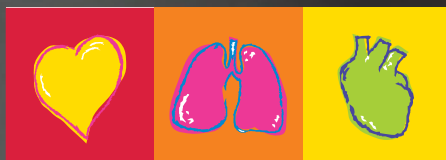




## SCHILLER's medilog® Holter system

Sophisticated and precise ECG analysis  
that meets the highest demands.



**SCHILLER**

The Art of Diagnostics

# Philosophy

## Much more than arrhythmia screening

Schiller's medilog® Holter system provides a comprehensive analysis of the human being as a whole.

Atrial fibrillation detection, sleep apnoea screening and the determination of the quality of life are just some of the exceptional features of medilog®.

Designed with feedback from hundreds of cardiologists and cardiac technicians worldwide, medilog® offers unparalleled accuracy and opens up new possibilities for Holter analysis.

## A unique set of sophisticated tools

- P wave detection for accurate atrial fibrillation screening
- PureECG™ technology for superior signal quality
- ECHOView™ for instantaneous detection of atrial fibrillation onset
- Sleep apnoea detection with synchronised ECG, respiration waveforms and SpO<sub>2</sub> readings
- Fire of Life™: a brilliant, new approach to Heart Rate Variability analysis



AV-block patterns and other critical anomalies are easily identified.



**FD12 plus**



**AR12 plus**

Channels	3 or 12	3
PureECG™	✓	✓
P wave detection	✓	✓
Motion detection	✓	✓
Respiration	✓	✓
Bluetooth	✓	✓
SpO <sub>2</sub>	✓	✓

## Adapting to your needs

DARWIN2 offers maximum flexibility with freely configurable reports, user-defined screen layout and workflows. It is available in three different versions to suit the needs of any organisation and to grow with it:

- DARWIN2 Office: optimised for routine application in physicians' offices.
- DARWIN2 Professional: perfect for a small to mid-sized Holter scanning centre with the need for fast atrial fibrillation detection.
- DARWIN2 Enterprise: for the most demanding research centres and high-volume hospitals. Includes atrial fibrillation, apnoea detection, SpO<sub>2</sub> and an option for scanlab web-service.

## Just 3 mouse clicks away from a report

DARWIN2 is designed to maximise speed and ease of use.

The automatic analysis of a 24-hour Holter recording takes less than 90 seconds, with extremely accurate results.

Data review is faster than ever: it takes only three mouse clicks to generate a comprehensive report.

## 99.9% accuracy with medilog® ADAPT™

The medilog® ADAPT™ algorithm has a 99.9% accuracy in beat detection.<sup>1</sup>

All recorded channels are analysed and excessively noisy episodes are automatically excluded. As a result, the automatic analysis is greatly improved and saves time in the final report generation.

<sup>1</sup> Obtained in comparison with the American Heart Association database (AHA: QRS Se: 99.9%, QRS +P: 99.9%, VES Se: 98.0%, VES +P: 97.5%) and the MIT-BIH arrhythmia database (MIT: QRS Se: 99.9%, QRS +P: 99.9%, VES Se: 96.4%, VES +P: 93.7%) according to the ANSI/AAMI standards EC38:1998 and EC57:1998.



medilog®

# Recorders

## Wide range of options

medilog® recorders offer the acquisition of up to 12 leads and 7 days of uninterrupted 3-channel recording.

- All units feature a robust, shock-proof and splash-proof innovative design.
- Voice recording allows technicians to easily store patient information before starting the recording.
- Patients can easily and immediately record their diary event with comments perfectly synchronised with the ECG.
- Bluetooth is available on the most sophisticated models for transmission during recording, allowing for a quick ECG check-up at any time.
- medilog® high-end recorders introduce new diagnostic possibilities with the unique ability to record SpO<sub>2</sub> measurements synchronised with ECG waveforms.



**AR4 plus**



**FD5 plus**

3	3
✓	✓
✓	
✓	

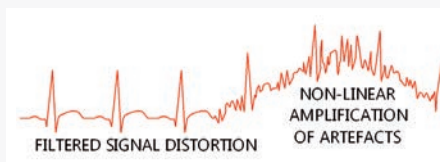


### PureECG™

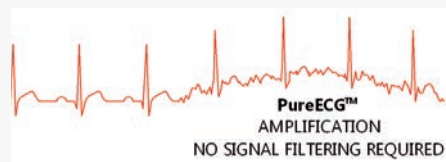
With medilog® Holter recorders, SCHILLER introduces PureECG™ technology and sets a new standard for high signal quality and lower power consumption.



Noisy episodes due to muscle artefacts and degrading electrodes are unavoidable during a 24-hour or even longer recording.



A conventional Holter recorder tends to amplify noise much more than the actual signal. To compensate this effect, the signal is often heavily filtered, which results in further distortions and heavy changes on morphology (QRS width, shape of P and T wave).



With the new PureECG technology, medilog® recorders have broken this vicious cycle. The recorder signal is remarkably cleared and matches the original signal, all the while dramatically reducing power consumption.

# Atrial Fibrillation

## P wave detection and ECHO View™

With the introduction of PureECG™, SCHILLER has achieved unparalleled signal quality in Holter recordings.

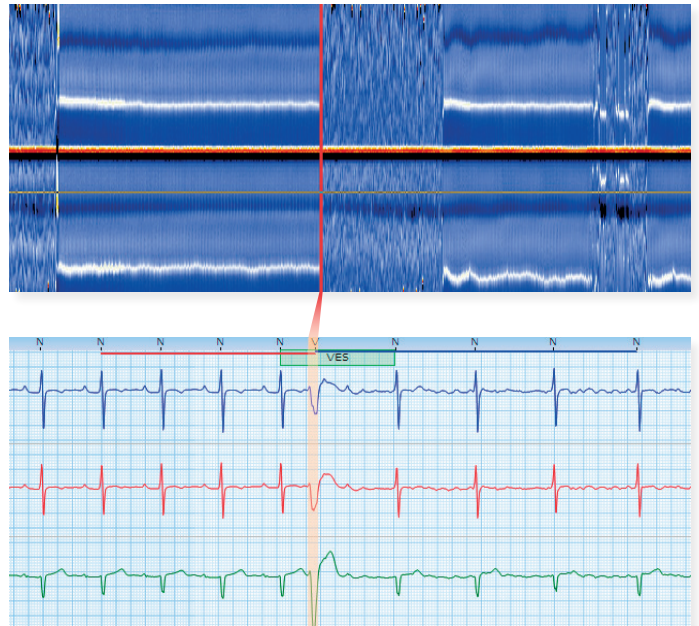
With state-of-the-art amplifiers and filter technology, medilog® recorders are capable of direct P wave detection. This outstanding result, coupled with the ECHO-View™ display, makes it possible to identify in a matter of seconds the onset and offset of atrial fibrillation and atrial flutter episodes.

ECHOView™ is a “bird eye” display of the ECG, with clear representation of the P and T waves in each cycle. This innovative diagnostic tool saves valuable time during arrhythmia analysis by showing patterns of irregular PR and QT intervals of 15,000 beats at a glance.

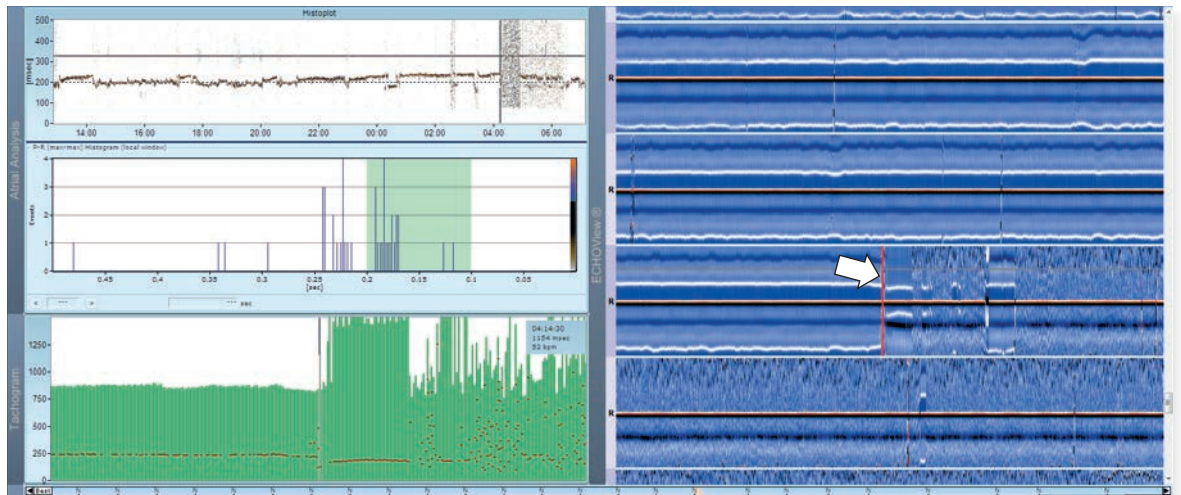
- No more beat-by-beat or page-by-page review of Holter recordings.
- Reduce cost and improve patient care with early detection of atrial fibrillation and atrial flutter.
- Preliminary assessment of the need for invasive diagnosis, therapy or surgery.
- Effective patient monitoring following surgery or ablation.

ECHOView displays up to 4 hours of ECG beats in a compact format.

Click on the ECHOView window and the corresponding ECG waveforms are displayed to evaluate indications of atrial fibrillation or flutter.



AV-block patterns and other critical anomalies are easily identified



### Why it matters

Atrial Fibrillation (AF) is the most common form of irregular heart rhythm, estimated to affect up to 2% of the world’s population. The likelihood of developing AF increases with age and the number of people affected is expected to double in the next 20 years. AF is believed to account for one third of all hospital admissions for cardiac rhythm problems, and believed to cause around 15% of all strokes. Early detection and treatment

could save healthcare systems the enormous cost of treating patients under emergency conditions, and improve outcomes for the patients concerned.

*medilog® DARWIN2 now puts a reliable, affordable and non-invasive screening device in the hands of people that can make that difference.*

# Apnoea Screening

## Synchronised ECG and respiration curves

Using the method of ECG-derived respiration, medilog® DARWIN2 calculates a very accurate apnoea index thanks to the medilog® recorders' high sampling rate and resolution.

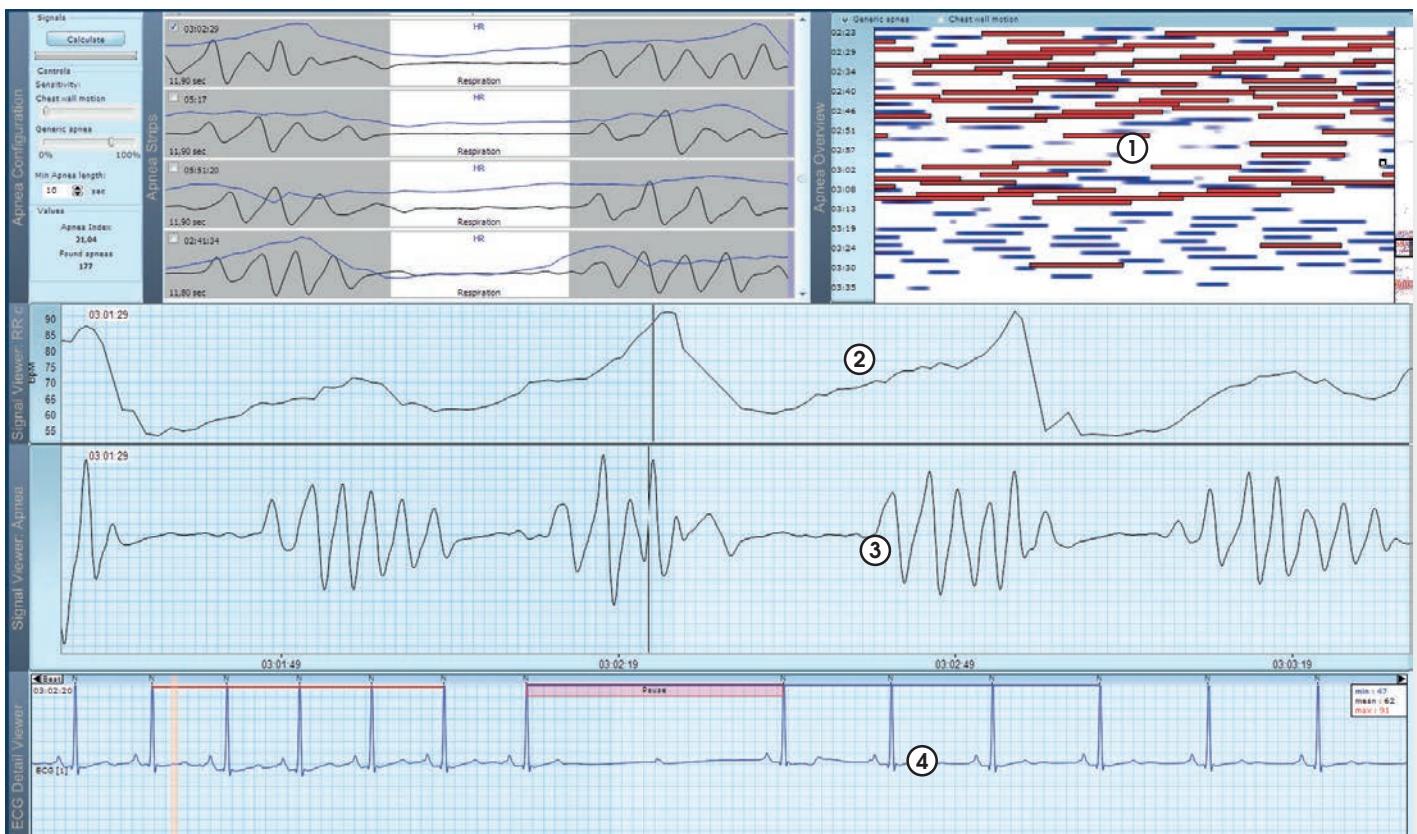
The synchronised display of ECG waveforms, heart rate trends and respiration curves provides a valuable tool for thorough analysis of the correlation between arrhythmias and apnoea episodes.

With the addition of simultaneous SpO<sub>2</sub> measurements, medilog® DARWIN2 features the most comprehensive and effective approach to sleep apnoea screening with Holter analysis.

Are arrhythmias caused by apnoea episodes?

Synchronised ECG and respiration curves provide all the information at a glance.

- ❶ Bird's eye view of respiration curves, to instantaneously detect apnoea episodes
- ❷ Heart rate trend
- ❸ Respiration curve
- ❹ ECG



### Apnoea pre-screening at home: reducing costs through prevention

In around 30% of all patients that undergo polysomnography, no apnoea is detected. However, these patients often suffer from cardiological diseases. And yet it is not uncommon for cardiological diseases to occur in combination with apnoea. Apnoeas are often chronic and, if left untreated, can lead to enormous financial burdens for the healthcare system due to high follow-up costs.

*DARWIN2 Enterprise offers you a fast, reliable and inexpensive screening tool to exclude apnoea in your patients.*

- Early detection of sleep apnoea episodes.
- Low-cost, comfortable tool for tests at home.
- Therapy assessment.
- Review of sleep quality and evaluation of quality of life.

# Fire of Life™

## A brilliant, intuitive, new approach to HRV analysis

Time- and frequency-domain Heart Rate Variability results are often difficult to interpret and traditionally require time-consuming review.

Fire of Life™ is a very intuitive visual presentation of frequency-domain HRV that makes the assessment of 24-hour results fast and simple.

Repeatable patterns of high- and low-frequency activity during day and night can be easily identified, providing information on sleep quality and level of stress.

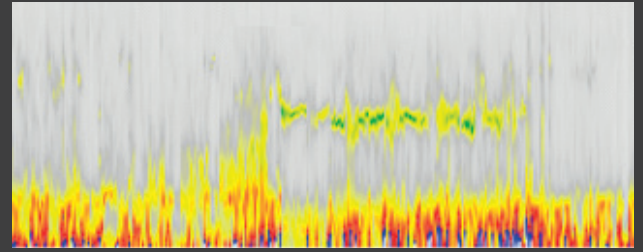
It can be used very effectively in the occupational health sector to control the stress burden and sleep quality and also in sports medicine to check the recovery process.

### Feedback from customers

The Fire of Life picture serves as a visual basis to discuss therapy and life style changes with patients.

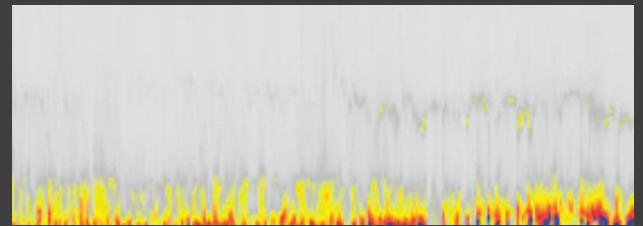
There are no numbers and tables, patients are able to see changes on their own, resulting in increased compliance.

### NORMAL REGULATION – and recovery during the night



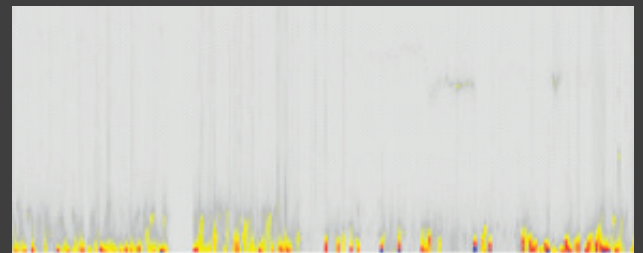
**Example 1:** Swim trainer, woman, 23y, very good sleep quality, rhythmic sleep structure, very good capability for regeneration.

### REDUCED REGULATION – overloaded, only little recovery at night



**Example 2:** 40-year-old manager, overloaded, stress-induced reduction of parasympathetic activation at night.

### BURN-OUT SYNDROME – heavily overloaded, incapable of working



**Example 3:** Mother, 45 years old, high mental load due to her family structure, almost complete collapse of the regulatory abilities. The night is hardly different from the day and shows no regenerative processes.

### Reliable results

Many Holter systems offer HRV analysis. Only a few have the precision required for reliable results.

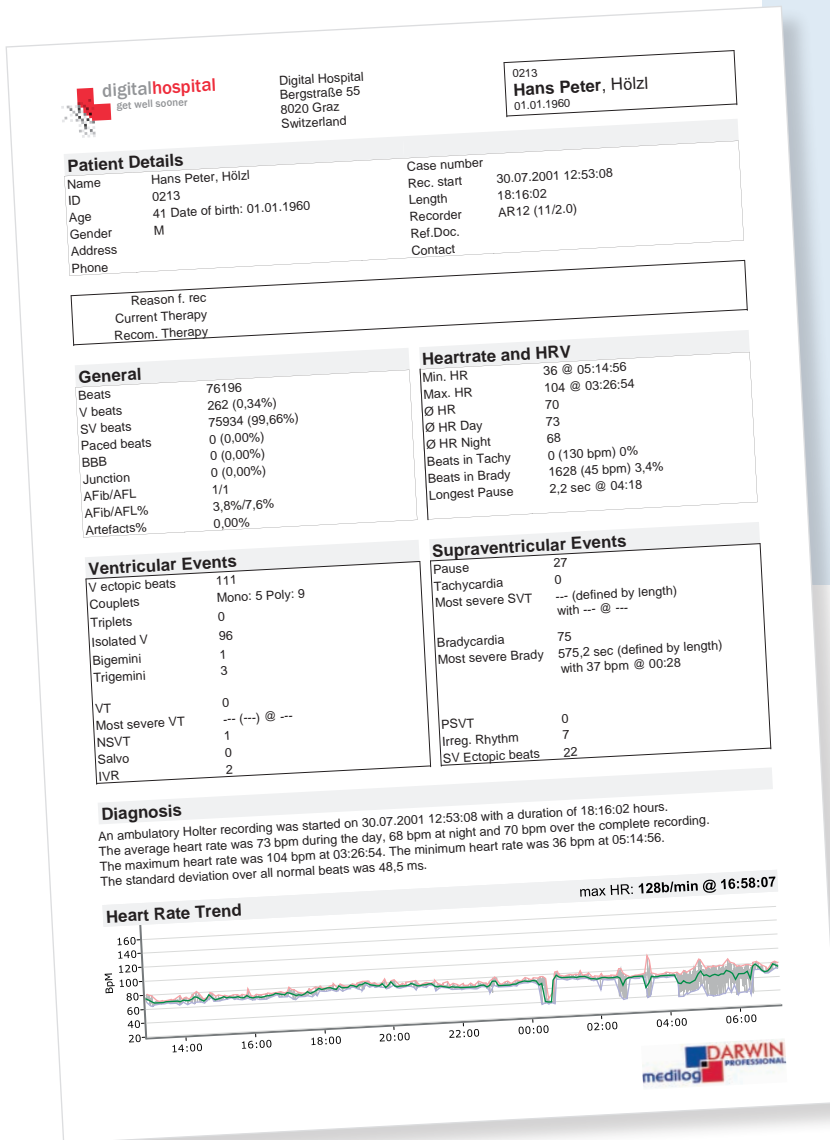
With state-of-the-art technology, high sampling rate and resolution, medilog® Holter recorders provide an extremely accurate R peak detection, which is the basis of reliable HRV analysis.

For research purposes, all data can be exported in Matlab, MS Excel or ISHNE format.

DARWIN2 provides the best beat-to-beat analysis that a non-invasive measuring method can offer.

## Personalise your reports

- Brand your DARWIN reports with your own logo.
- Add or remove arrhythmia strips.
- Add different trend views or diagrams for a specific recording.
- If a patient shows very specific QT duration changes over time, why not to add this trend to your final report?



DARWIN2

# Liberty™

## Upload your recordings in the Cloud

DARWIN2 Liberty™ has been designed to overcome long distances and support communities spread over large areas.

It is the perfect solution for Holter scanning service providers and hospitals with patients in remote locations. It was never so easy to upload and manage Holter data and reports. Fast turnaround will dramatically increase cost-effectiveness of the scanning service and improve patient care.

- Holter recordings can be uploaded from anywhere via the internet.
- No need for dedicated client software at the remote location. All that is needed is a PC with internet connection and a web browser.
- Patient data and waveforms can be displayed at the remote site for quality check.
- Final reports are available for review via internet as soon as they are completed.

## Review your recordings anywhere on the network

- Scalable solutions that meet all needs, from the physician's office to large hospital networks
- Multiple floating licenses to maximise data access for minimum cost
- Data security and integrity is guaranteed: patient data can only be accessed by one user at a time, with information on who is reviewing which data.
- Data export to SCHILLER SEMA3 or in various formats for compatibility to third-party systems





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