Features

- **Industrial Intrinsically Safe Bolting Station Module**
  - Exib IEC Approved
  - I.S. 12VDC Supply
  - Built-in LCD Diagnostic display 4x20
  - Obelix bus compatible
  - Suitable for advanced bolting rig installation
  - Industrial Connectors
- **Embedded Industrial Microcontroller**
  - Intel 51
  - Integral Flash / RAM
  - Site Programmable
- **CAN 2.0B Network**
  - Copper CAN Interface
  - Multi-Master
  - 125Kbits/s
- **Operates -20°C to +85°C**
  - All industrial components
- **Heavy Duty Enclosure**
  - Electroless Nickel Plated
  - Rugged Construction

Description

The L0S9 Intrinsically Safe Bolting Station Module is an industrial module designed to operate combination of sophisticated roof and rib electronic bolter rigs. The unit features 4x20 LCD diagnostic display and its buttons can be customized to suit different bolting rig models and control requirements.

Obelix

Intrinsically Safe Bolting Station Module

Type L0S9

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Typical Applications

- Continuous Bolter/Miners
- Mobile Bolters

Ordering Information

Part Number	Description
L0S90101	Pushbutton bolting station Exib
H0S90401	Connector Assembly Kit A79 (Fully Pin Populated)
H0S90501	Connector Assembly Kit A80 (Fully Pin Populated)
H0S90601	Connector Assembly A81 2m (Fully Pin Populated)
K0000007	MB670 Bolting Station Kit

Interface Description

The Type L0S9 I.S. I/O Module utilizes industrial connectors physically preventing improper installation.

Wiring Assignments

	Input Connector A79 Burndy 12 pin Male	
PIN	**Description**	**Signal**
A79-A	+12V I.S. 1 Supply In	12VDC I.S. Supply Input
A79-B	0V I.S. 1 Common Reference	0VDC I.S. 1
A79-C	+12V I.S. 2 Supply In (CAN)	12VDC I.S. Supply Input
A79-D	0V I.S. 2 CAN Common Reference	0VDC I.S. 2
A79-E	CAN High	Data
A79-F	CAN Low	Data
A79-G	CAN termination Link 1	Link
A79-H	CAN termination Link 2	Link
A79-J	MOD_SEL0	12VDC I.S. Input
A79-K	MOD_SEL1	12VDC I.S. Input
A79-L	MOD_SEL2	12VDC I.S. Input
A79-M	-	-

	Input Connector A80 Burndy 12 pin Female	
PIN	**Description**	**Signal**
A80-A	+12V I.S. 1 Supply In	12VDC I.S. Supply Input
A80-B	0V I.S. 1 Common Reference	0VDC I.S. 1
A80-C	+12V I.S. 2 Supply In (CAN)	12VDC I.S. Supply Input
A80-D	0V I.S. 2 CAN Common Reference	0VDC I.S. 2
A80-E	CAN High	Data
A80-F	CAN Low	Data
A80-G	CAN termination Link 1	Link
A80-H	CAN termination Link 2	Link
A80-J	MOD_SEL0	12VDC I.S. Input
A80-K	MOD_SEL1	12VDC I.S. Input
A80-L	MOD_SEL2	12VDC I.S. Input
A80-M	-	-

	Input Connector A81 Burndy 8 pin Female	
PIN	**Description**	**Signal**
A79-A	RS232 RX	Data Input
A79-B	RS232 TX	Data Output
A79-C	0V I.S. 1 Common Reference	0VDC I.S. 1
A79-D	-	-
A79-E	-	-
A79-F	-	-
A79-G	-	-
A79-H	-	-

CAN Definitions

RX				
Message	**Byte**	**Type**	**Mask**	**Description**
0x0108 = RH Outer Station 0x0110 = RH Inner Station 0x0118 = LH Inner Station 0x0120 = LH Outer Station	1	UINT8	N/A	S/W Revision
	2	UINT8	N/A	Fault Code Number
	3	UINT8	0x01	Counter Clockwise Rotation Button
			0x02	Thrust Up Button
			0x04	Timber Jack Up Button
			0x08	Clockwise Rotation Button
			0x10	Thrust Down Button
			0x20	Timber Jack Down Button
			0x40	Water ON/OFF Button
			0x80	Feed Speed Increase Button
	4	UINT8	0x01	Feed Speed Decrease Button
			0x02	Drill Button
			0x04	Stop Button
			0x08	Bolt Button
			0x10	Digital Input No.25
			0x20	Digital Input No.26
			0x40	Digital Input No.27
			0x80	Digital Input No.28
	5	UINT8	0x01	-
			0x02	-
			0x04	-
			0x08	-
			0x10	Digital Input No.29
			0x20	Digital Input No.30
			0x40	-
			0x80	-
	6	UINT8	N/A	Bolting Station Button Status (0 = No Fault , 1 = Button)
	7	UINT8	N/A	-
	8	UINT8	N/A	-

CAN Definitions Continued

TX				
Message	**Byte**	**Type**	**Mask**	**Description**
0x0688 = RH Outer Station 0x0690 = RH Inner Station 0x0698 = LH Inner Station 0x06A0 = LH Outer Station	1	UINT8	0x01	(1 = Machine Pump is Running, 0 = Machine Pump is OFF)
			0x02	(1 = Bolt Mode is ON, 0 = Bolt Mode is OFF)
			0x04	(1 = Bolter Water Solenoid is ON, 0 = Bolter Water is OFF)
	2	UINT8	0x01	Bolting Station Status Message ID: 0 = "[EVENT EXCEPTION!]" 1 = " DRILL MODE " 2 = "DRILLING IN PROGRESS" 3 = "DRILL START IN 1 SEC" 4 = "AUTO DRILL COMPLETED" 5 = " NO WATER " 6 = " BOLT MODE " 7 = "BOLTING IN PROGRESS " 8 = "BOLT START IN 1 SEC " 9 = "[MIXING]" 10 = "[CHEMICAL SETTING]" 11 = "AUTO BOLT COMPLETED " 12 = "[4 FOOT BOLT]" 13 = "[7 FOOT BOLT]"
	3	UINT8	N/A	Bolting Rig Feed Speed Value (in %)
	4	UINT8	N/A	Bolting Rig Chemical Set Run Timer Status (in sec)
	5	UINT8	N/A	Bolting Station Fault Message Origin ID (0 = RH Outer Station, 1 = RH Inner Station, 2 = LH Inner Station, 3 = LH Outer Station, 4 = Master Module)
	6	UINT8	N/A	Bolting Station Fault Message ID: 3 = "FEED COUNTER FAULT" 60 = "[CAN S1->C TIMEOUT]" (RH Outer Bolting Station does not communicate with master module) 61 = "[CAN S2->C TIMEOUT]" (RH Inner Bolting Station does not communicate with master module) 62 = "[CAN S3->C TIMEOUT]" (LH Inner Bolting Station does not communicate with master module) 63 = "[CAN S4->C TIMEOUT]" (LH Outer Bolting Station does not communicate with master module)
	7	UINT8	N/A	-
	8	UINT8	N/A	-

Electrical Characteristics

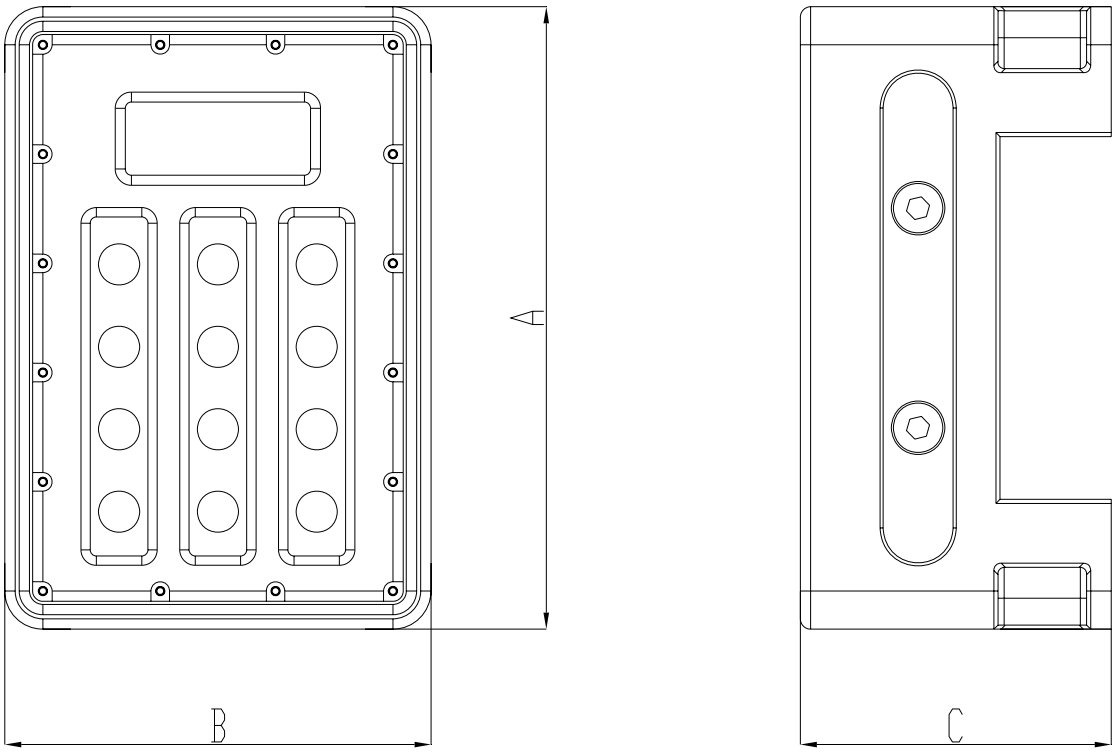
Supply 1	
Voltage	12V I.S. Nominal
Wattage MIN	2W
Wattage MAX	5W

Supply 2	
Voltage	12V I.S. Nominal
Wattage MIN	1W
Wattage MAX	2W

Communications	
Interface	CAN 2.0B
Throughput	125kbs (Supports Autobaud)
Protocol(s)	Message Oriented
Medium	Copper

Environmental	
Operating Temperature	Minus 20°C to +85°C
Humidity	T.B.A.
MTBF	12,000 hours

Mechanical Characteristics



Dimension	Measurement	Description
A	302	Height
B	207	Width
C	151	Depth

Notes
- All dimensions are in millimetres.

Material
- Enclosure is Electroless nickel plated mild steel.
- Facia is stainless steel.
- Mounting brackets are stainless steel.

Fasteners
- M4 x 12mm x 16
- M12 x 25mm x 4

Mass
- 24Kg (52.8lb)