

Volume

1

A-WIT TECHNOLOGIES INC.

... a passion for execution ...

C Stamp SD Card Data- Logger Manual

Version 1.0

A-WIT TECHNOLOGIES INC.

C Stamp SD Card Data-Logger Manual

© A-WIT Technologies Inc.
Phone (800) 985-AWIT • Fax (800) 985-2948

Table of Contents

Notices	1
Getting Support	2
C Stamp Program Example for SD Card	
Data Logging	2
Downloading and Running Your Program	3
Developing Your Own Programs and Projects	3
InitSDCDataLogger	4
OpenSDCLogFile	4
WriteToSDCLog	4
Terms and Conditions	6

Introduction

The A-WIT C Stamp Data-Logger provides a very simple way for C Stamp based projects to store data to an SD card, which can then be transferred to a computer for easy retrieval. Only three function calls are necessary to start logging data on the fly; the user need not worry about the details of communicating with the SD card.

The A-WIT C Stamp SD card support is a hardware and software interface through which C Stamps can read and write sectors to SD cards using the SPI protocol, which is supported by all SD cards. This is a low-level API, which is interoperable with the A-WIT C Stamp FAT32 file system support.

The A-WIT C Stamp FAT32 file system support provides a simple API through which the users can read, write, and create files. The system can read and write 512-byte blocks.

Notices

CSTAMP™ and CSTAMP™ Related Hardware Products, Software Products and Documentation are developed and distributed by A-WIT Technologies, Inc. All rights reserved by A-WIT Technologies, Inc. A-WIT SOFTWARE OR FIRMWARE AND LITERATURE IS PROVIDED “AS IS,” WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL A-WIT BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY ARISING OUT OF OR IN CONNECTION WITH THE SOFTWARE OR FIRMWARE OR THE USE OF OTHER DEALINGS IN THE SOFTWARE OR FIRMWARE.

MPLAB C-18 and MPLAB C-18 Users Guide is reproduced and distributed by A-WIT Technologies, Inc. under license from Microchip Technology Inc. All rights reserved by Microchip Technology Inc.

MICROCHIP SOFTWARE OR FIRMWARE AND LITERATURE IS PROVIDED "AS IS," WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL MICROCHIP BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY ARISING OUT OF OR IN CONNECTION WITH THE SOFTWARE OR FIRMWARE OR THE USE OF OTHER DEALINGS IN THE SOFTWARE OR FIRMWARE.

Getting Support

If possible, please check the C Stamp website www.c-stamp.com under SUPPORT for any updates to documentation, changes, or notices that may have become available since your Installation CD was produced. If you continue to have any issues for which a solution is not found in the aforementioned website, please e-mail tech_support@a-wit.com for help.

C Stamp Program Example for SD Card Data Logging

The following program is a demo of how to use the C Stamp software infrastructure for SD card data logging. It shows how a system could log data from the ADC to a text file once every second.

The sample program is as follows:

```
#include "CS110000.h"

void main (void)
{
  BYTE filename[] = "mydata.txt";
  BYTE buffer[5];
  int voltage;

  // Initialize with SD card on pin 13
  if (!InitSDCDataLogger(13)){
    STPIND(39, HIGH);
    STOP();
  }

  // Open the file to which we'll be logging
  if (!OpenSDCLogFile(filename)){
```

```

    STPIND(40, HIGH);
    STOP();
}

// Loop forever
while (TRUE){
    // Pause for one second
    PAUSE(1000);

    // Sample the voltage on pin 19, in milli-volts
    voltage = 1000 * ANALOGIN(19, 1, 0, 0, 5);

    // Convert it to a string
    sprintf(buffer, "%4d", voltage);

    // Light an LED while we write the voltage out
    // (with a newline)
    STPIND(42, HIGH);
    if (!WriteToSDCLog(buffer, 4, TRUE)){
        STPIND(42, LOW);
        STPIND(41, HIGH);
        STOP();
    }
    STPIND(42, LOW);
}
}

```

Downloading and Running Your Program

Download and start the program by pushing and letting go of the RESET button while pushing the START button. Then you can let go of the START button.

Developing Your Own Programs and Projects

Now that you have successfully developed and run your program, it is easy to move on to more complex and elaborate projects and circuits of your own.

Infrastructure for SD Card Data Logging Reference

This chapter describes the elements of the C Stamp Infrastructure for SD Card Data Logging, which consists of 3 functions. While this manual is generally written in a variable size font, code and its comments are written with a “fixed font”. Additionally, keywords, functions, and commands of the infrastructure are in “**bold**”. Generic syntax is in a “***bold and italics fixed font***”.

InitSDCDataLogger

```
BIT InitSDCDataLogger(BYTE cs);
```

Initializes the Data-Logger system. Returns **TRUE** on success, **FALSE** on error. **cs** is the pin on the C Stamp to which the SD card’s Slave Select (SS) or Chip Select (CS) pin is connected.

OpenSDCLogFile

```
BIT OpenSDCLogFile(BYTE pathname[]);
```

Opens a log file for writing, from an absolute pathname. Returns **TRUE** on success, **FALSE** on error. **pathname** is the absolute pathname of the file to be opened. Must be defined in RAM (i.e. not as a constant).

WriteToSDCLog

```
BIT WriteToSDCLog(BYTE buffer[], int size,  
                  BIT newline);
```

Writes data to the currently open log file. Returns **TRUE** on success, **FALSE** on error. **buffer** is an array of data from which data will be written to the open log file. **size** is the number of bytes from buffer to write to the file. If **newline** is **TRUE**, a line break will be appended to the data being written.

Terms and Conditions

Quality Assurance

A-WIT has stringent quality control procedures in place to insure the best quality products.

90-Day Limited Warranty

A-WIT Technologies, Inc warrants its products against defects in materials and workmanship for a period of 90 days. If you discover a defect, A-WIT Technologies, Inc. will, at its option, repair, replace, or refund the purchase price. After 90 days, products can still be sent in for repair or replacement, but there will be a \$10.00USD minimum inspection/labor/repair fee (not including return shipping and handling charges).

14-Day Money-Back Guarantee

If, within 14 days of having received your product, you find that it does not suit your needs, you may return it for a refund. A-WIT will refund the purchase price of the product in the form of a check, excluding shipping/handling costs, once the product is received. This refund does not apply if the product has been altered or damaged. If you decide to return the products after the 14-day evaluation period, a 20% restocking fee will be charged against a credit.

Disclaimer

Warranty does not apply if the product has been altered, modified, or damaged. A-WIT makes no other warranty of any kind, expressed or implied, including any warranty of merchantability, fitness of the product for any particular purpose even if that purpose is known to A-WIT, or any warranty relating to patents, trademarks, copyrights or other intellectual property. A-WIT shall not be liable for any injury, loss, damage, or loss of profits resulting from the handling or use of the product shipped.

How to Return a Product

When returning, you must first e-mail sales@a-wit.com for a Return Merchandise Authorization number. No packages will be accepted without the RMA number clearly marked on the outside of the package. After inspecting and testing, we will return your product, or its replacement using the same shipping method used to ship the product to A-WIT within 30 days. In your package, please include a daytime telephone number and a brief explanation of the problem.

Please contact our Sales Department at sales@a-wit.com if you have any questions regarding our warranty policy or if you are requesting an RMA number.

