ABB

INTRODUCTION

The Benchtop Trip Simulator for Breakers (herein referred to as the BTSB) is a microprocessor driven secondary current/voltage injection test set specifically designed for use with the MPS-C and MPSC-2000 solid state trip devices (hereafter referred to generically as MPSC's). The BTSB can test all facets of MPSC operation, including the following:

Instantaneous Threshold
Short Time Threshold & Delay
Long Time Threshold & Delay
Ground Threshold & Delay
Current Metering Accuracy
Voltage Metering Accuracy (MPSC-2000 only)
Self-Power Level Verification

Altogether, the BTSB can perform up to 35 tests on an MPSC, and all tests are performed by true secondary current or voltage injection. There are also built-in calibration tests which can be performed to ensure that the BTSB is providing accurate results.

BASIC HANDLING AND CARE

The BTSB should require no adjustments or maintenance during its life other than those items mentioned herein.

Because the BTSB is essentially a portable computer with a built-in audio-quality power amplifier, it should be handled with the same care afforded similar equipment (e.g., laptop computers, oscilloscopes, etc.). The BTSB was designed for field use, but excessively rough handling may damage the unit.

PRIMARY FEATURES

1. The BTSB uses true secondary current/voltage injection, which tests the input and conditioning circuits of the MPSC, as well as the A/D conversions, communication hardware, and all software (protection, metering, and communication).

2. The BTSB automatically sets up the MPSC-2000 for each test, performs the test, and resets the MPSC-2000 to its original settings following the test. When testing an MPS-C trip device, the user is prompted to make the correct front panel settings for each test.

3. The BTSB maintains in battery-backed RAM the results of the most recent 1,500 tests, which can be reviewed on the BTSB's LCD screen, sent to an ASCII printer attached to the BTSB's parallel port (Figure 1, Item 3), or downloaded to a PC connected to the BTSB's serial port (Figure 1, Item 2).

4. As part of the data storage records, the user may input a "Reference Number" for each set of tests. Later, this number can be used to easily retrieve results for specific tests or trip units, even if the requested records are spread throughout the database.

RUNNING A TEST - The Quick Course

WARNING WARNING WARNING WARNING

Do not test breakers in the switchgear unless they have been racked to the TEST or DISCONNECTED position.

If you are familiar with the MPSC and the BTSB, the following brief instructions may be used to conduct a

WARNING WARNING WARNING WARNING

Securely fasten the test cables to the MPSC and do not disconnect them during testing. Voltage will be present, which could cause injury to personnel or damage to equipment.

test:
Prior to powering up the BTSB, it must be connected to an MPSC in accordance with these instructions.
Once the BTSB is properly connected and the power switch is turned on, the unit will perform the initial setups and checks that are required prior to testing.

Pressing the TEST button at the MAIN MENU will show the currently selected settings. At this point, pressing the Enter key (↵) will begin the testing.

The BTSB will automatically set up the MPSC-2000, perform the tests, and record the results. If the unit being tested is an MPS-C, the user will be prompted to

WARNING WARNING WARNING WARNING

The BTSB will attempt to return the MPSC-2000 to its original setting following testing, but unforseen occurrences such as aborted tests may leave the trip device in an unknown state. **The user must verify that the trip device settings are correct prior to placing the unit back into service.**