

New BIOTRONIK devices for Cardiac Resynchronization Therapy

Lumax HF-T



- Three independent channels with programmable VV-delay

Pulse amplitude and pulse width can be separately programmed for each channel. The VV-Delay can be programmed between 0 ms and 100 ms with either the left or right chamber stimulated first.

- Extended Heart Failure Monitor[®]

The heart failure monitor now comprises the new parameters PP-variability and AF burden (derived by the new AF Monitoring zone)

- IEGM Online HD[®]

The new high definition IEGM Online HD provides three IEGM channels (Lumax HF-T: RA, RV, LV) as well as three fully annotated marker channels. There is no additional compression thus the online IEGM's will be of the same quality as those available from the programmer. These are recorded with a sampling frequency of 128 Hz. The duration of an IEGM Online HD episode will be 10-30 sec pre-detection plus 3-14 sec pre-termination.

- RV tracking above Upper Tracking Rate

The new Lumax HF-T device offers fast RV tracking functionality of 2ms which will ensure LV/RV resynchronization above the upper tracking rate (e.g. during fast conducted AF).

- Multiple LV pacing configurations

Lumax HF-T provides four different LV pacing configurations (electronic lead repositioning) to overcome high pacing thresholds and phrenic nerve stimulation, and improve hemodynamics.

- ATP-one-shot

Lumax HF-T offers a single ATP burst for fast and stable right ventricular rates within the VF zone, prior to the charging of capacitors. This provides a painless therapy option for fast VT within the VF zone.

- AF monitoring zone

A separate AF monitoring zone can be programmed to detect and to record atrial tachycardia. Several statistics as well as IEGM records provide detailed information about the severity of the atrial arrhythmia.

- Standard and high energy device

The Lumax HF-T will be available in a standard version (Lumax 300 HF-T: max. 30J(stored)) and a high-energy version (Lumax 340 HF-T: max. 40J (stored)).

- Competitive device dimensions

Lumax 300 HF-T:	37cc, 12mm thickness, 83g
Lumax 340 HF-T:	40cc, 13mm thickness, 94g

- Greater than 8 years service time

DDD-BiV 60ppm; 2.5V at 0.5 ms; RA 0% pacing, RV/LV 100% pacing; 900 Ω ; quarterly shocks; Home Monitoring and full diagnostics ON

Corox OTW BP

- Co-Radial TwinFlex Technology® lead design

The NEW co-radial design offers a bipolar LV lead with increased lead body flexibility. With a true bipolar design Corox OTW BP enables multiple programmable pacing polarities to actively reduce complications.



- Two Unique Fixation Solutions

Corox OTW BP offers two completely unique fixation solutions of helix and "thread" as proven alternatives to treat patients with challenging anatomies. This enables the fixation mechanism to be tailored to the specific anatomy.



- Ultra-Thin Size, with Added Durability

Corox OTW BP utilizes the co-radial lead design to offer the thinnest lead body of only 5.4F, enabling deliver to even the smallest veins. Additionally Corox OTW BP has three secure layers of insulation of PTFE, silicone and polyurethane to guarantee long-term durability.

- Outstanding Electrical Performance

Corox OTW BP has achieved excellent clinical performance in the pre-market evaluation with a medium threshold of only 0.7V and high impedances at the 1-month follow-up. This result is attributable to the proven design materials used including the use of Drawn-filled tubing DFT-wire. Additionally Corox OTW BP offers double steroid release, and Fractal coating to minimize inflammation and potential complications.

VisionWire®

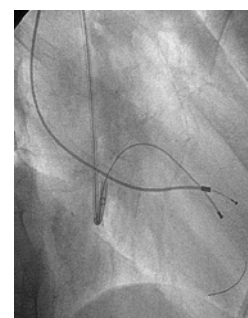
- Intra-operative Guidewire testing

VisionWire has specially designed electrically active distal tip to enable intra-operative threshold testing. This means that lead measurements can be obtained prior to the introduction of the LV lead.

Additionally VisionWire can be used to optimize cardiovascular hemodynamics, via the use of different intra-operative pacing stimulation sites, effectively increasing the rate of responders.

- Standard diameter

VisionWire has a standard guidewire diameter of 0.014" which means that it is compatible with all LV leads and guiding sheaths. The wire has a green PTFE insulation coating in the middle portion with electrically active ends to enabling proximal connection with an analyzer.



Advanced BIOTRONIK Home Monitoring Technology

- **Extended data transmission with Cardio Messenger II**

The new technology for data transmission via GPRS standard enables the new Lumax devices to transmit significantly more data via the cellular network than former devices. Lumax will transmit all statistics, program parameters and measured values on a daily basis. Additionally the new high definition IEGM Online HD[®] will offer a transmitted length up to 45 seconds for triggered events or periodic intervals.

- **Improved data handling with an updated Home Monitoring Service Center.**

The improved graphical user interface (GUI) of the Home Monitoring Service Center enables easy and efficient handling of the transmitted data, by clustering the information on several tabs, containing corresponding parameters. The Online administration of all the Cardio Messengers will be significantly simplified.

New BIOTRONIK devices for standard ICD therapy

Lumax VR-T/DR-T

- IEGM Online HD®

The new high definition IEGM Online HD® provides up to three IEGM channels (Lumax VR-T: FF/RV; Lumax DR-T: FF/RA/RV) as well as up to three full annotated marker channels. There is no additional compression thus the online IEGM's will be in the same quality as that available from the programmer. The duration of an IEGM Online HD episode will be 10-30 sec pre-detection plus 3-14 sec pre-termination.



- Extended Heart Failure Monitor® (only Lumax DR-T)

The heart failure monitor now comprises the new parameters PP-variability and AF burden (derived by the new AF Monitoring zone)

- Advanced IRS^{plus} (only Lumax DR-T)

The IRSplus functionality in the Lumax DR-T devices will search for intrinsic conduction by prolongation of the AV interval with programmability up to 400 ms.

- ATP-one-shot

Lumax VR-T/DR-T are able to deliver a single ATP before charging for fast and stable right ventricular rates within the VF zone. This provides a painless therapy option for fast VT within the VF zone.

- AF Monitoring Zone

A separate AF monitoring zone can be programmed to detect and to record atrial tachycardia. Several statistics as well as IEGM records provide detailed information about the severity of the atrial arrhythmia.

- Standard and High Energy Options

The Lumax VR-T/DR-T will be available in a standard version (Lumax 300 VR-T/DR-T: max. 30J stored) and a high-energy version (Lumax 340 VR-T/DR-T: max. 40J stored).

- Physiological Device Dimensions

Lumax 300 VR-T/DR-T:	34cc, 12mm thickness, 81g
Lumax 340 VR-T/DR-T:	37cc, 13mm thickness, 92g

- Competitive Service Time

Lumax 300 VR-T	7.2 years*
Lumax 340 VR-T	6.8 years*
Lumax 300 DR-T	6.5 years**
Lumax 340 DR-T	6.1 years**

* VVI 60ppm; 2.5V at 0.5 ms; RV 15% pacing; 700 Ω; quarterly shocks; Home Monitoring and full diagnostics ON

** DDD 60ppm; 2.5V at 0.5 ms; RA 50% pacing, RV 15% pacing; 700 Ω; quarterly shocks; Home Monitoring and full diagnostics ON