PRODUCTS AT A GLANCE

BTL CARDIOPOINT®

BTL CardioPoint is an acquisition, archiving, data sharing and diagnostic platform which provides a complete solution for cardiology, internal medicine, pediatrics, general practice, sports medicine and more.

Modular system	BTL CardioPoint is a modular system for ECG, Stress-test, CPET, Holter, ABPM and Spirometry with a single patient database.
Complete data accessibility	BTL CardioPoint saves an unlimited number of patients and an unlimited number of examination records (including raw measured data, medical findings, conclusions and PDF reports). Every record can be reviewed anytime in the future.
GDPR compliant	BTL CardioPoint allows administration of user accounts, patient data anonymisation or deletion and user activity tracking (e.g. medical data deletion or editing).
Active Directory support	BTL CardioPoint supports Microsoft Active Directory for an easy administration of user accounts. Users may sign in BTL CardioPoint using identical credentials as they sign in the Microsoft Windows.
Supported operating systems	BTL CardioPoint is compatible with Microsoft Windows. We recommend the Windows 10 system. The oldest supported system is Windows 7 SP1.
Server solution	BTL CardioPoint does not need a dedicated server to run. It is sufficient to install it on a workstation. However, we recommend a server solution for networks with more than 5 users.

CLINICAL WORKFLOW MANAGEMENT

Please note that it is possible to combine individual properties of the BTL CardioPoint-NET solution so that they meet the specific needs of the medical facility.

LISTS OF TERMS

BTL CardioPoint-NET standard edition	BTL CardioPoint-NET is a standard and inherent part of BTL CardioPoint. You can understand the NET solution as a possibility to share patient and examination data among an unlimited number of computers in your medical facility. It also supports integration of BTL CardioPoint into your existing AIS/EHR systems through the GDT interface. Furthermore, it allows automatic exports into HIS and PACS systems.
BTL CardioPoint-NET premium edition	BTL CardioPoint-NETpremium offers the same services as the standard NET solution (see above) plus it allows bidirectional communication with your HIS system or PACS server. BTL CardioPoint thus accepts orders for examinations coming from your HIS or PACS and once the ordered examination is performed, it sends back the results automatically.
BTL CardioPoint-NET consult	This license allows connecting an unlimited number of medical facilities with a single diagnostic center regardless of the distance. With such solution, physicians may share examination data with specialists to get their medical opinions in an easy and quick way. All of that through the Internet using a secured VPN connection. Each medical facility connected to the diagnostic centre needs one license.

SUPPORTED COMMUNICATION STANDARDS/palaikomi perdavimo standartai - punktas 19

GDT	**GDT (Gerätedatentransfer)**: This standard is most commonly used in AIS or EHR systems. It is fully supported by the standard edition of BTL CardioPoint-NET.
HL7	**HL7 (Health Level Seven)**: This standard is common in HIS systems. The Standard edition of BTL CardioPoint-NET allows using the HL7 protocol for exporting the medical data from BTL CardioPoint into HIS. The Premium edition of BTL CardioPoint-NET, furthermore, makes BTL CardioPoint accept the orders from HIS and send back the recorded medical data.
DICOM	**DICOM (Digital Imaging and Communications in Medicine)**: This standard is often used in PACS systems. The Standard edition of BTL CardioPoint-NET allows using the DICOM protocol for exporting the medical data from BTL CardioPoint into PACS. The Premium edition of BTL CardioPoint-NET, furthermore, makes BTL CardioPoint accept the orders from the PACS server and send back the recorded medical data.
HIS	**Hospital Information System** is a medical software application that covers clinical, financial and operational aspects of hospital care.
PACS	**Picture Archiving and Communication System** is a healthcare technology for storage, management and distribution of medical images in DICOM format.
EHR	**Electronic Health Record** is a digital form of the patient's medical report.
AIS	**Ambulatory Information System** is a software application used for the management of patient medical records in outpatient care.

BTL CARDIOPOINT® NET

	STANDARD	PREMIUM
INTEGRATION INTO 3RD PARTY SYSTEMS (SUCH AS EHR, AIS...)		
Creating / updating a patient in BTL CardioPoint from a 3rd party system using the GDT Plugin	•	•
Starting / editing an examination directly from a 3rd party system using the GDT Plugin	•	•
Sending the final report and medical conclusion back to a 3rd party system using the GDT Plugin	•	•
STANDALONE BTL CARDIOPOINT NETWORK		
Possibility to share patient information	•	•
Possibility to share complete examination data	•	•
Possibility to share final reports	•	•
Possibility to simultaneously access examination results from multiple computers in the network	•	•
All data saved on a dedicated drive in an encrypted format	•	•
ARCHIVING / EXPORTING		
Possibility to export / archive examination data (manually or automatically immediately after the examination is finished)	•	•
Possibility to export final reports in PDF, SVG or JPEG formats	•	•
Possibility to export complete examination data in the BTL's proprietary format (mewzip)	•	•
Possibility to anonymise exported examination data, including the change of date of birth and patient's name in the medical conclusion	•	•
HL7 / DICOM CONNECTIVITY		
COMMUNICATION FROM BTL CARDIOPOINT TO HIS / PACS		
Sending medical conclusion and PDF report back to HIS using HL7 command	•	•
Sending observation results when the examination reaches certain procedure status back to HIS using HL7 command	•	•
Possibility to review examination results in any PACS viewer	•	•
DICOM Encapsulated PDF Storage supported	•	•
DICOM Secondary Capture Image Storage supported	•	•
DICOM Multi-frame True Color SC Storage supported	•	•
COMMUNICATION FROM HIS / PACS TO BTL CARDIOPOINT		
Creating a patient in BTL CardioPoint using HL7 command		•
Updating a patient in BTL CardioPoint using HL7 command		•
Merging patients in BTL CardioPoint using HL7 command		•
Sending worklist request into BTL CardioPoint using HL7 command		•
Updating examination order using HL7 command		•
Possibility to cancel examination order using HL7 command		•
Retrieving DICOM Modality Worklist from a server		•

BTL CARDIOPOINT® NETCONSULT

Simultaneous access to complete examination data from two locations at the same time regardless of the distance	
Possibility to share complete examination data	
Automatic sending and retrieval of examination data	
Data transmission security using encoded VPN network	
Possibility of patient data anonymisation	

RESTING ECG/ramybės EKG - punktas 5

Get the maximum from your resting ECG device by connecting it to the BTL CardioPoint software and using its specialized diagnostic functions and sharing options. Devote your time to your patients and leave the rest to the BTL CardioPoint system.

THE REASONS WHY

Mistype prevention	Minimize the errors in mistyping the patient data by only entering the patient ID into your ECG device. The BTL CardioPoint will then save the ECG record under the right patient and fill in the rest of the data.
Saving the nurse's / technician's time	The ECG records are evaluated, shared and archived electronically. This significantly simplifies the nurse's/technician's work.
Saving the doctor's time	After loading, the record is immediately available anywhere in the hospital. The doctor can evaluate the record wherever he/she currently is and whenever he/she needs to. While on WiFi, the record is typically transferred within one minute.
Easier diagnosis decision	The doctor has the possibility to use advanced diagnostic tools and compare the results of all the patient's earlier examinations. Therefore, they can determine the patient's diagnosis based on the complete patient information.
Medical consultation anytime	Medical consultations by using the BTL CardioPoint-NETconsult solution improve both diagnostic quality and availability. This tool connects any physician with an ECG expert regardless of where they are located.
Up to 80% decrease in printing costs	Evaluating the ECG record on a large computer screen is not only easier compared to evaluating it on a paper, but it also saves printing costs and with the BTL CardioPoint tools it's even more precise. Nevertheless, direct printing option remains available with the BTL-08 ECGs.
Integration into HIS/PACS system	Integration of BTL CardioPoint into your HIS/PACS system dramatically improves the clinical workflow. Please find more information on page 46.
Data safety	BTL CardioPoint has been designed in compliance with European GDPR (General Data Protection Regulation). Using BTL CardioPoint means using a software according to the EU data safety standards.

AVAILABLE RECORDING MODES

Stand-alone mode	The record is loaded and immediately printed by the built-in printer of the device in this mode. Depending on the profile settings, the record may be saved in the device memory.
- auto profile	The most commonly used profile, depending on the profile settings, where the ECG device can print, save and analyze standard ECG records.
- long/rhythm profile	In this profile, a record up to 10 minutes long containing two selected leads can be printed, saved and analyzed.
- manual profile	Real-time printing initiated by pressing the print button and finished by pressing the stop button. The record is not saved in the memory and is not evaluated by automatic interpretation.
Record transmission	The ECG tracings recorded with the ECG device are then sent to the BTL CardioPoint software for evaluation, storage and printing.
Real-time transmission	The ECG device fully becomes a part of BTL CardioPoint in this mode. The ECG device sends the ECG tracings into the software in real-time. This allows the monitoring of the signal on a large computer screen. Further signal processing such as evaluation, storage and printing is done on the computer.

Išnaudokite visas ramybės EKG įrenginio galimybes, prijungę jį prie BTL CardioPoint programinės įrangos ir naudodami specializuotas diagnostikos funkcijas bei bendrinimo parinktis. Skirkite savo laiką savo pacientams, o likusį palikite BTL CardioPoint sistemai. punktas 5
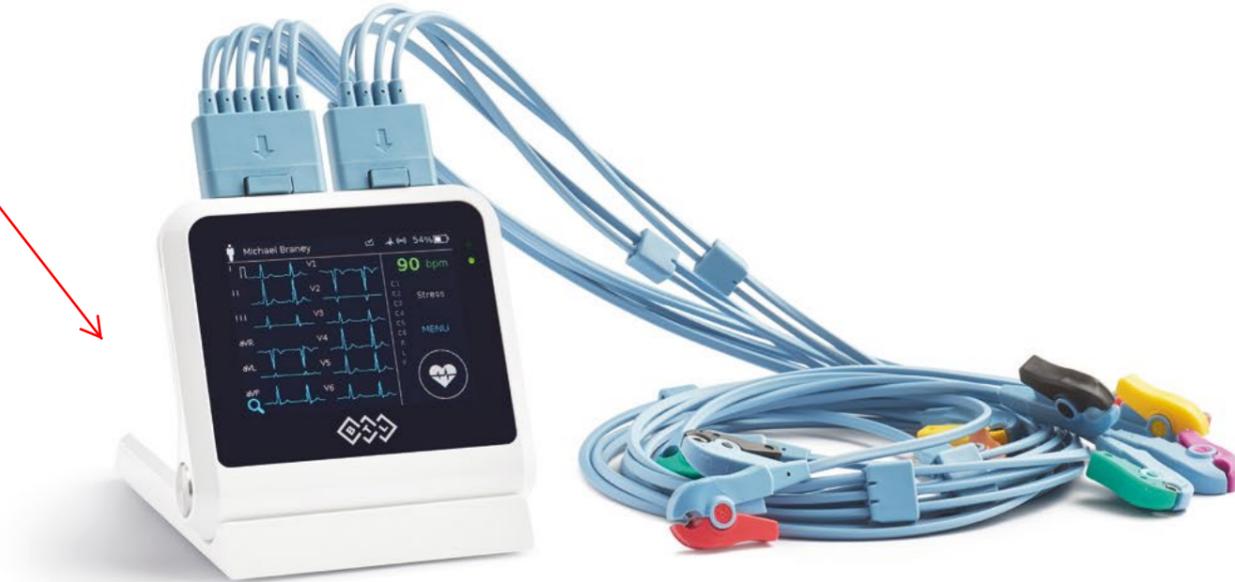
BTL CARDIOPOINT® ECG

GENERAL

The BTL CardioPoint software is the basis for a modern cardiology system. Its simple and fast operation makes it suitable for high-flow medical facilities.

Certified medical device

For general BTL CardioPoint specifications see page 41

RECORDING

Real-time ECG signal recording - record length from 10 sec to 10 min

Possibility to carry out multiple records in one recording session and select the records to be printed / stored

Electrode application check - graphical tool informing about the quality of the electrodes attachment

Emergency ECG option - possibility to start recording immediately without patient selection

EVALUATION

Possibility to observe / evaluate the record during online recording (even on the PC screen)

Possibility to evaluate records acquired on a different computer in the BTL CardioPoint network

Possibility to evaluate records saved in the BTL ECG device (possibility to download the record automatically through the optional WiFi module)

Lead system - Einthoven and Cabrera

Auto-adaptive filters - Automatic intelligent system of filtering increasing the ECG signal quality without distorting its components

Automatic measurement of HR, RR, P-Q-R-S-T intervals, heart axes and amplitudes

Possibility to alter the positions of the diagnostic markers: Pon, Poff, QRSon, QRSoff, baseline, J, J+, Toff

Possibility to manually select beats for averaging

Supported QTc calculation methods: Bazett, Hodges, Friderica, Framingham

Caliper for manual measurements

Automatic interpretation of recorded ECG with the possibility of displaying the interpretative statements in form of acronyms

SPECIALISED DIAGNOSTIC TOOLS

ST maps help identifying signs of ischemia much faster than from the original ECG signal. The way the ST denivelations are displayed on the ST maps respects the natural heart topology and makes the ST related events easy to detect.

QT module helps evaluating the long QT syndrome that can often be responsible for sudden cardiac death. It uses the tangent method specifically suitable for QT measurement with higher heart rates, when there is no clear return to the baseline or the T wave has two peaks.

ECG comparator allows comparing any ECG record with another one from the same patient. Serial ECG comparison allows evaluating your patient's treatment by tracking their test results in time.

Sudden Death Screening module (optional) helps evaluating the risk of sudden cardiac death in young athletes based on the Seattle/International criteria.

Vectorcardiogram (VCG) displays the electrical heart activity in a 3D orthogonal system using the Inverse Dower transformation.

STORAGE / PRINTING

The programme saves the final report in PDF format. Therefore, it is possible to print it at anytime.

Possibility to export ECG records in open XML format

For HL7 / DICOM (PACS) / GDT communication options or automatic report exports, see page 46.

Printing with any compatible office printer (e.g. laser).

ECG leads overlapping on printed reports is minimized by automatic adaptation of spaces between the printed leads.

BTL CARDIOPOINT® FLEXI

GENERAL

Professional application for Apple tablets represents a modern way of performing a resting ECG

In combination with BTL Flexi 12 ECG, it is a certified medical device

Compatibility - iOS 10 or newer; Apple iPad (2017), Apple iPad Pro 9.7", Apple Air 2, Apple Mini 4

RECORDING

Wireless transmission allows you to stay up to 30 meters away from the BTL Flexi ECG device. Should the transmission fail (e.g. if you are too far from the Flexi device), the ECG signal will still be recorded by the BTL Flexi device and will be automatically sent to the application when the WiFi signal is available again

Real-time ECG signal displaying - minimum 48 hours of continuous transmission in a single patient

Real-time ECG signal recording - record length from 10 to 20 sec

Possibility to carry out multiple records in one recording session and select the records to be printed / stored

Loose leads indicator

Emergency ECG option - possibility to start recording immediately without entering patient details

EVALUATION

Possibility to observe / evaluate the record during real-time recording (even on a tablet screen)

Possibility to download the records stored in BTL Flexi 12 ECG

Lead system - Einthoven and Cabrera

Auto-adaptive filters - Automatic intelligent system of filtering increasing the ECG signal quality without distorting its components

Automatic measurement of HR, RR, P-Q-R-S-T intervals, heart axes and amplitudes

Possibility to alter the positions of the diagnostic markers: Pon, Poff, QRS on, QRS off, baseline, J, J+, Toff. Possibility to manually select beats for averaging

Supported QTc calculation methods: Bazett, Hodges, Friderica, Framingham

Caliper for manual measurements

STORAGE

Memory: maximum of 6000 records

Possibility to export the record in the open XML format for further sharing (e-mail, etc.)

Possibility to export the record in PDF format for further sharing (e-mail, etc.)

Possibility to transfer the patient database to a different user's device

Printing with any compatible printer (AirPrint)

WHAT'S THE RIGHT ECG FOR ME?

BTL Flexi 12 ECG	Small size and internal memory is what makes this ECG ideal for everyone who needs rather a portable device than a stationary one. Moreover, for its excellent signal quality it is also a recommended model for stress-testing.
BTL-08 L line	Whoever needs to print on a large 210 mm thermal paper will find this ECG optimal. Thanks to its optional WiFi module, it can also send the ECG records to the BTL CardioPoint software completely automatically.
BTL-08 MT Plus	This model offers the same features as L line ECGs in a compact design. This ECG is suitable for a wide range of users.
BTL-08 SD	Excellent choice for those looking for an economical solution. This ECG can work as a standalone device printing on a 58 mm paper or as a computerized ECG when connected to BTL CardioPoint.

UNIT	BTL FLEXI 12 ECG
Display	IPS colour touch 2.8"
Resolution (px)	240 x 320 px
Displayed leads	12 / 3 / 1
Keyboard	Combined numerical touchpanel keyboard with functional keys
Ports	WiFi (hotspot)
Weight (including battery)	150 g
PRINTING /STORAGE	
Printing (office laser/ink printer)	Yes, via BTL CardioPoint-ECG / Stress / Flexi app (optional)
Stored records (10 sec strips)	Internal memory: 30 / BTL CardioPoint-ECG: unlimited
Stored records (long / rhythm)	Internal memory: 30 / BTL CardioPoint-ECG: unlimited
Stress-test storage	Internal memory: stored last 60 min of the record (suitable for recording outdoors, etc.)
RECORDING / ANALYSIS	
One touch recording	Yes (button or touch panel)
Lead-off indication	Each electrode has its own indication
Real-time transmission to BTL CardioPoint (ECG /Stress)	Via WiFi. If the transmission fails, the function of automatic download of the missing record parts from the unit memory is available (max. 60 min of record).
Record transmission to BTL CardioPoint (ECG)	Via WiFi. If the transmission fail (e.g. WiFi no longer available), the signal is recorded into the internal memory and will be automatically transferred later (e.g. when WiFi is a vailable again).
SIGNAL PROCESSING	
ECG frequency response	0.05 Hz - 170 Hz
Pacemaker detection	Pulse width >100 µs, pulse amplitude >2 mV
Sampling frequency	ECG: Delta-Sigma A/D converter, 8 x 1000 Hz / Pacemaker: 2 axis detection by dedicated circuit with 40000 Hz function
Digital resolution	24 bits / 1 µV ±1 % at 500 SPS
Input signal range	Dynamic range: ±5mV, polarisation: ±300mV, consistent voltage offset: ±5V
Input impedance	>20 MOhm
Common mode rejection	>90 dB(filter off) / >100 dB (mains filter on)
Digital filters	See BTL CardioPoint-ECG / Stress / Flexi app

OTHER	
Accumulator capacity / type	<9 hours (WiFi off) <8 hours (online) which corresponds to <100 ECG records in real environment
Accumulator type	Lithium-ion, protected, 3.6 V, 3200 mAh
Charging time	<3 hours (if completely discharged), it is possible to charge while in operation
Operating conditions	Temperature: 10°C - 40°C, humidity: 30 % - 70 %
Mains supply	100 - 240 V, 50/60 Hz
Ingress protection	IPx2 (IEC60529)
WiFi details	Frequency: 2.4 GHz, channels: 1 - 11, modulation: DSSS / CCK / OFDM, effective power: 7,92 dBm at 11 Mbps
WiFi connection safety	Security type: WPA, WPA2

BTL flexi12 - Dėl mažo dydžio ir vidinės atminties šis EKG idealiai tinka visiems, kuriems reikalingas nešiojamasis įrenginys, o ne stacionarus. Be to, dėl puikios signalo kokybės jis taip pat yra rekomenduojamas atliekant EKG streso testą
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Įrašo perdavimas į BTL Cardiopoint programą: Per WiFi. Jei perdavimas nepavyksta (pvz., WiFi nebepasiekiamas), signalas įrašomas į vidinę atmintį ir bus automatiškai perkeltas vėliau (pvz., kai vėl bus pasiekiamas WiFi).-punktas 19; 21; 4.