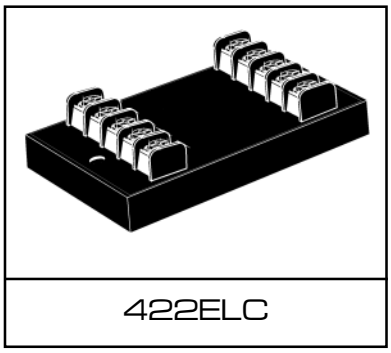
PROTEK DEVICES
Only One Name Means ProTek'Tion™

422ELC

DIGITAL PROCESS DATA LINE PROTECTOR

APPLICATIONS



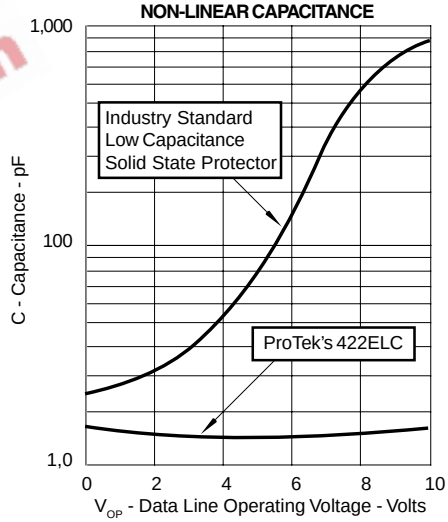
422ELC

- ✔ RS-422 Data Lines
- ✔ Digital Process Control Loop
- ✔ Long Line Digital Systems
- ✔ Digital Transmission
- ✔ Telemetry Systems
- ✔ Smoke Detector & Fire Alarm Systems

IEC COMPATIBILITY (EN61000-4)

- ✔ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✔ 61000-4-4 (EFT): 40A - 5/50ns
- ✔ 61000-4-5 (Surge): 8/20µs - 95A, Level 4 (Line-Gnd) & 48A, Level 4 (Line-Line)

FIGURE 1
LINEAR CAPACITANCE VS NON-LINEAR CAPACITANCE



FEATURES

- ✔ ***LOW CAPACITANCE - 25PF***
- ✔ Designed for EIA Standard RS-422 Data Lines
- ✔ Permanent Two-Stage 2 Line Pair Protector
- ✔ Subnanosecond Response Time
- ✔ Common & Differential Mode Protection
- ✔ Automatic Reset - Does Not Interrupt Service
- ✔ Effective Against Lightning, Inductive Switching and ESD

MECHANICAL CHARACTERISTICS

- ✔ Weight: 142 grams (Approximate)
- ✔ Flammability Rating UL 94V-0
- ✔ Device Marking: Logo, Date Code, Terminal Designations & Part Number

DESCRIPTION

The 422ELC is low capacitance, two-stage transient voltage protector that provides primary and secondary protection against lightning, inductive switching and electro-static discharge (ESD) transient threats. The first stage diverts the transient current through the ground terminal return path and the second stage clamps the voltage to a safe level without interruption of service.

The 422ELC is designed to protect data lines from differential (line-line) and common-mode (line-to-ground) transients. Terminals 1 & 2 and 3 & 4 for the 422ELC are designed as line pairs. A transient voltage suppressor is connected across each line pair for differential mode protection. Each line pair is referenced to ground.

This product can also be used on telephone, signal/data lines, security, timing and control interface circuits. For most applications, the product should be located as close as possible to the equipment being protected. A low impedance grounding system is important to maintain a low voltage clamp between the line-to-ground connection. Capacitance over the operating voltage range is important. If capacitance is nonlinear, distortion, loss of data or access to the I/O port can occur (See Figure 1).

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C		ELECTRICAL CHARACTERISTICS @ 25°C Ambient Temperature				
Peak Operating Line Voltage (V_{OP}) Operating Line Current (I_O) Maximum Transient Voltage Maximum Transient Current (8/20µs waveform) Operating & Storage Temperature Response Time	±12V 200mA 20kV 10kA/Wire 40kA/Protector -55°C to 100°C < 1 nanosecond	MAXIMUM CLAMPING VOLTAGE Line - Line 500A, 8/20µs V_C ±VOLTS	MAXIMUM CLAMPING VOLTAGE Line - Ground 500A, 8/20µs V_C ±VOLTS	MAXIMUM LINE THRUPUT RESISTANCE R OHMS	MAXIMUM LEAKAGE CURRENT @ 12 V_{OP} I_D µA	MAXIMUM CAPACITANCE @ 0V, 1 MHz C pF
		30.0	30.0	12	1	25

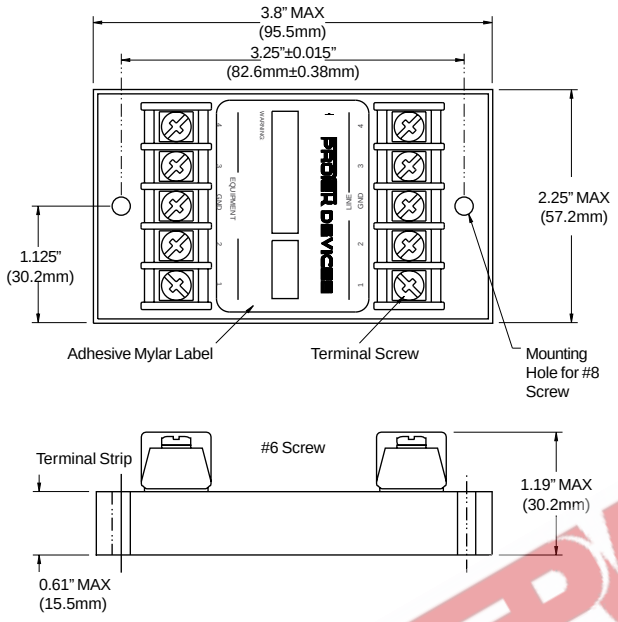
INSTALLATION INSTRUCTIONS

There are five (5) terminals on the **LINE SIDE** and five (5) terminals on the **EQUIPMENT SIDE** of the 422ELC, 4 data lines and one ground. Both grounds are connected together internally. A single low impedance ground is sufficient. Incoming data lines are cut or disconnected from the equipment to insert the 422ELC product. The incoming lines are to be connected to the line side terminals as the equipment side lines are connected to the equipment side terminals. The location of the product should be as close to the equipment as possible. The 422ELC series is designed with a short circuit failure mode to give maximum protection. A fuse, fussable link, or circuit breaker is recommended for each data/ signal line on the input side for those that require an open circuit failure mode.

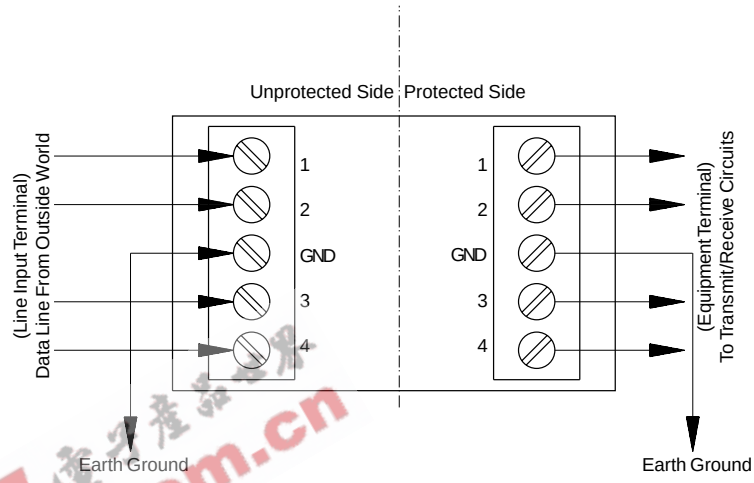
Caution: A low DC resistance ground may not be a good ground. Lightning contains a broad spectrum of frequencies up to 1 MHz. A low impedance path to ground at the transient frequencies is necessary. A ground strap is recommended or a #6 AWG stranded wire. For wire lengths over 1.5 meters, there may be some excessive line to earth potential under severe thunderstorm conditions.

PACKAGE OUTLINE & DIMENSIONS

422ELC Case Outline



INSTALLATION DIAGRAM



Note: Both ground terminals are common. Use second ground wire to reduce impedance on long runs to earth ground connections

ProTek Devices
2929 South Fair Lane, Tempe, AZ 85282
Tel: 602-431-8101 Fax: 602-431-2288
E-Mail: sales@protekdevices.com
Web Site: www.protekdevices.com