

EC Sense

version 4.0



Long ECG Base Amendment to Operator's manual EC Sense 4.0

Cardiolex AB
Vretnavägen 6
171 54 Solna
Sweden



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1. Introduction

1.1 Intended use

EC Sense together with the option *Long ECG* is intended to be used for recording of Long ECGs. *EC Sense* can be used for patients using an implanted pacemaker.

1.2 Contraindication for use

The application of ECG is widespread and a recognized form of examination. Users are required to have sufficient training and knowledge to judge whether the device can be used or not. There are no known medical impediments for using ECG.

1.2.1 Related services and products

The following services and products could be used together with *Long ECG*.

Product/Service	Description
<i>EC Sense</i>	<i>EC Sense</i> is intended to record Rest ECGs and Exercise ECGs. Depending on how <i>EC Sense</i> was ordered it can be delivered with different acquisition units and software options.
<i>EC Store</i>	Central storage system from Cardiolex that could be connected to <i>EC Sense</i> , used for Rest ECGs and Exercise ECGs.
<i>MegaCare</i>	Central storage system that could be connected to <i>EC Sense</i> , used to archive Rest ECGs, Exercise ECGs and Long ECGs. Reports sent for archiving can be edited in MegaCare. MegaCare is a product sold by Dräger AB.
<i>MegaCare FD</i>	Service from Cardiolex that could be connected to <i>EC Sense</i> , used for Rest ECGs, Exercise ECGs and Long ECGs. <i>MegaCare FD</i> is a combination of <i>EC Store</i> and <i>MegaCare</i> to offer <i>MegaCare</i> clients full disclosure Exercise ECGs.
<i>EC View</i>	Product from Cardiolex for viewing Rest ECGs and viewing/editing examinations stored in a central storage system. <i>EC View</i> is very similar to <i>EC Sense</i> except that it is not possible to record ECGs.

1.3 Safety information

This manual contains different types of safety messages written in italics on a grey background. These safety messages are placed where it is most likely that a potential danger may arise, or where the user needs additional information. The following types of messages appear:



Warning indicates a potential hazard which, if not avoided, may result in death or serious injury for the patient and/or the user.



Caution indicates a potential hazard which, if not avoided, may lead to personal injury or product damage.

NOTE

NOTE provides the user with information on how to use the device in the best way.



Read accompanying documents (Operator's manual).

1.3.1 How to read this manual

Please read all instructions and pay extra attention to safety information, warnings and cautions. Verify that the device has been properly installed in accordance with the instructions and that the users have sufficient knowledge about the requirements, including the safety instructions that have to be followed to protect the patient and yourself.



The user is advised to read the complete EC Sense Operator's manual.

Read this manual carefully and pay attention to all of the safety instructions before using Long ECG. If this is neglected the patient's and your own safety is at risk.

The safety information is presented where it seems most likely that a potential hazard could occur.

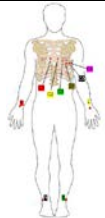

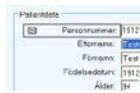
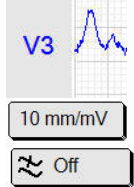





1.3.2 Revision history

Version number for corresponding *EC Sense* and date is printed on each page of the manual.

2 Long ECG

2.1 Quick start guide

This quick start guide gives a brief explanation on how to use *EC Sense* for acquiring a Long ECG. The user can use this "quick start guide" as a summarised description on how to record an ECG.

Icon	Fn	Instruction
		1. Prepare the patient and connect all electrodes according to the desired lead electrode placement. Check that the patient cable is connected to the acquisition unit.
	F2	2. Click on the icon for entering patient data.
		3. Enter the patient information in the dialogue box. If the PC is connected to a central storage system the information may be filled in automatically.
		4. Select desired leads, gain and filter settings. Check the quality of the ECG signals.
	F9	5. Click on the red circular icon to start recording an ECG (up to 1 hour can be recorded).
	F9	6. Stop the recording by clicking on the red square icon. Disconnect the patient.
		7. Scroll through the report when it is displayed by clicking on the arrows under the <i>Report</i> tab.
	F4	8. Click on the printer icon to printout the entire recording (or use <i>Print page</i> to print specific pages).
	F5	9. Save the recording on the local PC or in the central storage system.

2.2 How to record a Long ECG

The option for recording ECG for an extended period of time is referred to as *Long ECG*. The function is only available if it has been installed with an option key. The ECG is checked and recorded in a similar way as *Rest ECG* in real time mode. Later the recording can be reviewed, printed out, transferred to and retrieved from a central storage system.

The step-by-step instructions below explain how *EC Sense* can be used to record a Long ECG.


1. Prepare the patient in the same way as for *Rest ECG* in real time mode. See the section on “Acquisition unit” in the Operator’s manual for description.



WARNING

For the patient’s safety, ask the patient for the patient ID and verify that it corresponds to the information on the screen before starting the recording.

2. Check the quality of the ECG signals. All leads will be acquired and can be reviewed after the recording. The patient must be relaxed and the ECG signals must be displayed with high quality.

3. Start the recording by clicking on .

4. Continue the recording for as long as required, but not exceeding 1 hour. After 1 hour the recording will be stopped automatically, if not stopped earlier by the user. During the recording of the ECG a red flashing bar in the right bottom corner of the screen will indicate the recorded time in minutes and seconds.

5. Start the recording by clicking on . Please note that it is not possible to pause the recording to continue later. Each time the recording is started and stopped a new examination will be generated.

6. After the recording is stopped the review window will open. It can take some time to compile the report depending on how long the recording is.

7. Disconnect the patient.

2.2.1 The ECG tab

The review page for a *Long ECG* will be displayed as follows:



Review window

The functionality in the review mode for *Long ECG* is the same as in *Rest ECG*. See the *EC Sense Operator's manual*.

Other functions that is especially useful:

The time reference

The time reference can be used as a marker and is an excellent tool for searching a specific time in the Long ECG report.

By setting the time reference in one location on the ECG it is possible to review other display modes for the same interval of time. The following example shows a typical review procedure:

1. Select a place in the ECG and left click on the corresponding time you wish to review in the report mode.
2. The time reference is placed on the time you selected.



3. Click on the *Report* tab.
4. The corresponding time in the ECG report is displayed.

Change speed

Click on **50 mm/s** in the menu bar and select the speed to 2.5, 5, 10, 25, 50 or 100 mm/s.

Change gain

Click on **10mm/mV** in the menu bar and select the gain to 2.5, 5, 10, 20 or 40 mm/mV.

Change lead

Click on **Avledningar** in the menu bar and select 3 leads, 6 chest leads, 6 limb leads or 12 leads from the drop down list.
If the option of 3 leads is selected it is possible to choose which 3 leads to be displayed.

CARDIOLEX

<input type="radio"/> 3 Leads ▶	<input type="radio"/> V1 ▶	I
<input type="radio"/> 6 Chest Leads	<input type="radio"/> II ▶	II
<input type="radio"/> 6 Limb Leads	<input type="radio"/> V5 ▶	III
<input checked="" type="radio"/> 12 Leads		aVR
		aVL
		aVF
		V1
		V2
		V3
		V4
		V5
		V6

2.2.2 The Report Preview tab

The report for a *Long ECG* will be displayed as follows:



Report window

The functionality in the review mode for *Long ECG* is the same as in *Rest ECG*. See the *EC Sense Operator's manual*.

Other functions that is especially useful:

Change page



Review the result in the report mode and scroll through all, or selected pages, in the report by clicking on the arrows next to *Page*. It is possible to move forward or backward in the report by entering a page number in the box followed by clicking on an arrow.

Zoom



Click on the symbols to change the size of the displayed page.

Preview



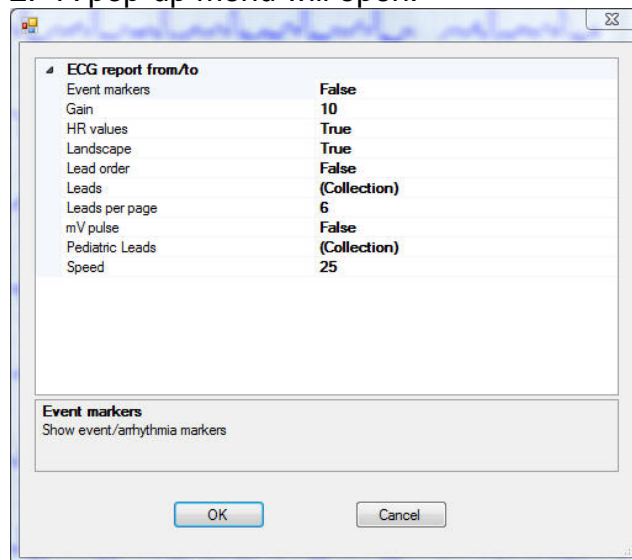
The preview function is especially useful for showing several consecutive pages of ECG next to each other. Select *File* → *Print Preview* and enlarge the window by clicking on the box in the top right corner. The amount of pages to be displayed page-to-page can be selected at the top. Select 1 page, 2 pages, 3 pages, 4 pages or 6 pages by clicking on the desired option. Use the arrows next to *Page* to scroll.

2.2.3 Temporary change of report content

Each report type is predefined. The content and layout of the report can be configured in *Settings*. If required, a temporary change can be made for the current examination.

To change the content in the report for the current examination follow these steps:

1. Right click with the mouse somewhere inside the report window.
2. A pop-up menu will open.



Temporary change


3. From this menu it is possible to change leads, leads per page, lead order, gain, speed, heart rate presentation, format, mV pulse and pediatric leads.
4. Click to the right of the parameter that shall be changed and select an option from the list. The change is only temporary and as soon as a new examination is opened it will reset to default configuration.

Information about how each parameter affects the examination can be found under “Settings” in the System manual.


2.2.4 Printout

If the recording is long several pages will be generated. For that reason there are some alternative ways of printing out.



- Click on  to initiate a printout of the entire report on a connected printer.
- Select *File* → *Print...* to change printer (e.g. make a pdf or select a different printer) or select a print range.
- Right click with the mouse somewhere on the ECG to open a pop-up menu. From the temporary menu that opens it is possible to change leads, gain, speed, landscape etc (see previous description). The change will only affect the current printout.



- Select  → *Print page* to print out the page that is currently displayed on the screen.


NOTE

Changed settings for Long ECG printouts will not be saved.

2.2.5 Save Long ECG

1. If no other selections are done, the recorded ECG will be saved automatically on the local PC.



2. Click on  and select central storage system to send the examination to the connected central storage system.
3. The recording will be deleted from the local PC after it has been sent to the central storage system.

NOTE

All examinations that are not sent to a central storage system will be saved on the local PC. Regularly deleting old examinations from the PC will prevent the hard disc from becoming full. Please refer to the EC Sense Operator's manual.

EC Store is the only central storage system where Long ECGs can be archived.

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