Sensor solutions for LABORATORY AUTOMATION
SAFETY MEETS EFFICIENCY

Our sensor solutions for identification in laboratory automation.

Many companies say they are “customer oriented” – at Leuze electronic, we go a step further. We offer specific and measurable added value in the areas of product usability, application know-how and service – to help make our customers more successful. With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. As identification specialist in laboratory automation, we offer a comprehensive product range from a single source and guarantee long availability of our products in accordance with the life cycle of your instruments. This offer is rounded out by service that is closely aligned with our customers’ needs with focus on personal closeness and technical competence.

For more than 50 years, Leuze electronic has been developing, producing and marketing optoelectronic sensors and inductive switches, identification systems, image processing systems, data transmission systems and safety sensor systems for industrial automation. Leuze electronic is one of the world’s leading innovators for optical sensors in factory automation.
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INTELLIGENT SENSOR SOLUTIONS FOR LABORATORY AUTOMATION, MECHANICAL ENGINEERING AND PHARMACEUTICALS

Leuze electronic also impresses in the laboratory environment with more than 50 years of sensor expertise in the identification area.

SHORT DISTANCE
Maximum reliability
always one step at a time

MULTI LANE
Efficient detection in many dimensions
CAROUSEL
Maximum speed and reliability without compromises

POINT OF CARE
Efficient automation directly at the device

PCR / MICROPLATE
Convenient tracking solutions provide a continuous flow of information
SHORT DISTANCE

Quick code reading at extremely short distances means additional challenges for devices.

Small installation dimensions and short reading distances provide code readers with special challenges, time and time again. Scanners with an extremely compact design and optics that are optimized for the special requirements result in a reading field that is specially adapted to these applications. Thus, we achieve efficient scanning results without having to forgo safety. For applications in which the scanner is going to be integrated in the device we can provide products without a housing in order to save space and money.
For direct integration in the instrument

CCD bar code reader
CR 50/55

- Miniature scanner in two mounting variants:
  - As open module for integration in instrument parts, e.g., via the 12-pin connector directly on the circuit board
  - In metal housing with optics cover and cable connection for installation at any location
- Ready to read all common codes
- Especially for reading in presentation mode
- Module size from 127 – 500 µm
- RS 232 and USB interface
- Simple configuration with the “Leuze Sensor Studio” PC software tool

Reading of a row of racks or in sorters

CCD bar code reader
CR 100

- High-performance CCD scanner with front or lateral beam exit
- Compact design for simple integration, even in constrained spaces
- Scanning rate of 700 scans/s facilitates reliable reading, even while in motion
- Reading of all common codes of modulus sizes 150 – 500 µm at a reading field height of ≥ 80 mm
- Robust metal housing with cable connection
- RS 232 interface, 1 input, 1 switching output
- Desired configuration can be easily configured via online commands
- Using adaptable firmware, customer-specific requirements can be quickly realized
For direct integration in the instrument

1D and 2D-codes
DCR 80/85

- CMOS Imager Scan Engine or in the housing
  - For integration into instruments
  - For direct mounting onto a pipettor
  - For establishing contact on the circuit board via 12-pin connector
- Special optics system
  - For reading the smallest high-density codes
  - Detection of standard codes over a large reading field
- Excellent reading and decoding characteristics
- Ready to read all common 1D and 2D-codes
- RS 232 interface
- Configuration with the “Leuze Sensor Studio”

Reading of microplates and reagents

1D and 2D-codes
DCR 200i

- Small camera-based code reader
- Decoding of 1D and 2D-codes
- Maximum depth of field and reading distance of 40 – 360 mm
- High object speed and decoding performance of up to 6 m/s with 10 decodings
- Integrated RS 232, RS 422 and Ethernet interfaces
Reading of microplates or reagents

1D and 2D-codes
LSIS 200

- Compact CCD scanner
- Reading of omnidirectional bar codes, 2D- as well as stacked codes such as PDF417
- Large read field and depth of field without adjusting the focus
- Integrated RS 232 or USB interface
- M12, 8-pin or cable outlet with ready-made connector

Reading of 1–2 rows of racks or in sorters

Bar code reader
BCL 8

- Consistently high scanning rate (up to 600 scans/s) facilitates reliable reading, even with manual insertion
- Robust IP 67 design with metal housing and glass front
- Integrated daisy chain network via RS 232 interface
- Various optics models for codes from 127 – 500 µm
- Extensive and adaptable firmware leaves nothing to be desired in the application
MULTI LANE
Reliable detection of codes, even over large distances.

Cost and time efficiency is also a major issue in the automation of laboratory tasks, e.g. reading multiple rows of racks with a single code reader. In order to do this, the systems that are used must also provide reliable results, even at longer distances and with large reading fields. Among other things, this is done by using modular optics, automatic focus adjustment, high scanning rates and Code Reconstruction Technology (CRT), which makes it possible to reliably detect even defective codes.
Reading of 1–6 rows of racks or in sorters

Bar code reader
BCL 20

- High-performance laser scanner with different optics models
- High scanning rate of up to 1,000 scans/s for the fastest movements, such as manual insertion and in conveyor systems for samples
- N-optics for high-resolution codes with module size from 150 µm
- Simple configuration of the desired configuration via online commands or with permanent settings in the firmware

Reading of up to 6 rows of racks

Bar code readers
BCL 300i

- Reading distances 80 - 450 mm
- Modular connection technology by means of pluggable connection hoods with M12 connector, clamp connection or fixed connection cable
- High scanning rate of up to 1,000 scans/s for the fastest movements, such as manual insertion and in conveyor systems for samples
- Variants: Line scanner and deflecting mirror
- Code reconstruction technology (CRT) for reliable identification of damaged codes
- Optional: display, heating models

Reading of 1–15 rows of racks with focus adjustment

Bar code reader
BCL 148

- Scanner with focus adjustment for sample codes and reagents
- Reading field depth of up to 250 mm
- Resolutions of 127 µm codes in a broad area over multiple rows of racks are possible
- Maximum scanning rate of 750 scans/s also makes quick manual or automated rack insertions possible
- Optional frontal or lateral beam exit
- Because of the focus adjustment, even the first scan can be used for reading the code, thereby allowing the decoding to be verified multiple times
POINT OF CARE

It can be reliably used directly on the patient if required.

For use directly at the doctors, it must be possible to integrate the code reader into compact devices in a space-saving way as well. This is done using miniaturized designs without a housing, for example. If a solution like this is not possible, external hand-held solutions can be used which are also suitable for environments with high hygiene demands due to their chemical resistance. The code readers have a modular design, and give you an optimum price/performance ratio and a suitable range of features for your application.
Compact design

CCD bar code readers
CR 50 / 55

- Miniature scanner in two mounting variants:
  - As open module for integration in instrument parts, e.g., via the 12-pin connector directly on the circuit board
  - In metal housing with optics cover and cable connection for installation at any location
- Ready to read all common codes, especially in presentation mode
- Module size from 127 – 500 µm
- RS 232 and USB interface
- Simple configuration with the “Leuze Sensor Studio” PC software tool

For direct integration in the instrument

1D and 2D-codes
DCR 80

- CMOS Imager Scan Engine for
  - integration into instruments
  - direct mounting onto a pipettor
  - Contacting on the circuit board via 12-pin connector
- Special optics system
  - For reading the smallest high-density codes
  - Detection of standard codes in a large reading field
- Excellent reading and decoding characteristics
- Ready to read all common 1D and 2D-codes
- Configuration with the “Leuze Sensor Studio”

Track & trace reading of samples/verification

1D and 2D-codes
Mobile code reader systems

- Built-in decoder
- LED display and acoustic signaler for successful reading
- Large read field for detecting linear bar codes and/or 2D-codes, even directly marked
- Ergonomic and robust housing
- Fast and reliable decoding, even of soiled codes
- Various optics are available for your applications
- Also available as a Bluetooth model
IMMUNOHISTOCHEMISTRY / MICRO PLATE / PCR

It is not possible to have a continuous flow of information in modern analysis processes without reliable tracking solutions.

Modern analysis processes are now automated to a high degree in order to carry out processes as efficiently and reliably as possible. Here, zero-error tolerance applies when identifying samples in the laboratory, and not just in the area of human medicine.

Modern tracking systems provide this reliability, and ensure that there is a continuous flow of information. Our code readers are a fundamental constituent of these systems, be it for the detection of 1D or 2D-codes, regardless of whether they are printed or directly marked.
Reading of 1–2 rows of racks or in sorters

Bar code reader
BCL 8

For direct integration in the instrument

1D and 2D-codes
DCR 80/85

- Consistently high scanning rate (up to 600 scans/s) facilitates reliable reading, even with manual insertion
- Robust IP 67 design with metal housing and glass front
- Integrated daisy chain network via RS 232 interface
- Various optics models for codes from 127–500 µm
- Extensive and adaptable firmware leaves nothing to be desired in the application

- CMOS Imager Scan Engine or in housing
  - For integration in instruments
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  - For contacting on the circuit board using a 12-pin connector
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CCD bar code reader
CR 50/55

Miniature scanner in two mounting variants:
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– In metal housing with optics cover and cable connection for installation at any location

Ready to read all common codes
Especially for reading in presentation mode
Module size from 127 – 500 µm
RS 232 and USB interface
Simple configuration with the “Leuze Sensor Studio” PC software tool

Reading of microplates and reagents

1D and 2D-codes
DCR 200i

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DCR 200i

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CCD bar code reader
CR 100

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- Compact design for simple integration, even in constrained spaces
- Scanning rate of 700 scans/s facilitates reliable reading, even while in motion
- Reading of all common codes of modulus sizes 150–500 μm at a reading field height of ≥ 80 mm
- Robust metal housing with cable connection
- RS 232 interface, 1 input, 1 switching output
- Desired configuration can be easily configured via online commands
- Using adaptable firmware, customer-specific requirements can be quickly realized

Reading during fast processes or for pattern/cap detection

Vision sensor/code reader
LSIS 400i

- Vision system with code reader, BLOB and measuring tool
- Short cycle times for fast events
- Presence monitoring, diameter and height measurement or pattern detection can easily be configured for cap detection
- WEB user interface for online setup
SPECIAL AND COMPLETE SOLUTIONS

If your requirements are not covered by the standard solution, we also develop completely individual customized versions or complete solutions for you.

FLEXIBILITY IS OUR STRENGTH

We consider ourselves to be a development partner to our customers, and therefore provide flexible support with customer-specific solutions as well as standard components. When doing this, we have the benefit of more than 50 years of experience in the development of industrial code readers.

We can provide you with special solutions, which we develop together with you specially for your requirement.

We can also provide you with complete solutions for your sensor systems which will increase efficiency, reliability and safety in the long-term.

- **Our specialists support you worldwide,** even during the layout of your application. This saves time and ensures maximum safety.

- **With our own hardware and software development** in the sensor technology centers in Owen (Germany) and Rochester (USA), we can quickly respond to customer requirements and ensure long availability of the devices.

- **Our broad product line offers solutions** for nearly every application.

- **Our devices are certified in accordance with ISO 13485** and thereby guarantee maximum product safety.
# Short Overview

## Laboratory Automation

### Stationary Readers / Scanners

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<th>BCL 20</th>
<th>BCL 148</th>
<th>BCL 300i</th>
<th>DCR 80</th>
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<td>RS 232</td>
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<td>RS 422</td>
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<td>RS 485</td>
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### Code Technology

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<tr>
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<tbody>
<tr>
<td>Bar code</td>
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<td>2D-code</td>
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<td>RFID</td>
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### Features

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<th>BCL 300i</th>
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<tr>
<td>Operating Range (mm)</td>
<td>50...230</td>
<td>50...230</td>
<td>15...67</td>
<td>40...160</td>
<td>45...440</td>
<td>30...310</td>
<td>80...430</td>
<td>20...300</td>
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<tr>
<td>Module Size (µm)</td>
<td>127...500</td>
<td>127...500</td>
<td>150...500</td>
<td>127...500</td>
<td>150...1,000</td>
<td>127...500</td>
<td>200...500</td>
<td>127...500</td>
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<td>(mil)</td>
<td>5...20</td>
<td>5...20</td>
<td>6...20</td>
<td>5...20</td>
<td>6...40</td>
<td>5...20</td>
<td>8...20</td>
<td>5...20</td>
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<tr>
<td>Scanning Rate (scans/s)</td>
<td>330</td>
<td>330</td>
<td>700</td>
<td>500 / 600</td>
<td>800 / 1,000</td>
<td>750 / 900</td>
<td>1,000</td>
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### Dimensions

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<th>BCL 148</th>
<th>BCL 300i</th>
<th>DCR 80</th>
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<tr>
<td>H x W x D (mm)</td>
<td>22.5 x 14 x 33</td>
<td>31 x 18.3 x 45.5</td>
<td>52 x 20 x 55</td>
<td>40.3 x 15 x 48</td>
<td>68 x 28 x 82</td>
<td>71 x 38 x 119</td>
<td>44 x 107 x 68</td>
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<td>20…300</td>
<td>40…360</td>
<td>25…310</td>
<td>25…400</td>
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<td>127…500</td>
<td>127…500</td>
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<td>5…20</td>
<td>5…20</td>
<td>5…20</td>
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<tr>
<td>25x39x55,5</td>
<td>43x61x44</td>
<td>40x32x47</td>
<td>75x55x113</td>
<td>–</td>
</tr>
</tbody>
</table>

### Interfaces

- RS 232
- RS 422
- RS 485
- USB
- Bluetooth
- Ethernet

### Code technology

- Bar code
- 2D-code
- RFID

### Features

- Operating range (mm)
  - IT 1300g/3820: 13…460
  - IT 1900/02: 25…596
  - HFM: 25 (RFID) 450 (1D bar code)
- Module size (µm)
  - IT 1300g/3820: 127…500
  - IT 1900/02: 127…500
- Scanning rate (scans/s)
  - IT 1300g/3820: 5…20
  - IT 1900/02: 5…20
- Dimensions
  - H x W x D (mm)
  - –
SMARTER PRODUCT USABILITY

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account – just as the uncomplicated integrability of the sensors in existing field bus systems and easy configuration, e.g. via a web browser, are.

SMARTER APPLICATION KNOW-HOW

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER CUSTOMER SERVICE

The technical and personal proximity to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths – and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, on the Internet or on-site with our customers – regardless of when and where the expertise of the sensor people is needed at any time.

Info at: www.leuze.com

Katrin Rieker,
Sales Methods, Processes, Tools
Switching Sensors
Optical Sensors
Ultrasonic Sensors
Fiber Optic Sensors
Inductive Switches
Forked Sensors
Light Curtains
Special Sensors

Measuring Sensors
Distance sensors
Sensors for Positioning
3D Sensors
Light Curtains
Forked Sensors

Products for Safety at Work
Optoelectronic Safety Sensors
Safe Locking Devices, Switches and Proximity Sensors
Safe Control Components
Machine Safety Services

Identification
Bar Code Identification
2D-Code Identification
RF Identification

Data Transmission/
Control Components
MA Modular Connection Units
Data Transmission
Safe Control Components
Signaling Devices
Connection Technology and Passive Distribution Boxes

Industrial Image Processing
Light Section Sensors
Smart Camera