

Data Logging and Digitizing with a Digital Multimeter (DMM)—It's about time!

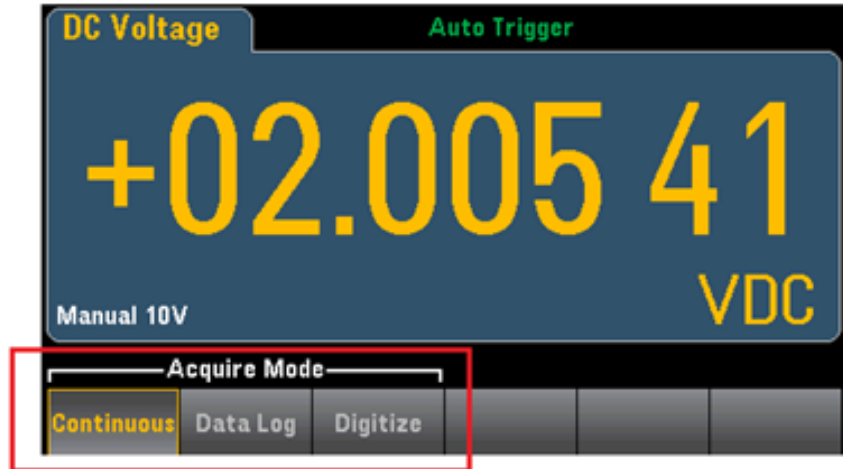
From automobiles to appliances, the electronic content in today's products is ever increasing. To build, characterize, and test these products, engineers are using digital multimeters (DMMs) to measure both long-term events (drift) and short-term (transient) events to understand their impact on product response and quality.

Keysight's family of Truevolt DMMs provide both the accuracy and speed to capture events of any duration – all within a single instrument. From logging long-term trends to digitizing transient or short-term events – it's about time!

How Do I Use These Features?

The data logging and digitizing features of the Keysight 34465A 6½ Digit and Keysight 34470A 7½ Digit DMMs are optimized for front panel operation. This is a powerful and simpler alternative to remote programming and data transfer.

Data logging and digitizing acquire data. The functions are located under the front panel “Acquire” key and corresponding “Acquire” soft key:



Capturing Data Over Time – Data Logging

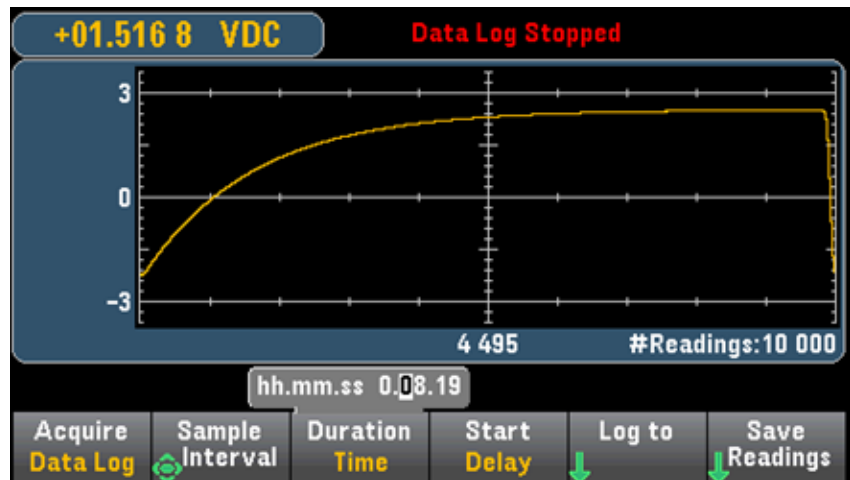
Data logging is the collection of data over time. This may be from several minutes to several hours or days, with the data recording changes in temperature, accuracy or in any measurable physical quantity that is monitored.

When data logging you specify:

- Sample interval
- A duration (time or the number of readings to log)
- A delay to allow the signal to settle (if necessary)
- Location where the readings are logged (internal memory or specific internal/external file)

Data Logging is started by pressing the front panel Run/Stop key. When started, the DMM counts down the time remaining and the number of readings remaining to be taken.

The trend chart capability of the DMM complements the data logging process by providing a graphic representation of the data over time.



About the sample interval

The sample interval is the reading-to-reading interval and must be equal to or greater than the actual reading rate. The reading rate within the interval is based on parameters such as integration time, aperture time, autorange, and autozero – which are set as part of the measurement configuration.

Capturing Transient Events - Digitizing

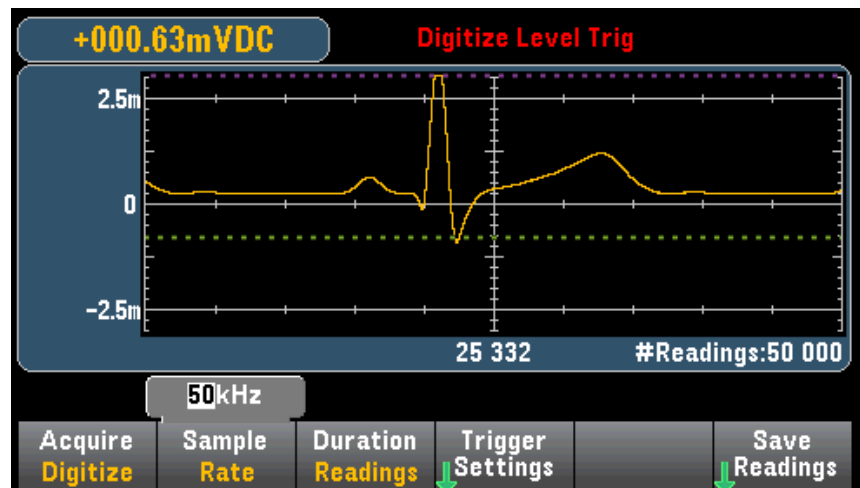
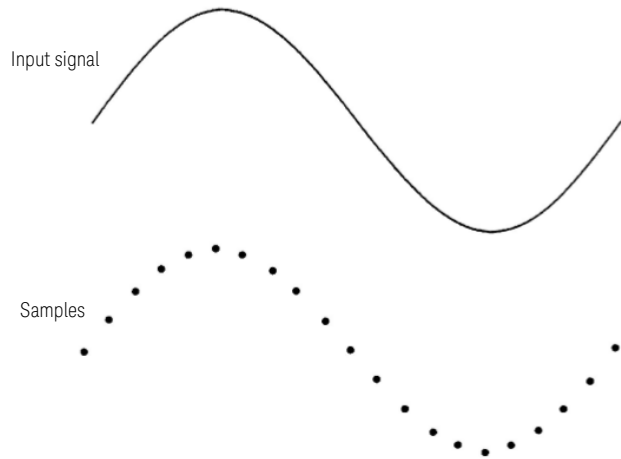
Digitizing is the process of converting a continuous analog signal into a series of discrete samples or readings, providing additional insights into the signal's characteristics.

Different from data logging, digitizing often occurs within a period of 1s or less. The 34465A and 34470A are capable of digitizing at a maximum rate of 50000 readings per second (50 kHz).

When digitizing you specify:

- Sample rate
- Duration (time or the number of points to digitize)
- Specific triggering conditions (level or external triggering, pre-trigger readings).

As with data logging, selecting the DMM's trend chart display provides a graphic representation of the digitized signal that can be compared to the source (input) signal.



About the sample rate

The sample rate (in Hz) is simply the inverse of the sample interval (time). It is the reading-to-reading interval and must be equal to or greater than the actual reading rate. The reading rate within the interval is based on parameters such as integration time, aperture time, autorange, and autozero - which are set as part of the measurement configuration.

Keysight Solutions

Data logging is a standard 34465A/34470A feature. Digitizing is available when the DMM is purchased with the DIG option: 34465A-DIG or 34470A-DIG. Digitizing is also available as an upgrade after initial purchase: 3446DIGU.

An option/upgrade often used with data logging and digitizing is 34465A-MEM (3446MEMU) which increases reading memory from the standard 50000 readings to 2 million readings.

It's about time – collect and analyze your data with the versatile, easy-to-use Truevolt Series DMMs.



Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

