

## Single Pair Ethernet

The IEEE 802.3cg 10BASE-T1L SPE standard for ultra low-power long reach single pair ethernet communication offers the possibility of using existing 2-wire infrastructure to realize 10Mbps Ethernet data transmission at line lengths of up to 1000m.

## Installation & Operation

- 1 Prepare and terminate your 2-wire connections to the +/- input on the terminal plug.

**Note:** If using shielded cable, terminate the shield at one end of the link ONLY, preferably at the 'Control/Security Room Hub' to ensure a common central grounding point for all link shields.

Please reference the systems Typical Network Overview diagram for network topology overview.

- 2 Connect the terminal plug at both CD-LX1/SPE cards links.
- 3 Apply power to the hubs at both ends to power the SPE cards.
- 4 Upon power up the SPE cards will auto-negotiate a 2-wire ethernet link.
- 5 The LAN Status indicator will determine the cards link at the installed hub, whilst the SPE Status indicator will determine the cards link to the remote CD-LX1/SPE link partner.

## Specifications

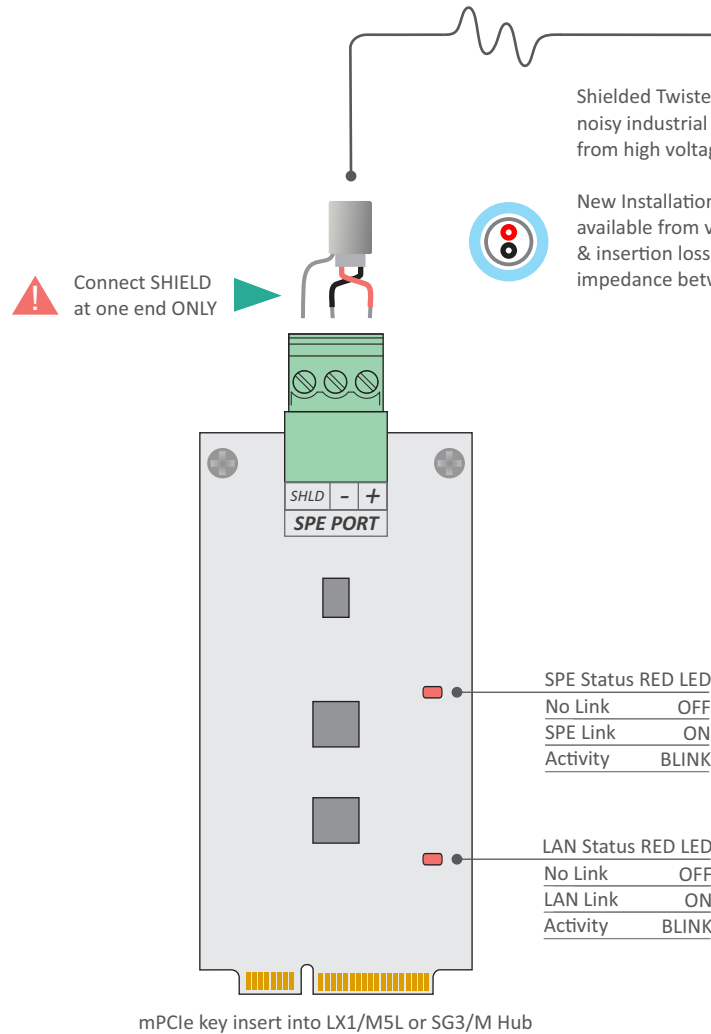
Operating Voltage	3.3V DC Powered via Hub
Operating Current	60mA (Idle), 110mA (Active)
Ethernet via mPCIE	10Base-T (Ethernet) via Hub
Single Pair Ethernet	10Base-T1L (SPE)
Data Rate	10Mbps Full Duplex
Link Topology	Peer-to-Peer
Line Length	Up to 1000m (Long reach)
Line Impedance	100 Ω
Interface Isolation	IEC 62368-1, 1500V AC
Port Status LEDs	SPE Link/Act, LAN Link/Act
Operating Temperature	0 - 50°C
Operating Humidity	90% max relative humidity, noncondensing
Dimensions (mm)	36(W) x 74.2(H) x 1(D)

## 2-Wire SPE Interface

Connects to remote CD-LX1/SPE card (Link Partner)

Shielded Twisted Pair cabling provides improved noise immunity. However, in noisy industrial environments, care should always be taken to keep cables away from high voltage AC, DC & VF drives.

New Installations can benefit from purpose designed SPE cable solutions available from various cable manufactures providing best possible signal return & insertion loss (dB) for balanced transmission lines with a 100Ω characteristic impedance between  $0.1 \leq f \leq 20$  MHz.



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CD-LX1/SPE	Date:	06-09-24
Installation & Operational Overview		
Designed By:	Revision:	Sheet:
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