

**M12-Transceiver 850nm LED/PIN-Diode**

**1 General**

The M12 Transceiver is designed to suit applications with multi-mode optical fiber  $\geq 50/125\mu\text{m}$  (GOF). The transceiver is supplied with an IP67 protection cap and a fastening nut.

**2 Application**

Due to the high transmission rate, the good characteristics and the easy optical fiber termination, the transceiver may be used in many applications:

- Optical networks
- Fast-Ethernet
- Industrial electronics

**3 Ordering information**

Specification	Part number
650nm LED_PIN	905TR850M12S1



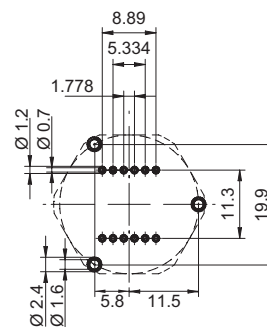
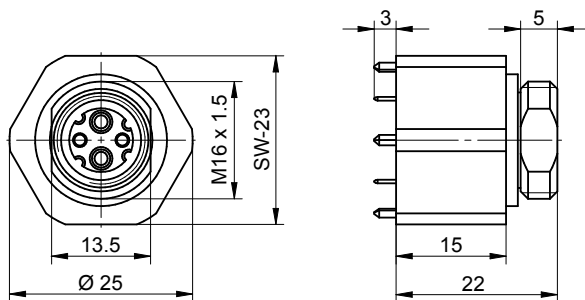
Pic 1 M12 Transceiver

**5 Features**

- 850nm wavelength
- suitable for multi-mode optical fiber  $\geq 50/125\mu\text{m}$
- metal housing
- connector endface acc. DIN / IEC 61754-27
- -40 to +85°C ambient operating temperature
- RoHS compliant

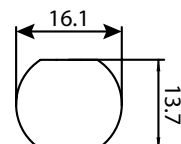
**4 Technical drawing**

**Housing**



PCB drill layout

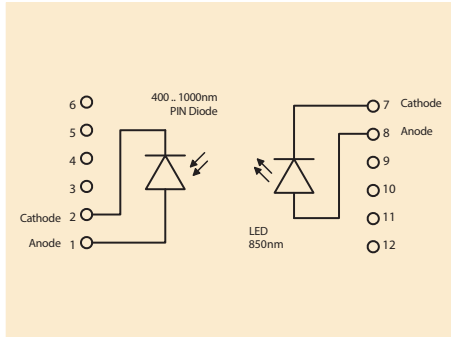
**Cut out area / Durchbruch**



Pic. 2 Drawing M12 Transceiver

# M12-Transceiver 850nm LED/PIN-Diode

## 6 Circuitry

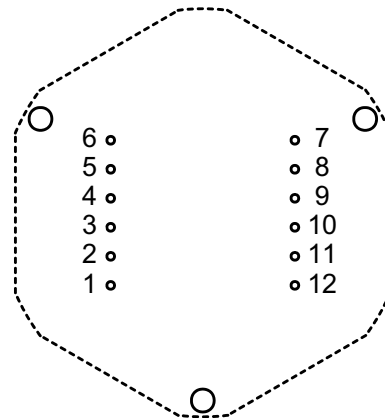


- LED 850nm
- PIN photodiode 400 .. 1000nm
- Multi-mode optical fiber  $\geq 50/125\mu\text{m}$

Pic. 3 Circuitry 905TR850M12S1

## 7 Pin assignment

Pin No.	905TR850M12S1
1	PIN Anode
2	PIN Cathode
3	nc
4	nc
5	nc
6	nc
7	LED Cathode
8	LED Anode
9	nc
10	nc
11	nc
12	nc



Pic. 4 Top View

## M12-Transceiver 850nm LED/PIN-Diode

### 8 Maximum ratings \_\_\_\_\_

Stresses beyond those listed under «Maximum Ratings» may cause permanent damage to the electronic component. The maximum ratings represent the stress limits of the electronic component. Operation of the electronic component at these values is not recommended over an extended period as this may adversely affect the reliability of the component.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	$T_S$		-40		100	°C
Operating temperature	$T_C$		-40		85	°C
Soldering temperature	$T_{Sold}$				260	°C
Lötzeit	$t_{Sold}$				5	s

### 9 Technical data \_\_\_\_\_

#### 9.1 LED 850nm \_\_\_\_\_

Parameter	Condition		Min.	Typ.	Max.	Unit
Max. Reverse Voltage					1	V
Total Coupled Power ( $I_F=100mA$ , $25^\circ C$ )	Fiber 50/125 $\mu m$	N. A. 0.20	25	29		$\mu W$
	Fiber 62.5/125 $\mu m$	N. A. 0.28		83		
	Fiber 100/140 $\mu m$	N. A. 0.29		240		
	Fiber 200/230 $\mu m$	N. A. 0.41		810		
Forward Voltage $V_F$	$I_F=100mA$			1.8	2.2	V
Reverse Voltage $V_R$	$I_R=100\mu A$		1.8			V
Wavelength $\lambda$	$I_F=50mA$		830	850	870	nm
Optical Bandwidth $\Delta\lambda$	$I_F=50mA$			50	60	nm
Rise and Fall Time $t_R, t_F$	$I_F=100mA$ ; 10% to 90%			6.0	10.0	ns



## M12-Transceiver 850nm LED/PIN-Diode

### 9.2 PIN Photodiode 400...1100nm

Parameter	Value	Unit
Wavelength of max. sensitivity $\lambda$	850	nm
Spectral range of sensitivity $\Delta\lambda$	400...1100	nm
Rise and fall times ( $R_L = 50\Omega$ , $V_R = 20V$ )	5	ns
$t_R$ $t_F$	5	ns
Capacitance ( $V_R = 0V$ )	11	pF
Forward voltage $V_F$ ( $I_F = 80mA$ )	1.3	V
Spectral sensitivity of the chip ( $\lambda = 850nm$ )	0.62	A/W
Temperature coefficient $I_p$ 660nm	-0.04	%/K
Dark current ( $V_p = 20V$ )	1 ( $\leq 5$ )	nA

**CAUTION!**  
 The assembly of system components (transceiver, connectors and couplings)  
 has to be made with manual/hand force!!!

The information released by Ratioplast-Optoelectronics GmbH in this data sheet is believed to be accurate and reliable. However, no responsibility is assumed by Ratioplast-Optoelectronics GmbH for its use. Ratioplast-Optoelectronics GmbH reserves the right to change circuitry and specifications at any time without notification to the customer. ■