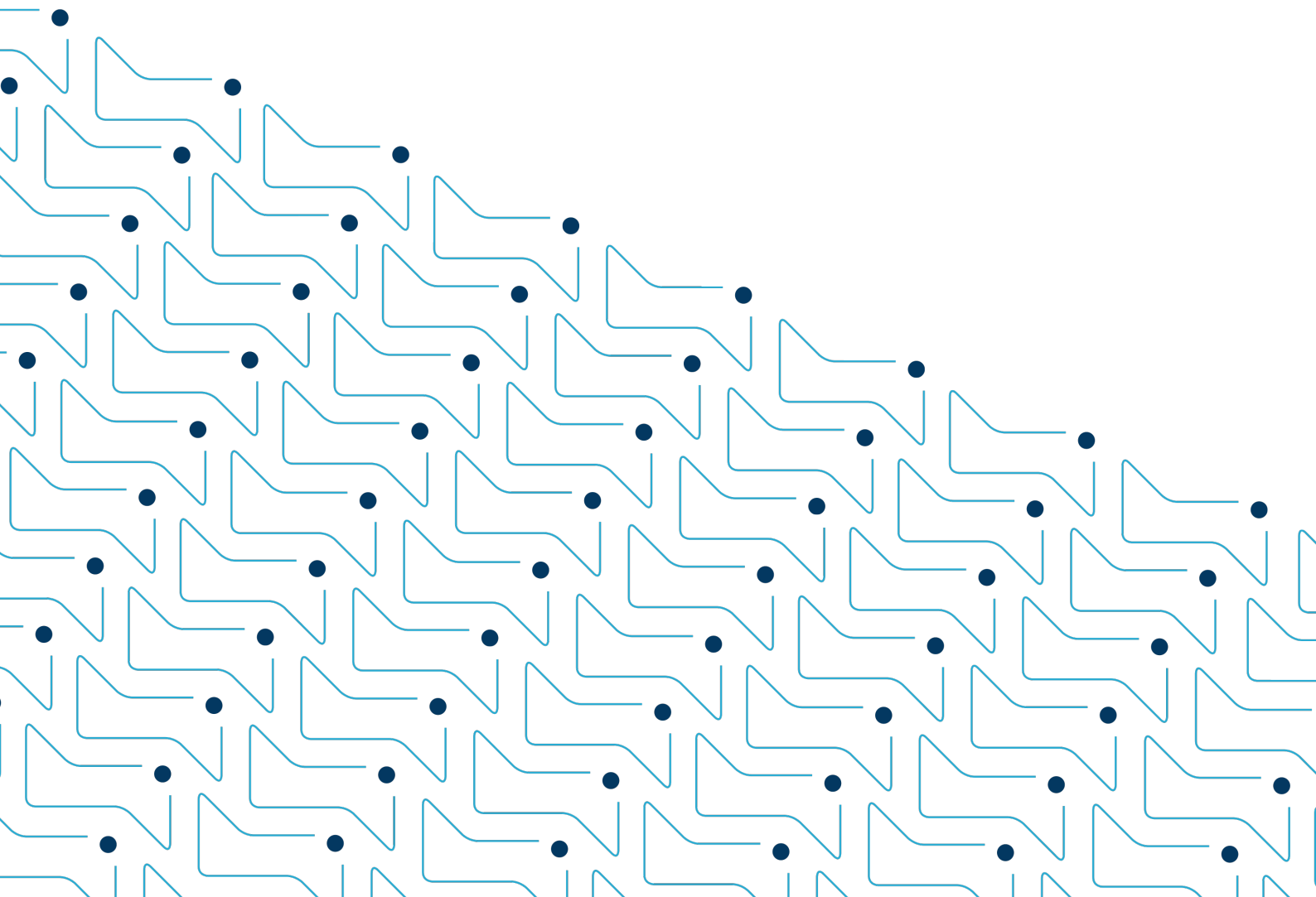




Manual

DirectSens[®] Reader Kit & Software Guide

Version 1.0



Content

Introduction	3
Technical specifications	4
1. Software	5
1.1 Installing the software	5
1.2 Settings	7
1.3 Data storage and handling	7
2. Hardware	8
2.1 Connecting the hardware	8
2.2 QR code and scanner	8
2.3 Adapter with automatic sample detection	9
2.4 Calibration device	10

Introduction

The DirectSens® Reader Kit provides hardware and software that will allow you to get precise glucose and maltose measurements when used with the DirectSens® biosensors. The DirectSens® Reader utilizes electrochemical technologies to accurately measure the glucose and maltose concentration in dairy products.

The software provides an intuitive set of menus which guides you, step by step, through the assay process. The system is simple to use and rapidly produces results, allowing you to easily include this measurement in your production process. This makes DirectSens® products the ideal solution for product release, process optimization and product development.



Technical Specifications

Product Name	DirectSens® Reader Kit
Product Code	DR10
Key Benefits	The DirectSens® Reader Kit provides hardware and software that will allow you to get precise glucose and maltose measurements when used with DirectSens® biosensors
Suitable for	Direct measurement of analyte in combination with biosensor
Measurement type	Amperometric detection
Function Principle	The specific enzymes on the biosensors oxidize the analytes molecules in the sample. The current generated (electrochemical principle) depends on the amount of analyte and can be detected directly and accurately using the DirectSens® Reader
Dimensions Reader Case	L: 300 mm (11.8 in), W: 85 mm (3.35 in), H: 280 mm (11.02 in)
Dimensions Reader	L: 112 mm (4.41 in), W: 60 mm (2.36 in), H: 27 mm (1.06 in)
Housing Material Reader	Anodized aluminium with rubber sleeve, Color: Silver metallic
Weight	Reader: 220 g, Reader Kit total: 1321 g
Power Supply	USB; 5 V
Communication	Via USB
Components Reader Kit	DirectSens® Reader with USB-cable • QR Code Scanner (LQ10) • Adapter (LA10) • Calibration Device (LM10) • Software, Manuals and driver on USB Flash Drive (LU01)
Software	Analyte specific software provided by DirectSens
System Requirements	Windows™ 7.0 or higher, min. free 25 MB hard disk space, 2 × USB, windows administrative rights to install software, display resolution min 1280 × 800 pixel
Language Capability	English, German, etc. (depending on analyte specific software)
Data Export	In .csv/.xls file: sample name, date, time, test type, parameter, result, unit (g/L, %, mg/100g, ppm), sensor batch, sensor ID, sensor expiry date, reader internal ID, software version; in .pdf file: Test Report, Calibration Report

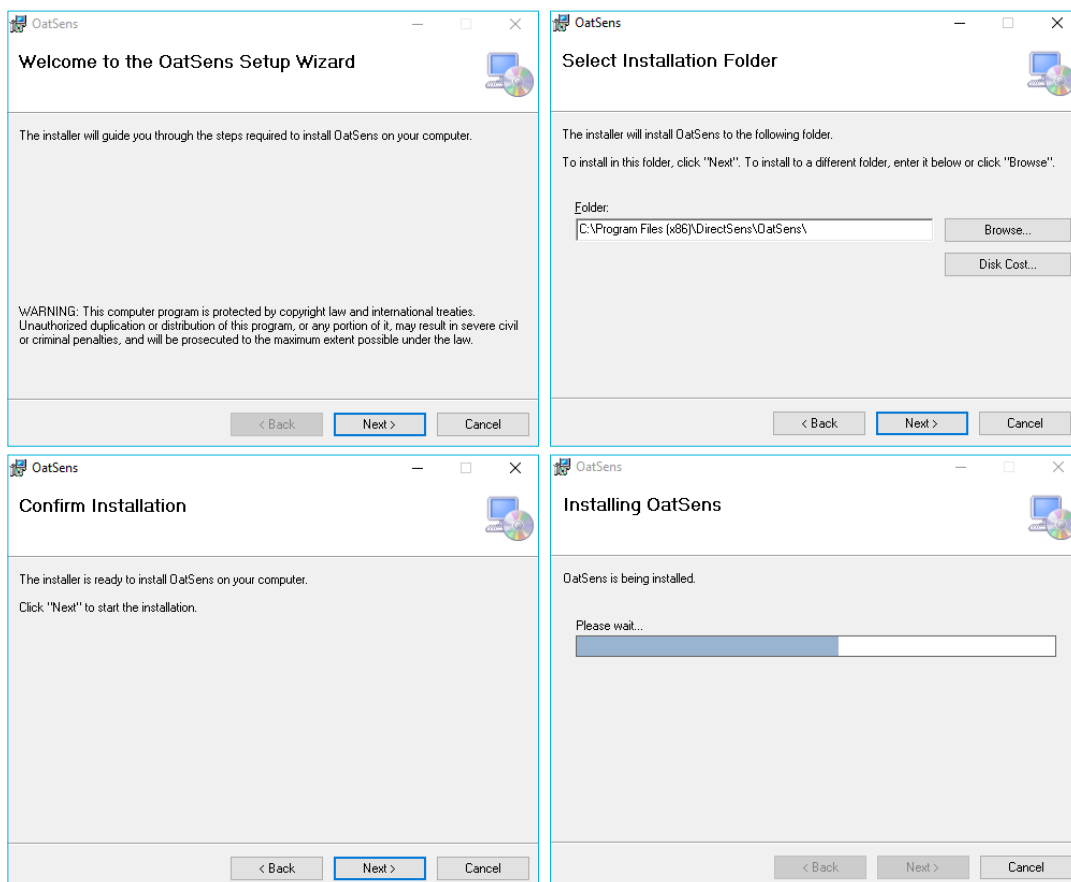
1. Software

1.1 Installing the software

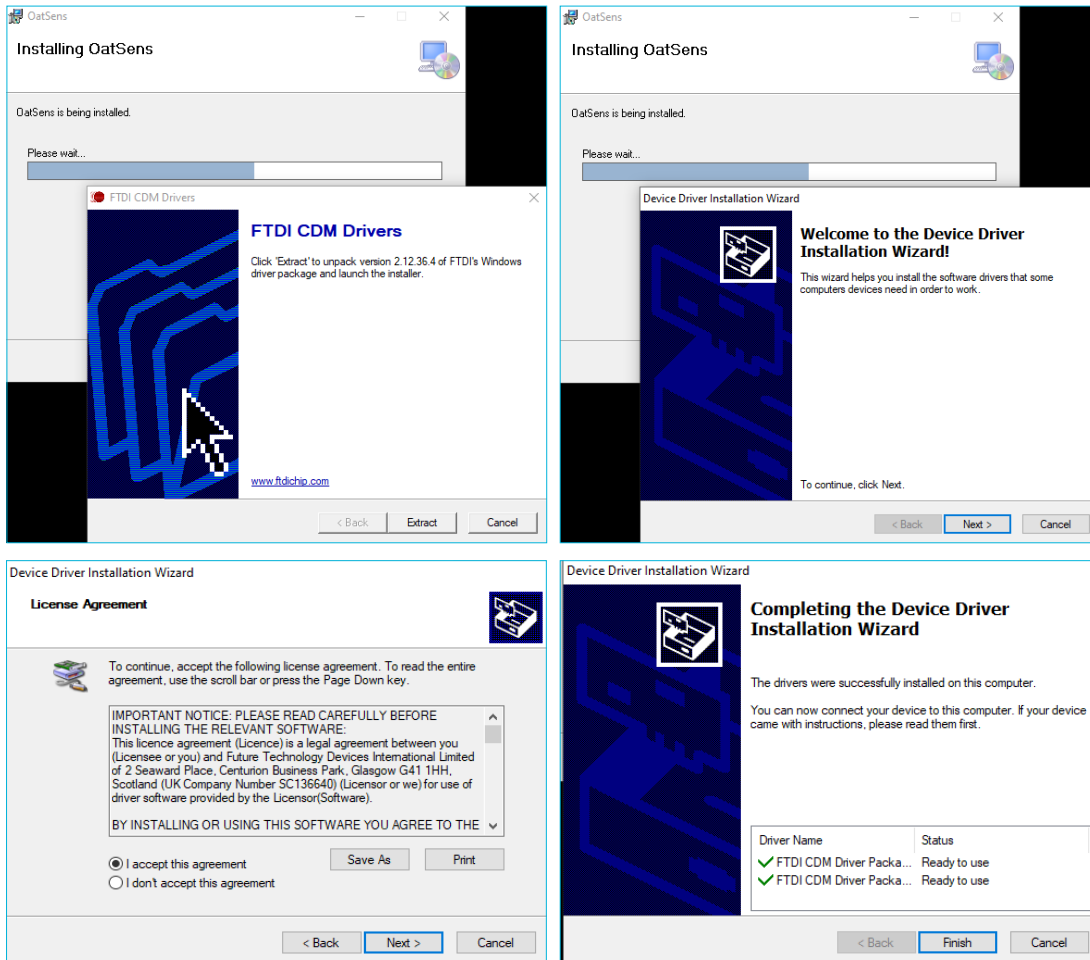


Start setup.exe from the USB Flash Drive.
If problems occur, copy Software package to your device and try to start setup.exe there.

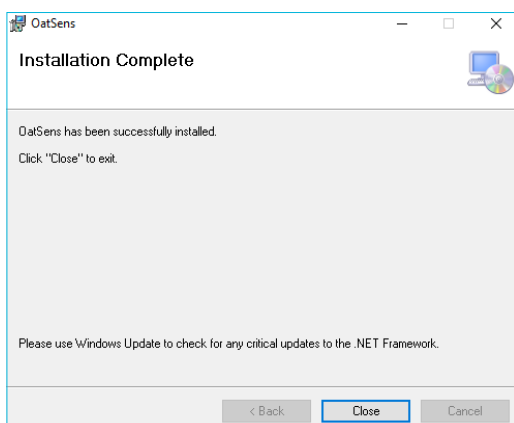
An installation-wizard will guide you through the setup where you can specify the installation path. At each step, after filling in the requested information, press "**Next**" to continue.



Depending on the security settings Windows might ask you now about access-rights on the hard-drive please allow and continue the installation.



During the installation of Software, also drivers for the used hardware will be installed. The setup will invite you to extract the required drivers. An additional wizard will pop up and guide you through the driver installation.



After the drivers are installed, a start button for the Software will be created on your computer desktop and in your start menu (folder DirectSens). The software installation is finished.

The software is now fully installed and ready-to-use.

1.2 Settings

After starting the Software click on the “Settings” button in the upper left corner of the start screen. It gives you the option to configure the following:

Language

Choose between 12 available languages (default English)

Sounds

On/off (default on)

Output format

.xls or .CSV (default .xls)

QR code scanner used

QR Code Scanner or Webcam QR Scanner (default QR code scanner)

Automatic drop detection

On/off (default on)

1.3 Data storage and handling

Results file

All measured results are stored as Excel file (“Software name”.XLS file) by default. If needed the output format can be changed to comma separated value file (.CSV file; see section settings). The file is located at the default path C:\Users\[USERS]\Documents. If there is an existing Excel file with the same name, the software will automatically amend the values to the file. If no such file exists, it will be created automatically. The information given in the results file is compatible with LIMS.



Test Report

With each measurement the software automatically generates a specific Test Report document in pdf format. The location where the Test Report is saved can be selected individually. This feature can also be switched off at the results screen.

View last results

Individual results of the ongoing measurement session can be viewed by clicking on the button “View last results” in the upper left corner. This will open a window with the measurement specific data which can be easily exported to an excel file.

2. Hardware

2.1. Connecting the hardware

- Connect the DirectSens® Reader and the QR Code Scanner with the computer using the provided USB cables
- Turn on the DirectSens® Reader by pressing the start button until the white ring around the start button is illuminated
- When DirectSens® Reader is connected for the first time, USB-to-serial drivers will be automatically installed (the number of the COM-port might vary between computers and is of no relevance)

2.2. QR code and scanner

Each individually packed sensor or vial with sensors is labeled with a QR code containing the following information:

- Batch specific calibration data
- Sensor expiry date
- Sensor batch name
- Sensor identification number

Before you can start the actual measurement this information has to be transferred to the software. It is done by scanning the QR code with the included QR Code Scanner.

Scanning the QR code with the QR Code Scanner

Put the package with the QR code in front of you on the table. Point the laser at the QR code from a distance of approx. 20 cm. Once the code is recognized you will hear a beep and the software will guide you through the next steps.

Sensor identification number

Please be aware that the sensors are for single use only. Consecutive measurements with the same sensor are not allowed and lead to strong underestimation of sugar concentration. For single packed biosensors the sensor identification number will be blocked for further use after pressing the START button.

2.3 Adapter with automatic sample detection

Replacement of sensor connector

If the Adapter is broken, you can easily exchange it by following these steps:

- Disconnect the DirectSens® Reader and remove rubber sleeve
- Turn the reader on its back and open screw next to front panel
- Remove front panel with adjacent printed circuit board (PCB) by carefully sliding it out of the housing
- Take ESD bag with spare Adapter, open and take out the Adapter
- Be careful to touch only the aluminium front panel

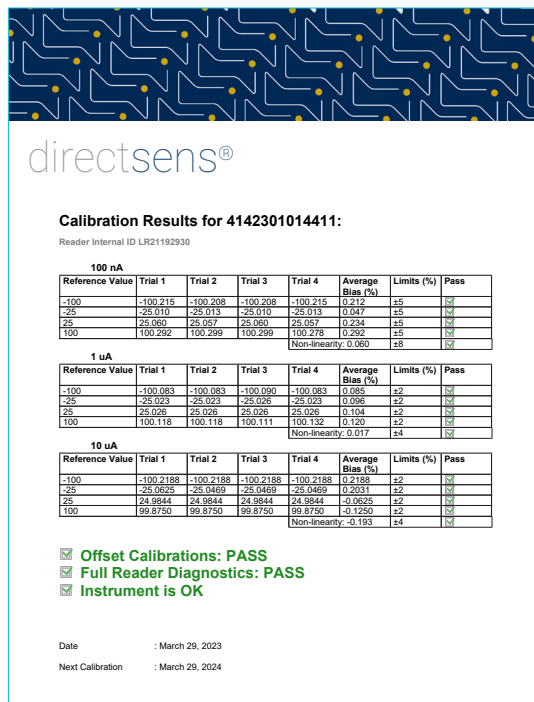
Avoid touching the PCB!

- Carefully slide the Adapter into the housing using the rails on the side
- Firmly close the screw and pull the rubber sleeve over the DirectSens® Reader

Automatic sample detection

Once the DirectSens® Reader detects first contact of the sample with the sensitive area a 15 seconds countdown will start. The remaining time is visualized in a progress bar in the right lower corner in the software window and can be used to load the sample correctly. After 15 seconds the start of the measurement will be triggered automatically.

2.4 Calibration device



The DirectSens® Reader Kit provides a calibration device, allowing the user to check if the instrument works within its specifications. At the end of the calibration process a PDF calibration report is generated certifying that tested parameters are within the limits.

- The Software will guide you through the whole calibration process with step-by-step instructions
- Start the Software on your computer
- Connect and turn on the DirectSens® Reader

- Press the button "Calibration" in the upper left corner of the software start screen
- Enter the DirectSens® Reader serial number found on the bottom of the reader and confirm
- The Software will prompt you to insert the calibration device into the reader
- Take out the Calibration Device from your DirectSens® Reader Kit
- Insert the Calibration Device into the reader by pushing the side with the golden contacts into the reader slot. The silver part must face upwards
- Confirm by pressing "START"
- A progress bar will appear and indicate the time to result (approx. 150 seconds)
- After successfully finishing the calibration, a calibration report will be generated

DirectSens® products

DirectSens® Reader Kit

DR10

Adapter

LA10

Calibration Device

LM10

QR Code Scanner

LQ01

Contact

DirectSens GmbH

Am Rosenbüchel 38

3400 Klosterneuburg | Austria

office@directsens.com

Tel. +43 699 1835 5188

www.directsens.com