Application Note 100-11.

Integrating the Stylitis-101 data logger with your application.

INTRODUCTION

The Stylitis family of data loggers provides versatile options for integration with a data acquisition environment [1]. You can integrate the Stylitis loggers to your Windows application using the ActiveX controls developed by Symmetron [2]. These controls enable communication with loggers (including setup, on-line data, file downloading and decompressing) with simple commands.

Depending on the application you may use a logger:

1. **As a stand-alone unit.** You can leave the logger unattended for weeks or months, conditioning and recording input signals. Data are stored in a removable (PCMCIA) memory card. To read and decompress the card use Symmetron's Stylitis Explorer software.

2. **As a stand-alone unit with on-line data transfer**. Storage is done as above. Data are transferred to the PC for further processing via the serial port. Connection between the logger and the PC can be done using a serial cable, a modem (wired or wireless) or a LAN. To read and decompress the card use Stylitis Explorer software or a user application based on S100.ocx

3. **As an on-line front-end unit.** It conditions, samples and transfers signal measurements on-line to a computer for further processing and storage. Connection between the logger and the PC can be done as above. To setup the logger use Symmetron's Stylitis Explorer software or a user application based on S100.ocx. To take on-line measurements write an application using S100.ocx.

4. **Combining cases 2 and 3 above.** You may at the same time store data in the buffer (or a memory card) and take real-time measurements.

5. **Using a PLC or a non-Windows application.** See AN100-1 for instructions on how to use an ASCII character protocol to read on-line data from the logger. This method however does not allow setup, downloading or file decompressing.

EXAMPLES

Some of the possible ways you can work with Stylitis data loggers are mentioned below.

Example 1. Setup the logger to perform statistics and store data in 10-minute intervals. Get on-line measurements every 5 seconds and store them to the PC's hard disk. Every 6 hours, download the stored statistics file and place it on the PC's hard disk (since the data logger possesses a single serial port, you will not be able to take on-line measurements while downloading the file).

Example 2. Use multiple Stylitis-100 loggers in a factory Ethernet network. Get on-line data, plot them on screen and store to the PC's hard disk [3].

Example 3. Use the data logger to gather data from a remote site. Connect through a GSM modem and download data files periodically using Symmetron's Stylitis Explorer software or a user application based on S100.ocx.

Example 4. Use the logger in an existing SCADA system based on a PLC. Review AN100-1 and refer to the PLC User's manual on how to read serial data from the logger.

Notes:
(1) All Application Notes and ActiveX® controls are provided free of charge to customers or software developers. Contact Symmetron for obtaining copies.
(2) Refer to AN100-5 for information on using the S100.ocx ActiveX® controls respectively. ActiveX® controls may be used with a variety of 32-bit OLE containers supporting ActiveX® technology, such as: Visual Basic®, Visual C®, Delphi®, Word®, Excel®, Access®, Labview®, Internet Explorer®, etc. They provide Properties, Methods and Events in a standard format.
(3) To connect Stylitis-100 loggers in a LAN, use serial servers, like the Troy XCD types (www.troygroup.com) and software like Serial/IP from Tactical software (www.tacticalsoftware.com). Contact Symmetron for details.

Stylitis-100/101 data logger.

Optional external trigger source.

Timing unit.

Internal buffer.

Memory card

Stylitis RTOS real-time tasks:
- Data sampling (1-32Hz)
- Acknowledge data read requests (1Hz)
- Data storage to buffer or card
- User interface servicing
- Setup maintenance
- Power supply monitoring
- Auxiliary tasks

Physical layer: RS232, Modem, GSM, Ethernet.

Logger acknowledges correct setup.

Logger responds by sending data on next second.

Logger responds by sending the stored data file.

User application changes logger setup table.

User application requests on-line data.

User application requests stored data download

Physical layer: RS232, Modem, GSM, Ethernet.

OS: Windows 95/98/Me/2000/XP

S100 ActiveX control

User Application (Online and/or file download):
Use Visual C, Visual Basic, VBScript, Word, Excel, Access, Labview, etc.

Notebook or desktop computer.