

# **Product Bulletin**

### PB 1064LE-AG

### LioN-R Modules for PROFINET

The robust design and high level of functional reliability of the new ruggedized modules in the LioN series (LioN-R) for PROFINET provide secure connections between actuators/sensors and control units, even under extreme environmental conditions.

Galvanic Isolation Between Sensors/Actuators and PROFINET, Together With Short Circuit-proof Outputs, Ensure Extremely Reliable Data Transmission.

The Encapsulated Metal Housing also Brings a High Level of Mechanical Stability and Provides Maximum Protection Against Harsh Environmental Conditions.



- Combined with the "easy diagnostics" concept, the galvanic isolation between sensors/actuators and PROFINET provides maximum availability for systems and machines
- The integrated 2-port switch (10/100 Mbit/s), cost-effective line topologies can be implemented without additional switches
- A higher level of efficiency is achieved, due to standardized M12 connectors that considerably reduce wiring efforts and permit simple and fast extensions to the existing plant and equipment

Usable in both line and ring topologies, the new ruggedized LioN-R modules for PROFINET guarantee reliable data transmission even under the most extreme environmental conditions. Signals from connected sensors/actuators are bundled via vibration-proof M12 connectors before being sent to the controllers via PROFINET. The galvanic isolation between sensors/actuators and the bus system provides reliable protection against interference. The "fail-safe" function ensures reliable operation as well as safe switch-off when faults occur. The behavior of each individual output channel in the event of a fault can be defined during module configuration.

#### **Applications**

The LioN-R modules for PROFINET make it possible to implement dependable and flexible solutions, especially in mechanical and plant engineering. Thanks to their robust design, they are capable of withstanding welding sparks, shavings or aggressive coolants and lubricants. Equipped machines and systems can be employed in areas such as the automotive industry, where the AIDA group of manufacturers have opted for PROFINET as their network standard. Numerous other sectors can also benefit from the ruggedized LioN-R modules.

### **Your Benefits**

LioN-R modules for PROFINET enable costeffective solutions whenever you need to
connect sensors and actuators to controllers.
They owe their high functional reliability to the
galvanic isolation between sensors/actuators
and PROFINET, and to their simple diagnostics
concept while ensuring maximum machine
operating times. Because the modules come
with an integrated 2-port switch, one can
implement line topologies without the need
for additional switches. In comparison with
parallel wiring, the efforts for all types of
tasks are further reduced – including planning,
installation, maintenance and warehousing.



## **LioN-R Modules Support the PROFINET Protocol**

Encapsulated in a metal housing, the ruggedized LioN modules for PROFINET are available in three versions. They each offer 16 digital channels configured as inputs, outputs or a combination of both. And the optimum slot arrangement makes them easy to use, even with T distributors. The rated output current is up to 1.6 A per channel. Maximum output current is 9 A per module. The power supply has a nominal voltage of 24 V and a voltage range of 19 to 30 V. All versions comply with the requirements of the IP67 protection class, are designed for a temperature range of -10°C to +60°C, and are PNO- and UL-certified.

### **Benefits at a Glance**

The "fail-safe" function

and safe switch-off in

ensures reliable operation

- Combined with the "easy diagnostics" concept, the galvanic isolation between sensors/actuators and PROFINET brings maximum availability of systems and machines
- Short circuit-proof outputs contribute to maximum functional reliability
- The "fail-safe" function ensures reliable operation as well as safe switch-off in case of faults

topologies without the need for additional

switches

- Support for RT and IRT real-time standards
- PNO-certification and UL approval

case of faults An optimum slot Standardized M12 connection arrangement ensures technology reduces wiring modules are easy effort and also permits fast to use, even with and simple extensions to T distributors your plant and systems • 7/8" power Encapsulated die-cast zinc housing supply with and integrated ports provide T distributor maximum mechanical stability, function functional reliability and a high level of protection against even the most severe environmental conditions • M12 D-coded EtherNet LAN connection with T distributor function An integrated 2-port switch (10/100 Mbit/s) allows you to implement cost-effective line

# Be Certain with Belden

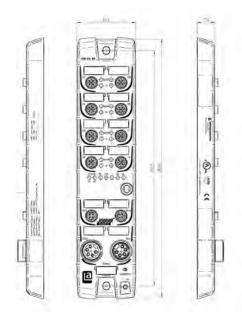


# **Technical Specifications**

Product Description							
Туре	0980 ESL 801-PNET 16DI-M12-R	0980 ESL 802-PNET 16D0-M12-R	0980 ESL 803-PNET 8DI/8DO-M12-R				
	CSA UL	CSA UL	CSA UL 🍗 🖦 🞼				
Description	Digital input module, 16 digital input channels, PROFINET device, M12 LAN port, 4 poles D-coded, 7/8" power supply 5 poles	Digital output module, 16 digital output channels with galvanic isolation, PROFINET device, M12 LAN port, 4 poles D-coded, 7/8" power supply 5 poles	Digital I/O module, 8 digital I/O channels with galvanic separation, PROFINET device, M12 LAN port, 4 poles D-coded, 7/8" power supply 5 pole				
Order No.	934 692-001	934 692-002	934 692-003				
Technical Data							
Protection Class	IP67						
Operating Temperature Range	-10°C to +60°C						
Weight	605 g						
Housing Material	Metal (diecast zinc)						
Bus System							
Transmission Rate	10/100 Mbs						
Address Range	0 to 255						
Default Address	0						
Inputs							
Rated Input Voltage	24 V DC	-	24 V DC				
Sensor Type	PNP (source)	_	PNP (source)				
Power Consumption of Sensor	Max. 100 mA	-	Max. 100 mA				
Reverse Polarity Protection	Yes	-	Yes				
Short Circuit-proof	Yes	_	Yes				
Number of Digital Channels	16	-	8				
Status Indicator	LED white per channel	-	LED white per channel				
Diagnostic Indicator	LED red per port	-	LED red per port				
Actuator Power Supply UL							
Rated Output Current	_	24 V DC	24 V DC				
Voltage Range	_	19 to 30 V DC	19 to 30 V DC				
Reverse Polarity Protection	-	Yes/antiparallel diode	Yes/antiparallel diode				
Indicator	_	LED green	LED white				
Outputs							
Rated Output Current	-	1.6 A per channel	1.6 A per channel				
Short Circuit-proof	-	Yes	Yes				
Max. Current Carrying Capacity	-	9 A per module	9 A per module				
Overload-proof	-	Yes	Yes				
Number of Digital Channels	-	16	8				
Channel Type N.O.	-	p-switching	p-switching				
Status Indicator	-	LED white per channel	LED white per channel				
Diagnostic Indicator	-	LED red per port	LED red per port				
Galvanic Isolation from Electronics	-	Yes	Yes				
Included in Delivery							
M12 Dust Covers	4 pieces						
Attachable Labels	10 pieces						

The use of these products in aggressive media should be verified in each case. Technical modifications reserved. Certifications have been applied for UL and CSA.

### **Technical Data**



### **Diagnostic Indicator**

LED	Indicator	Condition
Us	Green	Logic/sensor power supply
UL	Green	Actuator power supply
18 A	Yellow	Channel status
18 DIA A	Red	Periphery error
18 B	Yellow	Channel status
18 DIA B	Red	Periphery error
P1 Lnk/Act	Green Yellow flashing Off	Connection to an PROFINET device IO device exchanging data No connection to any other device
P2 Lnk/Act	Green Yellow flashing Off	Connection to an PROFINET device IO device exchanging data No connection to any other device
BF	Red Off	Bus error, no data exchange with I/O controller via PROFINET No error message
DIA	Red Red flashing Off	Common indicator for periphery errors Firmware update No error message

Technical modifications reserved.

### **Bit Assignment**

Bit	7	6	5	4	3	2	1	0
M12 Input 16DI								
Byte 0	4B	4A	3B	3A	2B	2A	1B	1A
Byte 1	8B	8A	7B	7A	6B	6A	5B	5A
M12 Output 16DO								
Byte 0	4B	4A	3B	3A	2B	2A	1B	1A
Byte 1	8B	8A	7B	7A	6B	6A	5B	5A
M12 Input 8DI								
Byte 0	4B	4A	3B	3A	2B	2A	1B	1A
M12 Output 8DO								
Byte 0	8B	8A	7B	7A	6B	6A	5B	5A

### **Pin Assignment**

LAN Conr	nection M12, D-coded	Voltage	Supply 7/8"		M12 Inpu	ıts/Outputs
2003	1 = TD+ 2 = RD+ 3 = TD- 4 = RD-	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 = GND (0 V) 2 = GND (0 V) 3 = PE/Earth 4 = 24 V 5 = 24 V		3 0 0 4	1 = +24 V 2 = IN/OUT B 3 = GND (0 V) 4 = IN/OUT A 5 = Earth
	Housing = shielded	5				Housing = PE
		l		-		

### **Always the Right Solution**

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