



2020 Mining PLC Product Catalogue

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Pempek's revolutionary New ObelixPLUS Machine Control Solution

Pempek's revolutionary NEW ObelixPLUS Machine Control Solution now offers users the ability to configure and modify their own control system, edit operational parameters and operator messages and error messages without having to open the flameproof enclosure.

Superior diagnostics visible on the machine or on a remote IS tablet or smart phone at the surface.

Firmware made for Mining

ObelixPLUS firmware is the result of over 30 years of development of mining equipment control systems.

Control of the firmware is crucial to safety in mission critical environments such as underground mining.

Hardware Made for Mining

Hardware with CPU performance 9+ times faster than typical industrial PLCs.

Built in safety hardware.

Gold plated metal connectors.

Mining Legal battery backup.

Add ons for Machine Telemetry.

Simple System Configuration

Pempek now supports CODESYS IEC61131 Programming Software.

Mine site's own PCS engineers can view/debug/modify and reconfigure control system.

User driven Error Handler

Customise fault messages and add lessons learned to instruct operators and repair crews, via wi-fi, ethernet or mine network using ObelixPlus Edison.

Wireless Program Load

Quickly and easily load new machine program updates without opening the flameproof enclosure.

Parameter Management

User can see and customise a vast range of machine parameters to optimize your application.



Processor ObelixPLUS Module

Processor ObelixPLUS Module CODESYS (Standard) Part Number: L0V41101

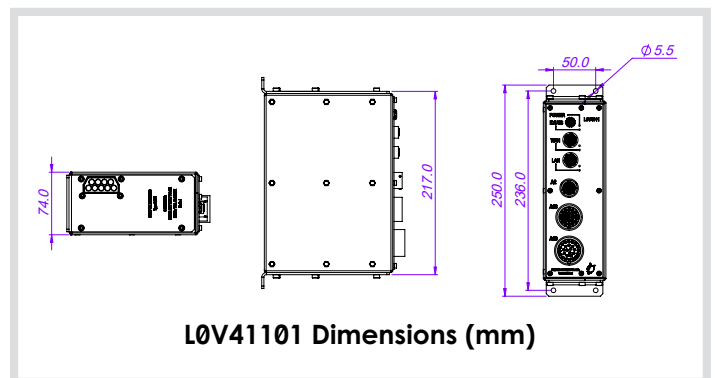
ObelixPLUS Mining PLC processor module supports immediate integration into mobile mining machinery control and automation applications.

The product features an unique dual-processor architecture - with one processor dedicated to fast, reliable I/O management and safety functions. The second processor supports a flexible automation programming and configuration system.

Allowing end-users full access to high level control, automation and data collection.

In addition to sixteen (16) local digital inputs (24VDC); the module provides a number of field bus options - including CAN (4), Ethernet (2) and RS-422 (3).

The ObelixPLUS development environment - is based on the popular CODESYS 3.5 programming tool chain. Supports immediate integration of many industry-standard I/O devices and smart components.



Specifications

- **Type:** Programmable, dual-processor machine automation processor module
- **Programmability:** CODESYS 3.5 PLC Development System
- Local I/O : 16 x Digital Inputs (24 VDC)
- **Memory Battery:** AS4871-compliant
- **L0V41101 - Field Buses:** 4 x CAN (copper) / 2 x Ethernet / 3 x RS-422
- **L0ZU1101 - Field Buses:** 3 x CAN (copper) / 1 x CAN (fibre) with 8 ports / 2 x Ethernet / 3 x RS-422

Processor ObelixPLUS Module

Processor ObelixPLUS Module CODESYS (with Fibre-optic CAN Bus) Part Number: L0ZU1101

ObelixPLUS Mining PLC processor module supports immediate integration into mobile mining machinery control and automation applications.

The product features an unique dual-processor architecture - with one processor dedicated to fast, reliable I/O management and safety functions.

The second processor supports a flexible automation programming and configuration system.

Allowing end-users full access to high level control, automation and data collection.

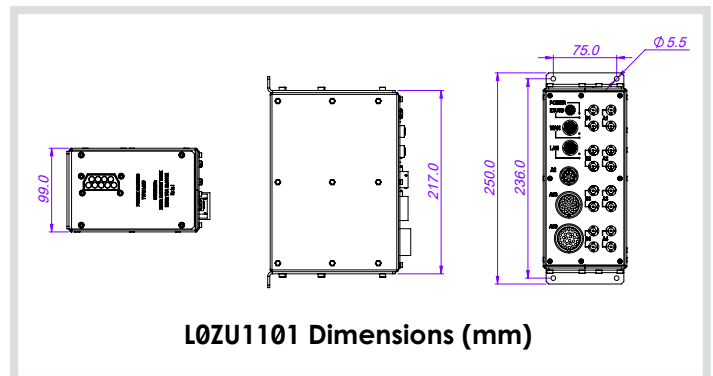
In addition to sixteen (16) local digital inputs (24VDC); the module provides a number of field bus options - including CAN (4), Ethernet (2) and RS-422 (3)

Once of the CANbusses also features eight (8) fibre-optic ports for connection to intrinsically-safe I/O modules via fibre-optic cables.

The ObelixPLUS development environment - is based on the popular CODESYS 3.5 programming tool chain - supports immediate integration of many industry-standard I/O devices and smart components.

Specifications

- **Type:** Programmable, dual-processor machine automation processor module
- **Programmability:** CODESYS 3.5 PLC Development System
- **Local I/O :** 16 x Digital Inputs (24 VDC)
- **Memory Battery:** AS4871-compliant
- **L0V41101 - Field Buses:** 4 x CAN (copper) / 2 x Ethernet / 3 x RS-422
- **L0ZU1101 - Field Buses:** 3 x CAN (copper) / 1 x CAN (fibre) with 8 ports / 2 x Ethernet / 3 x RS-422



Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40 to 85 C

Processor Obelix Module

Telemetry and Automation Processor Obelix Module Part Number: L0ZU0101

The L0ZU0101 Obelix Mining PLC Telemetry and Automation Processor (TAP) combines a standard Obelix automation platform with a dedicated machine telemetry processor .

This dual-processing architecture, provides segregated, high-performance management of both real-time machine automation and machine data collection

A fully AS4871-compliant internal battery preserves parameter memory and real-time clock functionality when mains machine power is removed

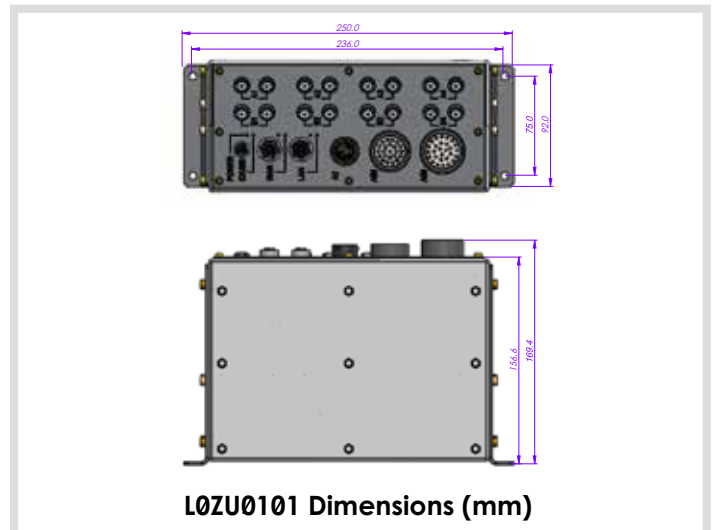
In addition to sixteen (16) local digital inputs (24VDC); the module provides a number of field bus options - including CAN (4), Ethernet (2) and RS-422 (3)

The module also supports Pempek CAN Fibre ports (8 channels) for convenient, reliable control and monitoring of Obelix Mining PLC IS I/O modules

One (1) CAN channels is shared with the Fibre ports

Specifications:

- **Module Type:** Telemetry and Processor (TAP) Module
- **Supply Input:** 24VDC (+/- 10%) / 5 Watts (Max)
- **Data Communications:** Copper CAN (4), Fibre CAN (1 shared with Copper CAN), RS-422 (3), RS-232 (2)
- **Operating Temperature:** -20 to 70 C
- **Inputs:** 16 x Digital Inputs (24VDC)
- **Outputs:** 1 x C-Form Relay (110VAC / 8 A)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus A)
- **Connector 2:** Ethernet M12(WAN)
- **Connector 3:** Ethernet M12 (LAN)
- **Connector 4:** Obelix Data A68 (CAN B,C,D, RS422, RS232)
- **Connector 5:** Obelix A69 (Digital Inputs, Relay Output)



Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40 to 85 C

Processor Obelix Module

Processor Obelix Module Part Number: L0T41101

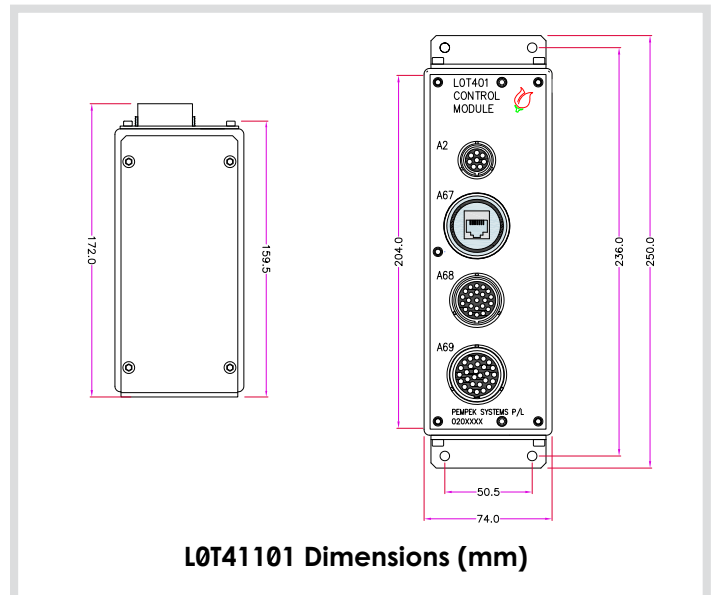
The L0T41101 is an Obelix Mining PLC Processor module ideal for legacy mobile mining machinery control and automation applications that are programmed and maintained by Pempek automation software developers.

A fully AS4871-compliant internal battery preserves parameter memory and real-time clock functionality when mains machine power is removed.

In addition to sixteen (16) local digital inputs (24VDC); the module provides a number of field bus options - including CAN (4), RS-422 (3) and RS-232 (1).

Specifications:

- **Module Type:** Processor Module
- **Supply Input:** 24VDC (+/- 10%) / 5 Watts (Max)
- **Data Communications:** CAN (4), RS-422 (3), RS-232 (2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 16 x Digital Inputs (24VDC)
- **Outputs:** 1 x C-Form Relay (110VAC / 8 A)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus A)
- **Connector 2:** Ethernet RJ-45 (Programming)
- **Connector 3:** Obelix Data A68 (CAN B,C,D, RS422, RS232)
- **Connector 4:** Obelix A69 (Digital Inputs, Relay Output)



L0T41101 Dimensions (mm)

Receiver Control Processor Obelix Module

Receiver Control Dual Hub Obelix Module - (Bridge Fibre)
Part Number: L0RU0101

Receiver Control Dual Hub Obelix Module -(RS422)
Generic Part Number: L0RU0301

Receiver Control CAN3 External LINK Generic Module Obelix
Part Number: L0RU0501

Receiver Control CAN3 External LINK Generic Module Obelix
Part Number: L0RU1501

Receiver Control CAN3 External LINK Obelix Module
Part Number: L0RU1601

The Obelix Mining PLC Processor modules are used for legacy mobile mining machinery control and automation applications. Programmed and maintained by Pempek automation software developers

In addition to sixteen (16) local digital inputs (24VDC); the module provides a number of field bus options - including CAN (4), RS-422 (4) ad RS-232 (1)

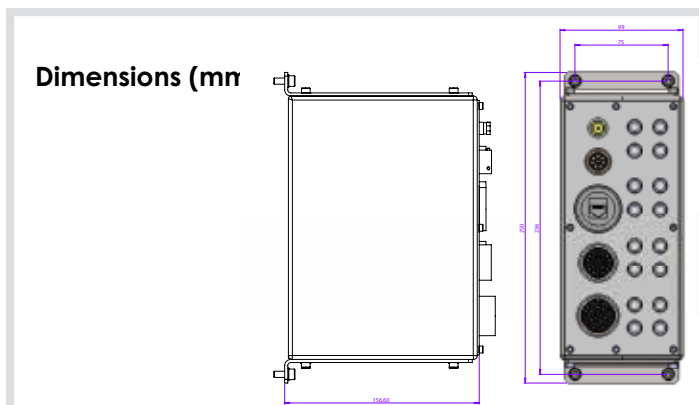
Modules also supports Pempek CAN Fibre ports (8 channels) for convenient, reliable control and monitoring of Obelix Mining PLC IS I/O modules. Two (2) CAN channels are shared with Fibre Ports (distributed with 4 ports each)

A built-in radio data receiver directly supports radio remote control applications

L0RU0101 , L0RU0301, L0RU0501 models do not provide an AS4871-compliant clock/memory retention battery and is therefore not suitable for new machine automation designs

L0RU1501, L0RU1601 A fully AS4871-compliant internal battery preserves parameter memory and real-time clock functionality when mains machine power is removed.

L0RU1601 - Field bus options - including CAN (4), RS-422 (3) ad RS-232 (2)



Specifications

- **Module Type:** Processor Module (with built-in radio control receiver)
- **Supply Input:** 24VDC (+/- 10%) / 5 Watts (Max)
- **Data Communications:** Copper CAN (4), Fibre CAN (1 shared with Copper CAN), RS-422 (3), RS-232 (2), Radio Control Receiver
- **Operating Temperature:** -20 to 70 C
- **Inputs:** 16 x Digital Inputs (24VDC)
- **Outputs:** 1 x C-Form Relay (110VAC / 8 A)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus A)
- **Connector 2:** Ethernet RJ-45 (Programming)
- **Connector 3:** Obelix Data A68 (CAN B,C,D, RS422, RS232)
- **Connector 4:** Obelix A69 (Digital Inputs, Relay Output)
- **Connector 5:** BNC Coax (Radio Control Antenna Input)

Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85 °C

Intrinsically Safe I/O Ex ib Obelix Modules

Solenoid I/O Generic (Type A) Exib Obelix Module
Part Number: L0LW0101

Superseded Solenoid I/O (Type A) Exib Obelix Module
Part Number: L0LW5101

The Obelix Mining PLC I.S. I/O Modules provides intrinsically-safe (Group I Ex ib) input and output resources in a single, compact unit.

A unique fibre-optic communications interface means that the module, and dedicated IS power supply, can be conveniently segregated into it's own, isolated zone.

This solution is ideal for mobile mining equipment where limited installation space must be managed.

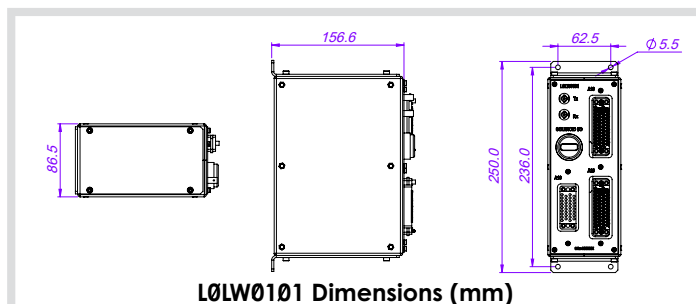
The fibre-optic link between the module and an Obelix processor module provides real-time control and monitoring of all I/O points.

The L0LW0101 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 24 x Solenoid-capable I.S. Outputs (12VDC / 300 mA Continuous rating)
- 24 x I.S. Digital Inputs (12 VDC)
- 16 x I.S. Analog Inputs (4 -20 mA)
- 16 x I.S. NAMUR-type Proximity Sensor Inputs

Specifications

- **Module Type:** Intrinsically Safe Input / Output
- **Supply Input:** 12VDC (+/- 10%) / 20 Watts (Max) (Approved I.S. Supply)
- **Data Communications:** Obelix Fibre
- **Operating Temperature:** -20°C to 70°C
- **Inputs 1:** 24 x I.S. Digital Inputs (12VDC)
- **Inputs 2:** 16 x I.S. Analog Inputs (4-20 mA)
- **Inputs 3:** 16 x I.S. Namur Inputs
- **Outputs:** 24 x IS. 12VDC On/Off Outputs (300 mA Maximum each channel)
- **Connector 1:** Obelix Fibre
- **Connector 2:** Obelix A18 (12VDC I.S. Supply Input and Solenoid Outputs)
- **Connector 3:** Obelix A19 (12VDC I.S. Supply Input and Namur Inputs)
- **Connector 4:** Obelix A20 (12VDC I.S. Digital Inputs and I.S. Analog Inputs)



L0LW0101



L0LW5101

Connector Assembly

Part Number	Description
H0LW0101	Connector Assembly A18 2.2 m
H0LW0201	Connector Assembly A19 2.2 m
H0LW0301	Connector Assembly A20 2.2 m

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0LW0101 Connector 1 :** Obelix A18 Male Plug (34-pin)
- **H0LW0201 Connector 1 :** Obelix A19 Male Plug (50-pin)
- **H0LW0301 Connector 1 :** Obelix A20 Male Plug (50-pin)
- **Connector 2:** Underterminated, flying leads
- **H0LW0101 Conductors:** 30
- **H0LW0201 Conductors:** 34
- **H0LW0301 Conductors:** 41
- **Cable Length:** 2.2 m
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65 to 105 C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85°C

IS I/O Ex ib Obelix Module

Proportional / Resolver Ex I b Obelix Module Part Number: L0LZ0401

The L0LZ0401 Obelix Mining PLC I.S. I/O Proportional Solenoid Driver Module provides intrinsically-safe (Group I Ex ib) input and output resources in a single, compact unit.

A unique fibre-optic communications interface means that the module, and dedicated IS power supply, can be conveniently segregated into it's own, isolated zone.

This solution is ideal for mobile mining equipment where limited installation space must be managed.

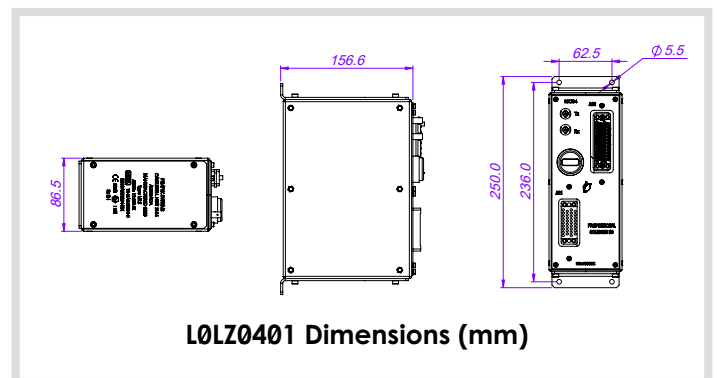
The fibre-optic link between the module and an Obelix processor module provides real-time control and monitoring of all I/O points.

The L0LZ0401 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 8 x I.A. Proportional Solenoid Outputs (0 - 300 mA current regulated)
- 12 x I.S. Digital Inputs (12 VDC)
- 12 x I.S. Analog Inputs (4 -20 mA)
- 4 x I.S. Analog Inputs (0 - 2.8V)
- 4 x I.S. Frequency Counting Inputs (5 kHz Maximum)
- 2 x I.S. Resolver Rotation Sensor Inputs

Specifications

- **Module Type:** Intrinsically Safe Input/Output Module
- **Supply Input:** 12VDC (+/- 10%) / 20 Watts (Max) (Approved I.S. Supply)
- **Data Communications:** Obelix Fibre
- **Operating Temperature:** -20°C to 70°C
- **Inputs 1:** 12 x I.S. Digital Inputs (12VDC)
- **Inputs 2:** 12 x I.S. Analog Inputs (4-20 mA)
- **Inputs 3:** 4 x I.S. Analog Inputs (0-2.8 V)
- **Inputs 4:** 4 x I.S. Frequency Counter Inputs (5 kHz Max)
- **Inputs 5:** 2 x I.S. Resolver Sensor Inputs (industry standard Siemens or Litton)
- **Outputs:** 8 x IS. Proportional Outputs (0 - 300 mA current regulated)
- **Connector 1:** Obelix Fibre
- **Connector 2:** Obelix A21 (12VDC I.S. Supply Input and Solenoid Outputs)
- **Connector 3:** Obelix A22 (12VDC I.S. Supply Input, analog inputs, digital inputs)



Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85°C

IS I/O Ex ib Obelix Module

Dual Resolver I/O (Type A) Exib Obelix Module Part Number: L0R40101

The L0R40101 Obelix Mining PLC I.S. I/O Solenoid Driver Module provides intrinsically safe (Group I Ex ib) input and output resources in a single, compact unit.

A unique fibre-optic communications interface means that the module, and dedicated IS power supply, can be conveniently segregated into its own, isolated zone.

This solution is ideal for mobile mining equipment where limited installation space must be managed.

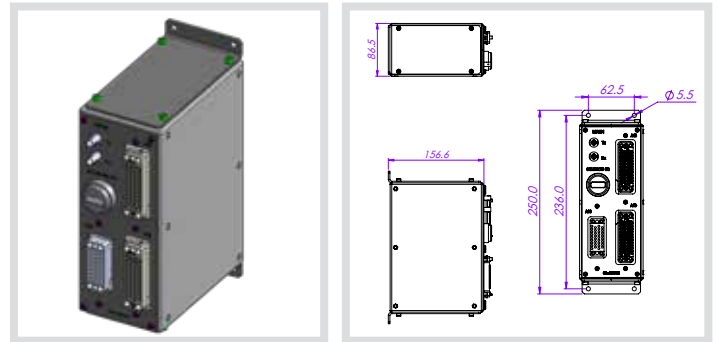
The fibre-optic link between the module and an Obelix processor module provides real-time control and monitoring of all I/O points.

The L0R40101 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 24 x Solenoid-capable I.S. Outputs (12VDC / 300 mA Continuous rating)
- 32 x I.S. Digital Inputs (12 VDC)
- 10 x I.S. Analog Inputs (4 -20 mA)
- 4 x I.S. Frequency Counting Inputs (Namur type, 5 kHz Maximum)
- 2 x I.S. Resolver Rotation Sensor Inputs

Specifications

- **Module Type:** Intrinsically Safe Input/Output Module
- **Supply Input:** 12VDC (+/- 10%) / 20 Watts (Max) (Approved I.S. Supply)
- **Data Communications:** Obelix Fibre
- **Operating Temperature:** -20°C to 70°C
- **Inputs 1:** 32 x I.S. Digital Inputs (12VDC)
- **Inputs 2:** 10 x I.S. Analog Inputs (4-20 mA)
- **Inputs 3:** 4 x I.S. Frequency Counter Inputs (Namur Type, 5 kHz Max)
- **Inputs 4:** 2 x I.S. Resolver Sensor Inputs (industry standard Siemens or Litton)
- **Outputs:** 24 x IS. 12VDC On/Off Outputs (300 mA Maximum each channel)
- **Connector 1:** Obelix Fibre
- **B Obelix A18** (12VDC I.S. Supply Input and Solenoid Outputs)
- **Connector 3:** Obelix A48 (12VDC I.S. Supply Input, analog inputs, counter inputs)
- **Connector 4:** Obelix A49 (12VDC I.S. Digital Inputs)



Connector Assembly

Part Number	Description
H0R40101	Connector Assembly A18
H0R40201	Connector Assembly A48
H0R40301	Connector Assembly A49

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0R40101 Connector 1 :** Obelix A18 Male Plug (34-pin)
- **H0R40201 Connector 1 :** Obelix A48 Male Plug (34-pin)
- **H0R40301 Connector 1 :** Obelix A49 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **H0R40101 Conductors:** 30
- **H0R40201 Conductors:** 32
- **H0R40301 Conductors:** 33
- **Cable Length:** 2.2m
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65 to 105 C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85°C

Rexroth Solenoid Driver Obelix Modules

Rexroth Solenoid (Type A) Obelix Module
Part Number: L0PE0101

Rexroth Solenoid (Type B) Obelix Module
Part Number: L0PE0201

The L0PE0101 and L0PE0201 Obelix Mining PLC Solenoid Driver Modules provides PWM - controlled proportional outputs in a compact, robust form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs.

The L0PE0101 and L0PE0201 model features:

- Uniquely Keyed Type A and Type B connectors to prevent incorrect machine installation
- 22 x PWM current-controlled 24VDC Proportional outputs (up to 1A continuous rating)

Specifications

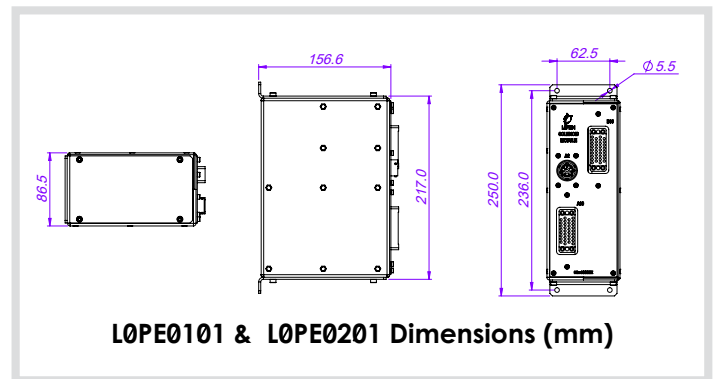
- **Module Type:** Multi-channel Solenoid Driver
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 24VDC (+/- 10%) / 550 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** 22 x PWM Current-regulated Outputs (1 A Maximum)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix C30 (PWM Outputs and 24VDC PWM Supply Input)
- **Connector 3:** Obelix D30 (PWM Outputs and 24VDC PWM Supply Input)



L0PE0101



L0PE0201



L0PE0101 & L0PE0201 Dimensions (mm)

Connector Assembly

Part Number	Description
H0PE0401	Connector Assembly A30
H0PE0501	Connector Assembly B30

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0PE0401 Connector 1 :** Obelix A30 Male Plug (34-pin)
- **H0PE0501 Connector 1 :** Obelix B30 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 26
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Rexroth Solenoid Driver Obelix Module

Rexroth Solenoid I/O Module (Type A) Obelix Module
Part Number: L0RR0101

Rexroth Solenoid I/O Module (Type B) Obelix Module
Part Number: L0RR0201

The L0RR0101 and L0RR0201 Obelix Mining PLC Solenoid Driver I/O Module combines PWM - controlled proportional outputs along with digital and analog inputs in a compact housing ideal for mobile mining equipment applications where installation space is limited.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs and inputs.

The L0RR0101 model features:

- Uniquely Keyed Type A and Type B connectors to prevent incorrect machine installation

The L0RR0201 model features:

- Uniquely Keyed Type B, Type C and Type D connectors to prevent incorrect machine installation

The L0RR0101 & L0RR0201 model features:

- 22 x PWM current-controlled 24VDC Proportional outputs (up to 1A continuous rating)
- 12 x Digital Inputs (24 VDC)
- 8 x Digital Inputs (110 VAC)
- 24 x Analog Inputs (4 -20 mA)
- 4 x Frequency Counter Inputs (5 kHz Maximum)

Specifications

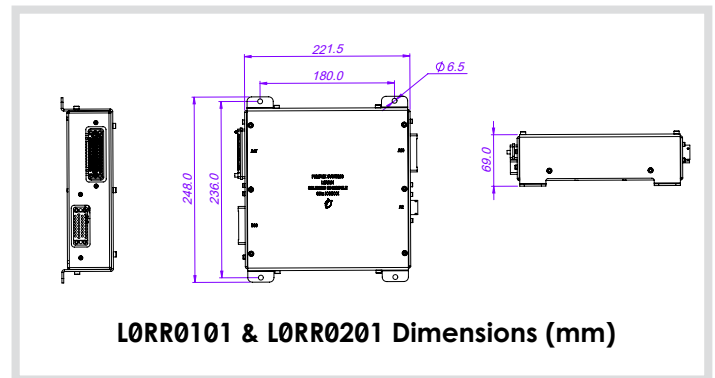
- **Module Type:** Multi-channel Solenoid Driver
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 24VDC (+/- 10%) / 550 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** 22 x PWM Current-regulated Outputs (1 A Maximum)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A30 (PWM Outputs and 24VDC PWM Supply Input)
- **Connector 3:** Obelix B30 (PWM Outputs and 24VDC PWM Supply Input)
- **Connector 4:** Obelix A47 (Inputs)



L0RR0101



L0RR0201



L0RR0101 & L0RR0201 Dimensions (mm)

Connector Assembly

Part Number	Description
H0PE0401	Connector Assembly A30
H0PE0501	Connector Assembly B30
H0PE0601	Connector Assembly C30
H0PE0701	Connector Assembly D30

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **L0RR0101 Connector 1 :** Obelix A30 Male Plug (34-pin)
- **L0RR0101 Connector 2 :** Obelix B30 Male Plug (34-pin)
- **L0RR0201 Connector 1 :** Obelix C30 Male Plug (34-pin)
- **L0RR0201 Connector 2 :** Obelix D30 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 26
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Rexroth Solenoid Driver Obelix Module

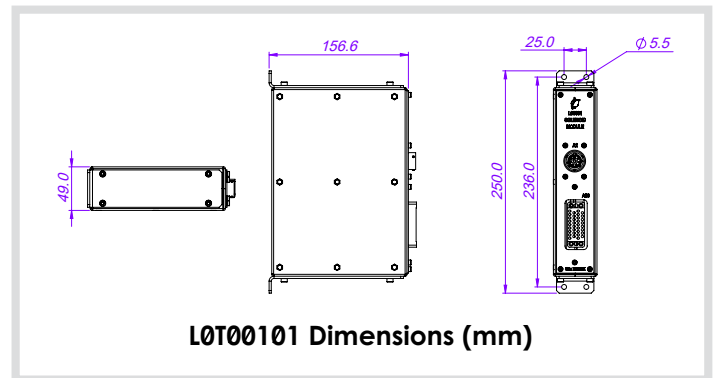
Rexroth Solenoid Driver Obelix Module Part Number: L0T00101

The L0T00101 Obelix Mining PLC Solenoid Driver Module provides PWM-controlled proportional outputs in a compact, robust form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs.

The L0T00101 model features:

- Uniquely Keyed Type A connector to prevent incorrect machine installation
- 11 x PWM current-controlled 24VDC Proportional outputs (up to 1A continuous rating)



Specifications

- **Module Type:** Multi-channel Solenoid Driver
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 24VDC (+/- 10%) / 270 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** 11 x PWM Current-regulated Outputs (1 A Maximum)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A30 (PWM Outputs and 24VDC PWM Supply Input)

Connector Assembly

Part Number	Description
H0PE0401	Connector Assembly A30

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Connector 1:** Obelix A30 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 26
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Solenoid Driver Obelix Module

Obelix Module - Solenoid 110VDC Part Number: L0LX0101

The L0LX0101 Obelix Mining PLC Solenoid Driver Module provides proven industry-standard 110VAC digital solenoid control in a compact, robust form factor that is well suited to mobile mining applications .

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs.

The L0LX0101 model features:

- Uniquely Keyed Type A and Type B connectors to prevent incorrect machine installation
- 20 x dual-safety switched 110VDC Digital outputs (up to 400 mA continuous rating)

Specifications

- **Module Type:** Multi-channel Solenoid Driver
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 110VDC (+/- 20%) / 500 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** 20 x Dual-inline-Switched 110VDC
- **Digital Outputs:** (400 mA Maximum)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A17 (PWM Outputs and 110VDC Supply Input)
- **Connector 3:** Obelix B17 (PWM Outputs and 110VDC Supply Input)



Connector Assembly

Part Number	Description
H0PE0401	Connector Assembly A30

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Connector 1 :** Obelix A30 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 26
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Solenoid Driver Obelix Module

**Apitech Solenoid Module Generic
(Type A) Obelix Module**
Part Number: L0RE0101

**Apitech Solenoid Module Generic
(Type B) Obelix Module**
Part Number: L0RE0201

The L0RE0101 and L0RE0201 Obelix Mining PLC Solenoid Driver Modules provides PWM - controlled proportional outputs in a compact, robust form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs.

The L0RE0101 and L0RE0201 model features:

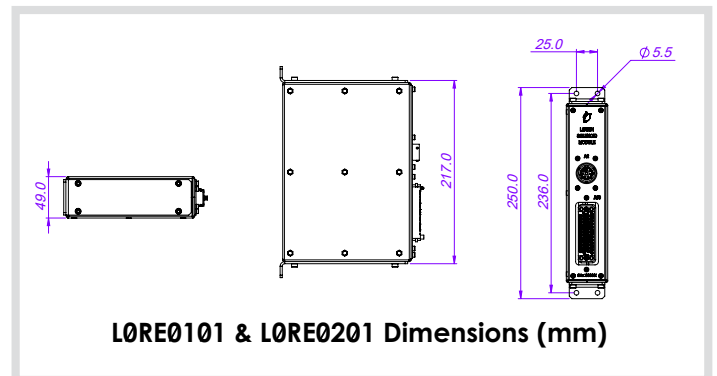
- Uniquely Keyed Type A & Type B connector to prevent incorrect machine installation
- Solenoid supply voltage to module from 8 to 24-volt d.c. (well suited to both 12-volt and 24 volt solenoids)
- 32 x PWM current-controlled proportional outputs (up to 1A continuous rating)



L0RE0101



L0RE0201



L0RE0101 & L0RE0201 Dimensions (mm)

Specifications

- **Module Type:** Multi-channel Solenoid Driver
- **Supply Input:** +8 VDC to +24VDC (+/-10%) / 800 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** 32 x PWM Current-regulated Outputs (1 A Maximum)
- **Connector 1:** Obelix A2 (CAN Bus)
- **Connector 2:** Obelix A59(PWM Outputs and Module Supply Input)
- **Conector 2:** L0RE0201 Obelix B59(PWM Outputs and Module Supply Input)

Power Supply Obelix Module

Power Supply 110VAC-24VDC 8A Obelix Module Part Number: L0P90101

The L0P90101 Obelix Mining PLC Power Supply provides up to 200 watts of regulated 24-volt DC supply from a 110-volt A.C. source

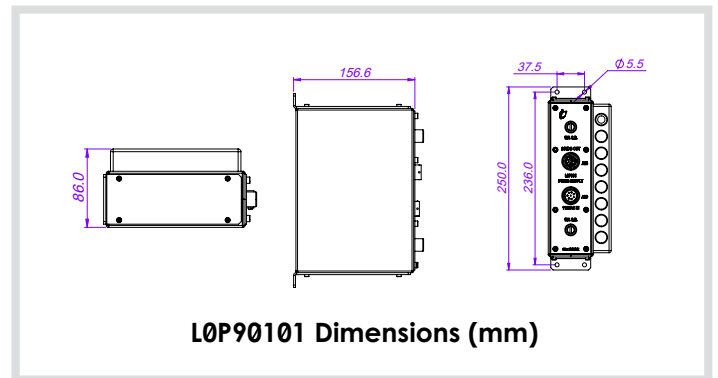
It's compact form-factor and unique heatsink solution make it the ideal choice for supplying consistent, reliable 24-volt power to lighting and actuators in mobile mining applications

Specifications

- **Module Type:** Power Supply
- **Supply Input:** 110VAC (+/- 15%) / 220 Watts
- **Supply Output:** 24VDC / 200 Watts (Max)
- **Data Communications:** NONE
- **Operating Temperature:** -20 to 70 C
- **Inputs:** None
- **Outputs:** None
- **Connector 1:** Obelix A28 (24VDC Output)
- **Connector 2:** Obelix A29 (110VAC Input)

Typical Application

- Continuous Bolter/Miners
- Continuous Haulage
- Long Wall Shearers
- Mobile Bolters
- Mobile Roof Supports
- Remote Control Scoops
- Remote Control Loaders
- Any industrial switching application



Connector Assembly

Part Number	Description
H0P90201	Connector Assembly A29
H0P90301	Connector Assembly A28

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0P90201 Connector 1:** Obelix A29 Female Plug (8-pin)
- **H0P90301 Connector 1:** Obelix A28 Female Plug (8-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 4
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Power Supply Obelix Module

Power Supply 110VAC-24VDC N/C
Bucyrus Obelix Module
Part Number: L0L90101

Power Supply 110VAC-24VDC N/O
Generic Obelix Module
Part Number: L0L90201

The L0L90101 & L0L90201 Obelix Mining PLC Power Supply combines a mining-duty industrial 24-volt D.C. power supply with a pair of relay outputs

The power supply takes a 110-volt A.C. input and provides stable 24-volt D.C. output (up to 75 watts) for supplying other control system modules

An industry-standard CAN (Controller Area Network) connection is used to allow a host PLC to control the two relay outputs and read module status

The L0L90101 model supports one C-Form relay (NO/NC) and one B-Form relay (NC)

Relay contacts are rated for 110-volt A.C. switching of inductive loads up to 8-Amperes

The L0L90201 model supports one C-Form relay (NO/NC) and one A-Form relay (NO)

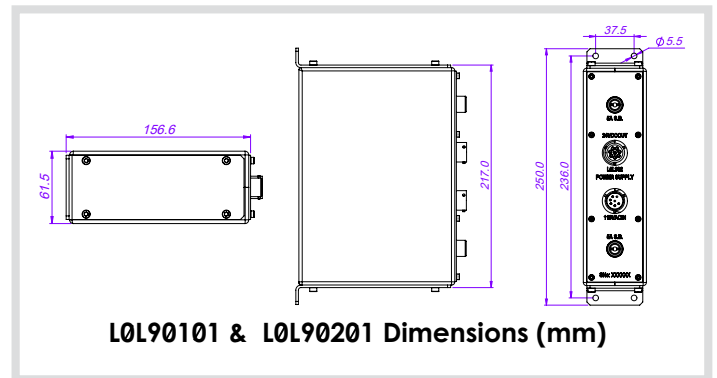
Relay contacts are rated for 110-volt A.C. switching of inductive loads up to 8-Amperes



L0L90101



L0L90201



L0L90101 & L0L90201 Dimensions (mm)

Specifications

- **PLC Family:** Obelix
- **Module Type:** Power Supply + Relay Outputs
- **Supply Input:** 110VAC (+/- 15%) / 80 Watts
- **Supply Output:** 24VDC / 75 Watts (Max)
- **Data Communications:** Obelix CAN (A5/A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs: 2 x Relay Contacts** (110V / 8A)
- **Output 1:** Pilot Relay C-Form (NC/NO)
- **Output 2:** Stop Relay B-Form (NC)
- **L0L90201 Output 2:** Stop Relay A-Form (NO)
- **Connector 1:** Obelix A5 (24VDC Output + CAN Bus)
- **Connector 2:** Obelix A6 (110VAC Input + Relay Outputs)

Connector Assembly

Part Number	Description
H0L90101	Connector Assembly A6
H0L90201	Connector Assembly A5

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0L90101 Connector 1:** Obelix A6 Female Plug (8-pin)
- **H0L90201 Connector 1:** Obelix A5 Male Plug (8-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 8
- **Cable Length:** 2.2 m
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Power Supplies - Intrinsically Safe

Power Supply IS 110V / 12V 2A IEC Ex I b Part Number: L0RF0101

The L0RF0101 Obelix Mining PLC Intrinsically-safe (I.S.Ex ib) Power Supply is a universal power source for Obelix IS PLC Modules and field devices used in Group I hazardous area mining applications.

The L0RF0101 model has been designed and certified under the IEC Ex scheme.

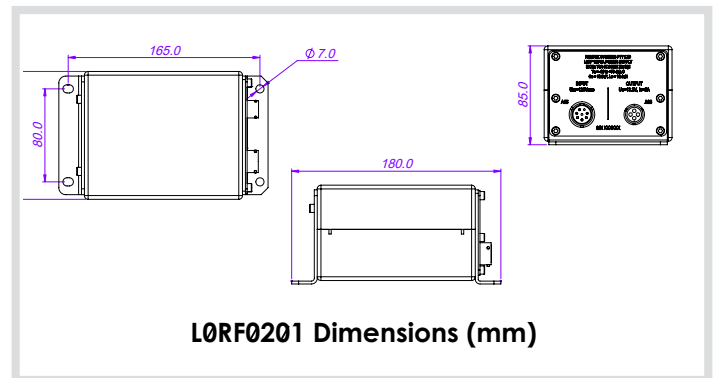
The L0RF0101 model features:

- 110-volt a.c. nominal supply input (Um = 121VAC)
- 12-volt d.c. I.S. nominal output (Uo = 13.2VDC / Io = 2A)
- Convenient, keyed, pre-fabricated cable assemblies for easy, reliable installation



Specifications

- **PLC Family:** Obelix
- **Module Type:** Power Supply (I.S. Ex ib)
- **Supply Input:** 110VAC (+/- 10%) / 30 Watts (Um = 121VAC Max)
- **Supply Output:** 12VDC (I.S.) / 25 Watts (Max)
- **Data Communications:** None
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** None
- **Connector 1:** Obelix A65 (110VAC Input)
- **Connector 2:** Obelix A66 (12VDC I.S. Output)



Power Supplies - Intrinsically Safe

Power Supply IS 110V / 11V8 1A5 MSHA Part Number: L0RF0201

The L0RF0201 Obelix Mining PLC Intrinsically-safe (I.S.Ex ib) Power Supply is a universal power source for Obelix IS PLC Modules and field devices used in Group I hazardous area mining applications.

The L0RF0201 model has been designed and certified according to USA MSHA (Mine Safety and Health Administration) criteria.

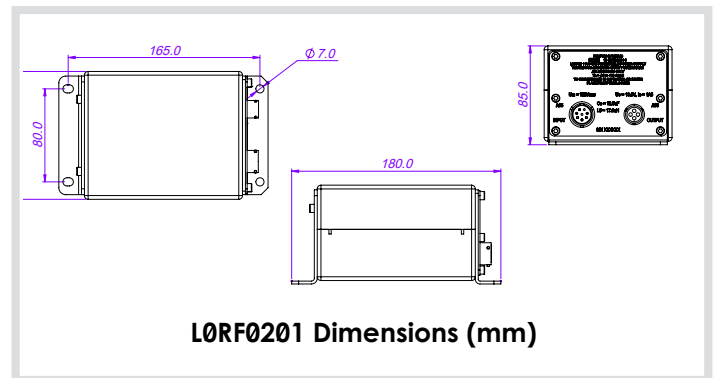
The L0RF0201 model features:

- 110-volt a.c. nominal supply input (Um = 121VAC)
- 11.8-volt d.c. I.S. nominal output (Uo = 13 VDC / Io = 1.5A)
- Convenient, keyed, pre-fabricated cable assemblies for easy, reliable installation



Specifications

- **PLC Family:** Obelix
- **Module Type:** Power Supply (I.S. Ex ib)
- **Supply Input:** 110VAC (+/- 10%) / 30 Watts (Um = 121VAC Max)
- **Supply Output:** 11.8VDC (I.S.) / 17 Watts (Max)
- **Data Communications:** None
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** None
- **Outputs:** None
- **Connector 1:** Obelix A65 (110VAC Input)
- **Connector 2:** Obelix A66 (11.8VDC I.S. Output)



Power Supplies - Intrinsically Safe

L0UD Can Bridge / I.S. Power Supply 1.5 Amps Part Number: L0UD0101

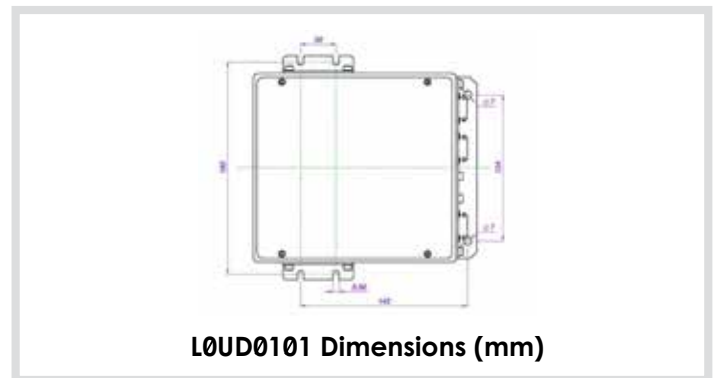
The L0UD0101 Obelix Mining PLC Intrinsically-safe (I.S.Ex ib) Power Supply and CAN Bridge combines a I.S. 12-volt power source with a multi-purpose I.S. CAN communications isolation bridge.

The CAN Isolation Bridge provides for both Copper-based or Fibre-based CAN data transfer to I.S. devices.

The L0UD0101 can also be used as a stand-alone data isolator and route 12-volt I.S. power from an external source.

The L0UD0101 model features:

- 24-volt d.c. nominal supply input (Um = 30VDC)
- 12-volt d.c. I.S. nominal output (Uo = 13.2VDC / Io = 1.8A)
- 2 x Copper CAN Channels (Non-I.S. side of the bridge)
- 1 x I.S. Copper Can Channel (I.S. side of bridge)
- 1 x Fibre CAN Channel (I.S. side of bridge)



Fibre Optic Patch ST -ST Multi-mode

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-mode

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre-optic with ST terminations
- **Connector 1 :** Fibre ST Connector (2 connectors)
- **Connector 2:** Fibre ST Connector (2 connectors)
- **Conductors:** 2
- **Cable Length:** 0.8 metres
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85°C

Inclinometer Obelix Modules

Dual Inclinometer Generic +/-45 DEG Obelix Module Part Number: L0Q40201

The L0Q40201 Obelix Mining PLC Dual-Inclinometer Module provides pitch and roll inclination measurement for mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all outputs.

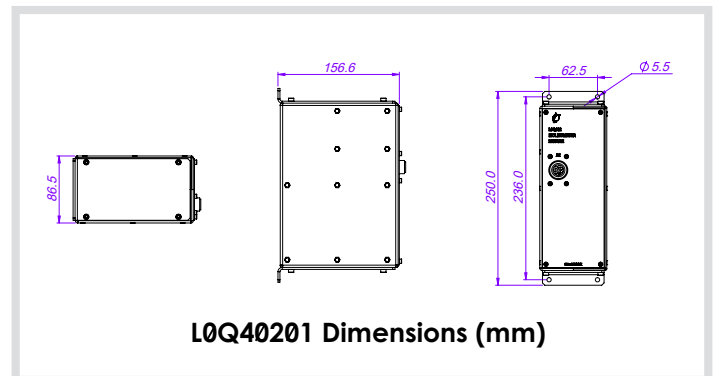
The L0Q40201 model features:

- 2 x Mining- duty inclinometer sensor elements (+/-45-degrees range / pitch and roll)



Specifications

- **PLC Family:** Obelix
- **Module Type:** Inclinometer measurement module
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 2 x +/-45-degrees inclination measurement (Internally-sensed)
- **Outputs:** None
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)



1 Single Fault Tolerant

Power Supply Inputs/Outputs Obelix Module

Power Supply I/O Generic Obelix Module Part Number: L0LU0101

Power Supply I/O Generic (24VDC Digitals) Obelix Module Part Number: L0LU0401

Obelix Mining PLC Power Supply combines a mining-duty industrial 24-volt D.C. power supply with a mixture of useful input and output resources

The power supply takes a 110-volt A.C. input and provides stable 24-volt D.C. output (up to 75 watts) for supplying other control system modules

An industry-standard CAN (Controller Area Network) connection is used to allow a host PLC to control relay outputs, read inputs and monitor module status

The L0LU0101 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 24-volt D.C. 75-watt power supply for supplying other Obelix modules
- 2 x A-Form Dual-Relay Series Outputs (with internal voltage monitoring for safety (rated to 16A @ 110VAC)
- 4 x A-Form Single-Relay Outputs (rated to 16A @ 110VAC)
- 1 x A-Form Single-Relay Outputs (rated to 8A @ 110VAC)
- 1 x C-Form Single-Relay (rated to 8A @ 110VAC)
- 8 x Digital Inputs (110 VAC)
- 8 x Analog Inputs (4 -20 mA)

Specifications

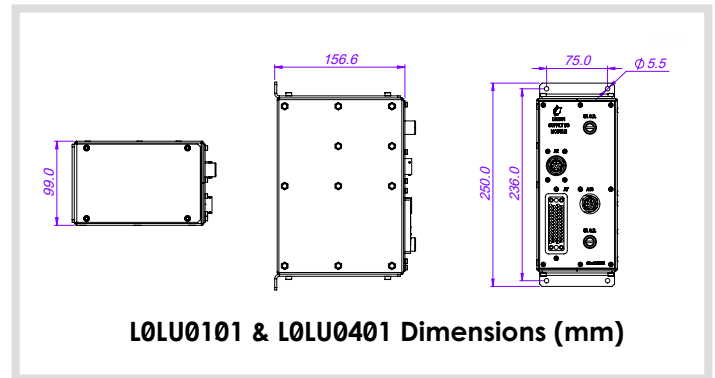
- **Module Type:** Power Supply + I/O (Relays Analog Inputs / Digital Inputs)
- **Supply Input:** 110VAC (+/- 15%) / 80 Watts
- **Supply Output:** 24VDC / 75 Watts (Max, but reduced when using internal relays)
- **Data Communications:** Obelix CAN (A5/A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs 1:** 8 x Digital Inputs (110VAC)
- **Inputs 2:** 8 x Analog Inputs (4-20 mA)
- **Output 1:** "Pilot Relay" C-Form (NC/NO) (110V / 8A)
- **Output 2:** "Stop Relay" A-Form (NO) (110V / 8A)
- **Output 3:** 2 x "Safety Relays" Relay Contacts (110V / 16A) (dual in-line contacts and voltage monitoring for safety)
- **Output 4:** 4 x "Standard Relays" Relay Contacts (110V / 16A)
- **Connector 1:** Obelix A5 (24VDC Output + CAN Bus)
- **Connector 2:** Obelix A13 (110VAC Input + Relay Outputs)
- **Connector 3:** Obelix A7 (Relay Outputs + Analog Inputs + Digital Inputs)



L0LU0101



L0LU0401



L0LU0101 & L0LU0401 Dimensions (mm)

Connector Assembly

Part Number	Description
H0L90201	Connector Assembly A5
H0LU0101	Connector Assembly A7
H0LU0201	Connector Assembly A13

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0L90201 Connector 1:** Obelix A5 Male Plug (8-pin)
- **H0LU0201 Connector 1:** Obelix A13 Female Plug (8-pin)
- **H0LU0101 Connector 1:** Obelix A7 Male Plug (50-pin)
- **Connector 2:** Underminated, flying leads
- **Conductors:** 8
- **H0LU0101 Conductors:** 34
- **Cable Length:** 2.2 m
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Inputs/Outputs Obelix Module

I/O (Type A) Generic Obelix Module
Part Number: L0LE0201

I/O (Type B) Generic Obelix Module
Part Number: L0LE0301

The L0LE0201 and L0LE0301 Mining PLC Relay I/O Module provides a collection of relay outputs, digital inputs and analog inputs in a compact form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all I/O resources

Model Features:

- 10 x A-Form Dual-Relay Relay Outputs (with internal voltage monitoring for safety (rated to 8A @ 110VAC)
- 16 x Digital Inputs (110 VAC)
- 24 x Analog Inputs (4 -20 mA)

The L0LE0201 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation

The L0LE0301 model features:

- Uniquely Keyed Type B connectors to prevent incorrect machine installation

Specifications

- **PLC Family:** Obelix
- **Module Type:** Relay Outputs / Analog Inputs / Digital Inputs
- **Supply Input:** 24VDC (+/- 10%) / 24 Watts (Max)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 16 x Digital Inputs (110VAC) / 24 x Analog Inputs (4-20 mA)
- **Outputs:** 10 x Relay Contacts (110V / 16A) (dual in-line contacts and voltage monitoring for safety)

L0LE0201

- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A8 (Digital and Analog Inputs)
- **Connector 3:** Obelix A9 (Relay Outputs)

L0LE0301

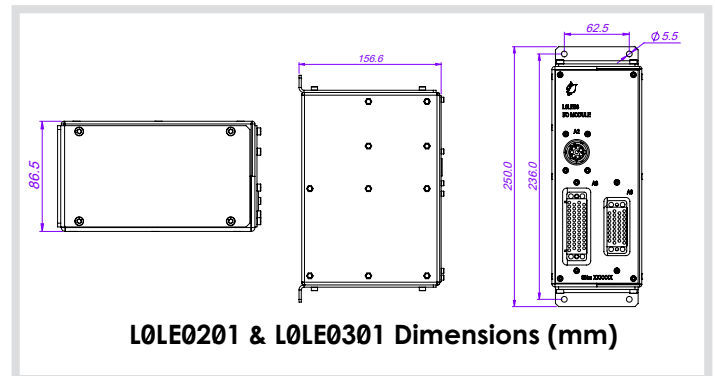
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix B8 (Digital and Analog Inputs)
- **Connector 3:** Obelix B9 (Relay Outputs)



L0LE0201



L0LE0301



L0LE0201 & L0LE0301 Dimensions (mm)

Connector Assembly L0LE0201

Part Number	Description
H0LE0101	Connector Assembly A8
H0LE0301	Connector Assembly A9

Connector Assembly L0LE0301

Part Number	Description
H0LE0201	Connector Assembly B8
H0LE0401	Connector Assembly B9

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **H0LE0101 Connector 1:** Obelix A8 Male Plug (50-pin)
- **H0LE0201 Connector 1:** Obelix B8 Male Plug (50-pin)
- **H0LE0301 Connector 1:** Obelix A9 Male Plug (34-pin)
- **H0LE0401 Connector 1:** Obelix B9 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **H0LE0101 & H0LE0201 Conductors:** 46
- **H0LE0301 & H0LE0401 Conductors:** 25
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Inputs/Outputs Obelix Modules

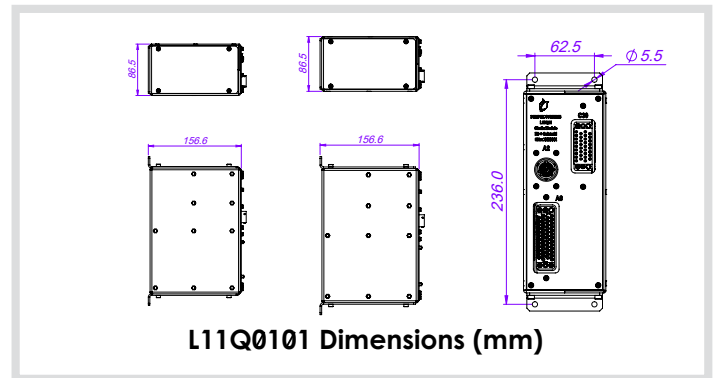
I/O (24VDC Outputs / 24VDC Inputs) Obelix Module Part Number: L11Q0101

The L11Q0101 Obelix Mining PLC I/O Module provides a collection of PWM-controlled outputs, digital inputs and analog inputs in a compact form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all I/O resources.

The L11Q0101 model features:

- Uniquely Keyed Type A and Type C connectors to prevent incorrect machine installation
- 11 x PWM current-controlled 24VDC
- Proportional outputs (up to 1A continuous rating)
- 16 x Digital Inputs (110 VAC)
- 24 x Analog Inputs (4 -20 mA)



Specifications

- **Module Type:** PWM Outputs / Analog Inputs / Digital Inputs
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 24VDC (+/- 10%) / 270 Watts (Max) (based on output loads)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 16 x Digital Inputs (24VDC) / 24 x Analog Inputs (4-20 mA)
- **Outputs:** 11 x PWM Current-regulated Outputs (1 A Maximum)
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A8 (Digital and Analog Inputs)
- **Connector 3:** Obelix C30 (PWM Outputs and 24VDC PWM Supply Input)

Connector Assembly

Part Number	Description
H0PE0401	Connector Assembly A30
H0PE0601	Connector Assembly C30

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **L11Q0101 Connector 1 :** Obelix A30 Male Plug (34-pin)
- **L11Q0101 Connector 1 :** Obelix C30 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 26
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105 °C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Inputs/Outputs Obelix Modules

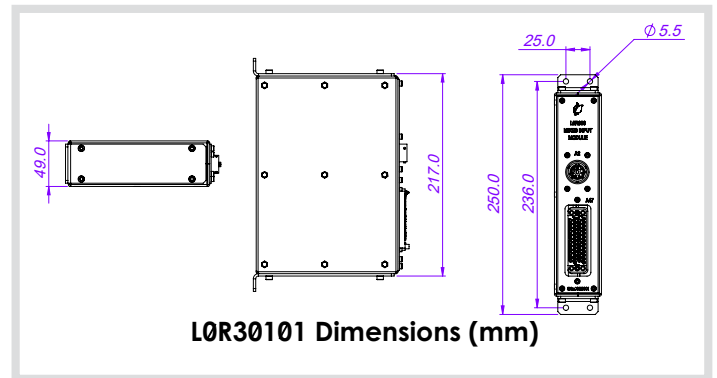
Mixed Inputs (110V/24V/4-20mA) Type A Obelix Module Part Number: L0R30101

The L0R30101 Obelix Mining PLC Inputs Module features a collection of various input monitoring resources in a compact form factor that is well suited to mobile mining applications.

The industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to control and monitor all I/O resources.

The L0R30101 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 12 x Digital Inputs (24 VDC)
- 8 x Digital Inputs (110 VAC)
- 24 x Analog Inputs (4 -20 mA)
- 4 x Frequency Counter Inputs (5 kHz Maximum')



Specifications

- **Module Type:** Multi-purpose Inputs Module
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max) Data
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs 1:** 12 x Digital Inputs (24VDC)
- **Inputs 2:** 8 x Digital Inputs (110VAC)
- **Inputs 3:** 24 x Analog Inputs (4-20 mA)
- **Inputs 4:** 4 x Frequency Counter Inputs (5 kHz Max)
- **Connector 1:** Obelix CAN (A2)
- **Connector 2:** Obelix A47 (Inputs)

Digital Input Obelix Modules

Digital Input 24VDC Obelix Module Part Number: L0LJ0201

The L0LJ0201 Obelix Mining PLC Digital Input Module supports forty-eight (48) digital inputs (24-volt D.C.)

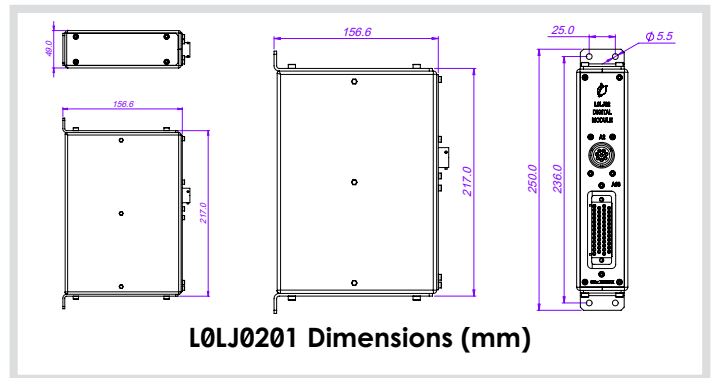
An industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to monitor all inputs and module status.

The L0LJ0201 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 48 x Digital Inputs (24 VDC)

Specifications

- **Module Type:** Digital input module
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 48 x Optically-isolated Digital Inputs (24VDC)
- **Outputs:** None
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A16 (Digital Inputs)



Connector Assembly

Part Number	Description
H0LJ0201	Connector Assembly A63

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Connector 1 :** Obelix A63 Male Plug (50-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 50
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105 °C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Inputs / Outputs Obelix Modules

Digital Input 110VAC Obelix Module Part Number: L0LJ0101

The L0LJ0101 Obelix Mining PLC Digital Input Module supports forty-eight (48) digital inputs (110-volt A.C.)

An industry-standard CAN (Controller Area Network) connection provides a host PLC with the ability to monitor all inputs and module status.

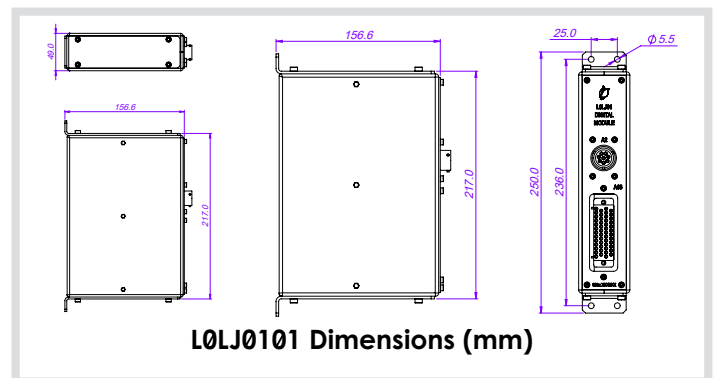
The L0LJ0101 model features:

- Uniquely Keyed Type A connectors to prevent incorrect machine installation
- 48 x Digital Inputs (110 VAC)



Specifications

- **Module Type:** Digital input module
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 48 x Optically-isolated Digital Inputs (110VAC)
- **Outputs:** None
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A10 (Digital Inputs)



Connector Assembly

H0LH0101	Description
H0LJ0101	Connector Assembly A10

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Connector 1 :** Obelix A10 Male Plug (50-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 50
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105 °C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Thermistors Obelix Module

Thermistor Generic Obelix Module Part Number: L0LH0301

The L0LH0301 Mining PLC Thermistor Module provides sixteen (16) inputs for monitoring resistive-type temperature sensors.

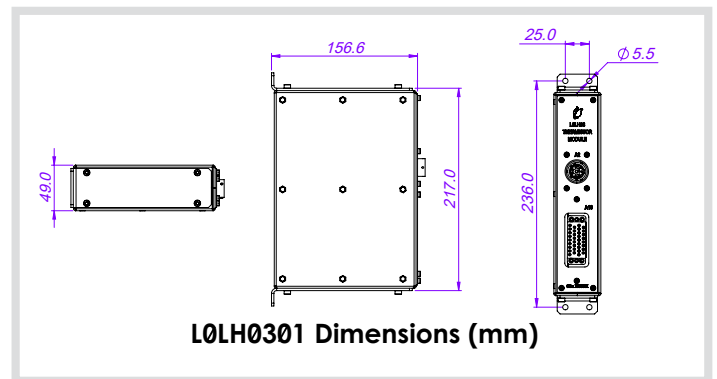
Both PT100 and Thermistor type RTDs are supported. With built-in high voltage isolation the module is very well suited to monitoring temperature sensors inside electric motor windings.

The L0LH0301 module features:

- Uniquely Keyed Type A connector to prevent incorrect machine installation
- 16 x Resistance measuring inputs (configurable from PLC processor for PT100 or Themistor type
- High voltage isolation between thermistor inputs and CAN bus interface to the control system

Specifications

- **Module Type:** Thermistor monitoring input module
- **Supply Input 1:** 24VDC (+/- 10%) / 3 Watts (Max)
- **Supply Input 2:** 12VAC (+/- 15%) / 2 Watts (Max)
- **Data Communications:** Obelix CAN (A2)
- **Operating Temperature:** -20°C to 70°C
- **Inputs:** 16 x Restive sensor Inputs
- **Outputs:** None
- **Connector 1:** Obelix A2 (24VDC Input + CAN Bus)
- **Connector 2:** Obelix A16 (Resistor Inputs and separate 12VAC supply)



Connector Assembly

Part Number	Description
H0LH0101	Connector Assembly A16

Connector Assembly Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Connector 1 :** Obelix A16 Male Plug (34-pin)
- **Connector 2:** Unterminated, flying leads
- **Conductors:** 34
- **Cable Length:** 2.2 metres
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105 °C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Daisy Chain Mining PLC Connector Assemblies

Connector Assembly Daisy Chain 2xA2

Part Number: H0LD1301

The H0LD1301 is a pre-assembled Daisy Chain cable assembly. It is designed to conveniently distribute 24-volt DC power and CAN bus communications between Obelix PLC processor and I/O modules (via standard A2 Obelix Connector)

This cable assembly is suitable for connecting:

- Processor Module (Obelix or ObelixPLUS)
- One (1) I/O Module (Obelix PLC)
- Pair of 24-volt flying leads to receive or distribute control system power



Features & Benefits

Designed for mining applications. Gold-plated connector pins for long, reliable service life

Excellent temperature and voltage ratings

Outer cable sheath keeps installation neat and tidy

Conductors individually labeled for easy installation

Pre-manufactured cable assemblies save time and money when installing a new control system or maintaining existing plant

Gold plated pins and high-quality materials support optimal control system reliability

Application

- Obelix Mining PLC Control Systems
- ObelixPLUS Mining PLC Control Systems
- All types of mobile mining and construction equipment
- New installations
- Maintaining existing installations

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Daisy Chain 2 x A2 and 24VDC leads
- **Connector 1:** 2 x Obelix A2 Male Plug (8-pin)
- **Connector 2:** Unterminated, flying leads (24VC only)
- **Conductors:** 4
- **Cable Length:** 0.4 metres (A2) + 2 metres (leads)
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Daisy Chain Mining PLC Connector Assemblies

Connector Assembly A2 x 5 + Tails Part Number: H0LD1701

The H0LD1701 is a pre-assembled Daisy Chain cable assembly. It is designed to conveniently distribute 24-volt DC power and CAN bus communications between Obelix PLC processor and I/O modules (via standard A2 Obelix Connector)

This cable assembly is suitable for connecting:

- Processor Module (Obelix or ObelixPLUS)
- Four (4) I/O Modules (Obelix PLC)
- Pair of 24-volt flying leads to receive or distribute control system power



Features & Benefits

Designed for mining applications. Gold-plated connector pins for long, reliable service life

Excellent temperature and voltage ratings
Outer cable sheath keeps installation neat and tidy

Conductors individually labeled for easy installation

Pre-manufactured cable assemblies save time and money when installing a new control system or maintaining existing plant

Gold plated pins and high-quality materials support optimal control system reliability

Application

- Obelix Mining PLC Control Systems
- ObelixPLUS Mining PLC Control Systems
- All types of mobile mining and construction equipment
- New installations
- Maintaining existing installations

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Daisy Chain 5 x A2 and 24VDC leads
- **Connector 1:** 5 x Obelix A2 Male Plug (8-pin)
- **Connector 2:** Unterminated, flying leads (24VC only)
- **Conductors:** 4
- **Cable Length:** 4 x 0.3m (A2) + 2m (leads)
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Daisy Chain Mining PLC Connector Assemblies

Connector Assembly A2 x 3 plus Tails Part Number: H0LD2001

The H0LD2001 is a pre-assembled Daisy Chain cable assembly. It is designed to conveniently distribute 24-volt DC power and CAN bus communications between Obelix PLC processor and I/O modules (via standard A2 Obelix Connector)

This cable assembly is suitable for connecting:

- Processor Module (Obelix or ObelixPLUS)
- Two (2) I/O Modules (Obelix PLC)
- Pair of 24-volt flying leads to receive or distribute control system power



Features & Benefits

Designed for mining applications. Gold-plated connector pins for long, reliable service life

Excellent temperature and voltage ratings

Outer cable sheath keeps installation neat and tidy

Conductors individually labeled for easy installation

Pre-manufactured cable assemblies save time and money when installing a new control system or maintaining existing plant

Gold plated pins and high-quality materials support optimal control system reliability

Application

- Obelix Mining PLC Control Systems
- ObelixPLUS Mining PLC Control Systems
- All types of mobile mining and construction equipment
- New installations
- Maintaining existing installations

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Daisy Chain 3 x A2 and 24VDC leads
- **Connector 1:** 3 x Obelix A2 Male Plug (8-pin)
- **Connector 2:** Unterminated, flying leads (24VC only)
- **Conductors:** 4
- **Cable Length:** 2 x 0.4m (A2) + 2m (leads)
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Daisy Chain Mining PLC Connector Assemblies

Cable Daisy Chain 3xA2 Part Number: H0LD5301

The H0LD5301 is a pre-assembled Daisy Chain cable assembly. It is designed to conveniently distribute 24-volt DC power and CAN bus communications between Obelix PLC processor and I/O modules (via standard A2 Obelix Connector)

This cable assembly is suitable for connecting:

- Processor Module (Obelix or ObelixPLUS)
- Two (2) I/O Modules (Obelix PLC)
- Pair of 24-volt flying leads to receive or distribute control system power



Features & Benefits

Designed for mining applications. Gold-plated connector pins for long, reliable service life

Excellent temperature and voltage ratings

Outer cable sheath keeps installation neat and tidy

Conductors individually labeled for easy installation

Pre-manufactured cable assemblies save time and money when installing a new control system or maintaining existing plant

Gold plated pins and high-quality materials support optimal control system reliability

Application

- Obelix Mining PLC Control Systems
- ObelixPLUS Mining PLC Control Systems
- All types of mobile mining and construction equipment
- New installations
- Maintaining existing installations

Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Daisy Chain 3 x A2 and 24VDC leads
- **Connector 1:** 3 x Obelix A2 Male Plug (8-pin)
- **Connector 2:** Unterminated, flying leads (24VC only)
- **Conductors:** 4
- **Cable Length:** 2 x 0.4m (A2) + 2m (leads)
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

Daisy Chain Mining PLC Connector Assemblies

Cable Daisy Chain 3xA2 1xA5 Part Number: H0LD7101

The H0LD7101 is a pre-assembled Daisy Chain cable assembly. It is designed to conveniently distribute 24-volt DC power and CAN bus communications between Obelix PLC processor and I/O modules (via standard A2 Obelix Connector)

This cable assembly is suitable for connecting:

- 24-VDC Power Supply Module (A5 connector) Processor Module (Obelix or ObelixPLUS)
- Two (2) I/O Modules (Obelix PLC)
- CAN and 24-volt flying leads to receive or distribute control system power and data

Features & Benefits

Designed for mining applications. Gold-plated connector pins for long, reliable service life

Excellent temperature and voltage ratings

Outer cable sheath keeps installation neat and tidy

Conductors individually labeled for easy installation

Pre-manufactured cable assemblies save time and money when installing a new control system or maintaining existing plant

Gold plated pins and high-quality materials support optimal control system reliability

Application

- Obelix Mining PLC Control Systems
- ObelixPLUS Mining PLC Control Systems
- All types of mobile mining and construction equipment
- New installations
- Maintaining existing installations

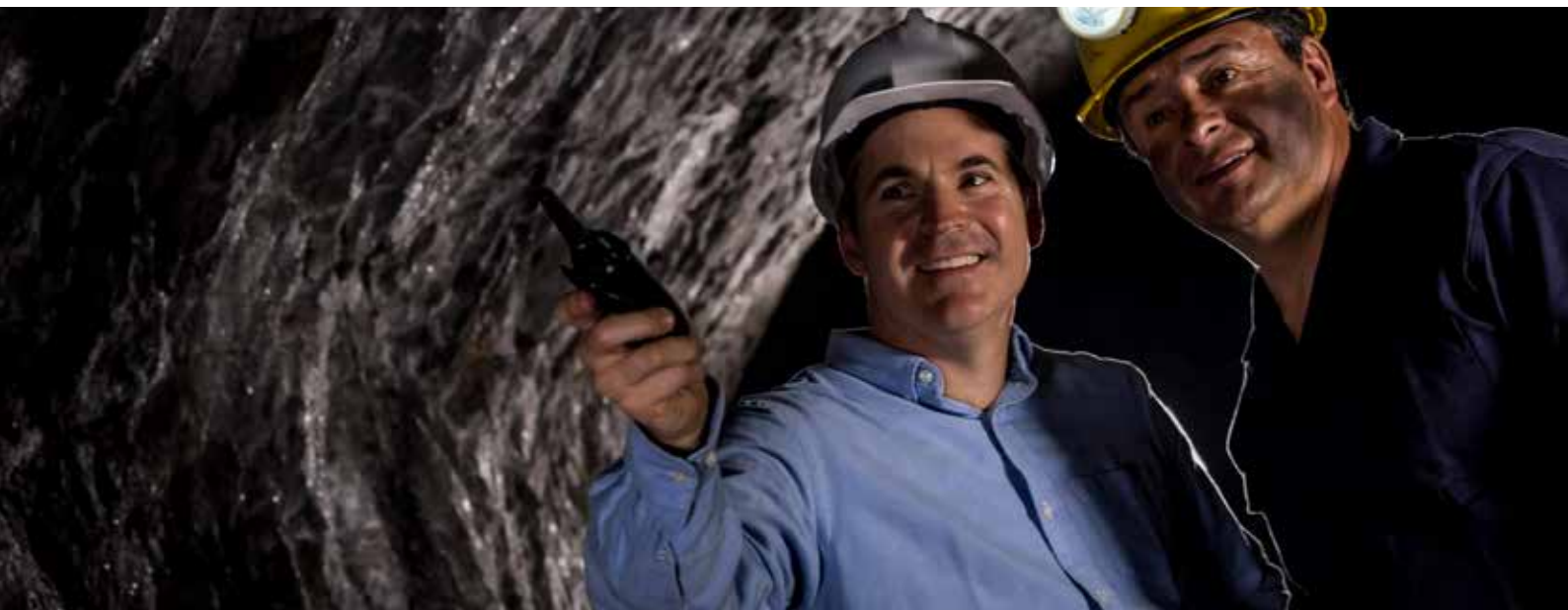


Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Daisy Chain 3 x A2 and 24VDC leads
- **Connector 1:** 1 x Obelix A5 Male Plug (8-pin)
- **Connector 2:** 3 x Obelix A2 Male Plug (8-pin)
- **Connector 3:** Unterminated, flying leads (24VC and CAN)
- **Conductors:** 4
- **Cable Length:** 3 x 0.4m (A5, A2) + 2m (leads)
- **Pin Type:** Female (Gold-plated)
- **Conductor Type:** PVDF Tinned Stranded Wire
- **Insulation Rating:** 600 volts
- **Temperature Rating:** -65°C to 105°C
- **Recommended Tools:** PVDF / Teflon Insulation Stripping Tool

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www.pempek.com.au | sales@pempek.com.au | +61 02 8853 4800

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