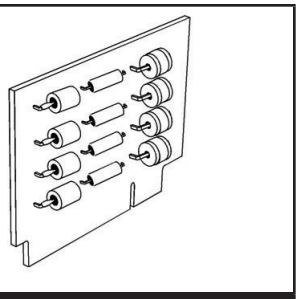
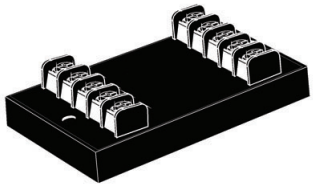
TWO LINE PAIR 4-20mA CONTROL LOOP PROTECTOR



420LB



420LE

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.

FEATURES

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

APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Approximate Weight: 28 grams (420LB) & 142 grams (420LE)
- Flammability Rating UL 94V-0

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Line Current	I_O	100	mA
Transient Source Voltage	-	6	kV
Transient Current - 8/20µs waveform	-	10	kA/Wire
Operating Temperature	T_A	-55 to 100	°C
Storage Temperature	T_{STG}	-55 to 100	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified					
PART NUMBER	MAXIMUM OPERATING LINE VOLTAGE V_{OP} ±VOLTS	MAXIMUM LEAKAGE CURRENT @ V_{OP} I_D µA	MAXIMUM CLAMPING VOLTAGE (8/20µs) @ 2000A V_C VOLTS	MAXIMUM CAPACITANCE @ 0V, 1MHz C pF	MAXIMUM LINE THROUGHPUT RESISTANCE R OHMS
420LB28	28.0	5.0	40	2800	12
420LB35	35.0	5.0	60	1500	12
420LB60	60.0	5.0	85	1000	12
420LE28	28.0	5.0	40	2800	12
420LE35	35.0	5.0	60	1500	12
420LE60	60.0	5.0	85	1000	12

INSTALLATION INSTRUCTIONS

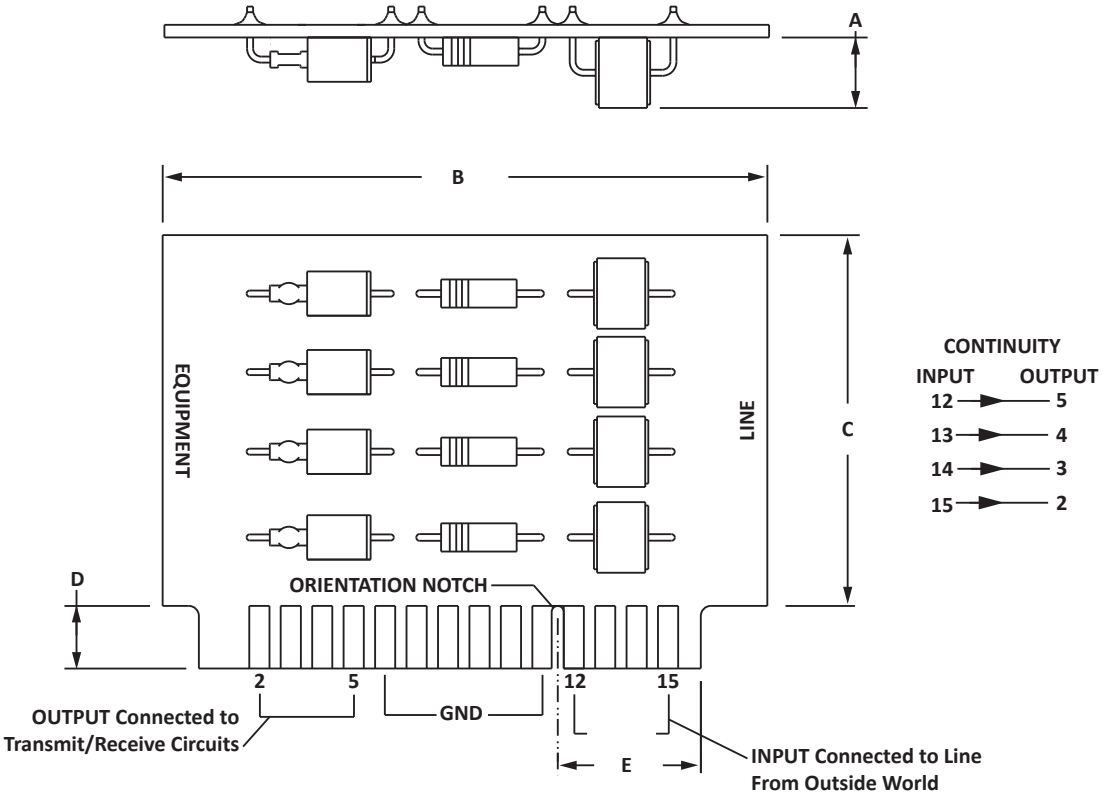
There are five (5) terminals on the LINE SIDE and five (5) terminals on the EQUIPMENT SIDE of the 420LE, 4 data lines and one ground. Both grounds are connected together internally. A single low impedance is ground sufficient. Incoming data lines are cut or disconnected from the equipment to insert the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

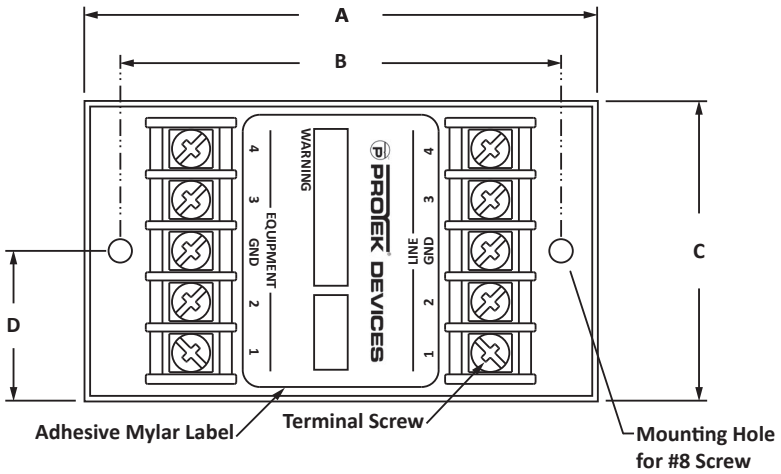
420LB OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	12.7	-	0.50
B	-	76.2	-	3.0
C	-	48.2	-	1.90
D	-	7.6	-	0.30
E	-	17.8	-	0.7

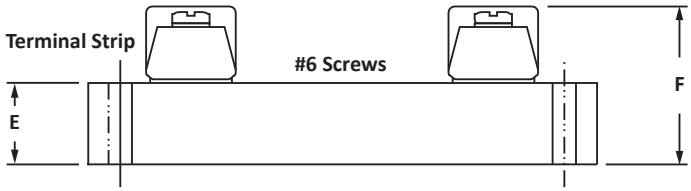
NOTES
1. I/O contacts spaced at 0.156" (3.96mm) centers.



PACKAGE INFORMATION

420LE OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	95.5	-	3.8
B	82.22	82.98	3.235	3.265
C	-	57.2	-	2.25
D	-	30.2	-	1.125
E	-	15.5	-	0.61
F	-	30.2	-	1.19





ORDERING INFORMATION	
BASE PART NUMBER (xx = Voltage)	MARKING
420LBxx	Logo, Date Code, Terminal Designations and Part Number
420LExx	Logo, Date Code, Terminal Designations and Part Number

COMPANY INFORMATION

COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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