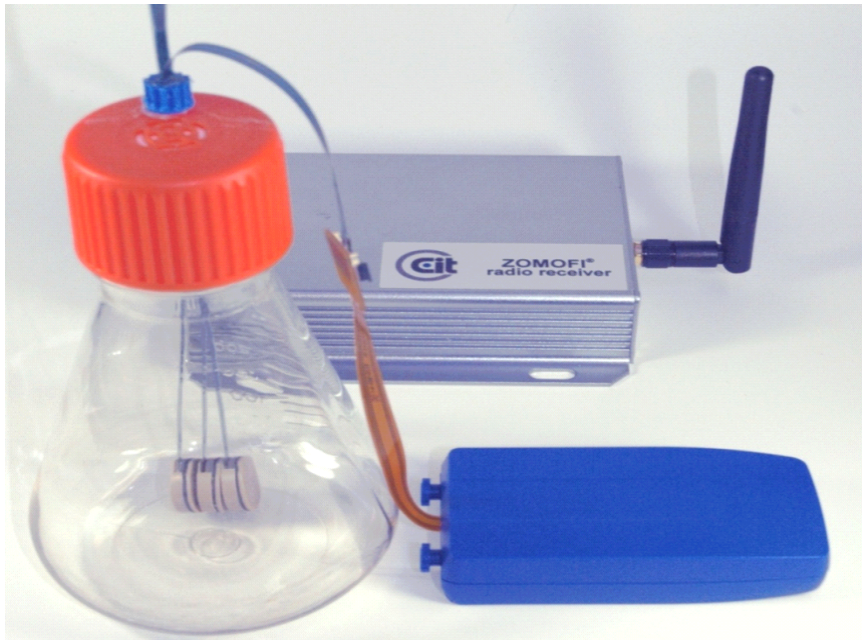


Product information

“CITSens Bio”

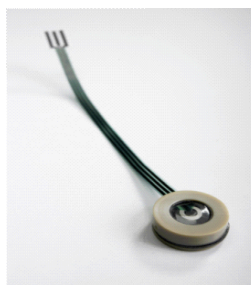


„The easy way to monitor your cell cultures online“

Biosensor for online measurement in bio reactor: Glucose, Lactate and Glutamate

CITSens Bio is the first and only system for online, in situ measurement of Glucose, Lactate and Glutamate in cell cultures. Non-invasive, real-time analysis of the process relevant quantities takes place directly in the disposable reactor. This will dispense with costly, risky sample taking which disturbs the cell system and could lead to contamination. Cell culture sterility is guaranteed at all times.

The **CITSens Bio** Glucose,- Lactate-, and Glutamate sensor is a screen printed electrode, coated with an immobilized enzyme.

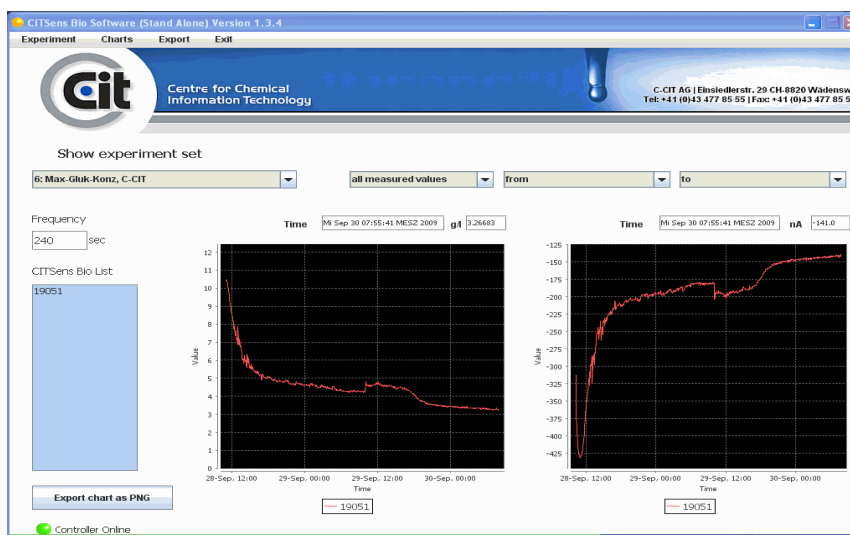


Regardless the types of reactors you are using, **CITSens Bio** is suitable for all standard disposable reactors such as t-flask, roller flasks, Erlenmeyer and bag-reactor. The sensor is built into the corresponding original cap and delivered to the customer gamma-sterilized and ready for use.



CITSens Bio Glucose sensors fit in all disposable bio reactors and also in different bags.

The **CITSens Bio** sensor is connected to the radio transmitter **CITSens Bio** Beamer with a cable. The measured data will be transmitted to the radio receiver **CITSens Bio** ZOMOFI® and transferred to the PC by means of LAN.



CITSens Bio advantages:

- cost-effective measuring of Glucose, Lactate and Glutamate
- Monitoring of growth phase in cell culture and media
- non-invasive and real time measuring with screen-printed electrode
- Increased efficiency with simple process optimization
- no relocation needed for off-line purpose- arises in stable cultivation conditions
- long-term stability of the culture
- reduced risk of contamination due to off-line sampling
- customer- and user-friendly

CITSens Bio Glucose-sensor makes all standard offline methods superfluous.

The CITSens Bio Glucose oxidase paste is used at METAS (the national metrology institute) as reference to detect Glucose concentrations.

Product

Art. No.:	3002-101	CITSens Bio Analytic Set
Art. No.:	3002-501	CITSens Bio Glucose-sensor, build in cup, gamma sterilized
Art. No.:	3002-502	CITSens Bio Lactate-sensor, build in cup, gamma sterilized
Art. No.:	3002-503	CITSens Bio Glutamate-sensor, build in cup, gamma sterilized
Art. No.:	3002-401	CITSens Bio Beamer
Art. No.:	3002-301	CITSens Bio ZOMOFI®
Art. No.:	3002-601	battery-charging station

CITSens Bio Analytic Set



The CITSens Bio Analytic Set includes:

1	CITSens Bio ZOMOFI® with mini-PC
4	CITSens Bio Beamer
1	CITSens Bio battery charger
12	CITSens Bio sensors (Glucose, Lactate, Glutamate)

Product

Art. No.: 3002-101 CITSens Bio Analytic Set

The CITSens Bio Analytic Set consists of:

Art. No.:	3002-301	CITSens Bio ZOMOFI®
Art. No.:	3002-401	CITSens Bio Beamer
Art. No.:	3002-601	battery-charging station
Art. No.:	3002-501	CITSens Bio Glucose-sensor, build in cup, gamma sterilized
Art. No.:	3002-502	CITSens Bio Lactate-sensor, build in cup, gamma sterilized
Art. No.:	3002-503	CITSens Bio Glutamate-sensor, build in cup, gamma sterilized

CITSens Bio Glucose sensor

CITSens Bio Glucose sensor is the first and only sensor for online, in situ measurement of Glucose in cell cultures.



CITSens Bio sensor is a screen printed electrode with immobilized enzyme and is connected to the **CITSens Bio** Beamer with a cable. The measured data will be transmitted by wireless transmission to the receiver **CITSens Bio** ZOMOFI® which is connected to a PC for reporting.

Regardless the types of reactors you are using, **CITSens Bio** Glucose sensor is suitable for all standard disposable reactors such as spinner bottles, roller bottles, t-flasks, hyper flasks, Erlenmeyer flasks, cell stacks, customer-specific systems, bag reactors and SUB. We insert the sensor into the corresponding original cap and deliver it to the customer gamma sterilized and ready for use.

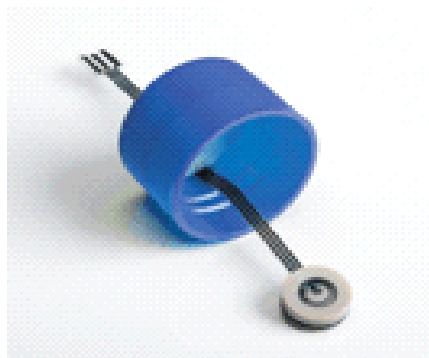
Product

Art. No.: 3002-501 CITSens Bio Glucose-sensor, built in cup, gamma sterilized

CITSens Bio Glucose Sensor
Screen printed electrode with immobilized enzyme
Precision: +/- 1 mmol/l (0.180 g/l)
Measuring range: 1-60 mmol/l (0,2-10,8 g/l)
Resolution: 0.1 mmol/l (0.0180 g/l)
Detection limit: 1 mmol/l (0.180g/l)
2 point calibration in situ
Dimensions
- length: Standard length 10 cm or 32 cm
- diameter: 1.4cm
Service life in continuous use: 21 days
Shelf life: 6 months in the fridge at 5 °C

CITSens Bio Lactate sensor

CITSens Bio Lactate sensor is the first and only sensor for online, in situ measurement of Lactate in cell cultures.



CITSens Bio sensor is a screen printed electrode with immobilized enzyme and is connected to the **CITSens Bio** Beamer with a cable. The measured data will be transmitted by wireless transmission to the receiver **CITSens Bio** ZOMOFI® which is connected to a PC for reporting.

Regardless the types of reactors you are using, **CITSens Bio** Lactate sensor is suitable for all standard disposable reactors such as spinner bottles, roller bottles, t-flasks, hyper flasks, Erlenmeyer flasks, cell stacks, customer-specific systems, bag reactors and SUB. We insert the sensor into the corresponding original cap and deliver it to the customer gamma sterilized and ready for use.

Product

Art. No.: 3002-502 CITSens Bio Lactate-sensor, built in cup, gamma sterilized

CITSens Bio Lactate Sensor
Screen printed electrode with immobilized enzyme
Precision: +/- 1 mmol/l (0.090 g/l)
Measuring range: 1-60 mmol/l (0,1-5.4 g/l)
Resolution: 0.1 mmol/l (0.045 g/l)
Detection limit: 1 mmol/l (0.09g/l)
2 point calibration in situ
Dimensions
- length: Standard length 10 cm or 32 cm
- diameter: 1.4cm
Service life in continuous use: 15 days
Shelf life: 6 months in the fridge at 5 °C

CITSens Bio Glutamate sensor

CITSens Bio Glutamate sensor is the first and only sensor for online, in situ measurement of Glucose in cell cultures.



CITSens Bio sensor is a screen printed electrode with immobilized enzyme and is connected to the **CITSens Bio** Beamer with a cable. The measured data will be transmitted by wireless transmission to the receiver **CITSens Bio** ZOMOFI® which is connected to a PC for reporting.

Regardless the types of reactors you are using, **CITSens Bio** Glutamate sensor is suitable for all standard disposable reactors such as spinner bottles, roller bottles, t-flasks, hyper flasks, Erlenmeyer flasks, cell stacks, customer-specific systems, bag reactors and SUB. We insert the sensor into the corresponding original cap and deliver it to the customer gamma sterilized and ready for use.

Product

Art. No.: 3002-503 CITSens Bio Glutamate-sensor, built in cup, gamma sterilized

CITSens Bio Glutamate Sensor
Screen printed electrode with immobilized enzyme
Precision: +/- 1 mmol/l (0.147 g/l)
Measuring range: 1-60 mmol/l (0,1-8,8 g/l)
Resolution: 0.1 mmol/l (0.0735 g/l)
Detection limit: 1 mmol/l (0.147g/l)
2 point calibration in situ
Dimensions
- length: Standard length 10 cm or 32 cm
- diameter: 1cm
Service life in continuous use: 21 days
Shelf life: 6 months in the fridge at 5 °C

CITSens Bio Beamer



The **CITSens Bio Beamer** is a radio transmitter, which is used to transmit the measured Glucose, Lactate and Glutamate data from the **CITSens Bio** sensor to the **CITSens Bio ZOMOFI®**.

The sensor is connected to the **CITSens Bio Beamer** with a cable. **CITSens Bio Beamer** is placed right next to the reactor system and incorporates a data acquisition unit as well as a transmitter for wireless transmission of the measured values of Glucose, Lactate and Glutamate in [nA] directly to a receiver.

The **CITSens Bio Beamer** is used with a rechargeable battery.

Product

Art. No.: **3002-401** **CITSens Bio Beamer**

CITSens Bio Beamer
Technology: active RFID
Frequency: 2.4-2.483 GHz
Battery: operation with rechargeable batteries
Dimensions: LxWxH = 85x42x20 mm
Radio transmission range: 50 m
Certification: CE

CITSens Bio ZOMOFI®



CITSens Bio ZOMOFI® receives data from **CITSens Bio Beamer** which is connected to the **CITSens Bio** sensor Glucose, Lactate and Glutamate. **CITSens Bio ZOMOFI®** can receive measurement data from up to 1000 sensors and transfers them to the PC by means of LAN.

At the same time, **CITSens Bio** software imports the data and stores them in a database. The software enables the sensor to be calibrated, displays the status of the radio modules and can group individual sensors together. The measured data will be illustrated in g/l and nA, as well as they can be exported in CVS format.

Product

Art. No.: 3002-301 CITSens Bio ZOMOFI

CITSens Bio ZOMOFI
Technology: active RFID
Frequency: 2.4-2.483 GHz
Dimensions: LxWxH = 125x105x27 mm
Weight: 204 g
Certification: CE
PC-Connections: RS232 or with integrated Lantronix WLAN/LAN module



CITSens Bio battery charging station

The **CITSens Bio battery charger** is used for recharging of the battery of the **CITSens Bio beamer**.

Recharging of battery takes approximately 3 hours. The **CITSens bio beamer** can be used afterward up to approximately 2 months before the next recharge is required.

Product

Art. No.: 3002-601 battery-charging station

For studies, application notes and further information, please visit our homepage www.c-cit.ch. NOTE: you have to register to obtain full access.