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A BELDEN BRAND

PROFIBUS® Fieldbus Solutions

Fieldbus Communication for PROFIBUS® Applications

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

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

Belden Industrial Solutions

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

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

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

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

Our Synergy Ensures Continuous Performance

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

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

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

Offering Comprehensive Service & Support

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

- Network Design
- Training
- Technical Support
- System Performance

Network Design

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

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

Training

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

Technical Support

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

System Performance

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

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

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A BELDEN BRAND

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

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 PLC's and IPC's, 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 Lumberg 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, Lumberg 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).

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 COMProfibus 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, manu facturer'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.

Bits	9.6k	19.2k	45.45k	93.75k	187.5k	500k	1.5M	3M 6M 12M
Length (meters)	1200	1200	1200	1200	1000	400	200	100
Max. Number of Repeaters	7	7	7	7	7	7	4	4

Table 1: Admissable transmission rates and line lengths

Product Characteristics

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

PROFIBUS modules with M23 or M12 connections.

PROFIBUS Connecting Information

PROFIBUS I/O Module Shown:
0970 PSL 111

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
	**Best Part Number** **0906 UTP 201**	**Description** T-Connector to daisy chain the power supply
	**Best Part Number** **RKU E 6-203/5 M**	**Description** Power supply cable, molded on one side for series with inputs only, Pin 1, 4, 5 assigned
	**Best Part Number** **RKU 6-204/5 M**	**Description** Power supply cable, molded on one side for output and mixing modules

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

	**Best Part Number** **0976 PFC 101**	**Description** Field attachable female connector
	**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

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

	**Best Part Number** **0976 PMC 101**	**Description** Field attachable male connector.
	**Best Part Number** **0979 PTX 101**	**Description** Terminating resistor, male.
	**Best Part Number** **0975 254 101/...M** **0975 254 102/...M**	**Description** PROFIBUS double-ended bus cable. PROFIBUS single-ended male.
	**Best Part Number** **0975 254 105/...M**	**Description** Profibus double-ended bus cable, M12 male connector to SUBD male connector

PROFIBUS Connecting Information

PROFIBUS I/O Module Shown:
0970 PSL 215

Power Supply for 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.
	**Best Part Number** **0906 UTP 201**	**Description** T-Connector to daisy chain the power supply.
	**Best Part Number** **RKU A 6-203/5 M**	**Description** Power supply cable, molded on one side for series with output and mixing modules only Pin 1, 2, 3 assigned.

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

	**Best Part Number** **0976 PMC 201**	**Description** Field attachable male connector for Profibus combined cable (Bus and power supply)
	**Best Part Number** **0976 PMC 202**	**Description** Field attachable male connector for the separte feeding of bus and power supply via a T-connector
	**Best Part Number** **0976 UTP 202**	**Description** 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
	**Best Part Number** **0979 PTX 201**	**Description** Terminating resistor
	**Best Part Number** **ZVK 2**	**Description** Dust cover for unused bus connection
	**Best Part Number** **0975 202 201/...M** **0975 202 202/...M**	**Description** Double ended cordset, male to male with M23, 12-pole connector Single ended cordset , male with M23, 12-pole connector

PROFIBUS Connecting Information

DeviceNet I/O Module Shown:
0970 PSL 701

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

	Best Part Number	Description
	**RKC 50/11** or **RKC 50/16**	Field attachable female connector
	and	
	**RSC 50/11** or **RSC 50/16**	Field attachable male connector
	**0906 UTP 301**	T-Connector to daisy chain the power supply
	**RK 50-644/...M** and **RS 50-644/...M**	Single-ended power supply female cable and Single-ended power supply cable

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

	Best Part Number	Description
	**0976 PFC 101**	Field attachable female connector
	**0975 254 101/...M**	Profibus double-ended bus cable
	0975 254 103/...M	Profibus single-ended female
	**0975 254 104/...M**	Profibus double-ended bus cable, M12 female connector to SUBD male connector

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

	Best Part Number	Description
	**0976 PMC 101**	Field attachable male connector.
	**0979 PTX 101**	Terminating resistor, male.
	**0975 254 101/...M**	PROFIBUS double-ended bus cable.
	0975 254 102/...M	PROFIBUS single-ended male.
	**0975 254 105/...M**	Profibus double-ended bus cable, M12 male connector to SUBD male connector

PROFIBUS Connecting Information

Lumberg I/O Network

DeviceNet I/O Module Shown:
0970 PSL 650

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

Best Part Number RKC 5/9
Description Field Attachable, M12 Female Connector, 5-Pole, PG9 Threads

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

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

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

Best Part Number 0976 PFC 101
Description Field attachable female connector

Best Part Number 0975 254 101/...M
Description Profibus double-ended bus cable

Best Part Number 0975 254 103/...M
Profibus single-ended female

Best Part Number 0975 254 104/...M
Description Profibus double-ended bus cable, M12 female connector to SUBD male connector

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

Best Part Number 0976 PMC 101
Description Field attachable male connector.

Best Part Number 0979 PTX 101
Description Terminating resistor, male.

Best Part Number 0975 254 101/...M
Description PROFIBUS double-ended bus cable.

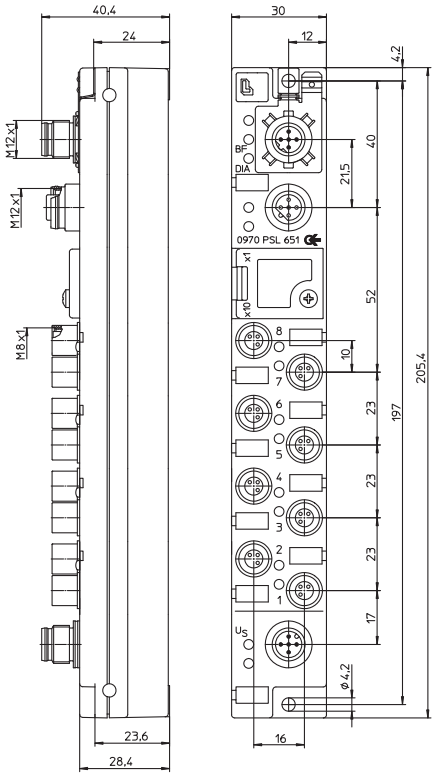
Best Part Number 0975 254 102/...M
PROFIBUS single-ended male.

Profibus I/O Modules with 8-Digital Inputs

0970 PSL 651

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

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

Diagnostic Indication

LED	Indication	Condition
1...8	yellow	channel status
1...8	red	periphery fault
Us	green	sensor/system power supply
BF	red	bus error
DIA	red	common indication for periphery faults

Pin Assignment

Bus connection M12	Power supply M12	Input M8	
			1 = internal signals: galvanically separated to sensors
1 = +5 V[1] 2 = Line A 3 = GND (0 V) 4 = Line B 5 = earth housing = earth	1 = - 2 = +24 V[2] 3 = GND (0 V) 4 = GND (0 V) 5 = Earth	1 = +24 V 3 = GND (0 V) 4 = In	2 = 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	**Profibus**
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. (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

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

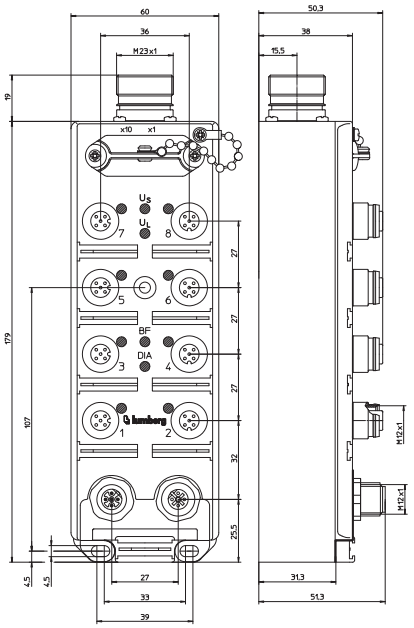
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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

Bit	7	6	5	4	3	2	1	0
M12 Input								
Byte 0	8	7	6	5	4	3	2	1
Diagnostic								
DIA-Byte	-	-	-	OVL	-	-	-	-

OVL: Overload status

Diagnostic Indication

LED	Indication	Condition
1...8	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Power supply 23

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

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 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	**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	**UL**
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	**Us**
Voltage range	min. (U_{System} - 1.5 V)
Total current of all sensors	max. 800 mA
Short circuit-proof	yes
Indication	LED green
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 24 V	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

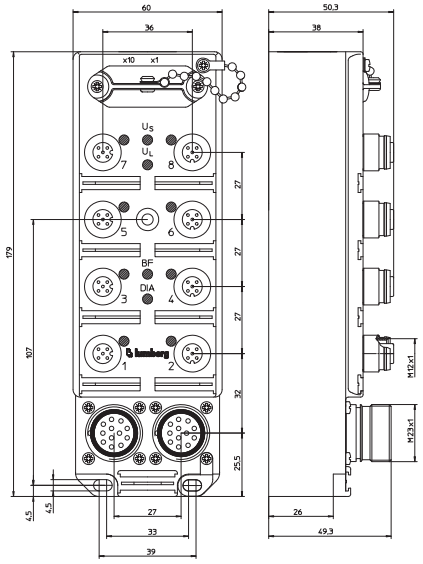
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs

0970 PSL 213

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

Bit	7	6	5	4	3	2	1	0
				M12 Input				
Byte 0	8	7	6	5	4	3	2	1
				Diagnostic				
DIA-Byte	-	-	-	OVL	-	-	-	-

OVL: Overload status

Diagnostic Indication

LED	Indication	Condition
1...8	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload

Pin Assignment

Bus connection M23

1 = GNDI [1]
2 = Line A
3 = n.c.
4 = Line B
5 = n.c.
6 = VCCI [1]
7 = +24 V
8 = GND (0 V)
9 = Erde / earth
10 = n.c.
11 = n.c.
12 = RTS [1]
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	**UL**
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	**Us**
Voltage range	min. (U_{System} - 1.5 V)
Total current of all sensors	max. 800 mA
Short circuit-proof	yes
Indication	LED green
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 24 V	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 213

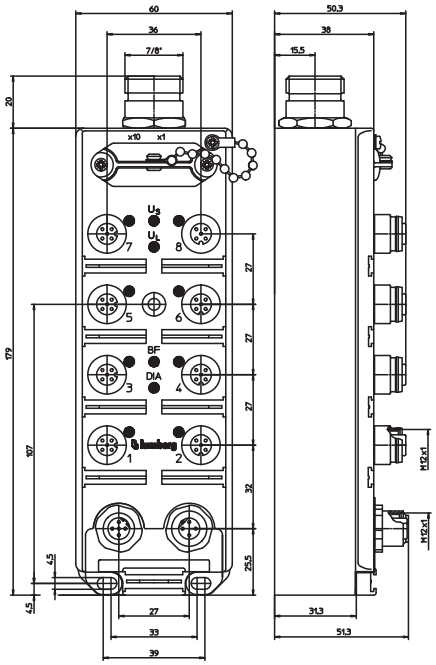
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs

0970 PSL 118

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

Bit	7	6	5	4	3	2	1	0
				M12 Input				
Byte 0	8	7	6	5	4	3	2	1
				Diagnostic				
DIA-Byte	-	-	-	OVL	-	-	-	-

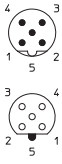
OVL: Overload status

Diagnostic Indication

LED	Indication	Condition
1...8	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload

Pin Assignment

Bus connection M12



1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Power supply 7/8"

1 = n.c.
2 = 0 V [2]
3 = Earth
4 = + 24 V [2]
5 = n.c.
housing = n.c.

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 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	**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	**UL**
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	**Us**
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	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 24 V	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 118

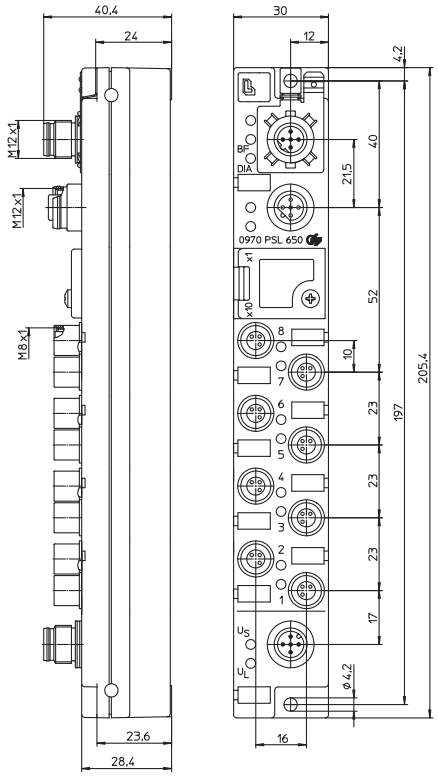
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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.



Bit Assignment

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

Diagnostic Indication

LED	Indication	Condition
1...8	yellow	channel status
1...8	red	periphery fault
U_S	green	sensor/system power supply
U_L	green	actuator power supply
BF	red	bus error
DIA	red	common indication for periphery faults

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V)
4 = Line B
5 = earth
housing = earth

Power supply M12

1 = _24 V [2]
2 = +24 V [3]
3 = GND (0 V) [2]
4 = GND (0 V) [3]
5 = Earth

Input M8

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

1 = internal signals: galvanically separated to sensors
2 = actuators
3 = system sensors

Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 650

Technical Data

Environmental

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

Mechanical

Weight	200 g
Housing material	PBT

Bus system	**Profibus**
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. (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	**UL**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Reverse polarity protection	yes/antiparallel diode
Indication	LED green

Outputs

Rated output current	0.5 A per channel
Short circuit-proof	yes
Max. output current	4 A per module
Overload-proof	yes
Number of digital channels	max. 8
Channel type N.O.	p-switching
Channel status indicator	LED yellow per channel
Diagnostic indication	LED red per channel

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

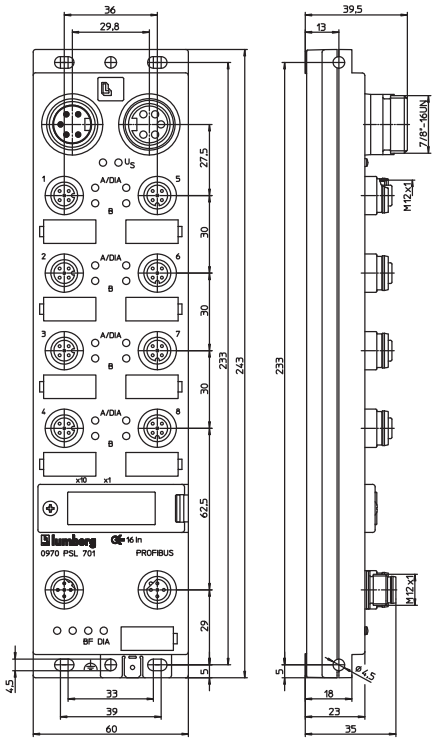
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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

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

Diagnostic Indication

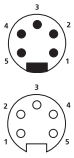
LED	Indication	Condition
1...8 A/B	yellow	channel status
1...8 A/DIA	red	periphery fault
Us	green	sensor/system power supply
BF	red	bus error
DIA	red	common indication for periphery faults

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A - GN
3 = GND (0 V) [1]
4 = Line B - RD
5 = earth
housing = earth

Power supply 7/8"



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

Input M12

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

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	**Profibus**
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	**Us**
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. 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

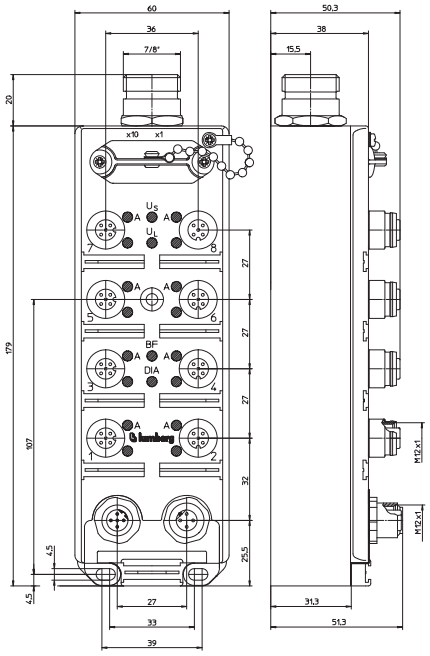
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Inputs

0970 PSL 111

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

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

OVL: Overlaod status

Diagnostic Indication

LED	Indication	Condition
1...8 A/B	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Power supply M23

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

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 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	**Profibus**
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	**UL**
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	**Us**
Voltage range	min. (UL - 1.5 V)
Total current of all sensors	max. 800 mA
Short circuit-proof	yes
Indication	LED green

Inputs	**Type 3 acc. to IEC 61131-2L**
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

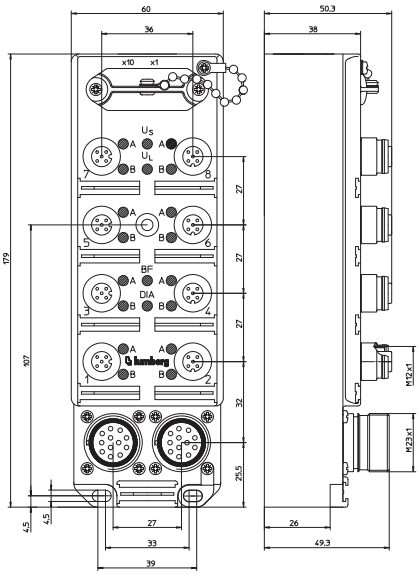
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Inputs

0970 PSL 209

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

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

OVL: Overlaod status

Diagnostic Indication

LED	Indication	Condition
1...8 A/B	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M23

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

Input M12

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

1 = internal signals

Profibus I/O Modules with 16-Digital Inputs

0970 PSL 209

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	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	**UL**
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	**Us**
Voltage range	min. (UL - 1.5 V)
Total current of all sensors	max. 800 mA
Short circuit-proof	yes
Indication	LED green

Inputs	**Type 3 acc. to IEC 61131-2L**
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 209

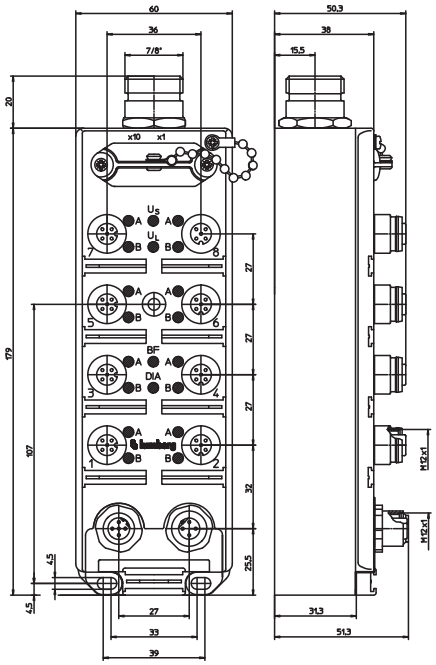
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Inputs

0970 PSL 115

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

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

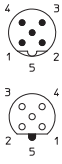
OVL: Overlaod status

Diagnostic Indication

LED	Indication	Condition
1...8 A/B	yellow	channel status
Us	green	sensor/system power supply
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload

Pin Assignment

Bus connection M12



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

Power supply 7/8"

1 = n.c.
2 = 0 V [2]
3 = Earth
4 = + 24 V [2]
5 = n.c.
housing = n.c.

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 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	**Profibus**
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	**UL**
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	**Us**
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	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 24 V	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

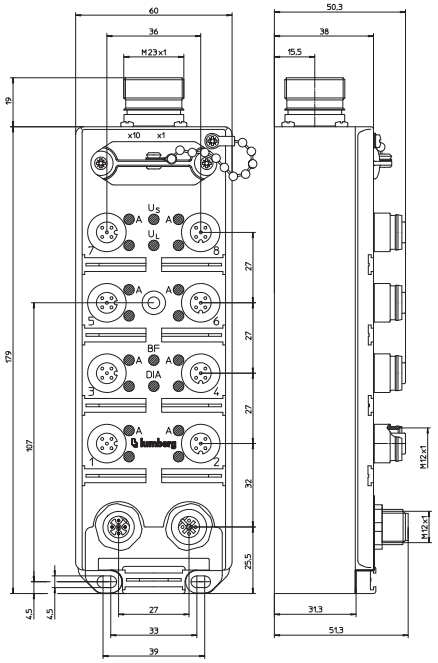
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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.



Bit Assignment

Bit	7	6	5	4	3	2	1	0
M12 Output								
Byte 0	8	7	6	5	4	3	2	1
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1...8 A	yellow	channel status
1...8	red	actuator short-circuit
Us	green	actuator supply active
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Power supply M23

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

Input M12

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 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	**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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	2 A per channel
Short circuit-proof	yes
Max. output current	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

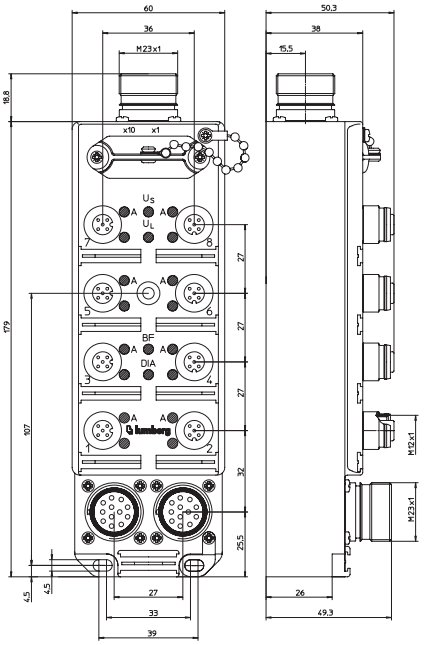
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Outputs

0970 PSL 210

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

Bit	7	6	5	4	3	2	1	0
M12 Output								
Byte 0	8	7	6	5	4	3	2	1
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1...8 A	yellow	channel status
1...8	red	actuator short-circuit
Us	green	actuator supply active
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M23

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

Actuator supply M23

1 = Earth
2 = +24 V
3 = GND (0 V)
4 = n.c.
5 = n.c.
6 = 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	**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
Electronics power supply	**UL**
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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	2 A per channel
Short circuit-proof	yes
Max. output current	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

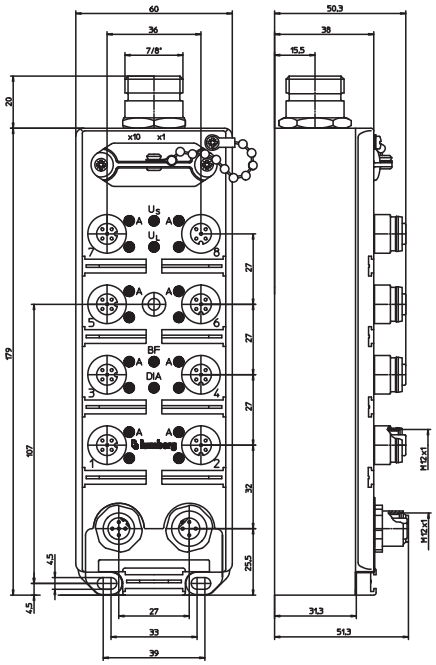
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Outputs

0970 PSL 116

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

Bit	7	6	5	4	3	2	1	0
M12 Output								
Byte 0	8	7	6	5	4	3	2	1
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

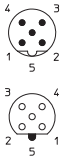
UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1...8 A	yellow	channel status
1...8	red	actuator short-circuit
Us	green	actuator supply active
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M12



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

Actuator supply 7/8"

1 = 0 V [2]
2 = 0 V [3]
3 = earth
4 = +24 V [3]
5 = +24 V [2]
housing = n.c.

Output M12

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 Outputs

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	**UL**
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	**Us**
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.	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 116

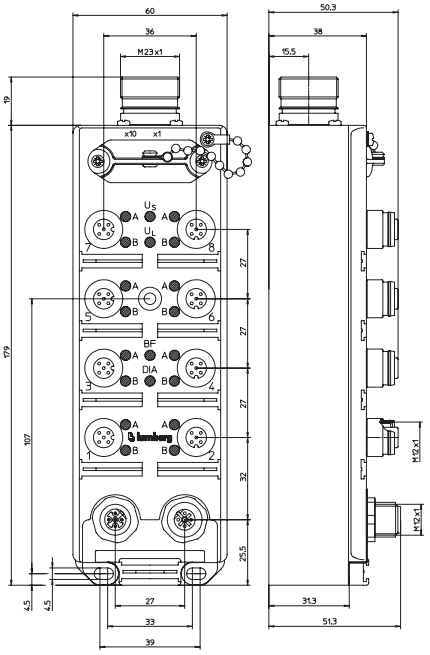
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Outputs

0970 PSL 124

16 OUT

Profibus-DP device with 16 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

Bit	7	6	5	4	3	2	1	0
M12 Output								
Byte 0	8A	7A	6A	5A	4A	3A	2A	1A
Byte 1	8B	7B	6B	5B	4B	3B	2B	1B
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1...8 A/B	yellow	channel status
1...8 A/B	red	actuator short-circuit
Us	green	actuator supply active
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Actuator supply M23

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

Output M12

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

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	**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	**UL**
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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	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

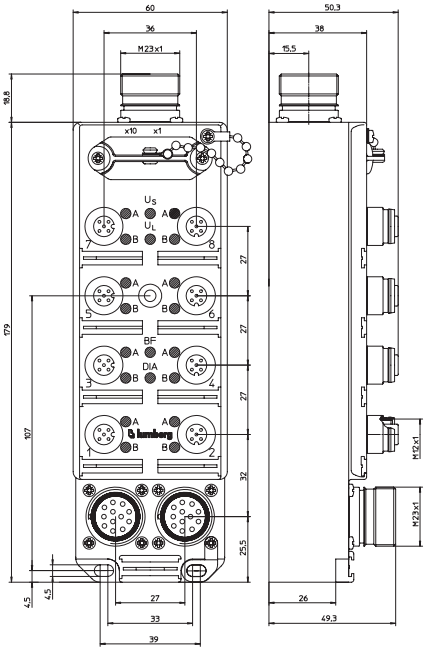
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Outputs

0970 PSL 215

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

Bit	7	6	5	4	3	2	1	0
M12 Input								
Byte 0	8A	7A	6A	5A	4A	3A	2A	1A
Byte 1	8B	7B	6B	5B	4B	3B	2B	1B
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1...8 A/B	yellow	channel status
1...8 A/B	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M23

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

Actuator supply M23

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

Output M12

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

1 = internal signals

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	**UL**
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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	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

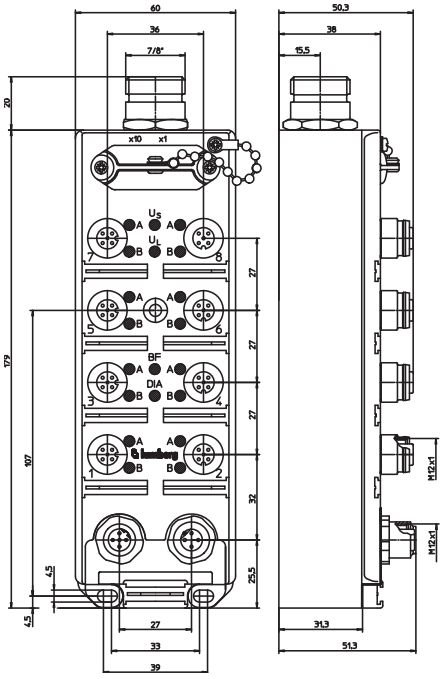
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 16-Digital Outputs

0970 PSL 127

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.



Bit Assignment

Bit	7	6	5	4	3	2	1	0
M12 Input								
Byte 0	8A	7A	6A	5A	4A	3A	2A	1A
Byte 1	8B	7B	6B	5B	4B	3B	2B	1B
Diagnostic								
DIA-Byte	-	UVA	ASC	-	-	-	-	-

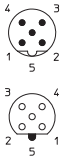
UVA: Undervoltage actuator
ASC: Actuator short-circuit

Diagnostic Indication

LED	Indication	Condition
1..8 A/B	yellow	channel status
1..8 A/B	red	actuator short-circuit
Us	green	actuator supply active
UL	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M12



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

Power supply 7/8"

1 = 0 V [2]
2 = 0 V [3]
3 = earth
4 = +24 V [3]
5 = +24 V [2]
housing = n.c.

Output M12

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

1 = internal signals
2 = actuators
3 = system

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	**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	**UL**
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	**Us**
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

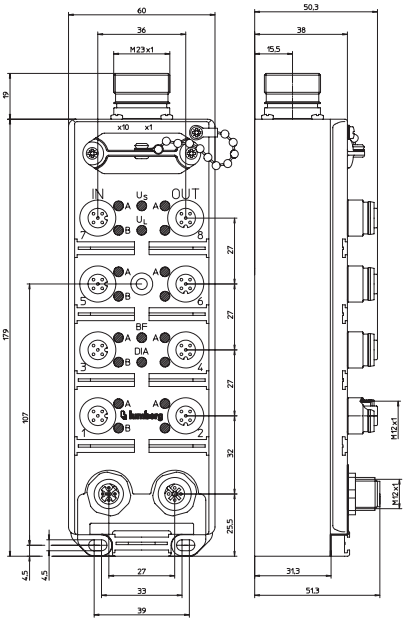
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

0970 PSL 113

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

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

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

Diagnostic Indication

LED	Indication	Condition
1, 3, 5, 7 A/B 2, 4, 6, 8 A	yellow	channel status
2, 4, 6, 8	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

Power supply M23

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

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 113

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	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	**UL**
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
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	2 A per channel
Short circuit-proof	yes
Max. output current	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

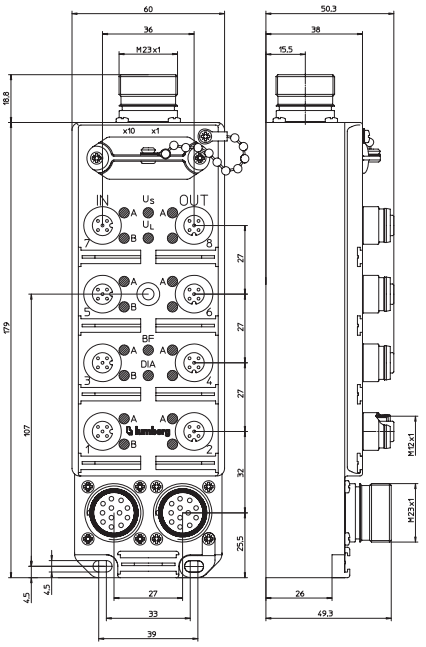
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

0970 PSL 211

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

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

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

Diagnostic Indication

LED	Indication	Condition
1, 3, 5, 7 A/B 2, 4, 6, 8 A	yellow	channel status
2, 4, 6, 8	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload)

Pin Assignment

Bus connection M23

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

Actuator supply M23

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

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

Profibus I/O Modules with 8-Digital Inputs and 4-Digital Outputs

0970 PSL 211

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	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	**UL**
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
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	2 A per channel
Short circuit-proof	yes
Max. output current	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 211

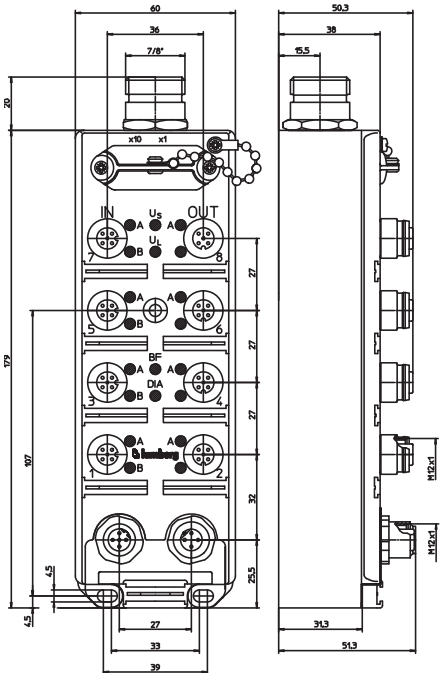
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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

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

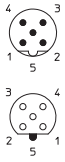
UVA: Undervoltage actuator
ASC: Actuator short-circuit
OVL: Overload status

Diagnostic Indication

LED	Indication	Condition
1, 3, 5, 7 A/B 2, 4, 6, 8 A	yellow	channel status
2, 4, 6, 8	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor short-circuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)

Pin Assignment

Bus connection M12



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

Actuator supply 7/8"

1 = 0 V [2]
2 = 0 V [3]
3 = earth
4 = +24 V [3]
5 = +24 V [2]
housing = n.c.

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	**Profibus**
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	**UL**
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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 2 A acc. to IEC 61131-2**
Rated output current	2 A per channel
Short circuit-proof	yes
Max. output current	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

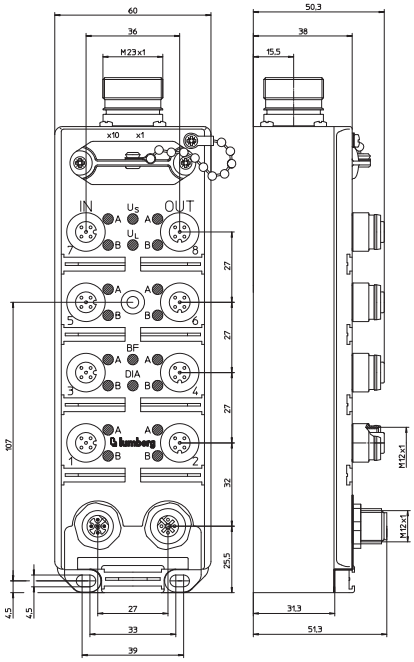
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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

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

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

Diagnostic Indication

LED	Indication	Condition
1..8 A/B	yellow	channel status
2, 4, 6, 8 A/B	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor shortcircuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A
3 = GND (0 V) [1]
4 = Line B
5 = earth

System/Actuator supply M23

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

Input/Output M12

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

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

1 = internal signals
2 = actuators
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	**Profibus**
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	**UL**
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
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 0.5 A acc. to IEC 61131-2**
Rated output current	0.7 A per channel
Short circuit-proof	yes
Max. output current	5.6 A 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 123

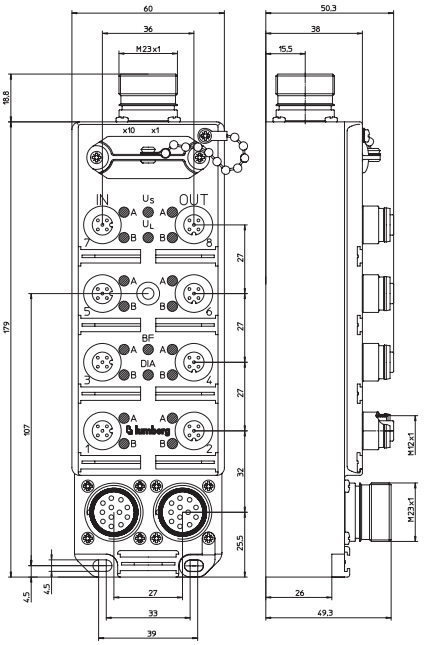
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 214

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.



Bit Assignment

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

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

Diagnostic Indication

LED	Indication	Condition
1..8 A/B	yellow	channel status
2, 4, 6, 8 A/B	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor shortcircuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)

Pin Assignment

Bus connection M23

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

Actuator supply M23

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

Input/Output M12

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

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

1 = internal signals

Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 214

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	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	**UL**
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
Inputs	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 0.5 A acc. to IEC 61131-2**
Rated output current	0.7 A per channel
Short circuit-proof	yes
Max. output current	5.6 A 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 214

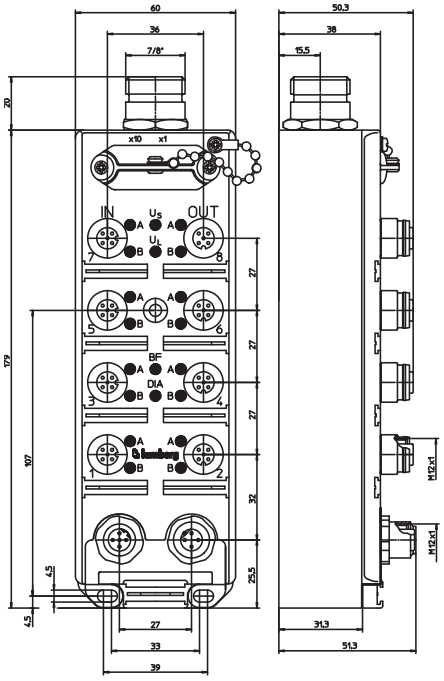
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

Profibus I/O Modules with 8-Digital Inputs and 8-Digital Outputs

0970 PSL 126

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

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

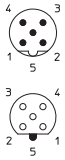
UVA: Undervoltage actuator
ASC: Actuator short-circuit
OVL: Overload status

Diagnostic Indication

LED	Indication	Condition
1..8 A/B	yellow	channel status
2, 4, 6, 8 A/B	red	actuator short-circuit
U_S	green	actuator supply active
U_L	green	module electronic supply active
BF	red	bus error
DIA	red	module diagnostics (sensor shortcircuit / sensor overload / actuator low voltage / actuator short-circuit / actuator overload)

Pin Assignment

Bus connection M12



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

Actuator supply 7/8"

1 = 0 V [2]
2 = 0 V [3]
3 = earth
4 = +24 V [3]
5 = +24 V [2]
housing = n.c.

Input/Output M12

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

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

1 = internal signals
2 = actuators
3 = system

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	**Profibus**
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	**UL**
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	**Type 3 acc. to IEC 61131-2**
Rated input voltage	24 V DC
Signal state “1”	11–30 V
Signal state “0”	-3–5 V
Input current at 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	**Us**
Rated voltage	24 V DC
Voltage range	19–30 V DC
Potential separation	present
Reverse polarity protection	yes/antiparallel diode
Indication	LED green
Outputs	**Type 0.5 A acc. to IEC 61131-2**
Rated output current	0.7 A per channel
Short circuit-proof	yes
Max. output current	5.6 A 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

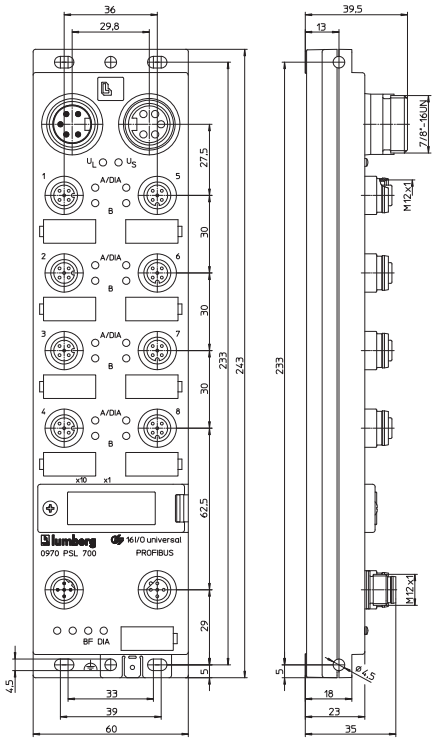
The application of these products in harsh environments should always be checked before use.
Specifications subject to alteration.

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

0970 PSL 700

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

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

Diagnostic Indication

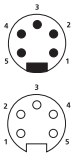
LED	Indication	Condition
1...8 A/B	yellow	channel status
1...8 A/DIA	red	periphery fault
Us	green	sensor/system power supply
BF	red	bus error
DIA	red	common indication for periphery faults

Pin Assignment

Bus connection M12

1 = +5 V [1]
2 = Line A - GN
3 = GND (0 V) [1]
4 = Line B - RD
5 = earth
housing = earth

Power supply 7/8"



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

Input M12

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

1 = internal signals: galvanically separated to sensors
2 = actuators
3 = system sensors

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	**Profibus**
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	**Us**
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. 16
Channel status indicator	LED yellow per channel
Diagnostic indication	LED red per channel

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

Optional disengageable actuator low-voltage detection over integrated DIP-switch.

Outputs

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

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

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

Profibus Handheld Addressing Device

0903 UTL 101

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 | 0975 254 102 | 0975 254 103

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

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

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 I 0975 202 202

0975 202 201/...M

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

Power supply system/sensor single, for modules with inputs only (0970 PSL 1xx).

RKU E 6-203/...M

Single-ended M23 female connector, 6 poles (Pin 1, 4, and 5 assigned).

RSU 6-RKU A 6-203/0.6M I RKU A 6-203

Power supply single, for output/mixing modules (0970 PSL 2xx).

RSU 6-RKU A 6-203/0.6M

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

M23 male, 12 poles

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

Pin Assignment

M23 female, 6 poles

1 = green/yellow
2 = n.c.
3 = n.c.
4 = 1
5 = 2
6 = n.c.

Pin Assignment

M23 female, 6 poles

1 = green/yellow
2 = 1
3 = 2
4 = n.c
5 = n.c
6 = n.c.

Part Number		Standard Cable Lengths
0975 202 201/...M		5 M I 10 M I 15 M
0975 202 202/...M		5 M I 10 M I 15 M
RKU E 6-203/...M		5 M I 10 M I 15 M
	RSU 6-RKU A 6-203/0.6M	0.6 M
	RKU A 6-203/...M	5 M I 10 M I 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

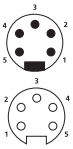
Single-ended cord set, 7/8" female 90° connector, 5 poles.

0905 204 310/...M

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

Pin Assignment

7/8" male/female, 5 poles



1 = 1
2 = 2
3 = green/yellow
4 = 3
5 = 4

Part Number		Standard Cable Lengths
0905 204 302/0.6 M		0.6 M
0905 204 301/...M		5 M | 10 M | 15 M
0905 204 303/...M		5 M | 10 M | 15 M
	0905 204 309/0.6 M	0.6 M
	0905 204 308/...M	5 M | 10 M | 15 M
	0905 204 310/...M	5 M | 10 M | 15 M

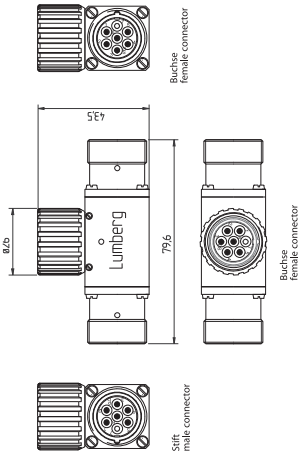
PROFIBUS T-Connectors / Taps

0906 UTP 201

M23 Male/Female

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

– also suitable for Interbus modules –

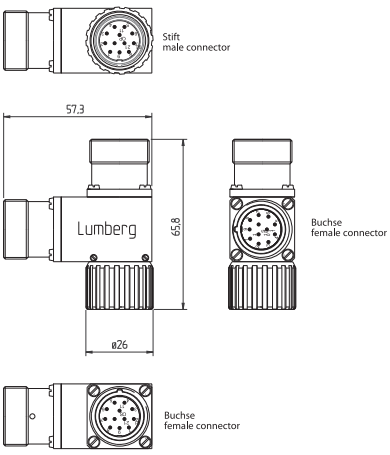


0906 UTP 202

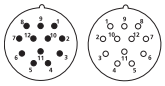
M23 Male/Female

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

M23 - 6 Poles	M23 - 12 Poles		
		1 = n.c. 2 = Signal A 3 = n.c. 4 = Signal B 5 = n.c. 6 = n.c.	7 = +24 V 8 = GND (0 V) 9 = Erde / earth 10 = n.c. 11 = n.c. 12 = n.c.
1 = Earth 2 = +24 V (1) 3 = GND (0 V) (1) 4 = + 24 V (2) 5 = GND (0 V) (2) 6 = n.c.			

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

Part Number	Pins	Characteristics
0906 UTP 201	6	
0906 UTP 202	12	

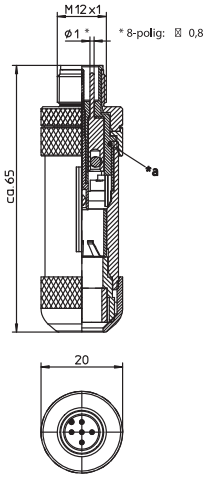
PROFIBUS Field Attachable Connectors

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 –



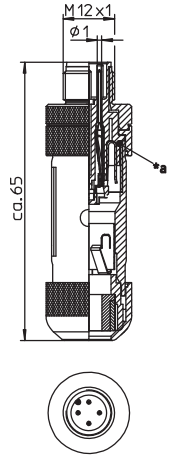
*a O-Ring

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 –



*a O-Ring

Pin Assignment

M12 - 4 Poles (B-Code)	M12 - 5 Poles (B-Code)
	

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 mm^2 0976 PFC 102: 0.14-0.50 mm^2, 0.14 mm^2 with terminal pin sleeve

Electrical

Contact resistance	$\leq$ 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	> 10^9 Ω
Pollution degree	3

Part Number	Pins	Screw Joint for Cable
0976 PMC 101	5B	Ø 4.0-9.0 mm
0976 PMC 102	4B	Ø 4.0-9.0 mm

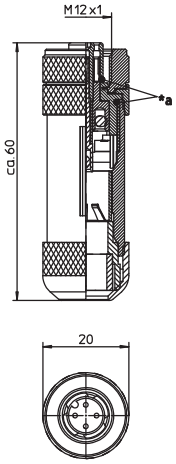
PROFIBUS Field Attachable Connectors

0976 PFC 101

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 –



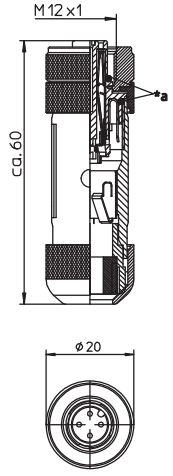
*a O-Ring

0976 PFC 102

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 –



*a O-Ring

Pin Assignment

M12 - 4 Poles (B-Code)	M12 - 5 Poles (B-Code)
	

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 mm^2 0976 PFC 102: 0.14-0.50 mm^2, 0.14 mm^2 with terminal pin sleeve

Electrical

Contact resistance	$\leq$ 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	> 10^9 Ω
Pollution degree	3

Part Number	Pins	Screw Joint for Cable
0976 PFC 101	5B	Ø 4.0-9.0 mm
0976 PFC 102	4B	Ø 4.0-9.0 mm

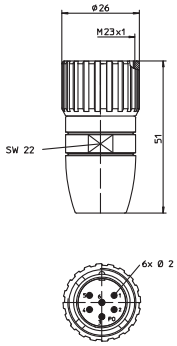
PROFIBUS Field Attachable Connectors

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 –

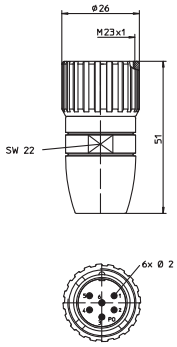


0906 UMC 202

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 mm^2 0906 UMC 202: max. 1.0 mm^2

Electrical

Nominal current at 40°C	20 A
Nominal voltage	300 V
Insulation resistance	> 10^{16} Ω
Pollution degree	2 (3*) *according to DIN EN 61984-2001

Part Number	Pins	Screw Joint for Cable
0906 UMC 201	**6**	Ø 10.5 mm
0906 UMC 202	**6**	Ø 10.5 mm

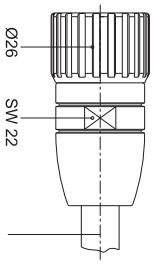
PROFIBUS Field Attachable Connectors

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 –

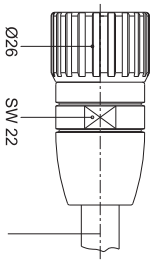


0906 UFC 202

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 mm^2 0906 UFC 202: max. 6 x 1.5 mm^2

Electrical

Nominal current at 40°C	20 A
Nominal voltage	300 V
Insulation resistance	> 10^{16} Ω
Pollution degree	2 (3*) *according to DIN EN 61984-2001

Part Number	Pins	Screw Joint for Cable
0906 UFC 201	**6**	Ø 10.5 mm
0906 UFC 202	**6**	Ø 10.5 mm

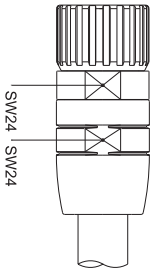
PROFIBUS Field Attachable Connectors

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 –

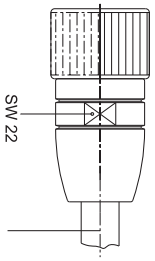


0976 PMC 202

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

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	$> 10^{12}\ \Omega$
Pollution degree	2 (3*) *according to DIN EN 61984-2001

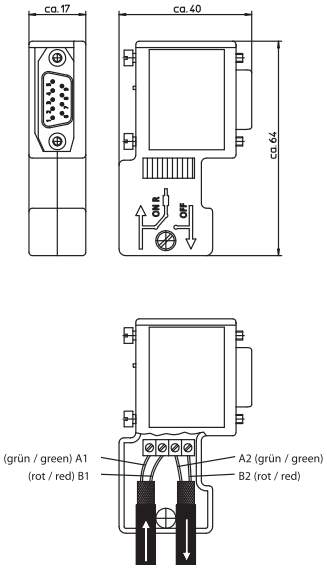
Part Number	Pins	Screw Joint for Cable
0976 PMC 201	12	Ø 14.5 mm
0976 PMC 202	12	Ø 10.5 mm

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-nickeled and gold-plated
Mode of connection	screw terminals
Connectable conductor	max. 1.0 mm^2
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

Part Number	Pins
0976 PMC 501	9

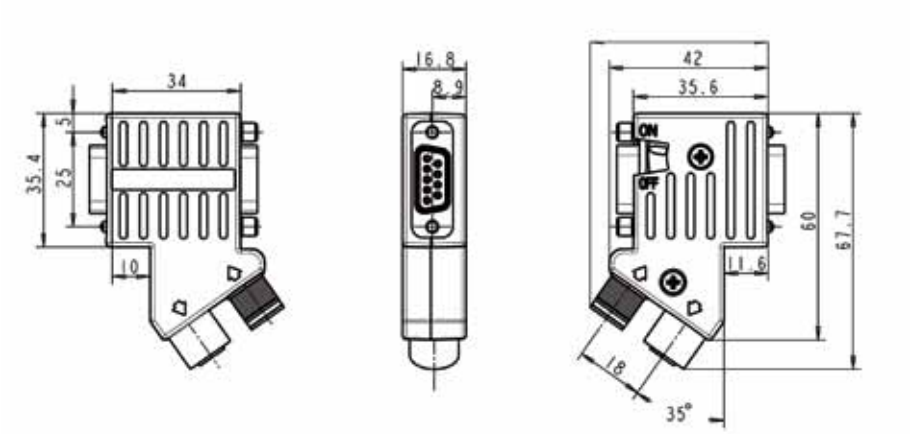
D-SUB / M12 Connectors for Profibus

0976 PMC 512 I 0976 PMC 514

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.

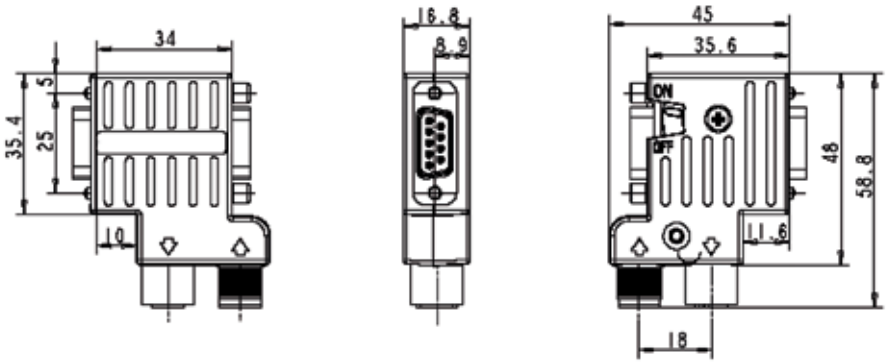
0976 PMC 512



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)

Part Number	Pins D-Sub	Pins M12	
0976 PMC 512	9	5 B	
0976 PMC 514	9	5 B	

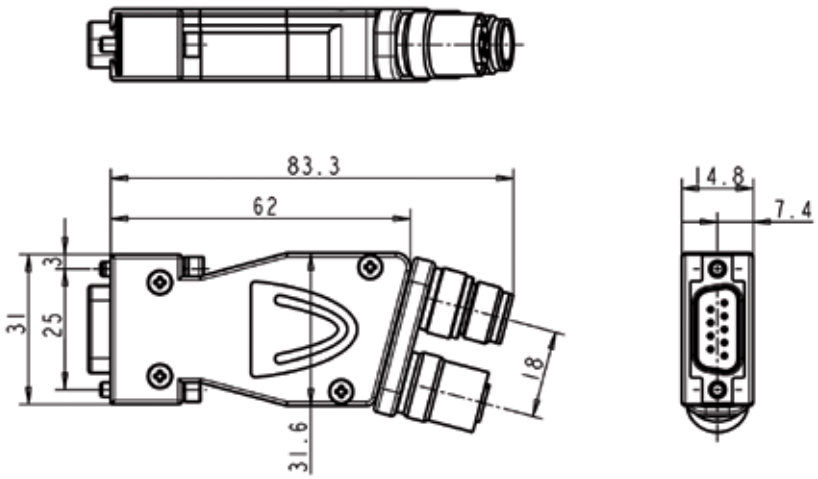
D-SUB / M12 Connectors for Profibus

0976 PMC 515

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)

Part Number	Pins D-Sub	Pins M12	
0976 PMC 515	**9**	**5 B**	

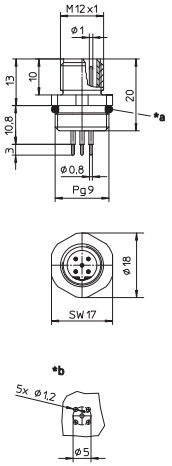
PROFIBUS Receptacle Connectors

0976 PMC 152

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 –



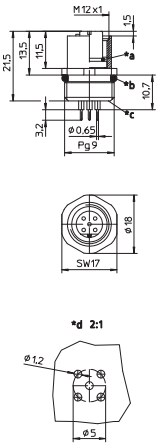
*a O-Ring
*b hole pattern in printed circuit board

0976 PFC 152

M12 Female

Receptacle connector, M12 female connector for front mounting, 5 poles, B coding, printed contacts, chassis side thread PG 9.

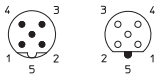
– especially suitable for Profibus –



*a O-Ring
*b O-ring loose enclosed
*c solder contacts potted with epoxy
*d hole pattern in printed circuit board

Pin Assignment

M12 - 5 Poles (B-Coding)



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	> 10^9 Ω
Pollution degree	3

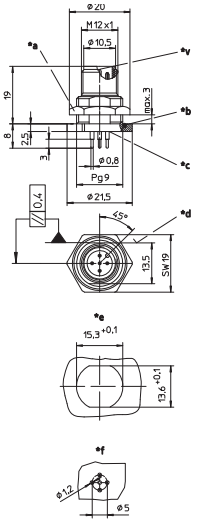
Part Number	Pins	
0976 PMC 152	5B	UL
0976 PFC 152	5B	UL

PROFIBUS Receptacle Connectors

RSHL 5B/S 5.5

M12 Male

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

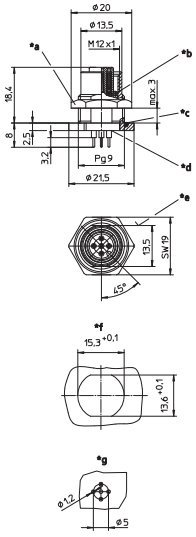


*a Nut
*b O-Ring
*c Solder contacts potted with epoxy
*d Anti-rotation protection
*e Cut out for anti-rotation
*f Hole pattern in printed circuit board
*v Center contact leading

RKHL 5B/S 5.5

M12 Female

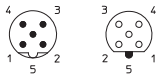
Receptacle connector, M12 female connector for rear mounting, printed contacts, chassis side thread PG 9 (panel nut RSKF 9).



*a Nut
*b O-Ring
*c O-Ring
*d Solder contacts potted with epoxy
*e Anti-rotation protection
*f Cut out for anti-rotation
*g Hole pattern in printed circuit board

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	> 10^9 Ω
Pollution degree	3

Part Number	Pins	
RSHL 5B/S 5.5	**5B**	UL
RKHL 5B/S 5.5	**5B**	UL

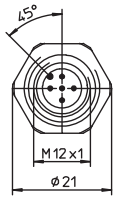
PROFIBUS Receptacle Connectors

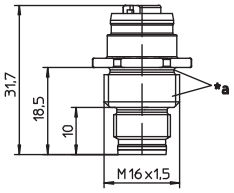
FWD 5B

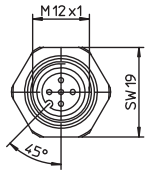
M12 Male to Female

Receptacle connector, combined M12 male connector to combined M12 female connector.

– especially designed for use as panel feed through –

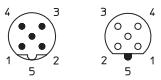






Pin Assignment

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-nickeled 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	> 10^9 Ω
Pollution degree	3

Part Number	Pins
FWD 5B	**5B**

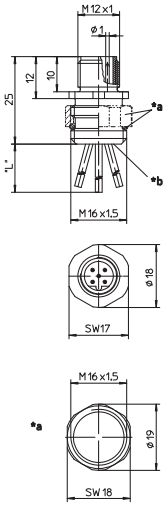
PROFIBUS Receptacle Connectors

0976 PMC 151

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 –



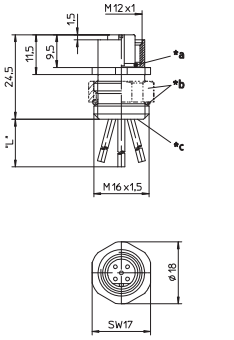
*a Adjustable nut and o-ring enclosed separately
*b solder contacts potted with epoxy
"L" 0,5 m

0976 PFC 151

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.

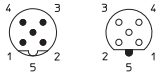
– especially suitable for Profibus –



*a O-Ring
*b adjustable nut and o-ring enclosed separately
*c solder contacts potted with epoxy
"L" 0,5 m

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	> 10^9 Ω
Pollution degree	3

Part Number	Pins	
0976 PMC 151	**5B**	UL
0976 PFC 151	**5B**	UL

Profibus Accessories

0979 PTX 101

Profibus terminating resistor, M12 male connector, 4 poles, B coding.

0979 PTX 201

Profibus terminating resistor for the 12 pole M23 bus connection.

ZBS

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

ZBR 9/40

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

ZBR 5/10

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

ZVK I ZVKM I RKV

Dust cover for unused M12, M8, and 7/8" sockets.

Part Number	
0979 PTX 101	
	0979 PTX 201
ZBS	
ZBR 9/40	
ZBR 5/10	
ZVK	ZVKM
RKV	

References
Cable Index and Connector Key/Pin Configurations

Profibus Wiring/Pin Digram

Connection M12		Signal	M12 Male to Female, 5-Pole	Function	Color
Male	Female				
		VP (+5 V DC)*	Pin 1	n.c.	-
		RxD/TxD-N	Pin 2	Line A	green
		DGND*	Pin 3	n.c.	-
		RxD/TxD-P	Pin 4	Line B	red
		n.c.	Pin 5	n.c.	-
		*Internal signals			

Fieldbus Color-Code-Profibus

Cable No.	Pin/Wire Color Code	Face View Male	Face View Female	Gauge	Material	Jacket Color	Outside Diameter	UL	CSA
254	green red			2 x 0.38 mm²	**PUR,** Halogen-Free	Violet	.299" / Ø 7.6 mm	AWM 20549	AWM I/II A/B
202	black blue green/yellow green red			3 x 0.75 mm² 1 x 2 x 0.34 mm² red/green Stranded in Pairs	**PUR,** Halogen-Free	Violet	.433" / Ø 11.0 mm		

Power Supply Cables

Cable No.	Wire Color Code	Gauge	Material	Jacket Color	Outside Diameter
203	2 x black* green/yellow * with numbering	3 x 1.00 mm² (128 x Ø 0.10mm)	**PUR**	Black	.252" / Ø 6.4 mm
204	4 x black* green/yellow * with numbering	5 x 1.00 mm² (128 x Ø 0.10mm)	**PUR** Halogen-Free	Black	.315" / Ø 8.0 mm

Part Number Index

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