

9640A Procedure Developer: MET/CAL[®] Procedure Editor Learn Mode

For some complex reference instruments (9640A and 6100), the MET/CAL Procedure Editor will allow GPIB BUS command statements to automatically populate the procedure text editor. This feature helps remove the need to work out what GPIB commands are required to address a specific device setup and saves time.

This facility is called “learn mode.”

To use learn mode on the 9640A:

1. Connect the 9640A to the GPIB BUS interface.
2. Set the 9640A front panel to the desired function state. Note: it is not necessary to turn the 9640A output on.
3. Type “9640” on a blank line in the edit window.
4. Press F7.

A new MET/CAL 9640A procedure statement corresponding to the front panel selection will be generated automatically.

The generated statement, when executed, will cause the 9640A to be placed in the state it was in at the time F7 was entered. In addition the 9640A output will be turned on.

In order to use learn mode, the 9640A must be correctly configured, using the MET/CAL Configuration Editor (F12).

Learn mode does not generate a complete evaluation step. It is also necessary to add statements between the 9640 statement and the MEMCX statement to obtain the UUT reading. A MEMCX statement must be added after the generated 9640A statement to complete the evaluation step. See examples at the end of this document.

Learn mode functions correctly even if the Run Time and/or Test Run applications are currently configured to execute in “demo mode.”

Not all instrument parameter values cause learn mode to generate an entry in the 9640A statement. Specifically, some parameters are not included in the 9640A statement generated when F7 is pressed and the state of the parameter is the (*RST) default. These parameters are listed below:

Instrument State when F7 is Pressed	9640 Statement
External Coupling	
AC (default)	<no entry generated>
DC	ExternalCoupling = DC
Modulation Waveform	
Sine (default)	<no entry generated>
Triangle	ModulationWaveform = External
Reference Frequency	
Internal (default)	<no entry generated>
External	ExternalReferenceFrequency = 1 MHz
Remote Leveling	
Off (default)	<no entry generated>
On	RemoteLevelingOn

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Technical Bulletin

Applies to:

MET/CAL Version 7.2 or higher

Level of difficulty:

Moderate

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Instrument State when F7 is Pressed	9640 Statement
Sweep Mode	
Continuous (Default)	<no entry generated>
Single	SweepMode = Single
Sweep Type	
Linear (default)	<no entry generated>
Logarithmic	SweepType = Log
Sweep Trigger Source	
Internal (default)	<no entry generated>
External	TriggerSource = Ext
Sweep Trigger Slope	
Positive (default)	<no entry generated>
Negative	TriggerSlope = Neg

If a MET/CAL procedure does not exist for a specific device to be calibrated what choices do you have? Depending on the device you may choose to:

1. Visit the MET/SUPPORT online support site at <http://support.fluke.com> to view or download one or all procedures from the library. You must have current MET/SUPPORT Gold membership to download procedures.
2. Contract out the development of a specific procedure to Fluke or one of many available contract developers.
3. Use the Auto-Pro software utility supplied with MET/CAL; suitable for simple manual devices only.
4. Develop your own procedure using one of many example procedures supplied in the core library using the MET/CAL Procedure Editor.

Procedure development using the MET/CAL Editor can be complex and time consuming for the first time user. Training classes are available to assist, for those that need additional training the Fluke 2007 class schedule can be found at www.fluke.com/caltraining2007.

For further information on MET/CAL software, calibration and metrology training classes or how to use learn mode email METSUPPORT@fluke.com.

The following example is a frequency readout test for the Anritsu MS2661C Spectrum Analyzer.

Line 3.002 was generated from the 9640. Line 3.006 obtains the UUT reading and line 3.007 completes the evaluation step with the expected tolerance in units of the nominal (in this example, 2.4 MHz).

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3.001 HEAD   FREQUENCY READOUT ACCURACY: 500 MHz, 100 MHz Span
3.002 9640   +Freq = 500 MHz; Level = -10 dBm; OutputImp = 50 Ohms
3.003 IEEEE2 IP;SNGLS;CF 500MHZ;RL 0DBM;SP 100MHZ
3.004 TARGET -m
3.005 CALL   Sub Anritsu MS266x() Take Sweep (MKPK)
3.006 IEEEE2 MKF?[I]
3.007 MEMCX  500.0MH      2.4U

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Fluke Corporation

PO Box 9090, Everett, WA USA 98206

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

For more information call:
In the U.S.A. (800) 443-5853 or
Fax (425) 446-5116
In Europe/M-East/Africa +31 (0) 40 2675 200 or
Fax +31 (0) 40 2675 222
In Canada (800) 36-FLUKE or
Fax (905) 890-6866
From other countries +1 (425) 446-5500 or
Fax +1 (425) 446-5116
Web access: <http://www.fluke.com>

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