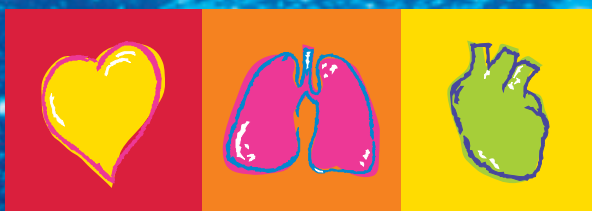


CARDIOVIT AT-102



Ready for networking
with XML output

Get high performance
without spending a fortune!



SCHILLER

www.schiller.ch

The Art of Diagnostics

CARDIOVIT AT-102 – has it all!

The most important Cardiopulmonary Function Tests are combined in one single device:

- Resting ECG
- Exercise ECG
- Spirometry

Performance:

- Intuitive, easy use with direct function keys
- 12-channel Resting ECG
- Measurements
- Interpretation (optional)
- Serial data transfer to PC for storage of both Resting ECG and Spirometry recordings
- XML data transfer for Resting ECG to PC or Information Systems via Ethernet or modem interfaces (optional)
- **A4-formated (8.5 x 11 inches) printouts on internal or external printer**
- Basic Exercise test capability (optional)
- Possibility for external monitor connection (optional)



Capable of data transfer to the SCHILLER Data Management System SEMA-200



Resting ECG:

Operating elements:

- Integrated 3-channel monitor
- Alphanumeric keyboard
- Direct keys for the most important functions
- Easy Print: Integrated high-resolution A4 (8.5 x 11 inches) thermal printer, subsequent printout on thermoreactive paper possible
- Interface for external printer for A4 (8.5 x 11 inches) printouts on regular paper
- Internal memory for up to 40 records
- Interface for data-transmission



External monitor



LCD with direct function keys



Exercise ECG:

Interface:

- RS-232 port for peripheral devices such as treadmills, bicycles etc.

Protocols:

- For exercise ECG, several standard protocols are available for bicycle and treadmill ergometers; the user can either select a standard protocol from a table or define a new protocol
- J-point settings: J+20, +40, +60, +80 ms; default: +60 ms

Display on the LCD:

- 3 leads can be selected via direct keys
- Heart rate
- ST slope and amplitude (in mV/mV/s) of a lead (the lead can be selected in the set-up; default is V5)
- Stage, time, and current load
- Blood pressure (Blood pressure measurement: Automatic – if a bicycle contains an interface for the blood pressure transfer – or manual)

Printouts:

- Online printout: 6 leads on the internal thermal printer
- 10-sec. printout: A 10-sec. printout can be initiated at any time on the internal thermal printer
- Two print formats are available for stage printouts on the internal thermal printer:
 - 2*6 25 mm/s and 50 mm/s, 1 page
 - 4*3 + 1 rhythm, 25 mm/s (50 mm/s), 1 page

Final report:

- All test data is listed in a tabular form

SCHILLER eXtensible Connectivity

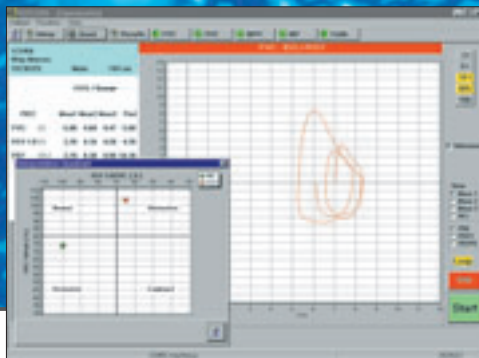


Ethernet and modem interfaces for XML output (optional)



XML Data Transmission (optional)

- The AT-102 is available with the internal SCHILLER Communication Module (SCM), which transmits Resting ECG data on XML format to a PC or Information Systems via:
 - Ethernet interface; or
 - Built-in analogue modem (optional)
- This enables the AT-102 to be an integrated part of a larger systems solution
- Secure transmission of patient data via the Internet is possible using 1024-bit strong encryption
- Equipped with the add-on SCM Server, the SCHILLER Data Management System SEMA-200 can receive the XML output from the SCHILLER Communication Module



Spirometry view in the SCHILLER Data Management System SEMA-200

Spirometry:

- Unique SP-250 with disposable sensor to reduce the risk of contamination
- SP-260 with reusable sensor
- Simple and fast calibration
- Memory for up to 40 records
- Inspiratory and expiratory test; pre and post medication tests
 - Selectable predicted value tables
 - Real-time curves and measurement information on the large screen

Technical Data CARDIOVIT AT-102:

System:

Dimensions: 400 x 330 x 101 mm, approx. 5 kg

Built-in monitor: 120 x 90 mm effective display area, 320 x 240 dots resolution

On-screen status indicators:

Battery status, date, time, power source

Control panel and keyboard: User-friendly, alphanumeric keyboard, LED indicator and LC display

Power supply requirements: 220–240 V (nominal), 50/60 Hz; 110–115 V (nominal), 50/60 Hz; stand-alone operation with built-in rechargeable battery; LED indicator for mains operation, integrated power supply unit

Battery capacity: 4 hours of normal use (approx. 300 automatic ECG printouts or 100 spirometry records)

Power consumption: Max. 30 VA

Line frequency filter: Distortion-free suppression of superimposed 50 or 60 Hz sinusoidal interferences by means of adaptive digital filtering (SCHILLER Powerline Filter SPF)

Frequency range of digital recording system: 0 Hz – 150 Hz (IEC/AHA)

Chart paper: Thermo-reactive, Z-folded, 210 mm wide (A4, 8.5 x 11 inches)

Printing process: High-resolution thermal head printer, 8 dots/mm (amplitude axis), 40 dots/mm (time axis) @ 25 mm/s

Interfaces: RS-232 interface to connect spirometry sensor, data transmission to PC (SEMA-200) and external modem connection; parallel port for external printer; optional Ethernet interface and optional internal modem for XML data transmission

Memory: Possibility to save up to 40 Resting ECG or Spirometry measurements

Environmental conditions:

– Temperature, operating: 10° to 40°C

– Temperature, storage: -10° to 50°C

– Relative humidity: 25 to 95% (no condensation)

– Pressure during operation: 700 to 1060 hPa

Safety Standards:

Safety Standards: IEC/EN 60601-1; UL 60601-1;

C22.2 No. 601.1-M90; IEC/EN 60601-2-25;

IEC/EN 60601-1-2 (EMC)

Protection Class: I according to IEC/EN 60601-1 (with internal power supply)

Applied Part: CF according IEC/EN 60601-1

Conformity: CE according Directive 93/42/EEC (Medical Devices)

Classification: IIa according Directive 93/92/EEC

Technical Data for ECG:

Patient input circuit: Fully floating and isolated, defibrillation-protected (only with original SCHILLER patient cable)

Monitor display:

– 3-channel display of the selected leads

– 25, 50 mm/s

– 5, 10, 20 mm/mV

– Filter status (on/off)

– Insufficient electrode contact

– Heart Frequency, HF

– mm/mV, mm/s

Leads: 12 simultaneous leads: Standard / Cabrera

Chart printout speed: 5/10/25/50 mm/s (manual print)

Sensitivities: 5/10/20 mm/mV, either automatically adjusted or manually selected

Automatic lead programs:

– 6/12-channel presentations of 12 simultaneously recorded standard leads on one or more A4 (8.5 x 11 inches) pages

– Numerous printout formats can be selected

Data record:

– Patient data (name, age, height, weight, BP), user ID

– Listing of all ECG recording conditions (date, time, filter)

– Measurement program (M): ECG measurements results (intervals, amplitudes, electrical axes), average complexes with measurement reference markings

– Interpretation (C) with adult and pediatric guidance

Recording track: 6/12-channel presentation, optimal positioning on a width of 200 mm, automatic baseline adjustment

Filter: Myogram filter (muscle tremor filter): 25 Hz or 35 Hz, can be switched on/off (SCHILLER Baseline Stabilizer SBS, SCHILLER Smoothing Filter SSF)

ECG amplifier:

– Simultaneous recording of all 9 active electrode signals (= 12 leads)

– Sampling frequency: 1000 Hz

– Pacemaker detection: $\geq \pm 2$ mV/ $\geq 0,1$ ms

Technical Data for Spirometry (Option):

Measured values:

FVC: FVC, FEV_{0.5}, FEV_{1.0}, FEV_{3.0}, FEV_{0.5}/FVC, FEV_{1.0}/FVC, FEV_{3.0}/FVC, FEF_{0.2-1.2}, FEF_{25-75%}, FEF_{75-85%}, PEF, FEF_{25%}, FEF_{50%}, FEF_{75%}, FVC, FIV_{1.0}, FIV_{1.0}/FVC, FIV_{1.0}/FVC, PIF, FIF_{50%}, FMFT

SVC: SVC, ERV, IRV, TV

MVV: MVV, RR, TV

Presentation possibilities (printout and screen):

– Flow/volume graph

– Volume/time graph

– Table of measured values

– Realtime flow curve

Data record:

– Patient data (name, age, height, weight), user ID

– Registration conditions (date, time, date of last calibration)

– Flow/volume graph and/or volume/time graph

– Table of measured values with PREDICTED/ACTUAL/DIFFERENTIAL values

– Diagnosis guidance

– Memory for more than 60 ECGs or spirometry records

Prediction equation:

Adults: ECCS, Austria, Crapo, Morris, Knudson, Knudson76, Polgar, Berglund, Finland, India, Composite

Children: Quanjer & Tammeling, Austria, India, Knudson, Knudson76, Polgar

Extrapolated predicted values

Comparison of PRE/POST medication is possible

Standards Compliance: ATS, OSHA, NIOSH

SPIROVIT SP-250 Pneumotach Flowsensor for pulmonary function testing with disposable mouthpiece:

Dimensions of SP-250: 118 x 36 x 28 mm, approx. 120 g; 4.6 x 1.4 x 1.1 in., approx. 0.26 lbs

Measuring method: Pneumotachometer

Measuring accuracy: According ATS < 3%

Flow impedance: < 0.2 mbar*s/l at 12 l/s

SPIROVIT SP-260 Pneumotach Flowsensor for pulmonary function testing with reusable mouthpiece:

Dimensions of SP-260: 125 x 36 x 28 mm, approx. 160 g; 4.9 x 1.4 x 1.1 in., approx. 0.34 lbs

Measuring method, Measuring accuracy, Flow impedance same as SP-250

Scope of delivery:

- 1 pneumotach sensor; choice of SP-250 disposable (P/N 2.100022) or SP-260 reusable sensor (P/N 2.100551)
- Accessories: 2 noseclips and either 1 pack of disposable plastic mouthpieces for SP-250 (P/N 2.100077) or 1 pack of disposable filters for SP-260 (P/N 2.100123)
- 1 operating manual

Scope of delivery for CARDIOVIT AT-102 Standard:

CARDIOVIT AT-102 Resting ECG with 12 simultaneous leads, pacemaker detection, automatic ECG measurement

Accessories:

- 1 10-lead patient cable
- 1 set of electrodes or disposable electrodes
- 1 power cable
- 1 pack chart paper
- Operating manual

Software options:

- Computer-aided ECG interpretation for pediatric and adult ECGs (C)
- Basic exercise test
- SEMA-200 PC software to save, validate and archive ECG and spirometry data on PC

Hardware options:

- Equipment trolley
- Spirometry sensor SP-250 or SP-260
- Calibration syringe
- Vacuum electrode system VAC-100
- External printer
- External monitor connection
- Internal SCHILLER Communication Module with optional built-in analogue modem

Technical Data are subject to change without notice.

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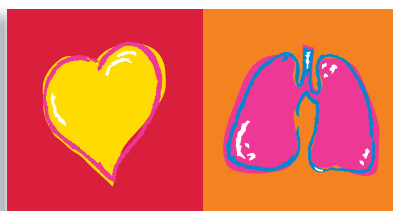
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