



## TRUST-M Biomechanics



**The system for integrative objective assessment  
of motor function, biomechanic of movement  
and functional electromyography (EMG) recording**

The modification of the Trust-M Biomechanics complex is designed for carrying out the full cycle of the locomotor system diagnostics. The complex allows recording and analysing movement kinematics, joint rotation, muscular frame functioning, tremors, asymmetries, bioelectrical muscle activity, studying posturological function.

## APPLICATION

- **Restorative medicine** – functional diagnostics of locomotor disorders, assessment of locomotions with quantitative and qualitative indicators of the impaired function. Assistance in treatment method selection. Control of restorative process dynamics.
- **Traumatology and orthopedics** – detection of joint and vertebral column anomalies, contracture diagnostics, prognosis and assessment of treatment efficacy. Prosthesis parameter selection during prosthetic repair, efficiency analysis and prosthesis impact on the locomotor system.
- **Neurology** – functional assessment of the locomotor system after stroke, in paralyses, pareses, myodystrophy, damage of large nerve trunks of different origin during CP, Parkinson's disease, spinal nerve roots damaging, proprioception and vestibular system disorders and other conditions accompanied by clinical or subclinical motional symptoms. Evaluation of treatment efficacy.
- **Sports medicine** – diagnostics of muscular-ligamentous apparatus sport injuries, sport injury prevention, creation of more effective sports facilities for the development of control procedures for sports movement execution techniques and their correction. For technique and tactical training of athletes in different sports.
- **Manual therapy** – functional diagnostics of the locomotor system, evaluation of results before and after treatment.
- **Posturology** – integrated assessment of postural function including 3D stabilometry.
- **Biophysics** – study of human biomechanics, research and development works, dissertations, objectivization of results.

## ADVANTAGES

- Small size sensors "Trust-M" for recording of biomechanical parameters weighing 40 grams suitable for adults and children.
- Synchronous recording of linear and rotational movements, goniograms, tremors, functional EMG, podometry, 3D stabilometry is performed.
- The software allows performing movement reconstruction on the 3D model "Skeleton" and "Muscle Frame" with the visualization of locomotions and muscle activity phases.
- Phase analysis of cyclic movements, comparison of obtained data, analysis of averaged results, matching with a norm are performed.
- Precision sensors "Trust-M" provide high accuracy of the set parameters recording.
- Patient procedure preparation time is 5-15 minutes while in optical systems with markers the patient preparation takes 44-60 minutes.
- The mobility of the complex makes it possible to conduct on-site examinations, no special room is needed.
- Built-in batteries provide autonomous continuous operation of "Trust-M" sensors up to 5 hours from a single charging.
- Data transfer takes place via telemetering channels (WI-FI or Bluetooth).
- Synchronous operation of 16 biomechanical sensors with 32 EMG channels allows recording the locomotions of main body segments with simultaneous contraction of specified muscle groups.

## MAIN TECHNICAL CHARACTERISTICS

Overall dimensions of "Trust-M" biomechanical sensor	Maximum 38 x 49 x 20 mm
Sensor weight	Maximum 40 g
Number of "Trust-M" biomechanical sensors	1-16 pcs
Accuracy of synchronization of sensors and recording channels	Minimum 0.01 sec.
Number of functional EMG recording channels (for one biomechanical sensor)	Up to 2 channels
Linear movement recording channels	in 3 mutually perpendicular axes
Rotation movement recording channels	in 3 mutually perpendicular axes
Tremor recording	Available
Angular movement recording accuracy	Minimum 1 deg.
Rotational movement angular speed recording range	Minimum 2000 deg. s
Locomotion recording channel sampling frequency	Minimum 1000 Hz
EMG recording channel sampling frequency	Minimum 2000 Hz
Telemetric control and data transfer channel	Bluetooth or WIFI, communication range up to 80 meters
Printing modules (optional)	Breath recursion, pressure distribution under foot, fine motor skills of upper limbs, EEG up to 32 channels, ECG, SpO2.
Training modules (optonal)	Treadmill with unloading system, balancing platform, stationary bike, access of customer simulators.

