

**VersaTenn V Data Logging Capacity Calculations**

The VersaTenn V can record process data and machine diagnostics to its flash disk. This information can be later copied to a floppy and used in a test report and/or for system troubleshooting. You can use the information in this application note to estimate the number of history samples that can be recorded on the flash disk.

The number of samples depends on the number of bytes available on the flash disk and the amount of data that is logged per sample.

There are two ways to determine the number of bytes available on the flash disk:

1. Over the TCP/IP communications interface, send the storage card information command: ? SCINFO. The response will be: Total: 8128512 Free: 1048576
2. Plug in a keyboard and reboot the VersaTenn V. Press F5 while booting to enter the DOS. Type CLS and enter to clear the screen. Type DIR and press enter until the "Bytes Free" data line comes into view.

To determine the amount of data that is logged, use the following table and formulas. Table 1 below lists the information that can be logged. Each data type requires a specific amount of storage space on the flash disk. In addition, there are a number of overhead bytes per sample for time and other housekeeping data.

For example, assume that we want to record CH1 Actual (Temperature) and CH2 Actual (Humidity) readings.

Capacity can be calculated as follows:

$$\text{Samples} = X / (Y + Z)$$

Where:

X=2 MBytes available on flash disk (Approx. available space when VT V ships).

Y=21 Bytes (Number of bytes of overhead per sample).

Z=12 Bytes (Number of bytes required per sample, 6 for CH1 and 6 for CH2).

Thus, the number of samples that can be stored are calculated:

$$\text{Samples} = X / (Y + Z)$$

$$\text{Samples} = 2,097,152 / (21 + 12)$$

$$\text{Samples} = 63,550$$

If we record 60 samples per hour we will have the capacity to record for 1,059 hours.

$$\text{Hours} = \text{Samples} / \text{Sample Rate}$$

$$\text{Hours} = 63,550 / 60$$

$$\text{Hours} = 1,059$$

The actual time will typically be less than this since other data stored on the machine, such as profiles, will reduce the number of available bytes. In addition, other data stored in the history file will reduce the number of samples that can be saved. Other data recorded in the file are alarm conditions and header information saved when the VersaTenn V is restarted.

Table 1, Log data sizes

<b>Data</b>	<b>Max. Size</b>	<b>Description</b>
CH1 Actual	6 bytes	Temperature
CH2 Actual	6 bytes	Humidity
CH3 Actual	6 bytes	Pressure
CH1 Setpoint	6 bytes	Temperature
CH2 Setpoint	6 bytes	Humidity
CH3 Setpoint	6 bytes	Pressure
CH1 Heat PID	4 bytes	0 to 100%
CH2 Heat PID	4 bytes	0 to 100%
CH3 Heat PID	4 bytes	0 to 100%
CH1 Cool PID	4 bytes	0 to 100%
CH2 Cool PID	4 bytes	0 to 100%
CH3 Cool PID	4 bytes	0 to 100%
Machine Sensor 1	4 bytes	Low Stage Pressure, Low Side
Machine Sensor 2	4 bytes	Low Stage Temperature, Low Side
Machine Sensor 3	4 bytes	Low Stage Pressure, Hi Side
Machine Sensor 4	4 bytes	Low Stage Temperature, Hi Side
Machine Sensor 5	4 bytes	High Stage Pressure, Low Side
Machine Sensor 6	4 bytes	High Stage Temperature, Low Side
Machine Sensor 7	4 bytes	High Stage Pressure, Hi Side
Machine Sensor 8	4 bytes	High Stage Temperature, Hi Side
UUT Device 1	56 bytes	8 Thermocouple readings
UUT Device 2	56 bytes	8 Thermocouple readings
UUT Device 3	56 bytes	8 Thermocouple readings
UUT Device 4	56 bytes	8 Thermocouple readings
UUT Device 5	56 bytes	8 Thermocouple readings
UUT Device 6	56 bytes	8 Thermocouple readings
UUT Device 7	56 bytes	8 Thermocouple readings
UUT Device 8	56 bytes	8 Thermocouple readings

If your tests require more memory than your chamber currently has, you may upgrade your chamber with a larger capacity Disk on Chip. Units available include double (16MB) or Quadruple (32MB) capacity.

Caution:

Note that the oldest 50% of the data in the log file will be lost when the log file exceeds the "Log File Size" set in the Settings\Logging\Setup window. Therefore, the required log file size should be calculated using the application note before any lengthy test to be sure that it will not reach the "Log File Size" limit. In addition, any data that already exists in the log file should be taken into account. You may want to export the History file to floppies and then clear it using the "Maintenance/File Utilities" folder before a long test.