



**Model CM-3 Calibration Verification
INSTRUCTION MANUAL**

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Specifications and operational characteristics of the System are subject to change.
CheckSum LLC cannot take responsibility for any direct or consequential damages
arising from use of this manual or the related product.

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Limited Warranty

CheckSum, LLC products, exclusive of fixturing products, are covered by a one-year limited parts and labor warranty for defects in materials and workmanship from time of original product shipment. Fixturing products (TR-3, TR-5, TR-7, TR-9, and Analyst series) include a 90-day limited warranty. This warranty extends only to the original purchaser and excludes products or parts that have been subject to misuse, neglect, accident, or abnormal conditions of operations.

CheckSum, LLC reserves the right to replace the product in lieu of repair. If the failure has been caused, as determined by CheckSum, by misuse, neglect, accident, or abnormal conditions of operation, repairs will be invoiced at a nominal cost. In such case, an estimate will be submitted before the work is started, if requested.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS, OR ADEQUACY FOR ANY PARTICULAR PURPOSE OR USE. CHECKSUM LLC SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT, OR OTHERWISE.

In the event of a failure of a product during the warranty period:

1. Contact CheckSum for a returned material authorization number (RMA).
2. Pack the product in its original packing material or suitable equivalent and return it postage-paid to CheckSum LLC.
3. Mark the package clearly with the RMA number.
4. CheckSum will repair the product and return it postage-paid. Repairs are typically completed within two working days of receipt.

In the event that expedited repair is necessary, call CheckSum for information. In many cases a replacement module can be provided immediately.

Chapter 1

Overview

The Model CM-3 is designed to provide calibration and performance verification for CheckSum ICT/Manufacturing Defects Analyzers (MDA) such as the Models TR-4, TR-8, and Analyst series (TR-10). The CM-3 has three primary and distinct functions:

Self-Tests

The CM-3 has a built-in 50-pin shorting plug, on connector P1, which is used for example as part of the self-test and characterize the test points of Test System Multiplexers (MPX modules) and part of the self-test of the DIG-1 module.

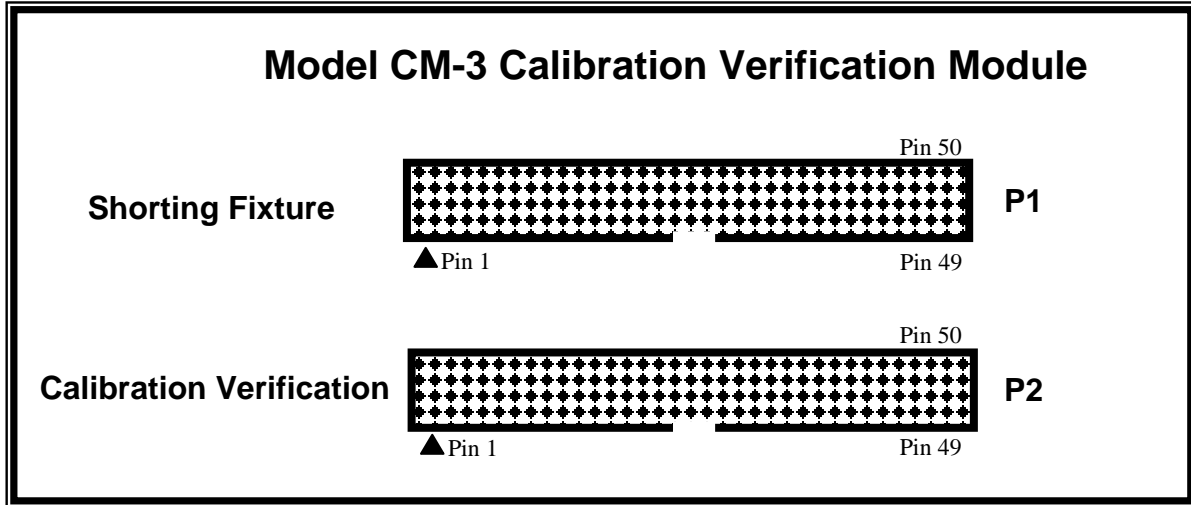
ICT Calibration/Verification

The CM-3 has an array of precision resistors, capacitors and inductors, on connector P2, that are used to calibrate and provide traceability for CheckSum impedance measurement functions of the ICT (In-Circuit Test system).

SMT TestJet Calibration

The CM-3 has the necessary resistors built-in to calibrate the sensitivity of the Model's SMT-2, TR-8-SMT, TR-8-SMT-CAP, and Analyst SMT TestJet modules.

The Model CM-3 has connectors P1 and P2 on the front of the unit, see below:



MPX Self-Test Using the CM-3 Shorting Fixture (P1)

After installation, and from time to time, it is necessary to verify the integrity of the Test Systems Multiplexer (MPX) modules and the cables. This is accomplished by executing the Configuration Self-Test on the MPX modules.

Standalone CM-3 Module

During the self-test, the operator is instructed to connect each cable, one at a time, to a shorting fixture. Connector P1 on the CM-3 provides the shorting fixture capability.

Fixture Kit with an Enclosed CM-3 Module

During the self-test, the operator is instructed to connect each cable, one at a time, to a shorting fixture. Connector P1 on the CM-3 provides the shorting fixture capability. The top 50-pin connector at the back of the fixture connects to test points 1-50. When instructed to connect a shorting fixture to test points 1-50 (or 1-200) be sure to have the short cable on the top of the fixture connected between the back (Test Points 1 – 50) connector and the P1 connector during the self-test.

Caution

The target blocks in the CM-3 Calibration Fixture are shorted for the system self-test. If any power supplies are connected to the interface of your fixture press, damage may result when the CM-3 fixture is installed. Contact CheckSum for further details.

- The CM-3-KIT600-QC has test points 51-400 shorted inside the fixture kit on the 200-pin blocks A & B.
- The CM-3-KIT1000-QC has test points 51-800 shorted inside the fixture kit on the 200-pin blocks A, B, C & D.
- The CM-3-KIT2KN has test points 51-1800 shorted inside the fixture kit on the 200-pin blocks A, B, C, D, F, G, H, J, & K.
- The CM-3-KITILS has test points 51-2100 shorted inside the fixture kit on the 200-pin blocks J2 through J36 (including DIG-1 #1 & #2).

Depending on your test system configuration, the remaining test points will be either shorted or not. Be sure to check to be sure that any shorted pins will not cause a problem with the test system resources. Some of the CheckSum test system modules, such as the TR-6, cannot have their test points shorted together. If they are shorted together accidentally, replacement fuses for the unswitched, power supply outputs are available.

Test System Impedance Measurement Calibration (P2)

The CheckSum ICT/Manufacturing Defects Analyzers utilize various impedance measuring techniques to verify the performance of loaded circuit boards and components under test.

Self-Test: To ensure that the ICT System is performing correctly, it is necessary to periodically exercise the internal self-test routines. These self-test routines check for correct functionality and also compensate for component variations by characterizing the System against built-in reference elements permanently installed in the measurement modules. CheckSum recommends that this procedure be carried out at six-month intervals.

The Model CM-3 Calibration Accessory allows you to periodically supplement the internal self-test described above by verification using external reference standards. This accessory contains a set of precision components that, when traceably calibrated and used to verify the Test System, provide the recommended performance verification. CheckSum recommends that this procedure be carried out at six-month intervals.

The Model CM-3 is checked for correct performance at the CheckSum factory. In addition, a traceable calibration certificate may be ordered by specifying Model CM-CAL.

TestJet Calibration Using the Model CM-3

After installation, and from time to time, it is necessary to calibrate the sensitivity of the SMT and/or SMT-CAP Test System TestJet Modules. This is accomplished by executing the Configuration Self-test on each of the SMT and SMT-CAP modules. During the self-test, the operator is instructed to connect the System to the Model CM-3 connectors P1 and P2, where P1 is connected to Test Points 1-50 and P2 is connected to the appropriate SMT Module.

ICT System Calibration Using the Model CM-3

After the self-test procedure described above has been completed, for Test System Calibration, connect test points 1-50 of the System into connector P2 of the CM-3. No other test point connections are used for the calibration. If you have a CM-3 enclosed in a fixture kit, the connector at the back of the fixture kit is connected to test points 1-50. Be sure to have the short cable on the top of the fixture connected between the back connector and the P2 connector during the calibration test.

The Model CM-3 calibration test files are provided on the CD shipped with this accessory. The appropriate file should be copied to the System's Test Program directory (normally C:\CHECKSUM\SPECFILE). The test files are named:

- MDACAL_EMS for the Model TR-10 Analyst *ems*, Analyst *ems+ft*, Analyst *ils*
- MDACAL_TR8 for any Model TR-8 system
- MDACAL_ANFT for the Model TR-10 Analyst *ft*
- MDACAL_ANMC for the Analyst *mc*
- MDACAL_TR4 for any Model TR-4 system

Calibration of the test system is performed by executing the test program file. A listing of these test files is included at the end of this manual.

These test files as shipped from CheckSum have nominal values entered for their precision components. The values may be modified to agree with a traceable calibration of the CM-3 by following the instructions included in the test file.

These test programs are executed in the same manner as any normal test program. After the test program is run, a printed copy of the results can be created as a permanent record.

The Model CM-3 can be purchased with the CAL option (Model CM-CAL), which provides a traceable calibration certificate. Alternatively, you may calibrate the CM-3 with your in-house standards and achieve traceability by that method.

Calibration of the CM-3 is facilitated by removing the 6 top cover screws and then connecting to each internal 2-pin connector adjacent to each precision component. Table 1 may be copied and used by your calibration facility for recording the characterized values. Table 2 shows the accuracy required of each calibrated component. Typically, the equipment used to calibrate the components should be at least 4 times more accurate than the required characterized value.

Checksum Model CM-3 Calibration Verification Module	
Serial Number: _____	
Date: _____	
Nominal Value	Characterized Value
10 ohm	
100 ohm	
1 Kohm	
10 Kohm	
100 Kohm	
1 Mohm	
1000 pF	
0.01 μ F	
0.1 μ F	
36 mH at 1 KHz	

Table 1

Characterization Accuracy Requirements		
Component Designator	Component Value	Characterized Accuracy
R1	10 ohm	2%
R2	100 ohm	0.1%
R3	1 Kohm	0.1%
R4	10 Kohm	0.1%
R5	100 Kohm	0.1%
R6	1 Mohm	1%
C1	1000 pF	2%
C2	0.01 μ F	1%
C3	0.1 μ F	1%
L1	36 mH	2% at 1KHz

Table 2

What to do if a Test Fails

The best course of action depends on the failure.

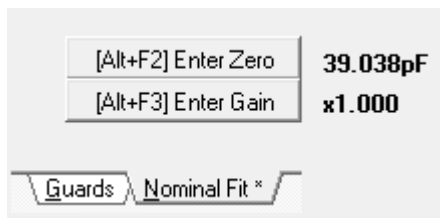
If every test step is failing, check the connections between the test system resources and the CM-3 connectors. Check the cable connections and if a Cal/Ver fixture is used, check the fixture interface to be sure the fixture is engaged and connected to the test fixture.

If the capacitance test for the 1000pF (0.001 μ F) test fails, for example, the capacitance test steps may need to be compensated for the system capacitance. The system capacitance is variable with each specific test system. The system cables are the major contributing factor. The solution is to automatically subtract this system capacitance from the measurement. The software provides this function and the test program must be modified/edited on-site to do this.

Follow these steps: First, insure the short 50-pin cable from Test Point 1-50 is not connected to P1 or to P2. From the software start-up window select **Edit Test** or press the **F2** function key. Select **Open** if a dialog box appears or use the menu item *File* and click on *Open*. In the Open File dialog box, select the appropriate test program, see ICT System Calibration Using the Model CM-3 on page 4. After the program is loaded, use the menu item *Tools > Measure Offsets > Capacitance* and select *All Steps* and click *OK*. This feature will measure the capacitance of the system and modify the capacitance test program steps. The modification will change all of the capacitance steps to store the measured value (system capacitance) and subtract this value from the readings in the future. The effect is to subtract the system capacitance from the capacitor component measurements.

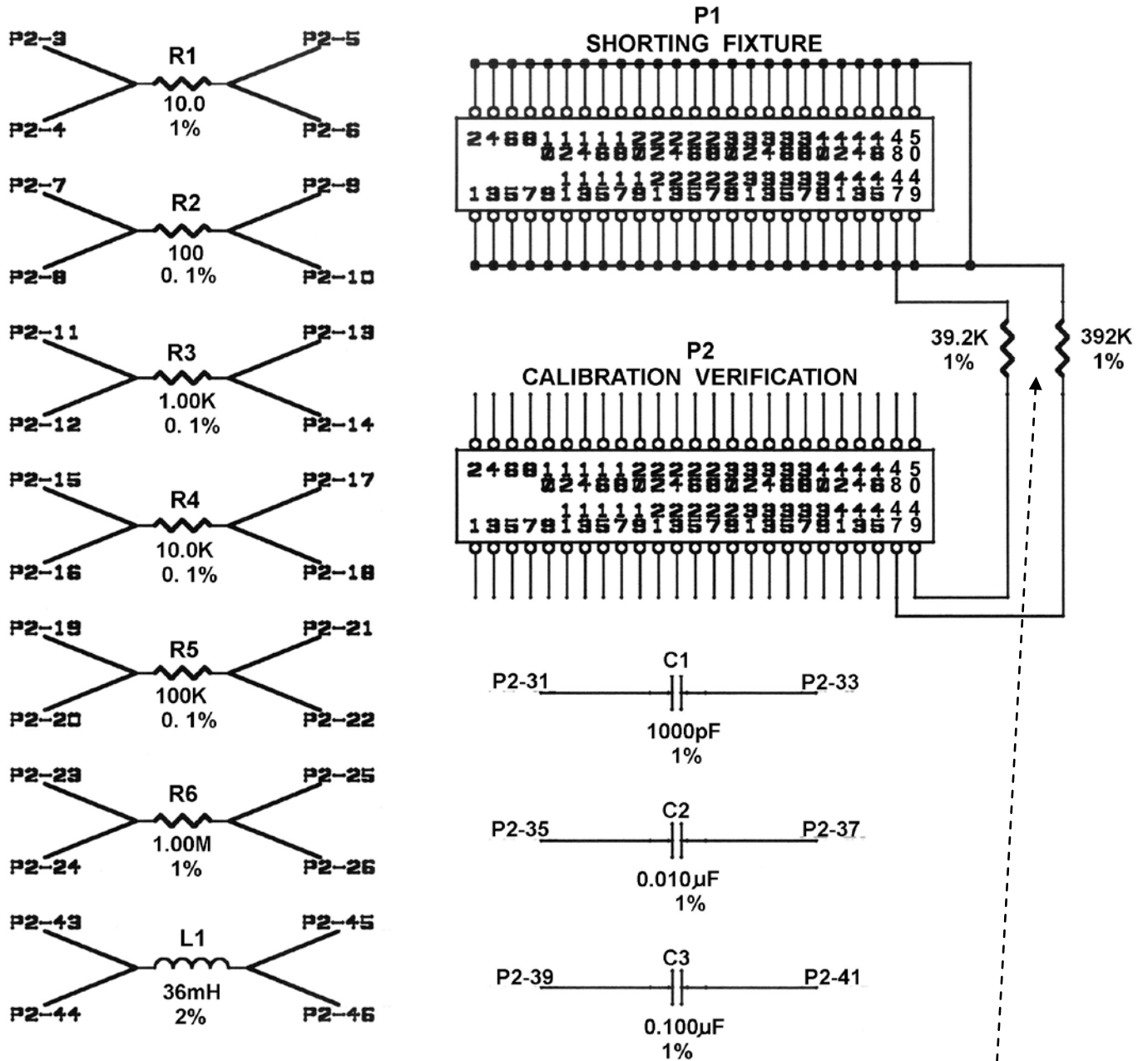
Be sure to save this modified version of the Cal/Ver test program.

To see the system capacitance measurement, click on any **Cap** test step and press the **F6** function key. This will open the *Measurement Analysis* window. Click on the tab at the bottom labeled **Nominal Fit**. You should see the system capacitance measurement “**Zero**” value, such as:



The asterisk after **Nominal Fit** * indicates some zero, gain or other factor is used for this measurement.

CM-3 Internal Components and Pin Connections



Note: These two SMT resistors are wired internally to the SMT #1 fixture interface position, to the SMT pins with the same numbers as P2.

Test Program Listings

Test Program Listing

Testing Facility: CheckSum
 Assembly Name: TR-10 CALIBRATION with CM-3
 File Name: MDACAL_EMS.SPEC
 File Date: 19 Feb 2008
 Time: 09:56
 Test System: CheckSum Analyst ems

---From---	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Point	Name	Point	Name	Type	Range	Title	Low	High			
				ResRg	11	1.0000 10.000					
				ResRg	12	1.0000 10.000					
				Jump		start					
				Label		measurements					
				DispE	0						
3	R1-SO	5	R1-SO	Res	524	DC 10 OHM	9.5707	10.429	10.000		
4	R1-SE	6	R1-SE	External sense							
7	R2-SO	9	R2-SO	Res	513	DC 100 OHM	98.099	101.90	100.00		
8	R2-SE	10	R2-SE	External sense							
7	R2-SO	9	R2-SO	Res	560	AC 100 OHM	98.499	101.50	100.00		
8	R2-SE	10	R2-SE	External sense							
11	R3-SO	13	R3-SO	Res	514	DC 1K OHM	981.00	1.0190K	1.0000K		
12	R3-SE	14	R3-SE	External sense							
11	R3-SO	13	R3-SO	Res	560	AC 1K OHM	989.41	1.0105K	1.0000K		
12	R3-SE	14	R3-SE	External sense							
15	R4-SO	17	R4-SO	Res	515	DC 10K OHM	9.8100K	10.190K	10.000K		
16	R4-SE	18	R4-SE	External sense							
15	R4-SO	17	R4-SO	Res	1584	AC 10K OHM	9.8994K	10.100K	10.000K		
16	R4-SE	18	R4-SE	External sense							
19	R5-SO	21	R5-SO	Res	516	DC 100K OHM	98.099K	101.90K	100.00K		
20	R5-SE	22	R5-SE	External sense							
19	R5-SO	21	R5-SO	Res	2608	AC 100K OHM	97.995K	102.00K	100.00K		
20	R5-SE	22	R5-SE	External sense							
23	R6-SO	25	R6-SO	Res	517	DC 1M OHM	960.73K	1.0393M	1.0000M		
24	R6-SE	26	R6-SE	External sense							
23	R6-SO	25	R6-SO	Res	3616	AC 1M OHM	958.77K	1.0412M	1.0000M		
24	R6-SE	26	R6-SE	External sense							
31	C1	33	C1	Cap	3120	.001uF	937.00p	1063.0p	1000.0pF		
				Zero:			39.038p				
35	C2	37	C2	Cap	49	.01uF	9491.0p	0.0105u	0.0100uF		
				Zero:			38.117p				
39	C3	41	C3	Cap	49	.1uF	0.0949u	0.1051u	0.1000uF		
				Zero:			36.151p				
43	L1-SO	45	L1-SO	Induc	560	36mH	34.063m	37.940m	36.000mH		

```

44      L1-SE      46      L1-SE      External sense
      Jmp          end
Label    start
      Rem          Rev 20080219
      Rem          CAL TYPE
MemS     43 GET SYSTEM 0.000 0.000
MemS     15 SWAP MEMS/C 0.000 0.000
MemS     1 Analyst ems 0.000 0.000
MemS     20 Analyst ems 0.000 0.000
MemS     1 Analyst ems+ 0.000 0.000
Safe     OFF
MemS     20 Analyst ems+ 0.000 0.000
DispE    0
      Disp       19 Wrong system
      Disp       16
WaitK    0
      Jmp          finish
Label    Analyst ems
Label    Analyst ems+
      Disp       17
MemS     3 31.000 5.0000
MemS     13 0.000 0.000
MemI     1 0.000 0.000
      Disp       11
      Disp       12
Label    waitforkey
      JmpK       78 measurements
      JmpK       89 entry
      Jmp          waitforkey
Label    entry
MemI     1 1.0000 0.000
DispE    0
      Disp       1
      Rem          10 ohm
      Disp       18
MemR     3 58.000 5.0000
MemR     23 Set 10 8.0000 12.000
      Jmp          J1
Label    Set 10
MemR     1 10.000 0.000
Label    J1
MemR     19 7.0000 7.0000
MemR     11 1.0429 0.000
MemR     19 5.0000 5.0000
MemR     11 917.70m 0.000
MemR     19 4.0000 4.0000
      Rem          100 ohm
      Disp       2
MemR     3 58.000 5.0000
MemR     23 Set 100 90.000 110.00
      Jmp          J2
Label    Set 100
MemR     1 100.00 0.000
Label    J2
MemR     19 7.0000 7.0000

```

```

MemR      19 7.0000  7.0000
MemR      11 1.0190  0.000
MemR      19 5.0000  5.0000
MemR      11 962.70m  0.000
MemR      19 4.0000  4.0000
MemR      11 1.0347  0.000
MemR      19 5.0000  5.0000
MemR      11 970.40m  0.000
MemR      19 4.0000  4.0000
  Rem      1000 ohm
Disp      3
MemR      3 58.000  5.0000
MemR     23 Set 1000 900.00  1.1000K
  Jmp      J3
Label     Set 1000
MemR      1 1.0000K  0.000
Label     J3
MemR     19 7.0000  7.0000
MemR     19 7.0000  7.0000
MemR     11 1.0190  0.000
MemR     19 5.0000  5.0000
MemR     11 962.71m  0.000
MemR     19 4.0000  4.0000
MemR     11 1.0301  0.000
MemR     19 5.0000  5.0000
MemR     11 979.10m  0.000
MemR     19 4.0000  4.0000
  Rem      10k ohm
Disp      4
MemR      3 58.000  5.0000
MemR     23 Set 10K 9.0000  11.000
  Jmp      J4
Label     Set 10K
MemR      1 10.000  0.000
Label     J4
MemR     11 1.0000K  0.000
MemR     19 7.0000  7.0000
MemR     19 7.0000  7.0000
MemR     11 1.0190  0.000
MemR     19 5.0000  5.0000
MemR     11 962.71m  0.000
MemR     19 4.0000  4.0000
MemR     11 1.0296  0.000
MemR     19 5.0000  5.0000
MemR     11 980.10m  0.000
MemR     19 4.0000  4.0000
  Rem      100k ohm
Disp      5
MemR      3 58.000  5.0000
MemR     23 Set 100K 90.000  110.00
  Jmp      J5
Label     Set 100K
MemR      1 100.00  0.000
Label     J5
MemR     11 1.0000K  0.000

```

```

MemR      19 7.0000  7.0000
MemR      19 7.0000  7.0000
MemR      11  1.0190  0.000
MemR      19 5.0000  5.0000
MemR      11 962.70m  0.000
MemR      19 4.0000  4.0000
MemR      11  1.0398  0.000
MemR      19 5.0000  5.0000
MemR      11 960.70m  0.000
MemR      19 4.0000  4.0000
  Rem      1M ohm
  Disp      6
MemR      3  58.000  5.0000
MemR     23 Set 1M 900.00m 1.1000
  Jmp      J6
Label     Set 1M
MemR      1  1.0000  0.000
Label     J6
MemR     11 1.0000M  0.000
MemR     19 7.0000  7.0000
MemR     19 7.0000  7.0000
MemR     11  1.0393  0.000
MemR     19 5.0000  5.0000
MemR     11 924.40m  0.000
MemR     19 4.0000  4.0000
MemR     11  1.0838  0.000
MemR     19 5.0000  5.0000
MemR     11 920.80m  0.000
MemR     19 4.0000  4.0000
  Rem      1000pF
  Disp      7
MemR      3  58.000  5.0000
MemR     23 Set 1000pf 800.00  1.2000K
  Jmp      J7
Label     Set 1000pf
MemR      1  1.0000K  0.000
Label     J7
MemR     11 1.0000p  0.000
MemR     19 7.0000  7.0000
MemR     11  1.0632  0.000
MemR     19 5.0000  5.0000
MemR     11 881.00m  0.000
MemR     19 4.0000  4.0000
  Rem      .01uF
  Disp      8
MemR      3  58.000  5.0000
MemR     23 Set .01uF 8.0000m 12.000m
  Jmp      J8
Label     Set .01uF
MemR      1 10.000m  0.000
Label     J8
MemR     11 1000.0n  0.000
MemR     19 7.0000  7.0000
MemR     11  1.0510  0.000
MemR     19 5.0000  5.0000

```

```

MemR      11  903.00m  0.000
MemR      19  4.0000  4.0000
Rem       .1uF
Disp      9
MemR      3  58.000  5.0000
MemR     23 Set .1u 80.000m 120.00m
Jmp       J9
Label     Set .1u
MemR      1  100.00m  0.000
Label     J9
MemR     11  1000.0n  0.000
MemR     19  7.0000  7.0000
MemR     11  1.0510  0.000
MemR     19  5.0000  5.0000
MemR     11  903.00m  0.000
MemR     19  4.0000  4.0000
Rem       36mH
Disp     10
MemR      3  58.000  5.0000
MemR     23 Set 36 25.000  45.000
Jmp       J10
Label     Set 36
MemR      1  36.000  0.000
Label     J10
MemR     11  1000.0u  0.000
MemR     19  7.0000  7.0000
MemR     11  1.0539  0.000
MemR     19  5.0000  5.0000
MemR     11  897.80m  0.000
MemR     19  4.0000  4.0000
Jmp       measurements
Label     end
MemI     21 finish  0.000  500.00m
Disp     13
Disp     14
Disp     15
Disp     20
Disp     16
WaitK    0
Label     finish
    
```

Displays:

No	Col	Row	Display
1,	4,	5,	Enter the Characterized Value for
2,	38,	5,	R2 in Ohms (100.0)
3,	38,	5,	R3 in Ohms (1000)
4,	38,	5,	R4 in KOhms (10.00)
5,	38,	5,	R5 in KOhms (100.0)
6,	38,	5,	R6 in MOhms (1.000)
7,	38,	5,	C1 in pF (1000)
8,	38,	5,	C2 in uF (.01000)
9,	38,	5,	C3 in uF (.1000)
10,	38,	5,	L1 in mH (36.00)
11,	4,	5,	Do you wish to enter the characterized

12, 4, 6, values for the CM-3 Calibration Accessory [Y/N] ?
13, 4, 2, You have changed the Nominal Values for this test file.
14, 4, 3, If you wish to save them, you will have to access the
15, 4, 4, "Edit Test" feature
16, 28, 7, Press any key to continue
17, 6, 5, Enter CM-3 Serial Number
18, 38, 5, R1 in Ohms (10.00)
19, 13, 5, This program should be run on an Analyst ems System Only
20, 24, 4, and SAVE this modified file.

End of Data

=====
 Test Program Listing

Testing Facility: Checksum, Inc.
 Assembly Name: TR-8 CALIBRATION with CM-3
 File Name: MDACAL_TR8
 File Date: Jan 16, 2001
 Time: 10:30
 Test System: Checksum Model TR-8 MDA

=====
 ---From--- ----To---- -----Test----- --Limits-- --Nom--
 Point Name Point Name Type Range Title Low High

Point	Name	Point	Name	Type	Range	Title	Low	High	
				ResRg	11		1.0000	10.000	
				ResRg	12		1.0000	10.000	
				Jump		start			
				Label		measurements			
				DispE	0				
3	R1-SO	5	R1-SO	Res	524	DC 10 OHM	9.5707	10.429	10.000
4	R1-SE	6	R1-SE	External sense					
7	R2-SO	9	R2-SO	Res	513	DC 100 OHM	98.099	101.90	100.00
8	R2-SE	10	R2-SE	External sense					
7	R2-SO	9	R2-SO	Res	560	AC 100 OHM	98.499	101.50	100.00
8	R2-SE	10	R2-SE	External sense					
11	R3-SO	13	R3-SO	Res	514	DC 1K OHM	981.00	1.0190K	1.0000K
12	R3-SE	14	R3-SE	External sense					
11	R3-SO	13	R3-SO	Res	560	AC 1K OHM	989.41	1.0105K	1.0000K
12	R3-SE	14	R3-SE	External sense					
15	R4-SO	17	R4-SO	Res	515	DC 10K OHM	9.8100K	10.190K	10.000K
16	R4-SE	18	R4-SE	External sense					
15	R4-SO	17	R4-SO	Res	1584	AC 10K OHM	9.8994K	10.100K	10.000K
16	R4-SE	18	R4-SE	External sense					
19	R5-SO	21	R5-SO	Res	516	DC 100K OHM	98.099K	101.90K	100.00K
20	R5-SE	22	R5-SE	External sense					
19	R5-SO	21	R5-SO	Res	2608	AC 100K OHM	97.995K	102.00K	100.00K
20	R5-SE	22	R5-SE	External sense					
23	R6-SO	25	R6-SO	Res	517	DC 1M OHM	960.73K	1.0393M	1.0000M
24	R6-SE	26	R6-SE	External sense					
23	R6-SO	25	R6-SO	Res	3616	AC 1M OHM	958.77K	1.0412M	1.0000M
24	R6-SE	26	R6-SE	External sense					
31	C1	33	C1	Cap	3120	.001uF	937.00p	1063.0p	1000.0pF
				Zero:			39.038p		
35	C2	37	C2	Cap	49	.01uF	9491.0p	0.0105u	10000pF
				Zero:			38.117p		
39	C3	41	C3	Cap	49	.1uF	0.0949u	0.1051u	0.1000uF
				Zero:			36.151p		

```

43  L1-SO  45  L1-SO Induc  560          36mH 34.063m 37.940m 36.000mH
44  L1-SE  46  L1-SE  External sense
      Jmp          end
      Label       start
      Rem        CAL TYPE
      Rem        Version 3.1
      MemS       1          TR-8  0.000  0.000
      MemS      15  SWAP MEMS/C  0.000  0.000
      MemS       1          TR-8  0.000  0.000
      MemS      43  GET SYSTEM  0.000  0.000
      MemS      20          TR-8  0.000  0.000
      DispE     0
      Disp      19  Its not TR-8
      Disp      16
      WaitK     0
      Jmp          finish
      Label       TR-8
      Disp      17
      MemS       3          31.000  5.0000
      MemS      13          0.000  0.000
      MemI       1          0.000  0.000
      Disp      11
      Disp      12
      Label       waitforkey
      JmpK      78  measurements
      JmpK      89          entry
      Jmp        waitforkey
      Label       entry
      MemI       1          1.0000  0.000
      DispE     0
      Disp      1
      Rem        10 ohm
      Disp      18
      MemR       3          58.000  5.0000
      MemR      19          6.0000  7.0000
      MemR      11          1.0429  0.000
      MemR      19          6.0000  5.0000
      MemR      11          917.70m  0.000
      MemR      19          6.0000  4.0000
      Rem        100 ohm
      Disp      2
      MemR       3          58.000  5.0000
      MemR      19          7.0000  7.0000
      MemR      19          8.0000  7.0000
      MemR      11          1.0190  0.000
      MemR      19          7.0000  5.0000
      MemR      11          962.70m  0.000
      MemR      19          7.0000  4.0000
      MemR      11          1.0347  0.000
      MemR      19          8.0000  5.0000
      MemR      11          970.40m  0.000
      MemR      19          8.0000  4.0000
      Rem        1000 ohm
      Disp      3

```

MemR	3	58.000	5.0000
MemR	19	9.0000	7.0000
MemR	19	10.000	7.0000
MemR	11	1.0190	0.000
MemR	19	9.0000	5.0000
MemR	11	962.71m	0.000
MemR	19	9.0000	4.0000
MemR	11	1.0301	0.000
MemR	19	10.000	5.0000
MemR	11	979.10m	0.000
MemR	19	10.000	4.0000
Rem		10k ohm	
Disp	4		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	11.000	7.0000
MemR	19	12.000	7.0000
MemR	11	1.0190	0.000
MemR	19	11.000	5.0000
MemR	11	962.71m	0.000
MemR	19	11.000	4.0000
MemR	11	1.0296	0.000
MemR	19	12.000	5.0000
MemR	11	980.10m	0.000
MemR	19	12.000	4.0000
Rem		100k ohm	
Disp	5		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	13.000	7.0000
MemR	19	14.000	7.0000
MemR	11	1.0190	0.000
MemR	19	13.000	5.0000
MemR	11	962.70m	0.000
MemR	19	13.000	4.0000
MemR	11	1.0398	0.000
MemR	19	14.000	5.0000
MemR	11	960.70m	0.000
MemR	19	14.000	4.0000
Rem		1M ohm	
Disp	6		
MemR	3	58.000	5.0000
MemR	11	1.0000M	0.000
MemR	19	15.000	7.0000
MemR	19	16.000	7.0000
MemR	11	1.0393	0.000
MemR	19	15.000	5.0000
MemR	11	924.40m	0.000
MemR	19	15.000	4.0000
MemR	11	1.0838	0.000
MemR	19	16.000	5.0000
MemR	11	920.80m	0.000
MemR	19	16.000	4.0000
Rem		1000pF	

```

Disp      7
MemR      3          58.000  5.0000
MemR     11          1.0000p  0.000
MemR     19          17.000  7.0000
MemR     11          1.0632  0.000
MemR     19          17.000  5.0000
MemR     11          881.00m  0.000
MemR     19          17.000  4.0000
Rem
Rem      .01uF
Disp      8
MemR      3          58.000  5.0000
MemR     11          1000.0n  0.000
MemR     19          18.000  7.0000
MemR     11          1.0510  0.000
MemR     19          18.000  5.0000
MemR     11          903.00m  0.000
MemR     19          18.000  4.0000
Rem
Rem      .1uF
Disp      9
MemR      3          58.000  5.0000
MemR     11          1000.0n  0.000
MemR     19          19.000  7.0000
MemR     11          1.0510  0.000
MemR     19          19.000  5.0000
MemR     11          903.00m  0.000
MemR     19          19.000  4.0000
Rem
Rem      36mH
Disp     10
MemR      3          58.000  5.0000
MemR     11          1000.0u  0.000
MemR     19          20.000  7.0000
MemR     11          1.0539  0.000
MemR     19          20.000  5.0000
MemR     11          897.80m  0.000
MemR     19          20.000  4.0000
Jump      measurements
Label     end
MemI     21          finish  0.000  500.00m
Disp     13
Disp     14
Disp     15
Disp     20
Disp     16
WaitK    0
Label     finish
    
```

Displays:

No	Col	Row	Display
1,	4,	5,	Enter the Characterized Value for
2,	38,	5,	R2 in Ohms (100.0)
3,	38,	5,	R3 in Ohms (1000)
4,	38,	5,	R4 in KOhms (10.00)
5,	38,	5,	R5 in KOhms (100.0)

6, 38, 5, R6 in MOhms (1.000)
7, 38, 5, C1 in pF (1000)
8, 38, 5, C2 in uF (.01000)
9, 38, 5, C3 in uF (.1000)
10, 38, 5, L1 in mH (36.00)
11, 4, 5, Do you wish to enter the characterized
12, 4, 6, values for the CM-3 Calibration Accessory [Y/N] ?
13, 4, 2, You have changed the Nominal Values for this test file.
14, 4, 3, If you wish to save them you will have to access the
15, 4, 4, "Learn an Assembly (DOS) / Edit Test (Visual MDA)" feature
16, 28, 7, Press any key to continue
17, 4, 5, Enter Serial Number of UUT
18, 38, 5, R1 in Ohms (10.00)
19, 17, 5, This program should be run on a TR-8 System Only
20, 4, 5, and save the file to disk.

End of Data

Test Specification Report

Testing Facility: CheckSum, Inc.
 Assembly Name: TR-4 CALIBRATION with CM-3
 File Name: MDACAL_TR4
 Report Date: Jul 17, 2003
 Time: 9:56
 Test System: CheckSum Model TR-4 MDA

Port	From Name	Port	To Name	Type	Range	Title	Low	High	Nom
				ResRg	11		1.0000	10.000	
				ResRg	12		1.0000	10.000	
				Jmp		start			
				Label		measurements			
				DispE	0				
3	R1-SO	5	R1-SO	Res	513	DC 10 OHM	8.1000	11.900	10.000
	4	R1-SE	6	R1-SE		External sense			
7	R2-SO	9	R2-SO	Res	513	DC 100 OHM	98.100	101.90	100.00
	8	R2-SE	10	R2-SE		External sense			
7	R2-SO	9	R2-SO	Res	560	AC 100 OHM	98.500	101.50	100.00
	8	R2-SE	10	R2-SE		External sense			
11	R3-SO	13	R3-SO	Res	514	DC 1K OHM	981.00	1.0190K	1.0000K
	12	R3-SE	14	R3-SE		External sense			
11	R3-SO	13	R3-SO	Res	560	AC 1K OHM	989.40	1.0105K	1.0000K
	12	R3-SE	14	R3-SE		External sense			
15	R4-SO	17	R4-SO	Res	515	DC 10K OHM	9.8099K	10.190K	10.000K
	16	R4-SE	18	R4-SE		External sense			
15	R4-SO	17	R4-SO	Res	1584	AC 10K OHM	9.8993K	10.100K	10.000K
	16	R4-SE	18	R4-SE		External sense			
19	R5-SO	21	R5-SO	Res	516	DC 100K OHM	96.202K	103.80K	100.00K
	20	R5-SE	22	R5-SE		External sense			
19	R5-SO	21	R5-SO	Res	2608	AC 100K OHM	96.996K	103.00K	100.00K
	20	R5-SE	22	R5-SE		External sense			
23	R6-SO	25	R6-SO	Res	517	DC 1M OHM	904.44K	1.0955M	1.0000M
	24	R6-SE	26	R6-SE		External sense			
23	R6-SO	25	R6-SO	Res	3616	AC 1M OHM	968.37K	1.0316M	1.0000M
	24	R6-SE	26	R6-SE		External sense			
31	C1	33	C1	Cap	3120	.001uF	937.00p	1063.0p	1000.0pF
				Zero:		39.038p			
35	C2	37	C2	Cap	49	.01uF	9491.0p	0.0105u	0.0100uF
				Zero:		38.117p			
39	C3	41	C3	Cap	49	.1uF	0.0949u	0.1051u	0.1000uF
				Zero:		36.151p			
43	L1-SO	45	L1-SO	Induc	560	36mH	34.063m	37.940m	36.000mH
	44	L1-SE	46	L1-SE		External sense			
				Jmp		end			
				Label		start			
				Rem		CAL TYPE			
				Rem		Version 3.1			
				MemS	1	TR-4	0.000	0.000	
				MemS	15	SWAP MEMS/C	0.000	0.000	
				MemS	1	TR-4	0.000	0.000	
				MemS	43	GET SYSTEM	0.000	0.000	
				MemS	20	TR-4	0.000	0.000	
				DispE	0				
				Disp	19	Its not TR-4			
				Disp	16				
				WaitK	0				
				Jmp		finish			
				Label		TR-4			

Disp	17		
MemS	3	31.000	5.0000
MemS	13	0.000	0.000
MemI	1	0.000	0.000
Disp	11		
Disp	12		
Label		waitforkey	
JmpK	78	measurements	
JmpK	89	entry	
Jmp		waitforkey	
Label		entry	
MemI	1	1.0000	0.000
DispE	0		
Disp	1		
Rem		10 ohm	
Disp	18		
MemR	3	58.000	5.0000
MemR	19	6.0000	7.0000
MemR	11	1.1910	0.000
MemR	19	6.0000	5.0000
MemR	11	679.20m	0.000
MemR	19	6.0000	4.0000
Rem		100 ohm	
Disp	2		
MemR	3	58.000	5.0000
MemR	19	7.0000	7.0000
MemR	19	8.0000	7.0000
MemR	11	1.0190	0.000
MemR	19	7.0000	5.0000
MemR	11	962.70m	0.000
MemR	19	7.0000	4.0000
MemR	11	1.0347	0.000
MemR	19	8.0000	5.0000
MemR	11	970.40m	0.000
MemR	19	8.0000	4.0000
Rem		1000 ohm	
Disp	3		
MemR	3	58.000	5.0000
MemR	19	9.0000	7.0000
MemR	19	10.000	7.0000
MemR	11	1.0190	0.000
MemR	19	9.0000	5.0000
MemR	11	962.70m	0.000
MemR	19	9.0000	4.0000
MemR	11	1.0301	0.000
MemR	19	10.000	5.0000
MemR	11	979.10m	0.000
MemR	19	10.000	4.0000
Rem		10k ohm	
Disp	4		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	11.000	7.0000
MemR	19	12.000	7.0000
MemR	11	1.0190	0.000
MemR	19	11.000	5.0000
MemR	11	962.70m	0.000
MemR	19	11.000	4.0000
MemR	11	1.0296	0.000
MemR	19	12.000	5.0000
MemR	11	980.10m	0.000
MemR	19	12.000	4.0000
Rem		100k ohm	
Disp	5		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	13.000	7.0000
MemR	19	14.000	7.0000
MemR	11	1.0380	0.000
MemR	19	13.000	5.0000
MemR	11	926.80m	0.000

```

MemR      19          13.000  4.0000
MemR      11          1.0707  0.000
MemR      19          14.000  5.0000
MemR      11          941.70m  0.000
MemR      19          14.000  4.0000
Rem
Disp      6          1M ohm
MemR      3          58.000  5.0000
MemR      11         1.0000M  0.000
MemR      19          15.000  7.0000
MemR      19          16.000  7.0000
MemR      11          1.0955  0.000
MemR      19          15.000  5.0000
MemR      11          825.60m  0.000
MemR      19          15.000  4.0000
MemR      11          1.1406  0.000
MemR      19          16.000  5.0000
MemR      11          938.70m  0.000
MemR      19          16.000  4.0000
Rem
Disp      7          1000pF
MemR      3          58.000  5.0000
MemR      11          1.0000p  0.000
MemR      19          17.000  7.0000
MemR      11          1.0632  0.000
MemR      19          17.000  5.0000
MemR      11          881.00m  0.000
MemR      19          17.000  4.0000
Rem
Disp      8          .01uF
MemR      3          58.000  5.0000
MemR      11          1.0000u  0.000
MemR      19          18.000  7.0000
MemR      11          1.0510  0.000
MemR      19          18.000  5.0000
MemR      11          903.00m  0.000
MemR      19          18.000  4.0000
Rem
Disp      9          .1uF
MemR      3          58.000  5.0000
MemR      11          1.0000u  0.000
MemR      19          19.000  7.0000
MemR      11          1.0510  0.000
MemR      19          19.000  5.0000
MemR      11          903.00m  0.000
MemR      19          19.000  4.0000
Rem
Disp     10          36mH
MemR      3          58.000  5.0000
MemR      11          1.0000m  0.000
MemR      19          20.000  7.0000
MemR      11          1.0539  0.000
MemR      19          20.000  5.0000
MemR      11          897.80m  0.000
MemR      19          20.000  4.0000
Jump
Label      end
MemI      21          finish  0.000  500.00m
Disp      13
Disp      14
Disp      15
Disp      16
WaitK     0
Label      finish

```

Displays:

No	Col	Row	Display
1,	4,	5,	Enter the Characterized Value for
2,	38,	5,	R2 in Ohms (100.0)
3,	38,	5,	R3 in Ohms (1000)

4, 38, 5, R4 in KOhms (10.00)
5, 38, 5, R5 in KOhms (100.0)
6, 38, 5, R6 in MOhms (1.000)
7, 38, 5, C1 in pF (1000)
8, 38, 5, C2 in uF (.01000)
9, 38, 5, C3 in uF (.1000)
10, 38, 5, L1 in mH (36.00)
11, 4, 5, Do you wish to enter the characterized
12, 4, 6, values for the CM-3 Calibration Accessory [Y/N] ?
13, 4, 3, You have changed the Nominal Values for this test file.
14, 4, 4, If you wish to save them you will have to access the
15, 4, 5, "Learn an Assembly" feature and save the spec data to disk.
16, 28, 7, Press any key to continue
17, 4, 5, Enter Serial Number of UUT
18, 38, 5, R1 in Ohms (10.00)
19, 17, 5, This program should be run on a TR-4 System Only

End of data

=====
 Test Program Listing

Testing Facility: Checksum, Inc.
 Assembly Name: Analyst mc CAL with CM-3-KIT600
 File Name: MDACAL_ANMC
 File Date: 16 Jan 2001
 Time: 10:40
 Test System: Checksum Analyst mc

=====
 ---From--- ----To---- -----Test----- --Limits-- --Nom--
 Point Name Point Name Type Range Title Low High

Point	Name	Point	Name	Type	Range	Title	Low	High		
				ResRg	11		1.0000	10.000		
				ResRg	12		1.0000	10.000		
				Jump		start				
				Label		measurements				
				DispE	0					
3	R1-SO	5	R1-SO	Res	524	DC 10 OHM	9.3962	10.604	10.000	
4	R1-SE	6	R1-SE	External sense						
7	R2-SO	9	R2-SO	Res	513	DC 100 OHM	96.202	103.80	100.00	
8	R2-SE	10	R2-SE	External sense						
7	R2-SO	9	R2-SO	Res	560	AC 100 OHM	97.501	102.50	100.00	
8	R2-SE	10	R2-SE	External sense						
11	R3-SO	13	R3-SO	Res	514	DC 1K OHM	962.02	1.0380K	1.0000K	
12	R3-SE	14	R3-SE	External sense						
11	R3-SO	13	R3-SO	Res	560	AC 1K OHM	979.58	1.0206K	1.0000K	
12	R3-SE	14	R3-SE	External sense						
15	R4-SO	17	R4-SO	Res	515	DC 10K OHM	9.6202K	10.380K	10.000K	
16	R4-SE	18	R4-SE	External sense						
15	R4-SO	17	R4-SO	Res	1584	AC 10K OHM	9.6998K	10.300K	10.000K	
16	R4-SE	18	R4-SE	External sense						
19	R5-SO	21	R5-SO	Res	516	DC 100K OHM	96.202K	103.80K	100.00K	
20	R5-SE	22	R5-SE	External sense						
19	R5-SO	21	R5-SO	Res	2608	AC 100K OHM	96.998K	103.00K	100.00K	
20	R5-SE	22	R5-SE	External sense						
23	R6-SO	25	R6-SO	Res	517	DC 1M OHM	942.17K	1.0579M	1.0000M	
24	R6-SE	26	R6-SE	External sense						
23	R6-SO	25	R6-SO	Res	3616	AC 1M OHM	949.04K	1.0510M	1.0000M	
24	R6-SE	26	R6-SE	External sense						
31	C1	33	C1	Cap	3120	.001uF	937.00p	1063.0p	1000.0pF	
				Zero:			39.038p			
35	C2	37	C2	Cap	49	.01uF	9491.0p	0.0105u	10000pF	
				Zero:			38.117p			
39	C3	41	C3	Cap	49	.1uF	0.0949u	0.1051u	0.1000uF	
				Zero:			36.151p			

```

43  L1-SO  45  L1-SO Induc  560          36mH 34.063m 37.940m 36.000mH
44  L1-SE  46  L1-SE  External sense
      Jmp          end
      Label       start
      Rem        CAL TYPE
      Rem        Version 3.0
      MemS      1  Analyst mc  0.000  0.000
      MemS     15  SWAP MEMS/C 0.000  0.000
      MemS      1  Analyst mc  0.000  0.000
      MemS     43  GET SYSTEM  0.000  0.000
      MemS     20  Analyst mc  0.000  0.000
      DispE     0
      Disp     19  Its not mc
      Disp     16
      WaitK     0
      Jmp          finish
      Label       Analyst mc
      Disp     17
      MemS      3          31.000  5.0000
      MemS     13          0.000  0.000
      MemI      1          0.000  0.000
      Disp     11
      Disp     12
      Label       waitforkey
      JmpK     78  measurements
      JmpK     89          entry
      Jmp          waitforkey
      Label       entry
      MemI      1          1.0000  0.000
      DispE     0
      Disp      1
      Rem        10 ohm
      Disp     18
      MemR      3          58.000  5.0000
      MemR     19          6.0000  7.0000
      MemR     11          1.0604  0.000
      MemR     19          6.0000  5.0000
      MemR     11          886.10m  0.000
      MemR     19          6.0000  4.0000
      Rem        100 ohm
      Disp      2
      MemR      3          58.000  5.0000
      MemR     19          7.0000  7.0000
      MemR     19          8.0000  7.0000
      MemR     11          1.0380  0.000
      MemR     19          7.0000  5.0000
      MemR     11          926.80m  0.000
      MemR     19          7.0000  4.0000
      MemR     11          1.0655  0.000
      MemR     19          8.0000  5.0000
      MemR     11          951.20m  0.000
      MemR     19          8.0000  4.0000
      Rem        1000 ohm
      Disp      3

```

MemR	3	58.000	5.0000
MemR	19	9.0000	7.0000
MemR	19	10.000	7.0000
MemR	11	1.0380	0.000
MemR	19	9.0000	5.0000
MemR	11	926.80m	0.000
MemR	19	9.0000	4.0000
MemR	11	1.0609	0.000
MemR	19	10.000	5.0000
MemR	11	959.80m	0.000
MemR	19	10.000	4.0000
Rem		10k ohm	
Disp	4		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	11.000	7.0000
MemR	19	12.000	7.0000
MemR	11	1.0380	0.000
MemR	19	11.000	5.0000
MemR	11	926.80m	0.000
MemR	19	11.000	4.0000
MemR	11	1.0707	0.000
MemR	19	12.000	5.0000
MemR	11	941.70m	0.000
MemR	19	12.000	4.0000
Rem		100k ohm	
Disp	5		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	13.000	7.0000
MemR	19	14.000	7.0000
MemR	11	1.0380	0.000
MemR	19	13.000	5.0000
MemR	11	926.80m	0.000
MemR	19	13.000	4.0000
MemR	11	1.0707	0.000
MemR	19	14.000	5.0000
MemR	11	941.70m	0.000
MemR	19	14.000	4.0000
Rem		1M ohm	
Disp	6		
MemR	3	58.000	5.0000
MemR	11	1.0000M	0.000
MemR	19	15.000	7.0000
MemR	19	16.000	7.0000
MemR	11	1.0579	0.000
MemR	19	15.000	5.0000
MemR	11	890.60m	0.000
MemR	19	15.000	4.0000
MemR	11	1.1155	0.000
MemR	19	16.000	5.0000
MemR	11	903.00m	0.000
MemR	19	16.000	4.0000
Rem		1000pF	

```

Disp      7
MemR      3          58.000  5.0000
MemR     11          1.0000p  0.000
MemR     19          17.000  7.0000
MemR     11          1.0632  0.000
MemR     19          17.000  5.0000
MemR     11          881.00m  0.000
MemR     19          17.000  4.0000
Rem
Rem      .01uF
Disp      8
MemR      3          58.000  5.0000
MemR     11          1000.0n  0.000
MemR     19          18.000  7.0000
MemR     11          1.0510  0.000
MemR     19          18.000  5.0000
MemR     11          903.00m  0.000
MemR     19          18.000  4.0000
Rem
Rem      .1uF
Disp      9
MemR      3          58.000  5.0000
MemR     11          1000.0n  0.000
MemR     19          19.000  7.0000
MemR     11          1.0510  0.000
MemR     19          19.000  5.0000
MemR     11          903.00m  0.000
MemR     19          19.000  4.0000
Rem
Rem      36mH
Disp     10
MemR      3          58.000  5.0000
MemR     11          1000.0u  0.000
MemR     19          20.000  7.0000
MemR     11          1.0539  0.000
MemR     19          20.000  5.0000
MemR     11          897.80m  0.000
MemR     19          20.000  4.0000
Jump      measurements
Label     end
MemI     21          finish  0.000  500.00m
Disp     13
Disp     14
Disp     15
Disp     16
WaitK    0
Label     finish
    
```

Displays:

No	Col	Row	Display
1,	4,	5,	Enter the Characterized Value for
2,	38,	5,	R2 in Ohms (100.0)
3,	38,	5,	R3 in Ohms (1000)
4,	38,	5,	R4 in KOhms (10.00)
5,	38,	5,	R5 in KOhms (100.0)
6,	38,	5,	R6 in MOhms (1.000)

7, 38, 5, C1 in pF (1000)
8, 38, 5, C2 in uF (.01000)
9, 38, 5, C3 in uF (.1000)
10, 38, 5, L1 in mH (36.00)
11, 4, 5, Do you wish to enter the characterized
12, 4, 6, values for the CM-3 Calibration Accessory [Y/N] ?
13, 4, 2, You have changed the Nominal Values for this test file.
14, 4, 3, If you wish to save them you will have to access the
15, 4, 4, "Edit Test" feature and save the file to disk.
16, 28, 7, Press any key to continue
17, 4, 5, Enter Serial Number of UUT
18, 38, 5, R1 in Ohms (10.00)
19, 16, 5, This program should only be run on an Analyst mc.

End of Data

=====
 Test Program Listing

Testing Facility: Checksum, Inc.
 Assembly Name: Analyst ft CAL with CM3-KIT1000
 File Name: MDACAL_ANFT
 File Date: Jan 16, 2001
 Time: 10:39
 Test System: Checksum Analyst ft

=====
 ---From--- ----To---- -----Test----- --Limits-- --Nom--
 Point Name Point Name Type Range Title Low High

Point	Name	Point	Name	Type	Range	Title	Low	High	Nom	
				ResRg	11		1.0000	10.000		
				ResRg	12		1.0000	10.000		
				Jump		start				
				Label		measurements				
				DispE	0					
3	R1-SO	5	R1-SO	Res	524	DC 10 OHM	9.5707	10.429	10.000	
4	R1-SE	6	R1-SE	External sense						
7	R2-SO	9	R2-SO	Res	513	DC 100 OHM	98.099	101.90	100.00	
8	R2-SE	10	R2-SE	External sense						
7	R2-SO	9	R2-SO	Res	560	AC 100 OHM	98.499	101.50	100.00	
8	R2-SE	10	R2-SE	External sense						
11	R3-SO	13	R3-SO	Res	514	DC 1K OHM	981.00	1.0190K	1.0000K	
12	R3-SE	14	R3-SE	External sense						
11	R3-SO	13	R3-SO	Res	560	AC 1K OHM	989.41	1.0105K	1.0000K	
12	R3-SE	14	R3-SE	External sense						
15	R4-SO	17	R4-SO	Res	515	DC 10K OHM	9.8100K	10.190K	10.000K	
16	R4-SE	18	R4-SE	External sense						
15	R4-SO	17	R4-SO	Res	1584	AC 10K OHM	9.8994K	10.100K	10.000K	
16	R4-SE	18	R4-SE	External sense						
19	R5-SO	21	R5-SO	Res	516	DC 100K OHM	98.099K	101.90K	100.00K	
20	R5-SE	22	R5-SE	External sense						
19	R5-SO	21	R5-SO	Res	2608	AC 100K OHM	97.995K	102.00K	100.00K	
20	R5-SE	22	R5-SE	External sense						
23	R6-SO	25	R6-SO	Res	517	DC 1M OHM	960.73K	1.0393M	1.0000M	
24	R6-SE	26	R6-SE	External sense						
23	R6-SO	25	R6-SO	Res	3616	AC 1M OHM	958.77K	1.0412M	1.0000M	
24	R6-SE	26	R6-SE	External sense						
31	C1	33	C1	Cap	3120	.001uF	937.00p	1063.0p	1000.0pF	
				Zero:			39.038p			
35	C2	37	C2	Cap	49	.01uF	9491.0p	0.0105u	10000pF	
				Zero:			38.117p			
39	C3	41	C3	Cap	49	.1uF	0.0949u	0.1051u	0.1000uF	
				Zero:			36.151p			

```

43  L1-SO  45  L1-SO Induc  560          36mH 34.063m 37.940m 36.000mH
44  L1-SE  46  L1-SE  External sense
      Jmp          end
      Label        start
      Rem          CAL TYPE
      Rem          Version 3.1
      MemS         1  Analyst ft  0.000  0.000
      MemS         15 SWAP MEMS/C 0.000  0.000
      MemS         1  Analyst ft  0.000  0.000
      MemS         43  GET SYSTEM 0.000  0.000
      MemS         20  Analyst ft  0.000  0.000
      DispE        0
      Disp         19  Its not ft
      Disp         16
      WaitK        0
      Jmp          finish
      Label        Analyst ft
      Safe         OFF
      Disp         17
      MemS         3          31.000  5.0000
      MemS         13          0.000  0.000
      MemI         1          0.000  0.000
      Disp         11
      Disp         12
      Label        waitforkey
      JmpK         78 measurements
      JmpK         89  entry
      Jmp          waitforkey
      Label        entry
      MemI         1          1.0000  0.000
      DispE        0
      Disp         1
      Rem          10 ohm
      Disp         18
      MemR         3          58.000  5.0000
      MemR         19          6.0000  7.0000
      MemR         11          1.0429  0.000
      MemR         19          6.0000  5.0000
      MemR         11          917.70m  0.000
      MemR         19          6.0000  4.0000
      Rem          100 ohm
      Disp         2
      MemR         3          58.000  5.0000
      MemR         19          7.0000  7.0000
      MemR         19          8.0000  7.0000
      MemR         11          1.0190  0.000
      MemR         19          7.0000  5.0000
      MemR         11          962.70m  0.000
      MemR         19          7.0000  4.0000
      MemR         11          1.0347  0.000
      MemR         19          8.0000  5.0000
      MemR         11          970.40m  0.000
      MemR         19          8.0000  4.0000
      Rem          1000 ohm

```

Disp	3		
MemR	3	58.000	5.0000
MemR	19	9.0000	7.0000
MemR	19	10.000	7.0000
MemR	11	1.0190	0.000
MemR	19	9.0000	5.0000
MemR	11	962.71m	0.000
MemR	19	9.0000	4.0000
MemR	11	1.0301	0.000
MemR	19	10.000	5.0000
MemR	11	979.10m	0.000
MemR	19	10.000	4.0000
Rem		10k ohm	
Disp	4		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	11.000	7.0000
MemR	19	12.000	7.0000
MemR	11	1.0190	0.000
MemR	19	11.000	5.0000
MemR	11	962.71m	0.000
MemR	19	11.000	4.0000
MemR	11	1.0296	0.000
MemR	19	12.000	5.0000
MemR	11	980.10m	0.000
MemR	19	12.000	4.0000
Rem		100k ohm	
Disp	5		
MemR	3	58.000	5.0000
MemR	11	1.0000K	0.000
MemR	19	13.000	7.0000
MemR	19	14.000	7.0000
MemR	11	1.0190	0.000
MemR	19	13.000	5.0000
MemR	11	962.70m	0.000
MemR	19	13.000	4.0000
MemR	11	1.0398	0.000
MemR	19	14.000	5.0000
MemR	11	960.70m	0.000
MemR	19	14.000	4.0000
Rem		1M ohm	
Disp	6		
MemR	3	58.000	5.0000
MemR	11	1.0000M	0.000
MemR	19	15.000	7.0000
MemR	19	16.000	7.0000
MemR	11	1.0393	0.000
MemR	19	15.000	5.0000
MemR	11	924.40m	0.000
MemR	19	15.000	4.0000
MemR	11	1.0838	0.000
MemR	19	16.000	5.0000
MemR	11	920.80m	0.000
MemR	19	16.000	4.0000

```

Rem          1000pF
Disp        7
MemR        3          58.000  5.0000
MemR       11          1.0000p  0.000
MemR       19          17.000  7.0000
MemR       11          1.0632  0.000
MemR       19          17.000  5.0000
MemR       11          881.00m  0.000
MemR       19          17.000  4.0000
Rem          .01uF
Disp        8
MemR        3          58.000  5.0000
MemR       11          1000.0n  0.000
MemR       19          18.000  7.0000
MemR       11          1.0510  0.000
MemR       19          18.000  5.0000
MemR       11          903.00m  0.000
MemR       19          18.000  4.0000
Rem          .1uF
Disp        9
MemR        3          58.000  5.0000
MemR       11          1000.0n  0.000
MemR       19          19.000  7.0000
MemR       11          1.0510  0.000
MemR       19          19.000  5.0000
MemR       11          903.00m  0.000
MemR       19          19.000  4.0000
Rem          36mH
Disp       10
MemR        3          58.000  5.0000
MemR       11          1000.0u  0.000
MemR       19          20.000  7.0000
MemR       11          1.0539  0.000
MemR       19          20.000  5.0000
MemR       11          897.80m  0.000
MemR       19          20.000  4.0000
Jump        measurements
Label              end
Safe            ON
MemI       21      finish  0.000  500.00m
Disp       13
Disp       14
Disp       15
Disp       16
WaitK       0
Label              finish
    
```

Displays:

No	Col	Row	Display
1,	4,	5,	Enter the Characterized Value for
2,	38,	5,	R2 in Ohms (100.0)
3,	38,	5,	R3 in Ohms (1000)
4,	38,	5,	R4 in KOhms (10.00)

5, 38, 5, R5 in KOhms (100.0)
6, 38, 5, R6 in MOhms (1.000)
7, 38, 5, C1 in pF (1000)
8, 38, 5, C2 in uF (.01000)
9, 38, 5, C3 in uF (.1000)
10, 38, 5, L1 in mH (36.00)
11, 4, 5, Do you wish to enter the characterized
12, 4, 6, values for the CM-3 Calibration Accessory [Y/N] ?
13, 4, 2, You have changed the Nominal Values for this test file.
14, 4, 3, If you wish to save them you will have to access the
15, 4, 4, "Edit Test" feature and save the file to disk.
16, 28, 7, Press any key to continue
17, 4, 5, Enter Serial Number of UUT
18, 38, 5, R1 in Ohms (10.00)
19, 13, 5, This program should be run on an Analyst ft System Only

End of Data

