



# 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 flexibility 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

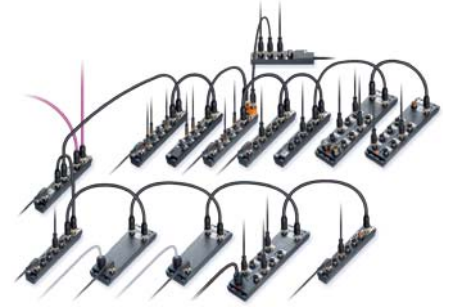
#### Product Features

- 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" |
| <b>BusHead</b>                      |                |     |                |     |                  |     |      |
| <b>Industrial Ethernet Protocol</b> |                |     |                |     |                  |     |      |
| PROFINET                            | ✓              | -   | -              | -   | -                | -   | ✓    |
| <b>Fieldbus Protocol</b>            |                |     |                |     |                  |     |      |
| PROFIBUS                            | ✓              | -   | -              | -   | -                | -   | ✓    |
| DeviceNet                           | ✓              | -   | -              | -   | -                | -   | ✓    |
| CANopen®                            | ✓              | -   | -              | -   | -                | -   | ✓    |
| <b>Bus Independent I/O Modules</b>  |                |     |                |     |                  |     |      |
| <b>Housing Form S</b>               |                |     |                |     |                  |     |      |
| 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) | ✓              | -   | -              | ✓   | -                | -   | -    |
| <b>Housing Form M</b>               |                |     |                |     |                  |     |      |
| 16 Digital IN                       | ✓              | -   | -              | ✓   | -                | -   | -    |
| Multipol 16 Digital OUT (0.5 A)     | ✓              | -   | -              | ✓   | ✓                | -   | -    |
| 16 Digital IN/OUT (0.5 A)           | ✓              | -   | -              | -   | ✓                | -   | ✓    |
| Multipol 16 DIO (0.5 A)             | ✓              | -   | -              | ✓   | ✓                | -   | -    |
| <b>Accessories Lion-Link</b>        |                |     |                |     |                  |     |      |
| 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

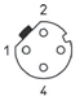
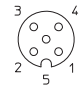
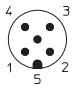
### Technical Information

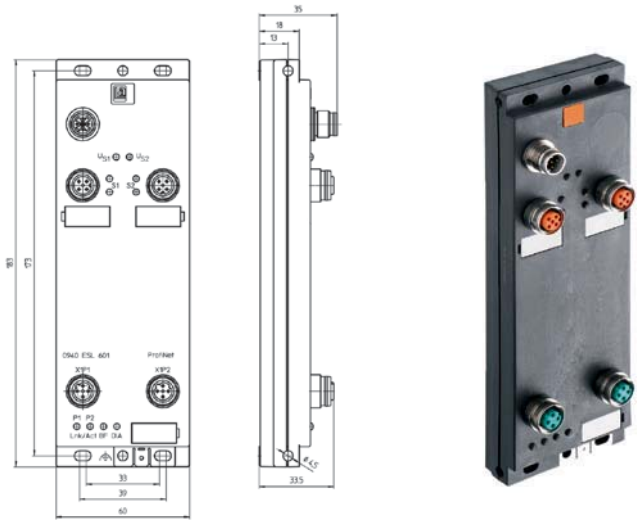
| Product Description         |  |
|-----------------------------|--|
| Type                        | 0940 ESL 601   |
|                             |       |
| Description                 | LioN-Link PROFINET BusHead, IP67 bus coupler module, M12 LioN-Link connection, 5-poles, M12 power supply connection, 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<br>Green             | Wrong configuration/module exchanged<br>Online, communication with PLC                      |
| I/Os2   | Red<br>Green<br>Off      | Wrong configuration/module exchanged<br>Online, communication with PLC<br>Branch not in use |
| Us1     | Green                    | Sensor/system power supply Line 1   |
| Us2     | Green                    | Sensor/system power supply Line 2   |
| LNK/ACT | Green<br>Orange blinking | Connection to an Ethernet device<br>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   |
|--|---|--|
|  <p>1 = TD+<br/>2 = RD+<br/>3 = TD-<br/>4 = RD-</p> <p>Housing = shielded</p> |  <p>1 = Drain<br/>2 = 24 V Sensor/System<br/>3 = 0 V Sensor/System<br/>4 = Data +<br/>5 = Data -</p> |  <p>1 = +24 V<br/>2 = +24 V<br/>3 = 0 V<br/>4 = 0 V<br/>5 = Earth</p> |



0940 ESL 601

## 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

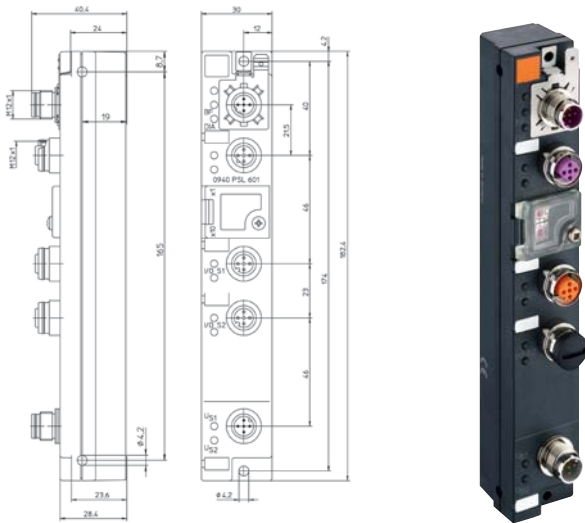
| LED        | Indicator | Condition                                |
|------------|-----------|--|
| I/O Line 1 | Red       | Wrong configuration/module exchanged     |
| I/O Line 2 | Green     | Online, communication with PLC           |
|            | Off       | Branch not in use (module not connected) |
| 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   |
|---|---|--|
|  <p>1 = +5 V<sup>1</sup><br/>                 2 = Line A<br/>                 3 = GND (0 V)<sup>1</sup><br/>                 4 = Line B<br/>                 5 = Earth</p> |  <p>1 = Drain<br/>                 2 = 24 V System<br/>                 3 = 0 V System<br/>                 4 = Data +<br/>                 5 = Data -</p> |  <p>1 = +24 V<br/>                 2 = +24 V<br/>                 3 = 0 V<br/>                 4 = 0 V<br/>                 5 = Earth</p> |

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  |
|                             |    <br> |    <br> |
| 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







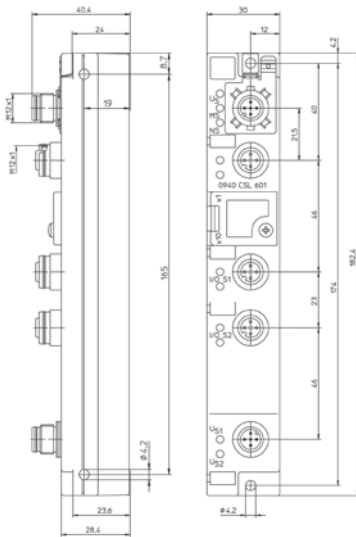
**Bit Assignment 0940 DSL 601**

| Bit          | 7           | 6           | 5           | 4           | 3           | 2           | 1           | 0          |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| <b>Input</b> |             |             |             |             |             |             |             |            |
| 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 |

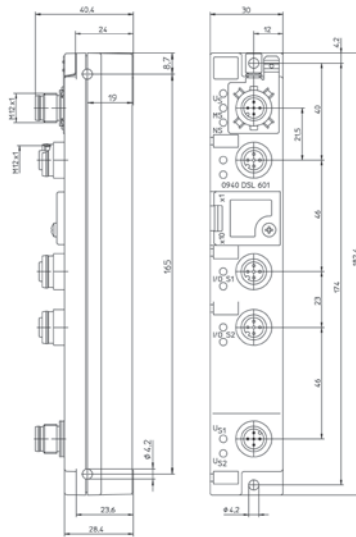
USx: Low voltage Line x  
 KSx: Short circuit on Line x  
 DIAG S\_x: Diagnostic message I/O module x  
 STATUS S\_x: Configuration error I/O module x

**Pin Assignment**

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



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 <sub>System</sub> – 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  |
|-------------------------------|----|----|----|----|----|----|----|----|
| <b>M12 Input 0942 UEM 601</b> |    |    |    |    |    |    |    |    |
| Byte 0                        | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| <b>M12 Input 0942 UEM 701</b> |    |    |    |    |    |    |    |    |
| Byte 0                        | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
| <b>M8 Input 0942 UEM 651</b>  |    |    |    |    |    |    |    |    |
| Byte 0                        | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| Byte 1                        | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A |

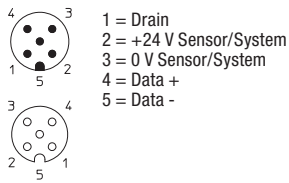
### Diagnostic Indication

| LED                    | Indicator                    | Condition   |
|------------------------|------------------------------|---|
| 1...4 A/B              | Yellow                       | Channel status  |
| 1...4 A/B              | Red                          | Periphery error   |
| I/O                    | Red<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>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

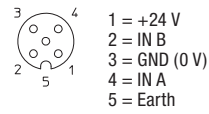
**Pin Assignment 0942 UEM 601**

**LioN-Link Connection M12**



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

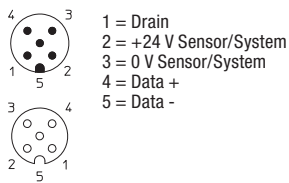
**Actuator/Sensor Connection M12**



- 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 -

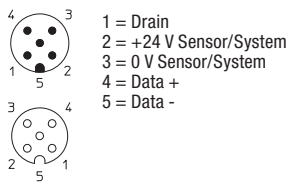
**Actuator/Sensor Connection M12**



- 1 = +24 V
- 3 = 0 V
- 4 = IN

**Pin Assignment 0942 UEM 701**

**LioN-Link Connection M12**

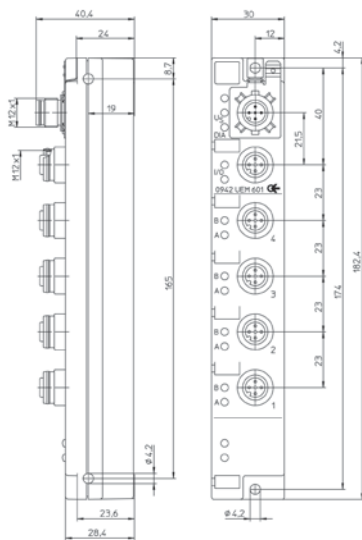


- 1 = Drain
- 2 = +24 V Sensor/System
- 3 = 0 V Sensor/System
- 4 = Data +
- 5 = Data -

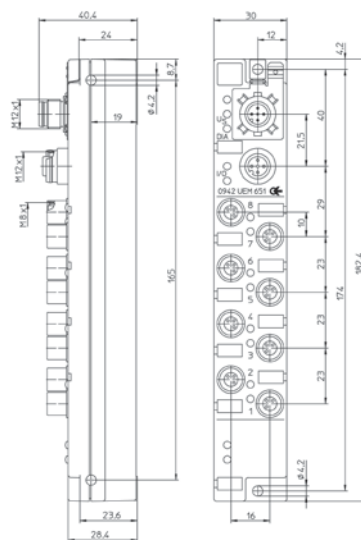
**Actuator/Sensor Connection M12**



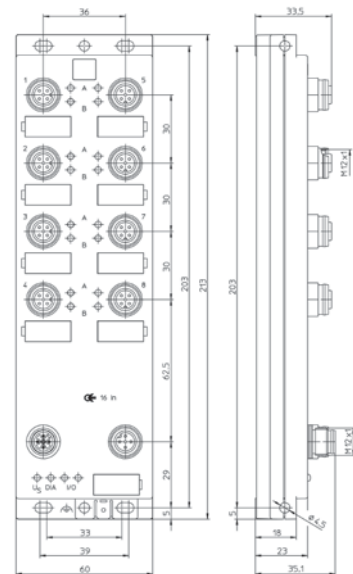
- 1 = +24 V
- 2 = IN/OUT B
- 3 = 0 V
- 4 = IN/OUT A
- 5 = Earth



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<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>Online, communication with BusHead |
| Us                                  | Green                        | Sensor/system power supply  |
| Ul                                  | Green                        | Actuator power supply   |
| DIA                                 | Red                          | Common indicator for periphery errors   |

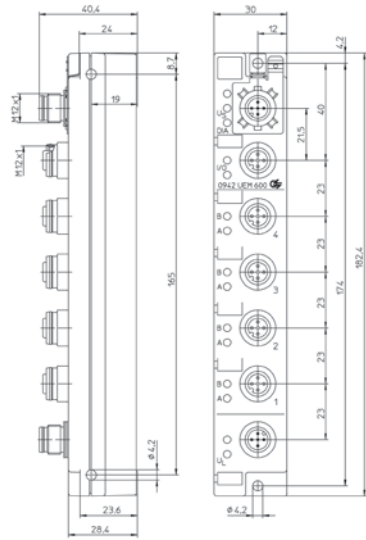
Periphery fault diagnosis for actuator short circuit/overload per channel

**Pin Assignment 0942 UEM 602 and 0942 UEM 612**

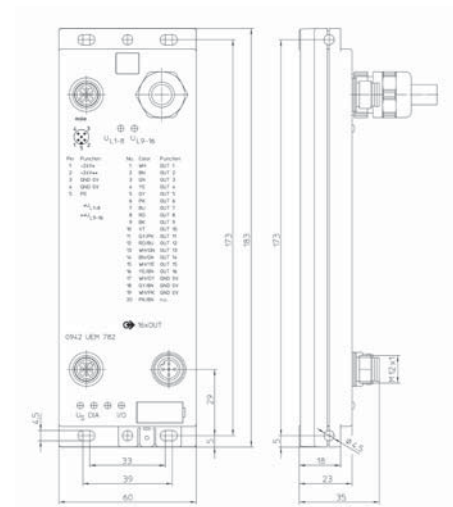
| LioN-Link Connection M12   | Actuator Connection M12  | Actuator Supply M12   |
|--|--|---|
| <p>1 = Drain<br/>2 = +24 V Sensor/System<br/>3 = 0 V Sensor/System<br/>4 = Data +<br/>5 = Data -</p> | <p>1 = n.c.<br/>2 = n.c.<br/>3 = 0 V<br/>4 = OUT A<br/>5 = Earth</p> | <p>1 = +24 V DC<br/>2 = +24 V DC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

**Pin Assignment 0942 UEM 782**

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



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   |
|                                       |   |    |
| <b>Description</b>                    | 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 |
| <b>Note</b>                           | –  | Only with BusHead 0940 PSL 602 or ProfiNet BusHead 0940 ESL 601. The information in the operating instructions must be observed.   |
| Technical Data                        |  |  |
| <b>Protection Class</b>               | IP67   |  |
| <b>Environmental Temperature</b>      | -10°C to +60°C   |  |
| <b>Weight</b>                         | 200 g  | 175 g  |
| System/Sensors Power Supply           |  |  |
| <b>Rated Voltage</b>                  | 24 V DC  |  |
| <b>Voltage Range</b>                  | 19 to 30 V DC  |  |
| <b>Power Consumption</b>              | typ. 70 mA   |  |
| Input Power Supply                    |  |  |
| <b>Voltage Range</b>                  | min. (U <sub>System</sub> – 1.5 V)   | 24 V DC  |
| <b>Sensor Current</b>                 | 700 mA per module  |  |
| <b>Indicator</b>                      | LED green  |  |
| Inputs                                |  |  |
| <b>Rated Input Current</b>            | 24 V DC  |  |
| <b>Number of Digital Channels</b>     | max. 8   |  |
| <b>Status Indicator</b>               | LED yellow per channel   | LED A green/yellow   |
| <b>Diagnostic Indicator</b>           | LED red per channel  | LED red  |
| Output Power Supply                   |  | I/O-Link-Power Supply  |
| <b>Rated Voltage</b>                  | 24 V DC  | 24 V DC  |
| <b>Voltage Range</b>                  | 19 to 30 V DC  | 19 to 30 V DC  |
| <b>Reverse Polarity Protection</b>    | yes/antiparallel diode   | yes/antiparallel diode   |
| <b>Indicator</b>                      | LED green  | LED green  |
| Outputs                               |  |  |
| <b>Rated Output Current</b>           | 1.6 A per channel  | –  |
| <b>Short Circuit-proof</b>            | yes  | –  |
| <b>Max. Current Carrying Capacity</b> | 4 A per module   | –  |
| <b>Number of Digital Channels</b>     | max. 8   | –  |
| <b>Status Indicator</b>               | LED yellow per channel   | –  |
| <b>Diagnostic Indicator</b>           | LED red per channel  | –  |
| Included in Delivery                  |  |  |
| <b>M12 Dust Covers</b>                | 2 pieces   |  |
| <b>Attachable Labels</b>              | 6 pieces   |  |

### Bit Assignment 0942 UEM 600

| Bit               | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  |
|-------------------|----|----|----|----|----|----|----|----|
| <b>M12 Input</b>  |    |    |    |    |    |    |    |    |
| Byte 0            | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| <b>M12 Output</b> |    |    |    |    |    |    |    |    |
| Byte 0            | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |

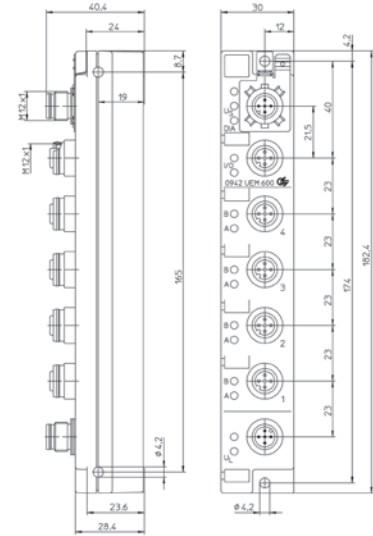
### Diagnostic Indication

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

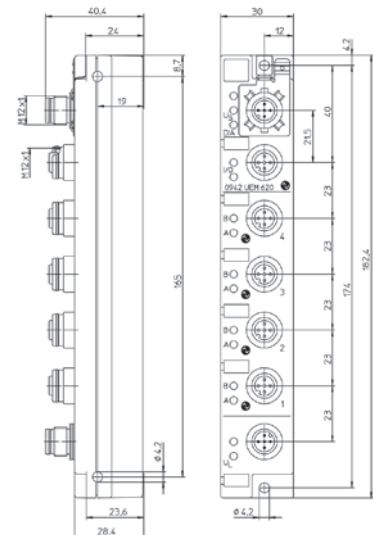
Periphery fault diagnosis for sensor short circuit, actuator short circuit/channel, sensor low voltage detection

**Bit Assignment 0942 UEM 620**

| Bit  | 15                                     | 14 | 13 | 12 | 11         | 10         | 9          | 8          | 7                                     | 6                 | 5                 | 4                 | 3          | 2          | 1          | 0          |
|--|--|----|----|----|------------|------------|------------|------------|---------------------------------------|-------------------|-------------------|-------------------|------------|------------|------------|------------|
| <b>Channel 1: 1 byte, 1 word or not configured</b> |  |    |    |    |            |            |            |            |                                       |                   |                   |                   |            |            |            |            |
| Byte   | Byte 0                                 |    |    |    |            |            |            |            | Byte 1                                |                   |                   |                   |            |            |            |            |
| Port   | 1                                      |    |    |    |            |            |            |            | 1                                     |                   |                   |                   |            |            |            |            |
| <b>Channel 2: 1 byte, 1 word or not configured</b> |  |    |    |    |            |            |            |            |                                       |                   |                   |                   |            |            |            |            |
| 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 |                   |                   |                   |            |            |            |            |
| <b>Channel 3: 1 byte, 1 word or not configured</b> |  |    |    |    |            |            |            |            |                                       |                   |                   |                   |            |            |            |            |
| 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 |                   |                   |                   |            |            |            |            |
| <b>Channel 4: 1 byte, 1 word or not configured</b> |  |    |    |    |            |            |            |            |                                       |                   |                   |                   |            |            |            |            |
| 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 |                   |                   |                   |            |            |            |            |
| <b>2 bytes (module status)</b>                     |  |    |    |    |            |            |            |            |                                       |                   |                   |                   |            |            |            |            |
| 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 |



0942 UEM 600



0942 UEM 620

**Pin Assignment 0942 UEM 600**

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



**Pin Assignment 0942 UEM 620**

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



## 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 <sub>System</sub> – 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 |
|------------------|---|---|---|---|---|---|---|---|
| <b>M8 Input</b>  |   |   |   |   |   |   |   |   |
| Byte 0           | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| <b>M8 Output</b> |   |   |   |   |   |   |   |   |
| Byte 0           | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

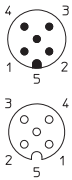




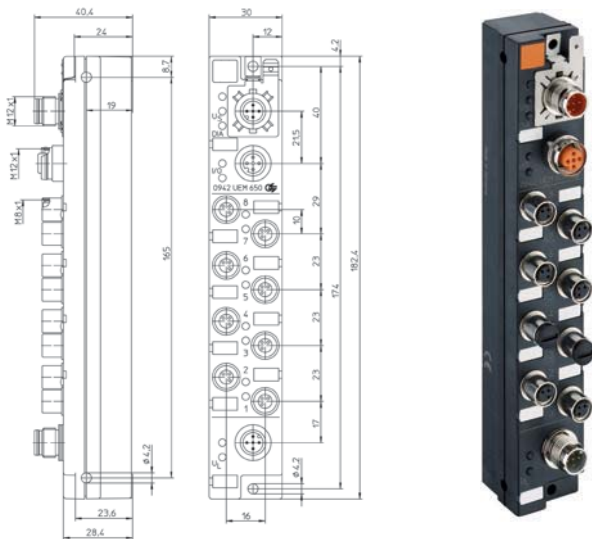
**Diagnostic Indication**

| LED            | Indicator                    | Condition   |
|----------------|------------------------------|---|
| 1...8          | Yellow<br>Red                | Channel status<br>Periphery error   |
| I/O            | Red<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>Online, communication with BusHead |
| Us             | Green                        | Sensor/system power supply  |
| U <sub>L</sub> | 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  |
|--|---|--|
|  <p>1 = Drain<br/>2 = +24 V Sensor/System<br/>3 = 0 V Sensor/System<br/>4 = Data +<br/>5 = Data -</p> |  <p>1 = +24 V<br/>3 = 0 V<br/>4 = IN/OUT</p> |  <p>1 = +24 V<br/>2 = n.c.<br/>3 = GND (0 V)<br/>4 = n.c.<br/>5 = Earth</p> |



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 <sub>System</sub> – 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  |
|-------------------|----|----|----|----|----|----|----|----|
| <b>M12 Input</b>  |    |    |    |    |    |    |    |    |
| Byte 0            | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| Byte 1            | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A |
| <b>M12 Output</b> |    |    |    |    |    |    |    |    |
| 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  |
|-------------------|-------|-------|-------|-------|-------|-------|----|----|
| <b>M12 Input</b>  |       |       |       |       |       |       |    |    |
| 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 |
| <b>M12 Output</b> |       |       |       |       |       |       |    |    |
| 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...8 A/B (only 0942 UEM 700) | Yellow                       | Channel status  |
| 1...8 (only 0942 UEM 700)     | Red                          | Periphery error   |
| I/O                           | Red<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>Online, communication with BusHead |
| Us                            | Green                        | Sensor/system power supply  |
| U <sub>L</sub>                | Green                        | Actuator power supply   |
| DIA                           | Red                          | Common indicator for periphery errors   |

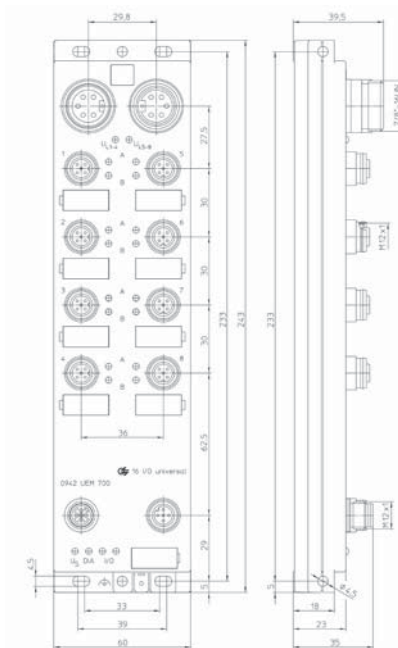
Periphery fault diagnosis for sensor short circuit, actuator short circuit, sensor low voltage detection

**Pin Assignment 0942 UEM 700**

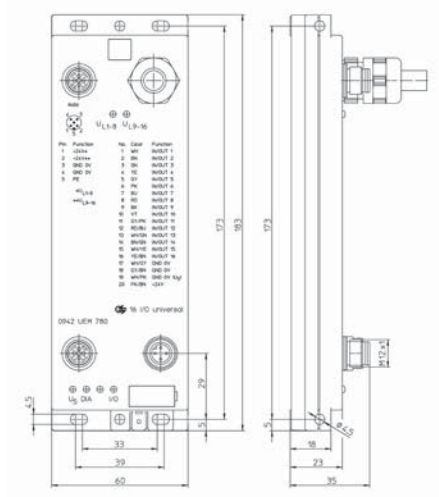
| LiOn-Link Connection M12  | Actuator/Sensor Connection M12  | Actuator Supply 7/8"  |
|---|---|---|
| <ul style="list-style-type: none"> <li>1 = Drain</li> <li>2 = +24 V Sensor/System</li> <li>3 = 0 V Sensor/System</li> <li>4 = Data +</li> <li>5 = Data -</li> </ul> | <ul style="list-style-type: none"> <li>1 = +24 V</li> <li>2 = IN/OUT B</li> <li>3 = 0 V</li> <li>4 = IN/OUT A</li> <li>5 = Earth</li> </ul> | <ul style="list-style-type: none"> <li>1 = GND (0 V)</li> <li>2 = GND (0 V)</li> <li>3 = Earth</li> <li>4 = 24 V (UL 1-4)</li> <li>5 = 24 V (UL 5-8)</li> </ul> |

**Pin Assignment 0942 UEM 780**

| LiOn-Link Connection M12  | Actuator Supply M12  |
|---|--|
| <ul style="list-style-type: none"> <li>1 = Drain</li> <li>2 = +24 V Sensor/System</li> <li>3 = 0 V Sensor/System</li> <li>4 = Data +</li> <li>5 = Data -</li> </ul> | <ul style="list-style-type: none"> <li>1 = +24 V (UL 1-8)</li> <li>2 = +24 V (UL 9-16)</li> <li>3 = GND (0 V)</li> <li>4 = GND (0 V)</li> <li>5 = Earth</li> </ul> |



0942 UEM 700





0942 UEM 780



## 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 <sub>system</sub> - 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/<br>Underflow/Broken Wire | 4 to 20 mA  | -  |
| Indicator   | LED red (DIA)   |  |
| GSD Configuration   |   |  |
| Module Way  | Resolution 12 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

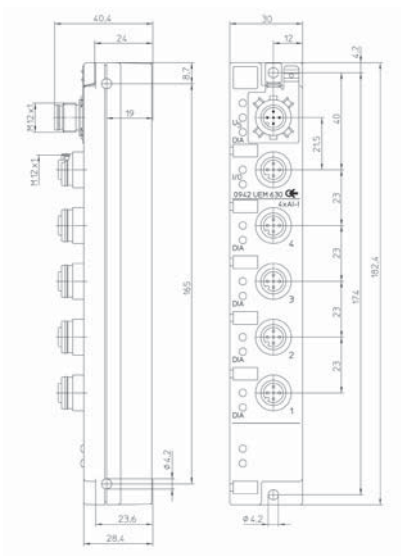
| Bit    | 7         | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|--------|-----------|---|---|---|---|---|---|---|
|        | M12 Input |   |   |   |   |   |   |   |
| Byte 0 | Channel 1 |   |   |   |   |   |   |   |
| Byte 1 |           |   |   |   |   |   |   |   |
| Byte 2 | Channel 2 |   |   |   |   |   |   |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

**Diagnostic Indication**

| LED       | Indicator                    | Condition   |
|-----------|------------------------------|---|
| 1...4     | Yellow                       | Channel status  |
| 1...4 DIA | Red                          | Periphery error   |
| I/O       | Red<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>Online, communication with BusHead |
| Us        | Green                        | Sensor/system power supply  |
| DIA       | Red                          | Common indicator for periphery errors   |

**Pin Assignment**





| LiOn-Link Connection M12  | Sensor Connection M12  |
|---|--|
|  <ul style="list-style-type: none"> <li>1 = Drain</li> <li>2 = +24 V</li> <li>3 = GND (0 V)</li> <li>4 = Data +</li> <li>5 = Data -</li> </ul> |  <ul style="list-style-type: none"> <li>1 = +24 V</li> <li>2 = Signal +</li> <li>3 = GND (0 V)</li> <li>4 = GND (0 V)</li> <li>5 = Earth</li> </ul> |



0942 UEM 630 | 0942 UEM 631

## 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                        |   |   |
|                                | <b>Type I</b> (Type 3 acc. to IEC 61131-2 Output module Pin 2)  | <b>Type II</b> (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

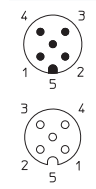
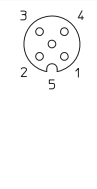
| Bit               | 7        | 6     | 5        | 4     | 3        | 2     | 1        | 0     |
|-------------------|----------|-------|----------|-------|----------|-------|----------|-------|
| <b>M12 Input</b>  |          |       |          |       |          |       |          |       |
| Byte 0            | 4B       | 4A    | 3B       | 3A    | 2B       | 2A    | 1B       | 1A    |
| <b>M12 Output</b> |          |       |          |       |          |       |          |       |
|                   | 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<br>Red                | Channel status<br>Periphery error (actuator short circuit/overload)   |
| I/O       | Red<br>Red blinking<br>Green | Wrong configuration/module exchanged<br>Not recognized by the BusHead<br>Online, communication with BusHead |
| Us        | Green                        | Sensor/system power supply  |
| Ul        | Green                        | Actuator power supply   |
| DIA       | Red                          | Common indicator for periphery errors   |

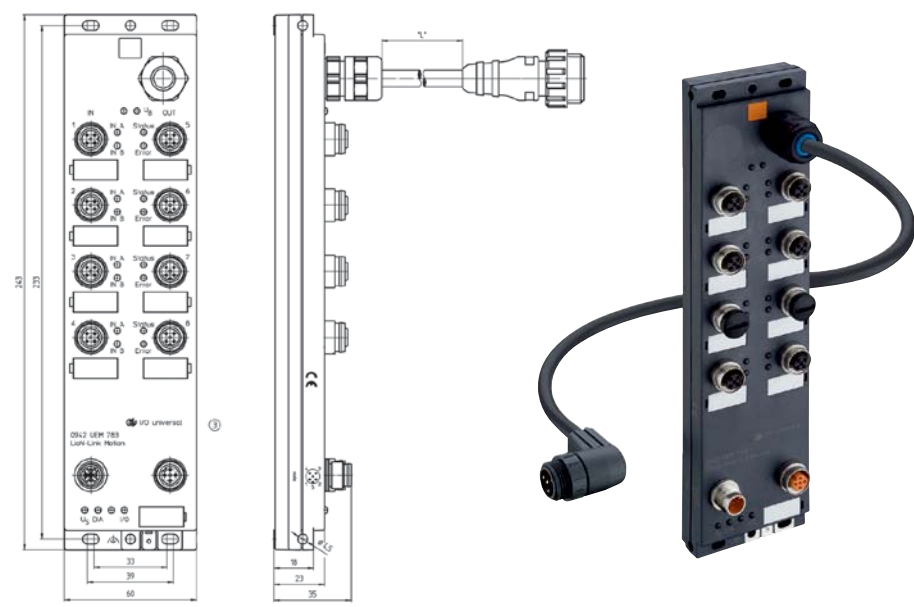
**Pin Assignment**

**LiON-Link Connection M12      Actuator/Sensor Connection M12**

|  |  |           |            |              |              |          |         |         |         |          |         |           |                       |
|--|--|-----------|------------|--------------|--------------|----------|---------|---------|---------|----------|---------|-----------|-----------------------|
|  <p>1 = Drain<br/>2 = +24 V Sensor/System<br/>3 = 0 V Sensor/System<br/>4 = Data +<br/>5 = Data -</p> |  <table border="0"> <tr> <td><b>IN</b></td> <td><b>OUT</b></td> </tr> <tr> <td>1 = +24 V DC</td> <td>1 = +24 V DC</td> </tr> <tr> <td>2 = IN B</td> <td>2 = Dir</td> </tr> <tr> <td>3 = 0 V</td> <td>3 = 0 V</td> </tr> <tr> <td>4 = IN A</td> <td>4 = Dia</td> </tr> <tr> <td>5 = Earth</td> <td>5 = Speed (0 to 10 V)</td> </tr> </table> | <b>IN</b> | <b>OUT</b> | 1 = +24 V DC | 1 = +24 V DC | 2 = IN B | 2 = Dir | 3 = 0 V | 3 = 0 V | 4 = IN A | 4 = Dia | 5 = Earth | 5 = Speed (0 to 10 V) |
| <b>IN</b>  | <b>OUT</b>   |           |            |              |              |          |         |         |         |          |         |           |                       |
| 1 = +24 V DC   | 1 = +24 V DC   |           |            |              |              |          |         |         |         |          |         |           |                       |
| 2 = IN B   | 2 = Dir  |           |            |              |              |          |         |         |         |          |         |           |                       |
| 3 = 0 V  | 3 = 0 V  |           |            |              |              |          |         |         |         |          |         |           |                       |
| 4 = IN A   | 4 = Dia  |           |            |              |              |          |         |         |         |          |         |           |                       |
| 5 = Earth  | 5 = Speed (0 to 10 V)  |           |            |              |              |          |         |         |         |          |         |           |                       |

**Power Supply for Motors**

|  |  |                 |                   |               |       |           |       |         |      |
|--|--|-----------------|-------------------|---------------|-------|-----------|-------|---------|------|
|  | <table border="0"> <tr> <td><b>Function</b></td> <td><b>Wire color</b></td> </tr> <tr> <td>1 = Diag. OUT</td> <td>black</td> </tr> <tr> <td>2 = +24 V</td> <td>brown</td> </tr> <tr> <td>3 = 0 V</td> <td>blue</td> </tr> </table> | <b>Function</b> | <b>Wire color</b> | 1 = Diag. OUT | black | 2 = +24 V | brown | 3 = 0 V | blue |
| <b>Function</b>  | <b>Wire color</b>  |                 |                   |               |       |           |       |         |      |
| 1 = Diag. OUT  | black  |                 |                   |               |       |           |       |         |      |
| 2 = +24 V  | brown  |                 |                   |               |       |           |       |         |      |
| 3 = 0 V  | blue   |                 |                   |               |       |           |       |         |      |



0942 UEM 783

