PROFIBUS® Fieldbus Solutions

Fieldbus Communication for PROFIBUS® Applications
Lumberg Automation™ Provides Reliable PROFIBUS Fieldbus Solutions for Industrial Automation Applications Worldwide.
Be Certain with Belden

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.
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.
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PROFIBUS Introduction

Standardized Open Fieldbus System

PROFIBUS (PROcess Field BUS) is a standardized, open Fieldbus in compliance with the international standard EN 50170. To meet various demands in automation technology, PROFIBUS is subdivided into four different profiles:

PROFIBUS-FMS (Field Message Specification)
A protocol for communication between different control systems (PLCs or PCs). It was the first implementation of Profibus. This protocol is superseded by PROFINet.

PROFINET
An Industrial Ethernet implementation of Profibus. PROFINET is designed to work everywhere: from communication with the corporate network over the data exchange between PLCs and IPCs, to I/O and motion control.

PROFIBUS-PA (Process Automation)
An intrinsically safe bus system for process technology.

PROFIBUS-DP (Decentral Periphery)
A transmission protocol for communication between the control system and decentral input/output stations.

The Lumberg Automation I/O Stations Support the PROFIBUS-DP Protocol.

PROFIBUS applications will play a vital role in the future of fieldbus systems thanks to the support of most large control system manufacturers and the development of PNO (PROFIBUS User Organization), which is independent of manufacturers. PROFIBUS field devices are currently available for practically every application, such as binary and analog I/O modules, robot control systems, visualization systems, etc.

About Lumber Automation PROFIBUS Products

To ensure the best application of PROFIBUS-DP in the decentralized sector, components must meet maximum electromechanical demands. Thanks to the materials used for the housings and sealing technologies, Lumber Automation’s PROFIBUS-DP components offer excellent protection for electronic equipment in harsh environments.

Modules are available with M23 connection technology for hybrid cables (power supply and bus line in one cable) and M12 connectors with external power supply.

Transmission Media

- Shielded, twisted-pair, 2-wire cable (according to RS485)
- Fiber optic cable
- Hybrid cable for the transmission of data and power supply.

Network Topology

- Line structure with active bus termination (resistance network) at both ends of a segment.
- A segment is the bus sector between two terminating resistors. If repeaters are not used, the entire network consists of one segment.
- Mono- and multi-master systems are possible.

Bus Access

- Token-passing method between masters.
- Master-slave communication (cyclic polling) between master and slaves.

Number of Participants

- 32 per segment.
- Repeaters can be used to expand the bus to 126 participants.

Standard Transmission Rates and Segment Length

This depends on the transmission rate (Baud rate), the segment lengths and the number of repeaters which can be switched serially. [Table 1: Standard transmission rates and segment length].

PROFIBUS Modules with Plug-N-Play Connectivity Reduce Overall Installation and Maintenance Costs.
Bus Cycle Time
The bus cycle time depends – among others things – on the following important factors:
• Number of participants.
• Amount of data for each participant.
• Transmission rate.
The bus cycle time must be specified individually for each application.

Configuration of the Nodes
The individual participants are commissioned via GSD files (configuration file) which are provided by the manufacturer for each module type. The GSD files for the Lumberg Automation bus modules can be obtained from www.lumberg-automationusa.com or by calling 717–217–2299.

Addressing
An individual address is allocated to each participant via rotary address switches (address 1...99) or addressing tools (address 1...126). The following addressing tools are available for the software programming of the modules:
• Lumberg Handheld 0903 UTL 101 for all modules with M12 bus connection.
• Profibus interface in conjunction with a software tool, like COMPtibus or STEP7.

Diagnostic system
The structure of the diagnostic system is defined in the international standard EN 50170, volume2 and is comprised of 29 bytes as a maximum. The diagnostic system is generally subdivided into two different parts:
• Bytes 0 to 5 comprise the system or standard diagnostic which each PROFIBUS slave must contain and which must be structured identically (e.g. station status, master PROFIBUS address, manufacturer’s identification).
• From byte 6 the unit-related diagnostic begins which can be structured optionally and individually for each slave. Byte 6 generally comprises the length of the extended diagnostic.
• The actual diagnostic then begins with byte 7. As an example, byte 7 may indicate a short circuit or overload.

<table>
<thead>
<tr>
<th>Bits</th>
<th>9.6k</th>
<th>19.2k</th>
<th>45.45k</th>
<th>93.75k</th>
<th>187.5k</th>
<th>500k</th>
<th>1.5M</th>
<th>3M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (meters)</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1000</td>
<td>400</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Max. Number of Repeaters</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Admissible 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 shielded systems.
- Very good vibration and shock resistance.
- UL approved.
- UL/CSA approved.

PROFIBUS modules with M23 or M12 connections.
PROFIBUS Connecting Information

Power Supply for System/Sensor and Actuator System, M23 Male Connector, 6 Poles

Best Part Number
0906 UFC 201
or
0906 UFC 202

Description
Field attachable female connector with solder or screw terminal connection

Bus Connection, Bus Input, M12 Male Connector, 5-Poles, B-Coding

Best Part Number
0976 PFC 101

Description
Field attachable female connector

Bus Connection, Bus Output, M12 Female Connector, 5-Poles, B-Coding

Best Part Number
0976 PMC 101

Description
Field attachable male connector.

PROFIBUS I/O Module Shown: 0970 PSL 111

Best Part Number
0975 254 101/...M
0975 254 103/...M

Description
Profibus double-ended bus cable
Profibus single-ended female

Best Part Number
0975 254 104/...M

Description
Profibus double-ended bus cable, M12 female connector to SUBD male connector
**PROFIBUS Connecting Information**

### Power Supply for Actuator System, M23 Male Connector, 6 Poles

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906 UFC 201</td>
<td>Field attachable female connector with solder or screw terminal connection.</td>
</tr>
<tr>
<td>0906 UFC 202</td>
<td></td>
</tr>
<tr>
<td>0906 UTP 201</td>
<td>T-Connector to daisy chain the power supply.</td>
</tr>
<tr>
<td>RKU A 6-203/5 M</td>
<td>Power supply cable, molded on one side for series with output and mixing modules only Pin 1, 2, 3 assigned.</td>
</tr>
</tbody>
</table>

### Bus Connection, Bus In/Bus-Out (Bus + Power Supply System/Sensor), M12 Female Connector, 12-Poles

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 201</td>
<td>Field attachable male connector for Profibus combined cable (Bus and power supply)</td>
</tr>
<tr>
<td>0976 PMC 202</td>
<td>Field attachable male connector for separate feeding of bus and power supply via a T-connector</td>
</tr>
<tr>
<td>0976 UTP 202</td>
<td>T-connector for separate feeding of bus and power supply lines respectively for connecting the cable for Bus-In and Bus-Out without interrupting the bus line when changing a module</td>
</tr>
<tr>
<td>0979 PTX 201</td>
<td>Terminating resistor</td>
</tr>
<tr>
<td>ZVK 2</td>
<td>Dust cover for unused bus connection</td>
</tr>
</tbody>
</table>

### Double ended cordset, male to male with M23, 12-pole connector

<table>
<thead>
<tr>
<th>Best Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0975 202 201/...M</td>
</tr>
<tr>
<td>0975 202 202/...M</td>
</tr>
</tbody>
</table>
### PROFIBUS Connecting Information

**Power Supply for Actuator System, 7/8” Male Connector, 3 Poles**

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKC 50/11 or RKC 50/16 and RSC 50/11 or RSC 50/16</td>
<td>Field attachable male connector</td>
</tr>
</tbody>
</table>

**Bus Connection, Bus Input, M12 Male Connector, 5-Poles, B-Coding**

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PFC 101</td>
<td>Field attachable female connector</td>
</tr>
<tr>
<td>0975 254 101/...M 0975 254 103/...M</td>
<td>Profibus double-ended bus cable Profibus single-ended female</td>
</tr>
</tbody>
</table>

**Bus Connection, Bus Output, M12 Female Connector, 5-Poles, B-Coding**

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 101</td>
<td>Field attachable male connector</td>
</tr>
<tr>
<td>0979 PTX 101</td>
<td>Terminating resistor, male</td>
</tr>
<tr>
<td>0975 254 101/...M 0975 254 102/...M</td>
<td>PROFIBUS double-ended bus cable PROFIBUS single-ended male</td>
</tr>
<tr>
<td>0975 254 105/...M</td>
<td>Profibus double-ended bus cable, M12 male connector to SUBD male connector</td>
</tr>
</tbody>
</table>
### PROFIBUS Connecting Information

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

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PFC 101</td>
<td>Field attachable female connector.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0975 254 101/...M</td>
<td>Profibus double-ended bus cable.</td>
</tr>
<tr>
<td>0975 254 103/...M</td>
<td>Profibus single-ended female.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0975 254 104/...M</td>
<td>Profibus double-ended bus cable, M12 female connector to SUBD male connector</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>0976 PMC 101</td>
<td>Field attachable female connector.</td>
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<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0975 254 101/...M</td>
<td>Profibus double-ended bus cable.</td>
</tr>
<tr>
<td>0975 254 103/...M</td>
<td>Profibus single-ended female.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0975 254 104/...M</td>
<td>Profibus double-ended bus cable, M12 female connector to SUBD male connector</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKC 5/9</td>
<td>Field Attachable, M12 Female Connector, 5-Pole, PG9 Threads.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906 UTP 101</td>
<td>T-Connector, for Daisy-Chaining Power</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Best Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKT 5-612/...M</td>
<td>Single-Ended Cordset, M12, 5-Pole for Connection to Power Supply.</td>
</tr>
</tbody>
</table>
**Profibus I/O Modules with 8-Digital Inputs**

**8 IN**

Profibus-DP device with 8 digital inputs to connect standard sensors, M8 socket, 3 poles, rotary switches for addressing, M12 bus connection, M12 power supply.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Byte 0</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
</table>

### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8</td>
<td>red</td>
<td>periphery fault</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>common indication for periphery faults</td>
</tr>
</tbody>
</table>

### Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply M12</th>
<th>Input M8</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **1...5**: -5 V
- **6**: Line A
- **7**: GND (0 V)
- **8**: Line B
- **9**: Earth
- **10**: Housing = earth
- **1...2**: +24 V
- **3**: GND (0 V)
- **4**: In
- **5**: +24 V
- **6**: GND (0 V)
- **7**: In
- **8**: System/sensors
- **9**: Internal signals: galvanically separated to sensors
- **10**: System/sensors
# Profibus-DP I/O Modules with 8-Digital Inputs

**0970 PSL 651**

## 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
- **ID number**: 09C9 hex
- **GSD file**: Lum_09C9.GSD
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–125 dec
- **Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

### System/Sensors power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: 90 mA
- **Reverse polarity protection**: yes
- **Input power supply**: Us
- **Voltage range**: min. (Usystem - 1.5 V)
- **Sensor current**: 100 mA (at Tamb 30°C) per socket
- **Short circuit-proof**: yes
- **Indication**: LED green

### Inputs
- **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

### Diagnostic
- Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under www.beldensolutions.com/downloads)

### Included in delivery/accessories
- **Dust covers M8**: 2 pieces
- **Attachable labels**: 10 pieces

## Part Number

0970 PSL 651

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs

0970 PSL 114

8 IN
Profibus-DP device with 8 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M12 bus connection, M23 power supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>Uss</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 23</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V 2 = Line A 3 = GND (0 V) 4 = Line B 5 = earth</td>
<td>1 = Earth 2 = n.c. 3 = n.c. 4 = +24 V 5 = GND (0 V) 6 = n.c.</td>
<td>1 = +24 V 2 = n.c. 3 = GND (0 V) 4 = IN 5 = Earth</td>
</tr>
</tbody>
</table>

1 = internal signals 2 = system sensors
# Profibus I/O Modules with 8-Digital Inputs

0970 PSL 114

## Technical Data

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

### Mechanical
- **Weight**: 535 g
- **Housing material**: PUR

### Bus system
- **ID number**: Profibus
- **GSD file**: Lum_044F.gsd
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–126 dec
- **Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

### Electronics power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: typ. 60 mA
- **Reverse polarity protection**: yes
- **Indication**: LED green

### Input power supply
- **Voltage range**: min. (U System - 1.5 V)
- **Total current of all sensors**: max. 800 mA
- **Short circuit-proof**: yes
- **Indication**: LED green

### Inputs
- **Rated input voltage**: 24 V DC
- **Signal state “1”**: 11–30 V
- **Signal state “0”**: -3–5 V
- **Input current at 24 V**: typ. 6 mA
- **Channel type N.O.**: p-switching
- **Number of digital channels**: 8
- **Channel status indicator**: LED yellow per channel

### Included in delivery/accessories
- **Dust covers M12**: 2 pieces
- **Attachable labels**: 10 pieces

---

## Part Number

0970 PSL 114

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs

8 IN
Profibus-DP device with 8 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M23 bus connection.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

OVL: Overload status

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVL</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>Ue</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

Bus connection M23

1 = GND
2 = Line A
3 = n.c.
4 = Line B
5 = n.c.
6 = VCC
7 = +24 V
8 = GND (0 V)
9 = Erde / earth
10 = n.c.
11 = n.c.
12 = RTS housing earth

Input M12

1 = +24 V
2 = n.c.
3 = GND (0 V)
4 = IN
5 = Earth

1 = internal signals
2 = system sensors
Profibus I/O Modules with 8-Digital Inputs
0970 PSL 213

**Technical Data**

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

**Mechanical**
- Weight: 545 g
- Housing material: PUR

**Bus system**
- **Profibus**
  - ID number: 044F hex
  - GSD file: Lum_044F.gsd
  - Transmission rate: max. 12 MBaud
  - Address range: 1–126 dec
  - Rotary address switches: 1–99 dec
  - Default address: 99 dec

**Electronics power supply**
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

**Input power supply**
- Rated voltage: 24 V DC
- Voltage range: min. (System - 1.5 V)
- Total current of all sensors: max. 800 mA
- Short circuit-proof: yes
- Indication: LED green

**Inputs**
- Rated input voltage: 24 V DC
- Signal state “1”: 11–30 V
- Signal state “0”: -3–5 V
- Input current at 24 V: typ. 6 mA
- Channel type N.O.: p-switching
- Number of digital channels: 8
- Channel status indicator: LED yellow per channel

**Included in delivery/accessories**
- Dust covers M12: 2 pieces
- Attachable labels: 10 pieces

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs

8 IN
Profibus-DP device with 8 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8” power supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>OVL: Overload status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>Ue</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 7/8”</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V 1</td>
<td>2 = Line A</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line B</td>
<td>3 = Ground (0 V)</td>
<td>2 = n.c.</td>
</tr>
<tr>
<td>4 = line B</td>
<td>3 = Earth</td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td>5 = earth</td>
<td>4 = +24 V 2</td>
<td>4 = IN</td>
</tr>
<tr>
<td>6 = n.c.</td>
<td>5 = GND (0 V)</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>7 = n.c.</td>
<td>housing = n.c.</td>
<td></td>
</tr>
<tr>
<td>8 = earth</td>
<td></td>
<td>1 = internal signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = system sensors</td>
</tr>
</tbody>
</table>
# Profibus I/O Modules with 8-Digital Inputs

**0970 PSL 118**

## Technical Data

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

### Mechanical
- **Weight**: 535 g
- **Housing material**: PUR

### Bus system
- **Id number**: 044F hex
- **GSD file**: Lum_044F.gsd
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–126 dec
- **Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

### Electronics power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19 - 28.8 V DC
- **Power consumption**:
  - typ. 60 mA
- **Reverse polarity protection**: yes
- **Indication**: LED green

### Input power supply
- **Nominal voltage**: 24 V DC
- **Voltage range**: 19 - 28.8 V DC
- **Total current of all sensors**: max. 800 mA
- **Short circuit-proof**: yes
- **Indication**: LED green

### Inputs
- **Rated input voltage**: 24 V DC
- **Signal state “1”**: 11–30 V
- **Signal state “0”**: -3–5 V
- **Input current at 24 V**:
  - typ. 6 mA
- **Channel type N.O.**: p-switching
- **Number of digital channels**: 8
- **Channel status indicator**: LED yellow per channel

### Included in delivery/accessories
- **Dust covers M12**: 2 pieces
- **Attachable labels**: 10 pieces

---

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 650

8 IN / 8 OUT (universal)
Profibus-DP 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 power supply.

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8</td>
<td>red</td>
<td>periphery fault</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>actuator power supply</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>common indication for periphery faults</td>
</tr>
</tbody>
</table>

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8 Input</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>M8 Output</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply M12</th>
<th>Input M8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V</td>
<td>1 = +24 V</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = Line B</td>
<td>2 = In</td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>3 = GND (0 V)</td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = Line A</td>
<td>4 = line</td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = earth</td>
<td>5 = Earth</td>
</tr>
</tbody>
</table>

housing = earth
# 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
- **ID number**: 09C9 hex
- **GSD file**: Lum_09C9.GSD
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–125 dec
- ** Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

## System/Sensors power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: 90 mA
- **Reverse polarity protection**: yes

## Input power supply
- **Voltage range**: min. (U_{System} - 1.5 V)
- **Sensor current**: 100 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. 8
- **Channel status indicator**: LED yellow per channel
- **Diagnostic indication**: LED red per channel

## Output power supply
- **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

## Diagnostic
- Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under www.beldensolutions.com/downloads)

## Included in delivery/accessories
- **Dust covers M8**: 2 pieces
- **Attachable labels**: 10 pieces

---

**Part Number**

0970 PSL 650

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Inputs

0970 PSL 701

16 IN
Profibus-DP device with 16 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8” power supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte 0</td>
<td>4B</td>
<td>4A</td>
<td>3B</td>
<td>3A</td>
<td>2B</td>
<td>2A</td>
<td>1B</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 1</td>
<td>8B</td>
<td>8A</td>
<td>7B</td>
<td>7A</td>
<td>6B</td>
<td>6A</td>
<td>5B</td>
<td>5A</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8 A/DIA</td>
<td>red</td>
<td>periphery fault</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>common indication for periphery faults</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 7/8”</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Bus connection M12" /></td>
<td><img src="image" alt="Power supply 7/8”" /></td>
<td><img src="image" alt="Input M12" /></td>
</tr>
</tbody>
</table>

1 = internal signals: galvanically separated to sensors
**Profibus I/O Modules with 16-Digital Inputs**

0970 PSL 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**
- ID number: 09CA hex
- GSD file: Lum_09CA.GSD
- Transmission rate: max. 12 MBaud
- Address range: 1–125 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

**System/Sensors power supply**
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: 120 mA
- Reverse polarity protection: yes

**Input power supply**
- Voltage range: min. (U_system - 1.5 V)
- Sensor current: 100 mA (at Tamb 30°C) per socket
- Short circuit-proof: yes
- Indication: LED green

**Inputs**
- 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

### Diagnostic
- Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under www.beldensolutions.com/downloads)

### Included in delivery/accessories
- Dust covers M12: 2 pieces
- Attachable labels: 10 pieces

---

Part Number

0970 PSL 701

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
**Profibus I/O Modules with 16-Digital Inputs**

### 16 IN

Profibus-DP device with 16 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M12 bus connection, M23 power supply.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 0</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
</tbody>
</table>

### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

### Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply M23</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V</td>
<td>1 = Earth</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = n.c.</td>
<td>2 = n.c.</td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>3 = n.c.</td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = +24 V</td>
<td>4 = IN</td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = GND (0 V)</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>6 = n.c.</td>
<td>6 = n.c.</td>
<td>6 = n.c.</td>
</tr>
</tbody>
</table>
Profibus I/O Modules with 16-Digital Inputs
0970 PSL 111

Technical Data

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

Mechanical
Weight  535 g
Housing material  PUR

Bus system
ID number  044E hex
GSD file  Lum_044E.gsd
Transmission rate  max. 12 MBaud
Address range  1–126 dec
Rotary address switches  1–99 dec
Default address  99 dec

System/Sensors power supply
Rated voltage  24 V DC
Voltage range  19–30 V DC
Power consumption  90 mA
Reverse polarity protection  yes

Electronics power supply
Rated voltage  24 V DC
Voltage range  19–30 V DC
Power consumption  typ. 60 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
Rated input voltage  24 V DC
Signal state “1”  11–30 V
Signal state “0”  -3–5 V
Input current at 24 V  typ. 6 mA
Channel type N.O.  p-switching
Number of digital channels  16
Channel status indicator  LED yellow per channel

Diagnostic
Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under www.beldensolutions.com/downloads)

Included in delivery/accessories
Dust covers M12  2 pieces
Attachable labels  10 pieces

Part Number
0970 PSL 111

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Inputs

16 IN
Profibus-DP device with 16 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M23 bus connection.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8B</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 1</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
</tbody>
</table>

#### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>UL</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

#### Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M23</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = GND</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = IN B</td>
</tr>
<tr>
<td>3 = n.c.</td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = IN A</td>
</tr>
<tr>
<td>5 = n.c.</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>6 = VCCI</td>
<td></td>
</tr>
<tr>
<td>7 = +24 V</td>
<td></td>
</tr>
<tr>
<td>8 = GND (0 V)</td>
<td></td>
</tr>
<tr>
<td>9 = Erde / earth</td>
<td></td>
</tr>
<tr>
<td>10 = n.c.</td>
<td></td>
</tr>
<tr>
<td>11 = n.c.</td>
<td></td>
</tr>
<tr>
<td>12 = RTS</td>
<td></td>
</tr>
<tr>
<td>housing = earth</td>
<td></td>
</tr>
</tbody>
</table>
**Profibus I/O Modules with 16-Digital Inputs**

0970 PSL 209

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>Included in delivery/accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental</strong></td>
<td>Dust covers M12 2 pieces</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>Attachable labels 10 pieces</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td></td>
</tr>
<tr>
<td>IP 67</td>
<td></td>
</tr>
<tr>
<td>-0°C (+32°F) to +60°C (+140°F)</td>
<td></td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>545 g</td>
</tr>
<tr>
<td>Housing material</td>
<td>PUR</td>
</tr>
<tr>
<td><strong>Bus system</strong></td>
<td></td>
</tr>
<tr>
<td>ID number</td>
<td>Profibus</td>
</tr>
<tr>
<td>GSD file</td>
<td>044E hex</td>
</tr>
<tr>
<td>Transmission rate</td>
<td>Lum_044E.gsd</td>
</tr>
<tr>
<td>Address range</td>
<td>max. 12 MBaud</td>
</tr>
<tr>
<td>Rotary address switches</td>
<td>1–126 dec</td>
</tr>
<tr>
<td>Default address</td>
<td>1–99 dec</td>
</tr>
<tr>
<td><strong>Electronics power supply</strong></td>
<td>99 dec</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>UL</td>
</tr>
<tr>
<td>Voltage range</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Power consumption</td>
<td>19–30 V DC</td>
</tr>
<tr>
<td>Reverse polarity protection</td>
<td>typ. 60 mA</td>
</tr>
<tr>
<td>Indication</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Input power supply</strong></td>
<td>LED green</td>
</tr>
<tr>
<td>Voltage range</td>
<td>Us</td>
</tr>
<tr>
<td>Total current of all sensors</td>
<td>min. (UL - 1.5 V)</td>
</tr>
<tr>
<td>Short circuit-proof</td>
<td>max. 800 mA</td>
</tr>
<tr>
<td>Indication</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td>LED green</td>
</tr>
<tr>
<td>Rated input voltage</td>
<td>Type 3 acc. to IEC 61131-2L</td>
</tr>
<tr>
<td>Signal state “1”</td>
<td></td>
</tr>
<tr>
<td>Signal state “0”</td>
<td></td>
</tr>
<tr>
<td>Input current at 24 V</td>
<td></td>
</tr>
<tr>
<td>Channel type N.O.</td>
<td></td>
</tr>
<tr>
<td>Number of digital channels</td>
<td></td>
</tr>
<tr>
<td>Channel status indicator</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnostic</strong></td>
<td></td>
</tr>
<tr>
<td>Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under <a href="http://www.beldensolutions.com/downloads">www.beldensolutions.com/downloads</a>)</td>
<td></td>
</tr>
</tbody>
</table>

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Inputs

16 IN

Profibus-DP device with 16 digital inputs to connect standard sensors, combined M12 socket, rotary switches for addressing, M12 bus connection and 7/8” actuator supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 0</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
<tr>
<td>Byte 1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>Bit</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Indication</td>
<td>yellow</td>
<td>channel status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uk</td>
<td>green</td>
<td>module electronic supply active</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OVL: Overload status

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 7/8”</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V</td>
<td>1 = +24 V</td>
<td>1 = internal signals</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = n.c.</td>
<td>2 = system sensors</td>
</tr>
<tr>
<td>3 = GND</td>
<td>3 = GND (0 V)</td>
<td></td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = IN</td>
<td></td>
</tr>
<tr>
<td>5 = GND</td>
<td>5 = Earth</td>
<td></td>
</tr>
</tbody>
</table>
# Profibus I/O Modules with 16-Digital Inputs

0970 PSL 115

## Technical Data

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

### Mechanical
- Weight: 535 g
- Housing material: PUR

### Bus system
- ID number: 044E hex
- GSD file: Lum_044E.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

### Electronics power supply
- Rated voltage: 24 V DC
- Voltage range: 19 - 28.8 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

### Input power supply
- Nominal voltage: 24 V DC
- Voltage range: 19 - 28.8 V DC
- Total current of all sensors: max. 800 mA
- Short circuit-proof: yes
- Indication: LED green

### Inputs
- Rated input voltage: 24 V DC
- Signal state “1”: 11–30 V
- Signal state “0”: -3–5 V
- Input current at 24 V: typ. 6 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

---

**Part Number**

0970 PSL 115

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Outputs

0970 PSL 112

8 OUT

Profibus-DP device with 8 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, M23 power supply.

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Output</td>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Diagnostic

DIA-Byte

- UVA: Undervoltage actuator
- ASC: Actuator short-circuit

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply M23</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = -5 V</td>
<td>1 = n.c.</td>
<td></td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = n.c.</td>
<td></td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>3 = GND (0 V)</td>
<td></td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = OUT</td>
<td></td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = Earth</td>
<td></td>
</tr>
<tr>
<td>1 = internal signals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 = actuators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 = system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Profibus I/O Modules with 8-Digital Outputs
0970 PSL 112

### Technical Data

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

#### Mechanical
- Weight: 535 g
- Housing material: PUR

#### Bus system
- Bus system: Profibus
- ID number: 044D hex
- GSD file: Lum_044D.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

#### Output power supply
- 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: 15 A per module
- 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

---

**Part Number**

0970 PSL 112

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Outputs

8 OUT

Profibus-DP device with 8 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M23 bus connection, M23 actuator supply.

**Bit Assignment**

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

UVA: Undervoltage actuator
ASC: Actuator short-circuit

**Diagnostic Indication**

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

**Pin Assignment**

**Bus connection M23**

1 = GND
2 = Line A
3 = n.c.
4 = Line B
5 = n.c.
6 = VCC
7 = +24 V
8 = GND (0 V)
9 = Erde / earth
10 = n.c.
11 = n.c.
12 = RTS

**Actuator supply M23**

1 = Earth
2 = +24 V
3 = GND (0 V)
4 = n.c.
5 = n.c.

**Output M12**

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

1 = internal signals
# Profibus I/O Modules with 8-Digital Outputs
0970 PSL 210

## Technical Data

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

### Mechanical
- **Weight**: 545 g
- **Housing material**: PUR

### Bus system
- **ID number**: 044D hex
- **GSD file**: Lum_044D.gsd
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–126 dec
- **Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

### Electronics power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: typ. 60 mA
- **Reverse polarity protection**: yes
- **Indication**: LED green

### Output power supply
- **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**: 15 A per module
- **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

## Part Number
0970 PSL 210

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Outputs

8 OUT

Profibus-DP device with 8 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8” actuator supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DIA-Byte: UVA ASC - - - -

UVA: Undervoltage actuator ASC: Actuator short-circuit

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Actuator supply 7/8”</th>
<th>Output M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V V</td>
<td>1 = n.c.</td>
<td>1 = internal signals</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = n.c.</td>
<td>2 = actuators</td>
</tr>
<tr>
<td>3 = GND</td>
<td>3 = GND (0 V)</td>
<td>3 = system</td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = OUT</td>
<td></td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = earth</td>
<td></td>
</tr>
</tbody>
</table>

housing = n.c.
# Profibus I/O Modules with 8-Digital Outputs

## Part Number

0970 PSL 116

---

### Technical Data

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

#### Mechanical
- Weight: 535 g
- Housing material: PUR

#### Bus system
- Profibus (Group 2 Only Server)
  - ID number: 044D hex
  - GSD file: Lum_044D.gsd
  - Transmission rate: max. 12 MBaud
  - Address range: 1–126 dec
  - Rotary address switches: 1–99 dec
  - Default address: 99 dec

#### Electronics power supply
- Rated voltage: 24 V DC
- Voltage range: 19–28.8 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

#### Output power supply
- Nominal voltage: 24 V DC
- Voltage range: 19–30 V DC
- 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: 15 A per module
  - Overload-proof: yes
  - Number of digital channels: 8
  - Channel type: N.O.
  - 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

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Outputs

**16 OUT**

Profibus-DP device with 16 digital outputs (0.5 A) to connect standard actuators, combined with M12 socket, rotary switches for addressing, M12 bus connection, M23 systems/actuator supply.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 1</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

UVA: Undervoltage actuator
ASC: Actuator short-circuit

### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

### Pin Assignment

#### Bus connection M12

- 1 = \(-5\) V
- 2 = Line A
- 3 = GND (0 V)
- 4 = Line B
- 5 = earth

#### Actuator supply M23

- 1 = Earth
- 2 = +24 V
- 3 = GND (0 V)
- 4 = +24 V
- 5 = n.c.

#### Output M12

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

1 = internal signals
2 = actuators
3 = system
# Profibus I/O Modules with 16-Digital Outputs
0970 PSL 124

## Technical Data

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

### Mechanical
Weight | 535 g
Housing material | PUR

### Bus system
ID number | 06EA hex
GSD file | Lum_06EA.gsd
Transmission rate | max. 12 MBaud
Address range | 1–126 dec
Rotary address switches | 1–99 dec
Default address | 99 dec

### Electronics power supply
Rated voltage | 24 V DC
Voltage range | 19–30 V DC
Power consumption | typ. 60 mA
Reverse polarity protection | yes
Indication | LED green

### Output power supply
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 | 0.7 A per channel
Short circuit-proof | yes
Max. output current | 11.2 A per module
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

### Part Number
0970 PSL 124

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Outputs

16 OUT
Profibus-DP device with 8 digital inputs to connect standard sensors and 4 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, M23 power supply.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte 0</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 1</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
</tbody>
</table>

### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>Ul</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

### Pin Assignment

#### Bus connection M23

1 = GND (V)
2 = Line A
3 = n.c.
4 = Line B
5 = n.c.
6 = VCC (V)
7 = +24 V
8 = GND (0 V)
9 = Erde / earth
10 = n.c.
11 = n.c.
12 = RTS
housing = earth

#### Actuator supply M23

1 = Earth
2 = +24 V
3 = GND (0 V)
4 = n.c.
5 = n.c.

#### Output M12

1 = n.c.
2 = OUT B
3 = GND (0 V)
4 = OUT A
5 = Earth
6 = n.c.
7 = GND (0 V)
8 = Erde / earth
9 = n.c.
10 = n.c.
11 = n.c.
12 = RTS
housing = earth
## Profibus I/O Modules with 16-Digital Outputs

0970 PSL 215

### Technical Data

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

#### Mechanical
- Weight: 535 g
- Housing material: PUR

#### Bus system
- Profibus
  - ID number: 06EA hex
  - GSD file: Lum_06EA.gsd
  - Transmission rate: max. 12 MBaud
  - Address range: 1–126 dec
  - Rotary address switches: 1–99 dec
  - Default address: 99 dec

#### Electronics power supply
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

#### Output power supply
- 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: 0.7 A per channel
  - Short circuit-proof: yes
  - Max. output current: 11.2 A per module
  - 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

### Part Number

0970 PSL 215

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Outputs

16 OUT

Profibus-DP device with 16 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8” power supply.

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 7/8”</th>
<th>Output M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 = Line A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 = earth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 = Line B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 = earth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = n.c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 = OUT B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 = OUT A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 = earth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = internal signals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 = actuators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 = system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8A</td>
<td>7A</td>
<td>6A</td>
<td>5A</td>
<td>4A</td>
<td>3A</td>
<td>2A</td>
<td>1A</td>
</tr>
<tr>
<td>Byte 1</td>
<td>8B</td>
<td>7B</td>
<td>6B</td>
<td>5B</td>
<td>4B</td>
<td>3B</td>
<td>2B</td>
<td>1B</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1..8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1..8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>U.</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Diagnostic Byte

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVA</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASC</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

UVA: Undervoltage actuator
ASC: Actuator short-circuit
## Profibus I/O Modules with 16-Digital Outputs
0970 PSL 127

### Technical Data

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

#### Mechanical
- Weight: 535 g
- Housing material: PUR

#### Bus system
- ID number: 06EA hex
- GSD file: Lum_06EA.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

#### Electronics power supply
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

#### Output power supply
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Galvanic isolation: yes
- Short circuit protection: yes
- 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 per module
- 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

### Part Number
0970 PSL 127

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

**8 IN / 4 OUT**

Profibus-DP device with 8 digital inputs to connect standard sensors and 4 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, M23 power supply.

### Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

### Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 5, 7 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>US</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>UL</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)</td>
</tr>
</tbody>
</table>

### Pin Assignment

#### Bus connection M12

<table>
<thead>
<tr>
<th>Bit</th>
<th>1 = +5 V</th>
<th>2 = Line A</th>
<th>3 = GND (0 V)</th>
<th>4 = Line B</th>
<th>5 = earth</th>
</tr>
</thead>
</table>

#### Power supply M23

<table>
<thead>
<tr>
<th>Bit</th>
<th>1 = Earth</th>
<th>2 = +24 V</th>
<th>3 = GND (0 V)</th>
<th>4 = +24 V</th>
<th>5 = GND (0 V)</th>
<th>6 = n.c.</th>
</tr>
</thead>
</table>

#### Input/Output M12

<table>
<thead>
<tr>
<th>Bit</th>
<th>1 = +24 V</th>
<th>2 = IN B</th>
<th>3 = GND (0 V)</th>
<th>4 = IN A</th>
<th>5 = Earth</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bit</th>
<th>1 = n.c.</th>
<th>2 = n.c.</th>
<th>3 = GND (0 V)</th>
<th>4 = OUT</th>
<th>5 = Earth</th>
</tr>
</thead>
</table>

1 = internal signals
2 = actuators
3 = system
### Technical Data

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

#### Mechanical
- Weight: 535 g
- Housing material: PUR

#### Bus system
- ID number: 0450 hex
- GSD file: Lum_0450.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

#### Electronics power supply
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: typ. 60 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

#### Outputs
- Rated output current: 2 A per channel
- Short circuit-proof: yes
- Max. output current: 8 A per module
- Overload-proof: yes
- Number of digital channels: 4
- 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

---

### Part Number

0970 PSL 113

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

8 IN / 4 OUT

Profibus-DP device with 8 digital inputs to connect standard sensors and 4 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M23 bus connection, M23 actuator supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Output</td>
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<td></td>
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<tr>
<td>Byte 0</td>
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<td>-</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 5, 7 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>U,R</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

Bus connection M23

- 1 = GND
- 2 = Line A
- 3 = n.c.
- 4 = Line B
- 5 = n.c.
- 6 = VCC
- 7 = +24 V
- 8 = GND (0 V)
- 9 = Erde / earth
- 10 = n.c.
- 11 = n.c.
- 12 = RTS

Actuator supply M23

- 1 = Earth
- 2 = +24 V
- 3 = GND (0 V)
- 4 = n.c.
- 5 = n.c.

Input/Output M12

- 1 = +24 V
- 2 = IN B
- 3 = GND (0 V)
- 4 = INA
- 5 = Earth
- 6 = n.c.
- 7 = n.c.
- 8 = n.c.
- 9 = OUT
- 10 = Earth
- 11 = n.c.
- 12 = n.c.

1 = internal signals

housing = earth
Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs  
0970 PSL 211

**Technical Data**

<table>
<thead>
<tr>
<th>Environmental</th>
<th></th>
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<tbody>
<tr>
<td>Degree of protection</td>
<td>IP 67</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-0°C (+32°F) to +60°C (+140°F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>545 g</td>
</tr>
<tr>
<td>Housing material</td>
<td>PUR</td>
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</table>

<table>
<thead>
<tr>
<th>Bus system</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ID number</td>
<td>Lum_0450.gsd</td>
</tr>
<tr>
<td>GSD file</td>
<td>0450 hex</td>
</tr>
<tr>
<td>Transmission rate</td>
<td>max. 12 MBaud</td>
</tr>
<tr>
<td>Address range</td>
<td>1–126 dec</td>
</tr>
<tr>
<td>Rotary address switches</td>
<td>1–99 dec</td>
</tr>
<tr>
<td>Default address</td>
<td>99 dec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electronics power supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Voltage range</td>
<td>19–30 V DC</td>
</tr>
<tr>
<td>Power consumption</td>
<td>typ. 60 mA</td>
</tr>
<tr>
<td>Reverse polarity protection</td>
<td>yes</td>
</tr>
<tr>
<td>Indication</td>
<td>LED green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input power supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage range</td>
<td>min. (UL - 1.5 V)</td>
</tr>
<tr>
<td>Total current of all sensors</td>
<td>max. 800 mA</td>
</tr>
<tr>
<td>Short circuit-proof</td>
<td>yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated output current</td>
<td></td>
</tr>
<tr>
<td>Short circuit-proof</td>
<td>yes</td>
</tr>
<tr>
<td>Max. output current</td>
<td>8 A per module</td>
</tr>
<tr>
<td>Overload-proof</td>
<td>yes</td>
</tr>
<tr>
<td>Number of digital channels</td>
<td>4</td>
</tr>
<tr>
<td>Channel type N.O.</td>
<td>p-switching</td>
</tr>
<tr>
<td>Channel status indicator</td>
<td>LED yellow per channel</td>
</tr>
<tr>
<td>Diagnostic indication</td>
<td>LED red per channel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Included in delivery/accessories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust covers M12</td>
<td>2 pieces</td>
</tr>
<tr>
<td>Attachable labels</td>
<td>10 pieces</td>
</tr>
</tbody>
</table>

| Part Number         | 0970 PSL 211 |

The application of these products in harsh environments should always be checked before use.  
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

0970 PSL 117

8 IN / 4 OUT

Profibus-DP device with 8 digital inputs to connect standard sensors and 4 digital outputs to connect standard actuators, combined M12 socket, rotary switches for addressing, M12 bus connection, 7/8” actuator supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 5, 7 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>UL</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

Bus connection M12

1 = +5 V
2 = Line A
3 = GND
4 = Line B
5 = earth

Actuator supply 7/8"

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

Input/Output M12

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

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

1 = internal signals
2 = actuators
3 = system
**Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs**

0970 PSL 117

### Technical Data

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

**Mechanical**
- Weight: 535 g
- Housing material: PUR

**Bus system**
- ID number: 0450 hex
- GSD file: Lum_0450.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

**Electronics power supply**
- Rated voltage: 24 V DC
- Voltage range: 19–28.8 V DC
- Power consumption: typ. 60 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

**Inputs**
- Rated input voltage: 24 V DC
- Signal state “1”: 11–30 V
- Signal state “0”: -3–5 V
- Input current at 24V: typ. 6 mA
- Channel type N.O.: p-switching
- Number of digital channels: 8
- Channel status indicator: LED yellow per channel

**Output power supply**
- 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: 2 A per channel
- Short circuit-proof: yes
- Max. output current: 8 A per module
- Overload-proof: yes
- Number of digital channels: 4
- 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

---

**Part Number**

0970 PSL 117

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 123

8 IN / 8 OUT
Profibus-DP 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, M23 systems/actuator supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td>Byte 0</td>
<td>8B</td>
<td>6B</td>
<td>4B</td>
<td>2B</td>
<td>8A</td>
<td>6A</td>
<td>4A</td>
</tr>
<tr>
<td>M12 Output</td>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1..8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>Uv</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>UL</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor short-circuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>System/Actuator supply M23</th>
<th>Input/Output M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V</td>
<td>1 = Earth</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line A</td>
<td>2 = +24 V</td>
<td>2 = IN B</td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>3 = GND (0 V)</td>
<td>4 = IN A</td>
</tr>
<tr>
<td>4 = Line B</td>
<td>4 = +24 V</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = GND (0 V)</td>
<td>5 = Earth</td>
</tr>
</tbody>
</table>
1 = n.c. | 1 = internal signals |
2 = OUT B | 2 = actuators |
3 = GND (0 V) | 3 = system |
**Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs**
0970 PSL 123

**Technical Data**

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

**Mechanical**
- Weight: 535 g
- Housing material: PUR

**Bus system**
- ID number: Profibus
- GSD file: Lum_06E9.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

**Electronics power supply**
- Rated voltage: 24 V DC
- Voltage range: 19–30 V DC
- Power consumption: typ. 60 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

**Outputs**
- Rated output current: 0.5 A acc. to IEC 61131-2
- Short circuit-proof: yes
- Max. output current: 5.6 A per module
- Overload-proof: yes
- Number of digital channels: 8
- Channel type N.O.: p-switching
- Channel status indicator: LED yellow per channel

**Included in delivery/accessories**
- Dust covers M12: 2 pieces
- Attachable labels: 10 pieces

**Part Number**

0970 PSL 123

The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

8 IN / 8 OUT

Profibus-DP 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, M23 bus connection, M23 actuator supply.

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1..8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>UL</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor shortcircuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)</td>
</tr>
</tbody>
</table>

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Output</td>
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<td></td>
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<tr>
<td>Byte 0</td>
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<td>6B</td>
<td>4B</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M23</th>
<th>Actuator supply M23</th>
<th>Input/Output M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = GND</td>
<td>2 = Line A</td>
<td>1 = GND</td>
</tr>
<tr>
<td>3 = n.c.</td>
<td>4 = Line B</td>
<td>2 = IN B</td>
</tr>
<tr>
<td>5 = n.c.</td>
<td>6 = +24 V</td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td>7 = +24 V</td>
<td>8 = GND (0 V)</td>
<td>4 = IN A</td>
</tr>
<tr>
<td>9 = Erde / earth</td>
<td>10 = n.c.</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>11 = n.c.</td>
<td>12 = RTS</td>
<td>1 = n.c.</td>
</tr>
<tr>
<td>housing = earth</td>
<td></td>
<td>2 = OUT B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = GND (0 V)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = OUT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Earth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = internal signals</td>
</tr>
</tbody>
</table>
## Technical Data

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

### Mechanical
- **Weight**: 535 g
- **Housing material**: PUR
- **Bus system**
  - **ID number**: Profibus
  - **GSD file**: Lum_06E9.gsd
  - **Transmission rate**: max. 12 MBaud
  - **Address range**: 1–126 dec
  - **Rotary address switches**: 1–99 dec
  - **Default address**: 99 dec

### Electronics power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: typ. 60 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

### Outputs
- **Rated output current**: Type 0.5 A acc. to IEC 61131-2
- **Short circuit-proof**: yes
- **Max. output current**: 5.6 A per module
- **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

### Input power supply
- **Rated input voltage**: 24 V DC
- **Signal state “1”**: 11–30 V
- **Signal state “0”**: -3–5 V
- **Input current at 24V**: typ. 6 mA
- **Channel type N.O.**: p-switching
- **Number of digital channels**: 8
- **Channel status indicator**: LED yellow per channel

### Included in delivery/accessories
- **Dust covers M12**: 2 pieces
- **Attachable labels**: 10 pieces

---

**Part Number**

0970 PSL 214

The application of these products in harsh environments should always be checked before use. Specifications subject to alteration.
Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

8 IN / 8 OUT

Profibus-DP 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.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>8B</td>
<td>6B</td>
<td>4B</td>
<td>2B</td>
<td>8A</td>
<td>6A</td>
<td>4A</td>
<td>2A</td>
</tr>
<tr>
<td>M12 Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 0</td>
<td>7B</td>
<td>5B</td>
<td>3B</td>
<td>1B</td>
<td>7A</td>
<td>5A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>Diagnostic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA-Byte</td>
<td>-</td>
<td>UVA</td>
<td>ASC</td>
<td>OVL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1..8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>2, 4, 6, 8 A/B</td>
<td>red</td>
<td>actuator short-circuit</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>actuator supply active</td>
</tr>
<tr>
<td>U</td>
<td>green</td>
<td>module electronic supply active</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>module diagnostics (sensor shortcircuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Actuator supply 7/8”</th>
<th>Input/Output M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V 1 2 = Line A 3 = GND 4 = Line B 5 = earth</td>
<td>1 = +5 V 2 = Line A 3 = GND</td>
<td>1 = 24 V DC 2 = IN B 3 = GND (0 V) 4 = IN A 5 = earth</td>
</tr>
<tr>
<td></td>
<td>4 = +24 V 5 = +24 V</td>
<td>1 = n.c. 2 = OUT B 3 = GND (0 V) 4 = OUT A 5 = earth</td>
</tr>
<tr>
<td></td>
<td>housing = n.c.</td>
<td>1 = internal signals 2 = actuators 3 = system</td>
</tr>
</tbody>
</table>
**Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs**

**0970 PSL 126**

**Technical Data**

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

**Mechanical**
- Weight: 535 g
- Housing material: PUR

**Bus system**
- ID number: 06E9 hex
- GSD file: Lum_06E9.gsd
- Transmission rate: max. 12 MBaud
- Address range: 1–126 dec
- Rotary address switches: 1–99 dec
- Default address: 99 dec

**Electronics power supply**
- Rated voltage: 24 V DC
- Voltage range: 19–28.8 V DC
- Power consumption: typ. 60 mA
- Reverse polarity protection: yes
- Indication: LED green

**Input power supply**
- Voltage range: min. (UL - 1.5 V) max. 800 mA
- Total current of all sensors: yes
- Short circuit-proof: yes

**Inputs**
- Rated input voltage: 24 V DC
- Signal state “1”: 11–30 V
- Signal state “0”: -3–5 V
- Input current at 24V: typ. 6 mA
- Channel type N.O.: p-switching
- Number of digital channels: 8
- Channel status indicator: LED yellow per channel

**Output power supply**
- 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: 0.5 A acc. to IEC 61131-2
- Short circuit-proof: yes
- Max. output current: 5.6 A per module
- 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

**Part Number**

0970 PSL 126

The application of these products in harsh environments should always be checked before use.

Specifications subject to alteration.
Profibus I/O Modules with 16-Digital Inputs and 16-Digital Outputs

16 IN / 16 OUT (universal)
Profibus-DP device with 16 digital I/O channels, channels can be used universally as inputs or outputs, combined 12 socket, rotary switches for addressing, M12 bus connection, 7/8” power supply.

Bit Assignment

<table>
<thead>
<tr>
<th>Bit</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Input Byte 0</td>
<td>4B</td>
<td>4A</td>
<td>3B</td>
<td>3A</td>
<td>2B</td>
<td>2A</td>
<td>1B</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Input Byte 1</td>
<td>8B</td>
<td>8A</td>
<td>7B</td>
<td>7A</td>
<td>6B</td>
<td>6A</td>
<td>5B</td>
<td>5A</td>
</tr>
<tr>
<td>M12 Output Byte 0</td>
<td>4B</td>
<td>4A</td>
<td>3B</td>
<td>3A</td>
<td>2B</td>
<td>2A</td>
<td>1B</td>
<td>1A</td>
</tr>
<tr>
<td>M12 Output Byte 1</td>
<td>8B</td>
<td>8A</td>
<td>7B</td>
<td>7A</td>
<td>6B</td>
<td>6A</td>
<td>5B</td>
<td>5A</td>
</tr>
</tbody>
</table>

Diagnostic Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...8 A/B</td>
<td>yellow</td>
<td>channel status</td>
</tr>
<tr>
<td>1...8 A/DIA</td>
<td>red</td>
<td>periphery fault</td>
</tr>
<tr>
<td>Us</td>
<td>green</td>
<td>sensor/system power supply</td>
</tr>
<tr>
<td>BF</td>
<td>red</td>
<td>bus error</td>
</tr>
<tr>
<td>DIA</td>
<td>red</td>
<td>common indication for periphery faults</td>
</tr>
</tbody>
</table>

Pin Assignment

<table>
<thead>
<tr>
<th>Bus connection M12</th>
<th>Power supply 7/8”</th>
<th>Input M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = +5 V</td>
<td>1 = GND (0 V)</td>
<td>1 = +24 V</td>
</tr>
<tr>
<td>2 = Line A - GN</td>
<td>2 = GND (0 V)</td>
<td>2 = IN/OUT B</td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>3 = Earth</td>
<td>3 = +24 V</td>
</tr>
<tr>
<td>4 = Line B - RD</td>
<td>4 = IN/OUT A</td>
<td>5 = Earth</td>
</tr>
<tr>
<td>5 = earth</td>
<td>5 = +24 V</td>
<td>1 = internal signals: galvanically separated to sensors</td>
</tr>
<tr>
<td>housing = earth</td>
<td></td>
<td>2 = actuators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = system sensors</td>
</tr>
</tbody>
</table>
# Be Certain with Belden

## Profibus I/O Modules with 16-Digital Inputs and 16-Digital Outputs

**0970 PSL 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
- **ID number**: 09CA hex
- **GSD file**: Lum_09CA.GSD
- **Transmission rate**: max. 12 MBaud
- **Address range**: 1–125 dec
- **Rotary address switches**: 1–99 dec
- **Default address**: 99 dec

#### System/Sensors power supply
- **Rated voltage**: 24 V DC
- **Voltage range**: 19–30 V DC
- **Power consumption**: 120 mA
- **Reverse polarity protection**: yes

##### Input power supply
- **Voltage range**: min. (U_system - 1.5 V)
- **Sensor current**: 100 mA (at Tamb 30°C) per socket
- **Short circuit-proof**: yes
- **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/Sensor power 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 channel/socket

#### Diagnostic
- **Module diagnostic and single channel diagnostic according to Profibus specification (please see operating instructions under www.beldensolutions.com/downloads)**

#### Included in delivery/accessories
- **Dust covers M12**: 2 pieces
- **Attachable labels**: 10 pieces

### Part Number

**0970 PSL 700**

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

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**www.lumberg-automationusa.com**

**1-717-217-2299**

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55
Profibus Handheld Addressing Device

Handheld addressing device for bus users of the Profibus standard series, addressing via M12 I/O connection (channel 8) of the modules.

Commissioning
The modules need to be supplied with the system and sensor power supply. For modules with outputs the auxiliary power supply needs to be connected. The output on socket 8 must not be active.

Reading an address
Keep READ key pressed, read flashing code of the ADDRESS-LED

Writing an address
Set address desired via rotary switch (3-digit decimal form). Keep WRITE key pressed (W/R LED on) until W/R-LED extinguishes!

Keys
Read read address
Write write address, programming

Rotary addressing switches
Input of the address in 3-digit decimal form
left hundreds digit
middle tens digit
right units digit

LEDs
3 LEDs for display of digits, decimal
LED yellow, left hundreds digit
LED yellow, middle tens digit
LED yellow, right units digit

LEDs for the status indication of the units
LED green status of the unit
LED on unit o.k
LED on, dimming until off battery voltage too low

LED yellow: communication
LED on telegram transfer via connection line

LED red: fault indication
LED on general fault
LED flashing inapplicable address (1–126 decimal)

Part Number
0903 UTL 101

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

- **0975 254 101/-M**
  Double-ended cord set, M12 male connector to M12 female connector, 5 poles, B-coding.

- **0975 254 102/-M**
  Single-ended cord set, M12 male connector, 5 poles, B-coding.

- **0975 254 103/-M**
  Single-ended cord set, M12 female connector, 5 poles, B-coding.

- **0975 254 104/-M**
  Double-ended cord set, M12 female connector, 5 poles, B-coding to SUBD male connector, 9 poles with switch-on terminating resistor.

- **0975 254 105/-M**
  Double-ended cord set, M12 male connector, 5 poles, B-coding to SUBD male connector, 9 poles with switch-on terminating resistor.

**Pin Assignment**

**M12 male/female connector, 5 poles**

- 1 = n.c.
- 2 = Line A - green
- 3 = n.c.
- 4 = Line B - red
- 5 = earth
  housing = earth

**Part Number** | **Standard Cable Lengths**
--- | ---
0975 254 101/-M | 0.3 M | 0.6 M | 1 M | 2 M | 3 M | 5 M | 10 M | 15 M | 20 M | 25 M
0975 254 102/-M | 1 M | 3 M | 5 M | 10 M | 15 M
0975 254 103/-M | 1 M | 3 M | 5 M | 10 M | 15 M
0975 254 104/-M | 1 M | 2 M | 3 M | 5 M
0975 254 105/-M | 1 M | 2 M | 3 M | 5 M
Profibus Signal and Power Supply Cables

0975 202 201 | 0975 202 202
Double-ended M23 male connector to M23 male connector, 12 poles.

0975 202 202/...M
Single-ended M23 male connector, 12 poles.

RKU E 6-203/...M
Power supply system/sensor single, for modules with inputs only (0970 PSL 1xx).

RSU 6-RKU A 6-203/0.6M | RKU A 6-203
Power supply single, for output/mixing modules (0970 PSL 2xx).

RSU 6-RKU A 6-203/...M
Double-ended M23 male to M23 female connector, 6 poles (Pin 1, 2, and 3 assigned), 0.6 meters.

RKU A 6-203/...M
Single-ended M23 female connector, 6 poles (Pin 1, 2, and 3 assigned).

Pin Assignment

<table>
<thead>
<tr>
<th>M23 male, 12 poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = n.c.</td>
</tr>
<tr>
<td>2 = Line A</td>
</tr>
<tr>
<td>3 = n.c.</td>
</tr>
<tr>
<td>4 = Line B</td>
</tr>
<tr>
<td>5 = n.c.</td>
</tr>
<tr>
<td>6 = n.c.</td>
</tr>
<tr>
<td>7 = +24 V</td>
</tr>
<tr>
<td>8 = GND (0 V)</td>
</tr>
<tr>
<td>9 = Erde / earth</td>
</tr>
<tr>
<td>10 = n.c.</td>
</tr>
<tr>
<td>11 = n.c.</td>
</tr>
<tr>
<td>12 = n.c.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M23 female, 6 poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = green/yellow</td>
</tr>
<tr>
<td>2 = n.c.</td>
</tr>
<tr>
<td>3 = n.c.</td>
</tr>
<tr>
<td>4 = 1</td>
</tr>
<tr>
<td>5 = 2</td>
</tr>
<tr>
<td>6 = n.c.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M23 female, 6 poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = green/yellow</td>
</tr>
<tr>
<td>2 = n.c.</td>
</tr>
<tr>
<td>3 = n.c.</td>
</tr>
<tr>
<td>4 = n.c</td>
</tr>
<tr>
<td>5 = n.c.</td>
</tr>
<tr>
<td>6 = n.c.</td>
</tr>
</tbody>
</table>

Part Number | Standard Cable Lengths
--- | ---
0975 202 201/...M | 5 M | 10 M | 15 M
0975 202 202/...M | 5 M | 10 M | 15 M
RKU E 6-203/...M | 5 M | 10 M | 15 M
RSU 6-RKU A 6-203/0.6M | 0.6 M
RKU A 6-203/...M | 5 M | 10 M | 15 M
Profibus Power Supply Cables

0905 204 302/0.6 M | 0905 204 301 | 0905 204 303

0905 204 302/0.6 M
Double-ended cord set, 7/8" male connector to 7/8" female connector, 5 poles, 0.6 meters.

0905 204 301/...M
Single-ended cord set, 7/8" female connector, 5 poles.

0905 204 303/...M
Single-ended cord set, 7/8" male connector, 5 poles.

0905 204 309/0.6 M | 0905 204 308 | 0905 204 310

0905 204 309/0.6 M
Double-ended cord set, 7/8" male 90° connector to 7/8" female 90° connector, 5 poles, 0.6 meters.

0905 204 308/...M
Single-ended cord set, 7/8" female 90° connector, 5 poles.

0905 204 310/...M
Single-ended cord set, 7/8" male 90° connector, 5 poles.

**Pin Assignment**

7/8" male/female, 5 poles

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>green/yellow</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Standard Cable Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>0905 204 302/0.6 M</td>
<td>0.6 M</td>
</tr>
<tr>
<td>0905 204 301/...M</td>
<td>5 M</td>
</tr>
<tr>
<td>0905 204 303/...M</td>
<td>5 M</td>
</tr>
<tr>
<td>0905 204 309/0.6 M</td>
<td>0.6 M</td>
</tr>
<tr>
<td>0905 204 308/...M</td>
<td>5 M</td>
</tr>
<tr>
<td>0905 204 310/...M</td>
<td>5 M</td>
</tr>
</tbody>
</table>
**PROFIBUS T-Connectors / Taps**

**M23 Male/Female**

T-connector for power supply with M23 male/female connector, 6 poles.

— also suitable for Interbus modules —

**M23 Male/Female**

T-connector with M23 male/female connector, 12 poles.

— especially suitable for Profibus modules with M23 bus connection for separate feeding of power supply (system/sensor system) and Profibus signals —

### Pin Assignment

<table>
<thead>
<tr>
<th>M23 - 6 Poles</th>
<th>M23 - 12 Poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Earth</td>
<td>7 = +24 V</td>
</tr>
<tr>
<td>2 = +24 V (1)</td>
<td>8 = GND (0 V)</td>
</tr>
<tr>
<td>3 = GND (0 V)</td>
<td>9 = Earth</td>
</tr>
<tr>
<td>4 = +24 V (2)</td>
<td>10 = n.c.</td>
</tr>
<tr>
<td>5 = GND (0 V) (2)</td>
<td>11 = n.c.</td>
</tr>
<tr>
<td>6 = n.c.</td>
<td>12 = n.c.</td>
</tr>
</tbody>
</table>
**PROFIBUS T-Connectors / Taps**
0906 UTP 201 | 0906 UTP 202

**Technical Data**

**Environmental**
Degree of protection: IP 67 / NEMA 6P
Operating temperature range: -40°C (-40°F) / +125°C (+257°F)

**Mechanical**
Housing: Copper-Zinc alloy (CuZn), die casting part of Zinc (GD-Zn)
Housing surface: nickel-plated

**Electrical**
Nominal current:
- UTP 201: 20 A
- UTP 202: 8 A
Nominal voltage: 50 V DC
Pollution degree: 3

---

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906 UTP 201</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>0906 UTP 202</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors

0976 PMC 101

**M12 Male**

Field attachable connector, M12 male connector with threaded joint, shieldable, assembling with screw terminals 0976 PMC 101: 5 poles, B coding.

— especially suitable for Profibus signal cable 0975 254 000/... M —

0976 PMC 102

**M12 Male**

Field attachable connector, M12 male connector with threaded joint, shieldable, assembling with spring-type terminals 0976 PMC 102: 4 poles, B coding.

— especially suitable for Profibus signal cable 0975 254 000/... M Profibus signals —

### Pin Assignment

<table>
<thead>
<tr>
<th>M12 - 4 Poles (B-Code)</th>
<th>M12 - 5 Poles (B-Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors  
0976 PMC 101 | 0976 PMC 102

**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: GD-ZnAl, pre-coppered and nickel-plated
- Insert: PBT
- Contact: 0976 PFC 101: CuZn, pre-coppered, CuSnZn
  0976 PFC 102: Stainless steel, silver-plated, gold plated
- Receptical shell: CuZn, nickel-plated
- Shield sleeve: CuBe, tin-plated
- O-ring: FKM
- Mode of connection: 0976 PFC 101: screw terminals
  0976 PFC 102: spring-type terminals
- Connectable conductor: 0976 PFC 101: max. 0.75 mm²
  0976 PFC 102: 0.14-0.50 mm², 0.14 mm² with terminal pin sleeve

**Electrical**
- Contact resistance: ≤ 5 mΩ
- Nominal current at 40°C: 4 A
- Nominal voltage:
  - 4 poles: 120 V
  - 5 poles: 60 V
  - 0976 PMC 102: 32 V
- Rated voltage:
  - 4 poles: 125 V
  - 5 poles: 63 V
- Test voltage:
  - 4 poles: 1.5 kV eff. / 60 s
  - 5 poles: 1.0 kV eff. / 60 s
  - 0976 PMC 102: 0.65 kV eff. / 60 s
- Insulation resistance: > 10⁹ Ω
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Screw Joint for Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 101</td>
<td>5B</td>
<td>Ø 4.0-9.0 mm</td>
</tr>
<tr>
<td>0976 PMC 102</td>
<td>4B</td>
<td>Ø 4.0-9.0 mm</td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors

**M12 Female (Screw Terminals)**
Field attachable connector, M12 female connector with threaded joint, shieldable, assembling with screw terminals 0976 PFC 101: 5 poles, B coding.
— especially suitable for Profibus signal cable 0975 254 000/... M —

**M12 Female (Spring-Type Terminals)**
Field attachable connector, M12 female connector with threaded joint, shieldable, assembling with spring-type terminals 0976 PFC 102: 4 poles, B coding.
— especially suitable for Profibus signal cable 0975 254 000/...M Profibus signals —

**Pin Assignment**

<table>
<thead>
<tr>
<th>M12 - 4 Poles (B-Code)</th>
<th>M12 - 5 Poles (B-Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Pin Assignment" /></td>
<td><img src="image.png" alt="Pin Assignment" /></td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors
0976 PFC 101 | 0976 PFC 102

**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: GD-ZnAl, pre-coppered and nickel-plated
- Insert: PBT
- Contact: 0976 PFC 101: CuZn, pre-coppered, CuSnZn
- 0976 PFC 102: Stainless steel, silver-plated, gold plated
- Receptical shell: CuZn, nickel-plated
- Shield sleeve: CuBe, tin-plated
- O-ring: FKM
- Mode of connection: 0976 PFC 101: screw terminals
- 0976 PFC 102: spring-type terminals
- Connectable conductor: 0976 PFC 101: max. 0.75 mm²
- 0976 PFC 102: 0.14-0.50 mm², 0.14 mm² with terminal pin sleeve

**Electrical**
- Contact resistance: ≤ 5 mΩ
- Nominal current at 40°C: 4 A
- Nominal voltage:
  - 4 poles: 120 V
  - 5 poles: 60 V
  - 0976 PMC 102: 32 V
- Rated voltage:
  - 4 poles: 125 V
  - 5 poles: 63 V
- Test voltage:
  - 4 poles: 1.5 kV eff. / 60 s
  - 5 poles: 1.0 kV eff. / 60 s
  - 0976 PMC 102: 0.65 kV eff. / 60 s
- Insulation resistance: > 10⁹ Ω
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Screw Joint for Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PFC 101</td>
<td>5B</td>
<td>Ø 4.0-9.0 mm</td>
</tr>
<tr>
<td>0976 PFC 102</td>
<td>4B</td>
<td>Ø 4.0-9.0 mm</td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors

0906 UMC 201

M23 Male (Solder Contacts)
Field attachable connector, M23 male connector with threaded joint, 6 poles, assembling with solder connections.
— especially suitable for power supply Profibus —

0906 UMC 202

M23 Male (Screw Terminals)
Field attachable connector, M23 male connector with threaded joint, 6 poles, assembling with screw terminals.
— especially suitable for power supply Profibus —

Pin Assignment
M23 - 6 Poles
**PROFIBUS Field Attachable Connectors**
0906 UMC 201 | 0906 UMC 202

**Technical Data**

**Environmental**
- Degree of protection: IP 67 / NEMA 6P
- Operating temperature range: -40°C (-40°F) / +125°C (+257°F)

**Mechanical**
- Housing / Molded body: CuZn, nickel-plated
- Insert: PBT
- Contact: CuZn, pre-nickeled and gold-plated
- Receptical shell: CuZn, nickel-plated
- Mode of connection: 0906 UMC 201: solder connection, 0906 UMC 201: screw terminals
- Connectable conductor:
  - 0906 UMC 201: max. 2.5 mm²
  - 0906 UMC 202: max. 1.0 mm²

**Electrical**
- Nominal current at 40°C: 20 A
- Nominal voltage: 300 V
- Insulation resistance: > 10¹⁶ Ω
- Pollution degree: 2 (3*)
  *according to DIN EN 61984-2001

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Screw Joint for Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906 UMC 201</td>
<td>6</td>
<td>Ø 10.5 mm</td>
</tr>
<tr>
<td>0906 UMC 202</td>
<td>6</td>
<td>Ø 10.5 mm</td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors

0906 UFC 201

M23 Female (Solder Contacts)
Field attachable connector, M23 female connector with threaded joint, 6 poles, assembling with solder connections.
— especially suitable for power supply Profibus —

0906 UFC 202

M23 Female (Screw Terminals)
Field attachable connector, M23 female connector with threaded joint, 6 poles, assembling with screw terminals.
— especially suitable for power supply Profibus —

Pin Assignment
M23 - 6 Poles
PROFIBUS Field Attachable Connectors
0906 UFC 201 | 0906 UFC 202

Technical Data

Environmental
Degree of protection IP 67 / NEMA 6P
Operating temperature range -40°C (-40°F) / +110°C (+230°F)

Mechanical
Housing / Molded body CuZn, nickel-plated
Insert PBT
Contact CuZn, pre-nickeled and gold-plated
Receptical shell CuZn, nickel-plated
Mode of connection 0906 UFC 201: solder connection
0906 UFC 201: screw terminals
Connectable conductor 0906 UFC 201: max. 6 x 2.5 mm²
0906 UFC 202: max. 6 x 1.5 mm²

Electrical
Nominal current at 40°C 20 A
Nominal voltage 300 V
Insulation resistance > 10¹⁶ Ω
Pollution degree 2 (3*)
*according to DIN EN 61984-2001

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Screw Joint for Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906 UFC 201</td>
<td>6</td>
<td>Ø 10.5 mm</td>
</tr>
<tr>
<td>0906 UFC 202</td>
<td>6</td>
<td>Ø 10.5 mm</td>
</tr>
</tbody>
</table>
**PROFIBUS Field Attachable Connectors**

**0976 PMC 201**

*M23 Male (Solder Contacts)*

Field attachable connector, M23 male connector with threaded joint, 12 poles, assembling with solder connections.

— especially suitable for Profibus combined cable 0975 202 000/... M —

**0976 PMC 202**

*M23 Female (Solder Contacts)*

Field attachable connector, M23 male connector with threaded joint, 12 poles, assembling with solder connections.

— especially suitable for Profibus signal cable 0975 254 000/... M —

**Pin Assignment**

*M23 - 12 Poles*
Be Certain with Belden

**PROFIBUS Field Attachable Connectors**
0976 PMC 201 | 0976 PMC 202

**Technical Data**

**Environmental**
- Degree of protection: IP 67 / NEMA 6P
- Operating temperature range: -40°C (-40°F) / +125°C (+257°F)

**Mechanical**
- Housing / Molded body: CuZn, nickel-plated
- Insert: PBT
- Contact: CuZn, pre-nickeled and gold-plated
- Receptical shell: CuZn, nickel-plated
- Mode of connection: solder contacts

**Electrical**
- Nominal current at 40°C: 8 A
- Nominal voltage: 150 V DC
- Test voltage: 1.5 kV eff. / 60 s
- Insulation resistance: > 10¹² Ω
- Pollution degree: 2 (3*)
  *according to DIN EN 61984-2001

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
<th>Screw Joint for Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 201</td>
<td>12</td>
<td>Ø 14.5 mm</td>
</tr>
<tr>
<td>0976 PMC 202</td>
<td>12</td>
<td>Ø 10.5 mm</td>
</tr>
</tbody>
</table>
PROFIBUS Field Attachable Connectors

0976 PMC 501

SUBD Male (Screw Terminals)

Field attachable connector, SUBD male connector for Profibus, switch-on terminating resistor, 9 poles, assembling with screw terminals.
PROFIBUS Field Attachable Connectors
0976 PMC 501

Technical Data

Environmental
Degree of protection IP 40
Operating temperature range -0°C (-32°F) / +60°C (+140°F)

Mechanical
Housing / Molded body ABS, pre-coppered and nickel-plated
Contact CuZn, pre-nickel and gold-plated
Mode of connection screw terminals
Connectable conductor max. 1.0 mm²
Cable exit vertical

Electrical
Terminating resistor switch-on
Current consumption max. 12.5 mA
Nominal voltage 4.75–5.25 V DC
Transmission rate max. 12 MBit/s

Interfaces
Profibus device SUBD socket, 9 poles
Profibus bus cable 4 pole terminal block

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 501</td>
<td>9</td>
</tr>
</tbody>
</table>
D-SUB / M12 Connectors for Profibus

9-Pole (D-Sub) 35° Compact Version
Profibus connector, 35° compact version, M12 B-coding, male and female quick connector, full metal body with testing socket, with external switch for bus termination.

0976 PMC 512

9-Pole (D-Sub) 90° Compact Version
Profibus connector, 90° compact version, M12 B-coding, male and female quick connector, full metal body with testing socket, with external switch for bus termination.

0976 PMC 514
**D-SUB / M12 Connectors for Profibus**
0976 PMC 512 | 0976 PMC 514

**Technical Data**

**Data Rate**  
12 MBit/s

**Environmental**

Degree of protection  
IP 30

Operating temperature range  
-20°C (-4°F) / +70°C (+158°F)

Permissible humidity  
Max 75% at +25°C, non-condensing

**Mechanical**

Housing / Molded body  
Zn alloy

D-Sub locking screw  
UNC 4-40

Connector and pin layout  
acc. to PROFIBUS specification

Dimensions in mm  
0976 PMC 512: 67.7 x 45 x 16.8
0976 PMC 514: 58.8 x 45 x 16.8

Mechanical Lifetime  
200 Mating cycles

**Interfaces**

PROFIBUS DP  
D-Sub 9 poles male

PROFIBUS DP PG  
D-Sub 9 poles female

PROFIBUS cable  
M12 B-code male and female,  
Pin 1 = +5V
Pin 2 = Line A
Pin 3 = GND (0V)
Pin 4 = Line B

**Shielded Profibus M12-Cable**  
B-Code: only Pin 2 and 4 connected,  
shield transfer only via shell (e.g. 0975 254 10x/... M)

**Bus Termination**  
Bus termination resistors activated via external switch or via external terminator on Bus-Out-Connector (e.g. 0979 PTX 101)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins D-Sub</th>
<th>Pins M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 512</td>
<td>9</td>
<td>5 B</td>
</tr>
<tr>
<td>0976 PMC 514</td>
<td>9</td>
<td>5 B</td>
</tr>
</tbody>
</table>
D-SUB / M12 Connectors for Profibus

9-Pole (D-Sub) 180° Compact Version
Profibus connector, 180° compact version, M12 B-coding, male and female quick connector, full metal body, with external switch for bus termination.

0976 PMC 515
D-SUB / M12 Connectors for Profibus
0976 PMC 515

Technical Data

**Data Rate**
12 MBit/s

**Environmental**
Degree of protection  IP 30
Operating temperature range  -20°C (-4°F) / +70°C (+158°F)
Permissible humidity  Max 75% at +25°C, non-condensing

**Mechanical**
Housing / Molded body  Zn alloy
D-Sub locking screw  UNC 4-40
Connector and pin layout  acc. to PROFIBUS specification
Dimensions in mm  84.8 x 35.6 x 16.8
Mechanical Lifetime  200 Mating cycles

**Interfaces**
PROFIBUS DP  D-Sub 9 poles male
PROFIBUS cable  M12 B-code male and female,
Pin 1 = +5V
Pin 2 = Line A
Pin 3 = GND (0V)
Pin 4 = Line B

**Shielded Profibus M12-Cable**
B-Code: only Pin 2 and 4 connected,
shield transfer only via shell (e.g. 0975 254 10x/... M)

**Bus Termination**
Bus termination resistors activated via external switch or
via external terminator on Bus-Out-Connector (e.g. 0979 PTX 101)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins D-Sub</th>
<th>Pins M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 515</td>
<td>9</td>
<td>5 B</td>
</tr>
</tbody>
</table>
PROFIBUS Receptacle Connectors

**M12 Male**
Receptacle connector, M12 male connector for front mounting, 5 poles, B coding, print contacts, chassis side thread PG 9.
— especially suitable for Profibus —

**M12 Female**
Receptacle connector, M12 female connector for front mounting, 5 poles, B coding, printed contacts, chassis side thread PG 9.
— especially suitable for Profibus —

**Pin Assignment**

**M12 - 5 Poles (B-Coding)**

*1: O-Ring
*2: O-Ring loose enclosed
*3: Solder contacts potted with epox
d: Hole pattern in printed circuit board
PROFIBUS Receptacle Connectors
0976 PMC 152 | 0976 PFC 152

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: CuZn, nickel-plated
Insert: TPU, self-extinguishing
Contact: CuZn, pre-nickeled and 0.8 microns gold-plated
O-ring: FKM
Mode of connection: printed circuit board mount

Electrical
Contact resistance: ≤ 5 mΩ
Nominal current at 40°C: 4 A
Nominal voltage: 60 V
Rated voltage: 63 V
Test voltage: 1.5 kV eff. / 60 s
Insulation resistance: > 10⁹ Ω
Pollution degree: 3

Part Number | Pins
--- | ---
0976 PMC 152 | 5B
0976 PFC 152 | 5B
**PROFIBUS Receptacle Connectors**

**M12 Male**

Receptacle connector, M12 male connector for rear mounting, print contacts, chassis side thread PG 9 (panel nut RSKF 9).

**M12 Female**

Receptacle connector, M12 female connector for rear mounting, printed contacts, chassis side thread PG 9 (panel nut RSKF 9).

* “Nut
  * “O-Ring
  * “Solder contacts protected with epoxy
  * “Antivibration protection
  * “Cut-out for anti-rotation
  * “ Hole pattern on printed circuit board
  * “ Center contact loading

**Pin Assignment**

M12 - 5 Poles (B-Coding)
PROFIBUS Receptacle Connectors
RSHL 5B/S 5.5 | RKHL 5B/S 5.5

Technical Data

Environmental
Degree of protection  IP 67 / NEMA 6P
Operating temperature range  -25°C (-13°F) / +80°C (+176°F)

Mechanical
Housing / Molded body  CuZn, nickel-plated
Insert  PA
Contact  CuZn, pre-nickeled and 0.8 microns gold-plated
O-ring  FKM
Mode of connection  printed circuit board mount

Electrical
Contact resistance  ≤ 5 mΩ
Nominal current at 40°C  4 A
Nominal voltage  60 V
Rated voltage  63 V
Test voltage  1.5 kV eff. / 60 s
Insulation resistance  > 10⁶ Ω
Pollution degree  3

Part Number  Pins
RSHL 5B/S 5.5  5B
RKHL 5B/S 5.5  5B
PROFIBUS Receptacle Connectors

M12 Male to Female

Receptacle connector, combined M12 male connector to combined M12 female connector. – especially designed for use as panel feed through –

Pin Assignment

M12 – 5 Poles (B-Coding)
PROFIBUS Receptacle Connectors
FWD 5B

Technical Data

Environmental
Degree of protection  IP 67 / NEMA 6P
Operating temperature range  -25°C (-13°F) / +80°C (+176°F)

Mechanical
Housing / Molded body  CuZn, nickel-plated
Insert Male connector  PA 6.6
Insert Female connector  TPU, self-extinguishing
Contact  CuZn, pre-nickel and 0.8 microns gold-plated
O-ring  FKM

Electrical
Contact resistance  ≤ 5 mΩ
Nominal current at 40°C  4 A
Nominal voltage  60 V
Test voltage  1.5 kV eff. / 60 s
Insulation resistance  > 10⁹ Ω
Pollution degree  3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWD 5B</td>
<td>5B</td>
</tr>
</tbody>
</table>
PROFIBUS Receptacle Connectors

M12 Male
Receptacle connector, M12 male connector for front mounting, 5 poles, B coding, adjustable, assembled stranded wire, solder contacts potted with epoxy, chassis side thread M16 x 1.5.
— especially suitable for Profibus —

M12 Female
Receptacle connector, M12 female connector for front mounting, 5 poles, B coding, adjustable, assembled stranded wire, solder contacts potted with epoxy, chassis side thread M16 x 1.5.
— especially suitable for Profibus —

Pin Assignment
M12 - 5 Poles (B-Coding)
1 = brown
2 = green
3 = blue
4 = red
5 = green/yellow
Contact 5 leading
PROFIBUS Receptacle Connectors
0976 PMC 151 | 0976 PFC 151

Technical Data

Environmental
Degree of protection: IP 67 / NEMA 6P
Operating temperature range: -25°C (-13°F) / +80°C (+176°F)

Mechanical
Housing / Molded body: CuZn, nickel-plated
Insert: TPU, self-extinguishing
Contact: CuZn, pre-nickeled and 0.8 microns gold-plated
O-ring: FKM
Adjustable nut: CuZn, nickel-plated

Electrical
Contact resistance: ≤ 5 mΩ
Nominal current at 40°C: 4 A
Nominal voltage: 60 V
Test voltage: 1.5 kV eff. / 60 s
Insulation resistance: > 10⁹ Ω
Pollution degree: 3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>0976 PMC 151</td>
<td>5B</td>
</tr>
<tr>
<td>0976 PFC 151</td>
<td>5B</td>
</tr>
</tbody>
</table>
Profibus Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0979 PTX 101</td>
<td>Profibus terminating resistor, M12 male connector, 4 poles, B coding.</td>
</tr>
<tr>
<td>0979 PTX 201</td>
<td>Profibus terminating resistor for the 12 pole M23 bus connection.</td>
</tr>
<tr>
<td>ZBS</td>
<td>Attachable labels, 10 pieces (7 x 14 mm).</td>
</tr>
<tr>
<td>ZBR 9/40</td>
<td>Attachable labels, 40 pieces (9 x 20 mm), suitable for all active compact bus modules.</td>
</tr>
<tr>
<td>ZBR 5/10</td>
<td>Attachable labels, 40 pieces (5 x 10 mm), suitable for all LioN-S bus modules.</td>
</tr>
<tr>
<td>ZVK</td>
<td>Dust cover for unused M12, M8, and 7/8&quot; sockets.</td>
</tr>
</tbody>
</table>
Be Certain with Belden

References
Cable Index and Connector Key/Pin Configurations

Profibus Wiring/Pin Diagram

<table>
<thead>
<tr>
<th>Connection M12</th>
<th>Signal</th>
<th>M12 Male to Female, 5-Pole</th>
<th>Function</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face View</td>
<td>Male</td>
<td>Face View Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VP (+5 V DC)*</td>
<td>Pin 1</td>
<td>n.c.</td>
<td>Line A</td>
<td>green</td>
</tr>
<tr>
<td>RxD/TxD-N</td>
<td>Pin 2</td>
<td>n.c.</td>
<td>Line B</td>
<td>red</td>
</tr>
<tr>
<td>DGN*</td>
<td>Pin 3</td>
<td>n.c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RxD/TxD-P</td>
<td>Pin 4</td>
<td>n.c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n.c.</td>
<td>Pin 5</td>
<td>n.c.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Internal signals

Fieldbus Color-Code-Profibus

<table>
<thead>
<tr>
<th>Cable No.</th>
<th>Pin/Wire Color Code</th>
<th>Face View Male</th>
<th>Face View Female</th>
<th>Gauge</th>
<th>Material</th>
<th>Jacket Color</th>
<th>Outside Diameter</th>
<th>UL</th>
<th>CSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>254</td>
<td>green</td>
<td>2 x 0.38 mm²</td>
<td>PUR, Halogen-Free</td>
<td>Violet</td>
<td>299° / Ø 7.6 mm</td>
<td>AWM 20549</td>
<td>AWM VII A/B</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>black</td>
<td>3 x 0.75 mm²</td>
<td>PUR, Halogen-Free</td>
<td>Violet</td>
<td>433° / Ø 11.0 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>green/yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>green</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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Power Supply Cables

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