

## 2 Technical Data

### 2.1 Technical Data

#### 2.1.1 Data Sheet for BCL 90 CAX M 100

<b>Model</b>	<b>BCL 90 CAX M 100 (Medium Density)</b>
Type	<b>Compact OMNI bar code scanner without heater</b>
Reading window	Frontal
Laser diode (wavelength)	Red light ( $\lambda = 650 \text{ nm}$ )
Service life of the laser diode	MTBF 20,000 h
Laser class of the device	Class 2 (acc. to DIN EN 60825-1), safety disconnection of the laser diode after 10 min <sup>1)</sup>
Focus control	Autofocus, alternatively event-driven focus position switching
Number of distance configurations	max. 8
Focus adjustment time	$\leq 20 \text{ ms}$ (typical)
Focus trigger	Switching inputs "SE 2... SE 6" / data interface / timer
Scanning/decoding frequency	600 ... 1200 Hz
Resolution	0.3 ... 1.0 mm
Reading fields	See reading field diagram from page 13 onwards
Bar code print contrast (PCS)	$\geq 60\%$
External light tolerance	2000 lx (on bar code)
Number of bar codes per scan	1 ... 12 (standard decoder), 1 ... 5 (CRT decoder)
Number of bar codes per scan gate time <sup>2)</sup>	1 ... 50 (auto-discriminating)
Types of bar code (CRT decoder)	Code 39, Code 128, Code 93, Codabar, EAN, EAN 128, UPC, 2/5 Interleaved
Bar code length	max. 50 characters (max. 600 characters for all bar codes per scan gate time taken together)
Print ratio	2:1 ... 3:1
Number of multiple readings	1 ... 99
Optical indicators	4 LED function indicators

<b>Model</b>	<b>BCL 90 CAX M 100</b> (Medium Density)
Read clocking	Switching input "SE 1" / free-oscillating / serial interface / MSP / TCP
Data interface "Host"	RS 232 or RS 422/485, adjustable data output format
Data transmission rate	300 ... 57 600 bits/ s
Protocols	Leuze standard, Leuze network multiNet plus and 3964(R)
Physical configurations	Stand alone, network (bus)
Data interface "Service"	RS 232, 9600 baud, 8 data bits, no parity, 1 stop bit, predefined output format
Function switching inputs	6 ("SE 1 ... SE 6") - Opto-decoupled, $U_{\text{emax}} = +30 \text{ V}$ , polarity-proof, can be connected to p-n-p outputs - "SE 1" (reading cycle): internal delay time max. 30 ms, reduced max 2 ... 6 ms - "SE 2 ... SE 6": focus position switching, SE 6: function selectable, int. delay time max. 30 ms
Function switching outputs	4 ("SWO 1" ... "SWO 4") - p-n-p, short-circuit proof, adjustable pulse duration (static, resolution 10 ... 990 ms or 100 ... 9900 ms) - Function of the result status indication selectable
Electrical connections	1 x 15-pin D-Sub-HD device plug, 1 x 15-pin D-Sub-HD device socket
Operating voltage/ power consumption	DC 18 ... 30 V / typically 9 W, max. 16 W
Housing	Aluminium die-cast, no silicone used in the exterior materials
Type of protection/ safety class	IP 65 <sup>3)</sup> (acc. to DIN 40 050) / class 3 (acc. to VDE 0106/ IEC 1010-1)
EMC / vibration / shock testing	Acc. to EN 50081-1, 50082-2 / acc. to IEC 68-2-6 Test FC / acc. to IEC 68-2-27 Test EA
Weight	approx. 2 kg
Operating ambient/ storage temperature	0 ... +40°C/ -20 ... +70°C
Max. relative air humidity	90%, non-condensing
1) In reading mode with clocking types "Switching input Sensor" and "Serial interface" 2) Scan gate time: time window of code evaluation generated internally through the reading cycle 3) Including plug cover or plug cover with parameter memory	

Table 2.1: Technical specifications of BCL 90 CAX M 100

**2.1.2 Data Sheet for BCL 90 CAX M 100 H**

Technical data identical to BCL 90 CAX M 100, except for the following differences:

<b>Model</b>	<b>BCL 90 CAX M 100 H</b>
<b>Type</b>	<b>Compact OMNI bar code scanner with heater</b>
<b>Switch-on behaviour/ temperature variation</b>	See Technical Description BCL 90
<b>Switch-on delay</b>	35 ... 40 min (with DC 24 V and min. ambient temperature of -30°C)
<b>Operating voltage</b>	DC 24 V +20% / -0%
<b>Power consumption</b>	Typically 75 W, max. 90 W
<b>Required core cross-section</b>	At least 0.75 mm <sup>2</sup> (for operating voltage supply)
<b>Weight</b>	approx. 2 kg
<b>Operating ambient/ storage temperature</b>	-30 ... +35°C / -20 ... +70°C

Table 2.2: Technical specifications of BCL 90 CAX M 100 H

**2.2 Dimensioned Drawing of BCL 90 CAX ...**

**BCL 90 CAX M 100**  
**BCL 90 CAX M 100 H**

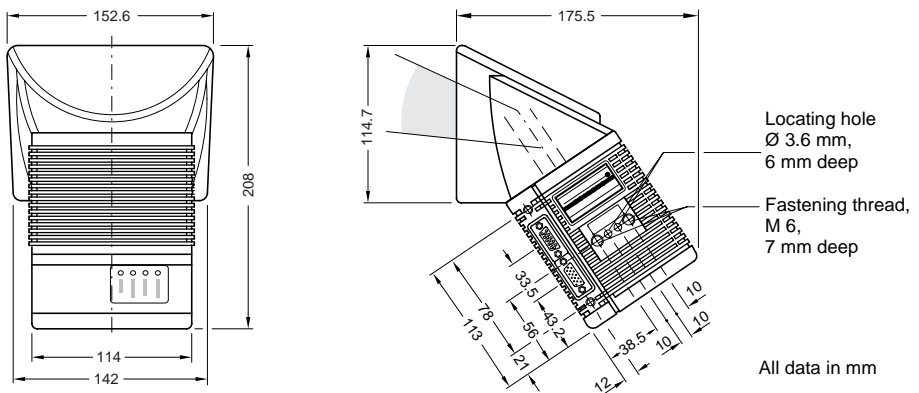


Figure 2.1: Dimensions of BCL 90 CAX ...

## 2.3 Optical Data (Specification Diagrams)

### 2.3.1 Reading Conditions for All Diagrams

Test code	Code 128
Print contrast	> 90%
Tilt	± 45°
External light	< 2000 lx
Good Read rate	> 75%

Table 2.3: Reading conditions for specification diagrams



**Note!**

*Min. and max. read distances are measured radially from the BCL!*

### 2.3.2 Overview of Diagrams

Model	Diagrams	Page
<b>BCL 90 CAX M 100/M 100 H:</b>	Reading field height in relation to read distance and resolution	page 13
	Characteristics for scanning frequency in relation to read distance and resolution	page 14

2.3.3 Reading performance data for compact OMNI bar code scanner

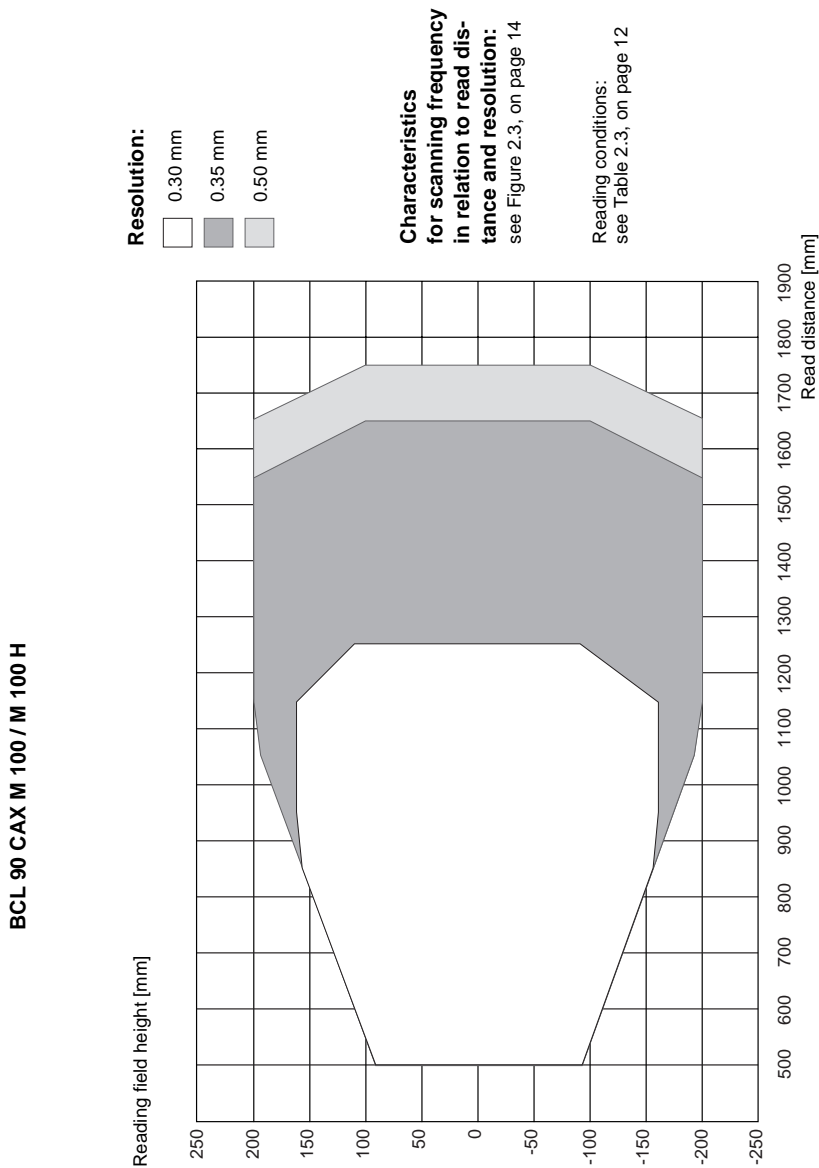
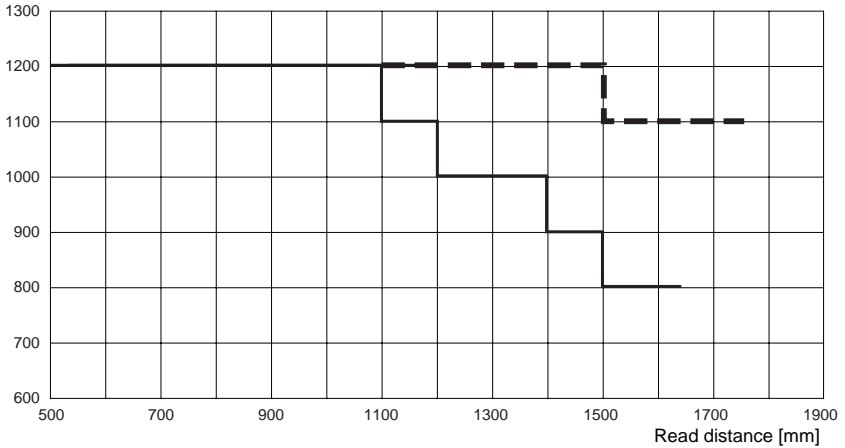


Figure 2.2: Reading field height in relation to read distance and resolution

**BCL 90 CAX M 100 / M 100 H**

Scanning frequency [Hz]



**Resolution:**

- 0.35 mm
- - - 0.50 mm

Reading conditions:  
see Table 2.3, on page 12

Figure 2.3: Characteristics for scanning frequency in relation to read distance and resolution

### 3 Accessories (Order Codes)

#### 3.1 Cables, External Parameter Memories and Plug Covers



**Note!**

*Information on cables, external parameter memories and plug covers can be found in the Technical Description BCL 90 (Chapter 5.1).*

**a) BCL without heater**

Temperature range of the connection materials:

When stationary: -30 ... +70 °C; when in motion: 0 ... +70 °C

**b) BCL with heater**

Temperature range of the connection materials:

When stationary: -50 ... +70 °C; when in motion: -40 ... +70 °C

#### 3.2 Mounting Accessories

Type / order number	Description	Figure
<b>BT 90 S /</b> 500 35 514	Quick-action clamping device, with complete fastening materials	Figure 3.1
<b>BT 90 X/</b> 500 37 598	Mounting bracket, with 2 screws M 6 x 10 mm, self-locking	Figure 3.2

Table 3.1: Available accessories: mounting accessories

### 3.3 Dimensions

#### *View of the quick-action clamping device BT 90 S*

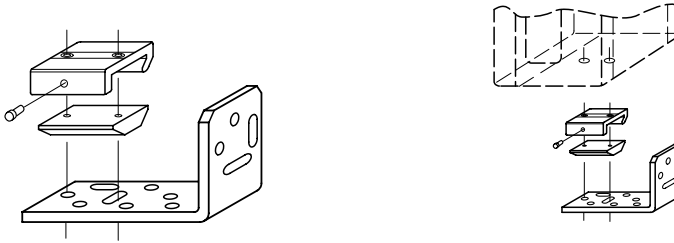
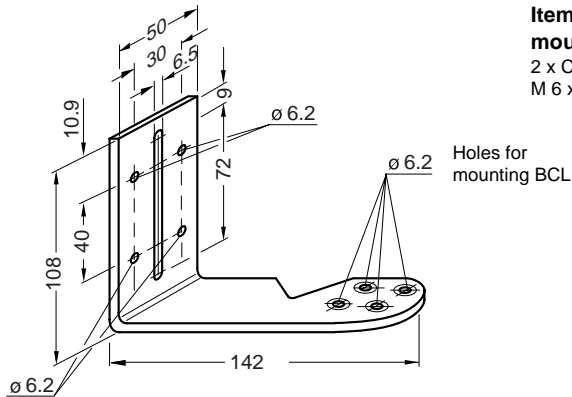


Figure 3.1: View of the quick-action clamping device with bracket support

#### *Mounting bracket BT90 X*



**Items included for mounting BCL:**  
 2 x Cheese-head screws  
 M 6 x 10 mm, self-locking

Figure 3.2: Dimensions of mounting bracket BT 90 X