



# APPLICATION NOTES

## Application Note 22

### USE OF DIGITAL RECORDERS WITH DIGITAL VOLTMETERS

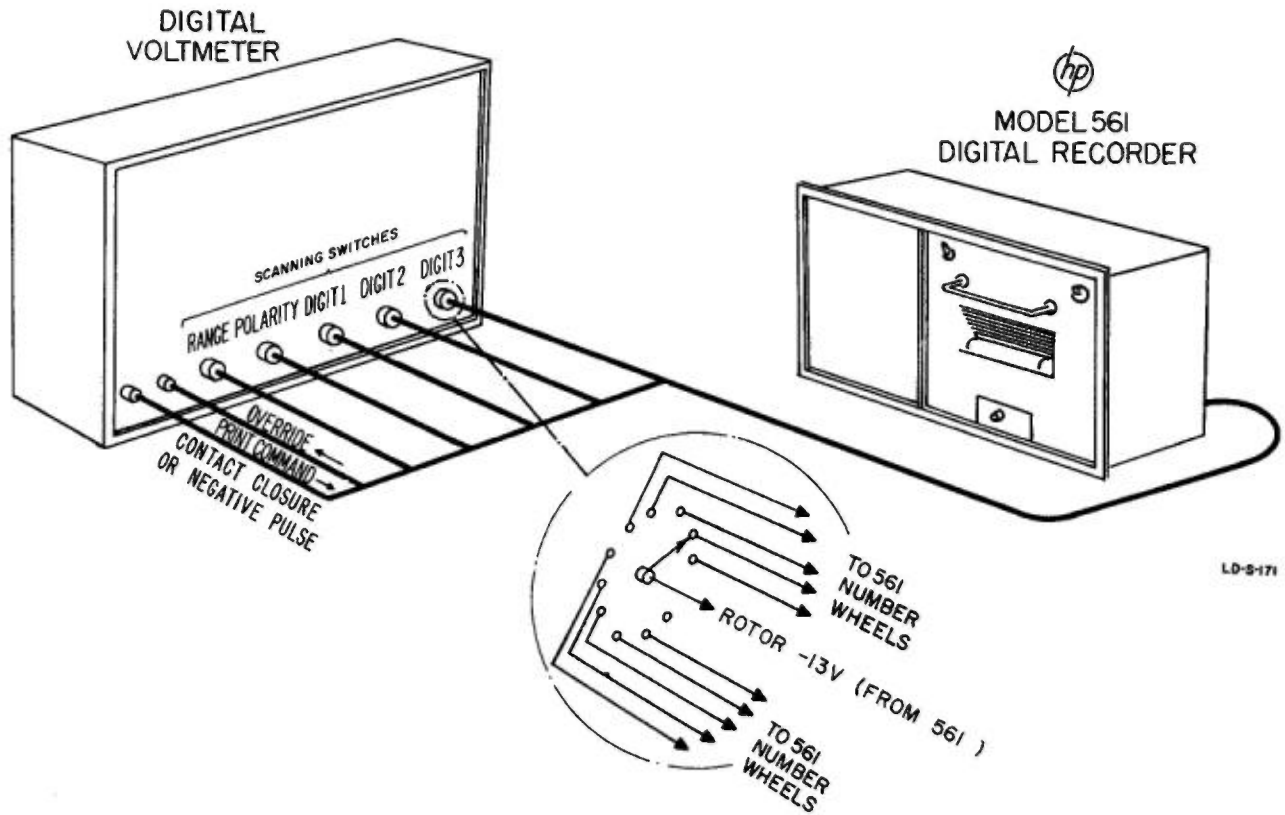
#### GENERAL DESCRIPTION

In general, most digital voltmeters will operate Hewlett-Packard Digital Recorders provided that the necessary connecting equipment is supplied.

Typical manufacturers of digital voltmeters which are essentially compatible with the Model 560A/561 are Kintel, Non-Linear Systems, Electro Instruments, Cubic Corporation, Electronic Associates and Hewlett-Packard.

#### USE OF THE 561

Since the Model 561 operates from a 10 line input and since most digital voltmeters use a scanning switch to provide a 10 line code output, the 561 is more directly applicable to digital voltmeters than the 560A. Thus in most cases the 561 is the logical recorder to use to print digital voltmeter readings. It is important to realize that most devices having a decimal type inline presentation can provide the 10 line information necessary to drive the 561. A typical connection is shown in the diagram below.



#### OPERATION OF THE 561 FROM A DIGITAL VOLTMETER

USE OF THE 560A

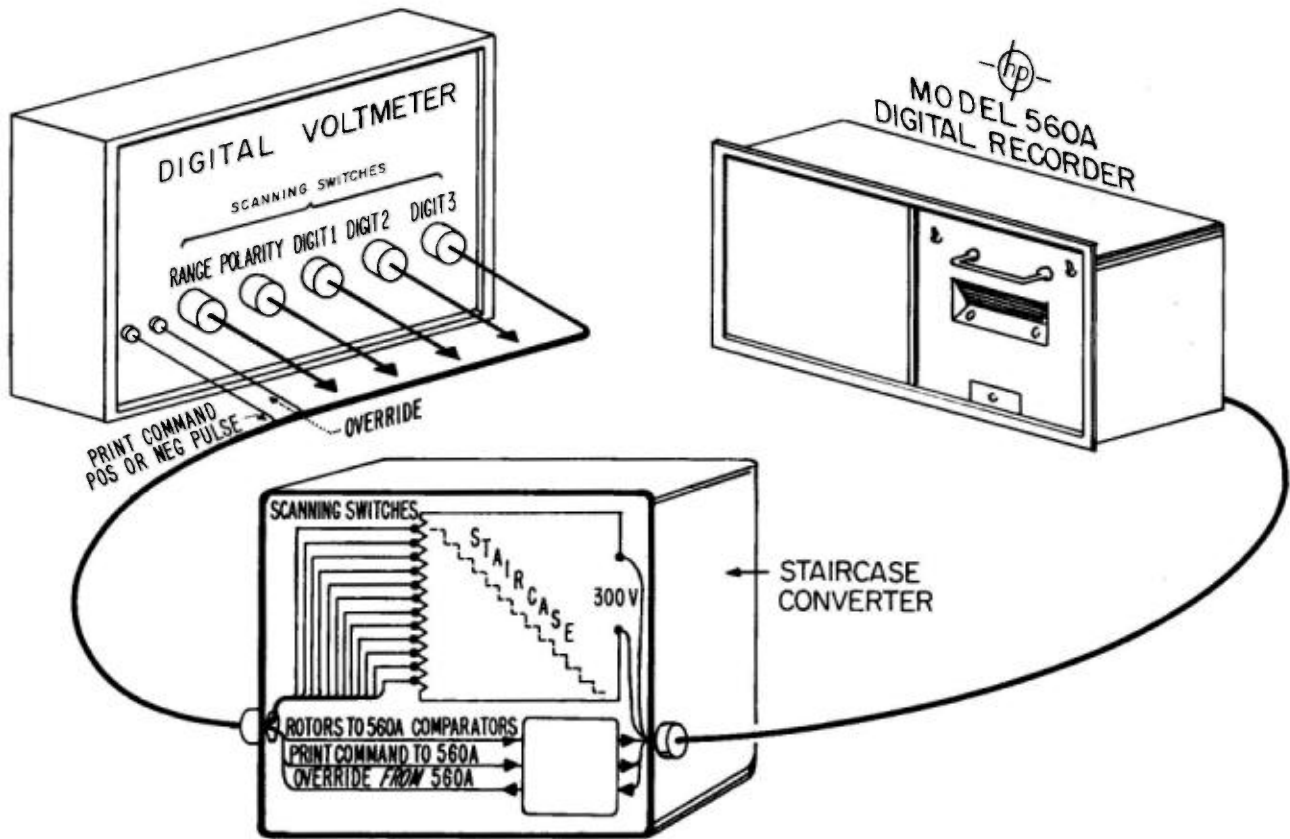
There are applications where the 560A is more desirable than the 561. In general, for digital voltmeter use the Model 560A is usually advantageous in four situations:

1. When the customer already has a 560A.
2. When the customer wants to print  $\phi$  counter outputs with the same 560A.
3. When the customer wants an analog output
4. When the customer wants to enter data sequentially from a number of instruments through a scanning switch. The advantage of the 560A here is that only one switch contact per 560A number wheel column is necessary.

The main requirement for 560A operation from a digital voltmeter is an input staircase voltage. There are two ways to provide the staircase if the digital voltmeter contains mechanical stepping switches.

1. The manufacturer could build the staircase into his digital voltmeter.
2. An external staircase converter with a built in voltage divider could be used between the digital voltmeter and the 560A.

In cases where number two is necessary,  $\phi$  will provide the converter at a reasonable price. The price will typically be around \$100.00 to \$200.00. The actual price will depend, of course, upon the complexity of the unit. The staircase converter and its connections are shown in the following diagram.



OPERATION OF THE 560A FROM A DIGITAL VOLTMETER.

