DATA STORAGE COMMANDS

Data Storage
The SR830 can store up to 16383 points from both the Channel 1 and Channel 2 displays in an internal data buffer. The data buffer is NOT retained when the power is turned off. The data buffer is accessible only via the computer interface.

Configure the displays to show the desired quantity (with appropriate ratio, offset and expand). The data buffer stores the quantities which are displayed. Only quantities which are displayed on the CH1 or CH2 displays can be stored. Frequency, for example, can not be stored.

Data Points and Bins
Data points stored in the buffer are sometimes referred to by their bin position within the buffer. The oldest data point is bin0, the next point is bin1, etc. A buffer with N points numbers them from 0 to N-1.

Sample Rate
The Sample Rate can be varied from 512 Hz down to 62.5 mHz (1 point every 16 sec). The sample rate sets how often points are added to the storage buffer. Both displays are sampled at the same rate (and at the same times).

In addition to the internal sample rates, samples can be triggered by an external TTL trigger. In this mode, a sample is recorded within 2 ms of a rising edge trigger on the rear panel Trigger input. Triggers which occur faster than 512 Hz are ignored.

Storage Time
The buffer holds 16383 samples taken at the sample rate. The entire storage time is 16383 divided by the sample rate.

End of Scan
When the buffer becomes full, data storage can stop or continue.

The first case is called 1 Shot (data points are stored for a single buffer length). At the end of the buffer, data storage stops and an audio alarm sounds.

The second case is called Loop. In this case, data storage continues at the end of the buffer. The data buffer will store 16383 points and start storing at the beginning again. The most recent 16383 points will be contained in the buffer. Once the buffer has looped around, the oldest point (at any time) is at bin#0 and the most recent point is at bin#16382.

The default mode is Loop.

Starting and Stopping a Scan
The STRT, PAUS and REST commands are used to control data storage. Basically, the STRT command starts data storage after a reset or pause. The PAUS command pauses data storage but does not reset the buffer. The REST stops data storage and resets the buffer data.

In addition, the rear panel Trigger input can be used to start data storage. To select this mode, use the TSTR command. In this mode, a rising TTL trigger will act the same as the STRT command. The sample rate can be either internal or Triggered. In the first case, the trigger starts the storage and data is sampled at the programmed sample rate (up to 512 Hz). In the latter case, the first trigger will start the storage and data will be sampled at every subsequent trigger.