Features

- **Industrial 1.1KV Power Line Modem**
  - 3-Phase Power Line Communication
  - Integral Fuse Protection (3KVA)
  - Integral LED Matrix Display
  - Machine/Substation/Test Selectable
  - 2 x Interlocking Digital Inputs
  - 2 x Interlocking Digital Outputs
- **Embedded Industrial Microcontroller**
  - Integral Flash / RAM
  - Site Programmable
- **Operates Minus 20°C to +85°C**
  - All industrial components
- **Heavy Duty Enclosure**
  - Stainless Steel Engraved Facia
  - Rugged Construction

Description

The L0LK Series '1' Power Line Modem is designed to work in paired operation providing intelligent interlocking capability using a 3-phase power line as a communications medium.

The L0LK Series '2' Power Line Modem is designed to work in paired operation providing high-speed data transfer using a 3-phase power line as a communications medium.

End-point communication interfacing is via isolated RS-422 promoting long distance remote point-to-point access.

Obelix

1.1KV Power Line Modem

Type L0LK

Pempek Systems

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Typical Applications

- Continuous Bolter/Miners
- Continuous Haulage
- Mobile Bolters
- Mobile Roof Supports
- Remote Control Scoops
- Remote Control Loaders
- Any 3-phase power-line communication requirement

Ordering Information

Part Number	Description
L0LK0101	1.1KV Power Line Modem (Point-To-Point)
L0LK0201	1.1KV Power Line Modem (Passthrough)
H0LK0101	Connector Assembly A36
H0LK0201	Connector Assembly A37

L0LK01 Operation

The L0LK Series '1' modem operates using a simple interlocking control motif.

1. When Digital Input 1 (A37-A) on the master modem is asserted, 110VAC applied, Relay 1 on the slave modem will energise.

2. When Digital Input 2 (A37-B) on the master modem is asserted, 110VAC applied, Relay 2 on the slave modem will energise.

3. When Digital Input 1 on the slave modem is asserted, 110VAC applied, Relay 1 on the master modem will energise.

4. When Digital Input 2 on the slave modem is asserted, 110VAC applied, Relay 2 on the master modem will energise.

Rules of Engagement

One Modem must be selected as the "Master" and the other the "Slave" via the Master/Slave selection switch. Any other combination will result in communication failure.

L0LK02 Operation

The L0LK Series '2' modem operates as a passthrough modem supporting data throughput speeds up to 115,200kbs. A specified carrier protocol defines communication requirements.

Rules of Engagement

One Modem must be selected as the "Machine" and the other the "Substation" via the Machine/Test/Station selection switch.

Alternatively, to test the power-line medium independently, one designated unit can be selected to operate in Test with the other selected as Station. This mode of operation sees the Test unit automatically generate information packets at a fixed 100ms frequency which include metrics for performance measurement. The remote intelligence can then interrogate the performance metrics to determine the rate of throughput.

Wiring Assignments

	Connector A36 Burndy Female 12 Way	
PIN	**Description**	**Signal**
A36-A	RS-232 Common	0VDC Reference
A36-B	RS-232 RTS	Communications
A36-C	RS-232 TX	Communications
A36-D	RS-232 CTS	Communications
A36-E	RS-232 RX	Communications
A36-F	RS-422 TX +	Communications
A36-G	RS-422 TX -	Communications
A36-H	RS-422 RX +	Communications
A36-J	RS-422 RX -	Communications
A36-K	Supply Input	0VDC Input
A36-L	Supply Input	24VDC Input
A36-M	No Connection	-

	Connector A37 Burndy Female 8 Way	
PIN	**Description**	**Signal**
A37-A	Digital Input 1	110VAC Active
A37-B	Digital Input 1 Reference	110VAC Neutral
A37-C	Digital Input 2	110VAC Active
A37-D	Digital Input 2 Reference	110VAC Neutral
A37-E	Relay 1 Input Voltage Free	Voltage Free Input
A37-F	Relay 1 Output	Voltage Free Output
A37-G	Relay 2 Input Voltage Free	Voltage Free Input
A37-H	Relay 2 Output	Voltage Free Output

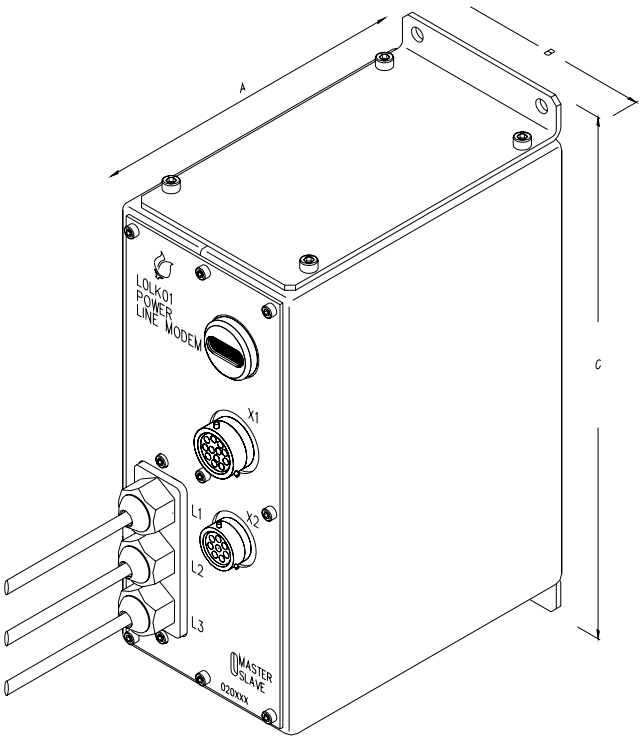
Electrical Characteristics

Supply	
Voltage	24VDC
Wattage MIN	8.0W
Wattage MAX	15.0W

Communications	
Baud Powerline	115,200bps^{MAX}
Format Powerline	8N1
CRC Powerline	CCITT 16-bit
Frame Powerline	Packet Oriented, Bit Masks
Distance Powerline	1000 metres
Throughput Powerline	10Hz^{MINIMUM}
Baud RS-422	Up to 115,200bps
Format RS-422	8N1
CRC RS-422	CCITT 16-bit
Frame RS-422	Packet Oriented, Bit Masks
Throughput RS-422	10Hz^{MINIMUM}
Distance RS-422	500 metres

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

Mechanical Characteristics



Dimension	Measurement	Description
A	158	Depth
B	93	Width
C	250	Height

Notes
- All dimensions are in millimetres.

Material
- Enclosure is Electroless Nickel Plated Mild Steel.
- Facia is stainless steel.
- Fuse Holder is Polyethylene
- High voltage circuits are high-temperature silicone potted and shielded

Fasteners
- M4 x 10mm x 8
- M3 x 10mm x 10

Mass
- 5.0kg (11.0lb)