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A BELDEN BRAND

# DeviceNet™ Fieldbus Solutions

**Fieldbus Communication for DeviceNet™ Applications**

DeviceNet™

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# Lumberg Automation™ Provides Reliable DeviceNet Fieldbus Solutions for Industrial Automation Applications Worldwide.

# Belden® Industrial Solutions — More Convenience and Solutions for Networks in Harsh Environments and Large-scale Infrastructures

## Belden Industrial Solutions

For mission-critical applications, Belden is the signal transmission partner that delivers confidence in signal availability, integrity and performance because only Belden can offer solutions that satisfy any requirement.

A majority of system failures occur within the signal transmission space, and trouble-shooting can be very difficult and time-consuming. We want everyone to "**Be Certain**" that when choosing Belden you receive **Signal Availability** — always there, **Signal Integrity** — always trusted and secure, and **Signal Performance** — always when and where you need it.

Belden has brought together a comprehensive line of industrial cabling, connectivity and networking devices, offering the most reliable communications solutions for your application. Whether you are networking your devices to the controllers, connecting the controllers to the control room, relaying data between the control room, the engineering department, and remote manufacturing sites — or all of the above — Belden has the products you need to seamlessly connect your communications.

From the petrochemical, automotive, pharmaceutical, power generation, pulp and paper, metals, food and beverage, or general manufacturing plant to the corporate headquarters — and everywhere in between — Belden has your signal transmission solution. Belden offers the most dependable network and communications system performance in tough and mission-critical environments.

## Our Synergy Ensures Continuous Performance

With the Hirschmann™ and Lumberg Automation™ product line additions to the Belden offering, our line of Complete Industrial Solutions is uniquely positioned to provide the best network and communications infrastructure possible. Belden products and systems expertise means that you can maintain ongoing operations without interruption and costly downtime — in any environment.

Here are a few more good reasons why Belden is your best choice for industrial networking, communications and control:

- We have the expertise to integrate your industrial and commercial networks.
- Our products are engineered to perform in tough and difficult environments.
- We offer the broadest selection of products, for a complete, end-to-end Ethernet solution.
- Our sales and engineering professionals can audit, recommend/design, configure and assemble the products and systems to your specific requirements.
- Our global manufacturing and distribution network make our products available to you globally.

## Offering Comprehensive Service & Support

Belden recognizes that comprehensive know-how is necessary to ensure an optimized, homogenous solution. We also know that consultation, support and training requires more than just a general understanding of the products, technologies and market trends. It requires a solid understanding of the application and the ability to provide the type of support that is needed — when and where it is needed. It requires the four key service and support areas that are critical to success:

- Network Design
- Training
- Technical Support
- System Performance

### Network Design

Belden eliminates your design challenges because we understand the issues surrounding the design and operation of networks in industrial and mission-critical environments. Our engineers are available to work with you to deliver high-availability networks that meet your enterprise-wide IT needs. Whether it's designing systems for Greenfield facilities, or integrating into existing industrial IT environments, our highly-trained staff lifts the design burden from your shoulders to ours.

We'll consult with you to develop a strategy — or we'll develop and implement your full design — either way our staff is available to you.

### Training

Backed by years of meeting and exceeding the needs of a broad range of end-user applications, Belden is ideally suited to offer beginners and networking experts alike the opportunity to expand their understanding of mission-critical industrial networks. Belden has developed a series of training programs that are given by Belden-certified individuals — all experts in industrial networking and cabling.

### Technical Support

At Belden, our personnel are poised to assist our customers — ensuring maximum uptime and reliability. And with offices in North America, Asia and Europe, Belden can respond globally.

### System Performance

If Belden designs it, we guarantee performance — period. We are committed to ensuring world-class signal connectivity and to significantly improve your operational up-time. All Belden components are "designed" to deliver optimum performance: from connectors, to cable, to routers and switches. Based on this comprehensive product portfolio, we have the necessary industrial solutions DNA to deliver reliability.

For more information on our service and support offering, including our warranties, please go to the Belden web site at **www.belden.com/industrial** to locate a Belden sales representative near you.

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# The Lumberg Automation™ Brand Sets the Standard for Quality, Reliability and Service.

## About Our Solutions

Today, more than ever, manufacturing productivity depends upon seamless data communication and automation systems. Lumberg Automation has assembled one of the most diversified portfolios for industrial connectivity and distributed I/O systems for control applications.

With the advancements in technology and improved machine designs, industrial controls, such as sensors, actuators, safety light curtains, pushbutton switches and the like are moving closer to the application.

## Our Enclosure~less™ Concept

The Enclosure~less concept from Lumberg Automation addresses these applications with an entire suite of industrial hardened connectivity and distributed I/O products.

Enhanced environmental characteristics, modular designs, plug-and-play electronics with quick-disconnect designs are all integrated to increase speed of installation, decrease troubleshooting and maintenance while reducing the overall complexity of the control application. These products provide the optimal solution in machine and equipment design and offer excellent opportunities and benefits to OEMs, system integrators, and end users alike.

### Easing the Design Process

Our system approach leads to decreased time and money to develop complete integrated connectivity solutions. Using our Enclosure~less concept is one of the most effective ways to dramatically reduce the design time.

### Re-Useable Solutions

OEM's now have access to a set of standard products designed around the concept that everything is pluggable and interchangeable.

Having the flexibility to re-configure or expand an existing system without worrying about customization is made possible with our Enclosure~less concept. Most importantly, our products are re-usable and can be adapted to future designs or merely put back on the shelf for future use.

### Improved Installation Time with Less Mistakes

A recent study by a group of European manufacturers concluded that Enclosure~less assembly costs save as much as 30 percent over conventional installation methods.

These savings are realized through not only the Enclosure~less concept, but by the technology that is being employed. With a modular design approach and plug-and-play electronic features, less time will be spent running down errors or replacing parts from incorrect wiring.

### Trouble-Shooting is Simplified

Troubleshooting circuits can be a long process, especially when one is dealing with several hundred termination points.

Many of our products have integrated LED function indicators which provide a visual notification that a circuit is functioning properly.

By using products that have integrated LED functions, mechanics and engineers alike can quickly isolate and resolve the problem.

### Testing Made Simple

OEMs can cost-effectively build and pre-test a machine at their facility, disassemble and transport it to an end user's plant knowing that everything has been tested. This is primarily made possible through the reduction of wiring terminations throughout the system, which makes testing a much simpler and quicker process.

### Reliability is Maximized

Enclosure~less™ solutions can minimize wiring errors because wiring is pre-manufactured with quick-disconnect features. With less manual wiring involved, there are fewer points of failure.

Some studies suggest that a large portion of system failures come from installation rather than part failures. The decrease in errors associated with pre-manufactured wiring leads to an increase in the overall reliability of the control system.

In the end, this helps speed installation and commissioning, maintenance, troubleshooting, and ultimately boosts a plant's production.

### Maintenance/Repair Time is Reduced

Maintenance technicians and operators no longer need to access the control panel since much of the maintenance and troubleshooting can be done outside.

With the simplicity of wiring layout and connections, end users can efficiently isolate problems and replace a starter or I/O locally, rather than sorting through a complex panel. The result is significantly easier troubleshooting and shorter Mean-Time-To-Repair (MTTR).

### Floor Space at a Premium

Control cabinets can occupy a substantial amount of the production floor. The Enclosure~less™ concept dramatically reduces the need for that real estate, allowing companies to leverage more of their facility.

Industries like semiconductor and pharmaceutical manufacturing have realized the benefits of the On-Machine approach for years, as their clean-room space is at a premium.

DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

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DeviceNet Modules with Plug-N-Play Connectivity Reduce Overall Installation and Maintenance Costs.

# DeviceNet Introduction

## Common Industrial Protocol

**DeviceNet**™ is part of the CIP protocol family. CIP stands for "Common Industrial Protocol". It is the platform for several communication protocols including DeviceNet, EtherNet/IP and CompoNet, as well as protocol enhancements for safety applications (CIP Safety) and motion control (CIP Motion).

DeviceNet™ is a fieldbus system for the direct connection of sensors and actuators in the field (e.g. proximity switches, motor starters, valves, etc.). DeviceNetTM originated in the North-American market and is presently used worldwide in all areas of plant automation.

**DeviceNet**™ is based on the **CAN** specifications (**C**ontroller **A**rea **N**etwork). However, unlike CAN it is restricted in functionality for easier implementation.

## About Lumberg Automation DeviceNet Products

To ensure the best application of DeviceNet in the decentralized sector, components must meet maximum electromechanical demands. DeviceNet components from Lumberg Automation offer maximum protection to the electronic system by the material used for the housing and sealing technology. The modules are equipped with either 7/8" or M12 connectors for the bus connection.

## Technical Data

Transmission media The individual stations are generally connected via a hybrid cable to transmit data (according to RS485) and for power supply (module electronics and sensors). It is constructed of 2 twisted and shielded pairs of wires contained inside another 360° shielding. There are four standardized types of cable:

- **THICK Cable** - sometimes called Trunk Cable
- **MID Cable**
- **THIN** Cable - sometimes called Drop cable
- **Type V Cable** - used for Tray Rated Cable (TC) applications

DeviceNet Module dipicted with 7/8" bus connection and terminating resistor.

## Network Topology

Line structure with drop lines. The trunk line is terminated by resistors on both ends; the drop lines do not require a terminating resistor.

## Bus Access

DeviceNet is a multi-master system. The communication between the participants can be implemented in various modes:

- Polled I/O Message Connection: The data of the slaves is cyclically polled by the master (masterslave method).
- Explicit Message Connection: Acyclic communication between master and slave e.g. for parameterization.
- Bit Strobed I/O Message Connection: (broadcast) The master simultaneously sends a message to all slaves and the slaves send their input information back.
- Change of state / Cyclic Message Connection: In the change-of-state mode the slave automatically sends its current data to the master in case of a change at the input. In the cyclic message mode the slave sends the applicable input information at regular, predefined intervals (e.g. every 25 ms).

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Modes can be set individually for each slave. The CSMA/BA process is applied to avoid telegram collisions on the bus. It ensures that messages of high priority (e.g. input data telegrams) are transmitted before messages of low priority (e.g. parametric data).

### Number of Participants

64 nodes (including master)

### Admissible Transmission Rates and Line Lengths

Depending on the transmission rate (Baud rate) the admissible cable lengths (main and drop lines) change as specified in Table 1: Admissible transmission rates and line lengths.

### Bus Cycle Time

The bus cycle time depends on the following important factors – among others:

- Number of participants
- The relevant amount of data of the individual slaves
- Type of communication
- Transmission rate

### Configuration of the Nodes

The individual participants are configured via EDS files (Electronic Data Sheet) which are provided by the manufacturer for each slave. The EDS files for the Lumberg Automation bus modules can be obtained through **www.lumberg-automationusa.com**.

### Addressing

Addressing is implemented via software or rotary address switches. Software addressing can be implemented via addressing tools or the master. The modules are integrated consecutively into the network and automatically checked / tested to determine whether another participant is on the bus with the same address. If that is the case, the participant deactivates itself. If the test is negative, the unit can be addressed via the master.

### Diagnostic System

With DeviceNet, the diagnostic message is transported via additional input bytes (status bytes) which are added to the input data Lumberg Automation compact I/O modules are using one status byte. In addition LED's on the modules make it easy to locate an error.

| Transmission Rate | 125 kbit/s | 250 kbit/s | 500 kbit/s |
|---|---|---|---|
| Max. Trunk line using “THICK Cable" | 500 m (1,640 ft.) | 250 m (820 ft.) | 100 m (328 ft.) |
| Max. Trunk line using “MID Cable" | 300 m (984 ft.) | 250 m (820 ft.) | 100 m (328 ft.) |
| Max. Trunk line using “THIN Cable" | 100 m (328 ft.) | 100 m (328 ft.) | 100 m (328 ft.) |
| Max. Trunk line using “Type V Cable" | 420m (1,378 ft.) | 200 m (656 ft.) | 100 m (328 ft.) |
| Max. drop length | 6 m (20 ft.) | 6 m (20 ft.) | 6 m (20 ft.) |
| Max. cumulative drop length | 156 m (512 ft.) | 78 m (256 ft.) | 39 m (128 ft.) |

**Table 1**: Admissable transmission rates and line lengths

### Product Characteristics

- Especially suitable for robotic applications (resistance to torsion).
- Very good resistance to oils, coolants and lubricants as well as emulsions.
- Suitable for use in C-Tracks.
- Very good resistance to flying weld slag (e.g.) unfinished constructions).
- Very good resistance to acids, lye and chemical cleaning agents.
- Very good electromagnetic resistance (EMC) and shieldedsystems.
- Very good vibration and shock resistance.
- UL approved.
- UL/CSA approved.

Module dipicted with M12" bus connection and on-board 7/8" power auxillary power connection with T-Connector.

# DeviceNet Connecting Information

DeviceNet I/O Module Shown:
**0930 DSL 114**

## Power Supply for Actuator System, 7/8" Male Connector, 3 Poles

**Best Part Number**
**RKC 30/9**
or
**RKC 30/11**

**Description**
Field attachable female connector

**Best Part Number**
**0906 UTP 311**

**Description**
T-Connector to daisy chain the power supply

**Best Part Number**
**RK 30-695/...M**

**Description**
Single ended, 3 pole 7/8" power supply cable

## Bus Connection, Bus Input, M12 Male Connector, 5-Poles

**Best Part Number**
**0936 DFC 101**

**Description**
Field attachable female connector

**Best Part Number**
**0939 CTX 106**

**Description**
Terminating resistor, female

**Best Part Number**
**0906 UTP 101**

**Description**
T-connector to maintain the bus communication when changing a module respectiveley for intermediate feeding of the power supply.

**Best Part Number**
**0906 UTP 302**

**Description**
T-connector for connection of trunk cables with 7/8" connectors.

**Best Part Number**
**0935 614 103/...M**

**0935 614 105/...M**

**Description**
DeviceNet Micro (M12) drop cables.

## Bus Connection, Bus Output, M12 Female Connector, 5-Poles

**Best Part Number**
**0936 DMC 101**

**Description**
Field attachable male connector

**Best Part Number**
**0939 CTX 105**

**Description**
Terminating resistor, male

**Best Part Number**
**0935 614 103/...M**

**0935 614 104/...M**

**Description**
DeviceNet Micro (M12) drop cables.

## DeviceNet Connecting Information

DeviceNet I/O Module Shown:
**0930 DSL 314**

### Power Supply for Actuator System, 7/8" Male Connector, 3 Poles

**Best Part Number**
**RKC 30/9**
or
**RKC 30/11**

**Description**
Field attachable female connector

**Best Part Number**
**0906 UTP 311**

**Description**
T-Connector to daisy chain the power supply

**Best Part Number**
**RK 30-695/...M**

**Description**
Single ended, 3 pole 7/8" power supply cable

### Bus Connection, Bus Input 7/8" Male Connector, 5-Poles

**Best Part Number**
**0936 DFC 301**
**0936 DFC 302**
**0936 DFC 303**

**Description**
Field Attachable, Female Connector, 5-Pole, PG9, PG11, and PG16 Threads

**Best Part Number**
**0939 CTX 304**

**Description**
Terminating Resistor, 7/8" Female, 5-Pole

**Best Part Number**
**0906 UTP 301**

**Description**
T-Connector, to maintain the bus communication when changing a module respectiveley for intermediate feeding of the Power Supply.

**Best Part Number**
**0935 613 301/...M**

**Description**
DeviceNet Double-Ended Drop Cable (**THICK**) Male to Female 7/8" connector on both sides.

**0935 613 303/...M**

DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on OneSide (**not shown**)

**Best Part Number**
**0935 614 301/...M**

**Description**
DeviceNet Double-Ended Drop Cable (**THIN**) Male to Female7/8" connector on both sides.

**0935 614 303/...M**

DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on One Side (**not shown**)

### Bus Connection, Bus Output, M12 Female Connector, 5-Poles

**Best Part Number**
**0936 DMC 301**
**0936 DMC 302**
**0936 DMC 303**

**Description**
Field Attachable, Male Connector, 5-Pole, PG9, PG11, and PG16 Threads

**Best Part Number**
**0939 CTX 303**

**Description**
Terminating Resistor, 7/8" Male, 5-Pole

**Best Part Number**
**0935 613 301/...M**

**Description**
DeviceNet Double-Ended Drop Cable (**THICK**) Male to Female 7/8" connector on both sides.

**0935 613 303/...M**

DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on OneSide (**not shown**)

**Best Part Number**
**0935 614 301/...M**

**Description**
DeviceNet Double-Ended Drop Cable (**THIN**) Male to Female7/8" connector on both sides.

**0935 614 303/...M**

DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on One Side (**not shown**)

DeviceNet™

# DeviceNet Connecting Information

DeviceNet I/O Module Shown:
**0930 DSL 700**

## Power Supply for Actuator System, 7/8" Male Connector, 4 Poles

| Best Part Number | Description |
|---|---|
| **RSC 40/9** | Field Attachable, Male Connector, 4-Pole, PG9 Threads |
| or | |
| **RSC 40/11** | Field Attachable, Male Connector, 4-Pole, PG11 Threads |

| Best Part Number | Description |
|---|---|
| **RKC 40/9** | Field Attachable, Female Connector, 4-Pole, PG9 Threads |
| or | |
| **RKC 40/11** | Field Attachable, Female Connector, 4-Pole, PG11 Threads |

| Best Part Number | Description |
|---|---|
| **RK 40-639/...F** | Single-Ended 4-Pole 7/8" Power Supply Cable. |

## Bus Connection, Bus-Input 7/8" Male Connector, 5-Poles

| Best Part Number | Description |
|---|---|
| **0936 DFC 301**<br>**0936 DFC 302**<br>**0936 DFC 303** | Field Attachable, Female 7/8" Connector, 5-Pole, PG9, PG11, or PG16 Threads |

| Best Part Number | Description |
|---|---|
| **0939 CTX 304** | Terminating Resistor, 7/8" Female, 5-Pole |

| Best Part Number | Description |
|---|---|
| **0906 UTP 301** | T-Connector, to maintain the bus communication when changing a module respectiveley for intermediate feeding of the Power Supply. |

| Best Part Number | Description |
|---|---|
| **0935 613 301/...M** | DeviceNet Double-Ended Drop Cable (**THICK**) Male to Female 7/8" connector on both sides. |
| **0935 613 303/...M** | DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on OneSide (**not shown**) |

| Best Part Number | Description |
|---|---|
| **0935 614 301/...M** | DeviceNet Double-Ended Drop Cable (**THIN**) Male to Female7/8" connector on both sides. |
| **0935 614 303/...M** | DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on One Side (**not shown**) |

## Bus Connection, Bus-Out M12 Female Connector, 5-Poles

| Best Part Number | Description |
|---|---|
| **0936 DMC 301**<br>**0936 DMC 302**<br>**0936 DMC 303** | Field Attachable, Male Connector, 5-Pole, PG9, PG11, and PG16 Threads |

| Best Part Number | Description |
|---|---|
| **0939 CTX 303** | Terminating Resistor, 7/8" Male, 5-Pole |

| Best Part Number | Description |
|---|---|
| **0935 613 301/...M** | DeviceNet Double-Ended Drop Cable (**THICK**) Male to Female 7/8" connector on both sides. |
| **0935 613 303/...M** | DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on OneSide (**not shown**) |

| Best Part Number | Description |
|---|---|
| **0935 614 301/...M** | DeviceNet Double-Ended Drop Cable (**THIN**) Male to Female7/8" connector on both sides. |
| **0935 614 303/...M** | DeviceNet Single-Ended Drop Cable with Female 7/8" Connector on One Side (**not shown**) |



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## DeviceNet Connecting Information

DeviceNet I/O Module Shown:
**0930 DSL 650**

### Bus Connection. Bus Input M12, 5-Pole Male Connector

**Best Part Number** 0936 DFC 101
**Description** Field Attachable, Female Connector, 5-Pole, PG9 Threads

**Best Part Number** 0939 CTX 106
**Description** Terminating Resistor, Female, 5-Pole

**Best Part Number** 0906 UTP 101
**Description** T-Connector, to Maintain the Bus Communication when Changing a Module Respectiveley for Intermediate Feeding of the Power Supply.

**Best Part Number** 0906 UTP 302
**Description** T-Connector for Connection of Trunk Cables with M12" Female and 7/8" Male and Female Connectors.

**Best Part Number** 0935 614 103/...M
**Description** DeviceNet Double-Ended Drop Cable, M12 Male to Female.

**Best Part Number** 0935 614 105/...M
DeviceNet Single-Ended Drop Cable with M12 Female Connector on One Side (**not shown**)

### Power Supply for Actuator System, M12, 5-Pole Male Connector

**Best Part Number** 0936 DFC 101
**Description** Field Attachable, M12 Female Connector, 5-Pole, PG9 Threads

**Best Part Number** 0906 UTP 101
**Description** T-Connector, for Daisy-Chaining Power

**Best Part Number** RKT 5-612/...M
**Description** Single-Ended Cordset, M12, 5-Pole for Connection to Power Supply.

### Bus Connection. Bus Output, M12, 5-Pole Female Connector

**Best Part Number** 0936 DMC 101
**Description** Field Attachable, M12, Male Connector, 5-Pole, PG9 Threads

**Best Part Number** 0939 CTX 105
**Description** Terminating Resistor, M12, Male, 5-Pole

**Best Part Number** 0935 614 103/...M
**Description** DeviceNet Double-Ended Drop Cable, M12 Male to Female, 5-pole.

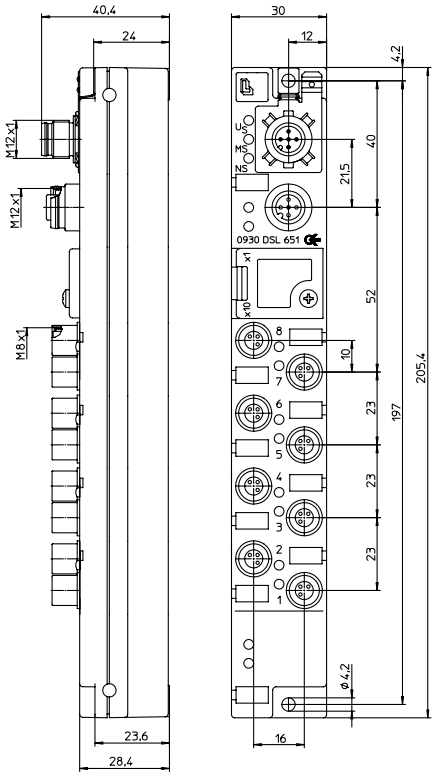
**Best Part Number** 0935 614 104/...M
DeviceNet Single-Ended Drop Cable with M12 Male Connector on One Side (**not shown**)

# DeviceNet I/O Modules with 8-Digital Inputs

**0930 DSL 651**

## 8 IN

DeviceNet device with 8 digital inputs to connect standard sensors, M8 socket, 3 poles, rotary switches for addressing, M12 bus connection.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| | | | | M8 Input | | | | |
| Byte 0 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | | | | Diagnostic | | | | |
| DIA-Byte | S8 | S7 | S6 | S5 | S4 | S3 | S2 | S1 |

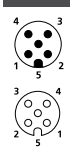
S1...8: Socket Status 1...8

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 | yellow | channel status |
| 1...8 | red | periphery fault |
| $U_S$ | green | sensor/system power supply |
| $U_L$ | green | actuator power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | wrong configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Input M8**

1 = +24 V
3 = GND (0 V)
4 = In

1 = system/sensors



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## DeviceNet I/O Modules with 8-Digital Inputs

0930 DSL 651

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -10°C (+14°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 190 g |
| Housing material | PBT |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **System power supply** | |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | 60 mA |
| Reverse polarity protection | yes |
| **Input power supply** | **Us** |
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | 100 mA (at $T_{amb}$ 30°C) per socket |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 3 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Channel type N.O. | p-switching |
| Number of digital channels | max. 8 |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Included in delivery/accessories** | |
| Dust covers M8 | 2 pieces |
| Attachable labels | 10 pieces |

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 651 |

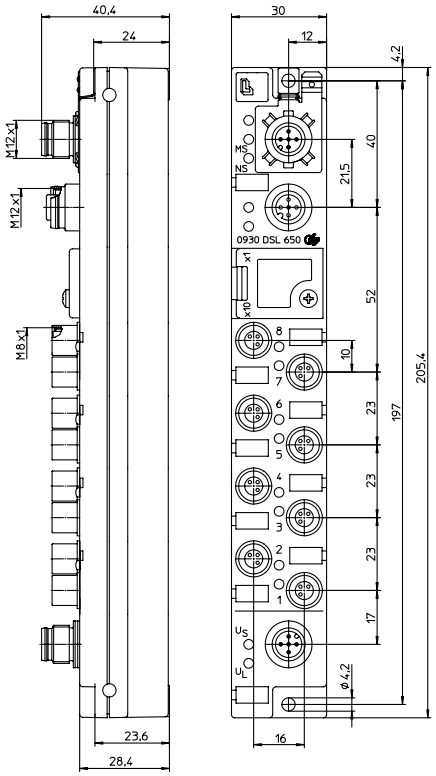
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

# DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

**0930 DSL 650**

## 8 IN / 8 OUT (universal)

DeviceNet device with 8 digital I/O channels, channels can be used universally as inputs or outputs, M8 socket, 3 poles, rotary switches for addressing, M12 bus connection, M12 actuator supply.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M8 Input** | | | | | | | | |
| **Byte 0** | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| **Diagnostic** | | | | | | | | |
| **DIA-Byte** | S8 | S7 | S6 | S5 | S4 | S3 | S2 | S1 |

S1...8: Socket Status 1...8

| **M8 Output** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Byte 0** | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 | yellow | channel status |
| 1...8 | red | periphery fault |
| Us | green | sensor/system power supply |
| UL | green | actuator power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | wrong configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L
housing = earth

**Actuator supply M12**

1 = +24 V [2]
2 = + 24 V [3]
3 = GND (0 V) [2]
4 = GND (0 V) [3]
5 = earth

**Input/Output M8**

1 = +24 V
3 = GND (0 V)
4 = In

1 = system: galvanically separated to sensors/actuators
2 = actuators
3 = sensors

## DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0930 DSL 650

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -10°C (+14°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 200 g |
| Housing material | PBT |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **System power supply** | |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | 60 mA |
| Reverse polarity protection | yes |
| **Input power supply** | **Us** |
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | 100 mA (at $T_{amb}$ 30°C) per socket |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 3 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Channel type N.O. | p-switching |
| Number of digital channels | max. 8 |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Output power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | |
| Rated output current | 0.5 A per channel |
| Short circuit-proof | yes |
| Max. output current | 4 A per module |
| Overload-proof | yes |
| Number of digital channels | max. 8 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Included in delivery/accessories** | |
| Dust covers M8 | 2 pieces |
| Attachable labels | 10 pieces |

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 650 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

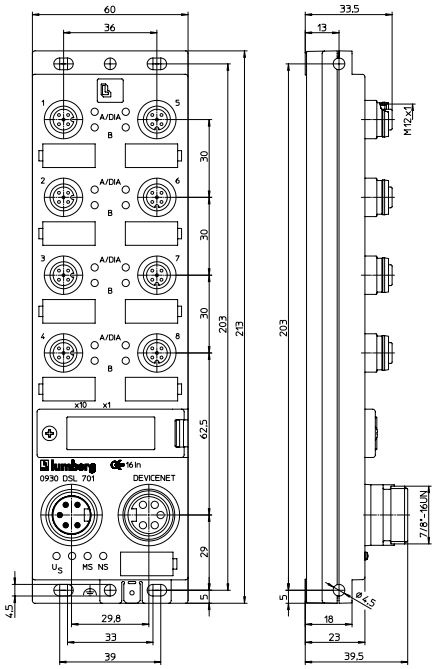
DeviceNet

# DeviceNet I/O Modules with 16-Digital Inputs

**0930 DSL 701**

## 16 IN

DeviceNet device with 16 digital inputs to connect standard sensors, M12 socket, rotary switches for addressing, 7/8" bus connection.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| **Byte 1** | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A |
| **Diagnostic** | | | | | | | | |
| **Byte 2** | S8 | S7 | S6 | S5 | S4 | S3 | S2 | S1 |

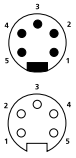
S1...8: Socket Status 1...8

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| 1...8 A/DIA | red | periphery fault |
| Us | green | sensor power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | wrong configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L
housing = earth

**Input M12**

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

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs

0930 DSL 701

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -10°C (+14°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 380 g |
| Housing material | PBT |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **System power supply** | |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | 100 mA |
| Reverse polarity protection | yes |
| **Input power supply** | **Us** |
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | 200 mA (at $T_{amb}$ 30°C) per socket |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 3 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Channel type N.O. | p-switching |
| Number of digital channels | max. 16 |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Included in delivery/accessories** | |
| Dust covers M12 | 4 pieces |
| Attachable labels | 10 pieces |

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 701 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

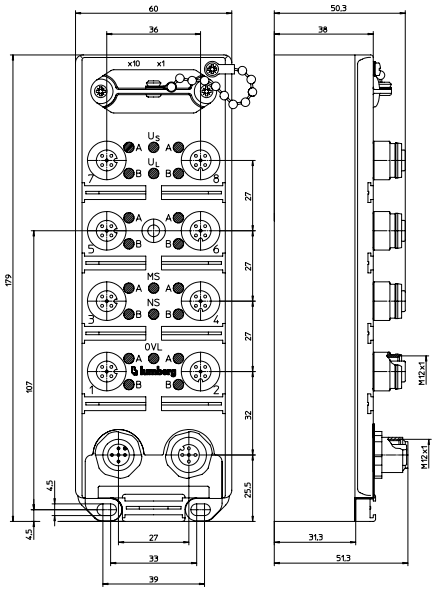
# DeviceNet I/O Modules with 16-Digital Inputs

**0930 DSL 108**

## 16 IN (p)

DeviceNet device with16 digital inputs (p-switching) to connect standard sensors, M12 socket, rotary switches for addressing, M12 bus connection.

– Replaced 0930 DSL 101 –




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 8A | 7A | 6A | 5A | 4A | 3A | 2A | 1A |
| **Byte 1** | 8B | 7B | 6B | 5B | 4B | 3B | 2B | 1B |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 2** | OVL | - | - | - | - | - | - | - |

OVL: Overload status

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| Us | green | sensor power supply |
| UL | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Input M12**

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

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs

0930 DSL 108

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |

**Mechanical**

| | |
|---|---|
| Weight | 570 g |
| Housing material | PUR |

| **Bus system** | **DeviceNet** |
|---|---|
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |

| **Electronics power supply** | **UL** |
|---|---|
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |

| **Input power supply** | **Us** |
|---|---|
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |

| **Inputs** | **Type 2 acc. to IEC 61131-2** |
|---|---|
| Rated input voltage | 24 V DC |
| Signal state “1" | 11–30 V |
| Signal state “0" | -3–5 V |
| Input current at 24 V | 10 mA |
| Channel type N.O. | p-switching |
| Number of digital channels | 16 |
| Channel status indicator | LED yellow per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 108 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

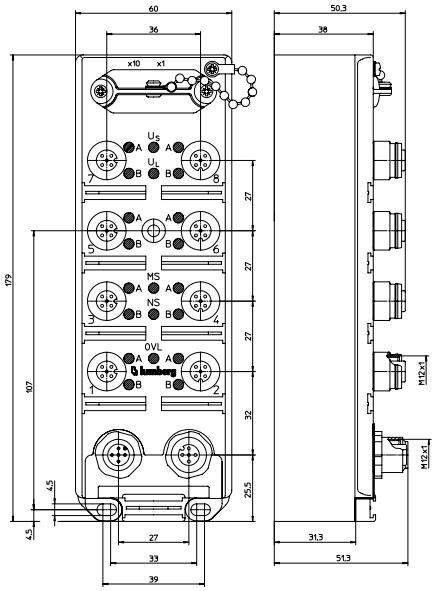
DeviceNet

# DeviceNet I/O Modules with 16-Digital Inputs

**0930 DSL 109**

## 16 IN (n)

DeviceNet device with 16 digital inputs (n-switching) to connect standard sensors, M12 socket, rotary switches for addressing, M12 bus connection.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 8A | 7A | 6A | 5A | 4A | 3A | 2A | 1A |
| **Byte 1** | 8B | 7B | 6B | 5B | 4B | 3B | 2B | 1B |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 2** | OVL | - | - | - | - | - | - | - |

OVL: Overload status

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| Us | green | sensor power supply |
| UL | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Input M12**

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

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs

0930 DSL 109

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |

**Mechanical**

| | |
|---|---|
| Weight | 570 g |
| Housing material | PUR |

| **Bus system** | **DeviceNet** |
|---|---|
| Transmission rate | max. 500 kBaud |
| AutobaUd | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |

| **Electronics power supply** | **UL** |
|---|---|
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |

| **Input power supply** | **Us** |
|---|---|
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |

**Inputs**

| | |
|---|---|
| Rated input voltage | 24 V DC |
| Signal state “1" | < (US - 11V) |
| Signal state “0" | > (Us - 5 V) |
| Input current at 6 V | -10 mA |
| Channel type N.O. | n-switching |
| Number of digital channels | 16 |
| Channel status indicator | LED yellow per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 109 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

DeviceNet

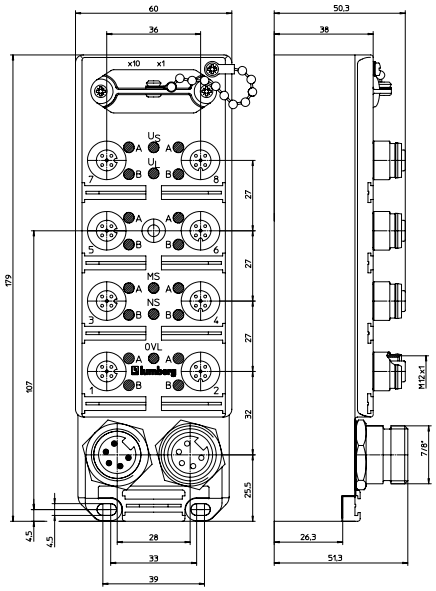
# DeviceNet I/O Modules with 16-Digital Inputs

**0930 DSL 312**

## 16 IN (p)

DeviceNet device with 16 digital inputs (p-switching) to connect standard sensors, M12 socket, rotary switches for addressing, 7/8" bus connection.

– Replaced 0930 DSL 301 and 0930 DSL 301 –




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 8A | 7A | 6A | 5A | 4A | 3A | 2A | 1A |
| **Byte 1** | 8B | 7B | 6B | 5B | 4B | 3B | 2B | 1B |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 2** | OVL | - | - | - | - | - | - | - |

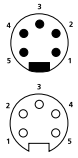
OVL: Overload status

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| Us | green | sensor power supply |
| UL | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Input M12**

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

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs

0930 DSL 312

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 800 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Input power supply** | **Us** |
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 2 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Signal state “1" | 11–30 V |
| Signal state “0" | -3–5 V |
| Input current at 24 V | 10 mA |
| Channel type N.O. | p-switching |
| Number of digital channels | 16 |
| Channel status indicator | LED yellow per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website **http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 312 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

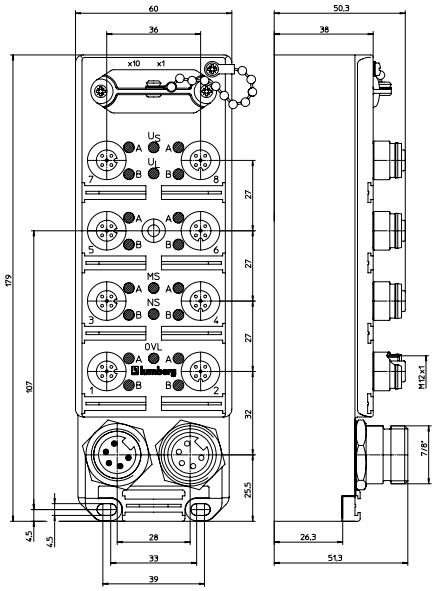
DeviceNet

# DeviceNet I/O Modules with 16-Digital Inputs

**0930 DSL 313**

## 16 IN (n)

DeviceNet device with16 digital inputs (n-switching) to connect standard sensors, M12 socket, rotary switches for addressing, 7/8" bus connection.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 8A | 7A | 6A | 5A | 4A | 3A | 2A | 1A |
| **Byte 1** | 8B | 7B | 6B | 5B | 4B | 3B | 2B | 1B |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 2** | OVL | - | - | - | - | - | - | - |

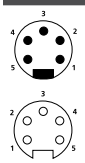
OVL: Overload status

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| Us | green | sensor power supply |
| UL | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Input M12**

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

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs

0930 DSL 313

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 800 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Input power supply** | **Us** |
| Voltage range min. | ($U_{System}$ - 1.5 V) |
| Sensor current | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 2 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Signal state “1" | < (Us - 11 V) |
| Signal state “0" | > (Us - 5 V) |
| Input current at 24 V | -10 mA |
| Channel type N.O. | n-switching |
| Number of digital channels | 16 |
| Channel status indicator | LED yellow per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website **http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 313 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

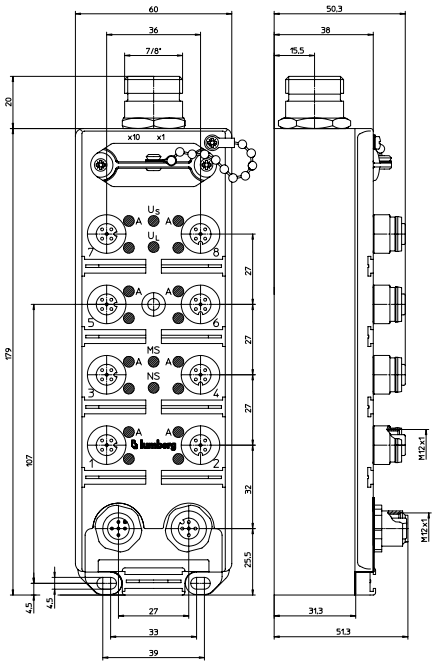
# DeviceNet I/O Modules with 8-Digital Outputs

**0930 DSL 107**

## 8 OUT

DeviceNet device with 8 digital outputs (2 A) to connect standard actuators, M12 socket, rotary switches for addressing, M12 bus connection, 7/8" actuator supply.

– Replaced 0930 DSL 103 –




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **Diagnostic: Input** | | | | | | | | |
| **Byte 0** | - | - | - | - | - | - | ASC | UVA |
| **M12 Output** | | | | | | | | |
| **Byte 0** | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

ASC: Actuator short-circuit
UVA: Undervoltage actuator

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A | yellow | channel status |
| 1...8 | red | actuator short-circuit / actuator overload |
| Us | green | actuator power supply |
| UL | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Actuator supply 7/8"**

1 = earth
2 = +24 V
3 = GND (0 V)

**Output M12**

1 = n.c.
2 = n.c.
3 = GND (0 V)
4 = OUT
5 = earth

1 = system

## DeviceNet I/O Modules with 8-Digital Outputs

0930 DSL 107

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Output power supply** | **Us** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | **Type 2 A acc. to IEC 61131-2** |
| Rated output current | 2 A per channel |
| Short circuit-proof | yes |
| Max. output current | 12 A |
| Overload-proof | yes |
| Number of digital channels | 8 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 107 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

DeviceNet

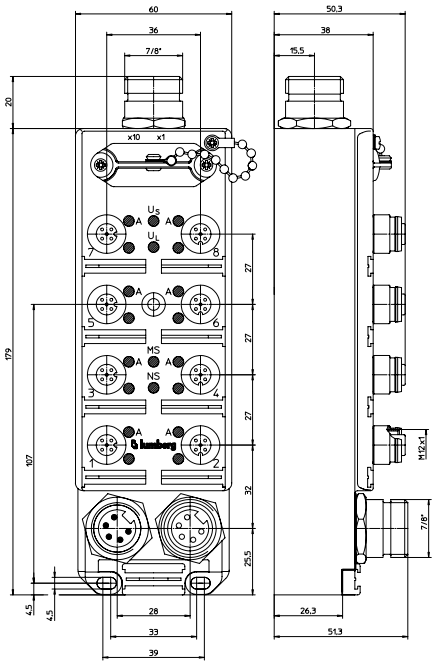
# DeviceNet I/O Modules with 8-Digital Outputs

**0930 DSL 311**

## 8 OUT

DeviceNet device with 8 digital outputs (2 A) to connect standard actuators, M12 socket, rotary switches for addressing, 7/8" bus connection, 7/8" actuator supply.

– Replaced 0930 DSL 303 and 0930 DSL 306 –



## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **Diagnostic: Input** | | | | | | | | |
| **Byte 0** | - | - | - | - | - | - | ASC | UVA |
| **M12 Output** | | | | | | | | |
| **Byte 0** | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

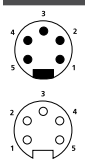
ASC: Actuator short-circuit
UVA: Undervoltage actuator

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A | yellow | channel status |
| 1...8 | red | actuator short-circuit / actuator overload |
| $U_S$ | green | actuator power supply |
| $U_L$ | green | system power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Actuator supply 7/8"**

1 = earth
2 = +24 V
3 = GND (0 V)

**Output M12**

1 = n.c.
2 = n.c.
3 = GND (0 V)
4 = OUT
5 = earth

1 = system



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 8-Digital Outputs

0930 DSL 311

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Output power supply** | **Us** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | **Type 2 A acc. to IEC 61131-2** |
| Rated output current | 2 A per channel |
| Short circuit-proof | yes |
| Max. output current | 12 A |
| Overload-proof | yes |
| Number of digital channels | 8 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 311 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

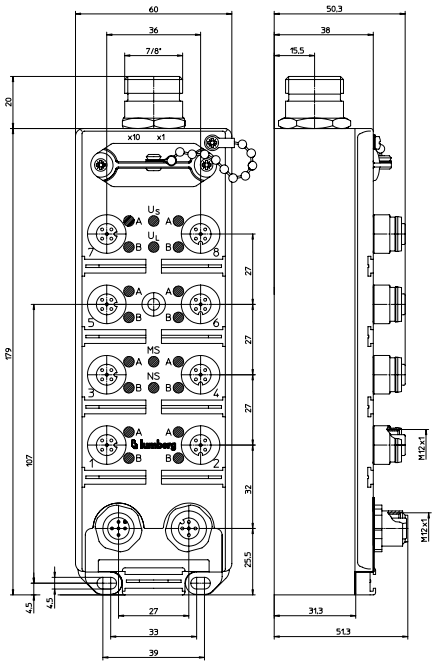
DeviceNet

# DeviceNet I/O Modules with 16-Digital Outputs

**0930 DSL 114**

## 16 OUT

DeviceNet device with 16 digital outputs (0.5 A) to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8" actuator supply.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **Diagnostic: Input** | | | | | | | | |
| **Byte 0** | - | - | - | - | - | - | ASC | UVA |
| **M12 Output** | | | | | | | | |
| **Byte 0** | 8A | 7A | 6A | 5A | 4A | 3A | 2A | 1A |
| **Byte 1** | 8B | 7B | 6B | 5B | 4B | 3B | 2B | 1B |

ASC: Actuator short-circuit
UVA: Undervoltage actuator

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| 1...8 A/B | red | actuator short-circuit / actuator overload |
| Us | green | actuator power supply |
| UL | green | system power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Actuator supply 7/8"**

1 = earth
2 = +24 V
3 = GND (0 V)

**Output M12**

1 = n.c.
2 = OUT B
3 = GND (0 V)
4 = OUT A
5 = earth

1 = system



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Outputs

0930 DSL 114

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Output power supply** | **Us** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | **Type 0.5 A acc. to IEC 61131-2** |
| Rated output current | 0.7 A per channel |
| Short circuit-proof | yes |
| Max. output current | 11.2 A |
| Overload-proof | yes |
| Number of digital channels | 16 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 114 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

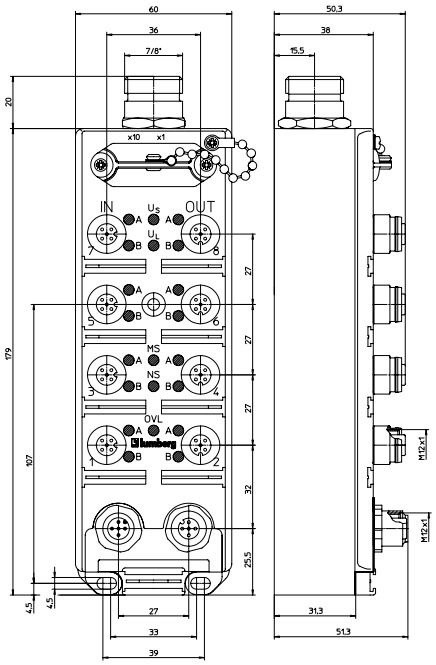
# DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

**0930 DSL 113**

## 8 IN / 8 OUT

DeviceNet device with 8 digital inputs to connect standard sensors and 8 digital outputs (0.5 A) to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8" actuator supply.

– Replaced 0930 DSL 102 –




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 7B | 5B | 3B | 1B | 7A | 5A | 3A | 1A |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 1** | OVL | - | - | - | - | - | ASC | UVA |
| **M12 Output** | | | | | | | | |
| **Byte 0** | 8B | 6B | 4B | 2B | 8A | 6A | 4A | 2A |

OVL: Overload status
ASC: Actuator short-circuit
UVA: Undervoltage actuator

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| 2, 4, 6, 8 A/B | red | actuator short-circuit / actuator overload |
| $U_S$ | green | actuator power supply |
| $U_L$ | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection M12**

1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Actuator supply 7/8"**

1 = earth
2 = +24 V
3 = GND (0 V)

**Input M12**

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

**Output M12**

1 = n.c.
2 = OUT B
3 = GND (0 V)
4 = OUT A
5 = earth

1 = system/sensors

## DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0930 DSL 113

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 80 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Input power supply** | |
| Voltage range | min. (UL - 1.5 V) |
| Total current of all sensors | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 2 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Signal state “1" | 11–30 V |
| Signal state “0" | -3–5 V |
| Input current at 24 V | 10 mA |
| Channel type N.O. | p-switching |
| Number of digital channels | 8 |
| Channel status indicator | LED yellow per channel |
| **Output power supply** | **Us** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | **Type 0.5 A acc. to IEC 61131-2** |
| Rated output current | 0.7 A per channel |
| Short circuit-proof | yes |
| Max. output current | 5.6 A |
| Overload-proof | yes |
| Number of digital channels | 8 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Included in delivery/accessories** | |
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**
Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website
**http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 113 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

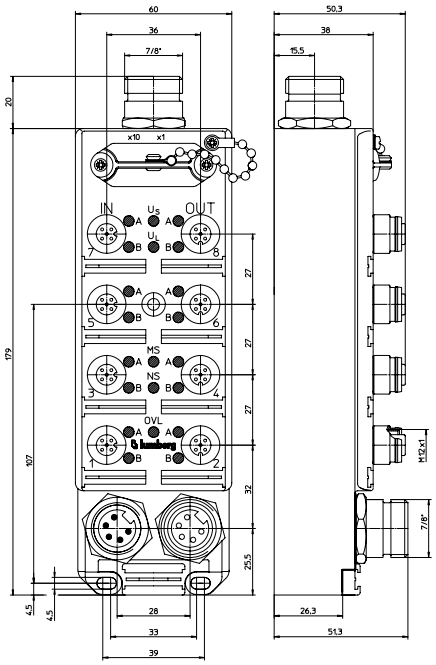
# DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

**0930 DSL 314**

## 8 IN / 8 OUT

DeviceNet device with 8 digital inputs to connect standard sensors and 8 digital outputs (0.5 A) to connect standard actuators, combined M12 socket, rotary switches for addressing, 7/8" bus connection, 7/8" actuator supply.

– Replaced 0930 DSL 302 and 0930 DSL 305 –




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Input** | | | | | | | | |
| **Byte 0** | 7B | 5B | 3B | 1B | 7A | 5A | 3A | 1A |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 1** | OVL | - | - | - | - | - | ASC | UVA |
| **M12 Output** | | | | | | | | |
| **Byte 0** | 8B | 6B | 4B | 2B | 8A | 6A | 4A | 2A |

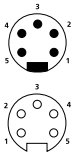
OVL: Overload status
ASC: Actuator short-circuit
UVA: Undervoltage actuator

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| 2, 4, 6, 8 A/B | red | actuator short-circuit / actuator overload |
| $U_S$ | green | actuator power supply |
| $U_L$ | green | system power supply |
| OVL | red | sensor short-circuit / sensor overload |
| MS | green | device is ready for operating |
| (Module status) | green flashing | incorrect or incomplete configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L

**Actuator supply 7/8"**

1 = earth
2 = +24 V
3 = GND (0 V)

**Input M12**

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

**Output M12**

1 = n.c.
2 = OUT B
3 = GND (0 V)
4 = OUT A
5 = earth

1 = system/sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0930 DSL 314

### Technical Data

| | |
|---|---|
| **Environmental** | |
| Degree of protection | IP 67 |
| Operating temperature range | -0°C (+32°F) to +60°C (+140°F) |
| **Mechanical** | |
| Weight | 570 g |
| Housing material | PUR |
| **Bus system** | **DeviceNet** |
| Transmission rate | max. 500 kBaud |
| Autobaud | yes |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |
| **Electronics power supply** | **UL** |
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | max. 800 mA |
| Reverse polarity protection | yes |
| Indication | LED green |
| **Input power supply** | |
| Voltage range | min. (UL - 1.5 V) |
| Total current of all sensors | max. 800 mA |
| Short circuit-proof | yes |
| Indication | LED green |
| **Inputs** | **Type 2 acc. to IEC 61131-2** |
| Rated input voltage | 24 V DC |
| Signal state “1" | 11–30 V |
| Signal state “0" | -3–5 V |
| Input current at 24 V | 10 mA |
| Channel type N.O. | p-switching |
| Number of digital channels | 8 |
| Channel status indicator | LED yellow per channel |
| **Output power supply** | **Us** |
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |
| **Outputs** | **Type 0.5 A acc. to IEC 61131-2** |
| Rated output current | 0.7 A per channel |
| Short circuit-proof | yes |
| Max. output current | 5.6 A |
| Overload-proof | yes |
| Number of digital channels | 8 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per channel |
| **Included in delivery/accessories** | |
| Dust covers M12 | 2 pieces |
| Attachable labels | 10 pieces |

**Communication modes**

Polled I/O message connection
Change of state/ cyclic message connection
Explicit message connection

**NOTE**: EDS-files can be downloaded from our website **http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 314 |

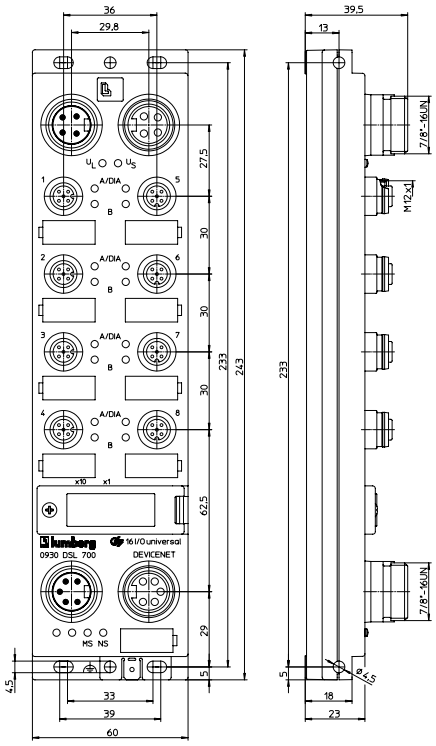
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

# DeviceNet I/O Modules with 16-Digital Inputs & 16-Digital Outputs

**0930 DSL 700**

## 16 IN / 16 OUT (Universal)

DeviceNet device with 16 digital I/O channels, channels can be used universally as inputs or outputs, M12 socket, rotary switches for addressing, 7/8" bus connection, 7/8" power supply.




## Bit Assignment

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| **M12 Intput** | | | | | | | | |
| **Byte 0** | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| **Byte 1** | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A |
| **Diagnostic: Input** | | | | | | | | |
| **Byte 2** | S8 | S7 | S6 | S5 | S4 | S3 | S2 | S1 |

S1...8: Socket Status 1...8

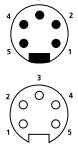
| **M12 Output** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Byte 0** | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A |
| **Byte 1** | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A |

## Diagnostic Indication

| LED | Indication | Condition |
|---|---|---|
| 1...8 A/B | yellow | channel status |
| 1...8 A/DIA | red | periphery fault |
| $U_S$ | green | sensor power supply |
| $U_L$ | green | actuator power supply |
| MS | green | device is ready for operating |
| (Module status) | green flashing | wrong configuration |
| | red | unrecoverable fault |
| | red flashing | recoverable fault |
| | red/green flashing | self test is running |
| NS | green | online, communication with PLC |
| (Network status) | green flashing | online, no communication with PLC |
| | red flashing | time-out state of one or more I/O connections |
| | red | failed communication device, BUS-OFF Status, duplicate MAC-ID |

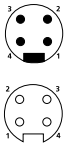
## Pin Assignment

**Bus connection 7/8"**



1 = Drain
2 = 24 V [1]
3 = GND (0 V) [1]
4 = CAN_H
5 = CAN_L
earth

**Power supply 7/8"**



1 = GND (0 V)
2 = Earth
3 = +24 V
3 = +24 V

**Input/Output M12**

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

1 = System: galvanically separated to sensors/actuators
2 = Actuators
3 = Sensors



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet I/O Modules with 16-Digital Inputs & 16-Digital Outputs

0930 DSL 700

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 |
| Operating temperature range | -10°C (+14°F) to +60°C (+140°F) |

**Mechanical**

| | |
|---|---|
| Weight | 380 g |
| Housing material | PBT |

| **Bus system** | **DeviceNet** |
|---|---|
| Transmission rate | max. 500 kBaud |
| Address range | 0–63 dec |
| Rotary address switches | 0–63 dec |
| Default address | 63 dec |

**System power supply**

| | |
|---|---|
| Rated voltage | 24 V DC |
| Voltage range | 11–30 V DC |
| Power consumption | 90 mA |
| Reverse polarity protection | yes |

| **Input power supply** | **Us** |
|---|---|
| Voltage range | 19–30 V DC |
| Sensor current | 200 mA (at Tamb 30°C) per socket |
| Short circuit-proof | yes |
| Indication | LED green |

| **Inputs** | **Type 3 acc. to IEC 61131-2** |
|---|---|
| Rated input voltage | 24 V DC |
| Channel type N.O. | p-switching |
| Number of digital channels | max. 16 |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per socket |

| **Output power supply** | **UL** |
|---|---|
| Rated voltage | 24 V DC |
| Voltage range | 19–30 V DC |
| Potential separation | present |
| Reverse polarity protection | yes/antiparallel diode |
| Indication | LED green |

**Outputs**

| | |
|---|---|
| Rated output current | 1.6 A per channel |
| Short circuit-proof | yes |
| Max. output current | 9 A (12 A*) per module |

* Test proven and approved under the following conditions:
- looped through System/Sensorpower supply max. 2,5 A
- Power supply cable STL 204 (5 x 1.00 mm2)
- Operating temperature range max. 40°C

| | |
|---|---|
| Overload-proof | yes |
| Number of digital channels max. | 16 |
| Channel type N.O. | p-switching |
| Channel status indicator | LED yellow per channel |
| Diagnostic indication | LED red per socket |

**Included in delivery/accessories**

| | |
|---|---|
| Dust covers M12 | 4 pieces |
| Attachable labels | 10 pieces |

**NOTE**: EDS-files can be downloaded from our website **http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml**

| Part Number |
|---|
| 0930 DSL 700 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

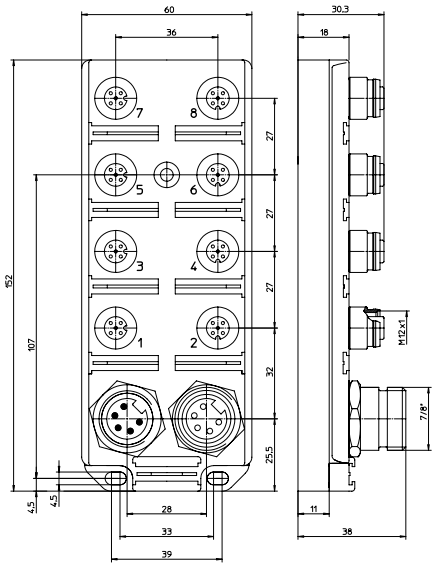
DeviceNet

# Passive DeviceNet Distribution Box

**0931 DNC 301**

## 8 x M12

Passive DeviceNet distribution box, 7/8" Bus-In/ Bus-Out connection for Trunk line, 8 x M12 branches for Drop line.




## Pin Assignment

| Bus connection 7/8" | Branch M12 |
|---|---|
| 1 = Drain<br>2 = 24 V [1]<br>3 = GND (0 V) [1]<br>4 = CAN_H<br>5 = CAN_L | 1 = Drain<br>2 = + 24 V<br>3 = GND (0 V)<br>4 = CAN_H<br>5 = CAN_L |



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## Passive DeviceNet Distribution Box

0931 DNC 301

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 |
| Operating temperature range | -10°C (+14°F) to +60°C (+140°F) |

**Mechanical**

| | |
|---|---|
| Weight | 350 g |
| Housing material | PUR |
| Total current | max. 8 A / max. 3 A per M12 branch |

| Part Number |
|---|
| 0931 DNC 301 |

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

## DeviceNet Thin Cables

**0935 253 103 | 0935 253 104 | 0935 253 105**

0935 253 103/... M:

Double-ended M12 Male connector to M12 female connector, 5 poles

0935 253 104/... M:

Single-ended M12 Male connector, 5 poles

0935 253 105/... M:

Single-ended M12 Female connector, 5 poles

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**0935 253 101**

0935 253 101/... M

Double-ended with 7/8" male connector and M12 female connector, 5 poles.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**0935 253 102**

0935 253 102/... M

Double-ended with M12 male connector and 7/8" female connector, 5 poles.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

### Pin Assignment

| Male connector / Female Connector, 5 Poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 253 103/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M \| 20 M \| 25 M |
| 0935 253 104/...M | 1 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 253 105/...M | 1 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 253 101/...M | 1 M \| 2 M \| 3 M \| 5 M |
| 0935 253 102/...M | 1 M \| 2 M \| 3 M \| 5 M |

## DeviceNet Thin Cables

**0935 253 301 | 0935 253 302 | 0935 253 303**

0935 253 301/... M:

Double-ended with 7/8" male connector and 7/8" female connector, 5 poles

0935 253 302/... M:

Single-ended with7/8" male connector, 5 poles

0935 253 303/... M:

Single-ended with7/8" female connector, 5 poles

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

### Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 253 301/...M | 1 M \| 3 M \| 5 M |
| 0935 253 302/...M | 1 M \| 3 M \| 5 M |
| 0935 253 303/...M | 1 M \| 3 M \| 5 M |

# DeviceNet Thin Cables, PVC Grey

**0935 614 101**

0935 614 101/... M

Double-ended cord set, 5 pole 7/8" male to M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**0935 614 103 | 0935 614 104 | 0935 614 105**

0935 614 103/... M

Double-ended cord set, 5 pole M12 male to M12 female connector.

0935 614 104/... M

Single-ended cord set, 5 pole M12 male connector.

0935 614 105/... M

Single-ended cord set, 5 pole M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

## Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | bare |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Thin Cables, PVC Grey

### Technical Data

| | |
|---|---|
| **Power pair** | |
| Conductor | 22 AWG stranded (0.34 mm2)<br>tinned copper |
| Insulation of lead | PVC, with nylon outer skin |
| Colors of the leads | Red - black |
| Shielding over pair | Twisted pair with foil shield |
| **Data pair** | |
| Conductor | 24 AWG stranded (0.25 mm2)<br>tinned copper |
| Insulation of leads | Foamed polyethelene |
| Colors of the leads | Blue - white |
| Shielding over pair | Twisted pair with foil shield |
| Common drain wire | 22 AWG stranded (0.34 mm2)<br>tinned copper |
| Overall shield | Braided tinned copper coverage ca. 65 % |
| Jacket | PVC, Ø .270" (6.9mm) -<br>According to ODVA "THIN"<br>Specification, color: gray |
| **Contacts** | Solid-machined brass<br>Gold over nickel plating<br>per DN spec. |
| **Mechanical data** | |
| Degree of protection | IP 67 / NEMA 6P |
| **Agency approvals** | UL = type CMB and AWM 2969<br>CSA = I/II A/B 80C 300V<br>FT4 |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 614 101/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 103/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 104/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 105/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |

## DeviceNet Thin Cables, PVC Grey

**0935 614 301 | 0935 614 302 | 0935 614 303**

0935 614 301/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female straight connector.

0935 614 302/... M

Single-ended cord set, 5 pole 7/8" male straight (external threads) connector.

0935 614 303/... M

Single-ended cord set, 5 pole 7/8" female straight connector.

**0935 614 310 | 0935 614 306**

0935 614 310/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female right angle connector.

0935 614 306/... M

Single-ended cord set, 5 pole 7/8" female right-angle connector.

**0935 614 309 | 0935 614 307**

0935 614 309/... M

Double-ended cord set, 5 pole 7/8" male right-angle (external threads) to 5 pole 7/8" female straight connector.

0935 614 307/... M

Single-ended cord set, 5 pole 7/8" male right-angle (external threads) connector.

### Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | bare |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Thin Cables, PVC Grey

### Technical Data

**Materials**

| | |
|---|---|
| Molded body | PUR, grey |
| Coupling nut | Aluminum, e-coated or anodized black |
| Contacts | Brass, gold over nickel plated |
| Insert | PUR, yellow |

**Electrical**

| | |
|---|---|
| Current rating | 4A |
| Voltage rating | 300 V |

**Mechanical**

| | |
|---|---|
| Temperature rating | -20°C to 75°C |
| Protection | IP 68, NEMA 6P |

**Cable Specifications**

| | |
|---|---|
| General | ODVA Class 2 Thin, Belden cable part number 3084A |
| Cable jacket | PVC, grey |
| Overall diameter | .280" |
| Conductor | 2PR 22AWG / 2PR 24AWG |
| UL approval | CL2, CMG |
| Drain wire | stranded 22AWG |
| Shielding | Pairs individually foil shielded overall foil |
| shield and 65% braid | |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 614 301/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 302/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 303/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 614 310/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 614 306/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 614 309/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 614 307/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |

# DeviceNet Thin High-Flex Cables, TPE Black

**0935 710 103 | 0935 710 104 | 0935 710 105**

0935 710 103/... M

Double-ended cord set, 5 pole M12 male to M12 female connector.

0935 710 104/... M

Single-ended cord set, 5 pole M12 male connector.

0935 710 105/... M

Single-ended cord set, 5 pole M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**0935 710 301 | 0935 710 302 | 0935 710 303**

0935 710 301/... M

Double-ended cord set, 5 pole 7/8" male to 7/8" female connector.

0935 710 302/... M

Single-ended cord set, 5 pole 7/8" male connector.

0935 710 303/... M

Single-ended cord set, 5 pole 7/8" female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 300 V |

**0935 710 101**

0935 710 101/... M

Double-ended cord set, 5 pole 7/8" male to M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

## Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Thin High-Flex Cables, TPE Black

### Technical Data

| | |
|---|---|
| **Power pair** | |
| Conductor | 22 AWG stranded (0.34 mm2)<br>tinned copper |
| Insulation of lead | PVC |
| Colors of the leads | Red - black |
| Shielding over pair | Twisted pair with foil shield |
| **Data pair** | |
| Conductor | 24 AWG stranded tinned copper |
| Insulation of leads | Foamed polyethelene |
| Colors of the leads | Blue - white |
| Shielding over pair | Twisted pair with foil shield |
| Common drain wire | 22 AWG stranded tinned copper |
| Overall shield | Aluminum/mylar foil shield, coverage 100%<br>and braided shield, coverage 65% |
| Jacket | TPE, Ø .280" (7.1mm) -<br>According to ODVA "THIN"<br>Specification, color: black |
| **Contacts** | Solid-machined brass<br>Gold over nickel plating<br>per DN spec. |
| **Mechanical data** | |
| Degree of protection | IP 67 / NEMA 6P |
| **Agency approvals** | UL = Type AWM 20626<br>CSA = I/II A/B 80C 300V<br>FT1 |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 710 103/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 104/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 105/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 301/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 302/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 303/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 710 101/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |

# DeviceNet Thin High-Flex Cables, TPE Gray

**0935 660 301 | 0935 660 302 | 0935 660 303**

0935 660 301/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female straight connector.

0935 660 302/... M

Single-ended cord set, 5 pole 7/8" male straight (external threads) connector.

0935 660 303/... M

Single-ended cord set, 5 pole 7/8" female straight connector.

**0935 660 310 | 0935 660 306**

0935 660 310/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female right angle connector.

0935 660 306/... M

Single-ended cord set, 5 pole 7/8" female right-angle connector.

**0935 660 309 | 0935 660 307**

0935 660 309/... M

Double-ended cord set, 5 pole 7/8" male right-angle (external threads) to 5 pole 7/8" female straight connector.

0935 660 307/... M

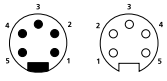
Single-ended cord set, 5 pole 7/8" male right-angle (external threads) connector.

**0935 660 308**

0935 660 308/... M

Double-ended cord set, 5 pole 7/8" male right-angle (external threads) to 5 pole 7/8" female right-angle connector.

## Pin Assignment

| male connector / female connector, 5 poles | | Function | Color |
|---|---|---|---|
|  | Pin 1 | Shield | bare |
| | Pin 2 | + 24 V | red |
| | Pin 3 | GND (0 V) | black |
| | Pin 4 | CAN_H | white |
| | Pin 5 | CAN_L | blue |



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Thin High-Flex Cables, TPE Gray

### Technical Data

**Materials**

| | |
|---|---|
| Molded body | TPU, grey |
| Coupling nut | Aluminum, anodized black |
| Contacts | CuZn Alloy, gold over nickel plated |
| Insert | TPU, yellow |

**Electrical**

| | |
|---|---|
| Current rating | 4A |
| Voltage rating | 300 V |

**Mechanical**

| | |
|---|---|
| Temperature rating | -30°C to 75°C |
| Protection | IP 67 |

**Cable Specifications**

| | |
|---|---|
| General | DeviceNet ODVA Thin, High Flex/C-Track |
| Cable jacket | TPE, grey, sunlight/oil resistant |
| Overall diameter | .289" |
| Conductor | 2X STP 22AWG Stranded TC |
| UL approval | NEC, CMG, CL2 |
| Drain wire | stranded 22AWG |
| Shielding | Pairs individually foil shielded overall foil shield and 65% braid |

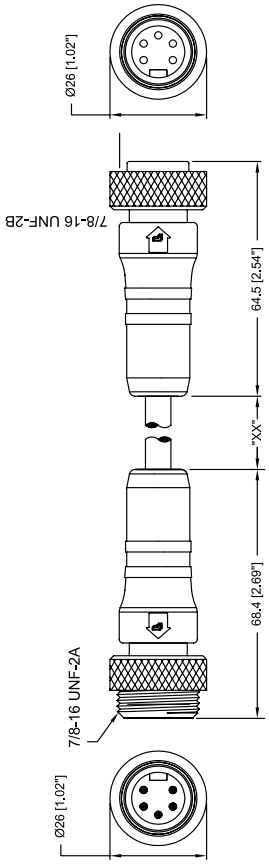
| Part Number | Standard Cable Lengths | |
|---|---|---|
| 0935 660 301/...M | 2 M I 5 M I 10 M | TPE UL |
| 0935 660 302/...M | 2 M I 5 M I 10 M | TPE UL |
| 0935 660 303/...M | 10 M | TPE UL |
| 0935 660 306/...M | 10 M | TPE UL |
| 0935 660 307/...M | 2 M I 5 M I 10 M | TPE UL |
| 0935 660 308/...M | 2 M I 5 M I 10 M | TPE UL |
| 0935 660 309/...M | 2 M I 5 M I 10 M | TPE UL |
| 0935 660 310/...M | 2 M I 5 M I 10 M | TPE UL |

# DeviceNet Thin High-Flex Cables, TPE Grey

**0935 S4711 301**

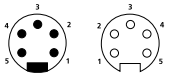
0935 S4711 301/... M

DeviceNet Double-ended cord set, 22 AWG High Flex, TPE Thin Cable, 5 pole, 7/8" male (external threads to 7/8" female (internal threads) connector.




## Pin Assignment / Wiring

**7/8" Male / Female**



1 = Bare
2 = Red
3 = Black
4 = White
5 = Blue



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Thin High-Flex Cables, TPE Grey

### Technical Data

| | |
|---|---|
| **Materials** | |
| Molded body | PUR, grey |
| Coupling nut | Aluminum, black anodized |
| Male contacts | Brass, gold over nickel plating |
| Female contacts | Brass, gold over nickel plating |
| Female insert | PUR, yellow |
| Male insert | PUR, yellow |
| **Electrical** | |
| Current rating | 5A |
| Voltage rating | 300 V |
| **Contacts** | Solid-machined brass<br>Gold over nickel plating<br>per DN spec. |
| **Mechanical data** | |
| Temperature | -30°C to +75°C |
| Degree of protection | IP 68 / NEMA 6P |
| **Cable specifications** | |
| Cable jacket | TPE, grey |
| Overall diameter | .289" |
| Conductors | |
| Pair 1 (twisted) | 22 AWG (high strand count), foil shield |
| Pair 2 (twisted) | 22 AWG (high strand count), foil shield |
| Braid shield | 65% coverage tinned copper |
| Drain | 22 AWG (high strand count) |
| UL recognition | CMG, CL2 |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 S4711 301/...M | 0.5 M I 1 M I 2 M I 3 M I 4 M I 5 M I 7 M I 10 M |

# DeviceNet Mid High-Flex Cables, TPE Black

**0935 709 103 | 0935 709 104 | 0935 709 105**

0935 709 103/... M

Double-ended cord set, 5 pole M12 male to M12 female connector.

0935 709 104/... M

Single-ended cord set, 5 pole M12 male connector.

0935 709 105/... M

Single-ended cord set, 5 pole M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**0935 709 301 | 0935 709 302 | 0935 709 303**

0935 709 301/... M

Double-ended cord set, 5 pole 7/8" male to 7/8" female connector.

0935 709 302/... M

Single-ended cord set, 5 pole 7/8" male connector.

0935 709 303/... M

Single-ended cord set, 5 pole 7/8" female connector.

**Electrical**

| | |
|---|---|
| Current rating | 8 A power / 4 A signal |
| Voltage rating | 300 V |

**0935 709 101**

0935 709 101/... M

Double-ended cord set, 5 pole 7/8" male to M12 female connector.

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

## Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Mid High-Flex Cables, TPE Black

### Technical Data

| | |
|---|---|
| **Power pair** | |
| Conductor | 16 AWG stranded tinned copper |
| Insulation of lead | PVC |
| Colors of the leads | Red - black |
| Shielding over pair | Twisted pair with foil shield |
| **Data pair** | |
| Conductor | 20 AWG stranded tinned copper |
| Insulation of leads | Foamed polyethelene |
| Colors of the leads | Blue - white |
| Shielding over pair | Twisted pair with foil shield |
| Common drain wire | 20 AWG stranded tinned copper |
| Overall shield | Foil Shield: Aluminum/mylar foil shield, coverage 100%, Braided Shield: tinned copper, coverage 65% |
| Jacket | TPE, Ø .380" (9.7mm) - According to ODVA "MID" Specification, color: black |
| **Contacts** | Solid-machined brass<br>Gold over nickel plating<br>per DN spec. |
| **Mechanical data** | |
| Degree of protection | IP 67 / NEMA 6P |
| **Agency approvals** | UL = Type AWM 20626<br>CSA = I/II A/B 80C 300V<br>FT1 |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 709 103/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 104/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 105/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 301/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 302/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 303/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 709 101/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |

## DeviceNet Thick Cables, PVC Grey

**0935 613 301 | 0935 613 302 | 0935 613 303**

0935 613 301/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female straight connector.

0935 613 302/... M

Single-ended cord set, 5 pole 7/8" male straight (external threads) connector.

0935 613 303/... M

Single-ended cord set, 5 pole 7/8" female straight connector.

**0935 613 310 | 0935 613 306**

0935 613 310/... M

Double-ended cord set, 5 pole 7/8" male straight (external threads) to 5 pole 7/8" female right angle connector.

0935 613 306/... M

Single-ended cord set, 5 pole 7/8" female right-angle connector.

**0935 613 309 | 0935 613 307**

0935 613 309/... M

Double-ended cord set, 5 pole 7/8" male right-angle (external threads) to 5 pole 7/8" female straight connector.

0935 613 307/... M

Single-ended cord set, 5 pole 7/8" male right-angle (external threads) connector.

### Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | bare |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Thick Cables, PVC Grey

### Technical Data

**Materials**

| | |
|---|---|
| Molded body | PUR, grey |
| Coupling nut | Aluminum, e-coated or anodized black |
| Contacts | Brass, gold over nickel plated |
| Insert | PUR, yellow |

**Electrical**

| | |
|---|---|
| Current rating | 8A power<br>4A signal |
| Voltage rating | 300 V |

**Mechanical**

| | |
|---|---|
| Temperature rating | -30°C to 90°C |
| Protection | IP 68, NEMA 6P |

**Cable Specifications**

| | |
|---|---|
| General | DeviceNet thick cable |
| Cable jacket | PVC, grey |
| Overall diameter | .480" |
| Conductor | 2PR 15AWG / 2PR 18AWG |
| UL approval | CMG/PLTC-ER |
| Drain wire | stranded 18AWG |
| Shielding | Pairs individually foil shielded overall foil shield and 65% braid |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 613 301/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 613 302/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 613 303/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 613 310/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 613 306/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 613 309/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |
| 0935 613 307/...M | 0.3 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M |

# DeviceNet Type V Trunk Cable, PVC Grey

**0935 636 301 | 0935 636 302 | 0935 636 303**

0935 636 301/... M

Double-ended cord set, 5 pole 7/8" male to 7/8" female connector.

0935 636 302/... M

Single-ended cord set, 5 pole 7/8" male connector.

0935 636 303/... M

Single-ended cord set, 5 pole 7/8" female connector.

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 600 V |

## Pin Assignment

| male connector / female connector, 5 poles | Function | Color |
|---|---|---|
| Pin 1 | Shield | |
| Pin 2 | + 24 V | red |
| Pin 3 | GND (0 V) | black |
| Pin 4 | CAN_H | white |
| Pin 5 | CAN_L | blue |

## DeviceNet Type V Trunk Cable, PVC Grey

### Technical Data

| | |
|---|---|
| **Power pair** | |
| Conductor | 16 AWG stranded tinned copper |
| Insulation of lead | PVC |
| Colors of the leads | Red - black |
| Shielding over pair | Twisted pair with foil shield |
| **Data pair** | |
| Conductor | 18 AWG stranded tinned copper |
| Insulation of leads | Polypropylene |
| Colors of the leads | Blue - white |
| Shielding over pair | Twisted pair with foil shield |
| Common drain wire | 16 AWG stranded tinned copper |
| Overall shield | Braided, tinned copper, coverage 65% |
| Jacket | PVC, Ø .525" (13.3mm) -<br>According to ODVA "TYPE V"<br>Specification, color: gray |
| **Contacts** | Solid-machined brass<br>Gold over nickel plating<br>per DN spec. |
| **Mechanical data** | |
| Degree of protection | IP 67 / NEMA 6P |
| **Agency approvals** | UL = TC<br>CSA = AWM I/II A/B 80C 300V<br>FT4 |

| Part Number | Standard Cable Lengths |
|---|---|
| 0935 636 301/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 636 302/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |
| 0935 636 303/...M | 0.3 M \| 0.6 M \| 1 M \| 2 M \| 3 M \| 5 M \| 10 M \| 15 M |

DeviceNet

## DeviceNet Power Supply Cables

### 0905 203 302 | 0905 203 301

0905 203 302/0.6 M

Double-ended with 7/8" male connector and 7/8" female connector, 3 poles, 0.6 M.

0905 203 301/... M

Single-ended with 7/8" female connector, 3 poles.

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 300 V |

| 7/8" Male/Female 3-Poles | Leads |
|---|---|
| Pin 1 | green/yellow |
| Pin 2 | 1 |
| Pin 3 | 2 |

### 0905 356 312 | 0905 356 311 | 0905 356 313

0905 356 312/0.6 M

Double-ended with 7/8" male connector and 7/8" female connector, 4 poles, 0.6 M.

0905 356 311/... M

Single-ended with 7/8" female connector, 4 poles.

0905 356 313/... M

Single-ended with 7/8" male connector, 4 poles.

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 300 V |

| 7/8" Male/Female 4-Poles | Leads |
|---|---|
| Pin 1 | 1 |
| Pin 2 | 2 |
| Pin 3 | green/yellow |
| Pin 4 | 3 |

### 0905 356 305 | 0905 356 304 | 0905 356 306

0905 356 305/0.6 M

Double-ended with 7/8" male connector and 7/8" female, 90° connector, 4 poles, 0.6 M.

0905 356 304/... M

Single-ended with 7/8" female, 90° connector, 4 poles.

0905 356 306/... M

Single-ended with 7/8" male, 90° connector, 4 poles.

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 300 V |

| 7/8" Male/Female 4-Poles (90°) | Leads |
|---|---|
| Pin 1 | 1 |
| Pin 2 | 2 |
| Pin 3 | green/yellow |
| Pin 4 | 3 |

| Part Number | | | Standard Cable Lengths |
|---|---|---|---|
| 0905 203 302/0.6 M | | | |
| 0905 203 301/...M | | | 5 M \| 10 M \| 15 M |
| | 0905 356 312/0.6 M | 0905 356 305/0.6 M | |
| | 0905 356 311/... M | 0905 356 304/... M | 5 M \| 10 M \| 15 M |
| | 0905 356 313/... M | 0905 356 306/... M | 5 M \| 10 M \| 15 M |

DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Terminating Resistors, 5-pole

**0939 CTX 101**

DeviceNet terminating resistor, M12 male connector, 5 poles.

**0939 CTX 102**

DeviceNet terminating resistor, M12 female connector, 5 poles.

**0939 CTX 301**

DeviceNet terminating resistor, 7/8" male connector, 5 poles.

**0939 CTX 302**

DeviceNet terminating resistor, 7/8" female connector, 5 poles.

**0939 CTX 105**

DeviceNet terminating resistor, M12 male connector, 5 poles.

**0939 CTX 106**

DeviceNet terminating resistor, M12 female connector, 5 poles.

**0939 CTX 303**

DeviceNet terminating resistor, 7/8" male connector, 5 poles.

**0939 CTX 304**

DeviceNet terminating resistor, 7/8" female connector, 5 poles.

| Part Number | |
|---|---|
| 0939 CTX 101 | 0939 CTX 105 |
| 0939 CTX 102 | 0939 CTX 106 |
| 0939 CTX 301 | 0909 CTX 303 |
| 0939 CTX 302 | 0909 CTX 304 |

DeviceNet

# DeviceNet T-Connectors / Taps

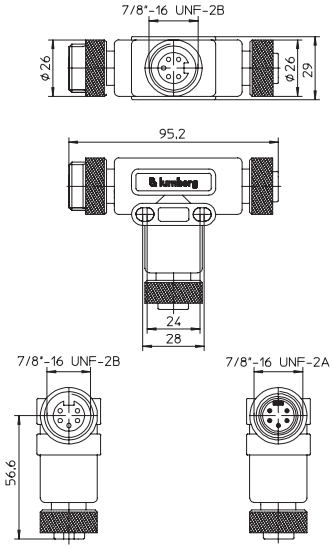
**0906 UTP 301**

## 7/8" Male to 2 x 7/8" Female

Splitter/T-connector, with one 7/8" female, one 7/8" male, and one 7/8" female connectors, 5-poles - overmold color grey (standard).

– especially suitable for DeviceNet modules with 7/8" bus connection –

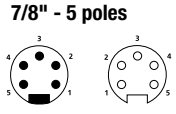
**0906 UTP 301**




## Pin Assignments

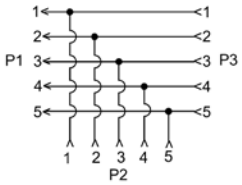
### Face Views

**7/8" - 5 poles**



**Male** P1 | **Female** P2 and P3

### Wiring Diagrams






DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet T-Connectors / Taps

0906 UTP 301

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 68 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing / Molded body | PUR, yellow |
| Insert | PUR, yellow |
| Contact | Solid-machined brass, gold over nickel plated |
| Coupling nut | Aluminum, black anodized |

**Electrical**

| | |
|---|---|
| Current rating | |
| P1 and P3: | 8A (trunk) |
| P2: | 4A (drop) |
| Voltage rating | 300 V |

| Part Number | Pins | Characteristics |
|---|---|---|
| 0906 UTP 301 | **5** | |

DeviceNet

# DeviceNet T-Connectors / Taps

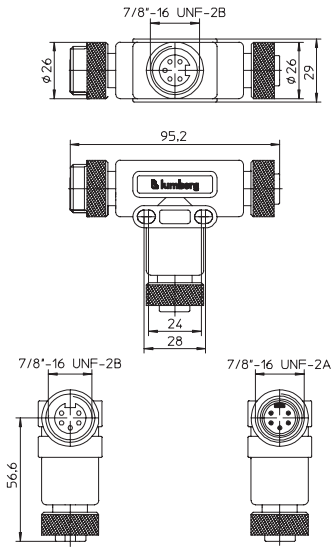
**0906 UTP 301-Y**

## 7/8" Male to 2 x 7/8" Female

Splitter/T-connector, with one 7/8" female, one 7/8" male, and one 7/8" female connectors, 5-poles - overmold color yellow.

– especially suitable for DeviceNet modules with 7/8" bus connection –

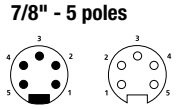
**0906 UTP 301-Y**




## Pin Assignments

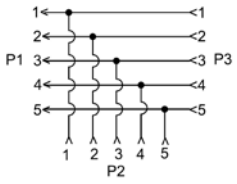
**Face Views**

**7/8" - 5 poles**



**Male** P1 **Female** P2 and P3

**Wiring Diagrams**






DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet T-Connectors / Taps

0906 UTP 301-Y

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 68 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing / Molded body | PUR, yellow |
| Insert | PUR, yellow |
| Contact | Solid-machined brass, gold over nickel plated |
| Coupling nut | Aluminum, black anodized |

**Electrical**

| | |
|---|---|
| Current rating | |
| P1 and P3: | 8A (trunk) |
| P2: | 4A (drop) |
| Voltage rating | 300 V |

| Part Number | Pins | Characteristics |
|---|---|---|
| 0906 UTP 301-Y | **5** | |

DeviceNet

# DeviceNet T-Connectors / Taps

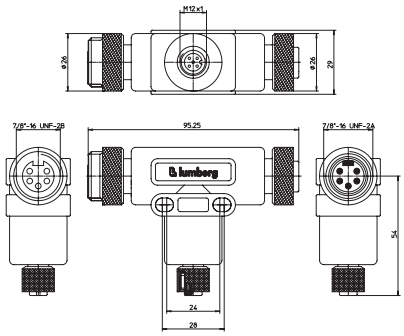
**0906 UTP 302 | 0906 UTP 302-Y**

## M12 Female to 1 x 7/8" Male and 1 x 7/8" Female

Splitter/T-connector, with one M12 female, one 7/8" male and one 7/8" female connectors, 5-poles.

– especially suitable for DeviceNet and CANopen modules with M12 bus connection –

**0906 UTP 302 | 0906 UTP 302-Y**



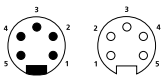

## Pin Assignments

### Face Views

**M12 - 5 poles**

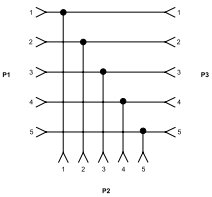
1 = drain
2 = + 24 V
3 = GND (0 V)
4 = CAN_H
5 = CAN_L

**7/8" - 5 poles**



1 = drain
2 = + 24 V
3 = GND (0 V)
4 = CAN_H
5 = CAN_L

### Wiring Diagram






DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet T-Connectors / Taps

0906 UTP 302 | 0906 UTP 302-Y

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 68 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing / Molded body | PUR, yellow |
| Insert | PUR |
| Contact | CuZn, pre-nickeled and gold-plated acc. to DeviceNet specification |
| Coupling nut | Aluminum, e-coated or anodized black (7/8")<br>Brass, nickel plated (M12) |

**Electrical**

| | |
|---|---|
| Nominal current | Trunk: 8 A<br>Drop: 4 A |
| Nominal voltage | 60 V |

| Part Number | Pins | Characteristics |
|---|---|---|
| 0906 UTP 302 | 5 | |
| 0906 UTP 302-Y | 5 | |

# DeviceNet T-Connectors / Taps

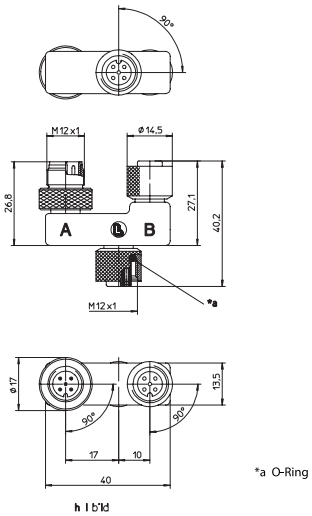
## 0906 UTP 101

### 1 x M12 Male and 2 x M12 Female

Splitter/T-connector, with one M12 male and two M12 female connectors, 5-poles.

– especially suitable for DeviceNet and CANopen modules with M12 bus connection –

**0906 UTP 101**

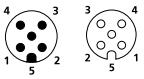



*a O-Ring

## Pin Assignments

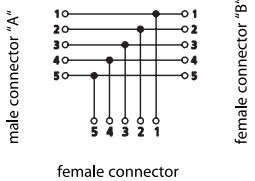
### Face Views

**M12 - 5-poles**




1 = drain
2 = + 24 V
3 = GND (0 V)
4 = CAN_H
5 = CAN_L

### Wiring Diagrams




female connector



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet T-Connectors / Taps

0906 UTP 101

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing / Molded body | TPU |
| Insert | TPU |
| Contact | CuZn, pre-nickeled and gold-plated |
| Coupling nut | CuZn, brass, nickeled |
| O-ring | FKM |

**Electrical**

| | |
|---|---|
| Contact resistance | ≤ 5 mΩ |
| Nominal current at 40°C | 4 A per outlet / 4 A max. total |
| Nominal voltage | 60 V |
| Test voltage | 1.5 kV eff. / 60 s |
| Insulation resistance | > $10^9$ Ω |
| Pollution degree | 3 |

| Part Number | Pins | Characteristics |
|---|---|---|
| 0906 UTP 101 | **5** | |

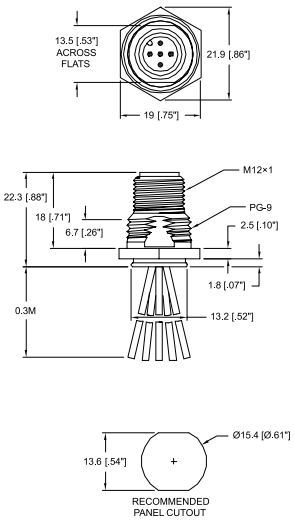
# DeviceNet Receptacles, M12

## 0936 DMC 151 I 0936 DFC 151

### 5-Pole, Male

DeviceNet, 5-pole, male, M12 receptacle, 0.3 M leads, THIN specification, PG 9 thread for panel mount.

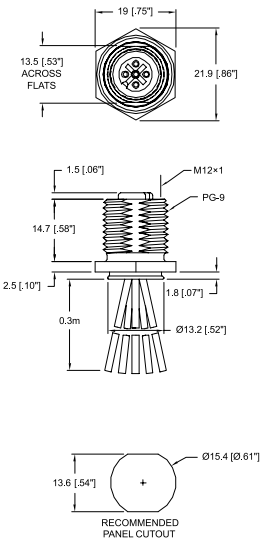
**0936 DMC 151**



### 5-Pole, Female

DeviceNet, 5-pole, female, M12 receptacle, 0.3 M leads, THIN specification, PG 9 thread for panel mount.

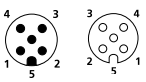
**0936 DFC 151**




## Pin Assignments

### Face Views, M12

**5 pole**




1 = drain
2 = +24 V DC
3 = 0 V
4 = CAN_H
5 = CAN_L

## DeviceNet Receptacles, M12

0936 DMC 151 | 0936 DFC 151

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing | Brass, nickel-plated |
| Insert | Polyamide, black |
| Contact | Brass, gold over nickel-plated |
| Panel nut | Brass, nickel plated |

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**Wiring Specifications**

| | |
|---|---|
| Conductor | 22 AWG, stranded |
| Insulation | PVC |
| UL recognition | UL 1007 |

| Part Number | | Pins | Characteristics |
|---|---|---|---|
| **Male** | **Female** | | |
| 0936 DMC 151/0.3 M | | **5** | |
| | 0936 DFC 151/0.3M | **5** | |

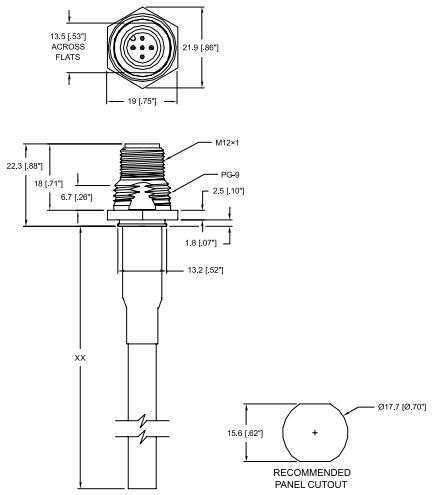
# DeviceNet Receptacles, M12

**0936 DMC 152 I 0936 DFC 152**

## 5-Pole, Male

DeviceNet, 5-pole, male M12 receptacle, assembled THIN cable, PG 9 thread for panel mount.

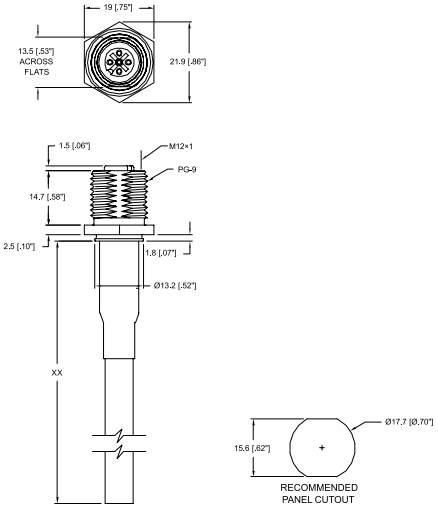
**0936 DMC 152**



## 5-Pole, Female

DeviceNet, 5-pole, female M12 receptacle, assembled THIN cable, PG 9 thread for panel mount.

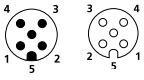
**0936 DFC 152**




## Pin Assignments

**Face Views, M12**

**5 pole**




1 = drain
2 = +24 V DC
3 = 0 V
4 = CAN_H
5 = CAN_L

## DeviceNet Receptacles, M12

0936 DMC 152 | 0936 DFC 152

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Mechanical**

| | |
|---|---|
| Housing | Brass, nickel-plated |
| Insert | 0936 DMC 152: PUR, yellow<br>0936 DFC 152: PUR, black |
| Contact | Brass, gold over nickel-plated |
| Panel nut | Brass, nickel plated |

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 250 V |

**Cable Specifications**

| | |
|---|---|
| Cable jacket | PVC, grey |
| Overall diameter | .270" |
| Conductor | 1 Pair 22 AWG, 1 Pair 24 AWG |
| Cable construction | according to Devicenet THIN cable specification |

| Part Number | | Pins | Cable Lengths | Characteristics |
|---|---|---|---|---|
| **Male** | **Female** | | | |
| 0936 DMC 152/...M | | **5** | 2 M | |
| | 0936 DFC 152/...M | **5** | 2M | |

DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

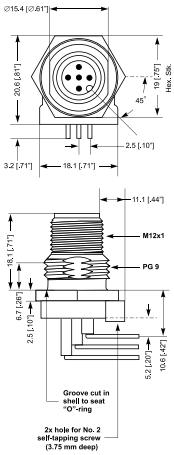
# DeviceNet Receptacles, M12 PCB

**RSWF5-PCB | RKWF5-PCB**

## 5-Pole, Male

DeviceNet, 5-pole, male M12 receptacle, 90° PCB mount, PG9 panel cut-out.

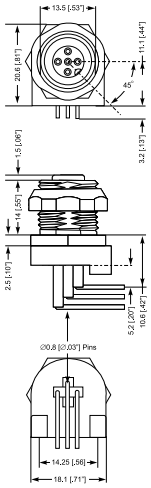
**RSWF5-PCB**



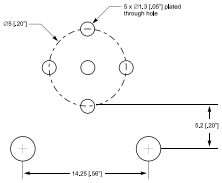
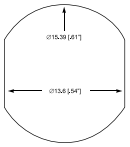
## 5-Pole, Female

DeviceNet, 5-pole, female M12 receptacle, 90° PCB mount, PG9 panel cut-out.

**RKWF5-PCB**




## Pin Assignments

| Face Views, M12 | Recommended PCB Pattern | Recommended Panel Cutout |
|---|---|---|
| **5 pole**<br> <br>1 = drain<br>2 = +24 V DC<br>3 = 0 V<br>4 = CAN_H<br>5 = CAN_L |  |  |

## DeviceNet Receptacles, M12 PCB

RSWF5-PCB | RKWF5-PCB

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Contact | Solid, machined brass<br>Gold over nickel plating per DN specifications |
| Insert | RSWF 5-PCB: Nylon, black<br>RKWF 5-PCB: PUR, black |
| Shell | Brass, nickel plated |
| Coupling nut | Brass, nickel plated |

**Mechanical**

| | |
|---|---|
| O-ring | viton |
| PCB mount | 5-pin insertion with hole for 2 self-tapping screw in base |

**Electrical**

| | |
|---|---|
| Current rating | 4A |
| Voltage rating | 250 V |

| Part Number | | Pins | Characteristics |
|---|---|---|---|
| **Male** | **Female** | | |
| RSWF5-PCB | | **5** | |
| | RKWF5-PCB | **5** | |

DeviceNet

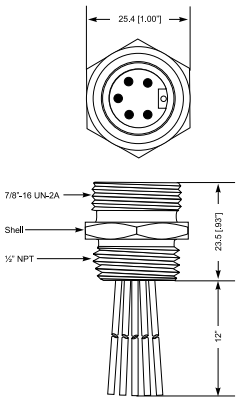
# DeviceNet Receptacles, 7/8"

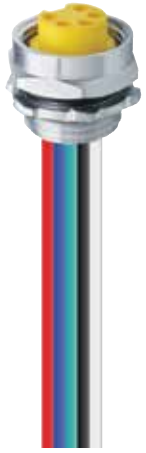
**0936 DMC 352 I 0936 DFC 352**

## 5-Pole, Male

DeviceNet, 5-pole, male 7/8" receptacle, 0.3 meter leads, THICK specification, 1/2 NPT thread for panel mount.

**0936 DMC 352**

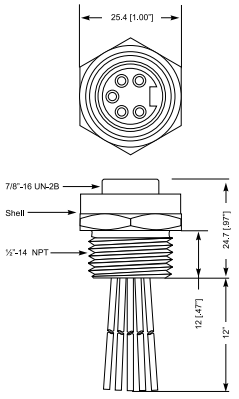


## 5-Pole, Female

DeviceNet, 5-pole, female 7/8" receptacle, 0.3 meter leads, THICK specification, 1/2 NPT thread for panel mount.

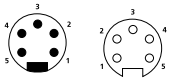
**0936 DFC 352**




## Pin Assignments

**Face Views, 7/8"**

**5 pole**



1 = green
2 = red
3 = black
4 = white
5 = blue



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Receptacles, 7/8"

0936 DMC 352 | 0936 DFC 352

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Contacts | Brass, gold over nickel plated per DeviceNet specification |
| Insert | PUR, yellow |
| O-ring | Viton |
| Shell | Male: Zinc die cast, (e-coated black), Female: Alumimum, clear anodized |
| Panel nut | Steel, nickel plated |

**Electrical**

| | |
|---|---|
| Current ratingq | 8 A |
| Voltage rating | 600 V |

| Part Number | | Pins | Characteristics |
|---|---|---|---|
| **Male** | **Female** | | |
| 0936 DMC 352/0.3M | | **5** | |
| | 0936 DFC 352/0.3M | **5** | |

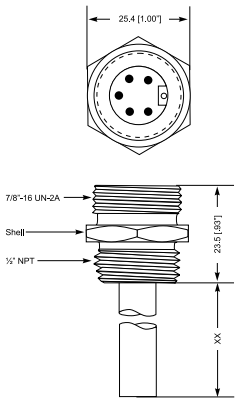
# DeviceNet Receptacles, 7/8"

**0936 DMC 353 I 0936 DFC 353**

## 5-Pole, Male

DeviceNet, 5-pole, male 7/8" receptacle, assembled THICK cable, 1/2NPT thread for panel mount.

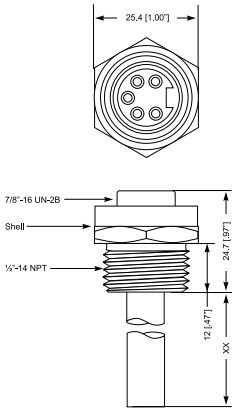
**0936 DMC 353**



## 5-Pole, Female

DeviceNet, 5-pole, female 7/8" receptacle, assembled THICK cable, 1/2NPT thread for panel mount.

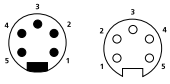
**0936 DFC 353**




## Pin Assignments

**Face Views, 7/8"**

**5 pole**



1 = green
2 = red
3 = black
4 = white
5 = blue



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Receptacles, 7/8"

0936 DMC 353 | 0936 DFC 353

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Contacts | Brass, gold over nickel plated per DeviceNet specification |
| Insert | PUR, yellow |
| O-ring | Viton |
| Shell | Male: Zinc die cast, (e-coated black), Female: Alumimum, clear anodized |
| Panel nut | Steel, nickel plated |

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 300 V |

| **Cable specifications** | **Thick cable (613)** |
|---|---|
| Outer jacket | Oil resistant PVC (light grey) |
| Conductor | 15AWG tinned copper power pair<br>18AWG tinned copper data pair |
| Outer diameter | 0.430" nominal |
| Conductor insulation | Foamed PE (signal) & PVC with nylon skin (power) |

| Part Number | | Pins | Cable Lengths | Characteristics |
|---|---|---|---|---|
| **Male** | **Female** | | | |
| 0936 DMC 353/...M | | **5** | 0.5 M / 1 M / 2 M / 5 M | |
| | 0936 DFC 353/...M | **5** | 1 M / 2 M / 5 M | |

DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

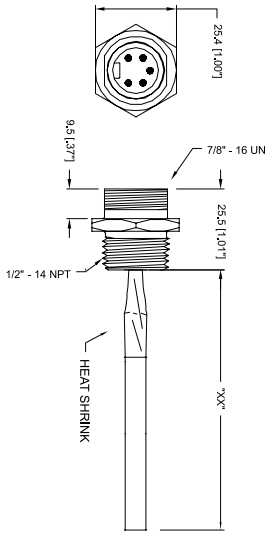
# DeviceNet Receptacles, 7/8"

**0936 DMC 355 I 0936 DFC 355**

## 5-Pole, Male

DeviceNet, 5-pole, male 7/8" receptacle, assembled THIN cable, 1/2" NPT thread for panel mount.

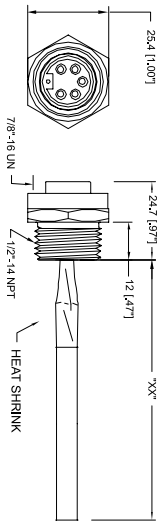
**0936 DMC 355**




## 5-Pole, Female

DeviceNet, 5-pole, female 7/8" receptacle, assembled THIN cable, 1/2" NPT thread for panel mount.

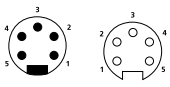
**0936 DFC 355**




## Pin Assignments

**Face Views, 7/8"**

**5 pole**



1 = green
2 = red
3 = black
4 = white
5 = blue



DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Receptacles, 7/8"

0936 DMC 355 | 0936 DFC 355

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Housing | DMC: Zinc die cast, e-coated black<br>DFC: Aluminum, anodized clear |
| Insert | PUR, yellow |
| Contacts | Brass, gold over nickel plated<br>per DN specification |

**Electrical**

| | |
|---|---|
| Current rating | 4 A |
| Voltage rating | 300 V |

| **Cable specifications** | **Thin cable (614)** |
|---|---|
| Cable jacket | PVC, grey |
| Overall diameter | .270" |
| Conductor | 1Pair, 22 AWG / 1 Pair 24 AWG |
| Cable construction | According to DeviceNet<br>THIN cable specifications |

| Part Number | | Pins | Cable Lengths | Characteristics |
|---|---|---|---|---|
| **Male** | **Female** | | | |
| 0936 DMC 355/...M | | **5** | 1 M / 2 M / 3 M / 4 M / 5 M | |
| | 0936 DFC 355/...M | **5** | 1 M / 2 M / 3 M / 4 M / 5 M | |

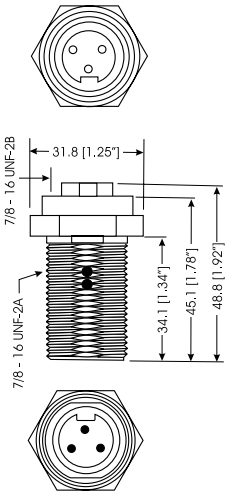
# DeviceNet Receptacles, Panel Feed Through, 7/8"

**0906 UAC 301 | 0906 UAC 302 | 0906 UAC 303**

## 5-Pole, Male

DeviceNet, 3-, 4-, and 5-pole, male to female 7/8" panel feed through receptacle.

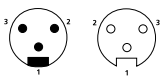
**0906 UAC 303**



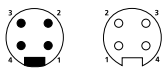

## Pin Assignments

**Face Views, 7/8"**

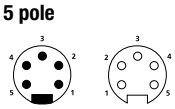
**3 pole**



**4 pole**



**5 pole**





DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Receptacles, 7/8"

0906 UAC 301 | 0906 UAC 302 | 0906 UAC 303

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Contacts | Brass, gold over nickel plated |
| Insert | PUR, yellow |
| O-ring | Viton |
| Shell | Brass, nickel plated |
| Panel nut | Zinc diecast, zinc plated |

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 600 V |

| Part Number | Pins | | Characteristics |
|---|---|---|---|
| 0906 UAC 301 | 3 | | |
| 0906 UAC 302 | 4 | | |
| 0906 UAC 303 | 5 | | |

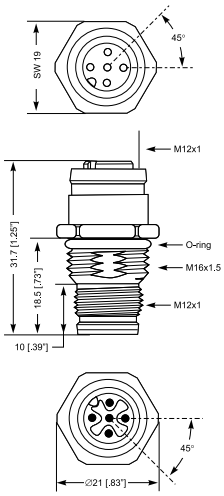
# DeviceNet Receptacles, Panel Feed Through, M12

**FWD 5**

## 5-Pole, Male

DeviceNet, 5-pole, male to female M12 panel feed through receptacle.

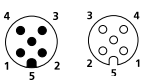
**FWD 5**




## Pin Assignments

**Face Views, M12**

**5 pole**



## DeviceNet Receptacles, 7/8"

FWD 5

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +80°C (+175°F) |

**Materials**

| | |
|---|---|
| Housing / Molded body | CuZn, nickel-plated |
| Insert male connector | PA 6.6 |
| Insert female connector | TPU, self-extinguishing |
| Contacts | CuZn, pre-nickeled and 0.8 microns gold-plated |
| O-ring | FKM |

**Electrical**

| | |
|---|---|
| Contact resistance | ≤5mΩ |
| Nominal current at 40° | 4 A |
| Nominal voltage | 60 V |
| Test voltage | 1.5 kV eff. / 60 s |
| Insulation resistance | $>10^9\Omega$ |

| Part Number | Pins | | Characteristics |
|---|---|---|---|
| FWD 5 | **5** | | |

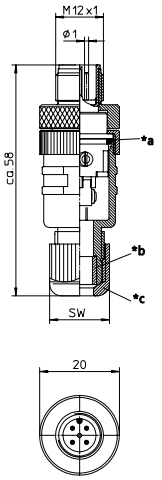
# DeviceNet Field Attachable Connectors, M12

**0936 DMC 101 I 0936 DFC 101**

## 5-Pole, Male

DeviceNet, 5-pole, male field attachable M12 connector with screw terminal connection, cable outlet suitable for THIN DeviceNet cable, DeviceNet color coding.

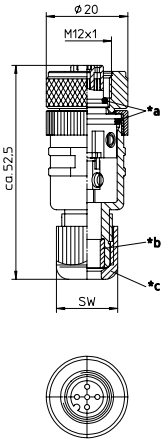
**0936 DMC 101**



## 5-Pole, Female

DeviceNet, 5-pole, female field attachable M12 connector with screw terminal connection, cable outlet suitable for THIN DeviceNet cable, DeviceNet color coding.

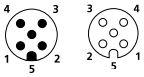
**0936 DFC 101**




## Pin Assignments

**Face Views / M12**

**5 pole**






DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Field Attachable Connectors, M12

0936 DMC 101 | 0936 DFC 101

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -25°C (-13°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Housing / Molded body | PA |
| Insert | PA |
| Contact | CuZn, pre-coppered |
| Coupling nut | CuZn, nickel-plated |
| O-ring | FKM |

**Mechanical**

| | |
|---|---|
| Mode of connection | Screw terminals |
| Connectable conductor | max. 0.75 $mm^2$ |

**Electrical**

| | |
|---|---|
| Contact resistance | ≤5mΩ |
| Current rating | 4 A |
| Voltage rating | 250 V |

| Part Number | | Pins | | Characteristics |
|---|---|---|---|---|
| 0936 DMC 101 | | **5** | | UL |
| | 0936 DFC 101 | **5** | | UL |

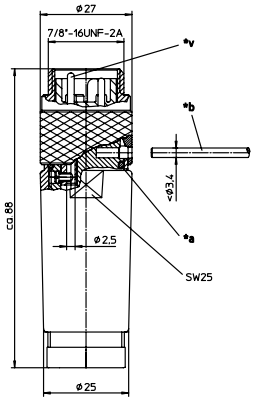
# DeviceNet Field Attachable Connectors, 7/8"

## 0936 DMC 301 | 0936 DMC 303

### 5-Pole, Male

DeviceNet, 5-pole, male field attachable 7/8" connector with screw terminal connection, cable outlet suitable for THIN and THICK DeviceNet cable.

**0936 DMC 301 | 0936 DMC 303**

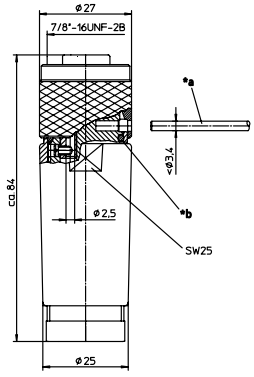



## 0936 DFC 301 | 0936 DFC 303

### 5-Pole, Female

DeviceNet, 5-pole, female field attachable 7/8" connector with screw terminal connection, cable outlet suitable for THIN and THICK DeviceNet cable.

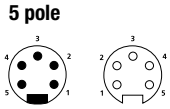
**0936 DFC 301 | 0936 DFC 303**




## Pin Assignments

### Face Views / 7/8"

**5 pole**






DEVICENET_CA_V1_ICOS_LUM_1215_A_AG

## DeviceNet Field Attachable Connectors, M12

0936 DMC 301 | 0936 DMC 303 | 0936 DFC 301 | 0936 DFC 303

### Technical Data

**Environmental**

| | |
|---|---|
| Degree of protection | IP 67 / NEMA 6P |
| Operating temperature range | -40°C (-40°F) / +90°C (+194°F) |

**Materials**

| | |
|---|---|
| Housing / Molded body | PA |
| Insert | TPU, self-extinguishing |
| Contact | CuZn, pre-nickeled and 0.8 microns gold-plated |
| Coupling nunt | Aluminum, black anodized |
| O-ring | NBR |

**Mechanical**

| | |
|---|---|
| Mode of connection | Screw terminals |
| Connectable conductor | max. 1.5 $mm^2$ |

**Electrical**

| | |
|---|---|
| Current rating | 8 A |
| Voltage rating | 250 V |

| Part Number | | Pins | Cable Type | Characteristics |
|---|---|---|---|---|
| 0936 DMC 301 | | **5** | Thin | UL |
| 0936 DMC 303 | | **5** | Thick | UL |
| | 0936 DFC 301 | **5** | Thin | UL |
| | 0936 DFC 303 | **5** | Thick | UL |

DeviceNet

## Accessories

### 0909 UAC 101

Dust cover for unused M12 plugs.

### RKV

Dust cover for unused 7/8" plugs.

### ZVK | ZVKM

Dust cover for unused M12 and M8 sockets.

### ZBS

Attachable labels, 10 pieces (7 x 14 mm).

### ZBR 9/40

Attachable labels, 40 pieces (9 x 20 mm), suitable for all active compact bus modules.

### ZBR 5/10

Attachable labels, 40 pieces (5 x 10 mm), suitable for all LioN-S bus modules.

| Part Number | |
|---|---|
| 0909 UAC 101 | |
| RKV | |
| ZVK | ZVKM |
| ZBS | |
| ZBR 9/40 | ZBR 5/10 |

## References

Cable Index and Connector Key/Pin Configurations

### DeviceNet Wiring/Pin Digram

| Connection 7/8" | | Connection M12 | | Signal | 7/8" to M12 Male, 5-Pole | 7/8" to M12 Female, 5-Pole | Color |
|---|---|---|---|---|---|---|---|
| Male | Female | Male | Female | | | | |
| | | | | Shield<br>+24 V DC<br>0 V<br>CAN_H<br>CAN_L | Pin 1<br>Pin 2<br>Pin 3<br>Pin 4<br>Pin 5 | Pin 1<br>Pin 2<br>Pin 3<br>Pin 4<br>Pin 5 | -<br>red<br>black<br>white<br>blue |

### Fieldbus Color-Code-DeviceNet

| Cable No. | Wire Color Code | Gauge | Material | Jacket Color | Outside Diameter | UL | CSA |
|---|---|---|---|---|---|---|---|
| **253** | blue/white<br>red/black | 2 x 0.25 mm²<br>2 x 0.34 mm² | **PUR,** Halogen-Free | Black | .264" / Ø 6.7 mm | AWM 20549 | AWM I/II A/B |
| **613** | blue/white<br>red/black | Stranded Pairs<br>1 x 2 x 18 AWG<br>1 X 2 x 15 AWG | **PVC - THICK** | Grey | .430" / Ø 11.0 mm | CMG/PLTC-ER | CMG |
| **614** | blue/white<br>red/black | Stranded Pairs<br>1 x 2 x 22 AWG<br>1 X 2 x 24 AWG | **PVC - THIN** | Grey | .270" / Ø 6.9 mm | CMG/CL2 | CMG |
| **636** | blue/white<br>red/black | Stranded Pairs<br>1 x 2 x 16 AWG<br>1 X 2 x 18 AWG | **PVC - Tray** | Grey | .525" / Ø 13.3 mm | TC-ER | AWM I/II A/B |
| **709** | blue/white<br>red/black | Stranded Pairs<br>1 x 2 x 16 AWG<br>1 X 2 x 20 AWG | **TPE - MID High-Flex** | Black | .380" / Ø 9.7 mm | AWM 20626 | AWM I/II A/B |
| **710** | blue/white<br>red/black | Stranded Pairs<br>1 x 2 x 22 AWG<br>1 X 2 x 24 AWG | **TPE - THIN High-Flex** | Black | .280" / Ø 7.1 mm | AWM 20626 | AWM I/II A/B |

### Power Supply Cables

| Cable No. | Wire Color Code | Gauge | Material | Jacket Color | Outside Diameter |
|---|---|---|---|---|---|
| **203** | 2 x black*<br>green/yellow<br><br>* with numbering | 3 x 1.00 mm²<br>(128 x Ø 0.10mm) | **PUR** | Black | .252" / Ø 6.4 mm |

## References

Devicenet Module Conversion Cross Reference

| DeviceNet Module Conversion Cross Reference | | |
|---|---|---|
| **Old Module** | **Replaced By** | **Function** |
| 0930 DSL 101 | 0930 DSL 108 | 16 Input |
| 0930 DSL 102 | 0930 DSL 113 | 8 Input / 8 Output |
| 0930 DSL 103 | 0930 DSL 107 | 8 Output |
| 0930 DSL 301 | 0930 DSL 312 | 16 Input |
| 0930 DSL 302 | 0930 DSL 314 | 8 Input / 8 Output |
| 0930 DSL 303 | 0930 DSL 311 | 8 Output |
| 0930 DSL 304 | 0930 DSL 312 | 16 Input, DSL 304 has one bus connector and DSL 312 has two |
| 0930 DSL 305 | 0930 DSL 314 | 8 Input / 8 Output, DSL 305 has one bus connector and DSL 314 has two |
| 0930 DSL 306 | 0930 DSL 311 | 8 Output, DSL 306 has one bus connector and DSL 311 has two |

**NOTE**: In each case a new EDS-file is required and is available from our website ( **http://www.beldensolutions.com/en/Service/Downloadcenter/Software_Lumberg/index.phtml** ). The Devicenet scanner will require reconfiguring.

Additionally, if replacing modules **DSL 304** to **306** with the new modules a dust cover on the female bus connector is required. The old modules have only the male bus connector.

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