



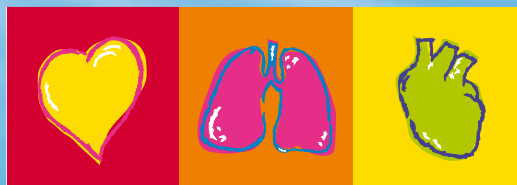
# CARDIOVIT AT-2 plus

## TWO DEVICES IN ONE!

ECG and spirometry in one:

Until recently, the importance of spirometry tests for the early diagnosis of chronic obstructive lung diseases and certain cardiac diseases has been seriously underestimated. However, the ever growing number of patients suffering from pulmonary function restrictions shows clearly that a frequent examination of the pulmonary function is essential.

SCHILLER was the first manufacturer to combine the two most common pulmonary function and cardiac tests in one device - the CARDIOVIT AT-2 plus with ECG and spirometry function.



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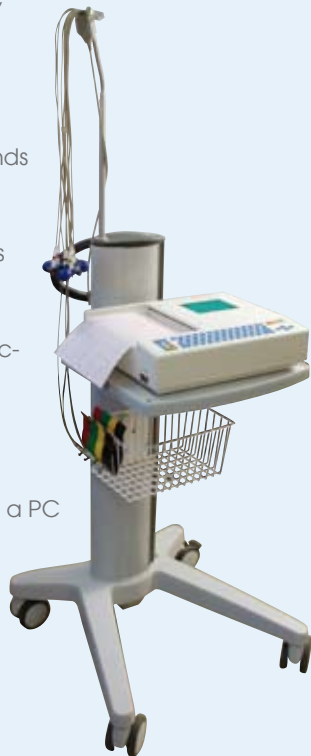
The Art of Diagnostics

# CARDIOVIT AT-2 plus

## TWO DEVICES IN ONE!

### Simple handling - double benefit:

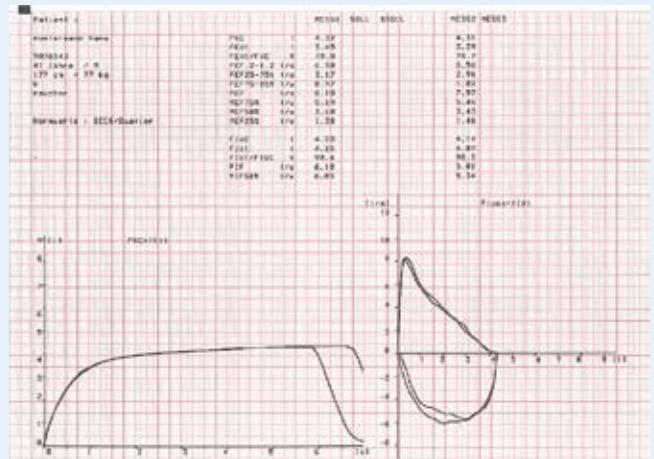
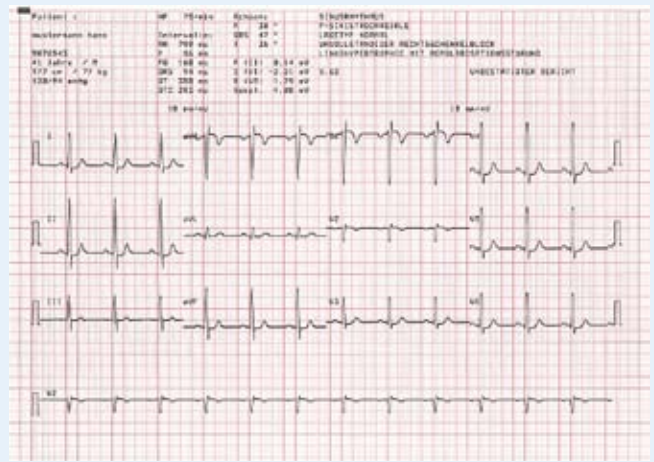
- Two tests in one device pays off
- Both functions are controlled from the same device
- Thanks to its low weight and handy size, the CARDIOVIT AT-2 plus can be transported very easily
- The device distinguishes itself through its absolute reliability
- With the integrated high-resolution printer, you can obtain reports in A4 format, in unequalled quality and ready-to-file
- You get printouts including diagnosis and measuring values in less than 20 seconds
- Integrated accumulator
- Enlarged printouts and an unlimited number of copies can be obtained
- The alphanumeric, water-resistant keyboard with function keys allows easy and quick patient data entries
- Storage of more than 60 recordings (option)
- Data can be transferred to a PC



### Internationally renowned ECG technology:

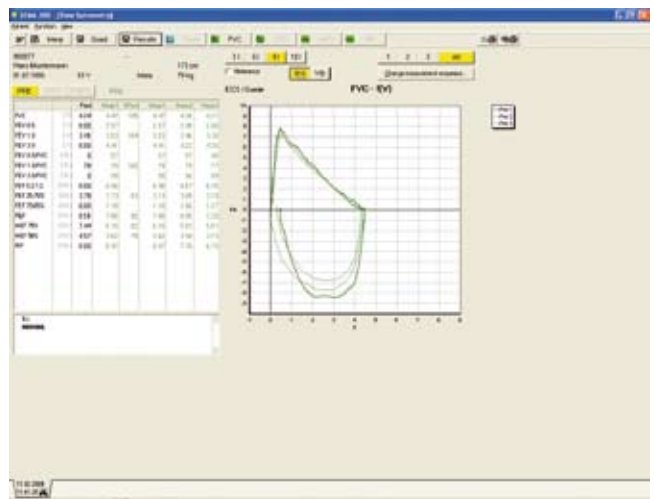
- 6 channel real-time printout at 5, 25 or 50 mm/s
- Automatic 6 /12 channel printout on one or two pages
- Quick and reliable PC based interpretation and measurement program for adult and children ECGs
- No need to repeat ECG recordings since the quality of the waveforms is optimised by the SCHILLER smoothing and baseline filters
- Save time and paper by simply monitoring all 12 leads on the integrated 3 channel screen





**Fulfilling highest spirometry standards:**

- Thanks to the SP-250 sensor with its unique disposable mouthpiece, the risk of cross contamination is eliminated
- Small and light sensor
- Simple and quick calibration
- Inspiratory and expiratory pulmonary function tests: FVC, SVC, MV, MVV as well as pre/post medication tests
- Several norm value tables can be selected as needed
- Visual support due to real-time graphics and display of the measured values on the screen





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# CARDIOVIT AT-2 plus

## Technical Data CARDIOVIT AT-2 plus

### System

**Dimensions:** 400 x 330 x 101 mm (l/w/h), weight approx. 5 kg

### Integrated monitor:

- Size: 120 x 90 mm
- Resolution: 320 x 240 dots

### Monitor display:

- Battery status
- Date, time
- Mains operation

### Control elements:

User-friendly alphanumeric keyboard, LED indicator and monitor

### Power supply:

220 - 240 V (nominal), 50/60 Hz; 110 -115 V (nominal), 50/60 Hz; mains-independent operation thanks to integrated, rechargeable battery, LED indicator for mains operation, power supply unit

### Battery capacity:

3 hours of normal use

### Printer

**Chart paper:** Thermo-reactive, z-folded, width 210 mm (A4), approx. 60 m, ready-to-file

**Printing technology:** Integrated high-resolution thermal printer, 8 dots/mm (amplitude axis), 40 dots/mm (time axis) @ 25 mm/s

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

**Sensitivity:** 5 / 10 / 20 mm/mV, automatic or manual selection

**Printer format:** 6 / 12 channel printout, optimal positioning on a width of 200 mm, automatic baseline adjustment

### Automatic lead programs:

- Presentation of 6 / 12 channels of the 12 standard leads, recorded simultaneously on one or several A4 pages
- Selection of different report formats

**Interfaces:** RS-232 connection for spirometry sensor, data transfer to a PC (SEMA 200) or external modem

### Safety standards

**Safety standard:** CF according to IEC 60601-1 and IEC 60601-2-25, UL 2601-1; C22.2 No.601.1-M90

**Protection class:** I according to IEC 60601-1 (with internal power supply), IIa according to directive 93/42/EEC (medical devices)

**Conformity:** CE according to 93/42/EEC

### Environmental conditions:

- Temperature, operating: 10°C to 40°C
- Temperature, storing: -10°C to 50°C
- Relative humidity: 25 to 95% (non-condensing)
- Pressure, operating: 700 to 1060 hPa

### Technical Data: ECG

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

### Monitor display:

- 3 selectable leads
- 25 or 50 mm/s
- 5, 10 or 20 mm/mV
- Filter status (on/off)
- Bad electrode contact
- Heart rate (HR)
- mm / mV / mm/s

### ECG amplifier:

- Simultaneous recording of all 9 active electrode signals (= 12 leads)
- Sampling frequency: 1000 Hz
- Pacemaker detection:  $\geq \pm 2 \text{ mV} / \geq 0.1 \text{ ms}$

**Leads:** 12 simultaneous leads: Standard/Cabrera

### Log file:

- Patient data (name, age, height, weight, BP), user identification
- Listing of all ECG recording conditions (date, time, filter)
- Option: Measurement M and interpretation C: ECG measurement values (intervals, amplitudes, electrical axes), average complexes including optional measurement reference markings, interpretation for children and adult ECGs

### Filter

#### Myogram filter (muscle tremor filter):

25 or 35 Hz, can be activated/deactivated

**Line frequency filter:** Distortion-free suppression of superimposed 50 or 60 Hz sinusoidal interferences by adaptive digital filtering

### Frequency range:

0.05 Hz - 150 Hz (EC/AHA)

### Technical Data: Spirometry (option)

Measured values: **FVC:** FVC, FEV0.5, FEV1.0, FEV3.0, FEV0.5 /FVC, FEV1.0 /FVC, FEV3.0/FVC, FEFO.2-1.2, FEF25-75%, FEF75-85%, PEF, MEF75%, MEF50%, MEF25%, FIVC, FIV1.0, FIV1.0/FVC, FIV1.0/FVC, PIF, MIF50%, TDEM SVC: SVC, ERV, IRV, TV

**MVV:** MVV, RR, TV

### Presentation (printout and monitor):

- Flow/volume curve
- Time/volume curve
- Measurements table
- Real-time flow curve

### Log file:

- Patient data (name, age, height, weight), user identification
- Listing of all recording conditions (date, time, last calibration)
- Flow-volume or volume-time curve
- Actual/predicted value comparison
- Diagnosis
- Possibility to save more than 60 ECG or spirometry recordings

### 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

**Pre-/post medication comparison** possible

**Standards:** ATS, OSHA, NIOSH

**Sensor:** SPIROVIT SP-250, pneumotach flow sensor with disposable mouthpiece

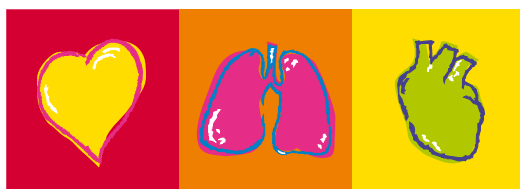
**Dimensions SP-250:** 118 x 36 x 28 mm, weight approx. 120 g; 4.6 x 1.4 x 1.1 in, approx 0.26 lb

**Measuring method:** Pneumotachometer

**Measurement accuracy:** According to ATS standards < 3%

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

**Sensor:** SPIROVIT SP-260: pneumotach flow sensor with reusable mouthpiece



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# CARDIOVIT AT-2 plus

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

**Measuring method, measurement accuracy, flow impedance same as for SP-250**

**Basic Unit:**

- 1 sensor, either SP-250 with disposable mouthpiece (art. no. 2.100022) or SP-260 with reusable mouthpiece (art. no. 2.100551)
- Accessories: 2 nose clips and either 1 pack of disposable mouthpieces for the SP-250 (art. no. 2.100077) or 1 pack of disposable filters for the SP-260 (art. no. 2.100123)
- 1 operating manual

**Basic equipment CARDIOVIT AT-2 plus**

Resting ECG with 12 simultaneous leads, pacemaker detection

**Accessories:**

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

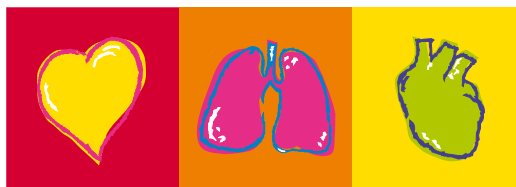
**Software options:**

- PC based ECG measurement and interpretation program for adults and children
- Possibility to save up to 40 ECG or 40 spirometry recordings
- SEMA-200 program to save, validate and file ECG and spirometry data on a PC

**Hardware options:**

- Instrument trolley
- Spiro sensor SP-250, SP-260
- Calibration pump

Technical data are subject to changes without prior notice.



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07/09



Data sheet for Part no.: 2.500226