PROLIFE

Polygraph for Electrophysiology

CARDIAN® PLUS

12, 16 and 20 channel series

The Evolution of Electrophysiology in Your Hands

Cardian 20 Plus

The Cardian Polygraph is an advanced, ultra-portable system for measuring electrophysiological signals. Equipped with a modern stimulator fully integrated into the device's platform, it is ideal for carrying out wide-ranging clinical electrophysiology studies.

The Cardian Electrophysiology (EP) Polygraph Plus series is the ideal platform for use in EP procedures, EP laboratories or even hybrid laboratories.

The new series features 4 solution configurations, including the Cardian *Phys*, a unique and compact model more intended for applications with physiological pacemaker implants.

Cardian 20 Plus

Cardian 16 Plus

Cardian 12 Plus

Cardian *Phys*

Cardian Plus Series

The Cardian Platform has been designed to be practical, intuitive and complete.

With ease of use and portability, the Cardian Platform has an integrated cardiac stimulator controlled by software, eliminating the need for external accessories.

The software is easy and quick to install and is compatible with PCs/notebooks with Windows operating systems from versions 10/11 onwards.

The Cardian Plus series has powerful software that centralizes the entire operation. Capable of making recordings and measurements without compromising quality or missing any events during the procedure. What's more, the entire study review can be carried out offline using the same software, eliminating the need for additional installations. All studies can be exported in full or only the parts where recording has been requested.

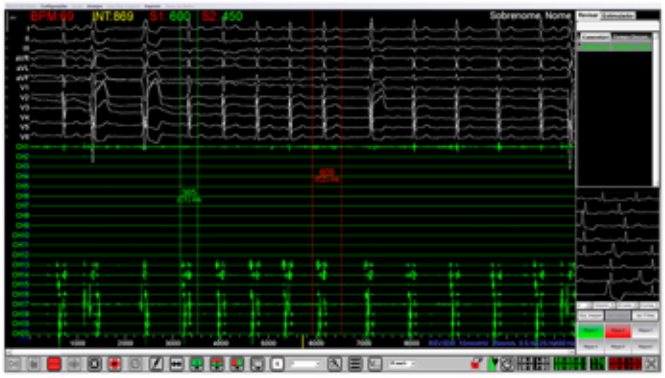
It allows the simultaneously view of 12 surface ECG leads and up to 20 intracavitary channels per device (Cardian 20 Plus), allowing the operator to organize the screen according the preferences between review, trigger and real-time display. An additional larger screen can be used, either in duplicate screen mode or extended screen mode.

With a resolution of 24 bits and a high sampling rate of 2,000 samples per second, it allows to obtain a very high quality signal, generating comfort in the visualization and precision of the information provided.

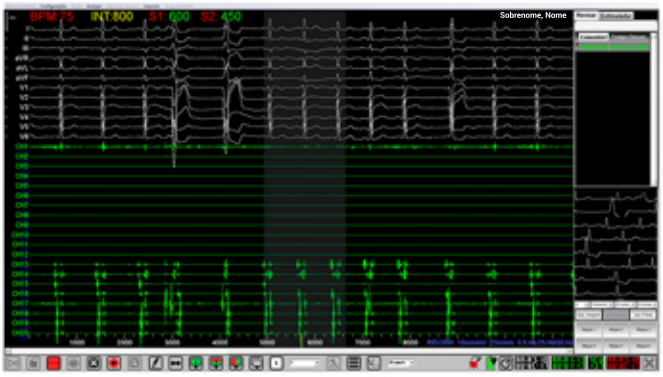
It comes with several high-level electronic and digital filter options to suppress interferences and other unwanted signals.

It has standard connectors, making easy to use with any catheter available in the market today.

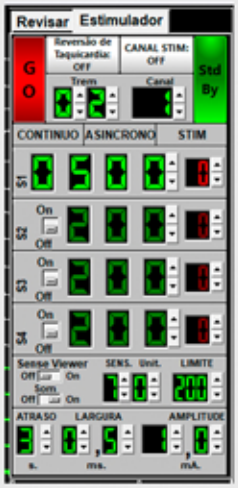
Cardian Plus Series - Features and Practicalities



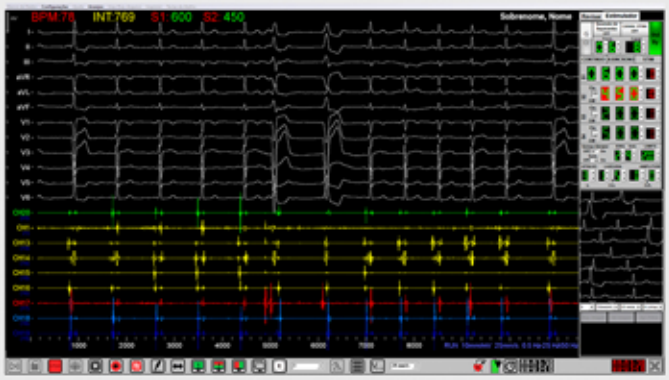
It offers the ability to record up to 90 seconds of past data, allowing configuration by the operator, as well as providing options for continuous recording. The screen can be split vertically or horizontally, with one side reserved for measuring and reviewing waveforms, while the other side displays signals in real time. All recordings are easily accessible via a side menu.



Part of the waveforms can be fixed to the right-hand side of the screen, according to the user's selection, making possible to compare them during stimulation (Pace-Mapping).



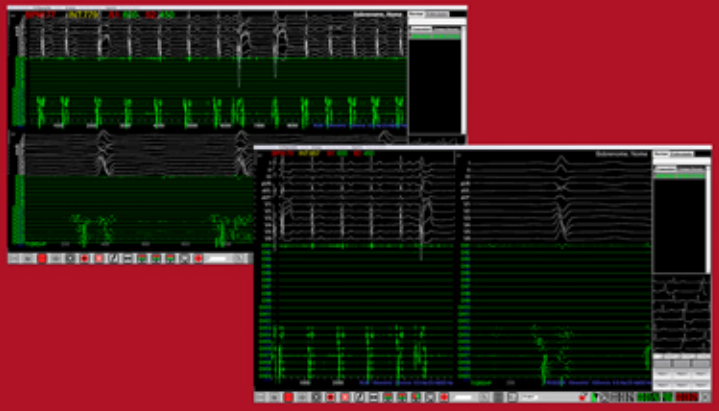
Sophisticated integrated stimulator



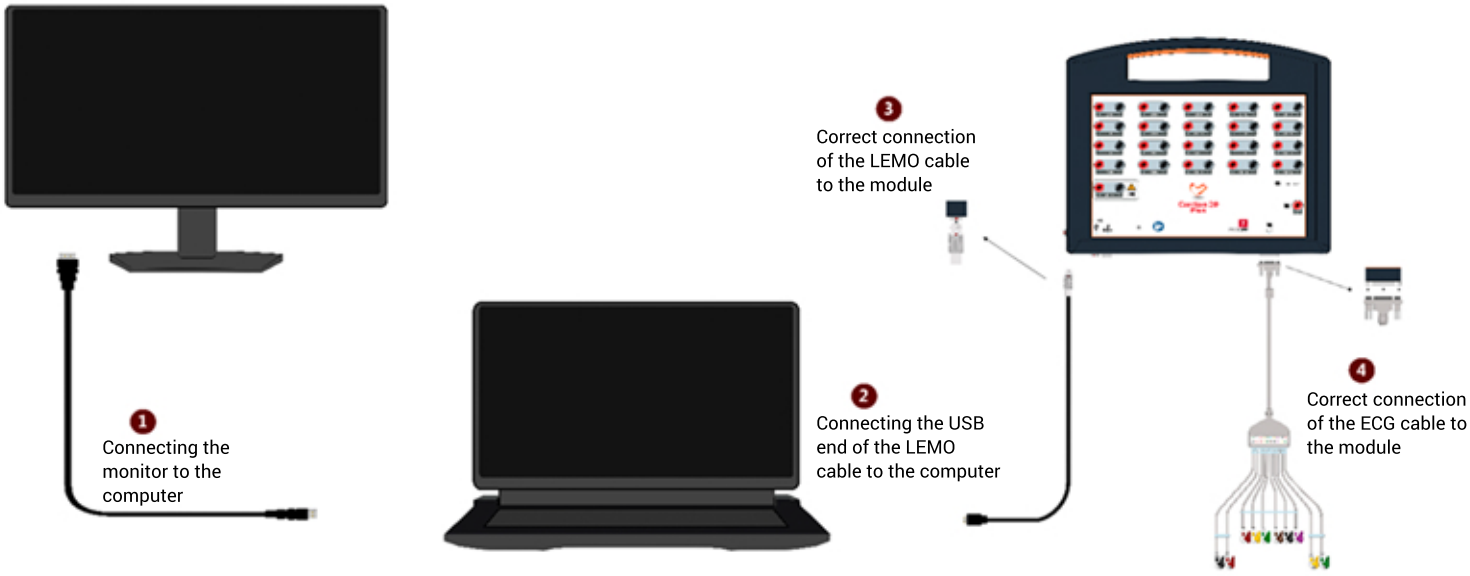
Excellent signal quality

Trigger Function

Using the Trigger function, the waveforms are displayed on a split screen while maintaining the waveform display in real time. The screen can be split horizontally or vertically. This allows for a better review and comparison of the signals.



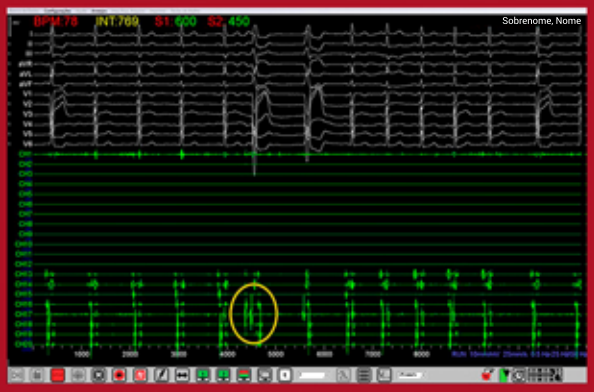
Cardian Plus Series - Complete Setup



Cardian *Phys*

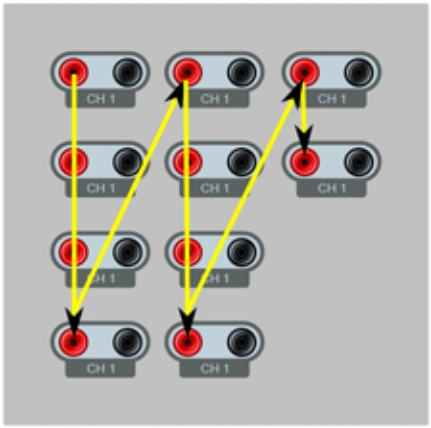
A unique and portable model, with great value delivery, which is intended for physiological pacemaker implants.

With the medical needs for implants in mind, the Cardian *Phys's* high signal quality allows detailed visualization of the most delicate structures (such as the microstructures of the HIS region), to assist in LVAT and paced QRS measurements, for example.



Circular Link

It makes circular connections internally controlled by software, without the need for external adapters.



Prepared for the Future

Always attentive to advances in medical technology, the Cardian Plus Series has been developed with a focus on scalability to generate more value for users of our products.

This version of the products already has an auxiliary port, which in future updates will allow the number of intracavitary channels to be increased by adding other Cardian units.

Using the robustness of the Ethernet connection, the operator will be able to use the Cardian Plus from a greater distance (another physical environment).

Technical Specifications

Surface channels

Electrode connection	R, L, F, N, C1, C2, C3, C4, C5, C6
Connector	DIN DB15
Derivations	I, II, III, aVR, aVL, aVF,V1,V2,V3,V4,V5,V6
Input voltage	maximum differential +/-5 mV
Filters	High pass - 0.5 Hz Low pass - 25 Hz or 40 Hz Band reject - Above -30 dB at power supply frequency
Heart rate range	30 ~ 220 bpm
Pulse demarcation rejection	Amplitude: ±2 mV to ±700 mV Width: 1 ms to 2 ms

Intracardiac Channels

Number of channels	12 Channels – Cardian® *Phys* 12 Channels – Cardian® 12 Plus 16 Channels – Cardian® 16 Plus 20 Channels – Cardian® 20 Plus
Input mode	Bipolar or unipolar
Reference	Unipolar Wilson (ECG)
Patient auxiliary current	< 0.1 µa (normal condition) Rejects common mode 110 dB (all inputs) (All leads on protective earth at power supply frequency)
Filters	0.2 Hz 20Hz 30Hz 40 Hz 80Hz Rejects bandwidth > -18 dB at power supply frequency

Analog-to-digital converter

Number of channels	40 (max)
Resolution	24 bits
Sampling frequency	2000 samples/sec per channel

Stimulator

Output	1 channel at a time
Connectors	2mm hidden banana connector
Maximum output voltage	27V (27mA with 1000 ohm load)
Pulse width	0.1ms to 2.0ms, adjustable with 0.1ms increment
Output current / Pulse amplitude	0.4 mA to 27 mA, adjustable with 0.1 mA or 1 mA increments

Mechanical characteristics

Width	270 mm
Height	247 mm
Depth	42 mm
Weight	1.1 Kg

Electrical Safety

Type of equipment	Class II - CF
Patient auxiliary current	< 0.1 µA any lead except Neutral (normal condition) < 1 or Neutral lead
Maximum output voltage	20 V (20 mA with 1000 ohm load)0.1 to 2.0 ms,
Pulse width	adjustable with 0.1 ms increment
Patient leakage current	< 50 µA (supply partly applied)
Recovery time	<10s (filters can also be reset manually after defibrillation)
Dielectric strength	4000 VAC 1min
Protection against defibrillation	5KV
Degree of protection against liquids	IPX0

Applicable standard

Standard	ISO 13485:2016 ISO 14971:2019 IEC 60601-1:2005/Em1:2012 IEC 60601-1-2:2014 IEC 60601-1-6:2010/Em1:2013 EN 62304:2006/A1:2015 IEC 62366:2007 IEC 60601-2-10:2012/Em1:2016 IEC 60601-2-27:2011

Trolley

This trolley stands out for its compact structure, which promotes exceptional mobility. An auxiliary mobile screen allows the set to be positioned in different configurations within the operating room and the screen to be accommodated at any angle or direction, allowing both the polygraph operator and the doctor next to the patient to have an optimized and total view of the polygraph data in real time. The presence of lockable castors ensures a smooth transition between spaces, as well as offering stability and safety when stationary, preventing unwanted movement during procedures.

The trolley is equipped with a specific support for notebooks and printers, which extends its functionality, allowing documentation and analysis of the data collected in a practical and organized way. An integrated drawer provides additional space for storing accessories and consumables, keeping them accessible and well organized.

N 019 - V. 1 03/2024 - ENG

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