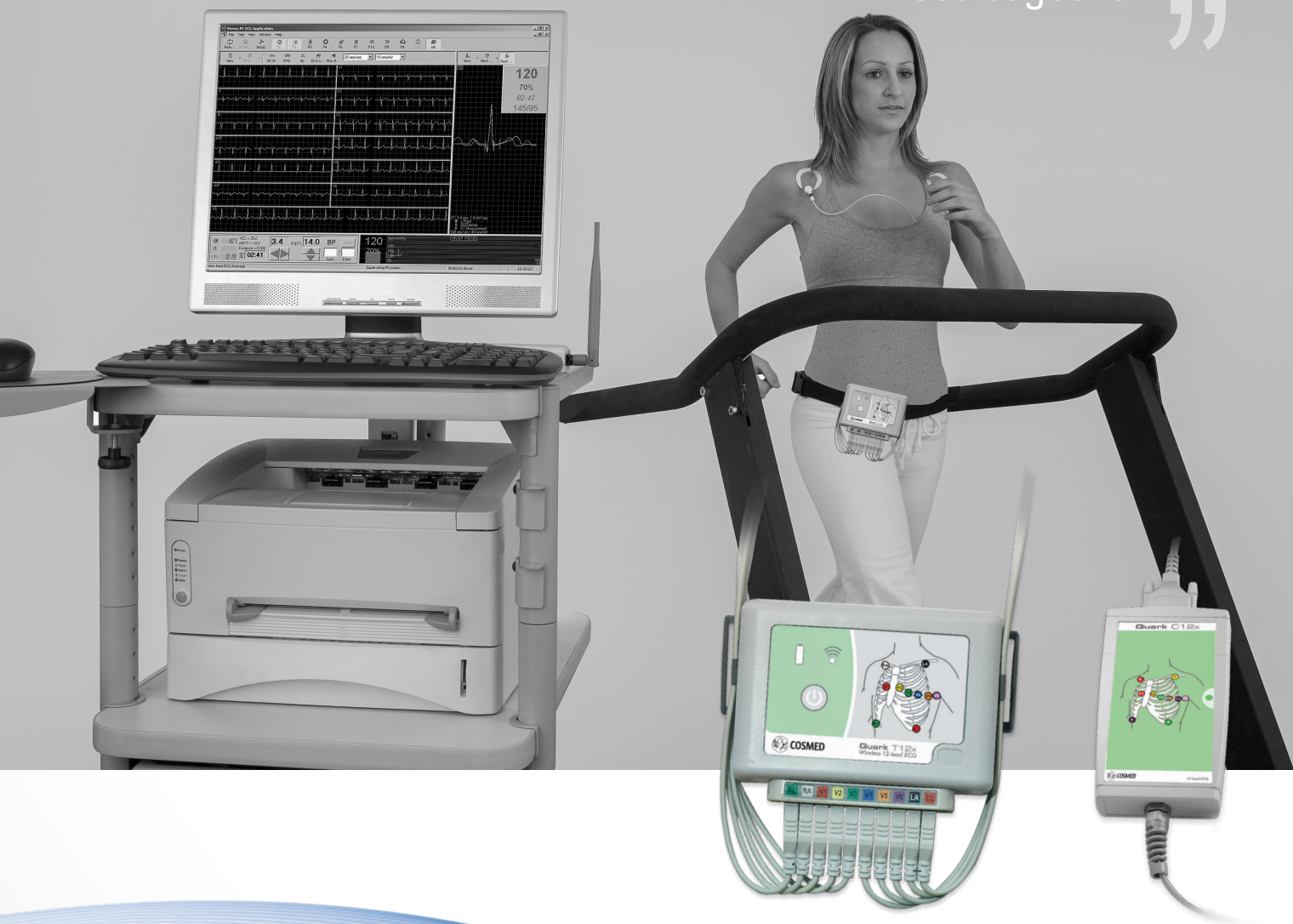# Quark C12x-T12x

Stress ECGs

Diagnostic Quality 12-lead Stress Testing ECGs available in telemetry or cable configuration

"When heart and lung meet together..."

COSMED
The Metabolic Company

"Electrocardiographic (ECG) recording system for continuous monitoring of heart rhythm and evaluation of ischemic ECG changes during exercise and recovery[1]"

- **Resting and Exercise ECG interpretation**
- **High resolution ECG processing**
- **Full Disclosure and Scroll back during the test**
- **ST segment, ST slopes, Trends**
- **Retrospective ECG and arrhythmia analysis even during test**
- **Standard and user defined Exercise Protocols**
- **Integration with COSMED Gas exchange equipment**
- **Patient Database & Network Compatibility**

COSMED Stress ECGs are the ideal diagnostic quality PC-based ECG devices for patient care from prevention to rehabilitation. Ultimate quality ECG signal allows an efficient diagnosis of coronary artery disease, the evaluation of patients after artery bypass surgery or angioplasty, and allows to document response to therapies and prevent from myocardial infarction.

Combined with any COSMED gas exchange analysis equipment, COSMED Stress ECGs become the complementary tools that help clinician to quantify patient's functional capacity and evaluate cardiac response in athletes.

COSMED PC-based stress testing systems offer the ultimate in stress testing flexibility, meeting the most advanced requirements for clinical exercise testing. Two versions are currently available:

- **Quark C12x** - 12-lead Patient Cable Stress Test ECG, with USB communication interface.
- **Quark T12x** - 12-lead Wireless Stress Test ECG (Telemetry). State of the art Digital Radio Frequency technology, immune to environmental interference. Optimized for working in noisy EM Environments (Bluetooth, Wi-Fi Networks, Cellphones etc.) . It includes an automatic Channel Shift Feature for selecting the optimal Transmission Channel.

(1) AHA Guidelines for Clinical Exercise Testing Laboratories. Circulation. 1995; 91: 912-921

Design

- **12 leads ECG** 12-lead simultaneous recording, display and printout on plain paper. Detachable 10 lead wires conform to AAMI (AHA) or IEC color codes. Every single lead can be replaced independently

- **High resolution of signal processing** (up to 500 samples/sec) guarantees exceptionally clear tracing for visual view and on screen measurements

- **On-line filtering** Advanced digital filters and automated baseline correction for real-time and stored ECGs to create exemplary ECG traces

- **Integration with COSMED gas exchange equipment** stress ECG and ergospirometry parameters can be thus recorded synchronously, identifying cardiac, pulmonary and vascular function in just a single measurement

Integrated Cardio Pulmonary Exercise Testing: Quark C12x with a Quark CPET

Quark C12x and T12x can also be used as standalone Stress Test ECG Measuring Stations

Print — Reset measurement — Average — Caliper — Grid — Next QRS — About — Marker left/up — Wave type — Add/remove marker

Save — Remark — Table — QRS — Next strip — Previous QRS — Filters — Back — Marker right/down — Marker time

Software Features

Powerful software allows full control over ECG acquisition, real time display, report configuration and printing. High resolution ECG processing produces an exceptionally clear on-screen display and allows detailed, reliable analysis of ST segments and subtle arrhythmia changes.

Main software features are:

- Retrospective ECG and arrhythmia analysis even during test
- Full disclosure of entire test enabling post processing on saved data
- Scroll-back during test to see episodes that might have been overseen
- Automatic Arrhythmia detection, print and capture: VPB and SVPB
- Real time and retrospective J Point and Isoelectric identification
- Predicted oxygen uptake and METS estimation
- Real time super imposition QRST complex
- Remote viewing anywhere on your local hospital network room
- User defined, automatic print during test (standard paper or thermal paper print options)
- User initiated and automatic capture of events
- Pre-programmed user definable testing protocols, accommodating many different treadmills and bicycle ergometers
- Export formats: JPEG, XML, GDT, PDF

Real time ECG display and scroll back of all leads, QRS complexes and trends

Multiple printout report formats (single lead, all leads, full disclosure, sum up, trends, QRS, etc.)

Technical Specifications

Product	Description	REF
Quark C12x	Diagnostic quality 12 lead stress testing ECG with patient cable	C09080-01-99
Quark T12x	Diagnostic quality wireless 12 lead stress testing ECG	C09081-01-99

Standard Tests	
ECG	Stress Testing ECG, Resting ECG (w/ Interpretation), Full Disclosure, Scroll Back, St Segment, St Slopes, Trends, Arrhythmia Analysis w/stress

Features	
Sampling rate	Processing: 500 s/sec - Acquisition: 16000 s/sec (C12x), 4000 s/sec (T12x)
Defibrillator protection	to 360J
CMRR	>100 Db
Frequency range	0.05 - 300 Hz
Patient leakage current	<10 µA
Input impedance	>100 Mohm
Pacemaker detection	From 0.1 to 2ms to 2-700mv

Electrodes	
Number of electrodes	10 AHA / IEC
Acquisition	Simultaneous 12-leads (I,II,III, aVR, AVL, aVF, V1, V2, V3, V4, V5, V6)
Speed of display	5, 12.5, 25, 50, 100 mm/sec

Communication	Quark C12x	Quark T12x
Communication	USB cable	Digital Radio Frequency
Radio frequency range (Auto-select)		2400 - 2483.5 Mhz
Radio frequency output power		0.4 mW
Maximal operational distance		~ 10 m

Hardware	Quark C12x	Quark T12x
Dimensions & Weight	17 x 9 x 3 cm / 300 gr	16 x 10 x 4.5 cm / 350 gr
Power supply	Via USB (5V) (Consumption: < 200 mA ± 10%)	Battery (2 AA Alkaline Or NiMh Rechargeable)
PC Interface	Cable (USB 2.0)	Telemetry (Wi-Fi)

Software	ECG Suite
Available languages	English, French, Spanish, German, Dutch, Italian
PC Configuration	i5 processor required, RAM: minimum 2 GB, recommended 4 GB. OS: Windows (from XPSP3 to Windows 10)
User defined exercise protocols	Bruce, Balke, Ellestad, Kattus and USAFSAM
Display mode	3x4 / 6x2 / 12 leads with or without other parameters
Export formats	HL7, XML, JPEG, GDT, PDF, DICOM

Accessories & Options	Description	REF
Additional Software	Software Stress, Rest ECG with Interpretation.& Patient Database	A-661-200-058

Safety & Quality Standards
MDD (93/42 EEC); FDA 510(k); EN 60601-1 (safety) / EN 60601-1-2 (EMC)

CE
0476

To know more: