

NP 1033LE
**Lumberg Automation™
EtherNet/IP Modules for
Industrial Automation**

These 16 digital I/O channels with universal input/output functionality for direct connections between sensors/actuators and control systems offer a high level of flexibility and economy.



Easy, Fast and Secure Operations with the New Ethernet/IP Modules from the LioN-M Series, which are Particularly Suitable for Use in Mechanical Engineering, Materials Handling and Filling and Packaging Systems.

EtherNet/IP is already one of the most important network standards in the field of automation. These two new LioN-M I/O modules, which support the latest EtherNet/IP protocols, can be used to connect sensors and actuators directly to control systems.

Their integrated dual-port switch facilitates a line topology as well as the previously usual star topology. They also enable you to continue using your existing communications structures, such as cable trays and energy chains, without any need to modify your system's physical layout. This means that there is usually no need to install cost-intensive star cabling or additional switches in your network. These modules also facilitate a high-availability ring topology: if the connection goes down, the device level ring protocol (DLR) immediately switches to an alternative ring segment and the attached machinery can carry on running without any interruption.

These two I/O modules from the tried-and-tested Lumberg Automation™ LioN-M series also provide 16 digital channels. In one version (16DI) these are all used as inputs, and in the other (16DIO universal) they can also be used as outputs – in any desired combination and without any need for individual parameterization. These modules accordingly offer a very high level of flexibility not only at the planning stage but also when making changes during commissioning or subsequent upgrades.

In addition, the "easy diagnostic" concept with a diagnostic display for each I/O port enables you to pinpoint any fault. The same information is also available via the EtherNet/IP protocol, facilitating detailed analysis on a centralized control and display system – without any need to configure the module. Time-consuming error localization is thus a thing of the past: downtimes and maintenance periods are minimized, increasing the availability of your installation.

The color coding of the individual plug-in connectors enables you to immediately recognize the function of the various sockets (fieldbus, power supply or I/O). You can see at a glance which cable connection is required. The optimized arrangement of the M12 I/O sockets considerably simplifies the installation process – even T distributors can be installed with ease.

Your Advantages at a Glance

Save time and money thanks to:

- High degree of flexibility
- High functional stability
- Easy handling
- Fast installation and maintenance

LioN-M I/O Modules from Lumberg Automation™



The color coding of the individual plug-in connectors enables you to immediately recognize the function of the various sockets (fieldbus, power supply or I/O). You can see at a glance which cable connection is required:

The power supply, which is connected via two gray four-pole 7/8" sockets, has a rated voltage of 24 V and a range of 11 to 30 V.

The eight black I/O sockets, each of which can send and/or receive two digital signals, have five-pole A-coded M12 connectors. Each of these 16 digital channels has a rated output current of up to 1.6 A and a maximum current density of 9 A. The optimized arrangement of the M12 I/O sockets considerably simplifies the installation process, so that even T distributors can be installed with ease. The two network ports have four-pole D-coded M12 connectors. To prevent confusion, the network ports – like the casing of the EtherNet/IP cables – are marked in green.

The IP address can conveniently be set up using rotary switches. The I/O modules are configured directly via the user interface of the control unit. You can download the necessary base data from "www.lumberg-automation.com".

Thanks to their robust design, these new EtherNet/IP modules from the proven LioN-M series can be mounted in your machines without any additional protective housing. The I/O modules are remarkable for their strong PBT casings (polybutylene terephthalate) measuring just 243 x 60 x 39.5 mm (length x width x height) – including the sockets for the power supply. They also fulfill the requirements for ingress protection rating IP67 and are designed for use within the temperature range -10°C to +60°C.





The Advantages at a Glance

- Connection of sensors and actuators to EtherNet/IP networks
- Integrated dual-port switch (10/100 Mbit/s) facilitates line topology
- High-availability ring topology by means of the device level ring protocol
- 16 digital channels, either as inputs (module 0980 ESL 711 (16DI)) or universally as inputs and/or outputs (module 980 ESL 710 (16DIO))
- M12 connections for network ports and I/O sockets
- Fail-safe connections thanks to color coding of network ports
- Rotary switches for easy IP address selection
- Configuration via the control system's user interface
- Strong and compact PBT casing
- Ingress protection rating IP67
- Temperature range -10°C to +60°C
- Power supply with voltage rating 24 V and a range of from 11 to 30 V
- Flexible front or side attachment – even directly onto profile rails

These new Ethernet/IP I/O modules fully support the device level ring (DLR) protocol and permit both ring and line topologies.

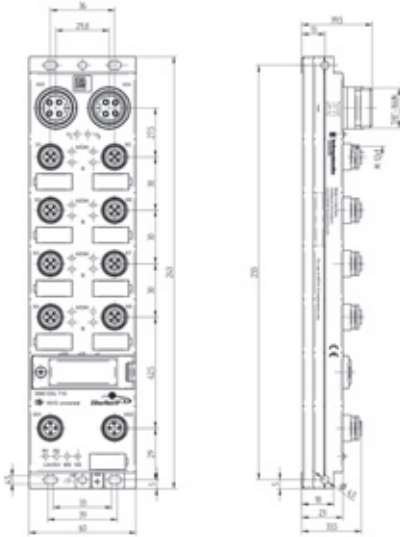


Technical Information




Product Description		
Type	0980 ESL 710	0980 ESL 711
	  	  
Description	EtherNet/IP Device with 16 digital I/O channels, channels can be used universally as inputs or outputs, M12 socket, rotary address switches for addressing, M12 LAN-Ports, D-coded, 7/8" power supply	EtherNet/IP Device with 16 digital input channels, M12 socket, rotary address switches for addressing, M12 LAN-Ports, D-coded, 7/8" power supply
Order Number	0980 ESL 710	0980 ESL 711
Technical Data		
Degree of Protection	IP 67	IP 67
Operating Temperature Range	-10°C to +60°C	-10°C to +60°C
Weight	380 g	380 g
Housing Material	PBT	PBT
Bus System Ethernet/IP		
Transmission Rate	10/100 Mbs	10/100 Mbs
Address Range	0 – 255	0 – 255
Rotary Address Switches	0 – 255	0 – 255
Default Address	0	0
System/Sensors Power Supply		
Rated Voltage	24 V DC	24 V DC
Voltage Range	11 – 30 V DC	11 – 30 V DC
Power Consumption	typ. 90 mA	typ. 90 mA
Reverse Polarity Protection	yes	yes
Input Power Supply Us		
Voltage Range	19 – 30 V DC	19 – 30 V DC
Sensor Current	200 mA (at T _{amp} 30°C)	200 mA (at T _{amb} 30°C)
Short-circuit Proof	yes	yes
Indication	LED green	LED green
Inputs, Type 3, IEC 61131-3		
Rated Input Voltage	24 V DC	24 V DC
Channel type N.O.	p-switching	p-switching
Number of Digital Channels	max. 16	max. 16
Channel Status Indicator	LED yellow per channel	LED yellow per channel
Diagnostic Indication	LED red per socket	LED red per socket
Output Power Supply UL		
Rated Voltage	24 V DC	–
Voltage Range	19 – 30 V DC	–
Reverse Polarity Protection	yes/antiparallel diode	–
Indication	LED green	–
Outputs		
Rated Output Current	1.6 A per channel	–
Short-circuit Proof	yes	–
Max. Output Current	9 A (12 A) pro Modul	–
Overload-proof	yes	–
Number of Digital Channels	max. 16	–
Channel type N.O.	p-switching	–
Channel Status Indicator	LED yellow per channel	–
Diagnostic Indication	LED red per socket	–
Included in Delivery		
Dust Covers M12	4 pieces	4 pieces
Attachable Labels	10 pieces	10 pieces

The use of these products in aggressive media should be verified in each case.
Technical modifications reserved.

Technical Data



Pin Assignment

LAN connection M12, D-coded	Power supply 7/8"	Input/Output M12
 <ul style="list-style-type: none"> 1 = TD+ 2 = RD+ 3 = TD- 4 = RD- Housing = shielding 	 <ul style="list-style-type: none"> 1 = +24 V Actuators 2 = +24 V Logic/Sensors 3 = GND (0 V) Logic/Sensors 4 = GND (0 V) Actuators Housing = FE 	 <ul style="list-style-type: none"> 1 = +24 V 2 = IN/OUT B 3 = GND (0 V) 4 = IN/OUT A 5 = earth Housing = FE

Diagnostic Indication

LED	Interaction	Condition
1...8 A	Yellow	Channel status 1
1...8 DIA A	Red	Periphery fault
1... 8 B	Yellow	Channel status 2
1... 8 DIA B	Red	Periphery fault
Us	Green Off	Sensor power supply applied Sensor power supply missing
Ul	Green Off	Actuator power supply applied Actuator power supply missing
P1 Lnk/Act	Green Yellow flashing	Connected to an Ethernet device I/O device exchanging data
P2 Lnk/Act	Green Yellow flashing	Connected to an Ethernet device I/O device exchanging data
MS (Module status)	Green Green flashing Red/Green flashing Red flashing Off	Device is ready for operating Wrong configuration Self test is running Firmware update Device is off
NS (Network status)	Green Green flashing Red Red flashing Off	Connection to master exists IP address exists, but no connection to the master IP address is used by a different device Connection has timed out Device is off

Technical modifications reserved

Bit Assignment

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

Always the Right Solution

Belden is the world's leading supplier of signal transmission solutions including cables, 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 management, 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-automation.com. Or contact our Sales Team directly: **Phone +49 (0)2355/5044-000.**