



Fieldbus Variable I/O Modules: LioN-Link



Be certain. Belden.

I/O Modules Active – Modular (LioN-Link Series)

LioN-Link is a modular, decentralized IP67 system for field level applications.. Based on a bus coupler, the I/O modules are distributed independently of the field bus and decentrally via two lines to the field. Up to 15 modules can be connected per line. A 100 m extension is possible in each case.

Bus couplers are available for PROFINET, PROFIBUS, DeviceNet™ and CANopen® as well as digital I/O modules in 8 I/O universal or 16 I/O universal or 8 I and 16 I variants; there are also analog input modules as well as valve interface components. The digital input and output modules are equipped with universal I/O functionality, which allows the most varied configurations to be implemented as every signal pin can be used both as an input and an output – and without additional configuration.

The LioN-Link modules were developed for process-oriented use.

Thanks to an innovative technological development, the complete production process can be carried out without encapsulation, making LioN-Link modules ideal for use in the smallest handling robots due to their low weight.

All modules are vibration- and shock-proof as well as water-proof in accordance with IP67, which means they can be used in a process-oriented applications. The cordsets to the sensors and actuators can therefore also be shortened. Impermeability is guaranteed for a variety of coolants/lubricants. Critical or unfamiliar agents can be tested in our laboratory for compatibility.





Customized connectivity solutions for high flexi- bility on the field level

The LioN-Link system offers a cost-optimized wiring solution, due to its field bus-independent I/O modules. The wiring of the LioN-Link modules is performed on the basis of standard wiring components such as CAN-/DeviceNet™ Thin Cables; no special cables such as fiber optic cables or M12 connectors with special plug-in arrangement (six-pole) are required. A terminating resistor is not required for connecting the last LioN-Link module in a line.

Use of standardized components allows a reduction in the variety of part types and simplifies global procurement.

LioN-Link provides a comprehensive portfolio of connection components at the field level. These include components for the control of electric drives, the networking of intelligent sensors and actuators (e.g., proximity switches, motor starters and valves) as well as straightforward retrofitting/conversion of machines.

General Information

Standard features:

- Bus-independent I/O modules ensure excellent flexibility and reduced storage costs
- Space-saving, light-weight module for a wide range of applications
- Simplified planning, due to universal I/O modules
- Cost-effective solution – up to 480 I/Os on one bus coupler
- Quick availability with the use of standardized wiring components
- Easy and safe installation, thanks to color-coded slots
- High degree of reliability, as there are no terminating resistors
- Easy startup and extension of the system, because the modules operate without manual intervention

Customer Benefits

- Cost savings/profit increases
- Simple installation and maintenance: the time required is minimized, since the signals are bundled and transmitted via the field bus
- Flexibility: all standard field bus systems are supported
- Reliability: fail-safe modules with long service life (long-term stability)
- Competitive edge, owing to simple procurement of spare parts via world-wide sales network

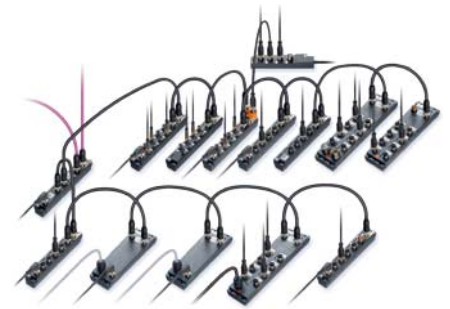
Product Features

- Up to 15 devices per line, each with a 100 m extension
- Up to 30 I/O modules are possible on a bus coupler (480 signals)
- Analog and digital modules
- Variants for special applications (valve terminals, motor controllers, etc.)
- Field bus-independent I/O modules
- Additional network extension without repeater possible at maximum speed
- No terminating resistor needed



Matrix Lion-Link

Function	Slots Bus Type		Slots I/O Type		Slots Power Type		
	M12	M23	M8	M12	M12	M23	7/8"
BusHead							
Industrial Ethernet Protocol							
PROFINET	✓	–	–	–	–	–	✓
Fieldbus Protocol							
PROFIBUS	✓	–	–	–	–	–	✓
DervicNet	✓	–	–	–	–	–	✓
CANopen®	✓	–	–	–	–	–	✓
Bus Independent I/O Modules							
Housing Form S							
8 Digital IN	✓	–	✓	✓	–	–	–
16 Digital IN	✓	–	–	✓	–	–	–
4 Digital OUT (2 A)	✓	–	–	✓	–	–	–
8 Digital OUT (2 A)	✓	–	–	–	–	–	–
16 Digital OUT (0.5 A)	✓	–	–	–	–	–	–
8 Digital IN/4 Digital OUT (2 A)	✓	–	✓	–	✓	–	–
8 Digital IN/8 Digital OUT (0.5 A)	✓	–	✓	–	✓	–	–
16 Digital IN/OUT (0.5 A)	✓	–	✓	–	–	–	✓
8 Digital IN/OUT (0.5 A)	✓	–	✓	✓	–	✓	–
4 Analog IN (0 to 20 mA, 0 to 10 V)	✓	–	–	✓	–	–	–
Housing Form M							
16 Digital IN	✓	–	–	✓	–	–	–
Multipol 16 Digital OUT (0.5 A)	✓	–	–	✓	✓	–	–
16 Digital IN/OUT (0.5 A)	✓	–	–	–	✓	–	✓
Multipol 16 DIO (0.5 A)	✓	–	–	✓	✓	–	–
Accessories Lion-Link							
Cord sets, single-ended	✓	–	✓	✓	✓	✓	✓
Cord sets, double-ended	✓	–	✓	✓	✓	✓	✓
Field attachable connectors	✓	–	✓	✓	✓	✓	✓
T-connectors	✓	–	✓	✓	✓	✓	✓
Power distributor	✓	–	–	–	✓	✓	✓



LioN-Link BusHead PROFINET Device Slave for the Connection Between the Higher Level Fieldbus and the Fieldbus Independent I/O Modules

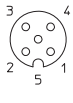
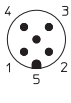
Technical Information

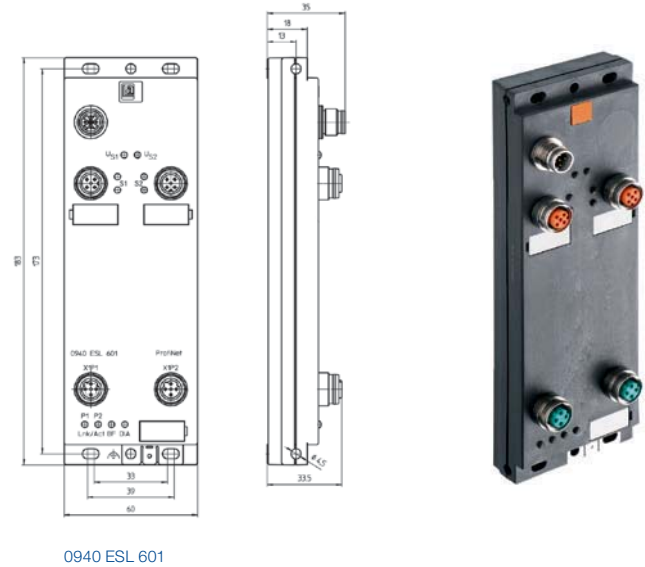
Product Description	
Type	0940 ESL 601
	     
Description	LioN-Link PROFINET BusHead, IP67 bus coupler module, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles, M12 LAN connection, 4-poles, D-coded, integrated 3-port switch, web server, IRT (Isochrone Real Time communication)
Note	BusHead for LioN-Link standard modules, Motion module "0942 UEM 783" and I/O-Link module "0942 UEM 620"
Technical Data	
Protection Class	IP67
Environmental Temperature	-10°C to +60°C
Weight	800 g
Bus System	
ID Number	VendorID: 0016A hex, DeviceID: 0302 hex
GSDML File	gsdml-v2.2-Lumberg Automation-LioN Link-20090623.xml
Transmission Rate	100 Mbit/s full duplex
System/Sensors Power Supply	
Rated Voltage	24 V DC
Voltage Range	19 to 30 V DC
Power Consumption	typ. 100 mA
Included in Delivery	
M12 Dust Covers	4 pieces
Attachable Labels	6 pieces

Diagnostic Indication

LED	Indicator	Condition
I/Os1	Red Green	Wrong configuration/module exchanged Online, communication with PLC
I/Os2	Red Green Off	Wrong configuration/module exchanged Online, communication with PLC Branch not in use
Us1	Green	Sensor/system power supply Line 1
Us2	Green	Sensor/system power supply Line 2
LNK/ACT	Green Orange blinking	Connection to an Ethernet device I/O device exchanging data
BF	Red	No I/O controller or wrong LioN-Link configuration
DIA	Red	Common indicator for periphery errors

Pin Assignment

LAN Connection M12, D-coded	LiON-Link Connection M12	Power Supply M12
 1 = TD+ 2 = RD+ 3 = TD- 4 = RD- Housing = shielded	 1 = Drain 2 = 24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	 1 = +24 V 2 = +24 V 3 = 0 V 4 = 0 V 5 = Earth



LioN-Link BusHead PROFIBUS Device Slave for the Connection Between the Higher Level Fieldbus and the Fieldbus Independent I/O Modules

Technical Information

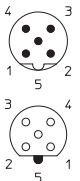
Product Description			
Type	0940 PSL 601	0940 PSL 602	0940 PSL 603
			
Description	LioN-Link PROFIBUS BusHead, IP67 bus coupler module with M12 bus connection, 5-poles, B-coded, rotary switches for addressing, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles	LioN-Link PROFIBUS BusHead, IP67 bus coupler module with M12 bus connection, 5-poles, B-coded, rotary switches for addressing, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles	LioN-Link PROFIBUS BusHead with M12 bus connection, 5-poles, B-coded, rotary switches for addressing, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles
Note	BusHead for LioN-Link standard modules	Supports Profibus DP-V1 (acyclic communication), BusHead for LioN-Link standard modules, Motion module “0942 UEM 783” and I/O-Link module “0942 UEM 620”	BusHead for LioN-Link standard modules, PROFIBUS-Slave for applications such as tool change or options handling and “Shadow Mode” I/O module “0942 UEM 670”
Technical Data			
Protection Class	IP67		
Environmental Temperature	-10°C to +60°C		
Weight	200 g		
Bus System			
ID Number	0A36 hex	0B99 hex	0B98 hex
GSD File	Lum_0A36.gsd	Lum_0B99.gsd	Lum_0B98.gsd
Transmission Rate	max. 12 MBaud		
Address Range	1 to 125 dez		
System/Sensors Power Supply			
Rated Voltage	24 V DC		
Voltage Range	19 to 30 V DC		
Power Consumption	typ. 100 mA		
Included in Delivery			
M12 Dust Covers	2 pieces		
Attachable Labels	6 pieces		

Diagnostic Indication

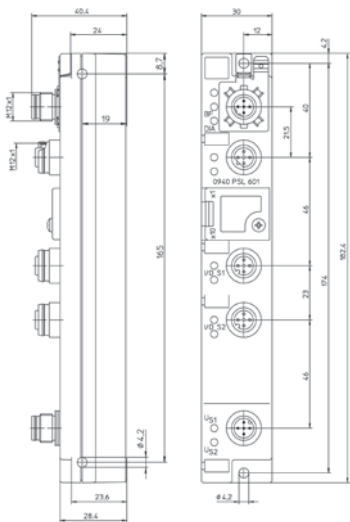
LED	Indicator	Condition
I/O Line 1	Red	Wrong configuration/module exchanged
I/O Line 2	Green	Online, communication with PLC
	Off	Branch not in use (module not connected)
Us1	Green	Sensor/system power supply Line 1
Us2	Green	Sensor/system power supply Line 2
BF	Red	Bus error
DIA	Red	Common indicator for periphery errors

Diagnosis according to Profibus specification, diagnosis for communication status, module breakdown and periphery faults in the Link system

Pin Assignment

Bus Connection M12, B-coded	LioN-Link Connection M12	Power Supply M12
 1 = +5 V¹ 2 = Line A 3 = GND (0 V)¹ 4 = Line B 5 = Earth	 1 = Drain 2 = 24 V System 3 = 0 V System 4 = Data + 5 = Data -	 1 = +24 V 2 = +24 V 3 = 0 V 4 = 0 V 5 = Earth

1 = Internal signals



0940 PSL 601 | 0940 PSL 602 | 0940 PSL 603

LioN-Link BusHead CANopen® and LioN-Link BusHead DeviceNet™ Device Slaves for the Connection Between the Higher Level Fieldbus and the Fieldbus Independent I/O Modules

Technical Information

Product Description		
Type	0940 CSL 601	0940 DSL 601
		
Description	LioN-Link CANopen® BusHead with M12 bus connection, 5-poles, rotary switches for addressing, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles	LioN-Link DeviceNet™ BusHead with M12 bus connection, 5-poles, rotary switches for addressing, M12 LioN-Link connection, 5-poles, M12 power supply connection, 5-poles
Note	A maximum of 16 LioN-Link I/O modules can be operated on this BusHead. Both supply points on the BusHead must always be connected.	A maximum of 16 LioN-Link I/O modules can be operated on this BusHead. Both supply points on the BusHead must always be connected.
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	200 g	
Bus System		
GSD/EDS File	0940CSL601.eds	00_0940DSL601.eds
Transmission Rate	max. 1 MBaud	max. 500 kBaud
Address Range	1 to 99 dez	1 to 63 dez
Fieldbus Interfaces		
Rated Voltage	24 V DC	
Voltage Range	11 to 30 V DC	
Power Consumption	typ. 10 mA	
System/Sensors Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Power Consumption	System: typ. 60 mA, Fieldbus: typ. 10 mA	typ. 50 mA
Included in Delivery		
M12 Dust Covers	2 pieces	
Attachable Labels	6 pieces	

Diagnostic Indication

LED	Indicator	Condition
I/O Line 1	Red	Wrong configuration/module exchanged
I/O Line 2	Green	Online, communication with PLC
	Off	Branch not in use (module not connected)
Us (only 0940 DSL 601)	Green	Power supply of fieldbus interface
Us1	Green	Sensor/system power supply Line 1
Us2	Green	Sensor/system power supply Line 2
MS	Green	Device is ready for operating
	Green blinking	Wrong configuration
	Red	Unrecoverable fault
	Red blinking	Recoverable fault
	Red/green blinking	Self test is running
NS	Green	Online, communication with PLC
	Green blinking	Online, no communication with PLC
	Red blinking	Time-out state of one or more I/O connections
	Red	Failed communication device, Bus-off status, duplicate MAC-ID

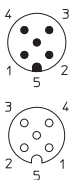
Diagnosis for communication status, module breakdown and periphery faults in the Link system

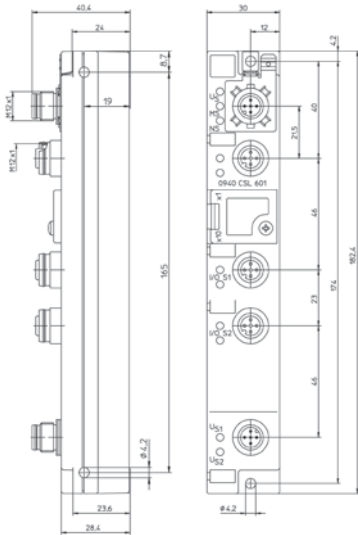
Bit Assignment 0940 DSL 601

Bit	7	6	5	4	3	2	1	0
Input								
Byte 0	0	0	0	0	US1	US2	KS1	KS2
Byte 1	DIAG S_8	DIAG S_7	DIAG S_6	DIAG S_5	DIAG S_4	DIAG S_3	DIAG S_2	DIAG S_1
Byte 2	DIAG S_16	DIAG S_15	DIAG S_14	DIAG S_13	DIAG S_12	DIAG S_11	DIAG S_10	DIAG S_9
Byte 3	STATUS S_8	STATUS S_7	STATUS S_6	STATUS S_5	STATUS S_4	STATUS S_3	STATUS S_2	STATUS S_1
Byte 4	STATUS S_16	STATUS S_15	STATUS S_14	STATUS S_13	STATUS S_12	STATUS S_11	STATUS S_10	STATUS S_9

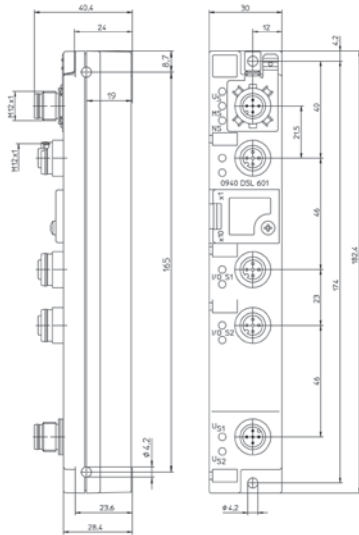
USx: Low voltage Line x
 KSx: Short circuit on Line x
 DIAG S_x: Diagnostic message I/O module x
 STATUS S_x: Configuration error I/O module x

Pin Assignment

Bus Connection M12	LiOn-Link Connection M12	Power Supply M12
 1 = Drain 2 = +24 V 3 = GND (0 V) 4 = CAN_H 5 = CAN_L Housing = Earth	 1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	 1 = +24 V 2 = +24 V 3 = 0 V 4 = 0 V 5 = Earth



0940 CSL 601



0940 DSL 601



LioN-Link I/O Modules – Digital Inputs

Technical Information

Product Description			
Type	0942 UEM 601	0942 UEM 651	0942 UEM 701
	 	 	 
Description	LioN-Link I/O module with 8 digital inputs to connect standard sensors, 4 x M12 socket, 5-poles	LioN-Link I/O module with 8 digital inputs to connect standard sensors, 8 x M8 socket, 3-poles	LioN-Link I/O module with 16 digital inputs to connect standard sensors, 8 x M12 socket, 5-poles
Technical Data			
Protection Class	IP67		
Environmental Temperature	-10°C to +60°C		
Weight	175 g		275 g
System/Sensors Power Supply			
Rated Voltage	24 V DC		
Voltage Range	19 to 30 V DC		
Power Consumption	typ. 70 mA		typ. 100 mA
Input Power Supply			
Voltage Range	min. (U _{System} – 1.5 V)		
Sensor Current	700 mA per module		700 mA
Indicator	LED green		
Inputs			
Rated Input Current	24 V DC		
Number of Digital Channels	max. 8		max. 16
Status Indicator	LED yellow per channel		
Diagnostic Indicator	LED red per channel		–
Included in Delivery			
M8 Dust Covers	–	4 pieces	–
M12 Dust Covers	2 pieces	–	4 pieces
Attachable Labels	6 pieces	10 pieces	10 pieces

Bit Assignment

Bit	7	6	5	4	3	2	1	0
M12 Input 0942 UEM 601								
Byte 0	4B	4A	3B	3A	2B	2A	1B	1A
M12 Input 0942 UEM 701								
Byte 0	8	7	6	5	4	3	2	1
M8 Input 0942 UEM 651								
Byte 0	4B	4A	3B	3A	2B	2A	1B	1A
Byte 1	8B	8A	7B	7A	6B	6A	5B	5A

Diagnostic Indication

LED	Indicator	Condition
1...4 A/B	Yellow	Channel status
1...4 A/B	Red	Periphery error
I/O	Red Red blinking Green	Wrong configuration/module exchanged Not recognized by the BusHead Online, communication with BusHead
Us	Green	Sensor/system power supply
UL (only 0942 UEM 600)	Green	Actuator power supply
DIA	Red	Common indicator for periphery errors

Periphery fault diagnosis for sensor short circuit, sensor low voltage detection

Pin Assignment 0942 UEM 601

LioN-Link Connection M12



1 = Drain
2 = +24 V Sensor/System
3 = 0 V Sensor/System
4 = Data +
5 = Data -

Actuator/Sensor Connection M12

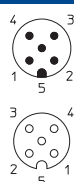


1 = +24 V
2 = IN B
3 = GND (0 V)
4 = IN A
5 = Earth



Pin Assignment 0942 UEM 651

LioN-Link Connection M12



1 = Drain
2 = +24 V Sensor/System
3 = 0 V Sensor/System
4 = Data +
5 = Data -

Actuator/Sensor Connection M12


$$\begin{aligned} 1 &= +24 \text{ V} \\ 3 &= 0 \text{ V} \\ 4 &= \text{IN} \end{aligned}$$


Pin Assignment 0942 UEM 701

LioN-Link Connection M12

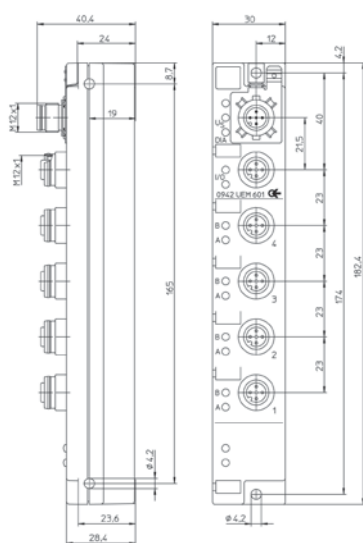


1 = Drain
2 = +24 V Sensor/System
3 = 0 V Sensor/System
4 = Data +
5 = Data -

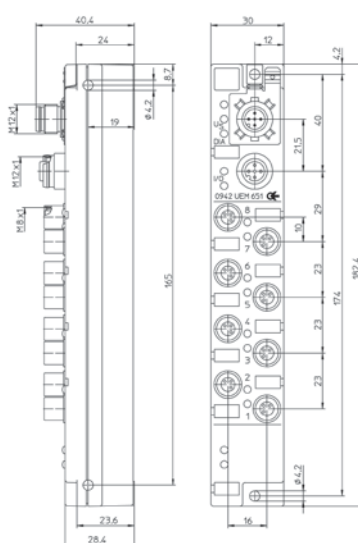
Actuator/Sensor Connection M12



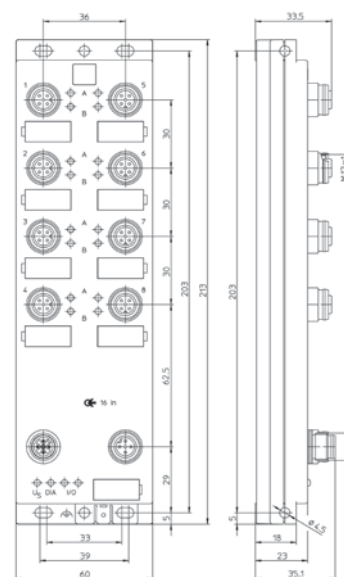
1 = +24 V
2 = IN/OUT B
3 = 0 V
4 = IN/OUT A
5 = Earth



0942 UEM 601



0942 UEM 651



0942 UEM 701

LioN-Link I/O Modules – Digital Outputs

Technical Information

Product Description			
Type	0942 UEM 602	0942 UEM 612	0942 UEM 782
			
Description	LioN-Link I/O module with 4 digital outputs, 4 x M12 socket, 5-poles, 2 A per channel, one channel per socket	LioN-Link I/O module with 4 digital outputs, 4 x M12 socket, 5-poles, M12 actuator supply, 2 A per channel, one channel per socket	LioN-Link I/O module with 16 digital outputs, multipole cable interface to connect valve terminals, manual tool changing devices, IP20 terminal boxes
Note	Particularly suitable for the control of hydraulic valves.	Suitable for safety critical applications within performance levels A through D. The instructions in the LioN-Link manual must be observed in this case.	–
Technical Data			
Protection Class	IP67		
Environmental Temperature	-10°C to +60°C		
Weight	200 g		320 g (with 1 m cable)
System/Sensors Power Supply			
Rated Voltage	24 V DC		
Voltage Range	19 to 30 V DC		
Power Consumption	typ. 70 mA		40 mA
Output Power Supply			
Rated Voltage	24 V DC		
Voltage Range	19 to 30 V DC	19 to 28.8 V DC (SELV/PELV acc. to EN 60950-1)	19 to 30 V DC
Reverse Polarity Protection	yes/antiparallel diode	yes/antiparallel diode, external fuse with 4/6 A medium time lag mandatory	yes/antiparallel diode
Indicator	LED green		
Outputs			
Rated Output Current	2 A per channel		0.5 A per channel
Short Circuit-proof	yes		
Max. Current Carrying Capacity	4 A (3 pole supply line); 6 A (5 pole supply line)		6 A (3 A per group)
Number of Digital Channels	max. 4		max. 16
Status Indicator	LED yellow per channel		–
Diagnostic Indicator	LED red per channel		–
Included in Delivery			
M12 Dust Covers	2 pieces		
Attachable Labels	6 pieces		10 pieces

Bit Assignment

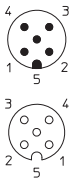
Bit	7	6	5	4	3	2	1	0
M12 Output 0942 UEM 602 + 612								
Byte 0	–	–	–	–	4A	3A	2A	1A
M12 Output 0942 UEM 782								
Byte 0	RD	BU	PK	GY	YE	GN	BN	WH
Byte 1	YE/BN	WH/YE	BN/GN	WH/GN	RD/BU	GY/PK	VT	BK

Diagnostic Indication

LED	Indicator	Condition
1...4 A (only 0942 UEM 602 + 612)	Yellow	Channel status
1...4 DIA (only 0942 UEM 602 + 612)	Red	Periphery error/output active with no actuator supply voltage
I/O	Red Red blinking Green	Wrong configuration/module exchanged Not recognized by the BusHead Online, communication with BusHead
Us	Green	Sensor/system power supply
UL	Green	Actuator power supply
DIA	Red	Common indicator for periphery errors

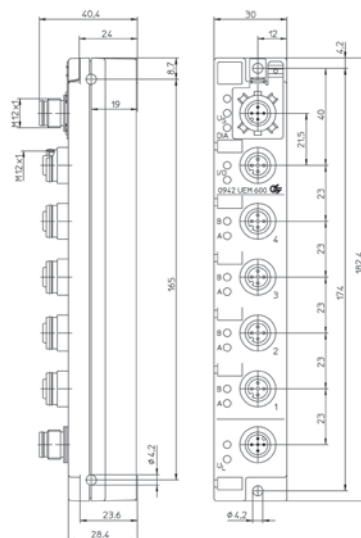
Periphery fault diagnosis for actuator short circuit/overload per channel

Pin Assignment 0942 UEM 602 and 0942 UEM 612

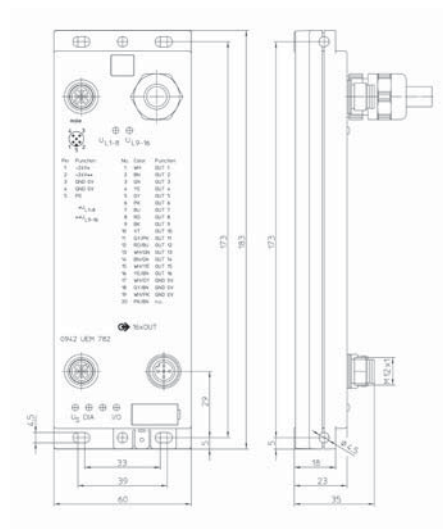
LioN-Link Connection M12	Actuator Connection M12	Actuator Supply M12
 1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	 1 = n.c. 2 = n.c. 3 = 0 V 4 = OUT A 5 = Earth	 1 = +24 V DC 2 = +24 V DC 3 = GND 0 V 4 = GND 0 V 5 = Functional earth

Pin Assignment 0942 UEM 782

LioN-Link Connection M12	Actuator/Sensor Connection M12
 1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	 1 = +24 V (UL 1-8) 2 = +24 V (UL 9-16) 3 = GND (0 V) 4 = GND (0 V) 5 = Earth



0942 UEM 602, 0942 UEM 612



0942 UEM 782



LioN-Link I/O Modules – Universal

Technical Information

Product Description		
Type	0942 UEM 600	0942 UEM 620
		
Description	LioN-Link I/O module with 8 digital I/O channels, channels can be used universally as inputs or outputs, 4 x M12 socket, 5-poles, M12 actuator supply, 5-poles	LioN-Link I/O module with 4 I/O-Link channels, each channel can be configured universally in standard digital I/O mode (SIO mode) or in communications mode, M12 socket, 4-poles, M12 I/O-Link supply, 5-poles
Note	–	Only with BusHead 0940 PSL 602 or ProfiNet BusHead 0940 ESL 601. The information in the operating instructions must be observed.
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	200 g	175 g
System/Sensors Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Power Consumption	typ. 70 mA	
Input Power Supply		
Voltage Range	min. (U _{system} – 1.5 V)	24 V DC
Sensor Current	700 mA per module	
Indicator	LED green	
Inputs		
Rated Input Current	24 V DC	
Number of Digital Channels	max. 8	
Status Indicator	LED yellow per channel	LED A green/yellow
Diagnostic Indicator	LED red per channel	LED red
Output Power Supply		I/O-Link-Power Supply
Rated Voltage	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 green
Outputs		
Rated Output Current	1.6 A per channel	–
Short Circuit-proof	yes	–
Max. Current Carrying Capacity	4 A per module	–
Number of Digital Channels	max. 8	–
Status Indicator	LED yellow per channel	–
Diagnostic Indicator	LED red per channel	–
Included in Delivery		
M12 Dust Covers	2 pieces	
Attachable Labels	6 pieces	

Bit Assignment 0942 UEM 600

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

Diagnostic Indication

LED	Indicator	Condition
1...4 A/B (only 0942 UEM 600)	Yellow Red	Channel status Periphery error
1...4 A/IOL (only 0942 UEM 620)	Green Yellow	I/O-Link communications mode Standard I/O mode (SIO)
1...4 B/DIA (only 0942 UEM 620)	Red blinking Red	I/O-Link diagnostic: IOL fault SIO mode: periphery fault
I/O (only 0942 UEM 620)	Yellow	Channel status in SIO mode
I/O	Red Red blinking Green	Wrong configuration/module exchanged Not recognized by the BusHead Online, communication with BusHead
Us	Green	Sensor/system power supply
UL	Green	Actuator power supply
DIA	Red	Common indicator for periphery errors

Periphery fault diagnosis for sensor short circuit, actuator short circuit/channel, sensor low voltage detection

Bit Assignment 0942 UEM 620

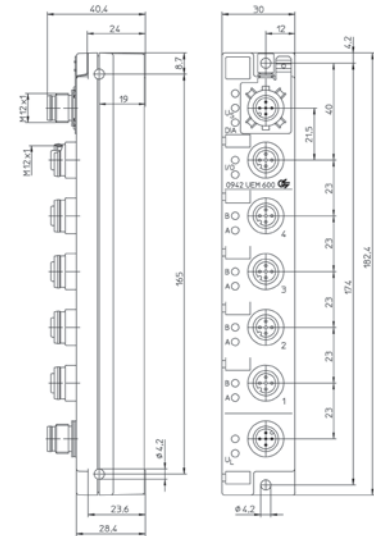
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Channel 1: 1 byte, 1 word or not configured																
Byte	Byte 0								Byte 1							
Port	1								1							
Channel 2: 1 byte, 1 word or not configured																
Byte	Byte 2								Byte 3							
Port	2								2							
Assignment	I/O-Link-Device process data/High Byte								I/O-Link-Device process data/Low Byte							
Channel 3: 1 byte, 1 word or not configured																
Byte	Byte 4								Byte 5							
Port	3								3							
Assignment	I/O-Link-Device process data/High Byte								I/O-Link-Device process data/Low Byte							
Channel 4: 1 byte, 1 word or not configured																
Byte	Byte 6								Byte 7							
Port	4								4							
Assignment	I/O-Link-Device process data/High Byte								I/O-Link-Device process data/Low Byte							
2 bytes (module status)																
Byte	Byte 8								Byte 9							
Port	–	–	–	–	4	3	2	1	4	3	2	1	4	3	2	1
Assignment	–	–	–	–	Pin 4 = DI	Pin 4 = DI	Pin 4 = DI	Pin 4 = DI	1 = IO-Link 0=SIO	1 = IO-Link 0=SIO	1 = IO-Link 0=SIO	1 = IO-Link 0=SIO	Pin 2 = DI	Pin 2 = DI	Pin 2 = DI	Pin 2 = DI

Pin Assignment 0942 UEM 600

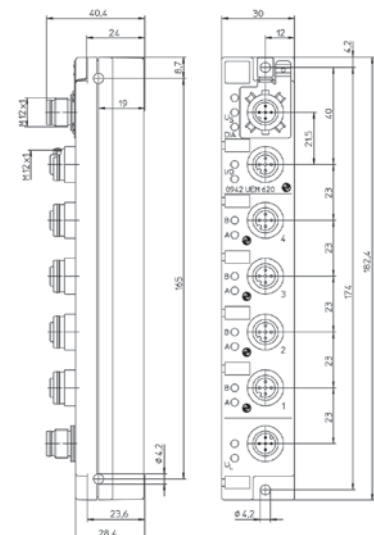
LioN-Link Connection M12	Actuator/Sensor Connection M12	Actuator Supply M12
1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	1 = +24 V 2 = IN/OUT B 3 = 0 V 4 = IN/OUT A 5 = Earth	1 = +24 V 2 = n.c. 3 = GND (0 V) 4 = n.c. 5 = Earth

Pin Assignment 0942 UEM 620

LioN-Link Connection M12	I/O-Link Connection M12	I/O-Link Supply M12
1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	1 = +24 V DC 2 = IN B 3 = 0 V 4 = IO-Data/IN A 5 = Earth	1 = +24 V DC 2 = n.c. 3 = GND 0 V 4 = n.c. 5 = Functional earth



0942 UEM 600



0942 UEM 620



LioN-Link I/O Modules – Universal

Technical Information

Product Description		
Type	0942 UEM 650	0942 UEM 670
		
Description	LioN-Link I/O module with 8 digital I/O channels, channels can be used universally as inputs or outputs, 8 x M8 socket, 3-poles, M12 actuator supply, 5-poles	LioN-Link I/O module with 8 digital I/O channels, channels can be used universally as inputs or outputs, 8 x M8 socket, 3-poles, actuator supply, 5-poles, “Shadow Mode”
Note	—	This I/O module can only be used with the BusHead 0940 PSL 603. In addition to being used as a dedicated input or output module, this module can also be operated in Shadow Input and Shadow Output mode.
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	175 g	
System/Sensors Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Power Consumption	typ. 70 mA	
Input Power Supply		
Voltage Range	min. (U _{system} – 1.5 V)	24 V DC
Sensor Current	700 mA per module	
Indicator	LED green	
Inputs		
Rated Input Current	24 V DC	
Number of Digital Channels	max. 8	
Status Indicator	LED yellow per channel	
Diagnostic Indicator	LED red per channel	
Output Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Reverse Polarity Protection	yes/antiparallel diode	
Indicator	LED green	
Outputs		
Rated Output Current	0.5 A per channel	
Short Circuit-proof	yes	
Max. Current Carrying Capacity	4 A per module	
Number of Digital Channels	max. 8	
Status Indicator	LED yellow per channel	
Diagnostic Indicator	LED red per channel	
Included in Delivery		
M8 Dust Covers	4 pieces	
Attachable Labels	10 pieces	

Bit Assignment

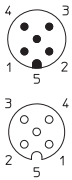
Bit	7	6	5	4	3	2	1	0
M8 Input								
Byte 0	8	7	6	5	4	3	2	1
M8 Output								
Byte 0	8	7	6	5	4	3	2	1

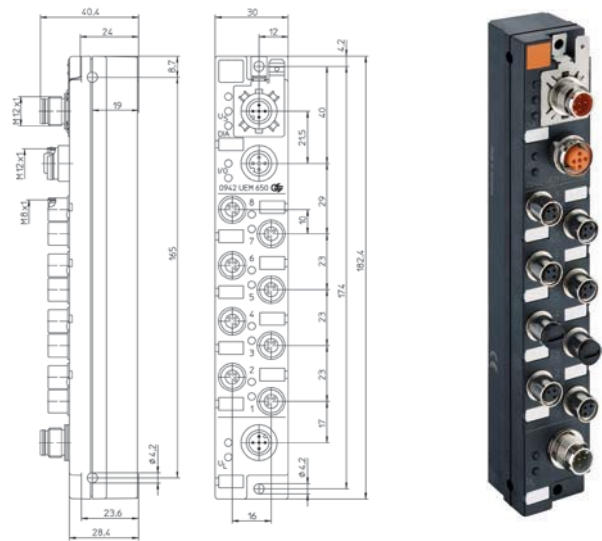
Diagnostic Indication

LED	Indicator	Condition
1...8	Yellow Red	Channel status Periphery error
I/O	Red Red blinking Green	Wrong configuration/module exchanged Not recognized by the BusHead Online, communication with BusHead
Us	Green	Sensor/system power supply
U _L	Green	Actuator power supply
DIA	Red	Common indicator for periphery errors

Periphery fault diagnosis for sensor short circuit, actuator short circuit, sensor low voltage detection

Pin Assignment

LioN-Link Connection M12	Actuator/Sensor Connection M12	Actuator Supply M12
 1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -	 1 = +24 V 3 = 0 V 4 = IN/OUT	 1 = +24 V 2 = n.c. 3 = GND (0 V) 4 = n.c. 5 = Earth



0942 UEM 650 | 0942 UEM 670

LioN-Link I/O Modules – Universal

Technical Information

Product Description		
Type	0942 UEM 700	0942 UEM 780
		
Description	LioN-Link I/O module with 16 digital I/O channels, channels can be used universally as inputs or outputs, 8 x M12 socket, 5-poles, 7/8" actuator supply, 5-poles	LioN-Link I/O module with 16 digital I/O channels, channels can be used universally as inputs or outputs, multipole cable interface to connect valve terminals, control consoles, manual tool changing devices, IP20 terminal boxes
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	375 g	800 g (with 5 m cable)
System/Sensors Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Power Consumption	typ. 100 mA	140 mA
Input Power Supply		
Voltage Range	min. (U _{system} – 1.5 V)	
Sensor Current	700 mA per module	700 mA
Indicator	LED green	
Inputs		
Rated Input Current	24 V DC	
Number of Digital Channels	max. 8	max. 16
Status Indicator	LED yellow per channel	–
Output Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Reverse Polarity Protection	yes/antiparallel diode	
Indicator	LED green	
Outputs		
Rated Output Current	1.6 A per channel	0.5 A per channel
Short Circuit-proof	yes	
Max. Current Carrying Capacity	9 A per module	6 A (3 A per group)
Number of Digital Channels	max. 16	
Status Indicator	LED yellow per channel	–
Diagnostic Indicator	LED red per channel	–
Included in Delivery		
M12 Dust Covers	4 pieces	
Attachable Labels	10 pieces	

Bit Assignment 0942 UEM 700

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

Bit Assignment 0942 UEM 780

Bit	7	6	5	4	3	2	1	0
M12 Input								
Byte 0	RD	BU	PK	GY	YE	GN	BN	WH
Byte 1	YE/BN	WH/YE	BN/GN	WH/GN	RD/BU	GY/PK	VT	BK
M12 Output								
Byte 0	RD	BU	PK	GY	YE	GN	BN	WH
Byte 1	YE/BN	WH/YE	BN/GN	WH/GN	RD/BU	GY/PK	VT	BK

LioN-Link I/O Modules with 4 Analog Inputs

Technical Information

Product Description		
Type	0942 UEM 630	0942 UEM 631
		
Description	LioN-Link I/O module with 4 analog inputs, 0(4) to 20 mA to connect standard sensors, 4 x M12 socket, 5-poles	LioN-Link I/O module module with 4 analog inputs, 0 to 10 V to connect standard sensors, 4 x M12 socket, 5-poles
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	175 g	
Input Power Supply		
Voltage Range	min. (U _{System} – 1.5 V)	24 V DC
Sensor Current	700 mA per module	
Inputs		
Measurement Signal	(0)4 to 20 mA (current inputs)	0 to 10 V (voltage inputs)
Resolution	12 Bit + sign	
Measuring Fault (full measuring range)	± 1.2%	
Temperature Fault (full measuring range)	± 0.01%/K	
Output Formats	Siemens S7	
Input Impedance	≤ 400 Ω	20 Ω
Conversion Time	typ. 25 ms per channel	
Number of Analog Channels	max. 4	
Status Indicator	LED yellow: channel active	
Module Diagnostic (Module Status Sensor Short Circuit)		
Indicator	LED red/green (I/O)	
Channel Diagnostic		
Overload at Current Measurement	0 to 20 mA	–
Overload at Current Measurement/ Underflow/Broken Wire	4 to 20 mA	–
Indicator	LED red (DIA)	
GSD Configuration		
Module Way	Resolution12 Bit, 10 Bit (conversion time ≤ 3 ms/module)	
Channel Way	Measuring range 0 to 20 mA or 4 to 20 mA, broken wire (only 4 to 20 mA), channel on/off, diagnostic on/off	Channel on/off, diagnostic on/off
Included in Delivery		
M12 Dust Covers	2 pieces	
Attachable Labels	6 pieces	

Bit Assignment

Bit	7	6	5	4	3	2	1	0
M12 Input								
Byte 0	Channel 1							
Byte 1								
Byte 2	Channel 2							
Byte 3								
Byte 4	Channel 3							
Byte 5								
Byte 6	Channel 4							
Byte 7								

LioN-Link I/O Modules with Digital Inputs and Digital or Analog Outputs (Motion Drive Control)

Technical Information

Product Description		
Type	0942 UEM 783	
	 	
Description	LioN-Link-Motion module with 8 digital inputs and 4 universal outputs (digital or analog), M12 socket, 5-poles, Power supply is via a connecting cable with 7/8" connector, 3-poles	
Note	Only to be used in combination with BusHead 0940 PSL 602. Module used to control brushless (EC) motors as well as brush loaded (DC) motors and all types of digital actuators (e.g. valves or direct current motors). System specific specifications such as speed and acceleration/deceleration can be transmitted via the DP-V1 protocol.	
Technical Data		
Protection Class	IP67	
Environmental Temperature	-10°C to +60°C	
Weight	175 g	
System/Sensors Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Power Consumption	typ. 100 mA	
Input Power Supply		
Voltage Range	24 V DC	
Sensor Current	700 mA per module	
Indicator	LED green	
Inputs		
Rated Input Current	24 V DC, Input current typ. 5 mA	
Number of Digital Channels	max. 8	
Status Indicator	LED yellow per channel	
Diagnostic Indicator	LED red per channel	
Output Power Supply		
Rated Voltage	24 V DC	
Voltage Range	19 to 30 V DC	
Reverse Polarity Protection	yes/antiparallel diode	
Indicator	LED green	
Outputs		
	Type I (Type 3 acc. to IEC 61131-2 Output module Pin 2)	Type II (Type 3 acc. to IEC 61131-2 Output module Pin 5)
Rated Output Current	1.5 A per channel	–
Short Circuit-proof	yes	–
Max. Current Carrying Capacity	7.2 A per module	–
Number of Channels	max. 4 digital	max. 4 analog
Status Indicator	LED yellow per channel	–
Diagnostic Indicator	LED red per channel	–
Included in Delivery		
M12 Dust Covers	4 pieces	
Attachable Labels	10 pieces	

Bit Assignment

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

Diagnostic Indication

LED	Indicator	Condition
1...4 A/B	Yellow Red	Channel status Periphery error (actuator short circuit/overload)
I/O	Red Red blinking Green	Wrong configuration/module exchanged Not recognized by the BusHead Online, communication with BusHead
Us	Green	Sensor/system power supply
UL	Green	Actuator power supply
DIA	Red	Common indicator for periphery errors

Pin Assignment

LioN-Link Connection M12		Actuator/Sensor Connection M12	
	1 = Drain 2 = +24 V Sensor/System 3 = 0 V Sensor/System 4 = Data + 5 = Data -		IN 1 = +24 V DC 2 = IN B 3 = 0 V 4 = IN A 5 = Earth OUT 1 = +24 V DC 2 = Dir 3 = 0 V 4 = Dia 5 = Speed (0 to 10 V)

Power Supply for Motors

	Function	Wire color
	1 = Diag. OUT 2 = +24 V 3 = 0 V	black brown blue



0942 UEM 783

