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Product Bulletin

PB 1059LE-AG

LioN-R Modules for EtherNet/IP

The new ruggedized EtherNet/IP modules in the LioN series (LioN-R) guarantee maximum security for data communication. The galvanic isolation between sensors and actuators and the higher level bus system reliably protects the controllers from interference.

As the Modules are Enclosed in a Stable Zinc Diecast Housing, They can Withstand Even the Most Rugged Environmental Conditions. In Addition, Short-circuit Proof Outputs Ensure Maximum Functional Reliability – Which Equates to Highly Productive Machines and Systems.

- Galvanic isolation between sensors and actuators and EtherNet/IP guarantees secure data communication
- Diecast zinc housings and short-circuit-proof outputs provide maximum mechanical stability and functional reliability
- Easy diagnostics concept saves time when locating faults, reducing operating costs as a result

The new LioN-R modules, which support EtherNet/IP, act as an interface between field level and control level. In other words, they bundle field-level signals and transmit them to the controllers. This not only allows secure data communication, but also greatly reduces the amount of wiring necessary and hence the costs of installation and maintenance. In addition, machines and systems can be expanded easily and quickly. The LioN-R modules can be used to implement both line and ring topologies. Thanks to DLR (Device Level Ring protocol) the modules switch over immediately to an alternative ring segment if the connection is broken, ensuring uninterrupted operation of the machines, hence high productivity.

Applications

The ruggedized LioN modules can be used wherever inputs and outputs need to be networked securely with controllers under harsh environmental conditions – for instance in mechanical and plant engineering. Thanks to their robust design they can even withstand applications involving welding sparks, filings, or aggressive coolants and lubricants.

Your Benefits

The LioN-R modules can be used to securely connect sensors and actuators to EtherNet/IP networks under rugged environmental conditions, since the galvanic isolation between the sensors and actuators and the higher level bus system reliably protects the controllers from interference. What's more, because the modules are enclosed in diecast zinc housings and feature short-circuit-proof outputs, they offer maximum stability and functional reliability, resulting in high level system productivity. The easy diagnostics concept also allows faults to be located quickly thanks to precise channel and bus diagnosis, saving you time and money as a result.

LioN-R Modules for EtherNet/IP

The I/O modules from the LioN-R series meet the requirements of IP67 and can be used to connect sensors and actuators to EtherNet/IP networks. The galvanic isolation between the sensors and actuators and the higher level bus system guarantees maximum data communication security. Vibration-proof M12 connection technology and short-circuit-proof outputs ensure maximum functional reliability. A total of three modules are available, each with 16 digital channels that are designed either as inputs, outputs or a combination of both. Since the LioN-R modules are also equipped with a dual-port switch (10/100 Mbit/s) they can be used to implement both line and ring topologies.

Benefits at a Glance

Uninterrupted operation thanks to DLR (Device Level Ring protocol)

- Secure data communication thanks to galvanic separation sensors and actuators and the higher level bus system
- Easy diagnostics concept saves time when locating faults, reducing operating costs as a result
- "Fail safe" function ensures the reliable operation of the system and the module switches off in case of a fault
- Integrated dual-port switch (10/100 Mbit/s) allows both line and ring topologies
- Output current rating of up to 1.6 A per channel (maximum total current capacity of 9 A)
- Color-coded connectors for clear assignment of cables
- Industrial protection class IP67, temperature range of -10°C to +60°C
- Power supply with 24 V voltage rating and a range from 11 to 30 V

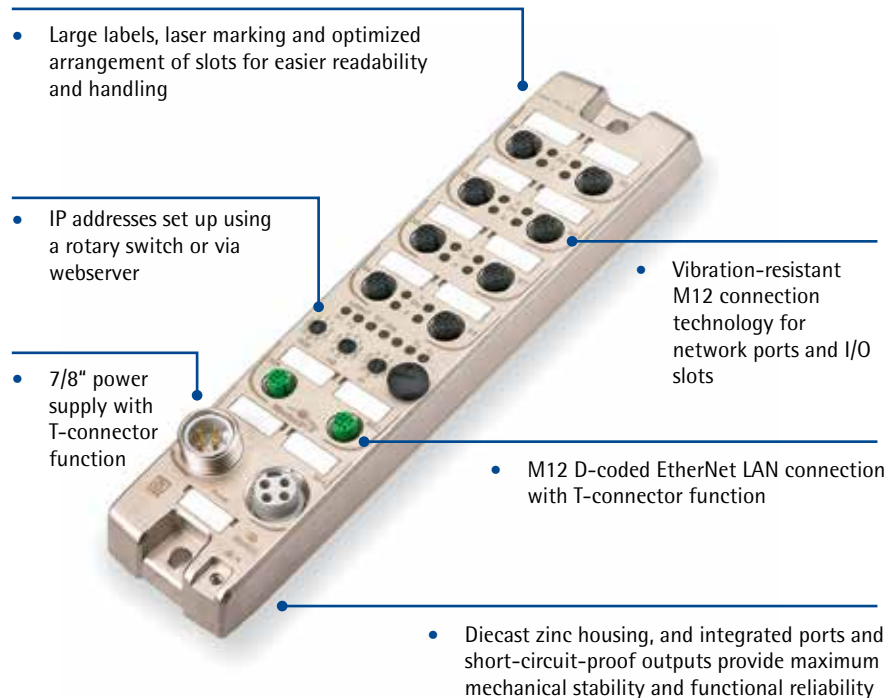- Large labels, laser marking and optimized arrangement of slots for easier readability and handling

- IP addresses set up using a rotary switch or via webserver

- 7/8" power supply with T-connector function

- Vibration-resistant M12 connection technology for network ports and I/O slots

- M12 D-coded EtherNet LAN connection with T-connector function

- Diecast zinc housing, and integrated ports and short-circuit-proof outputs provide maximum mechanical stability and functional reliability
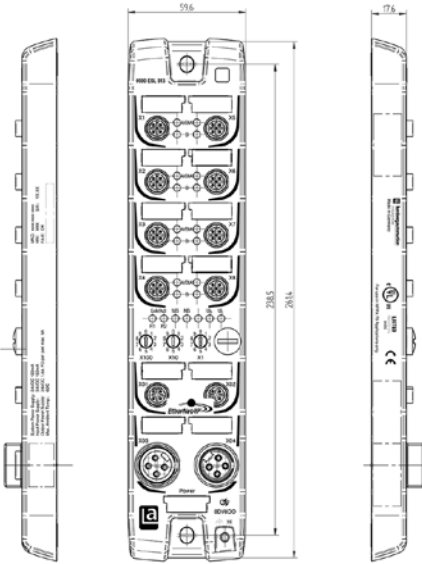
Technical Specifications

Product Description			
Type	0980 ESL 811-EIP 16DI-M12-R	0980 ESL 812-EIP 16DO-M12-R	0980 ESL 813-EIP 8DI/8DO-M12-R
	CSA UL	CSA UL	CSA UL
Description	Digital input module, 16 digital input channels, EtherNet/IP devices, rotary address switches for setting addresses, M12 LAN connector, D-coded	Digital output module, 16 digital output channels with galvanic isolation, EtherNet/IP devices, rotary address switches for setting addresses, M12 LAN connector, D-coded	Digital input and output module, 8 digital input channels and 8 output channels with galvanic isolation, EtherNet/IP devices, rotary address switches for setting addresses, M12 LAN connector, D-coded
Order No.	934 691-001	934 691-002	934 691-003
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	25 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 white	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.
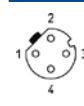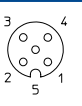
Technical Data

Diagnostic Indicator

LED	Indicator	Condition
1...8 A	White	Channel status
1...8 DIA A	Red	Periphery error
1...8 B	White	Channel status
1...8 DIA B	Red	Periphery error
P1 Lnk/Act	Green Yellow flashing Off	Connection to an Ethernet device IO device exchanging data No connection to any other device
P2 Lnk/Act	Green Yellow flashing Off	Connection to an Ethernet device IO device exchanging data No connection to any other device
MS	Green Green flashing Red/green flashing Red flashing Off	Device is ready for operating Wrong configuration Self test is running Firmware update Device is switched off
NS	Green flashing Green Red flashing Red Red/green flashing Off	IP address is available Connection to master is available At least one connection has timed out IP address is already being used by another device Self test is running Device is switched off/Device has no IP address
US	Green Red	Voltage 18 V<= US<=30 V Voltage US<18 V or US>30 V
UL	Green Red	Voltage 18 V<= UL<=30 V Voltage UL<18 V or UL>30 V

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 Connection M12, D-coded	Voltage Supply 7/8"	M12 Inputs/Outputs
1 = TD+ 2 = RD+ 3 = TD- 4 = RD- Housing = shielded	1 = +24 V Actuator 2 = +24 V Logic/Sensor 3 = GND (0 V) Logic/Sensor 4 = GND (0 V) Actuator Housing = PE	1 = +24 V 2 = IN/OUT B 3 = GND (0 V) 4 = IN/OUT A 5 = Earth Housing = PE

Always the Right Solution

Belden is the world's leading supplier of signal transmission solutions including cable, connectivity and active components for mission-critical applications ranging from industrial automation and alternative power generation through to professional broadcasting. Belden offers an extensive portfolio of highly specialized products for steering, control and field level, which the company produces and markets under its proprietary Belden®, Hirschmann™ , and Lumberg Automation™ brands. We would be glad to give you a more personal introduction to our integrated product palette for industrial applications and the worldwide Belden Service

You will find further information and technical details online at www.lumberg-automationusa.com or contact our Sales Team directly: Tel. 717.217.2272.