

The Barth SOLZ Kit (for evaluation of TLP test systems)

INSTRUCTIONS FOR USE

(04-21-03, revised 05-15-03)

The Barth Electronics' SOLZ Kit is used to evaluate the ability of TLP test systems to accurately measure known elements. These elements are a "**Short**", an "**Open**", a "**Load**", and a "**Zener**" diode (hence the acronym **SOLZ**). See the white paper: "Evaluation of the TLP System by the Use of Known SOLZ Elements to Determine the Pulse Measurement Range, Accuracy, and Resolution" (copy enclosed).

The SOLZ Kit is an assembly of six known, measurable elements (including 3 Zener diodes of different voltages) which are stable, repeatable, and affordable. The six elements have been combined into a handy 16 pin DIP package. The six elements, measured by a TLP test system, will reveal basic information about the test system.

Short:

Measuring the short (pins 1 & 16 on the DIP package), will reveal the total internal series resistance of the system (typically ~2 ohms for the Barth Model 4002 TLP test system). Note that the Barth Model 4002 allows the operator to 'compensate' for the series resistance by entering a 'cal value' (see the document "TLP Compensation Procedure" used to calibrate the Model 4002, copy enclosed).

Open:

Measuring the open (pins 2 & 15 on the DIP package), will reveal the total internal shunt resistance (or series conductance) of the system (typically -75 micromhos for the Barth Model 4002 test system). Note that the Barth Model 4002 allows the operator to 'compensate' for the shunt resistance by entering a 'cal value'.

Load (5 ohm resistor):

Measuring the resistor (pins 3 & 14 on the DIP package), will reveal the TLP test system's ability to produce a smooth slope showing a voltage / current ratio of 5 ohms. Five ohms has been chosen to most closely simulate the "on" resistance of a modern protection device. To obtain a full scale slope for the Barth Model 4002, set the pulse voltage scale to 0 to 50 volts, and the current scale to 0 to 10 amps. If the Barth Model 4002 has been 'compensated' by entering 'cal values', the accuracy of the measured resistance is warranted to be within 3%.

Zener (diodes):

Measuring the three Zener diodes' turn-on voltages will reveal the accuracy of **pulse** voltages. Use pin 4 for the negative lead and use pins 13, 12, or 11 for the positive lead (for the 7v, 15v, and 24v Zeners, respectively). To measure system accuracy, compare the TLP systems' measured turn-on voltages with the SOLZ Kits' labeled voltage values (typically 1 to 2% accuracy for the Barth Model 4002 test system). The Barth system accuracy is warranted to be within 3%.

Also enclosed (for reference) is a copy of the Barth Electronics detailed instructions: "TLP Compensation Procedure" of the Model 4002 TLP.