

# CMCdaq

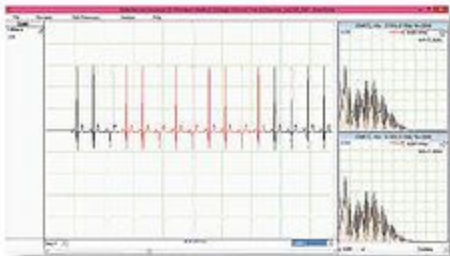
## Data Recording System for Physiology

**TMI**

Supported by  
AU-NHHID  
DST-TDT

*This product is developed out of joint venture between CMC, Vellore & DST-Govt. of India (NHHID-National Hub for Healthcare Instrumentation Development) and TMI Systems.*

CMCdaq is a small, versatile recording system that is designed for physiological data. It is suitable for human recording as it has full electrical isolation. The entire system can be held in the palm of a hand and therefore can be used easily even in a crowded recording area. It can be used with a desktop, laptop, netbook or similar computer system with standard Microsoft Windows. Despite its small size the sophisticated electronics ensures high quality recording.



### BASE STATION HARDWARE

- 8 channel data acquisition system
- 12 bit data acquisition
- Battery operation of recording side with full electrical isolation
- Electrical isolation can withstand 3.5kv without leakage to recording side
- Rechargeable Battery – continuous operation
- Adjustable gain controlled by software on the computer

### CHOICE OF SEVERAL PLUG-IN MODULES

- Up to 8 modules can be plugged into a single CMCdaq base station at a time
- Modules available : A) ECG B) EMG. C) Force\* D) Pressure\* E) Spirometry\* F) Pulse\* G) Blood Pressure\*
- Any combination of these can be used with the base station

## ECG MODULE

- Frequency response: 0.05Hz-100Hz
- Sensitivity:  $\pm 5\text{mV}$ ,  $\pm 2.5\text{mV}$ ,  $\pm 1\text{mV}$ ,  $\pm 500\mu\text{V}$ ,  $\pm 250\mu\text{V}$ ,  $\pm 100\mu\text{V}$ ,  $\pm 50\mu\text{V}$ ,  $\pm 25\mu\text{V}$  (Note: Pre-amplifier gain = 300)
- Noise: less than  $25\mu\text{V}$  at highest gain

## EMG MODULE

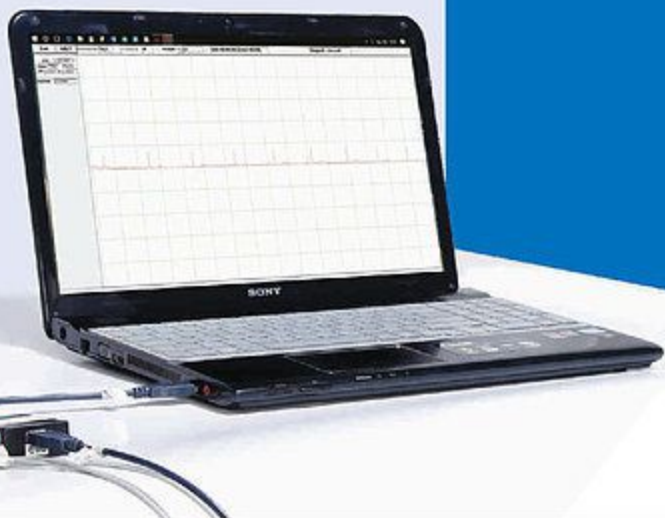
- Frequency response: 15Hz-400Hz (higher frequency module on special request)
- Sensitivity:  $\pm 5\text{mV}$ ,  $\pm 2.5\text{mV}$ ,  $\pm 1\text{mV}$ ,  $\pm 500\mu\text{V}$ ,  $\pm 250\mu\text{V}$ ,  $\pm 100\mu\text{V}$ ,  $\pm 50\mu\text{V}$ ,  $\pm 25\mu\text{V}$
- Noise: less than  $25\mu\text{V}$  at highest gain
- Bipolar electrodes

## SOFTWARE RECORDING

- Runs on computers with Microsoft Windows (XP, Vista, 7, Windows 8, Windows 10)
- Selectable sampling rates of 250Hz, 500Hz, 1000Hz, 4000Hz, and 8000Hz
- Real-time display of data during recording
- Online adjustable digital filters – high pass, low pass and 50Hz notch
- Can record for several hours – limited by disk space
- 32 bit data storage
- Event marker
- Synchronous digital output with event marker

## PLAYBACK/REVIEW/ANALYSE

- Data scroll, condense and magnify options
- Offline digital filtering (Bessel filters); Multipass filtering possible
- Data conversion to ASCII for use in other software
- Scrolling Spectrum Analysis (Short-time Fourier Transform)
- Moving Averaging
- Spike Detection and Spike Rate calculation (can be adapted for HRV analysis)
- Data can be exported for use with other software



# TMI Systems

[www.tmisystems.in](http://www.tmisystems.in)

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