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Trig-Tek™

850A/B
Contact Chatter Detector
User Manual

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2. Product model number
3. Your company and contact information

You may contact Customer Support by:

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FOR YOUR SAFETY

Before undertaking any troubleshooting, maintenance or exploratory procedure, read carefully the **WARNINGS** and **CAUTION** notices.



This equipment contains voltage hazardous to human life and safety, and is capable of inflicting personal injury.



If this instrument is to be powered from the AC line (mains) through an autotransformer, ensure the common connector is connected to the neutral (earth pole) of the power supply.



Before operating the unit, ensure the conductor (green wire) is connected to the ground (earth) conductor of the power outlet. Do not use a two-conductor extension cord or a three-prong/two-prong adapter. This will defeat the protective feature of the third conductor in the power cord.



Maintenance and calibration procedures sometimes call for operation of the unit with power applied and protective covers removed. Read the procedures and heed warnings to avoid “live” circuit points.

Before operating this instrument:

1. Ensure the proper fuse is in place for the power source to operate.

2. Ensure all other devices connected to or in proximity to this instrument are properly grounded or connected to the protective third-wire earth ground.

If the instrument:

- fails to operate satisfactorily
- shows visible damage
- has been stored under unfavorable conditions
- has sustained stress

Do not operate until performance is checked by qualified personnel.

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DOCUMENT CHANGE HISTORY

Revision	Date	Description of Change
A	2/23/2011	Document Control release
B	5/17/2012	ECN00301 adding 850A configuration information. Added ITAR statements.
B	8/29/2012	ECN01438 – Administrative document change. Remove ITAR statements.

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Chapter 1
Introduction

The 850A/B Contact Chatter Detector (**Figures 1-1 and 1-2**) is designed to provide a means of monitoring the continuity of switch or relay contacts while being subjected to environmental stress. The unit has 10 channels each with a separate current source to activate the contacts. Contact current dial and X1–X0.1 switch sets the current of all the channels simultaneously for 0.1 to 11 milliamps.

The difference between the two models is that the 850A uses BNCs for the channel inputs and the 850B uses screw terminals.



Figure 1-1. Trig-Tek 850A Contact Chatter Detector



Figure 1-2. Trig-Tek 850B Contact Chatter Detector

Timing Interval Controls provide for setting from 1 to 999 microseconds or 1 to 999 milliseconds for the maximum time a discontinuity can exist. Each channel has a FAULT LED which will illuminate if a discontinuity exists for a longer period

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of time than is set in by the Timing Interval Switch. The LED will remain illuminated until reset either by the front panel reset switch or remotely via a reset terminal. The unit has a terminal strip where the FAULT condition of each channel can be recorded Low "NO FAULT" or HIGH "FAULT."

Either Normally Closed (NC) or Normally Open (NO) contacts can be monitored. A toggle switch on each channel permits selection of NC or NO type contacts.

Specifications

Channel Inputs (10 each)	BNC-type connectors (850A) Terminal interface (850B)
Current Source Compliance	3 Volt (maximum).
Current Source Accuracy	±3% FS.
Timing Interval Accuracy	Setting ±5 LSB.
Fault Reset Terminal	Permits FAULT Reset from remote location.
Fault Output Terminals	Provide a 12 Volt for “Fault” and 0 for “NO Fault” for each channel.

Controls

Power Switch	Turns Power ON or OFF.
Contact Current Dial	Permits continuous setting of 1-11. Operates in conjunction with the X1–X0.1 switch to provide 1 to 11 milliamps current through the contact being tested.
X1–X0.1 Switch	Multiplies the current dial by X1 or X0.1
Timing Interval MICROSEC-MILLISEC Switch	Toggle switch to select either microseconds or milliseconds as the time interval.
Timing Interval 001-999 Thumbwheel Switch	Works in conjunction with the MICROSEC-MILLISEC switch to select 001 to 999 either microsecond or millisecond time interval.
FAULT Reset Switch	Resets all FAULT LED'S when depressed.

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Indicators

Power LED	Illuminates when power is applied to the circuitry.
FAULT LEDs (10 ea.)	One for each channel. If a fault for the channel occurs, the LED will illuminate and remain on until the RESET switch is depressed.

Power

Power	Operates from either 117 or 234 Volt RMS AC power 50 or 60 Hz at approximately 15 watts.

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Chapter 2
Operation

The 850A/B Contact Chatter Detector contains ten contact monitors in a chassis 19 inches wide by 3-1/2 inches high and 8 inches deep.

The unit operates using either 117 or 234 Volts RMS power. The switch S1 next to the transformer (cover must be removed to view, see Figure 2-1) is marked 117 and 234. Set S1 to the appropriate position for the power that is to be used.

Damage can be caused to the circuitry if S1 is in the 117 position and 234 V RMS AC power is applied. With S1 set properly, apply the AC power and the unit is ready to operate.

Current Setting

Before connecting any contact to the Contact Chatter Detector, set the current that will flow in the contact. Damage could be caused if the current was set higher than the contact current rating. The current is set between 0.1 to 11 millliamps using the contact current dial and the X1–X0.1 switch to provide two ranges. When the X1–X0.1 switch is in the X0.1 position the dial sets 0.1 to 1.1 milliamps and the X1 position provides 1 to 11 milliamps. The current setting is for all ten channels. To prevent damage to the contacts each channel voltage is clamped below 3 Volts.

Time Interval Switch Settings

The Time Interval Switches set the time discontinuity can exist (in a NC contact) before it is considered a FAULT, for a NO contact the opposite or closure for longer than the set time interval would constitute a FAULT. The time interval can be set from 1 to 999 microseconds or 1 to 999 milliseconds using the three digit thumb switch in conjunction with the MICROSEC-MILLISEC switch. The accuracy is the setting ±3 LSD. These switches should be set to the appropriate setting for the contact or contacts being monitored.

Contact Connections and Switches

Connect the contact to be monitored to a channel input BNC (850A) or terminal (850B). Set the Contact Switch to the required position NC if the contact is in the closed position and NO if the contact is being tested in the open position.

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Fault

When a NC (Normally Closed) contact has a discontinuity longer than the set in time interval, it is a FAULT, for NO (Normally Open) contact continuity for a period longer than the set in time interval constitutes a fault. When a FAULT is detected the FAULT LED for that channel illuminates and a +12 V signal is present on the FAULT output terminal on the rear panel. To remove the fault the FAULT RESET switch should be depressed, this removes the fault from all channels. The FAULT RESET can be accomplished remotely by applying +12 volts to the RESET terminal on the rear panel.

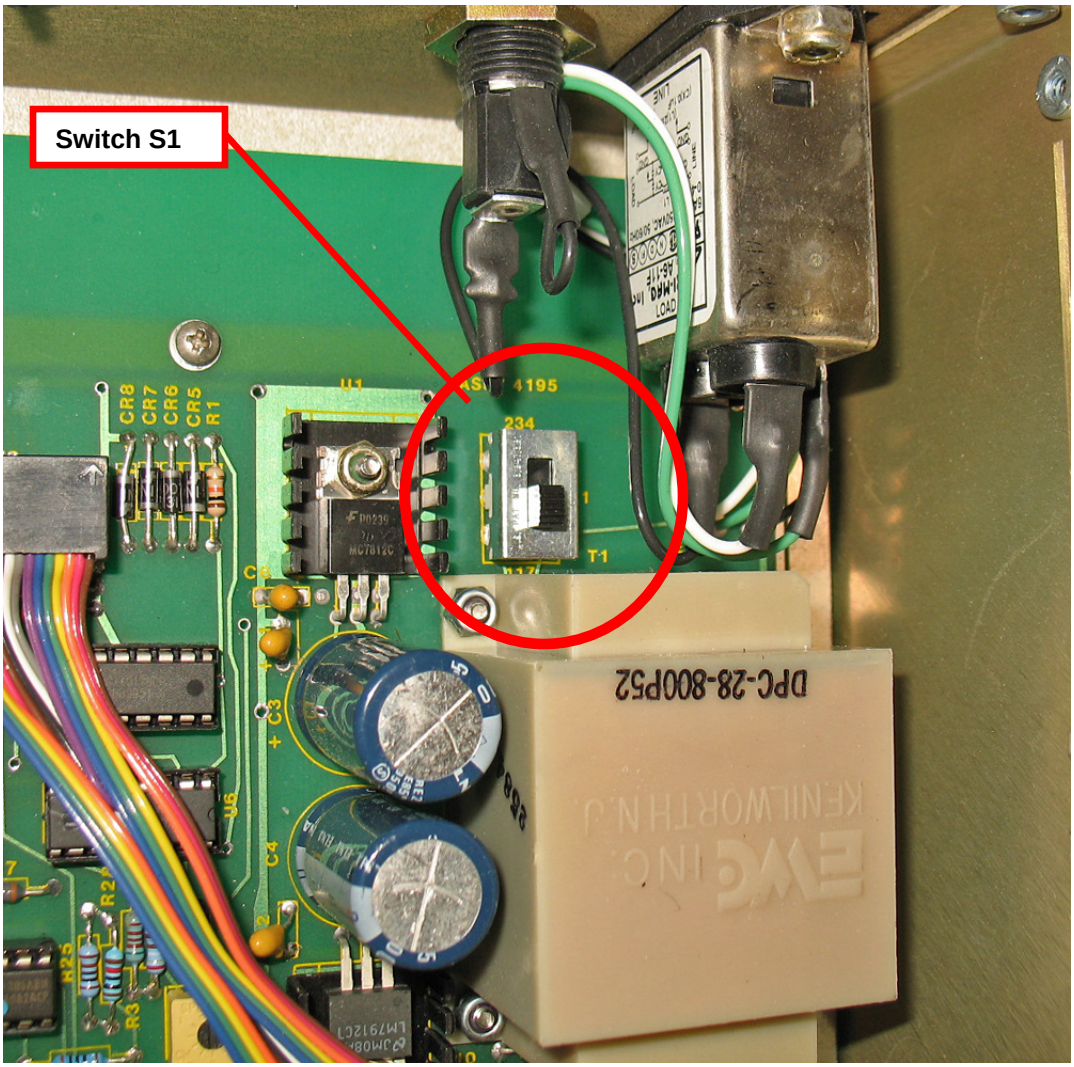


Figure 2-1. Switch S1 – Input Voltage Setting

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Chapter 3
Calibration

The circuitry of the 850A/B Contact Chatter Detector is stable and should require calibration only in the case of part failure. Astronics Test Systems recommends a 12-month calibration period or longer.

Refer to Figure 3-1 for both calibration adjustments. Remove top cover of the 850A/B to access components.

Timing Interval Adjustment

1. Connect a frequency counter to Pin 3 of U3 (Figure 3-1).
2. Set the MICROSEC-MILLISEC Switch to MICROSEC.
3. Set the timing adjust R33 for an indication of 1 MHZ ±10 kHz.
4. Place the MICROSEC-MILLISEC switch to MILLISEC.
5. The counter should indicate 1000 ±10 Hz.

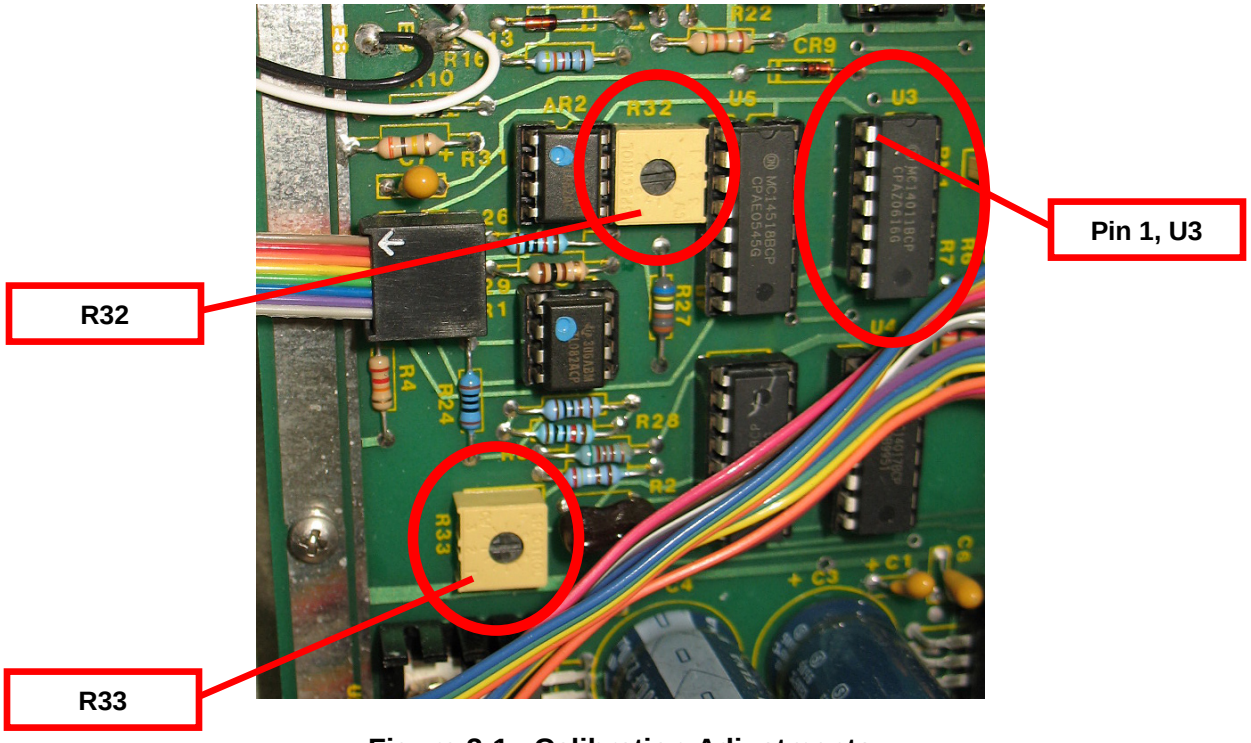


Figure 3-1. Calibration Adjustments

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Contact Current Adjustment

1. Connect a current meter to Channel 1 Input. Set to read up to 11 milliamps.
2. Place the X1-X0.1 switch to X1.
3. Place the CONTACT CURRENT DIAL to 10.
4. Set the full-scale current adjust R32 for 10 ±.01 milliamps indication on the current meter.
5. Connect the current meter to each of the other nine channels and get 10 ±0.2 milliamps indication.
6. Place the X1-X0.1 Switch to X0.1.
7. All channels should indicate 1.0 ±0. 1 milliamps.
8. Set dial to 5, and X1-X0.1 Switch to X1.
9. All channels should indicate 5.0 ±0.1 milliamps.

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