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Product Bulletin

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OZD Genius G12 and OZD Modbus Plus G12 Fiber Optic Repeaters

Extend the range of Genius Bus and Modbus Plus networks with robust, reliable and ruggedized fiber optic solutions.



Designed with metal housing to withstand harsh conditions, these advanced fiber optic repeaters ensure the network availability needed in harsh, highly automated or decentralized industrial applications.

- **Increased range** – increase the value of Genius Bus and Modbus Plus networks by expanding the range of data transmission with fiber optic cable
- **Flexible use** – all fiber types are supported
- **Reliable, high-performance** – seamless redundancy measures protect the network's availability, even when fibers break
- **Ruggedized design** – lower the risk of damage and downtime in harsh industrial environments, such as electromagnetic interference (EMI)

The OZD Genius G12 and OZD Modbus Plus G12 repeaters offer an immediate path to increasing the reach, reliability and integrity of Genius Bus and Modbus Plus networks through fiber optic cables. Engineers, installers and system integrators who want to increase the value of a plant by using fiber optic technology in the long term will appreciate the reliability and performance of these devices and the network benefits they enable. Depending on the fieldbus protocol, you can select from a fiber optic repeater for Genius Bus networks (OZD Genius G12) or Modbus Plus networks (OZD Modbus Plus G12).

Applications

The OZD Genius G12 and OZD Modbus Plus G12 are designed for mission-critical industrial and transportation environments where network reliability is paramount.

With built-in redundancy mechanisms and a ruggedized design, they are ideal for use in decentralized operations with high automation or in extended plants. This includes transportation and traffic control systems, water and wastewater treatment plants, power generation environments and general manufacturing settings.

Your Benefits

Fiber optic cables offer significant advantages over copper cabling, especially fast and fault-free data communication over long distances.

With the OZD Genius G12 and OZD Modbus Plus G12 repeaters, you can connect and extend network segments and support high-speed data transfer, even in decentralized operations. Network downtime is avoided through ultrafast redundancy mechanisms and remote surveillance for proactive maintenance.

Designed to operate in harsh environments where dust, vibration, corrosive gases and EMI can wreak havoc on simpler, cheaper devices – the OZD Genius G12 and OZD Modbus Plus G12 provide the connectivity and data availability needed for reliable operations.

A new product to serve your needs. Be certain.



OZD Genius G12 and OZD Modbus Plus G12 Fiber Optic Repeaters



The OZD Genius G12 and OZD Modbus Plus G12 fiber optic repeaters deliver flexible, reliable and high-performing connectivity in environments where network uptime is mission critical. Able to connect to any fiber optic cable, these fiber optic repeaters can extend the reach of network segments up to 22,000 m.

As automation increases across manufacturing and industrial operations, the ability to support high volume data traffic becomes increasingly important. The OZD Genius G12 and the OZD Modbus Plus devices can easily manage all data transmission rates specified for the respective fieldbus protocols up to 1 Mbit/s, ensuring a seamless flow of information from all points on the network.

Benefits at a Glance

- Expand the range for data transmission through fiber optic based networks up to 22,000 m
- Optimize network availability with seamless redundancy against fiber breaks
 - Deploy optical ring structures not common in copper-based networks
 - Limit system downtime with ultrafast redundancy mechanisms
- Lower the risk of damage and downtime in hazardous industrial conditions, including protection from EMI, heat, humidity and dust
- Support high-volume data transmission rates up to 1 Mbit/s
- Use with all kinds of fiber optic cables

OZD Genius G12 and OZD Modbus Plus G12 fiber optic repeater extend the reach, reliability and integrity of Genius Bus and Modbus Plus networks.





Technical Information OZD Genius G12

Product Description		
Type	OZD Genius G12	OZD Genius G12-1300
Description	Interface converter electrical/optical for Genius field bus networks; Repeater function for quartz glass und PCF (HCS) FO	Interface converter electrical/optical for Genius field bus networks; Repeater function for quartz glass FO
Port Type and Quantity	2 x optical: 4 sockets BFOC 2.5 (STR), 1 x electrical: 4-pin connector, screw mounting	
Order No.	942-148-012	942-148-013
Electrical Interface		
Signal Type	Geniusbus	
Bit Rate	38.4, 76.8, 153.6 kbit/s	
Signal Delay Time (optional Input/Output)	800 ns	
Input/Output Signal	Geniusbus	
Cable	length: >250 m, attenuation at 1 MHz: <8 dB for 150 Ohm cable, <5 dB for 100 Ohm cable (Genius Cable)	
Connection Capability	max. 32 terminal devices	
Terminator	External	
Galvanic Isolation	Shielding in/shielding out: yes, data lines/housing: yes	
Optical Interface		
Wavelength	860 nm	1310 nm
Cascadability	Not limited	
More Interfaces		
Power Supply	8-pin terminal block, screw mounting	
Signaling Contact	8-pin terminal block, screw mounting	
Network Size – Length of Cable		
Singlemode Fiber (SM) 9/125 µm	–	10000 m, 8 dB link budget at 1310 nm, A = 0.5 dB/km, 2 dB reserve
Multimode Fiber (MM) 50/125 µm	2700 m, 11 dB link budget at 860 nm, A = 3 dB/km, 3 dB reserve	7000 m, 10 dB link budget at 1310 nm, A = 1 dB/km, 3 dB reserve
Multimode Fiber (MM) 62.5/125 µm	2600 m, 12 dB link budget at 860 nm, A = 3.5 dB/km, 3 dB reserve	7000 m, 10 dB link budget at 1310 nm, A = 1 dB/km, 3 dB reserve
Multimode Fiber HCS (MM) 200/230 µm	1500 m, 16 dB link budget at 860 nm, A = 8 dB/km, 3 dB reserve	–
Power Requirements		
Operating Voltage	24 V DC (18 ... 32 V DC), reverse polarity protected, safety extra-low voltage	
Current Consumption	160 mA	
Power Consumption	3.9 W	
Redundancy		
Redundancy Functions	HIPER-Ring (ring structure), redundant 24 V infeed	
Ambient Conditions		
Operation Temperature	0 °C to +55 °C	
Storage/Transport Temperature	-40 °C to +80 °C	
Relative Humidity	<95% (non-condensing)	
Mechanical Construction		
Dimensions (W x H x D)	40 x 111 x 73.5 mm	
Mounting	DIN rail or mounting plate	
Weight	500 g	
Protection Class	IP40	
Housing Material	Die-cast zink	
Approvals		
Basic Standard	EC Conformity	
Scope of Delivery and Accessories		
Scope of Delivery	Device, start-up instructions	
Accessories to Order Separately	Manual	

NOTE: These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com

Technical Information OZD Modbus Plus G12

Product Description		
Type	OZD Modbus Plus G12	OZD Modbus Plus G12-1300
Description	Interface converter electrical/optical for Modbus Plus-field bus networks; Repeater function for quartz glass und PCF (HCS) FO	Interface converter electrical/optical for Modbus Plus-field bus networks; Repeater function for quartz glass FO (long-haul version)
Port Type and Quantity	2 x optical: 4 sockets BFOC 2.5 (STR), 1 x electrical: Sub-D 9-pin, female, pin assignment according to Modbus Plus-Standard	
Order No.	942-148-010	942-148-011
Electrical Interface		
Signal Type	Modbus Plus	
Bit Rate	1 Mbit/s	
Signal Delay Time (optional Input/Output)	<1 µs	
Input/Output Signal	Modbus Plus Bus	
Cable	100 m (Modbus Cable)	
Connection Capability	Max. 31 terminal devices	
Terminator	External	
Galvanic Isolation	Shielding/housing: no data lines/housing: yes	
Optical Interface		
Wavelength	860 nm	1310 nm
Cascadability	Not limited	
More Interfaces		
Power Supply	8-pin terminal block, screw mounting	
Signaling Contact	8-pin terminal block, screw mounting	
Network Size – Length of Cable		
Singlemode Fiber (SM) 9/125 µm	–	8000 m 8 dB link budget at 1310 nm, A = 0.5 dB/km, 2 dB reserve
Multimode Fiber (MM) 50/125 µm	2300 m 10 dB link budget at 860 nm, A = 3 dB/km, 3 dB reserve	7000 m 10 dB link budget at 1310 nm, A = 1 dB/km, 3 dB reserve
Multimode Fiber (MM) 62.5/125 µm	2300 m 11 dB link budget at 860 nm, A = 3.5 dB/km, 3 dB reserve	7000 m 10 dB link budget at 1310 nm, A = 1 dB/km, 3 dB reserve
Multimode Fiber HCS (MM) 200/230 µm	1500 m 16 dB link budget at 860 nm, A = 8 dB/km, 3 dB reserve	–
Power Requirements		
Operating Voltage	24 V DC (18 ... 32 V DC), reverse polarity protected, safety extra-low voltage	
Current Consumption	160 mA	
Power Consumption	3.9 W	
Redundancy		
Redundancy Functions	HIPER-Ring (ring structure), redundant 24 V infeed	
Ambient Conditions		
Operation Temperature	0 °C to +60 °C	
Storage/Transport Temperature	-40 °C to +70 °C	
Relative Humidity	<95% (non-condensing)	
Mechanical Construction		
Dimensions (W x H x D)	40 x 111 x 73.5 mm	
Mounting	DIN rail or mounting plate	
Weight	620 g	
Protection Class	IP40	
Housing Material	Die-cast zink	
Approvals		
Basic Standard	EC Conformity	
Scope of Delivery and Accessories		
Scope of Delivery	Device, start-up instructions	
Accessories to Order Separately	Manual	

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