

## Features

- Superior protection at a low price
- Balanced TRIGARD® protection
- Patented Switch-Grade Fail-Short device
- Quick response and high energy handling
- Low capacitance (<2.5 pF) - ideal for high-speed networks in high exposure environments



This series is currently available but not recommended for new designs.

## 2420 Series - 5-Pin Gas Discharge Tube (GDT) Protector

The Bourns® 3-type Model 2420 overvoltage protection modules utilize Bourns' proprietary high-efficiency gas discharge tube with our patented Switch-Grade Fail-Short mechanism to provide robust and reliable surge and thermal overload protection at a very competitive price. The 2420 Series is based on Bourns' three-terminal common chamber GDT. This design provides greatly improved and balanced turn-on characteristics for overvoltage protection. The GDT is UL listed for use without a back-up device. Air back-up devices can become contaminated; the circuitry of the 2420 eliminates the air back-up gap and thus the possibility of its contamination. Our unique Switch-Grade Fail-Short device provides more reliable thermal overload protection compared to commonly used solder pellet or insulation burn-through designs.

Bourns® Model 2420 Series 5-pin protectors can be used universally for broadband voice and data circuits including ADSL, ADSL2+, VDSL, VDSL2 and high-speed Ethernet. The 2420 Series is an economical, reliable and low capacitance choice for overvoltage protection of copper pair circuits.

### Characteristics

Test Methods per UL 497, CSA C22.2, Telcordia GR 974, 1361 and SBC SR 5165.

DC Breakdown .....	280-420 V
AC Breakdown @ 60 Hz .....	280-420 V
Impulse Breakdown	
100 V/ $\mu$ s .....	625 V
1000 V/ $\mu$ s .....	875 V
Insulation Resistance @ 100 Vdc .....	>1 G $\Omega$
Insertion Loss @ 100 MHz .....	Exceeds Category 5
Return Loss @ 100 MHz .....	Exceeds Category 5
Capacitance Tip to Ring @ 1 MHz .....	<1.25 pF typical
Capacitance Tip or Ring to Ground @ 1 MHz .....	<2.50 pF typical
Impulse Reset <sup>1</sup>	
52 V, 260 mA .....	<10 ms
135 V, 200 mA .....	<10 ms
150 V, 200 mA .....	<150 ms
Impulse Life Characteristics (Tip and Ring to Ground Simultaneously)	
10 A, 10/1000 $\mu$ s .....	>3000 operations
100 A, 10/1000 $\mu$ s .....	>300 operations
300 A, 10/1000 $\mu$ s .....	>100 operations
500 A, 10/1000 $\mu$ s .....	>400 operations <sup>2</sup>
2,000 A, 10/250 $\mu$ s .....	>25 operations
5,000 A, 20/100 $\mu$ s .....	>2 operations
20,000 A, 8/20 $\mu$ s .....	>1 operation
AC Life Characteristics (Tip and Ring to Ground Simultaneously)	
0.5 A rms continuous .....	>30 seconds
1 A rms, 1 second, 600 ft. cable .....	>60 operations
1 A rms, 1 second, 1 mile cable .....	>60 operations
10 A rms, 1 second .....	>5 operations
65 A rms, 11 cycles .....	>1 operation <sup>2</sup>
120 A rms, 0.1 second .....	1 operation
High Current Capability and Thermal Operation (Tip and Ring to Ground) .....	>30 A rms, 15 min.
Storage and Operating Temperature .....	-55 to +85 °C

Telcordia analyzed for controlled (non-sealed) and uncontrolled, high-exposure (sealed) environments per GR 974 and SBC SR 5165. Telcordia Technical Analysis Report DA-1547.

#### Notes:

<sup>1</sup> Network applied

<sup>2</sup> Per RUS PE-80

Line to Line voltage is approximately 1.8 to 2 times the stated Line to Ground breakdown voltage.




**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

## Features (Continued)

- Meets test requirements of Telcordia GR 974, GR1361, SBC SR 5165 and RUS PE-80
- Telcordia Analysis report DA-1547
-  Listed per UL 497 (File: 53117)
- Solid brass, gold-plated pins
- Test point access option
- Sealed option for harsh environments

## 2420 Series - 5-Pin Gas Discharge Tube (GDT) Protector

**BOURNS®**

### How To Order

**2420 - X XX - G - XX**

**Model Number Designator** \_\_\_\_\_

**Module Length** \_\_\_\_\_  
 3 = Standard: 52.37 mm (2.06 in.)    7 = Special Short: 41.19 mm (1.62 in.)

**Housing Color/Circuit Type** \_\_\_\_\_  
 1 = Black/Standard                      7 = Violet/Standard  
 3 = Red/Special                          9 = Orange/Standard Service (non-Bridgelifter)  
 6 = Blue/Standard                      10 = Yellow/Standard

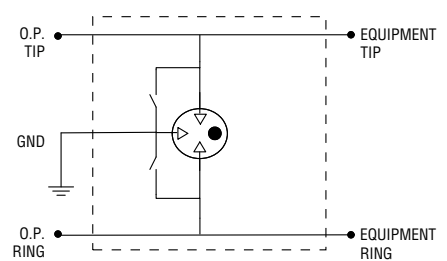
**Pin Plating** \_\_\_\_\_  
 G = Gold Plated

**Special Options** \_\_\_\_\_  
 S = Sealed Case                      ST = Sealed Case and Test Points\*  
 T = Test Points\*

\*T and ST options are not available on 2420-7x short module.

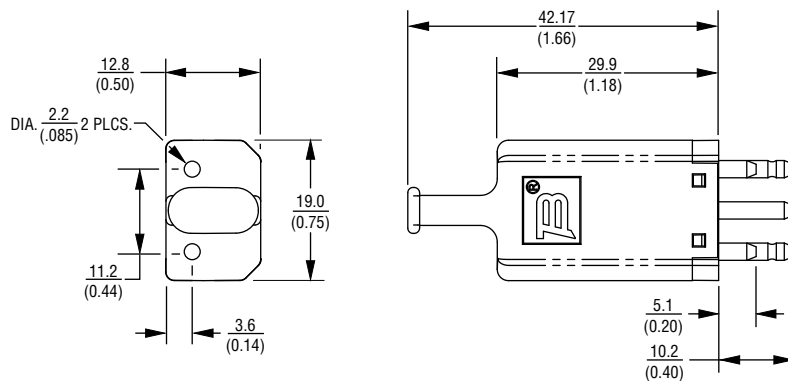
Examples: 3B1E = 2420-31-G (black, no test points)    3C1E = 2420-31-G-T (black, with test points)  
 3B3E = 2420-33-G (red, no test points)              3C3E = 2420-33-G-T (red, with test points)

### Schematic



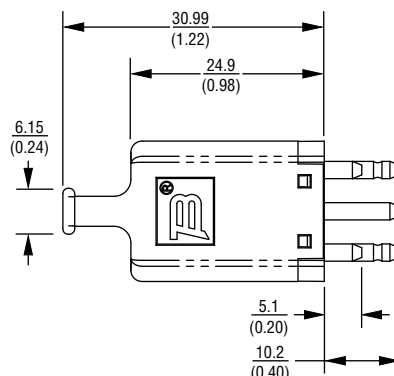
### Product Dimensions

#### 2420-3 MODULE



#### 2420-7 MODULE

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$



**BOURNS®**

#### Asia-Pacific:

Tel: +886-2 2562-4117

Email: asiacus@bourns.com

#### EMEA:

Tel: +36 88 885 877

Email: eurocus@bourns.com

#### The Americas:

Tel: +1-951 781-5500

Email: americus@bourns.com

www.bourns.com

REV. R 03/23

"TRIGARD" is a registered trademarks of Bourns, Inc.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, “Bourns”).

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns’ knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user’s application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user’s sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or “automotive grade” does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

*For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:*

*Web Page:* <http://www.bourns.com/legal/disclaimers-terms-and-policies>

*PDF:* <http://www.bourns.com/docs/Legal/disclaimer.pdf>