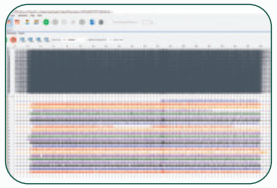
muovipro

dynamic high density EMG

HDsEMG matrices

MUs firing rate



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General description

The MuoviPro is a device composed by one to four wireless probes (Muovi) and a charging and synchronization base (SyncStation). The Muovi probes are 32 channel wireless bioelectrical amplifiers, they are wearable devices designed for dynamic applications. The Muovi probe is able to detect surface electromyographic signals (HDsEMG) and electroencephalographic signals (EEG) for brain computer interface (BCI).

Easy High Density EMG Detection

Furthermore, the Muovi probes include an inertial sensor and provide the quaternion to obtain their rotation and orientation. The recording electrodes are directly connected to the Muovi probes, no cables are required. The recharging and synchronization base SyncStation allows the connection of up to four Muovi probes and other twelve different probes (up to eight in total simultaneously). The SyncStation makes available three auxiliary inputs and one load cell input. The acquired data can be viewed in real time with OT BioLab+ software or with Matlab, Python and any other software capable of reading data from TCP socket.

Application

The MuoviPro allows to:

- identify anatomical muscle features;
- decode the neural drive to the muscles (HDsEMG);
- quantify the HDsEMG spatial distribution of different anatomical districts thanks to the possibility of connecting and synchronizing multiple Muovi probes at the same time.

Features:

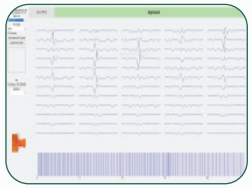
Each Muovi probe allows to acquire different types of signals:

- 32 HDsEMG signals or 32 EEG signals;
- quaternions obtained by the fusion of inertial sensor data;

The Muovi probe can be directly interfaced to a PC with WiFi (one probe at a time) or to the SyncStation.

Each SyncStation base allows to interface with WiFi:

Extract motor unit



- up to four Muovi probes with 32 channels;
- up to two 64 channel devices among Muovi+/Sessantaquattro/ Sessantaquattro+;
- up to eight Due+ probes with 2 bipolar channels.
- up to two Quattro+ probes with 4 bipolar channels.

Moreover the base makes available:

- 3 auxiliary inputs;
- 1 Load cell input;
- 1 trigger output;
- ethernet connection toward a PC.

Technical data

MuoviPro	Class	I BF
	Total number of channels	132
	Max. number of probes	Up to 4 Muovi, 2 Muovi+, 8 Due+, 2 Quattro+
Muovi probe	Functions	Acquisition of 32 EMG or EEG signals
	Bandwidth	10 – 500 Hz
	Sampling frequency	500 or 2000 Hz
	Noise	< 4 μV_{RMS}
	Power supply	Battery LiPo 3,7 V
	Battery life times	Power on: 4 hours Continuous transmission: 2 hours
	IMU	Integrated inertial sensor
	Resolution	16 or 24 bit
	Data transfer to PC	WiFi (single probe)
	Receiver	PC or SyncStation
	Weight	38g
SyncStation	Functions	Charge, Receiver, Auxiliary inputs
	Communication to PC	Ethernet
	Auxiliary channels	3 – input range ± 5 V
	Load cell input	1 – power supply 5 V
	Power Supply	12VDC power supply supplied with the system