

# Fault Locator

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Fault Locator increases the accuracy of physically locating faults in your cable assemblies. The quick and accurate location of opens and shorts reduces trouble-shooting and repair time. You will find the Fault Locator feature in DIT-MCO's standard operating software, T81, version 4.4 and later. This software tool approximates the physical location of opens and shorts. Error reports illustrate the location of faults relative to its position on your cable assembly.

Fault Locator first characterizes DIT-MCO's switching system and adapter cables for resistance and capacitance. Fault Locator takes these measurements—storing them in two files accessed by the T81 control program—only one time for a specific test system and adapter cable configuration. Fault Locator uses the mode directives of Continuity Error Scan (CES), Open Circuit Locator (OCL), and Short Circuit Locator (SCL).

## How It Works

*Locating opens:* During a test, T81 uses the standard Continuity Error Scan (CES) to locate miswires. If the test program detects a “true open,” T81 activates the Open Circuit Locator (OCL) to measure the capacitance of the reported continuity error. Then T81 uses this measurement along with the capacitance measurements stored in the product characterization files to approximate the physical location of the open along the cable.

*Locating shorts:* Shorts pose a more complicated problem and require a more involved solution. When T81 reports a low resistance short, the Short Circuit Locator (SCL) scans every possible combination of paths in the shorted nets until it detects the lowest resistance. It reports this information in the error log, along with the Unit Under Test (UUT) product nomenclature.

Comparing error logs from earlier versions of T81 and the currently shipping version of T81, you can see how the latter provides more information (See back page). For example:

- There is an open between pin 28 and 128. The standard error log tells you only that the test isolated an open, but does not indicate the location of that open. Fault Locator shows where you can find the fault along a cable assembly using percentages (ratio). Therefore, a 100% or 0% ratio indicates the fault is at one end (left) or the other (right). The 0% marks the open at pin 28—0% from the left connector (9FCB 132 22 using UUT product nomenclature).
- There is a short between pin 21 and 18. The standard error log reports the resistance and a “LOW” message. Based on this information, an experienced technician might expect to find the short closer to pins 18 (9FCB 132 22) and 21 (9FCB 132 13). However, Fault Locator accurately indicates just the opposite, SCL found the short closest to address: 121 (9FCB 132 65) and address: 118 (9FCB 132 62). As with opens, Fault Locator also reports the UUT information.



SHORT/OPEN TEST CABLE 40 FT. LONG

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; ACT, C:\TEST\PCT1601
; PCF, 59949,c:\DITMCO\PCF\CABLE.pcf
; ENB CCR, SCL, DTB, CES, DIG, OCL
; STP
Stop
; F DCS          100V          010.0M          00.050S
:               FF 00003
:               00000 LOW          1.618          OHM EARTH
:               SCL found short closest to address: 3 and address: 0
:               1PA 173 PA3E          EARTH
; C DCS          1.500A          05.00          00.020S
:               CC 00007          9PAA 171 A POS
:               00107 HIGH          2.744KM          OHM 9FCB 132 51
:               XT 00107          ISOLATED          632.6MOHM 9FCB 132 51
7-----X-----107 58%
9PAA 171 A POS          9FCB 132 51
:   CC 00012          9FCB 132 4
:               00112 HIGH          1.537KM          OHM 9FCB 132 56
:   XT 00112          ISOLATED          510.5MOHM 9FCB 132 56
12-----X-----112 24%
9FCB 132 4          9FCB 132 56
:   FF 00013          9FCB 132 5
:               00010 LOW          2.135          OHM 9FCB 132 2
SCL found short closest to address:
9 FCB 132 5          9FCB 132 2
:   FF 00021          9FCB 132 13
:               00018 LOW          4.891          OHM 9FCB 132 10
SCL found short closest to address:
9 FCB 132 65          9FCB 132 62
:   CC 00024          9FCB 132 16
:               00124 HIGH          >49.34KM          OHM 017VEA 135 B
:   XT 00124          ISOLATED          961.2MOHM 017VEA 135 B
24-----X-----124 69%
9 FCB 132 16          017 VEA 135 B
:   CC 00028          9FCB 132 22
:               00128 HIGH          >48.90KM          OHM 017VEA 135 F
:   XT 00128          ISOLATED          1.034KM          OHM 017VEA 135 F
28X-----128 0%
9FCB 132 22          017VEA 135 F
:   FF 00031          9FCB 132 25
:               0030 LOW          5.645          OHM 9FCB 132 24
SCL found short closest to address:
017VEA 135 J          131 and address: 130
: end
String errors:      000008
Bulk errors:        000004
Two point errors:   000004
Total Test Count:   000068

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