Communication and Data Transfer Protocol

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24 May 2013

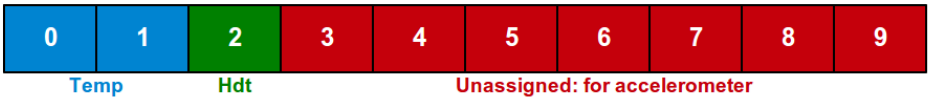
The data logger works in 2 modes:

Streaming Mode: board is linked to computer and data is streamed up to the computer directly.

Standalone Mode: board is not connected and stores data in EEPROM. The data is later transferred to the computer.

1 Streaming Mode

- Every period, the board will send a packet of data to the computer.
- Each packet is 10 bytes long.
- The first 2 bytes will contain temperature data, and the third byte will contain humidity data. The rest will contain accelerometer data but not yet specifically defined.



2 Standalone Mode

- All collected data will be stored in the EEPROM, which contains 32,000 bytes.
- The first 16 bytes will contain configuration data.
- The first 2 of these will contain the length of the recorded data in bytes.
- The third will contain the sampling period, in seconds.
- The rest of the EEPROM will contain 10 byte packets, as in the streaming mode.

3 PC to MCU Communication

Commands will be sent by the PC software to the MCU for control of logging in streaming mode and uploading and erasing data from the EEPROM from standalone mode operation.

- All commands will be 10 bytes.

- When in streaming mode, `L` will be sent to begin logging and S will be sent to stop logging.
- When dealing with data from standalone operation, `U` will be sent to begin the upload process and `E` will be sent to erase the EEPROM memory (except the 16 configuration bytes)
- The sample rate may be set by sending `R` followed by the length of the desired sample period in seconds. For example, `R 128` will give a sample period of 128 seconds.