
FREEEMG 1000
Wireless System for real-time
motion and EMG analysis
High Performances Wireless Real-time - 10gr
BTS Bioengineering

FREEEMG 1000

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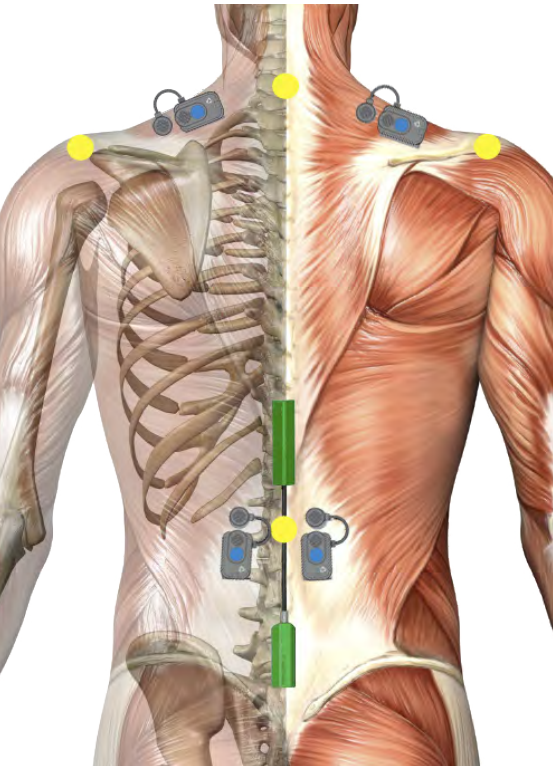

The most advanced Electromyography Unit in the world.
BTS FREEEMG 1000 represents a generation leap in the diagnostic devices for biological signals analysis.

Entirely based on wireless technologies, BTS FREEEMG 1000 uses up to 20 miniaturized light probes with active electrodes for signal acquisition and transmission to assess EMG, angles, speed, acceleration and pressure.
BTS FREEEMG 1000 meets the requirements of those researchers and clinicians who need everyday to rely on a highly efficient system easy to use and to configure.
The probes amplify the signals, digitize them on board and communicate with the USB receiver connected directly to the computer.

The complete absence of wires reduces not only patient distress during the preparation but also grants him full range of motion during task execution without any restriction.

The probes variable geometry and their substantial reduced size and weight permit using them on any body segment but also during all types of movement (walk, run, jump...) without affecting in any way the motor pattern.
Thanks to the eco-friendly rechargeable batteries it is possible to record data for several continuous hours.

BTS FREEEMG 1000 is provided with an advanced EMG software application: BTS EMG-Analyzer.

BTS EMG-Analyzer
BTS EMG-Analyzer is the most complete software solution for EMG signal analysis. It includes predefined templates for evaluations in clinic, sport and research fields: jump, plyometry, gait, fatigue analysis and isokinetics. It also integrates a graphic interface to build analysis protocol templates and customized report.

Applications
BTS FREEEMG 1000 can be used in different fields like: research, sports, occupational medicine, gnathology, neurology and orthopaedics.
BTS FREEEMG 1000 is the most advanced diagnostic tool for:
- Neurological and orthopaedic pathologies evaluation,
- Pharmacological therapies planning,
- Supervision of motor deficit progression,
- Choice of orthesis,
- Rehabilitative follow-ups,
- Sport training optimization.

Lightweight probes

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Record of miniaturization
BTS FREEEMG 1000 uses the best technology available today. Totally wireless, it integrates probes with active and variable geometry electrodes, weighing about 10 grams.

Quicker Analysis and Increased Accuracy
The total absence of wires allows a quick patient preparation. The lightweight probes are directly attached to the pre-gelled electrodes and do not require any additional fastening such as adhesive tape.

Powerful and Comprehensive
The system simultaneously runs up to 20 probes, selectable among EMG, electrogoniometers and footswitch, covering up to 4 contact areas each.

Biofeedback
The real-time display of the acquired signals allows biofeedback and monitoring applications.

On-board memory
Probes are equipped with a solid-state buffer memory to secure data in case of unexpected WiFi signal loss during the acquisition.

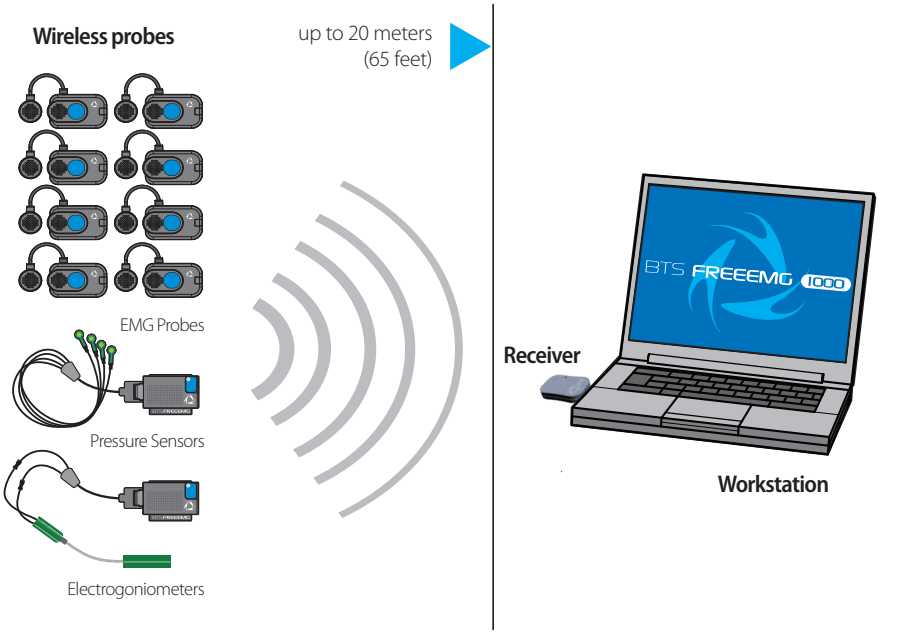
More than 8h of non-stop acquisition
The large autonomy and energy-saving battery ensure a whole day of recording. The probes are easy and quick to recharge by clipping onto the proprietary battery charger.

16bit Accuracy
The sampling rate of 1KHz and the 16 bit resolution give to the acquired signal the highest quality ever, providing "low noise" and the absence of movement artifacts.

Signal Range
Up to 20 meters for the data transfer between the probes and the workstation.

Integration
Through BTS SDK or the analogical output receiver, BTS FREEEMG 1000 can also work with isokinetic machines (BIODEX, CYBEX and CON-TREX), rehabilitative robots (Reo-go, BTS ANYMOV) and virtual reality therapeutic systems (BTS NIRVANA) for the evaluation of real muscle activity during rehabilitation or sport training activities.

Signal range



Quick setup

The system can acquire up to 20 sensors simultaneously

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Technical features*

Wireless Probes	
Surface electrodes	Variable geometry electrodes with snap connector - 16-bit resolution - acquisition frequency up to 1KHz
Data transmission	Wireless IEEE802.15.4 data transmission (probes - receiver) - Real Time
Battery	Rechargeable with proprietary charger (snap connector) - lithium ion
Autonomy	Over 6 hours of continuous acquisition
Acquisition range	Up to 20 meters (65 feet) in open space (without obstacles)
Holter	The solid-state memory allows data storage up to 1 hour and 40 minutes for systems with less than 6 EMG probes and up to 2 hours for systems with more than 6 EMG probes
Memory	On board solid-state buffer memory system
Status LED	Acquisition/stand-by mode and low battery
Weight	About 10 grams**
Size	41,5x 24,8 x 14mm main electrode - Ø 16 x12mm satellite electrode
Certification	Class "IIa"
Identification Labels	Available in two colors

USB receiving unit	
EMG Channels	Up to 20 wireless probes
Weight and dimension	80 grams - 82 x 44 x 22.5mm

Software BTS EMG-Analyzer
- Real-time display of the signals
- Data acquisition
- Database for data storage
- Predefined protocols for data analysis and reporting-
- Graphic interface for customized protocols and reports building

*
Technical features and equipment may be subject to change without notice.
Images shown in this brochure are indicative only, color or model may differ from the picture shown.

**
Excluding battery

Options

BTS Workstation
Preconfigured Desktop or Laptop PC dedicated to the biological signal processing.

Wireless Foot Switch Probes
Independent FSW sensors for the automatic gait phases identification
Up to 4 single on-off sensors for each Foot Switch probe (8 in total).

Wireless Electrogoniometer Probes
Strain gauge technology for the accurate measurement of the angles drown by joints in different planes.

Video Acquisition System
BTS VIXTA, video recording system using up to 4 TV cameras simultaneously, natively synchronized with EMG signals

Analog Output Receiver
This tool allows a quick integration with other motion analysis systems. It consists of a wireless receiver with analog output feature: raw EMG data available in analog format, simultaneously with the digital wireless data transmission. It is equipped with an USB interface for plug and play.

BTS G-SENSOR
Wireless inertial sensor made up of a triaxial accelerometer, a magnetometer, and a triaxial gyroscope, that allows the automatic gait phases identification (heel strike, toe off). It provides all spatio-temporal gait parameters.

BTS FREEEMG & ISOKINETIC Kit
For integration with isokinetic machines: BIODEX, CYBEX, CON-TREX.

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