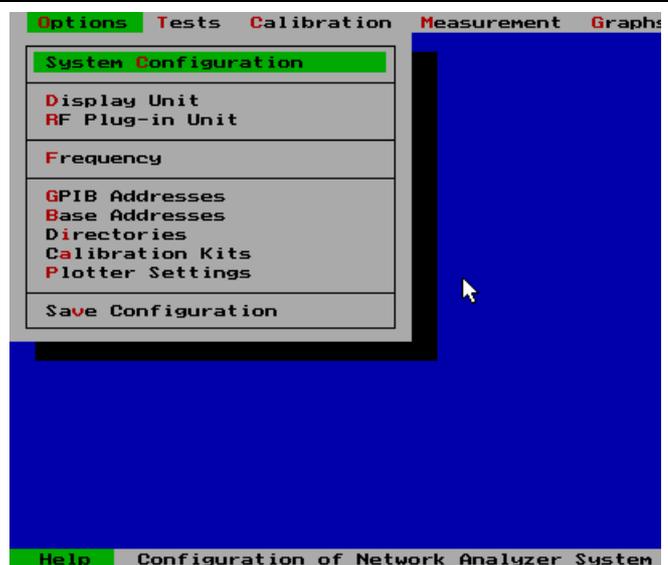


HP 8410-PC

Fundamental Innovation of HP 8410.

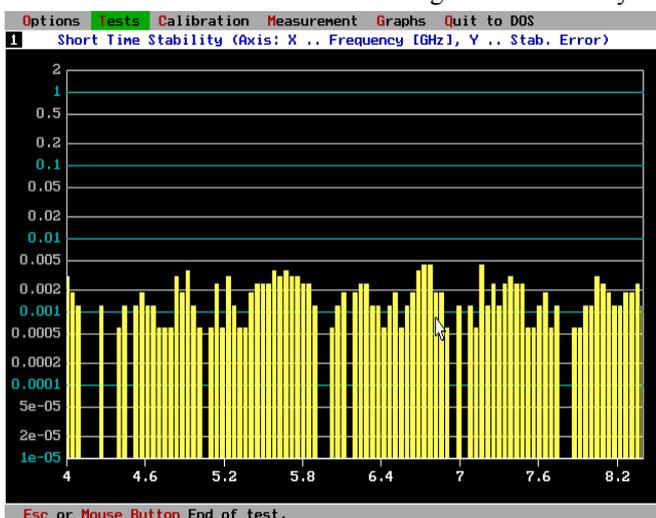
Features

- ✓ *Controlling system for HP 8410 innovation*
- ✓ *15 correction methods for vector measurements in waveguide, coaxial and microstrip lines*
- ✓ *HP 8410 errors minimization*
- ✓ *Up to 400 calibrated frequency points*
- ✓ *User defined calibration files*
- ✓ *High accuracy*
- ✓ *User friendly environment with high comfort*
 - *5 types of graphic outputs on the display or to a file in the HPGL*
 - *hardcopy on a laser printer or a plotter*
 - *S,Z,Y parameters display*
 - *up to 4 parameters at 4 plots at the same time*
 - *up to 9 frequency markers in each plot*
 - *view of save data in chosen graphic form*
 - *measured data saved in the Touchstone format*



HP-PC Controlling System - fundamental upgrade of HP 8410

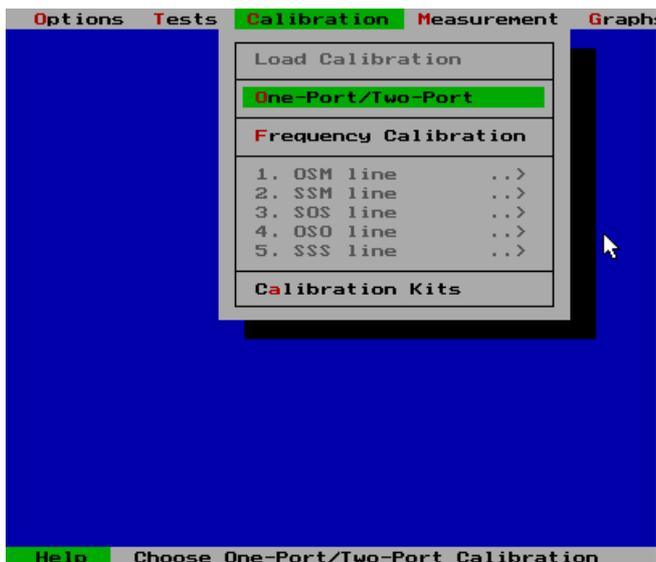
From the hardware point of view HP 8410 vector network analyzer still represents a high quality measurement system. However it is out of date now regarding demands on correction methods implementation which are necessary for precise measurements. This main disadvantage is done away with HP 8410-PC controlling system. It makes possible the fundamental innovation of HP 8410 by means of a PC computer with AD/DA and GPIB cards added. HP 8410 vector network analyzer equipped with HP 8410-PC controlling system is a cost effective solution for precise vector measurements. Moreover it offers a high comfort in use and a variability in the HP 8410 configuration.



PC controlled continued frequency sweeping running on the background of other functions was used to achieve the maximum reproducibility in the setting of each frequency point. The minimization of absolute frequency errors is possible if a frequency counter equipped with GPIB is used. Frequency calibration up to 400 frequency points is possible in that case.

Frequency errors minimization

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HP 8410 random phase lock errors minimization

The stability of the vector network analyzer parameters is an essential demand for a successful application of correction methods. Therefore the correct settings of the phase lock loop is very important. HP 8410-PC controlling system is equipped with the function for the short and long term stability test of measured data. It makes possible to set the phase lock loop, the output power of the generator and the sweep time so that the parameter instabilities of HP 8410 are minimized. This function also allows to check the necessary warm up time when HP 8410 is switched on.

Calibration methods

HP 8410-PC controlling system is equipped for corrected measurements on waveguide, coaxial and microstrips lines. For each line 15 types of correction methods including cross-talk are offered. Full known calibration elements like short, offset short, open, offset open, matched load, sliding matched load, thru connection and line can be used. Further possibilities on the order are possible.

HP 8410-PC accuracy

The measurement errors are in principle influenced by the quality of adapters which are used to connect the device under test. Therefore amplitude errors in the order of 0.1 - 0.3 are common if the only HP 8410 is used. HP 8410-PC allows to achieve a remarkable measurement accuracy. It can be verified after calibration by the measurement of a calibration element parameters. Typical amplitude errors are in this case in the order of 0.001.

User friendly environment

The environment allows a very simple operation and is designed so that random personal errors of the user are minimized. It uses the system of menus. The items can be chosen from the keyboard or by the mouse.

Measured and/or corrected S, Z, Y parameters can be displayed in the polar or Smith chart. The scalar display of magnitudes and phases in the rectangular plot with the linear or logarithmic scale is possible. Up to 4 different parameters in 4 plots can be displayed in the same time. Each plot can be zoomed on the whole screen. Up to 9 frequency markers and the Δf marker differently in each plot are possible.

Hard copies on printers or plotters which communicate with HPGL are possible.

Formerly measured and saved data can be displayed and studied with the full graphic comfort.

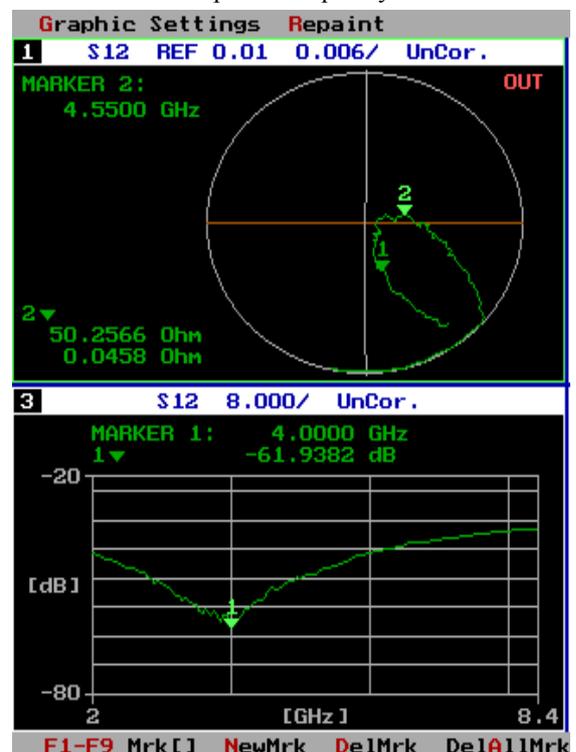
Possible HP 8410 configurations.

HP 8410-PC was developed for the HP 8410 configuration consisting of the sweeper HP 8350A or HP 8620C, the analyzer HP 8410, the test units HP 8743A, HP 8446B, HP8745A, HP 85040B. The system can include a frequency counter which communicates with HPIB. The controlling system HP 8410-PC can be adapted also for different configurations of the system of HP 8410 on the basis of an individual order.

What is new in the version 5.2

In the configuration file new types of microwave generator plug-ins can be now implemented by the operator. Adjustable sweep regimes different for individual plug-ins extends the possibilities of the system. The sweep regime optimized for the highest precision can be set. For fast measurements with lower precision demands the new sweep regime was developed which gives the possibility to measure with the full one port correction in real time (sweep time < 0.5 s) and enables also PC controlled trace blanking.

Graphic possibilities were also improved. Now it is possible to display a frequency difference Δf marker. Moreover s-parameters of two different files can be displayed on the screen in the same time.



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