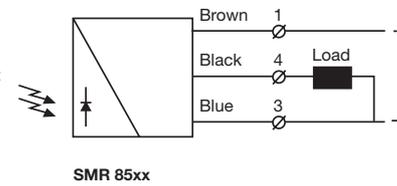
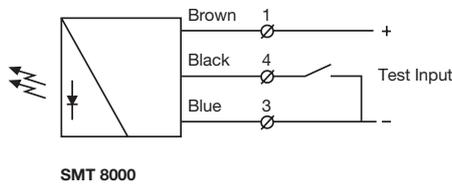


Wiring Diagrams

AC Models

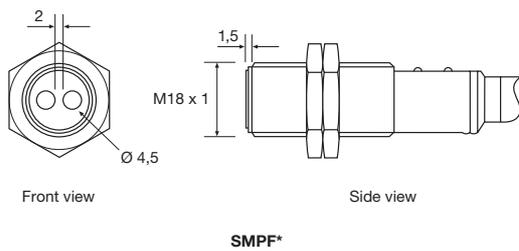
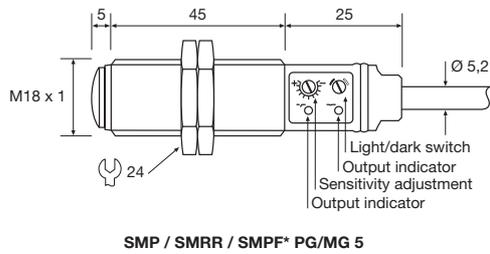
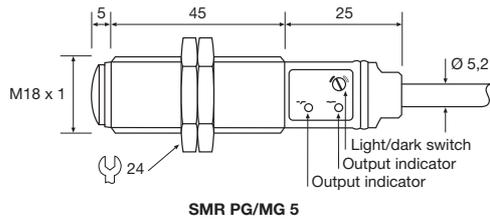
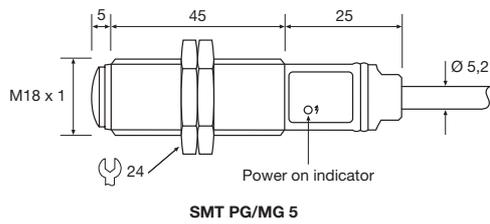


DC Models

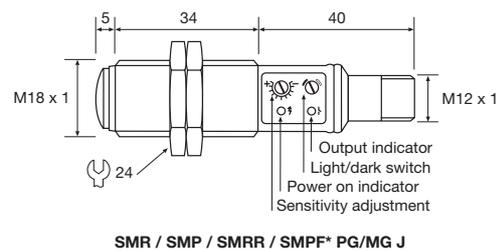
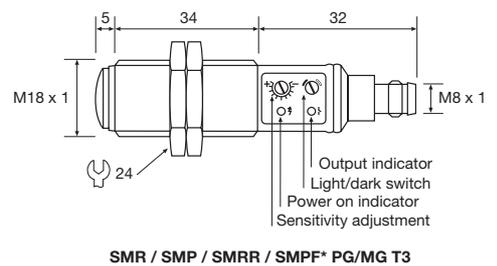
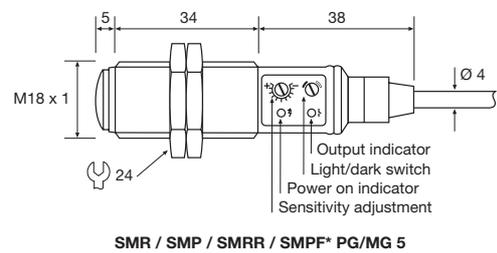
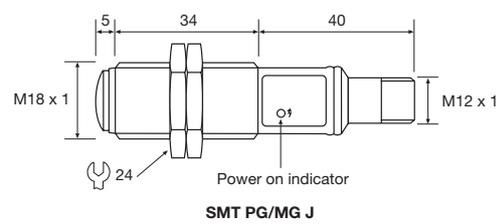
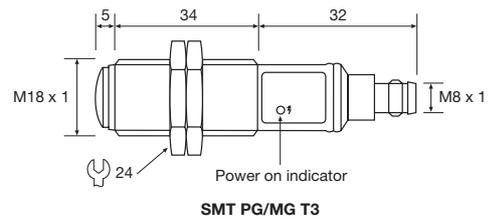
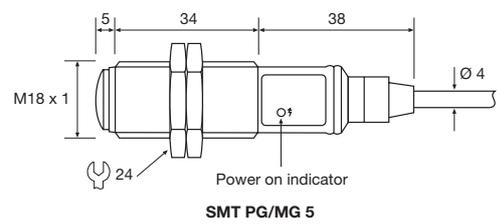


Dimensions and Descriptions

AC Models



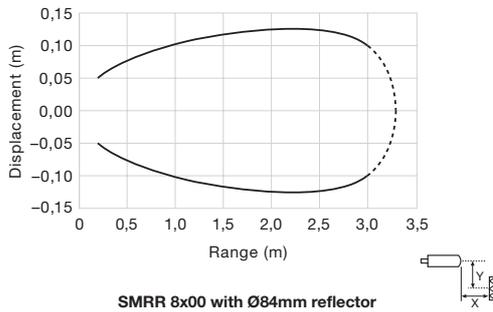
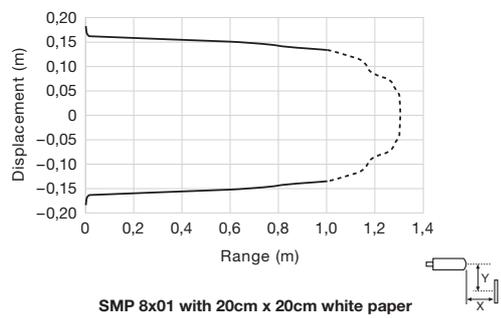
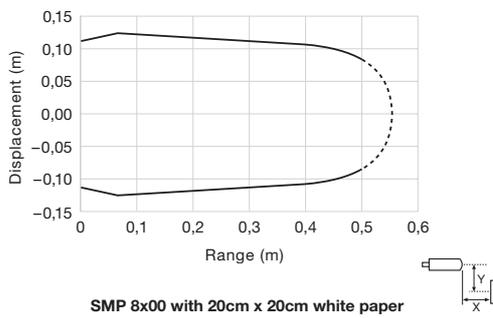
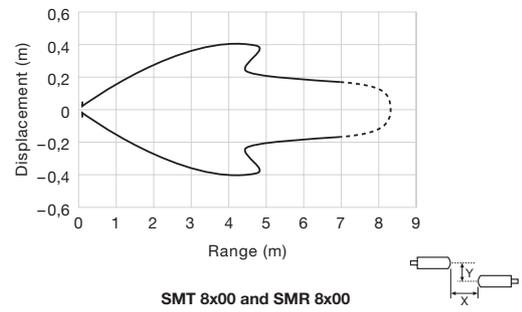
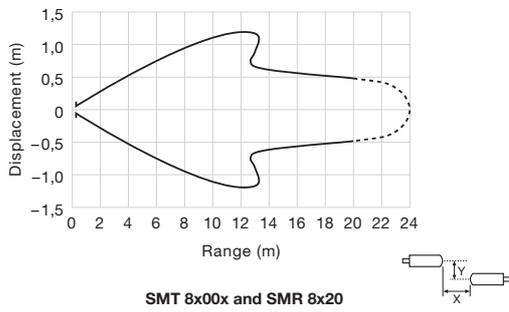
DC Models



(Units in mm)

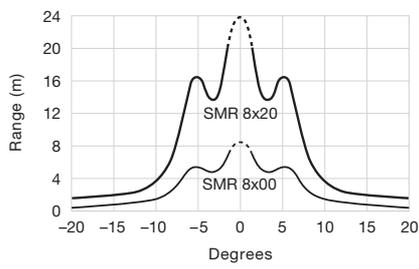
Sensing Characteristics

Parallel Displacement

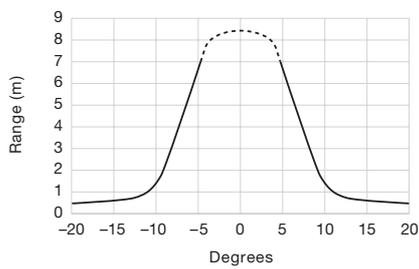
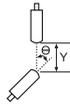


Sensing Characteristics

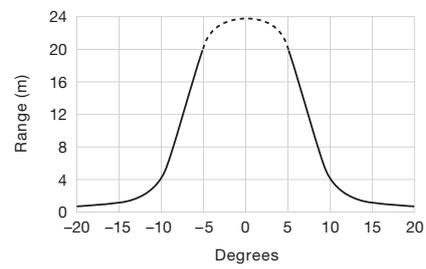
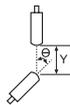
Angular Displacement



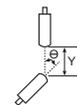
SMT 8x00x



SMR 8x00



SMR 8x20



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