



Cubestress

12/15 Lead wireless or USB connectivity Stress Test System

Designed in collaboration with Physicians and Cardiac physiologists, Cubestress enhances the productivity of the Stress Clinic by providing exceptional ECG signal quality and sophisticated analysis, fast and secure test performance and seamless bidirectional connectivity to improve data workflow. When combined with the Cardioline ECGWebApp, Cubestress can store and retrieve the full test allowing web based remote stress performance and physician review. Cubestress configuration is scalable to meet your laboratory needs.

Acquisition units, ECG signal quality and analysis

The ECG data is acquired through our HD+ acquisition unit, connected to the PC via Low Energy Bluetooth (BLE) or USB cable. HD+ is lightweight and robust, comfortable for the patient who is performing exercise on the treadmill or ergometer. Two configurations available:

- HD+ 12 (12 leads, 10-wire cable)
- HD+ 15 (12/15 leads, 13-wire cable)

The new HD+ can accurately check and measure electrode contact impedance allowing the operator to ensure a high quality Patient contact Pre Test.

Industry leading algorithms

High quality signal and automatic measurements help clinicians quickly analyse the stress ECG with total confidence. New algorithms for beat detection, arrhythmia classification, ST analysis, as well as QTc measurements and risk factor calculations, have been designed to provide diagnostic information you can rely on. The new algorithm for artefact reduction SENSE (Stress ECG Noise Suppression Algorithm) has been developed in collaboration with the National Research Centre and University of Pisa. Based on the redundancy of the Electrocardiographic signal in all patient leads, it offers a clean and stable signal without altering the true ECG Waveform/Activity.



Lightweight, wireless and robust device, comfortable for patient and ease of use for technician



Connectivity and Data Workflow

Patient information can be uploaded from worklists through the HIS or manually entered and the final report exported in PDF format (DICOM, HL7, GDT or Cardioline ECGWebApp). Additionally, the whole test can be stored in raw data format, enabling physicians to review, edit and print data remotely, for maximum efficiency in your stress lab.

A step by step intuitive interface

The large touch screen display allows for easy and intuitive navigation through the exercise test procedure. Large touch-buttons are provided on screen to quickly move from pre-exercise resting ECG, through the different stages of the stress protocol, to the recovery phase, or to immediately stop the exercise should it be required.

The large screen shows important information organised into multiple windows during the

stress test, such as: 12/15 lead online ECG, single lead full disclosure ECG, 12/15 lead average reference complexes, augmented max ST lead, ST profile, Trends and captured arrhythmias.

All of the data within the windows can be individually modified or the windows can be minimised, providing a totally customisable user interface.



Scalable configuration

Cubestress is a highly configurable system you can design to your personal needs by choosing from different screen formats, thermal and/or laser printer options, automatic NIBP or NIBP/SPO2 monitors, electrode suction systems or the inclusion of an isolation transformer.

In conjunction with the Cardioline ECGWebApp, the report is available for everyone who has access rights to the ECGWebApp platform.



HD+ Acquisition unit

- Robust wireless Bluetooth transmission through Cardioline Dongle and optionally via USB cable
- Lightweight (90 grams) for patient comfort
- IP24 and drop proof protection
- ECG resolution: 500/1000 samples/second/channel (user selectable)

System Specifications

- 12/15 lead Stress Test System
- Secure, dedicated Bluetooth connection through Cardioline Dongle or via USB cable
- Configurable TTL and analogue outputs, an integral part of the dongle to connect with third party systems
- Pre-set protocols for bike, treadmill, pharmacological and generic (tilt test). Ability to add user defined protocols
- Patient demographics entered directly or from a worklist (DICOM, HL7, GDT or Cardioline ECGWebApp)
- Large color touchscreen for stress test visualisation. Customizable user display
- User selectable windows: real time ECG 12/15 lead, full disclosure ECG single lead, reference 12/15 lead, averaged 12/15 lead with ST real time measurements, zoomed lead, with max ST changes, ST profile, trends and captured arrhythmias
- Automatic arrhythmia capture
- Derived indexes: Framingham and Duke treadmill risk scores, Heart rate recovery index, Functional Aerobic Impairment
- Automatic or continuous ECG printing on thermal or laserjet printers
- Full exercise review and replay
- PDF report export (as option: DICOM, HL7, GDT or Cardioline ECGWebApp)

Analysis

- Automatic channel selection for best beat detection
- Automatic Arrhythmia detection and classification
- ST level and slopes (all channels)
- ST/HR, Double Product, QT/QTc trending
- METS
- Indexes: Duke, Framingham, FAI%, Heart Rate Recovery
- Automatic BP and SPO2 measurements via connected external devices (Tango, BL6, bike ergometer)

Alerts

- Rapid systolic BP elevation, Systolic BP drop
- HR drop, ST depression and rapid ST elevation, HR over target
- Arrhythmia
- Technical faults