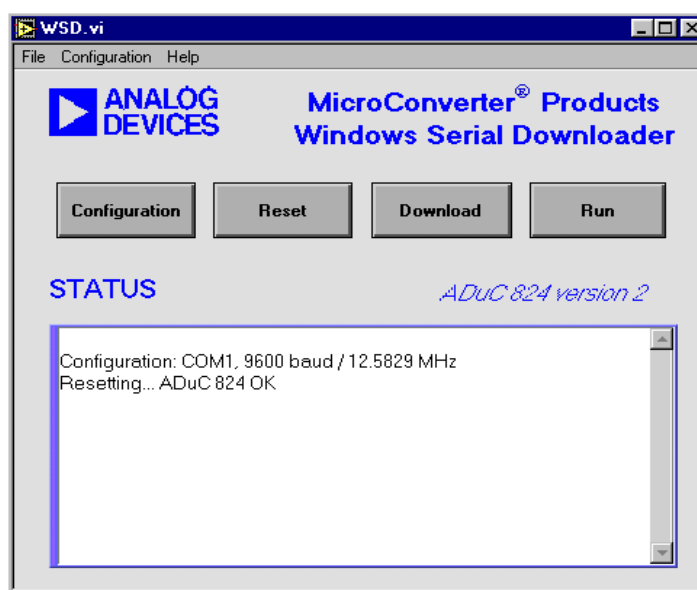




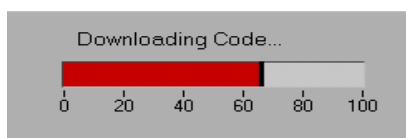
### MicroConverter software downloading

Before downloading the ADuC824 hex file into the AD7732 /34 /38 evaluation board, the PC evaluation software should be closed to release the PC serial port.

- Insert a link on the LK28 to enable debug/serial download mode
- Connect the evaluation board to your PC's COM1 serial port using the RS232 serial port cable.
- Power up the evaluation board or press the RESET button.
- From the START menu, open 'Analog Devices → AD773x → WSD'. This loads the Windows Serial Downloader. The part is automatically reset. "Resetting... ADuC 824 OK" should appear in the Status Box as seen below.



- Click the download button. Select the file 'C:\Program Files\Analog Devices\AD773x\WSD\Hex\Ad773x.hex'. Click on Open to download the file. While the file is downloading, the following window will appear indicating how much of the file has been downloaded.



Once the file has been successfully downloaded, the Downloading window will disappear and the Status Box will be updated with the message: "Downloading the file C:\Program Files\Analog Devices\AD773x\WSD\Hex\Ad773x.hex ...OK"

- Close the WSD application and remove the link (LK28 or LK9) to disable debug/serial download mode

## MicroConverter Firmware description

EVAL-AD7738 Beta 08

-----  
After powering up / system reset

A 100ms..110ms reset is issued to AD7738 after powering up or system reset.

Serial communication with PC

Setting 38400,n,8,1

ASCII data for commands, binary data for transfer continuous SPI read result

Sign on message

After powering up or system reset, the firmware send a sign in message as below.

[X EVAL-AD7738 Beta vv<CR><LF>

where vv is 2-digit number indicating version, x is a 1-digit character indicating bug fix version

DAC Operation

DAC is initialised to operate as follows

Resolution: 12-bit

Range: 0..VDD

RUN LED

The Run LED is owned by the firmware and can not be controlled from the application.

It indicates following conditions:-

blink 1: Normal Operation

blink 2: Stack overflow

Note that during the SPI continuous read operation, the LED stops blinking.

EVAL-AD7738 Firmware version Beta 08 - Commands

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X - Reset Command

Restart the software. (Not asserting hardware reset to itself)

Command format: [X<CR>or<LF>

Return values: None but the software restarts with sign-on message.

S - SPI Command

Send/Receive up to 16 bytes to/from SPI

Command format: [S\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn<CR>or<LF>

where nn is a ascii-coded hex parameter to be written in SPI.

The length of parameters can vary from 1 to 16.

The underscore ( ) means white space character.

Return values: [S\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn\_nn<CR>

where nn is a ascii-coded hex value returned from SPI

The length of return values is same as the numbers of parameters being sent.

The underscore ( ) means white space character.

**C - Continuous SPI Read command**

Read data from SPI to SRAM continuously then send the SRAM contents to the host

Command format: [C\_cc\_mm\_cc\_nn\_kkkk<CR>or<LF>

where cc is a ascii-coded hex byte to be written in coms reg  
mm is a ascii-coded hex byte to be written in mode reg  
nn is a ascii-coded hex byte indicating number of bytes per RDY  
kkkk is a ascii-coded hex word indicating number of RDY cycles

Return values: [C\_nnnn<CR><BINARY DATA STREAM><CKS>

where nnnn is a ascii-coded hex word indicating number of data bytes to be sent  
<BINARY DATA STREAM> is a stream of row data. The length of this is shown by nnnn.  
<CKS> 16-bit checksum of the Binary stream. Not complemented.

when Continuous command is terminated by force [C\_0000<CR> will be returned.

**D - DAC Command**

Set a voltage to the DAC

Command format: [D\_nnnn<CR>or<LF>

where nnnn is 12-bit hex code to be output to DAC. The first nibble (bit15..12) is ignored.

Return: [D\_nnnn<CR>

where nnnn is 12-bit hex code which have been received from the host.

**L - LED Command**

Control on-board Measure LED

Command format: [L\_nn<CR>or<LF>

where nn is -      00: on continuously  
                     01: blink 1 time  
                     02: blink 2 times  
                     03: blink 3 times  
                     FF: off  
                     Others: ignored

Return values: [L\_nn<CR>

where nn is the parameter which have been received from the host.

**R - SRAM Check Command**

Check the extenal data SRAM by filling and checking a certain data pattern to the whole SRAM (0h..7fffh)

Command format: [R<CR>or<LF>

Return values: [R\_OK<CR>  
or [R\_ERR<CR>

