# HP 8566B and 8568B Spectrum Analyzer STORAGE, DISPLAY AND I/O OF VARIABLES AND TRACES
# Programming Note

HP 8566B/8568B/Models 216/226/236-90

## Overview

The HP 8566B and 8568B allow you to define, manipulate, and store variables and traces in the analyzer. Since processing data in the analyzer does not require data to be transferred to a controller, large data transfer times can be avoided. Once the analyzer has obtained the desired results, these results can be stored in traces or variables, transferred to a controller, or displayed on the analyzer screen in any desired format. Data can also be passed from the computer to analyzer variables or traces which can be useful when a measurement requires comparison to a standard, or when correction factors need to be incorporated into a measurement, as in millimeter or stimulus-response applications.

The purpose of this programming note is to show how to store and display variables and traces in the analyzer and how to input and output their values to a controller.

### Prerequisites

To more easily understand this programming note, some experience with manual and remote operation of the HP 8566A/B or 8568A/B spectrum analyzers is required. Experience in programming using different display sizes (D1, D2 and D3) and using the concepts presented in Appendix A of the HP 8566B or 8568B Operating and Programming Manual is highly recommended. At least some familiarity with Appendix A and display sizes is required. A discussion of display sizes is found in the Programming Commands section of the Operating and Programming Manual under D1, D2 and D3.

### Reference Materials

Analyzer reference materials include the HP 8566B/8568B Quick Reference Guide (literature number 5955-8970), the HP 8566B or 8568B Operating and Programming Manual (literature numbers 8566-90040 or 8568-90041), and Programming Note HP 8566B/8568B Models 216/226/236-99 (literature number 59D2-9392). The BASIC Language Reference for Series 200 Computers (part number 09826-90056) is also a useful reference.

### Equipment Used

HP 8566B or 8568B Spectrum Analyzer
HP 9000 Series 200 Model 216, 226 or 236 Desktop Computers.

## Variables

### Storage

To store a single value in the spectrum analyzer's RAM, a variable must be defined and set to an initial value. This allocates space in RAM for the variable name and value. An underscore should be used as the second letter of a variable name to avoid analyzer misinterpretation of the name. (See page 1 of Programming Note HP 8566B/ 8568B Models 216/226/236-99 for more information.) The value of a variable can be altered in many ways by using the variable name as the "destination" in various analyzer commands such as MOV, ADD, DIV, etc. (See the Programming Commands section of the HP 8566B/ 8568B Operating and Programming Manual.) Each time it is altered, the new value writes over the old value in memory. Instrument preset resets the variable to its initial value. The following example shows how the amplitude of a signal can be stored in a variable.

```
 10   OUTPUT 718?"VARDEF A_MPLITUDE,0;"          !Define a variable named A_MPLITUDE
 20                                              !and initialize it to zero.
 30   OUTPUT 718;"IP;SNGLS;FA10MZ;FB110MZ;"      !Instrument presets single sweep,
 40                                              !and set the start and stop
 50                                              !frequencies to 10 and 110 MHz, re-
 60                                              !spectively.
 70   OUTPUT 718;"TS;MKPK HI;"                    !Put a marker on the largest signal
 80                                              !on the trace.
 90   OUTPUT 718;"MOV A_MPLITUDE,MKA;"            !Move the Marker amplitude into
100   END                                        !A_MPLITUDE.
```

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