

## L0PX0101 Pempek OBP Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Analog Inputs 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 fiber-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 correctness of executed main software code.**

**Module Primary board - A25\_B0MQP  
Module Secondary board – A22\_B0MZG**



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
- **Outputs:** 4 x Danfoss Proportional Solenoid Outputs (Supply 12VIS/650mA , Control 3-9V)
- **Sensors:** 2 x Resolver Sensors - Litton or Siemens
- **Inputs 1:** 12 x 12VDC Digital Inputs
- **Inputs 2:** 12 x 4-20mA Analog Inputs High Resolution 12 Bit
- **Inputs 3:** 4 x 0-2.8V Analog Inputs High Resolution 12 Bit
- **Inputs 4:** 4 x Frequency Counters (to 5KHz)
- **Connector 1:** Pempek OBP Fibre
- **Connector 2:** Pempek OBP A25 (12VDC I.S. Supply and Danfoss Proportional Solenoid Outputs)
- **Connector 3:** Pempek OBP A22 (Digital Inputs, Analog Inputs, Resolvers and Counters)

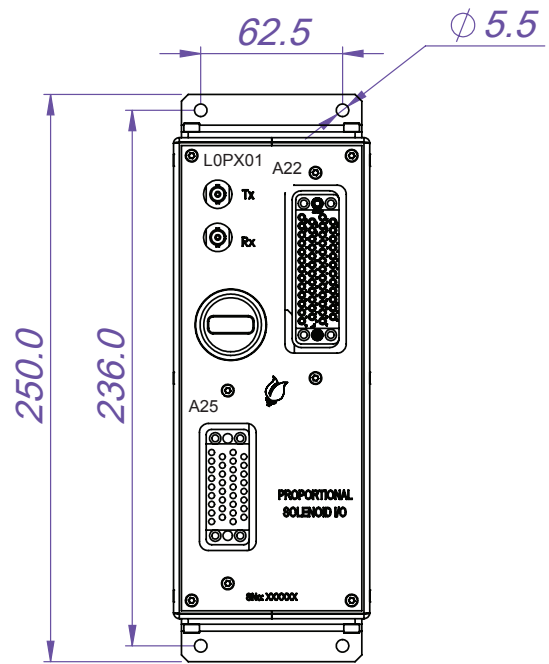
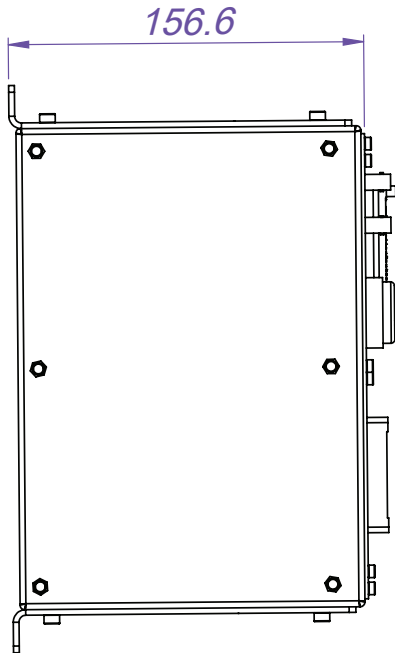
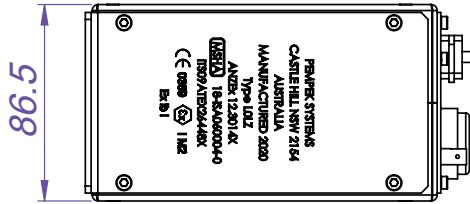
### Heavy Duty Enclosure

- Electroless Nickel Plated
- Rugged Construction

### Mass

- 6.5kg (14.3lb)

L0PX0101 Pempek OBP Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Analog Inputs 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



## L0PX0101 Pempek OBP Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Analog Inputs 12 Bit Type A

### CONNECTOR A22 All 16 Analog Inputs are High Resolution 12 Bit

Number	Unit / PCB GMCT50F Female Board Mount PIN	L0PX0101 Name
1	A	INPUT-COUNTER-1
2	B	INPUT-COUNTER-2
3	C	INPUT-COUNTER-3
4	D	INPUT-COUNTER-4
5	E	ANALOG-16 0-2.8 V
6	F	RESOLVER-1 (REF-2)
7	H	ANALOG-15 0-2.8 V
8	J	ANALOG-14 0-2.8 V
9	K	ANALOG-13 0-2.8 V
10	L	RESOLVER-1 (REF-1)
11	M	ANALOG-12 4-20mA
12	N	ANALOG-11 4-20mA
13	P	ANALOG-10 4-20mA
14	R	RESOLVER-1 (GND-COS)
15	S	ANALOG-9 4-20mA
16	T	ANALOG-8 4-20mA
17	U	ANALOG-7 4-20mA
18	V	RESOLVER-1 (COS)
19	W	ANALOG-6 4-20mA
20	X	ANALOG-5 4-20mA
21	Y	ANALOG-4 4-20mA
22	Z	RESOLVER-1 (SIN)
23	a	ANALOG-3 4-20mA
24	b	ANALOG-2 4-20mA
25	c	ANALOG-1 4-20mA
26	d	RESOLVER-1 (GND-SIN)
27	e	INP-12
28	f	INP-11
29	h	INP-10
30	j	RESOLVER-2(REF-2)
31	k	INP-9
32	m	INP-8
33	n	INP-7
34	p	RESOLVER-2(REF-1)
35	r	MODULE SELECT-3
36	s	INP-6
37	t	INP-5
38	u	RESOLVER-2(GND-COS)
39	v	MODULE SELECT-4
40	w	INP-4
41	x	INP-3
42	y	RESOLVER-2(COS)
43	z	MODULE SELECT-1
44	AA	INP-2
45	BB	INP-1
46	CC	RESOLVER-2(SIN)
47	DD	MODULE SELECT-2
48	EE	RESOLVER-2(GND-SIN)
49	FF	OVIS
50	HH	

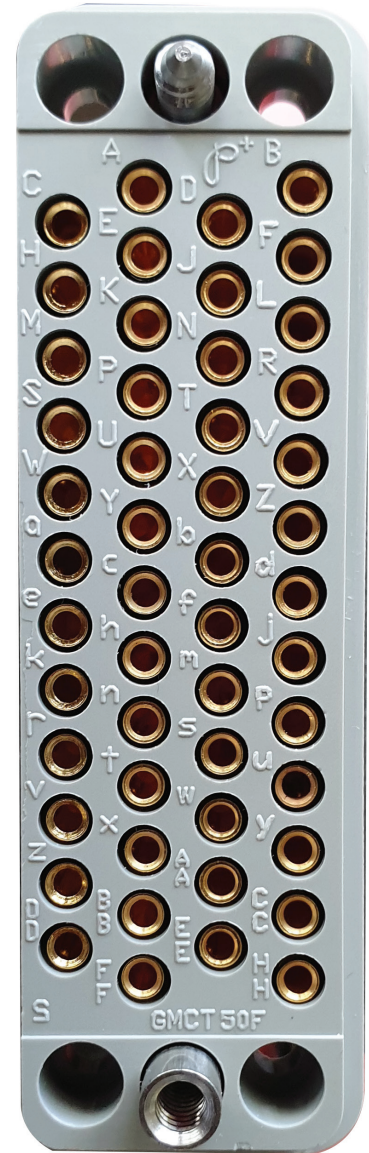


Image depict coding pins required



## L0PX0101 Pempek OBP Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Analog Inputs 12 Bit Type A

### CONNECTOR A25 - 4 x Danfoss Proportional Solenoid Outputs (Supply 12VIS/650mA , Control 3-9V)

Number	Unit / PCB VMCT-34F Female Board Mount PIN	L0PX0101 Name
1	A	
2	B	12VIS Supply Solenoid 1
3	C	
4	D	OVIS
5	E	
6	F	Control Solenoid 1_3V-9V
7	H	
8	J	OVIS
9	K	
10	L	12VIS Supply Solenoid 2
11	M	MODULE SELECT-1
12	N	OVIS
13	P	
14	R	Control Solenoid 2_3V-9V
15	S	MODULE SELECT-2
16	T	OVIS
17	U	
18	V	12VIS Supply Solenoid 3
19	W	MODULE SELECT-3
20	X	OVIS
21	Y	
22	Z	Control Solenoid 3_3V-9V
23	AA	MODULE SELECT-4
24	BB	OVIS
25	CC	
26	DD	12VIS Supply Solenoid 4
27	EE	
28	FF	OVIS
29	HH	
30	JJ	Control Solenoid 4_3V-9V
31	KK	
32	LL	OVIS
33	MM	OVIS Supply
34	NN	12VIS Supply



Image depict coding pins required

## L0PX0101 Pempek OBP Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Analog Inputs 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
H0LZ0201	Connector Assembly A22 2.2m
H0LZ0401	Connector Assembly A22 1.5m
H0LZ0402	Connector Assembly A22 1.5m (Small Case)
H0LZ0403	Connector Assembly A22 1.5m Fully Populated
H0MQ0101	Connector Assembly A25



### 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.