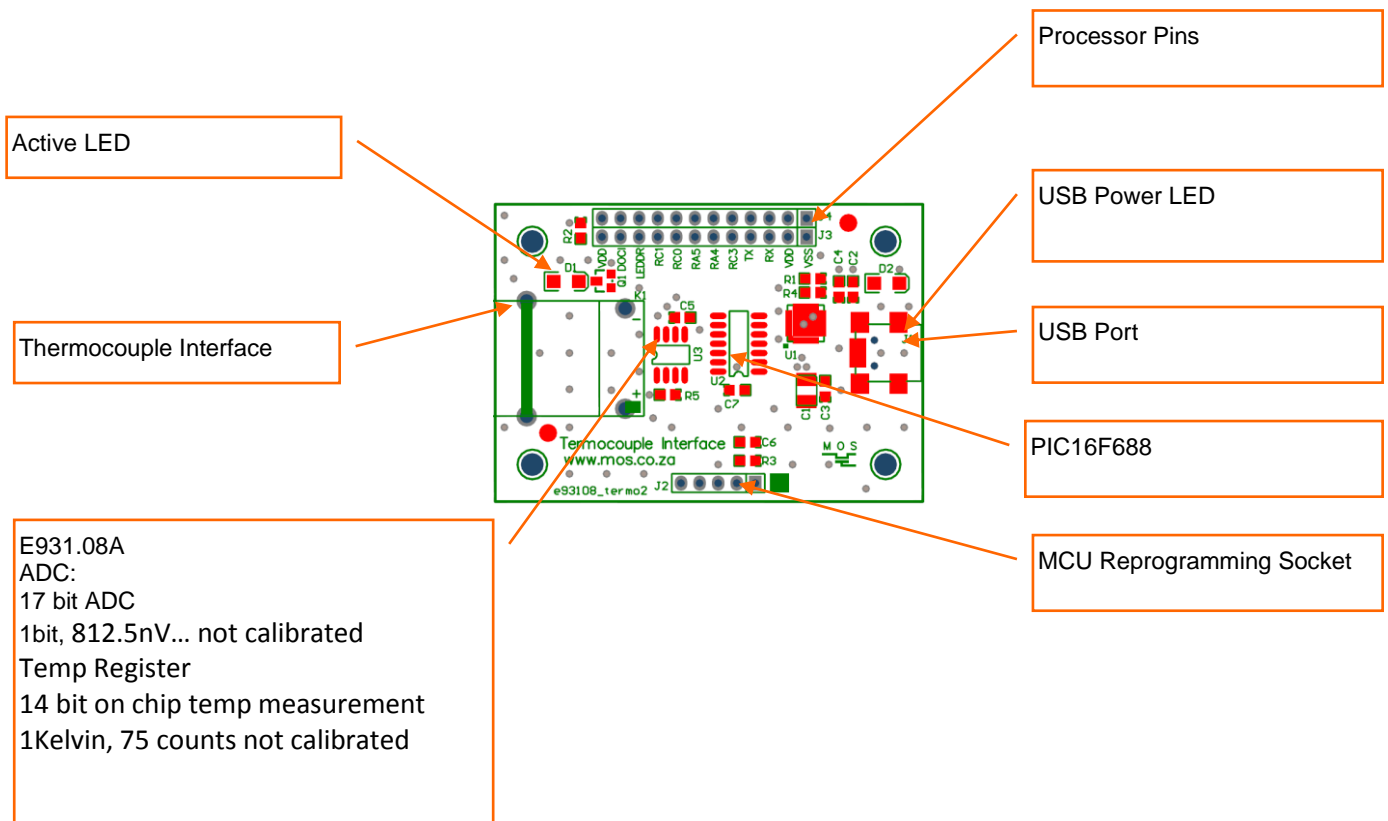


# Functional description for evaluation module TermoCouple\_USB\_M956

*The TermoCouple\_USB\_M956 module contains everything needed to evaluate a E931.08 Single Channel Analog to Digital Converter. The microcontroller on the module interfaces with the E931.08 and reads periodically data from the E931.08. It is recommended that the module be connected to a PC capture and evaluate the information generated Analog to Digital Converter.*



## Notes:

1. The module is ESD Sensitive, and is not protected, so be careful!

# Functional description for evaluation module

## TermoCouple\_USB\_M956

## Module Description

### 1. Power Supply

The SiLab USB to UART Bridge internal regulator generates a stable 3.3V for the circuitry on the module.

### 2. Sensor Readout and Signal Processing

The Microchip PIC reads the data from the E931.08 every 15ms through the DOCI interface.

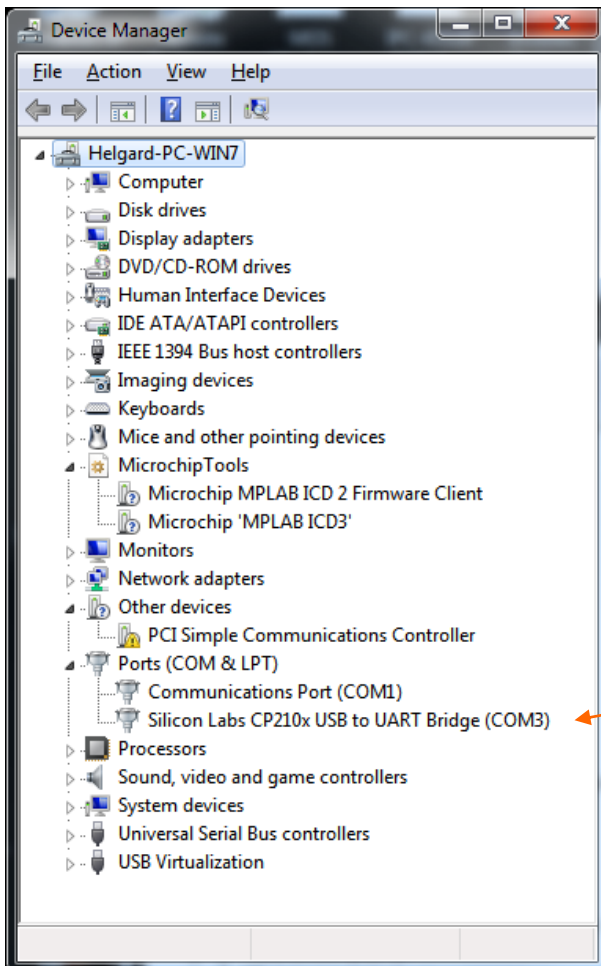
### 3. LED drivers

A power LED indicates that the module is connected to the USB port.

LED L2 is controlled by the MCU, upon start-up it will blink for a couple of seconds before readings is sent back to the USB port.

### 4. Programming connector

The programming connector can be used to reprogram the MCU. The pins on the programming on the connector are compatible to the MPLAB ICD2 LE and PICKit 2 and PICKit 3 programmers.



### 5. USB interface with a Personal Computer (PC)

A CP2102-GM USB to UART Bridge interfaces between a PC and the UART on the MCU. It may be necessary to install an appropriate driver on the PC if it is not handled automatically by the operating system.

After the driver is installed correctly and the module is plugged in to a USB port on the PC, an additional entry in the Ports category of the Device Manager will show up.

Make a note of the new Com Port number that is assigned to the module, since it will have to be specified when using the PC Scope software or the terminal software.

Port used by module

It may be necessary to manually download and install the driver on older operating systems; the link to the driver download page is shown below:

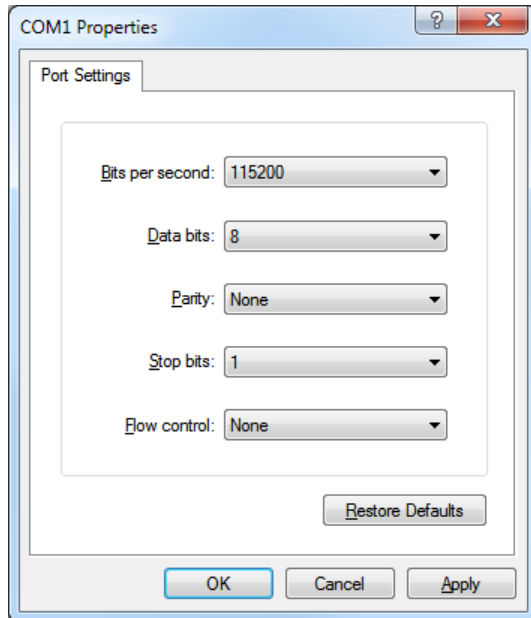
<http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>

# Functional description for evaluation module TermoCouple\_USB\_M956

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The software on the module is able to interface to a terminal with the following port settings.



The data format is as follows:

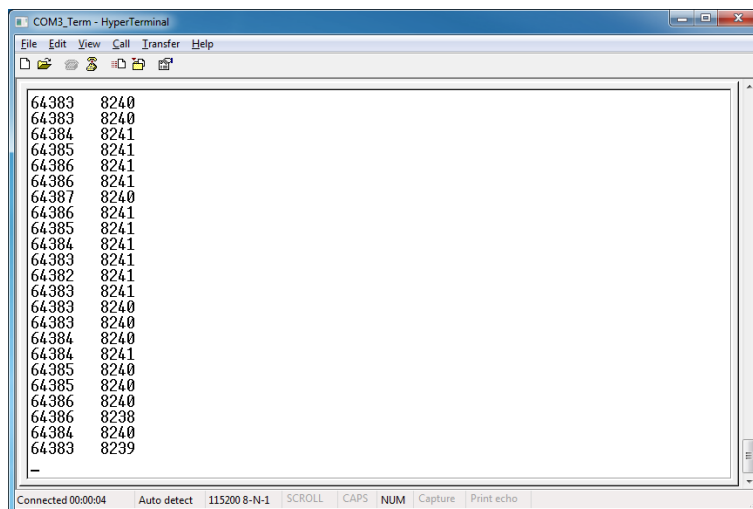
115kb/s

8 data bits, 1 start bit, 1 stop bit, no parity, no flow control

Values from the MCU are transferred as ASCII characters and end with a <LF><CR> combination.

## Software Description

The software running on the processor reads all the registers of the device with every interrupt generated by the IC (15ms). The first value displayed is the ADC value and the second value displayed is the on chip temperature value.



It is possible to capture the data and store it in a text file that can be opened with a spread sheet program like Excel afterwards.

Click >Transfer > Capture Text, save the file.

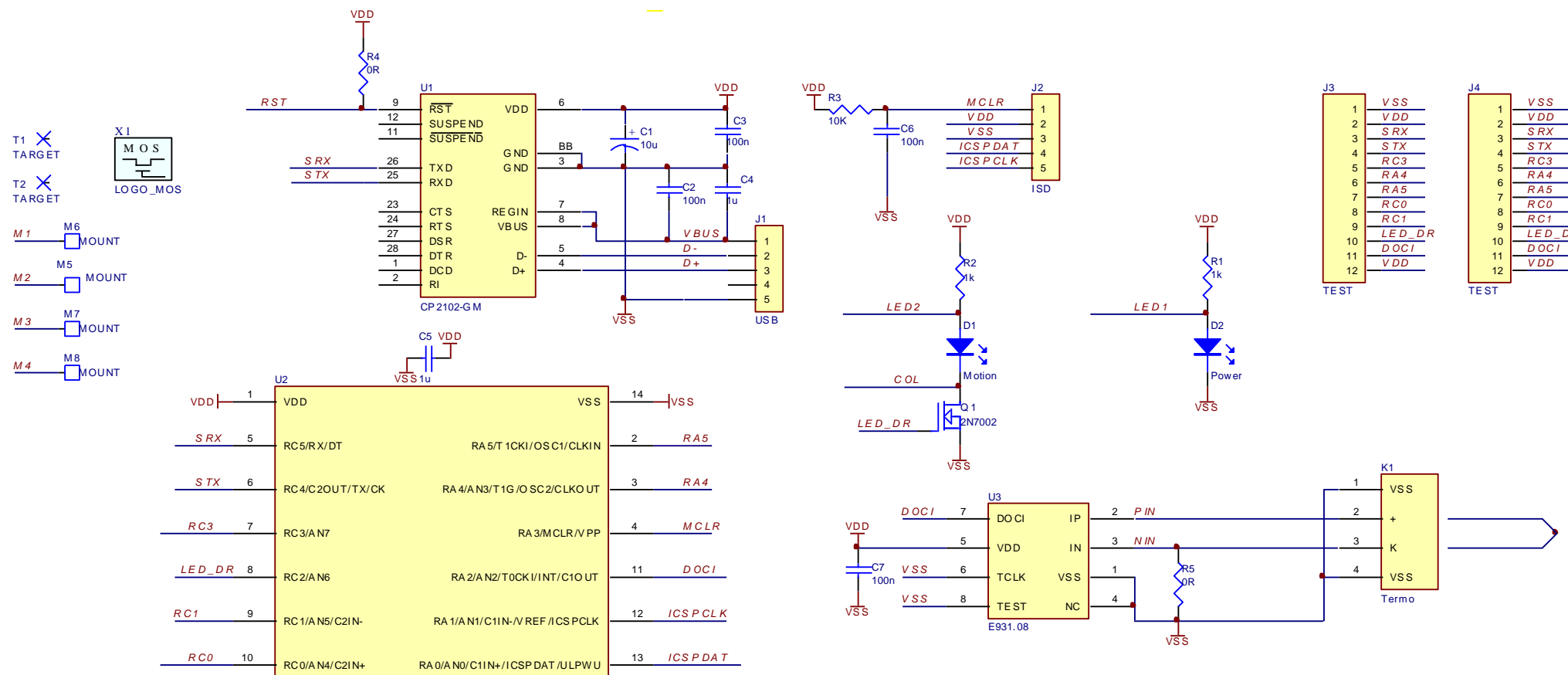
To stop the data logging click on Transfer> Capture Text > Stop.

# Functional description for evaluation r MOS (PTY) LTD.

## TermoCouple\_USB\_M956

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### Schematic



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