

# How many leads to use

in ECG Holter recording

## The advantages of the 12—lead Holter System

- The shape of a QRS complex corresponds to a QRS complex from the resting ECG examination – the lead system is the same. \*H100, H300 and H600
- The comparison of the ST segment changes during Holter monitoring with the coronary angiograph. It shows the clear correlation of the number of ST depressions and the seriousness of atherosclerotic lesions of the coronary artery. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- The incidence of “silent ischemia” of the myocardium exceeds the possibility of stress test ECG examination. Within the same patient’s group with CHD and stable angina pectoris, about 40% of the patients were diagnosed with “silent ischemia”. This is according to stress ECG examination alone. But the diagnosis increased to about 70% of the patients with “silent ischemia” when using the Holter examination. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Doctors will appreciate the ability of the detection of “silent ischemia” of the myocardium. This concerns the ECG signal with significant ST depressions and without the presence of pain. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Only a 12-lead Holter examination can get the complete information about the ST part. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Only a 12-lead Holter examination can confirm or exclude a myocardium ischemia. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Only a 12-lead Holter examination can detect “silent ischemia” and variant angina pectoris. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Only a 12-lead Holter examination can substitute for a stress test examination if the patient is not able to undergo the stress test. \*H600
- Only a 12-lead Holter examination allows the analysis of a ventricular repolarization. \*The analysis of T waves – the doctor will have to do it manually.
- Only a 12-lead Holter allows the operator to more reliably analyze the differential diagnosis of QRS duration >120ms. \*H100, H300 and H600
- Only a 12-lead Holter allows the operator to evaluate the QT interval, to detect the morphology of changes of T wave for patients with “Long QT syndrome” and to identify and control the therapy. \*H300 and H600
- Only a 12-lead Holter allows the operator to adjudicate impact of drugs to duration of QT interval with different heart rate. \*H300: HR and QTc, H600: HR, QTc and patient’s activity
- Only 12-lead Holter allows the operator to evaluate the efficiency of antiarrhythmic therapy and antianginal therapy \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Only a 12-lead Holter is able to identify patients with persistent atrial fibrillation and who are not responding to heart resynchronization treatment. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.

### OTHER IMPORTANT ADVANTAGES OF 12-LEAD HOLTER

- Dynamic evaluation of heart rhythm and its defects (ectopia, allorhythmia, atrial fibrillation, atrial and ventricular arrhythmias and the beginning/end of paroxysmal arrhythmias). \*H100
- Dynamic evaluation of bradycardia and Ventricular pauses. \*H100, H300 and H600
- Dynamic evaluation of conduction defects (SA or AV blocks). \*H300 and H600
- Differential diagnosis of QRS duration >120ms. \*H100, H300 and H600
- Dynamic evaluation of ventricular pre-excitation (Sy WPW, Sy LGL). \*H600
- Dynamic evaluation of SA node ability as to whether it is able to react in the corresponding way to load. Identification of a chronotropic incompetence of the myocardium. \*H600
- Dynamic evaluation of QT interval and its variability. \*H300 and H600
- Dynamic evaluation of ST deviation.\*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table – the doctor has to find it in the signal manually.
- Dynamic evaluation of pacemaker function. \*H300 and H600

## The advantages of the 7–lead Holter System

A 7-lead Holter system will help you find and evaluate heart rate and conduction defects, especially in the event that the patient needs long-term monitoring (in most cases 5 to 7 days).

This kind of Holter is used for diagnostic of pseudo-arrhythmia, pseudo-tachycardia, and pseudo-ectopia as well as for dynamic evaluation of arrhythmias and blocks. Other advantages of this system are the evaluation of QRS duration >120ms and dynamic evaluation of heart rate and its defects (ectopia, allorhythmia, atrial fibrillation, fibrillation and ventricular arrhythmias as well as the beginning/end of paroxysmal arrhythmias).

- Dynamic evaluation of bradycardia and pauses. \*H100, H300 and H600
- Dynamic evaluation of conduction defects (SA or AV blocks). \*H300 and H600
- Differential diagnosis of QRS duration >120ms. \*H100, H300 and H600
- Dynamic evaluation of ventricular pre-excitation (Sy WPW, Sy LGL). \*H600
- Dynamic evaluation of SA node ability as to whether it is able to react in the corresponding way to load. Identification of a chronotropic incompetence of the myocardium. \*H600
- Dynamic evaluation of QT interval and its variability. \*H300 and H600
- Dynamic evaluation of ST deviation. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table - the doctor has to find it in the signal manually.
- Dynamic evaluation of pacemaker function. \*H300 and H600

## The advantages of the 3–lead Holter System

A 3-lead Holter system will help you find and evaluate heart rate and conduction defects, especially in the event that the patient needs long-term monitoring (in most cases 5 to 7 days). It is best for most common examinations.

- Dynamic evaluation of HRV. \*H100 in the table, H300 in the chart
- Dynamic evaluation of heart rate and its defects (ectopia, allorhythmia, atrial fibrillation, fibrillation and ventricular arrhythmias, beginning and end of paroxysmal arrhythmias). \*H100, H300 and H600
- Dynamic evaluation of bradycardia and pauses. \*H100, H300, H600
- Dynamic evaluation of conduction defects (SA or AV blocks). \*H300, H600
- Differential diagnosis of QRS duration >120ms. \*H100, H300 and H600
- Dynamic evaluation of ventricular pre-excitation (Sy WPW, Sy LGL). \*H600
- Dynamic evaluation of SA node ability whether it is able to react the corresponding way to load. Identification of a chronotropic incompetence of the myocardium. \*H600
- Dynamic evaluation of QT interval and its variability. \*H300 and H600
- Dynamic evaluation of ST deviation. \*H100: ST in the table, H300: ST in the table, ST60 in the chart, H600: ST in the table, ST60 and ST slope in the chart. Note regarding the table - the doctor has to find it in the signal manually.
- Dynamic evaluation of pacemaker function. \*H300 and H600

## About BTL CardioPoint

The BTL CardioPoint is a versatile software solution integrating ECG, Stress test, Holter, ABPM and Spirometry into one unified platform with one patient database and the same logic of controls for each module. The software has a fully customizable interface, and its layout and work steps can be easily adapted. The operator is allowed to arbitrarily add or move tables, ECG strips and other windows. Fast and intuitive work is ensured by an ergonomically optimized user interface with shortened mouse tracks and hotkeys. Colour schemes are designed for both dark and light ambience. The BTL CardioPoint can be used as a stand-alone cardiology system, or it can be seamlessly integrated into an existing ambulatory or hospital system. The BTL CardioPoint is software that adapts to the user, instead of the user having to adapt to the software.

