

## L0MQ0301 Obelix Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Type C

The Obelix 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 Obelix 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 Obelix 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 - C25\_B0MQP**

**Module Secondary board – C19\_C20\_B0L3J**



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 Obelix 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:** 4 x Danfoss Proportional Solenoid Outputs (Supply 12VIS/650mA , Control 3-9V)
- **Connector 1:** Obelix Fibre
- **Connector 2:** Obelix C25 (12VDC I.S. Supply and Danfoss Proportional Solenoid Outputs)
- **Connector 3:** Obelix C19 (12VDC I.S. Supply and Namur Inputs)
- **Connector 4:** Obelix C20 (Digital Inputs and Analog Inputs)

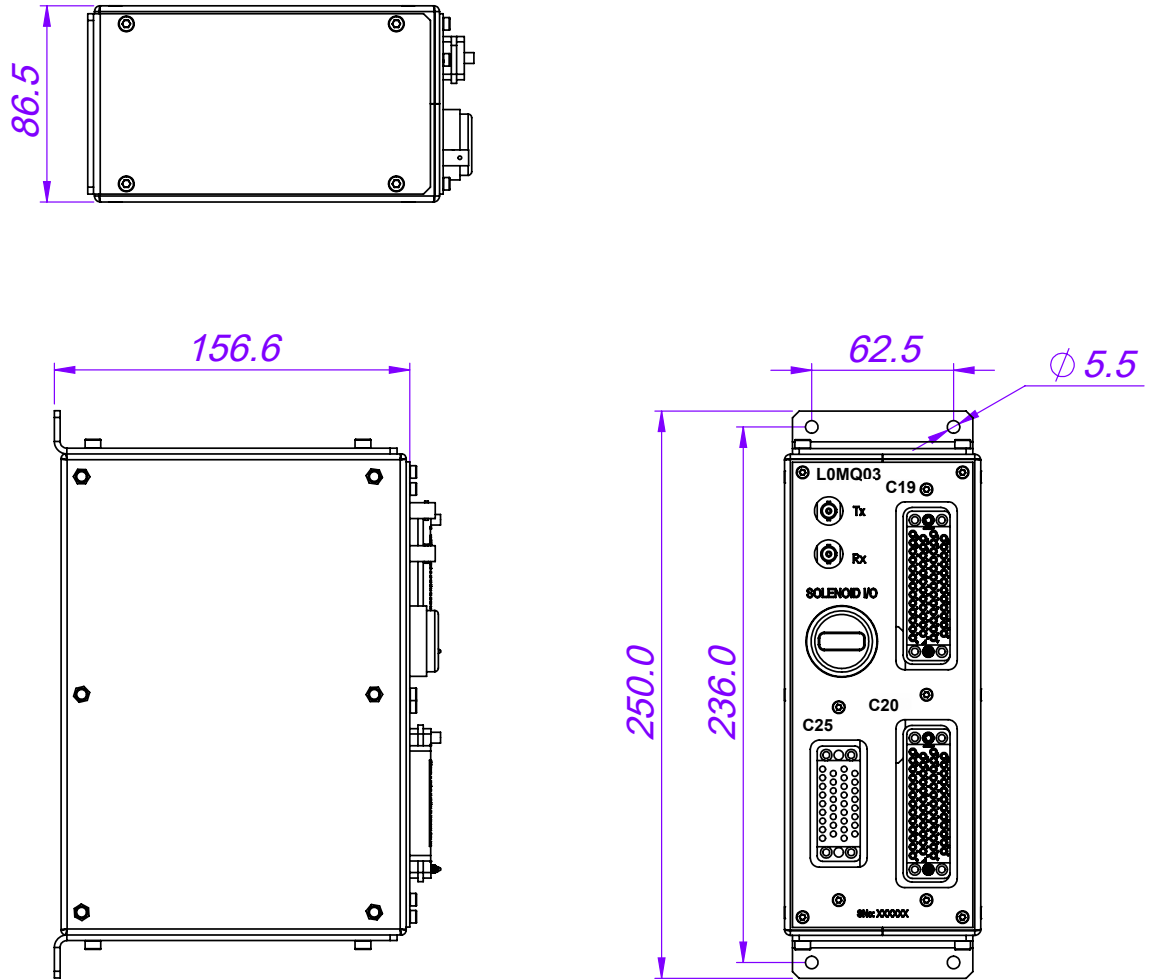
### Heavy Duty Enclosure

- Electroless Nickel Plated
- Rugged Construction

### Mass

- 6.5kg (14.3lb)

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Dimensions (mm)

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**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



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CONNECTOR C19

Number	Unit / PCB GMCT50F Female Board Mount PIN	L0MQ0301 Name
1	A	SUPPLY-PROX-SW-1
2	B	ANALOG-1
3	C	SUPPLY-PROX-SW-2
4	D	ANALOG-2
5	E	SUPPLY-PROX-SW-3
6	F	ANALOG-3
7	H	
8	J	
9	K	SUPPLY-PROX-SW-4
10	L	ANALOG-4
11	M	
12	N	
13	P	SUPPLY-PROX-SW-5
14	R	ANALOG-5
15	S	
16	T	
17	U	SUPPLY-PROX-SW-6
18	V	ANALOG-6
19	W	SUPPLY-PROX-SW-7
20	X	ANALOG-7
21	Y	SUPPLY-PROX-SW-8
22	Z	ANALOG-8
23	a	
24	b	
25	c	SUPPLY-PROX-SW-9
26	d	ANALOG-9
27	e	
28	f	
29	h	SUPPLY-PROX-SW-10
30	j	ANALOG-10
31	k	
32	m	
33	n	SUPPLY-PROX-SW-11
34	p	ANALOG-11
35	r	SUPPLY-PROX-SW-12
36	s	ANALOG-12
37	t	SUPPLY-PROX-SW-13
38	u	ANALOG-13
39	v	
40	w	
41	x	SUPPLY-PROX-SW-14
42	y	ANALOG-14
43	z	
44	AA	
45	BB	SUPPLY-PROX-SW-15
46	CC	ANALOG-15
47	DD	SUPPLY-PROX-SW-16
48	EE	ANALOG-16
49	FF	OVIS
50	HH	12VIS



Image depict coding pins required



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CONNECTOR C20

Number	Unit / PCB GMST50F Female Board Mount PIN	L0MQ0301 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
34	p	AN18
35	r	AN19
36	s	AN20
37	t	AN21
38	u	AN22
39	v	AN23
40	w	AN24
41	x	AN25
42	y	AN26
43	z	AN27
44	AA	AN28
45	BB	AN29
46	CC	AN30
47	DD	AN31
48	EE	AN32
49	FF	
50	HH	OVIS



Image depict coding pins required

**L0MQ0301 Obelix Danfoss Proportional Solenoid Module Ex ib Intrinsically Safe I/O Type C**

**CONNECTOR C25 - 4 x Danfoss Proportional Solenoid Outputs (Supply 12VIS/650mA , Control 3-9V)**

Number	Unit / PCB VMCT-34F Female Board Mount PIN	L0MQ0301 Name
1	A	
2	B	12VIS Supply Solenoid 1
3	C	
4	D	0VIS
5	E	
6	F	Control Solenoid 1_3V-9V
7	H	
8	J	0VIS
9	K	
10	L	12VIS Supply Solenoid 2
11	M	MODULE SELECT-1
12	N	0VIS
13	P	
14	R	Control Solenoid 2_3V-9V
15	S	MODULE SELECT-2
16	T	0VIS
17	U	
18	V	12VIS Supply Solenoid 3
19	W	MODULE SELECT-3
20	X	0VIS
21	Y	
22	Z	Control Solenoid 3_3V-9V
23	AA	MODULE SELECT-4
24	BB	0VIS
25	CC	
26	DD	12VIS Supply Solenoid 4
27	EE	
28	FF	0VIS
29	HH	
30	JJ	Control Solenoid 4_3V-9V
31	KK	
32	LL	0VIS
33	MM	0VIS Supply
34	NN	12VIS Supply



Image depict coding pins required

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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
H0MQ0701	Connector Assembly C25
H0MQ0801	Connector Assembly C19
H0MQ0901	Connector Assembly C20



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.