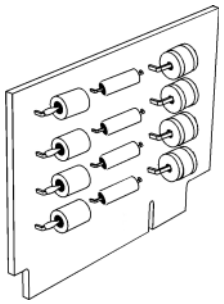
PROTEK DEVICES
Only One Name Means ProTek'Tion™

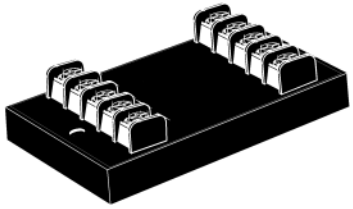
420LE28 thru 420LB60

TWO LINE PAIR 4-20mA CONTROL LOOP PROTECTOR

420LB



420LE



APPLICATIONS

✔ Multi-Process Control Loops
✔ Fire & Security Systems
✔ Petro-Chemical Plants
✔ Refineries & Tank Farms

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)

FEATURES

✔ Designed for 4-20mA Current Loops
✔ Automatic Reset - Does Not Interrupt Service
✔ Permanent Two-Stage Line Pair Protection
✔ Common Mode & Differential Mode Protection
✔ Subnanosecond Response Time
✔ Effective Against Lightning, Inductive Switching and ESD

MECHANICAL CHARACTERISTICS

✔ Weight: 420LB - 28 grams & 420LE - 142 grams (Approximate)
✔ Flammability Rating UL 94V-0
✔ Device Marking:
Case - Logo, Terminal Designations & Part Number
Board - Logo, Date Code & Part Number

DESCRIPTION

The 420LE/B series is a two stage transient voltage protector providing primary and secondary protection against lightning, inductive switching and electrostatic 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 420LE/B series is designed to protect data lines from differential (line to line) and common mode (line to ground) transients. Terminals 1 and 2, 3 and 4 for the 420LE and pins 2 and 3, 4, and 5 for the 420LB are designated as line pairs. Each line pair is referenced to ground. 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.

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C		ELECTRICAL CHARACTERISTICS @ 25°C Ambient Temperature					
Operating Line Current	100mA	PROTEK PART NUMBER	MAXIMUM OPERATING LINE VOLTAGE V_{OP} ± VOLTS	MAXIMUM LEAKAGE CURRENT @ V_{OP} I_D µA	MAXIMUM CLAMPING VOLTAGE (8/20µs) @2,000A V_C VOLTS	MAXIMUM CAPACITANCE @ 0V, 1 MHz C pF	MAXIMUM LINE THRUPUT RESISTANCE R OHMS
Operating Temperature	-55 to 100°C	420LE28	28.0	5.0	40	2800	12
Storage Temperature	-55 to 100°C	420LE35	35.0	5.0	60	1500	12
Transient Source Voltage	6kV	420LE60	60.0	5.0	85	1000	12
Transient Current (8/20µs)	10kA	420LB28	28.0	5.0	40	2800	12
		420LB35	35.0	5.0	60	1500	12
		420LB60	60.0	5.0	85	1000	12

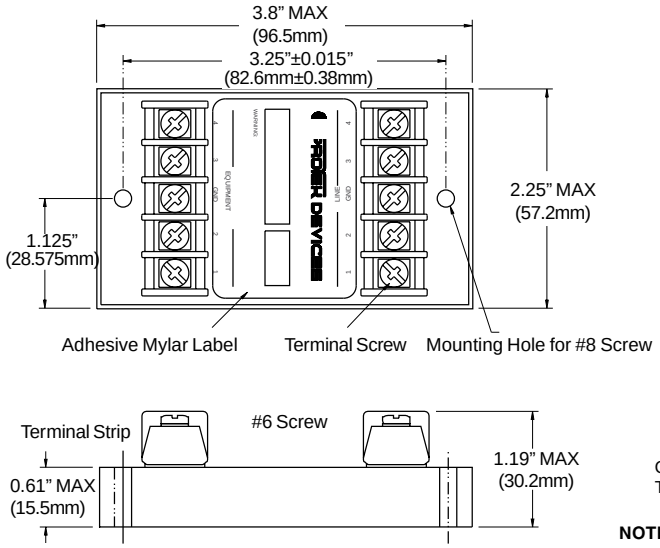
INSTALLATION INSTRUCTIONS

There are five (5) terminals on the **LINE SIDE** and five (5) terminals on the **EQUIPMENT SIDE** of the 420LE, 4 data lines and one ground. Both grounds are connected together internally. A single low impedance is ground sufficient. Incoming data lines are cut or disconnected from the equipment to insert the 420LE/B products. 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 420LE/B 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.

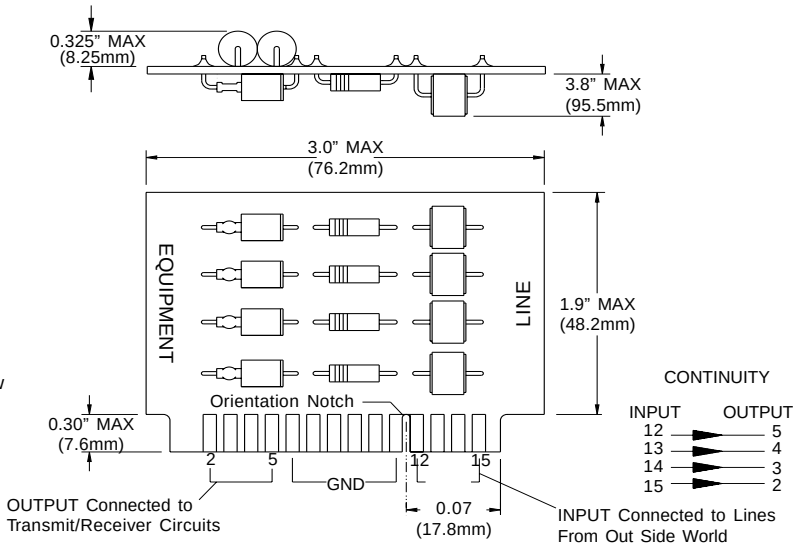
Caution: A low DC resistance ground may not be indicative of a good lightning ground. Lightning contains a broad spectrum of frequencies up to 1 MHz. A low impedance path to ground at the transient frequencies is necessary. A ground strap is recommended or a #6 AWG stranded wire. For wire lengths over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

PACKAGE OUTLINE & DIMENSIONS

420LE CASE OUTLINE



420LB BOARD OUTLINE



NOTE: I/O contacts spaced at 0.156" (3.96 mm) centers

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