

## L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

The Pempek OBP Mining PLC I.S. I/O 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 I.S power supply can be conveniently segregated into its isolated zone.

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

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

Uniquely Keyed Type Connectors to prevent incorrect machine installation.

**The module is Dual Pempek OBP Type which complies with AS/NZS 4240 standard.**

**As per standard, every output includes two switches A&B in series with monitoring feedbacks from both.**

**Extra safety is achieved by using two potted boards where each includes main and watchdog processors monitoring the correctness of executed main software code.**

**Module Primary board - A21\_B0L3P**

**Module Secondary board - A19\_A20\_B0MWJ**



Mounting options can vary depending on customer requirements.

## Specifications

- **Module Type:** Intrinsically Safe Input / Output with Display
- **Supply:** 12VDC (+/- 10%) / 20 Watts (Max) from Approved I.S. Power Supply
- **Data Communications:** CAN interface over Pempek OBP Fibre
- **Operating Temperature:** -20°C to +85°C all industrial components
- **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 1:** 8 x Proportional Solenoid Outputs 0-350mA
- **Outputs 2:** 1 x Proportional Output 0-900mA (Requires 3 links installed in plug A21)
- **Connector 1:** Pempek OBP Fibre
- **Connector 2:** Pempek OBP A21 (12VDS I.S Supply and Solenoid Outputs)
- **Connector 3:** Pempek OBP A19 (12VDC I.S. Supply and 12 Bit resolution Namur Inputs)
- **Connector 4:** Pempek OBP A20 (Digital Inputs and 12 Bit resolution Analog Inputs)

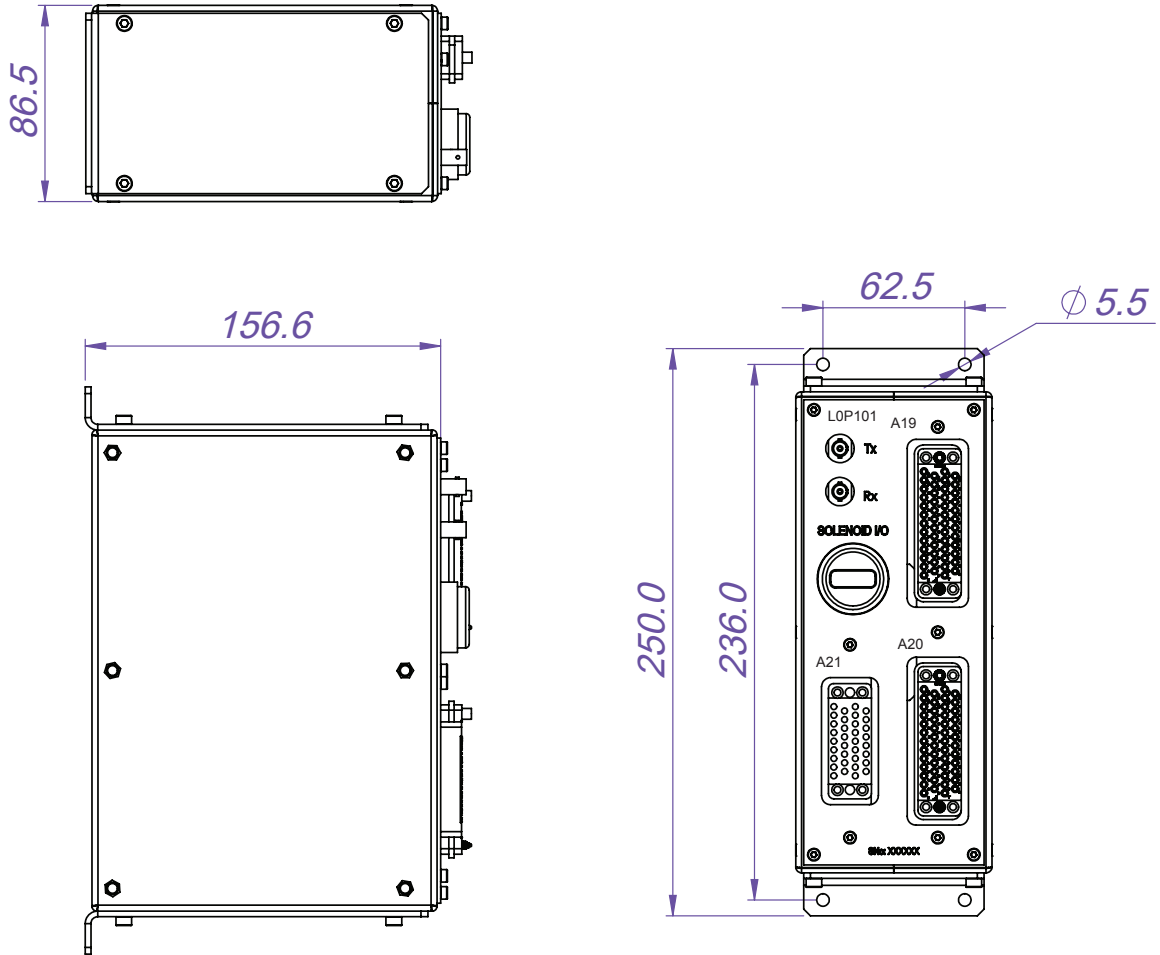
### Heavy Duty Enclosure

- Electroless Nickel Plated
- Rugged Construction

### Mass

- 6.5kg (14.3lb)

L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A



Dimensions (mm)

## Display Diagnostics

The integral 4 characters LED Matrix display provides the end-user with some basic diagnostics as to the operation of the module. These messages are as follows:

### Message Explanation Result

#### ON

Omni Flashing Indicates nominal operation and signifies that CAN communications have been established with a host. Normal Operation Permitted

#### CAN

This indicates CAN Communication has not been established or has been lost. Outputs Disabled

#### FEBK

This indicates that internal is NOT congruent with requested outputs. This typically occurs when output has been requested but has failed to operate indicating a supply failure or wiring error. Outputs Disabled

#### SHRT

This indicates that a short-circuit condition has been detected as a requested output. This short-circuit could be external (most probable) or internal Outputs Disabled

#### OPEN

This indicates that the requested output is not drawing sufficient current to operate as expected indicating that the solenoid coil is an open circuit. Outputs Disabled

#### LOAD

This indicates that the requested output is not drawing current as requested when commanded to operate proportionally. Outputs Disable



## L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

### CONNECTOR A19

Number	Unit / PCB GMCT50F Female Board Mount PIN	L0P10101 Name
1	A	SUPPLY-PROX-SW-1
2	B	ANALOG-1 High Resolution 12 Bit
3	C	SUPPLY-PROX-SW-2
4	D	ANALOG-2 High Resolution 12 Bit
5	E	SUPPLY-PROX-SW-3
6	F	ANALOG-3 High Resolution 12 Bit
7	H	
8	J	
9	K	SUPPLY-PROX-SW-4
10	L	ANALOG-4 High Resolution 12 Bit
11	M	
12	N	
13	P	SUPPLY-PROX-SW-5
14	R	ANALOG-5 High Resolution 12 Bit
15	S	
16	T	
17	U	SUPPLY-PROX-SW-6
18	V	ANALOG-6 High Resolution 12 Bit
19	W	SUPPLY-PROX-SW-7
20	X	ANALOG-7 High Resolution 12 Bit
21	Y	SUPPLY-PROX-SW-8
22	Z	ANALOG-8 High Resolution 12 Bit
23	a	
24	b	
25	c	SUPPLY-PROX-SW-9
26	d	ANALOG-9 High Resolution 12 Bit
27	e	
28	f	
29	h	SUPPLY-PROX-SW-10
30	j	ANALOG-10 High Resolution 12 Bit
31	k	
32	m	
33	n	SUPPLY-PROX-SW-11
34	p	ANALOG-11 High Resolution 12 Bit
35	r	SUPPLY-PROX-SW-12
36	s	ANALOG-12 High Resolution 12 Bit
37	t	SUPPLY-PROX-SW-13
38	u	ANALOG-13 High Resolution 12 Bit
39	v	
40	w	
41	x	SUPPLY-PROX-SW-14
42	y	ANALOG-14 High Resolution 12 Bit
43	z	
44	AA	
45	BB	SUPPLY-PROX-SW-15
46	CC	ANALOG-15 High Resolution 12 Bit
47	DD	SUPPLY-PROX-SW-16
48	EE	ANALOG-16 High Resolution 12 Bit
49	FF	OVIS
50	HH	12VIS

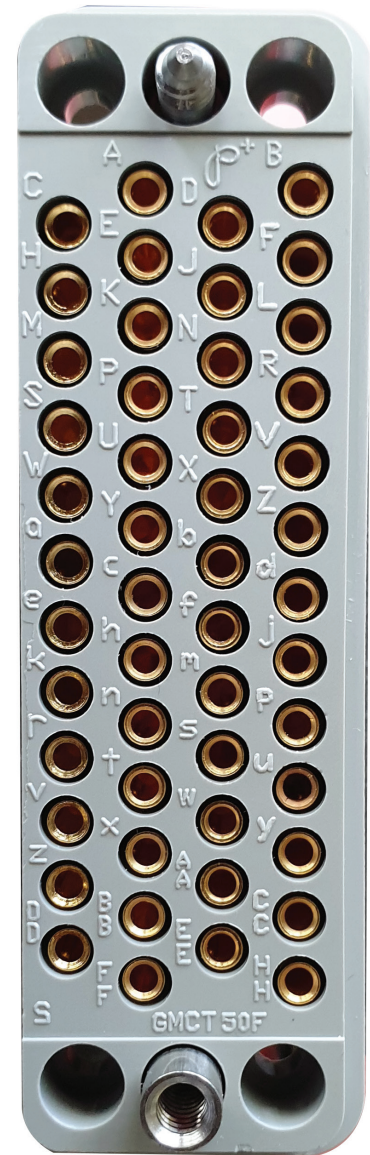


Image depict coding pins required

## LOP10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

### CONNECTOR A20

Number	Unit / PCB GMST50F Female Board Mount PIN	LOP10101 Name
1	A	INP1
2	B	INP2
3	C	INP3
4	D	INP4
5	E	INP5
6	F	INP6
7	H	INP7
8	J	INP8
9	K	INP9
10	L	INP10
11	M	INP11
12	N	INP12
13	P	INP13
14	R	INP14
15	S	INP15
16	T	INP16
17	U	INP17
18	V	INP18
19	W	INP19
20	X	INP20
21	Y	INP21
22	Z	INP22
23	a	INP23
24	b	INP24
25	c	
26	d	MODULE SELECT-4
27	e	
28	f	MODULE SELECT-3
29	h	
30	j	MODULE SELECT-2
31	k	
32	m	MODULE SELECT-1
33	n	AN17 High Resolution 12 Bit
34	p	AN18 High Resolution 12 Bit
35	r	AN19 High Resolution 12 Bit
36	s	AN20 High Resolution 12 Bit
37	t	AN21 High Resolution 12 Bit
38	u	AN22 High Resolution 12 Bit
39	v	AN23 High Resolution 12 Bit
40	w	AN24 High Resolution 12 Bit
41	x	AN25 High Resolution 12 Bit
42	y	AN26 High Resolution 12 Bit
43	z	AN27 High Resolution 12 Bit
44	AA	AN28 High Resolution 12 Bit
45	BB	AN29 High Resolution 12 Bit
46	CC	AN30 High Resolution 12 Bit
47	DD	AN31 High Resolution 12 Bit
48	EE	AN32 High Resolution 12 Bit
49	FF	
50	HH	OVIS

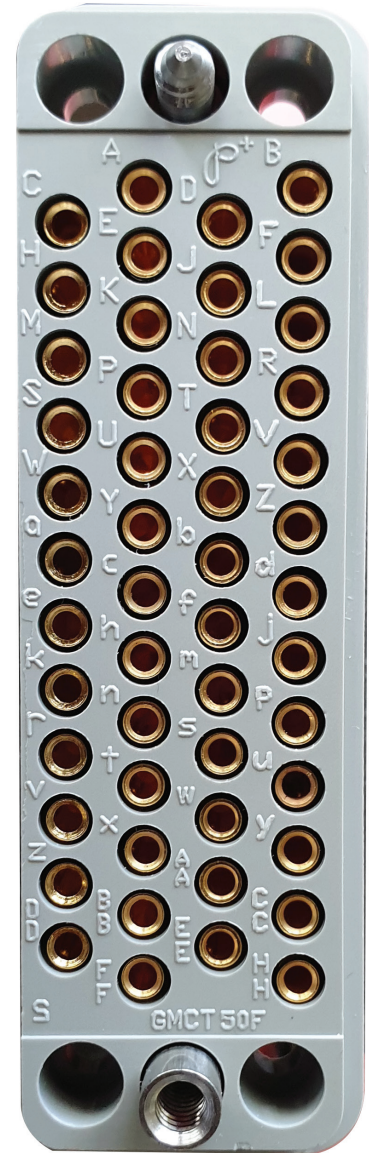


Image depict coding pins required

## L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

### CONNECTOR A21 - Proportional Solenoids 8x 0-350mA variant

Number	Unit / PCB VMCT-34F Female Board Mount PIN	L0P10101 Name
1	A	
2	B	PROP-SOL-1
3	C	
4	D	PROP-SOL-1 Return 0VIS
5	E	
6	F	PROP-SOL-2
7	H	
8	J	PROP-SOL-2 Return 0VIS
9	K	
10	L	PROP-SOL-3
11	M	MODULE SELECT-1
12	N	PROP-SOL-3 Return 0VIS
13	P	
14	R	PROP-SOL-4
15	S	MODULE SELECT-2
16	T	PROP-SOL-4 Return 0VIS
17	U	
18	V	PROP-SOL-5
19	W	MODULE SELECT-3
20	X	PROP-SOL-5 Return 0VIS
21	Y	
22	Z	PROP-SOL-6
23	AA	MODULE SELECT-4
24	BB	PROP-SOL-6 Return 0VIS
25	CC	
26	DD	PROP-SOL-7
27	EE	
28	FF	PROP-SOL-7 Return 0VIS
29	HH	
30	JJ	PROP-SOL- 8
31	KK	
32	LL	PROP-SOL-8 Return 0VIS
33	MM	0VIS Supply
34	NN	12VIS Supply



Image depict coding pins required

## L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

### CONNECTOR A21 Proportional Solenoid 0-900mA variant

Number	Unit / PCB VMCT-34F Female Board Mount PIN	L0P10101 Name
1	A	A-C Link1 in A21 Plug
2	B	PROP-SOL-1
3	C	A-C Link1 in A21 Plug
4	D	PROP-SOL-1 Return 0VIS
5	E	E-H Link2 in A21 Plug
6	F	
7	H	E-H Link2 in A21 Plug
8	J	
9	K	K-P Link3 in A21 Plug
10	L	
11	M	MODULE SELECT-1
12	N	
13	P	K-P Link3 in A21 Plug
14	R	
15	S	MODULE SELECT-2
16	T	
17	U	
18	V	
19	W	MODULE SELECT-3
20	X	
21	Y	
22	Z	
23	AA	MODULE SELECT-4
24	BB	
25	CC	
26	DD	
27	EE	
28	FF	
29	HH	
30	JJ	
31	KK	
32	LL	
33	MM	0VIS Supply
34	NN	12VIS Supply



Image depict coding pins required

## L0P10101 Pempek OBP Proportional Solenoid Ex ib Intrinsically Safe I/O Analog/Namur Inputs HI-RES 12 Bit Type A

### Fibre Optic Patch Cables

Part Number	Description
H0LW0401	Fibre Optic Patch ST-ST Multi-Mode
H0M10101	Connector Assembly Fibre 8 way 7m
H0M10201	Connector Assembly Fibre 8 way 10m
H0M10301	Connector Assembly Fibre 8 way 1m
H0M10401	Connector Assembly Fibre 8 way 4m
H0M10801	Connector Assembly Fibre 8 way 8m
H0M10901	Connector Assembly Fibre 8 way 11m
H0M11001	Fibre Optic Patch Assembly 8 way 3m
H0M11201	Connector Assembly Fibre 8 way 12.5m



Image above Fibre Optic Patch ST-ST Multi-Mode

### Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Fibre Optic with ST terminations
- **Connector 1 :** Fibre Optic Tx
- **Connector 2:** Fibre-optic Rx
- **Pin Type:** ST Fibre Plugs
- **Conductor Type:** Multi-mode Fibre-optic
- **Insulation Rating:** N/A
- **Temperature Rating:** -40°C to 85°C

### Connector Assembly

Part Number	Description
H0LW0201	Connector Assembly A19 2.2m
H0LW0301	Connector Assembly A20 2.2m
H0LW0901	Connector Assembly A20 5m
H0LW0902	Connector Assembly A20 1.5m
H0LW0903	Connector Assembly A20 Fully Populated 1.5m
H0LZ0501	Connector Assembly A21 2.2m
H0LZ0502	Connector Assembly A21 1.5m
H0LZ0503	Connector Assembly A21 1.5m Fully Populated



### Specifications

- **Product Type:** Pre-manufactured cable assembly
- **Construction:** Connector with flying leads (pigtail)
- **Pin Type:** Male (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

Cable options can vary depending on customer requirements.