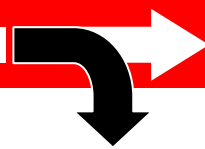




Application Note



May, 2007

Switch Test Documenting using MFT 40x0 v 3.61/4.00 and DMS v 3.0+

Problem: Temperature, pressure and level switches are used throughout the process industries where discrete point alarming is sufficient for alarm / control requirements. Switches save money over analog or digital transmitters, are used in greater numbers, and are used in both non-critical and critical services. Ask your customers if they need to document switch operation for quality control, process critical needs or auditing requirements. How can Meriam customers document the testing of switch trip points, reset points and deadband?

Solution: The Meriam Device Management System was recently upgraded to conveniently handle switch applications. The solution is available for all MFT's with firmware Versions 3.61 / 4.00 and higher. For customers using Meriam's asset DMS management software solution, Versions 3.00 and higher support the MFT's switch test documentation. DPC Manager Versions 3.9 or higher includes switch data retrieval software.

Switch testing uses an MFT module to measure the pressure or temperature applied to the switch, the VMA0055 module to wet the contacts of the switch, and the MFT's volt meter (IV jacks located in the MFT base unit). Once a switch test calibration procedure is started the VMA0055's voltage output is turned on to wet the contacts. As the input parameter (pressure, temperature or level) is varied, the MFT looks for a change in state on the volt meter (IV) and, once detected, instantly reads the value of the input parameter. This is the switch trip point. To detect the reset point, the input parameter value is reversed and the MFT again looks for a change in voltage state. Deadband is calculated from the trip point and the reset point. Trip point, reset point and deadband are all reported by the MFT. Users select Normally Open or Normally Closed switch operation. The switch contacts can be externally wetted by 50 Vdc or less if a VMA0055 module is not available. Pressure switches are supported as well as bulb type and RTD type temperature switches. Level switches are typically pressure based and are supported by the MFT as well.

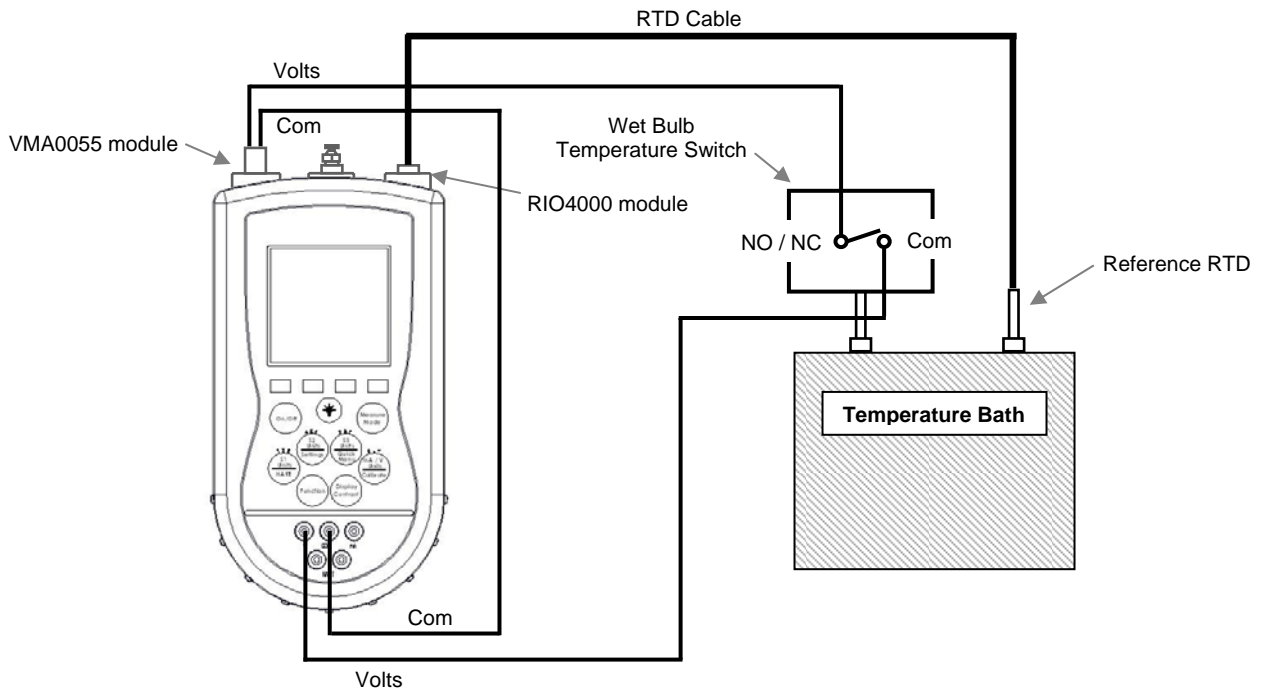
Documenting switch tests capture the switch trip point, reset point and deadband in MFT memory as part of an As Found check. If the As Found data is "in specification", then it can be saved to the As Left location to complete the documenting session. When the As Found data is found to be "out of specification," then the MFT's modules and volt meter can be used by the technician to adjust the switch point accuracy. After adjustment, the As Left documenting portion can be executed to finish the session. Trip points can be retried as often as desired before saving a set of data. This feature is used to assure the technician that he has increased or decreased the input signal slowly enough to capture the true trip and reset points.

For more complete details of switch testing please see F/N 4000:440-6 on the Meriam web site (www.meriam.com Resources/Literature/Manuals/MFT 4000:440-6). For a typical switch test diagram, see the following page.

Meriam Process Technologies

10920 Madison Avenue • Cleveland, Ohio 44102 • www.meriam.com
Phone (216) 928-2241 • Fax (216) 281-0228 • email meriam@meriam.com





Typical Wet Bulb Temperature Switch Test Setup