Ratioplast
Electronics | OptoElectronics

Data sheet Fiber Optic Transceiver M12

M12-Transceiver 650nm LED/5Mbit

1 General

The M12 Transceiver is designed to suit applications with low cost 1mm plastic optical fiber. 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:

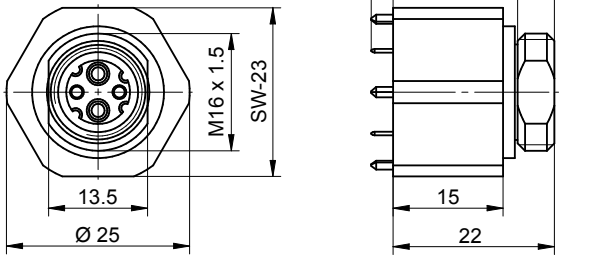
- Optical networks
- Fast-Ethernet
- Industrial electronics

3 Ordering information

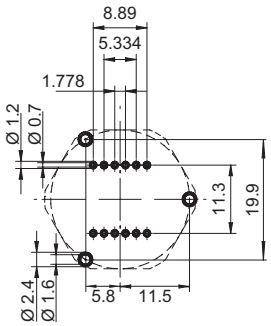
Specification	Part number
650nm LED_5Mbit	905TR650M12S2

4 Technical drawing

Housing

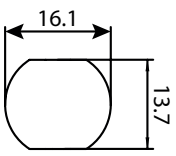


Pic. 2 Drawing *M12 Transceiver*



PCB drill layout

Cut out area / Durchbruch



Pic 1 *M12 Transceiver*

5 Features

- 650nm wavelength
- suitable for 1mm POF
- metal housing
- connector endface acc. DIN / IEC 61754-27
- -40 to +85°C ambient operating temperature
- RoHS compliant

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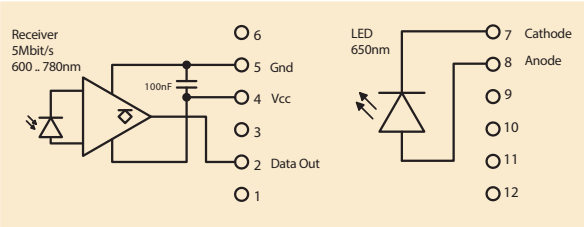
M12-Transceiver 650nm LED/5Mbit

6 Circuitry

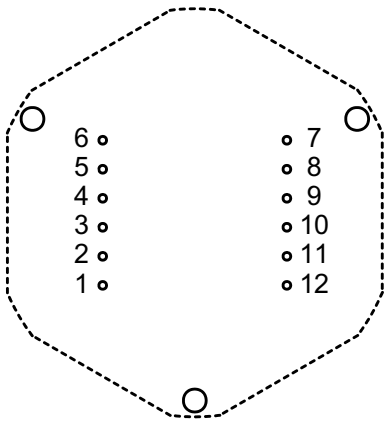


- LED 650nm
- Empfänger 5Mbit/s (open collector output)
- Plastic opitcal fiber

Pic. 3 Circuitry 905TR650M12S2

7 Pin assignment

Pin No.	905TR650M12S2
1	nc
2	Data Out
3	nc
4	Vcc
5	Gnd
6	nc
7	LED Cathode
8	LED Anode
9	nc
10	nc
11	nc
12	nc



Pic. 4 *Top View*

M12-Transceiver 650nm LED/5Mbit

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 650nm

Parameter	Value	Unit
Wavelength λ	650	nm
Spectral bandwidth Δλ	20	nm
Rise and fall times (I_F=50mA) t_R t_F	 14 (<20) 16 (<24)	 ns ns
Capacitance (V_R=0V)	52	pF
Forward voltage V_F (I_F=50mA)	2.0 (<2.6)	V
Fiber coupled power P_{Out} 1mm POF (I_F=10mA)	150 (<100)	µW
Temperature coefficient P_{OUT}	-0.4	%/K
Temperature coefficient V_F	-1.8	mV/K
Temperature coefficient λ	0.16	nm/K

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9.2 Receiver 5Mbit

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Max. Supply Voltage Range	V_{CC}		-0.5		15	V
Min. Supply Voltage for Function	V_{CC}min		4			V
Operating Voltage	V_{CC}		4.75	-	5.25	V
Data Rate	f_D		DC	-	5	MBit/s
Max. Output Current	I_C				50	mA
Current Consumption	I_{CC}		1.5	3.5	6.5	mA
Power Dissipation	P_O				100	mW
Peak POF Sensitivity Limit	P_{IN} min	λ = 650nm	20	6.3		µW
Max. Photosensitivity Wavelength	$\lambda_{S\ max.}$		-	700	-	nm
Photosensitivity Spectral Range	Δλ	S = 80% $S_{max.}$	600	-	780	nm
Propagation Delay	t_{PHL} t_{PLH}		-	120 270	-	ns ns
Min. Pullup Resistance		Vcc = 5V	330			Ω

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

Company address:
Jockweg 64
D 32312 Lübbecke

Phone +49 (0) 5741 23 66 5-0
Fax +49 (0) 5741 23 66 5-44

Internet: http://www.ratioplast.de
E-Mail: opto@ratioplast.de

VAT Reg. No.: DE 164 216 351
Local Court Bad Oeynhausen HRB 2382