L0MW0201 Solenoid Module Obelix Intrinsically Safe I/O Analog 12 Bit Type B

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 fibre-optic communications interface means that the module and dedicated I.S power supply, can be conveniently segregated into it's own 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 - B18_B0L32
Module Secondary board - B19_B20_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 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:** 24 x I.S. 12VDC On/Off Outputs (1A Maximum for each Output)
- **Connector 1:** Obelix Fibre
- **Connector 2:** Obelix A18 (12VDC I.S. Supply and Solenoid Outputs)
- **Connector 3:** Obelix A19 (12VDC I.S. Supply and 12 Bit resolution Namur Inputs)
- **Connector 4:** Obelix A20 (Digital Inputs and 12 Bit resolution Analog Inputs)

Heavy Duty Enclosure
- Electroless Nickel Plated
- Rugged Construction

Mass
- 6.5kg (14.3lb)

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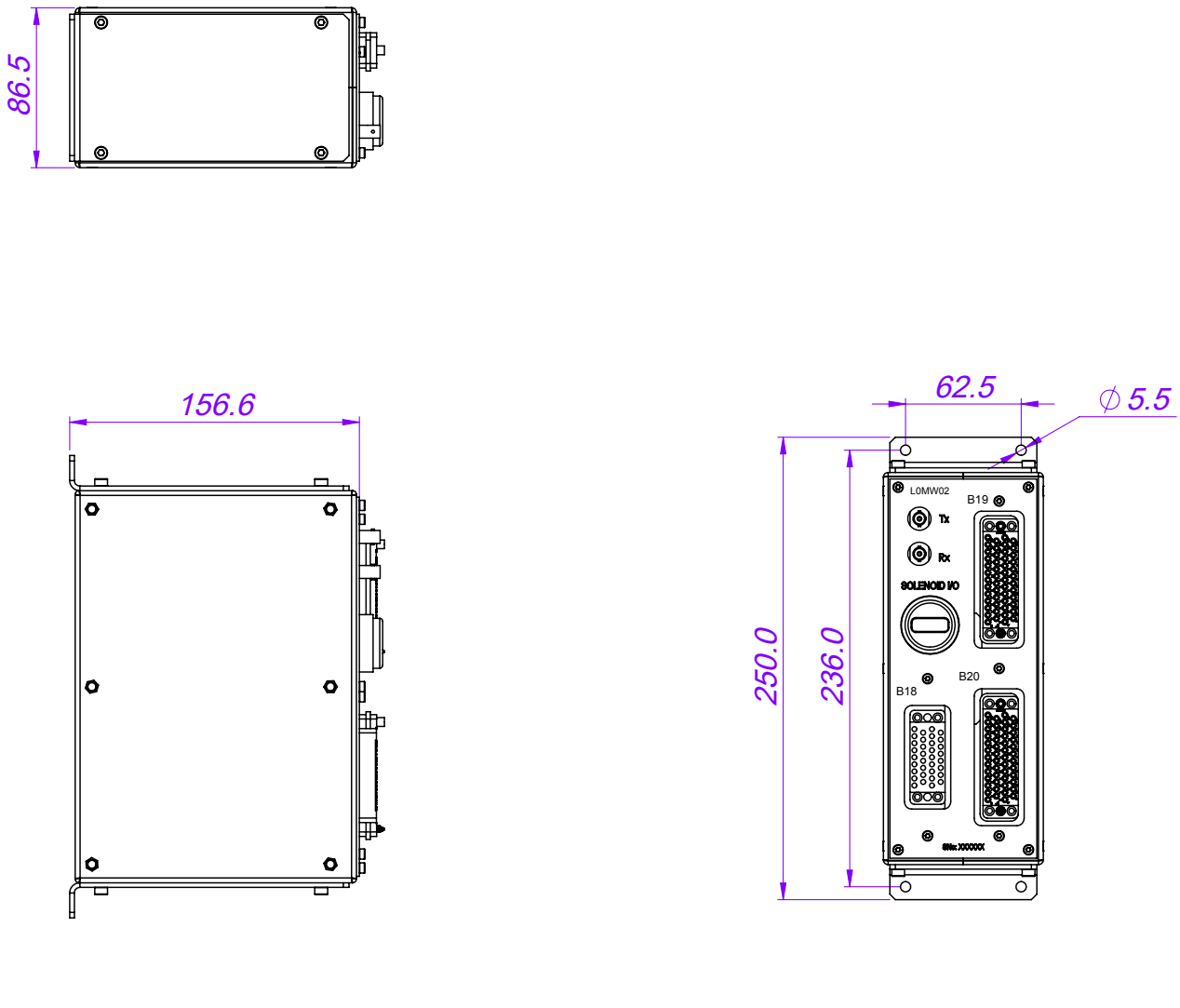

Dimensions (mm)

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Display Diagnostics

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

ON - No Faults
FEBK - Outputs Feedback Fault
SHRT - Output Short Fault
CAN - Fibre-optic CAN Bus Fault

Message Explanation Result

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

CAN
Indicates CAN Communication has not been established or has been lost. Outputs Disabled

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

SHRT
Indicates that a short-circuit condition has been detected a requested output. This short-circuit could be external (most probable) or internal

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CONNECTOR B18

Number	Unit / PCB VMCT-34F Female Board Mount PIN	L0MW0201 Name
1	A	SOLENOID-5
2	B	SOLENOID-11
3	C	SOLENOID-2
4	D	SOLENOID-8
5	E	SOLENOID-4
6	F	SOLENOID-10
7	H	SOLENOID-1
8	J	SOLENOID-7
9	K	SOLENOID-3
10	L	SOLENOID-9
11	M	MODULE SELECT-1
12	N	SOLENOID-6
13	P	SOLENOID-12
14	R	SOLENOID-13
15	S	MODULE SELECT-2
16	T	SOLENOID-14
17	U	SOLENOID-15
18	V	SOLENOID-16
19	W	MODULE SELECT-3
20	X	SOLENOID-17
21	Y	SOLENOID-18
22	Z	SOLENOID-19
23	AA	MODULE SELECT-4
24	BB	SOLENOID-20
25	CC	
26	DD	SOLENOID-21
27	EE	
28	FF	SOLENOID-22
29	HH	
30	JJ	SOLENOID-23
31	KK	
32	LL	SOLENOID-24
33	MM	0VIS
34	NN	12VIS

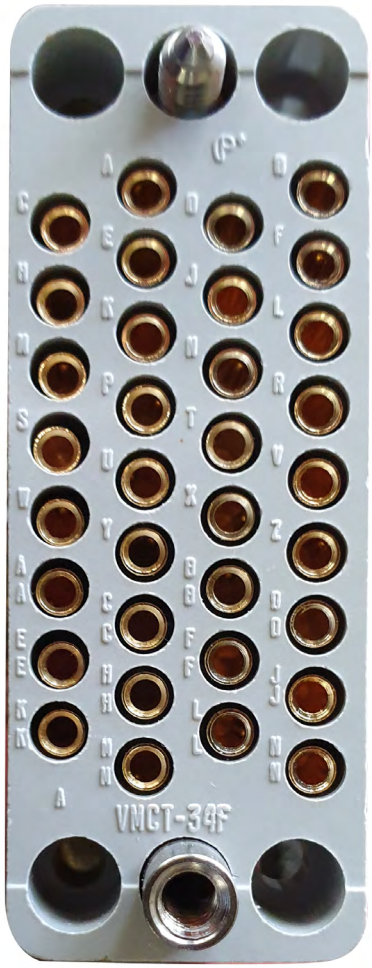

Image depict coding pins required

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CONNECTOR B19

Number	Unit / PCB GMCT50F Female Board Mount PIN	L0MW0201 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	0VIS
50	HH	12VIS

Image depict coding pins required

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CONNECTOR B20

Number	Unit / PCB GMST50F Female Board Mount PIN	L0MW0201 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	0VIS

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
H0LW0501	Connector Assembly B18 2.2m
H0LW0601	Connector Assembly B19 2.2m
H0LW0701	Connector Assembly B20 2.2m

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.