Liteway, Inc.

166 Haverford Road 516-931-2800
Hicksville, NY 11801

Field Test Procedure
INST-3001, INSR-3001

When setting up the INST-3001 and INSR-3001 system there are several considerations that must be taken into account. These are as follows:

1. Be certain that the range you wish to use is properly set on the integral DIP switches. Setting these incorrectly can result in distorted signals or no operation at all.

2. In order for all indicator LEDs to display their specific functions properly the fiber optic cable *must* be connected. If it is not, the **Link** and **Sig** LEDs on the INSR-3001 will not operate properly.

3. Be certain that the impedances in any circuit connected to the INST-3001 and INSR-3001 are suitable for the ranges selected. For example, trying to force the INSR-3001 to drive a ±10 volt signal into an impedance of less than 1K will result in incorrect readings. The impedances are as follows:

   Input impedance of INST-3001 (voltage range), 10K or higher

   Output load impedance of INSR-3001 (voltage range)

   ±1 volt range, 50 ohms minimum
   ±3 volt range, 300 ohms minimum
   ±10 volt range, 1K minimum

   Input impedance of INST-3001 (current range), 50 ohms

   Maximum input current, 25 ma.
   Minimum input current, 0 ma.

   Output impedance of INSR-3001 (current range) variable current sink (see also below)

   Maximum compliance voltage, 30 volts DC
   Minimum compliance voltage, 6 volts DC

4. If the **Link** indicator LED does not light, the system will not operate properly. A common cause for the **Link** LED not lighting is a defective fiber or excessive loss through the fiber optic path.

If all of the above is correct, and the proper power supply voltages are present then the following procedure can be used to ascertain that the INST-3001 and INSR-3001 are operating properly.

This test will require an INST-3001, an INSR-3001, a suitable power supply for each, a DVM set to the DC 20 volt range and a 1.5 volt (nominal) or a 9 volt (nominal) battery to be used as a signal source.

1. If a 1.5 volt battery is to be used, set the INST-3001 and INSR-3001 to the ±3 volt range (DIP switches 3 and 8 **ON**, the rest of the switches **OFF**). If a 9 volt battery is to be used, set the INST-3001 and INSR-3001 to the ±10 volt range (DIP switches 4 and 8 **ON**, the rest of the switches **OFF**).

2. Connect the + lead of the battery to the center pin of the BNC connector or position 5 of the **Signal** terminal block on the INST-3001 and the – lead of the battery to the shell of the BNC connector or position 3 of the **Signal** terminal block on the INST-3001.

3. Connect the + lead of the DVM to the center pin of the BNC connector or position 5 on the **Signal** terminal block on the INSR-3001 and the – lead of the DVM to the shell of the BNC connector or position 3 of the **Sign**al terminal block on the INSR-3001.

4. Turn on power and note that the DVM displays the battery voltage originally used (either 1.5 volts or 9 volts nominally). Recheck the battery voltages if at all in doubt.

5. Reversing the polarity of the batteries will result in the reversal of the output polarities but not the voltage readings.

If all of the above steps are as described then the INST-3001 and INSR-3001 are operating properly.

Possible additional causes for erroneous readings are:

Too low a load impedance at the output of the INSR-3001 for the voltage range selected.

Power supply ground loops due to the fact that position 3 of the **Signal** terminal block, the BNC shell and position 3 of the **PWR** terminal block are all common to each other as well as to the housing for both the INST-3001 and INSR-3001.

Insufficient power supply voltage under load. The INST-3001 and INSR-3001 must have a minimum of 11 volts present across positions 2 and 3 of the **PWR** terminal block for proper operation.

When using the current-loop mode keep in mind that the input to the INST-3001 is a 50 ohm resistor connected between position 1 and position 3 of the **Signal** terminal block. Polarity wise position 1 must always be more positive than position 3. In addition, position 3 is connected to the housing.

When using the current-loop mode at the INSR-3001 keep in mind that the output is a current sink connected between position 1 and position 3 of the **Signal** terminal block. Polarity wise position 1 must always be more positive than position 3. In addition, position 3 is connected to the housing.