


For use with: Type JMKT and LMKT Trip Units and Type JM6B, JMKB, LM6B, LMKB, MM6B, NM6B, and PM6B Circuit Breakers.

Siemens Energy & Automation, Inc.  
Bellefontaine, Ohio 43311 U.S.A.

## Universal Test Kit (TS-MD)



**⚠ DANGER**  
**Hazardous voltage.**  
**Will cause death or serious injury.**

Turn off and lock out all power supplying the circuit breaker prior to cover(s) removal or while cover(s) are removed and when installing any internal or external accessory.

Replace the cover(s) and shield(s) before power supplying this device is turned on.

### ⚠ SAFETY INSTRUCTIONS

**Caution:** Remove electrical loads from the circuit breaker to be tested prior to performing tests. Failure to do so can produce erroneous results and possible electrical malfunction.

#### TS-MD PROCEDURES

#### OPERATING INSTRUCTIONS

- A. Remove electrical loads from circuit breaker.
- B. Plug the TS-MD test set into a grounded 120 VAC receptacle and turn it on. You will be greeted by the identifying turn-on message:

**Siemens Energy & Automation, Inc. TS-MD Test Set. Press any key to continue.**

- C. Remove any external accessory attached via ribbon cables from the breaker's test port before connecting the TS-MD. Connect the ribbon cable between the TS-MD and the circuit breaker, making sure of alignment and polarity. After pressing ENTER, the TS-MD will prompt:

**Enter catalog number**

- D. Type in the catalog number of the circuit breaker.

After entering the catalog number information, press the ENTER key. If an invalid catalog number has been entered, the TS-MD will respond with:

**XXX...NOT found.**  
**Press any key to continue.**

and you will be asked to enter another catalog number.

- E. If a valid catalog number has been entered, the TS-MD will prompt for the breaker switch settings. If the circuit breaker has a long time (continuous current) capability, the TS-MD will prompt:

**Enter Continuous Current Setting in %:**

or

**Enter Continuous Current Setting in Amps:**

If the long time delay is settable, the TS-MD will respond with:

**Enter Long Time Delay in Seconds:**

For all breakers, the TS-MD will prompt:

**Enter Instantaneous Pickup Setting:**

Enter the instantaneous setting indicated on the circuit breaker, in amps or in multiples of the pickup setting.

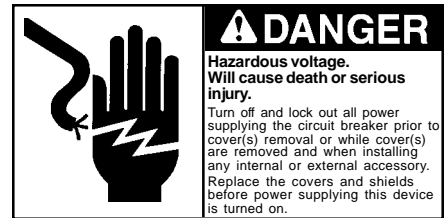
- F. After entering the breaker switch settings, you must select the test you wish to perform. The TS-MD will prompt for the test to perform:

**Enter test: L-Long I-Inst. C-CT Cont.?**

"L" - Long time or overload test

"I" - Instantaneous test

"C" - Current transformer continuity test



## Universal Test Kit (TS-MD)

G. After entering the desired test, you will be prompted for the phase to be tested. The TS-MD will display:

**Enter Phase to Test:**

- Enter one of the following letters:  
"A" - Phase A or Left Pole  
"B" - Phase B or Center Pole  
"C" - Phase C or Right Pole  
"N" - Neutral

H. The TS-MD will report the type of test you selected and give you a chance to abort the test. For example, if "I" was pressed in step F, the TS-MD will display:

**Instantaneous Test  
Press ENTER to continue or A to Abort.**

If you press the letter "A" to abort, you will be given new options. See step K.

I. To proceed, reset the circuit breaker and press ENTER again to start the test. Press any other key to STOP the test. Once a test has been started, the TS-MD will respond with:

**Trip Test. Press Any Key to Abort.  
Time Remaining: xx.xxx Sec.**

Be careful at this time. Any key press will abort the test.

J. The test may take anywhere from a fraction of a second to minutes to complete, depending on which procedure was selected. If the test passes, the TS-MD will display:

**Test Passed. xx.xxx Sec.  
Press any key to continue.**

If the test fails, the display will show one of the following messages, depending on the type of failure:

**Test Failed-- Trip Time Too Short.  
xx.xxx Sec. Press any key to continue.**

**Test Aborted-- Exceeded Max. Trip Time.  
Press any key to continue.**

If the circuit breaker tripped during the test, RESET the circuit breaker before continuing.

K. The TS-MD will prompt for the next instructions. The display will show:

**Change: 1-Test 2-Catalog 3-Settings:**

- Enter one of the following numbers:  
"1" - Select a new test  
"2" - Enter a new catalog number  
"3" - Enter new switch settings

If you enter "1", you will be sent to step F. Choosing "2" will send the program back to step C. Entering "3" sends you back to step E, which will be slightly different the second time through. On the second line after the prompt for the setting, a number or text in brackets may appear, which will indicate the last setting you entered. If you DON'T wish to change the setting, just press ENTER. If you DO wish to change the setting, type in the new setting and press ENTER.

L. If you pressed "C" when asked,

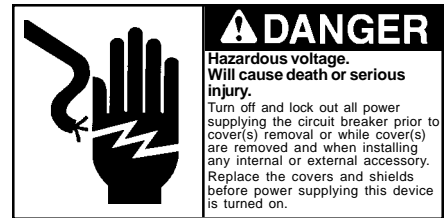
**Enter test: L-Long I-Inst. C-CT Cont.?**

you will first be prompted by:

**Current Transformer Test  
Press ENTER to Continue or A to Abort.**

and then asked for the phase to test. A message will then appear stating the test results. For example:

**CT Resistance Test. Phase X  
PASSED Press any key to continue.**



## Universal Test Kit (TS-MD)

M. There are additional ERROR messages which may appear on the display during operation which were not covered previously:

**Test Not Running-- Check Test Cable.  
 Press any key to continue.**

The test set has sensed that current is not flowing properly in the breaker under test and there is either an open or short circuit between the TS-MD and the breaker trip unit.

**XXXXXX is NOT available on a XXXXXXXX.  
 Press any key to continue.**

This message will appear if you enter a type of test that is not available on the breaker being tested. For example:

**Long Time is NOT Available on a LM6B400XCBW.  
 Press any key to continue.**

**XX is NOT a Valid Setting.  
 Press any key to continue.**

This message will appear if you enter a setting value that does not exist. For example, a MM6B600EW has continuous current settings of 20, 30, 40, 50, 60, 70, 80, 90 & 100 percent. If you were to enter any value other than those listed, the above message would appear.

**Test Exceeds Capability of TS-MD.  
 Press any key to continue.**

This message means that a test requires more current to run than the TS-MD can produce. The settings on the breaker should be lowered and the new settings should be entered into the TS-MD (step K, option 3). Then rerun the desired test.

N. The TS-MD will warn you of possible fault coverage conflicts. These conflicts may occur if, for example, the short time and instantaneous pickup settings overlap or interfere with one another. In this case, the following sequence of messages will appear:

**You've chosen the Long Time test, but the following may trip first:**

**Instantaneous  
 Press any key to continue.**

**Do you wish to proceed with the test?  
 [Y/N]**

These messages indicate that something other than the desired function may trip the breaker. You then have the option of continuing with the test or aborting it.

### LONG TIME TRIP OUT

Setting % of In	2.2 sec.	3 sec.	4 sec.	7 sec.	12 sec.	20 sec.	25 sec.	27 sec.
<b>20%-100%</b>	24.4 to 55.0	33.3 to 75.0	44.4 to 100	77.8 to 175	133 to 300	222 to 500	278 to 625	300 to 675

**All values are in seconds.**