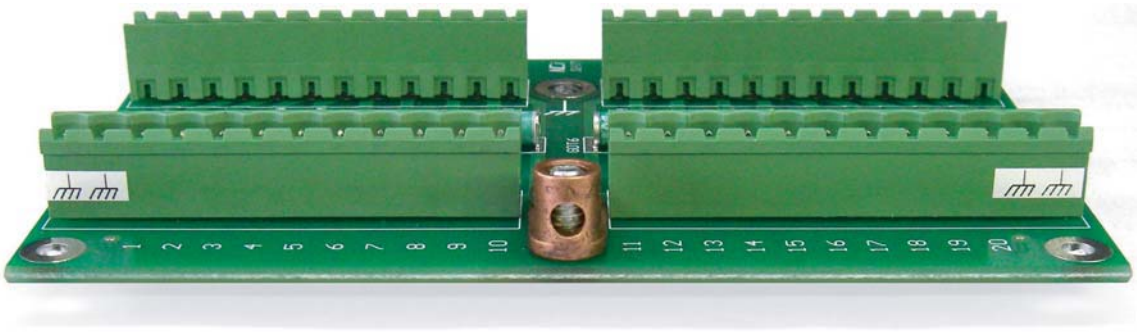
INSTRUCTION MANUAL

SGB20D
Transient Protection Systen

December 2009



WARRANTY AND ASSISTANCE

This equipment is warranted by CAMPBELL SCIENTIFIC (CANADA) CORP. ("CSC") to be free from defects in materials and workmanship under normal use and service for **twelve (12) months** from date of shipment unless specified otherwise. ***** **Batteries are not warranted.** ***** CSC's obligation under this warranty is limited to repairing or replacing (at CSC's option) defective products. The customer shall assume all costs of removing, reinstalling, and shipping defective products to CSC. CSC will return such products by surface carrier prepaid. This warranty shall not apply to any CSC products which have been subjected to modification, misuse, neglect, accidents of nature, or shipping damage. This warranty is in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose. CSC is not liable for special, indirect, incidental, or consequential damages.

Products may not be returned without prior authorization. To obtain a Return Merchandise Authorization (RMA), contact CAMPBELL SCIENTIFIC (CANADA) CORP., at (780) 454-2505. An RMA number will be issued in order to facilitate Repair Personnel in identifying an instrument upon arrival. Please write this number clearly on the outside of the shipping container. Include description of symptoms and all pertinent details.

CAMPBELL SCIENTIFIC (CANADA) CORP. does not accept collect calls.

Non-warranty products returned for repair should be accompanied by a purchase order to cover repair costs.

CAMPBELL SCIENTIFIC
CANADA CORP.
11564 - 149 street - edmonton - alberta - T5M 1W7
tel 780.454.2505 fax 780.454.2655
www.campbellsci.ca

TABLE OF CONTENTS

1. Overview

The SGB20D provides transient protection for up to 20 conductors. The SGB20D includes detachable terminals for ease of wiring. See Figure 1 for a picture of the SGB20D.

Typically, the SGB20D is placed in-line between environmental sensors and a Campbell Scientific datalogger. As a result, the SGB20D enhances the datalogger's built-in surge protection and provides additional defence against transients.

The SGB20D is designed to be mounted inside the ENC SGB Enclosure (10" x 12" enclosure with a custom back plate). Two SGB20D boards can be mounted inside of one ENC SGB enclosure. The SGB20D can also be mounted in one of Campbell Scientific's standard enclosures using the C1988 mounting kit.

1.1 Physical Dimensions

Length: 5.4 inches

Width: 3.4 inches

Height: 0.7 inches

The mounting holes of the SGB20D are spaced 3 inches apart horizontally, and 5 inches apart vertically.

1.2 Specifications

Maximum Operating Voltage:	70 V
Maximum Operating Current:	5 A
Sparkover Voltage:	90 V
Capacitance (at 1MHz):	< 2pF
Operating Temperature:	-55 to +85 °C

NOTE: Equipment connected to the SGB20D should be limited to Class 2 Circuits as defined by the Canadian Electrical Code, Part I, C22.1.

Transient protection is provided by 10 Bourns Gas Discharge Tubes (GDTs). The GDTs prevent damage by creating a short-to-ground circuit during transient surges. When a surge exceeds the sparkover voltage of 90V, the GDTs become ionized and short the transient to ground. After the surge passes, the GDTs return to their normal high-impedance state.

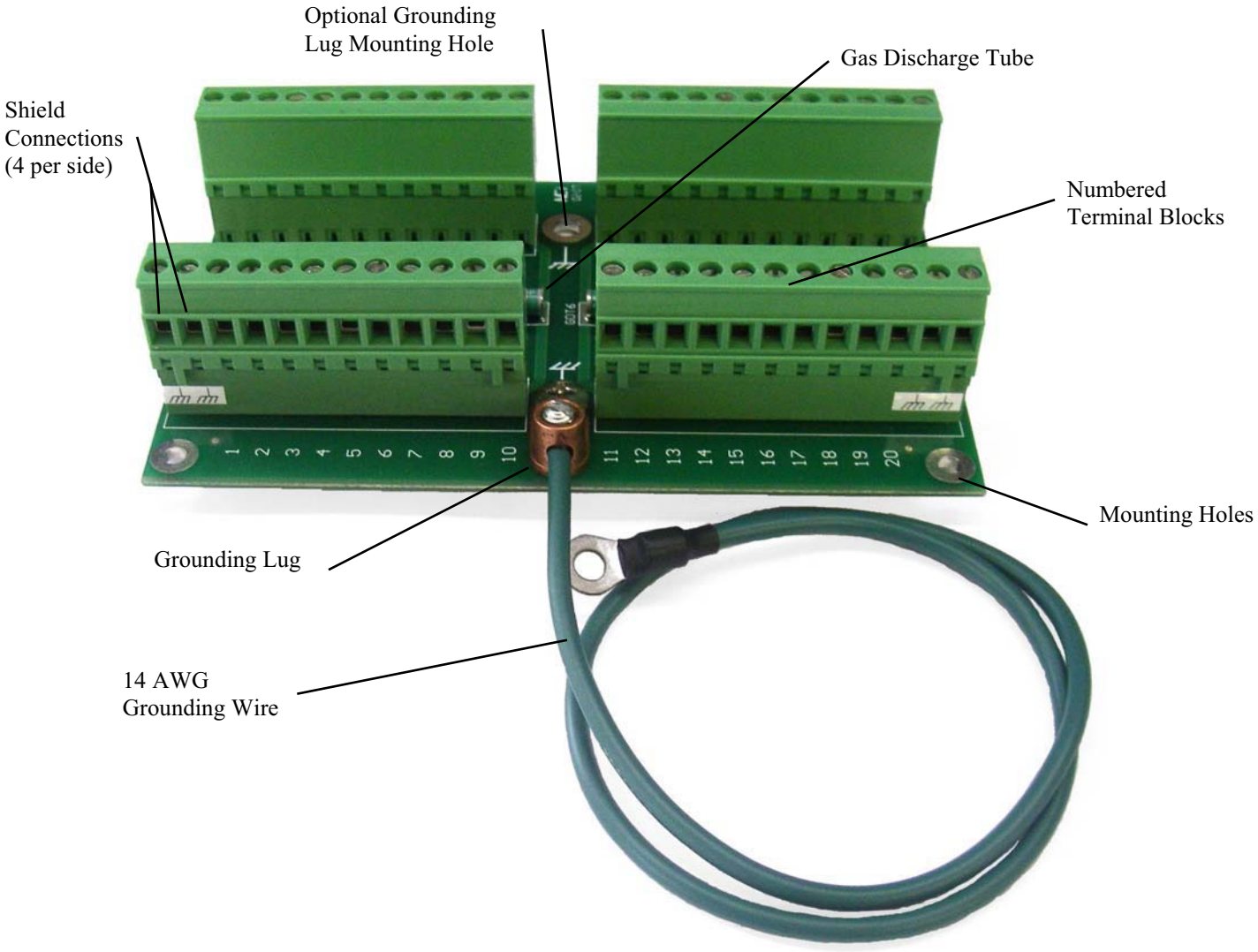


FIGURE 1. SGB20D

2. Installation

2.1 Mounting the SGB20D into an ENC SGB

The ENC SGB is designed to hold two SGB20D transient suppression boards and includes a custom back plate. All necessary mounting hardware is provided with the ENC SGB. Simply place the SGB20D boards on top of the threaded spacers, place the lock washers on top of the SGB20D mounting holes, and secure the SGB20D with the provided screws.

2.2 Mounting the SGB20D into a Campbell Scientific Enclosure

The SGB20D can also be mounted into a Campbell Scientific enclosure with a standard back plate. The standard backplate is punched with a grid of one-inch-on-centre holes. The C1988 Mounting Kit is required to mount the SGB20D onto the backplate.

Insert the nylon grommets provided with the C1988 mounting kit into four of the square mounting plate holes. The nylon grommets should form the corners of a rectangle with dimensions of 3" x 5". The SGB20D may be mounted horizontally or vertically.

Insert and tighten the threaded spacers into the nylon grommets. Place the SGB20D on top of the spacers, and the lock washers on top of the mounting holes. Secure the SGB20D to the spacers using the provided screws.

2.3 Grounding Connections

The SGB20D includes an 18" green 14 AWG ground wire for connection to the grounding chuck in Campbell Scientific enclosures. Remove the top nut on the ground chuck and place the ring end of the ground wire on the chuck. Replace the top nut. Ground the enclosure to earth ground using 14 AWG or larger braided copper wire.

The grounding lug and grounding wire can be moved from one side of the SGB20D to the other. This may facilitate wiring in certain situations. Only one ground connection per SGB20D board should be made.

2.4 Attaching Sensors to the SGB20D

To connect signal or excitation leads to the SGB20D, insert the bare end of one lead into a terminal on a given side of the SGB20D. Take note of the number that is beside the terminal. On the opposite side of the SGB20D, locate the same terminal number and run a short length of wire from the SGB20D terminal to the appropriate datalogger terminal. This short length of wire should be of the same gauge and insulation type as the sensor leads provided by the manufacturer.

Shield leads should be connected to the labelled shield terminals, which are located at the top and bottom of the terminal blocks. There are four shield terminals per side. If possible, limit the number of shield connections to three per terminal.

3. Maintenance

3.1 Replacement Considerations

When an electrical surge occurs, the surge protectors involved may need to be replaced. If one or more of the GDTs have become damaged, they will remain in a short-to-ground state. To check that each GDT is operational, first disconnect all equipment wired to the SGB20D. Then obtain a multimeter and set it to measure resistance. Firmly place one of the test leads on the ground lug, ensuring that a solid electrical connection is made. Then place the other test lead inside one of the numbered terminals. The multimeter should obtain a reading of infinite resistance (or an open circuit depending on the style of multimeter). If any other resistance reading is

obtained, the SGB20D should be replaced. Repeat the process for all of the numbered terminals.