

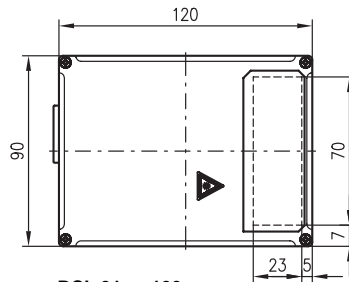


BCL 31/32

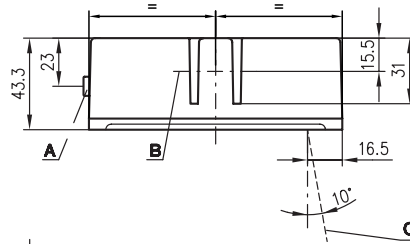
Bar code reader



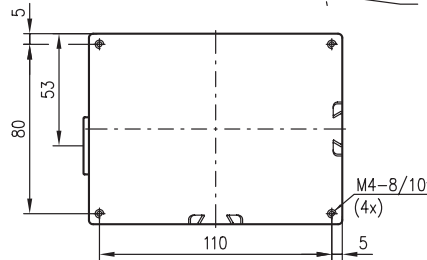
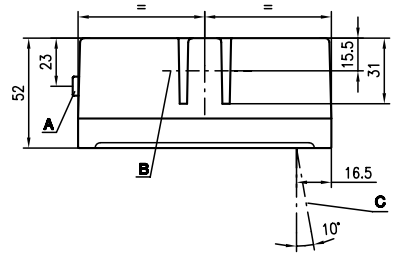
Dimensioned drawing



BCL 31 ... 100  
BCL 32 ... 100



BCL 31 ... 100 H  
BCL 32 ... 100 H



- A** 15-pin plug
- B** Position - centre of the BT 56
- C** Scanning beam - line scanner  
Scanning beam - at various distances, the raster scanner has a raster line field of:

Scanner distance [mm]	50	100	200	300	400	450	700
Raster line field [mm]	15	21	32	44	55	61	84



- Scanning rate 1000 scans/s
- "autoRefIAct" automatic reflector activation
- Automatic detection of code type and code quality, reference code
- Parameters are stored fail-safe in an EEPROM
- Simple mounting and fastening
- RS 232 service interface with fixed data format
- J Optics for ink-jet applications
- Devices with integrated heating



Accessories:

(available separately)

- MA 2/MA 2 L connector unit for BCL 31/32 stand alone or as a network slave
- MA 4 / MA 4 D connector unit for BCL 31/32 with parameter memory and optional display
- MA 4 1xx/MA 4 D 1xx/MA 4 1xx L connector unit for BCL 32 with parameter memory, interface module and optional display
- MA 22 DC Daisy Chain connector unit for 4 x BCL 32
- BT 56 dovetail rod mounting set
- KB 031-3000 connection cable for BCL with MA, 3 m long
- KB 040-3000 connection cable for BCL with MA, 3 m long

We reserve the right to make changes • Bcl31\_32\_e.fm



### Specifications

#### Optical data

Light source laser diode 650 ... 690nm  
 Laser safety class 2  
 Laser warning notice see remark  
 Scanning rate BCL with M optics: 1000 scans/s  
 BCL with F optics: 800 scans/s  
 BCL with L optics: 800 scans/s  
 BCL with J optics: 1000 scans/s  
 Resolution BCL 3x xM 100: m = 0.2mm ... 0.5mm  
 BCL 3x xF 100: m = 0.3mm ... 0.8mm  
 BCL 3x xL 100: m = 0.35mm ... 0.8mm  
 BCL 3x xJ 100: application-dependent  
 see reading curve  
 Reading distance see reading curve

#### Software

Code types all common code types  
 Software features selectable output format, autoConfig, autoControl, autoRefIAct, reference code comparison, multiple read, real time decoding, adjustment mode, diagnosis, reading gate control, control of switching inputs and switching outputs, etc.

#### Electrical data

Interface type BCL 31: RS 485  
 BCL 32: RS 232  
 Service interface RS 232 with fixed data format,  
 8 data bits, no parity, 1 stop bit  
 Baud rate 110 ... 115400Bd  
 Data formats data bits: 7, 8, 9  
 parity: None, Even, Odd  
 stop bits: 1, 2  
 Protocols with/without framing protocol  
 ACK/NAK, 3964 (R) RK 512, RTS/CTS  
 X ON / X OFF, multiNet plus  
 Ports BCL 31: 1 switching output, 1 switching input  
 BCL 32: 2 switching outputs, 2 switching inputs  
 LED green device ready (Power On)  
 Operating voltage without heating: 10 ... 30VDC  
 with heating: 22 ... 26VDC  
 Power consumption without heating: max. 3.2W  
 with heating: max. 27W (of which window heating accounts for 1.5W)

#### Mechanical data

Protection class IP 65  
 Weight without heating: 400g  
 with heating: 480g  
 Dimensions (WxHxD) without heating: 120 x 90 x 43mm  
 with heating: 120 x 90 x 52mm  
 Housing diecast aluminium

#### Environmental data

Ambient temp. (operation/storage) without heating: 0°C ... +40°C/-20°C ... +60°C  
 with heating: -35°C ... +30°C/-20°C ... +60°C  
 Air humidity max. 90% rel. humidity, non-condensing  
 Vibration IEC 60068-2-6, FC test  
 Shock IEC 60068-2-27, Ea test  
 Electromagnetic compatibility EN 61326-1, IEC 61000-4-2, -3, -4 and -6



#### Notice!

The warm-up time before devices with integrated heating are ready for operation is approx. 30min. (depending on the environmental conditions).

### Pin assignment for 15-pin sub-D connector

Pin assignment BCL 31 with RS 485 interface			Pin assignment BCL 32 with RS 232 interface		
Pin No.		Description	Pin No.		Description
3	RS485_A	RS 485 interface	3	CTS	Hardware handshake RS 232 host interface
4	RS485_B		4	RTS	
1	GND_485		11	RxD	Host/service interface, electrically insulated (service if pins 7 and 15 are bridged)
5	/MA0	12	TxD		
6	/MA1	Address selection	1	GND	Bridge to pin 15: Daisy chain is active
13	/MA2		5	Daisy Chain	
14	/MA3		13	-	Reserved
9	/MA4		14	-	
2	SWIN1	Switching input	2	SWIN1	Switching inputs
10	SWOUT1	Switching output	9	SWIN2	
7	/Serv	Bridge to pin 15: service operation RS 232 interface	10	SWOUT1	Switching outputs
11	RxD_Serv		6	SWOUT2	
12	TxD_Serv	Service interface electrically coupled	7	/Serv	Bridge to pin 15: service operation RS 232 interface
8	VIN	Voltage supply	8	VIN	
15	GND			15	GND

### Tables

### Diagrams

### Remarks



AVOID EXPOSURE - LASER LIGHT IS EMITTED FROM THIS APERTURE  
 CAUTION: LASER LIGHT WHEN OPEN  
 DO NOT STARE INTO BEAM

**LASER LIGHT - DO NOT STARE INTO BEAM**  
 CLASS 2 LASER PRODUCT  
 Maximum output: 1.8mW  
 Pulse duration: 120µs  
 Emitted wavelength: 650..690nm  
 IEC 60825-1:1993 + A2:2001  
 Complies with 21 CFR 1040.10 and 1040.11  
 except for deviations pursuant to  
 Laser Notice No.50, dated July 2001.

Leuze electronic  
 Made in Germany  
<http://www.leuze.de>  
 P.O. - BOX 1111  
 73277 Owen/Teck

**UL** LISTED  
**CE** I.T.E. 85PA

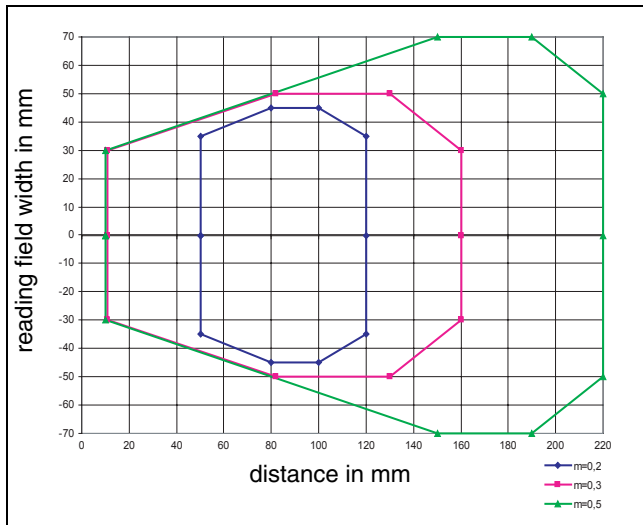
**BCL 3.** ... .. V00.01  
 500..... Sep. 2003 E309001  
 10-30V DC Manufactured Serial No.



### BCL 31/32

## Reading curves for devices without heating

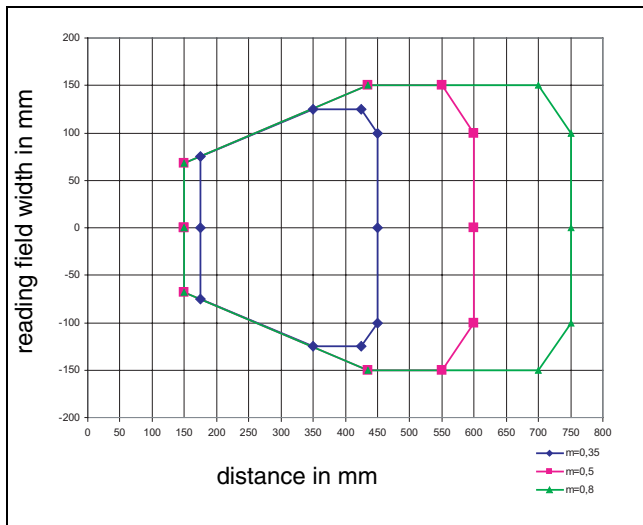
BCL 31/32 type M with 1000 scans/s



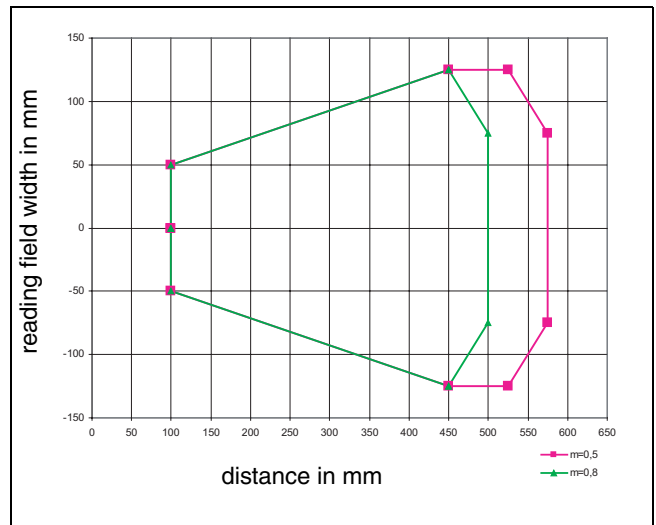
BCL 31/32 type F with 800 scans/s



BCL 31/32 type L with 800 scans/s



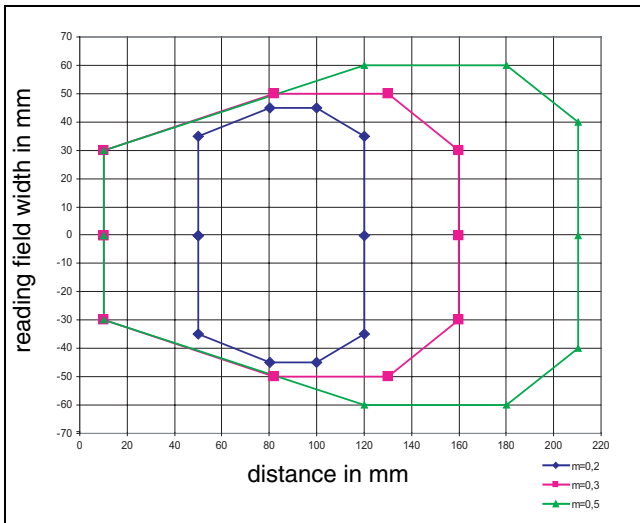
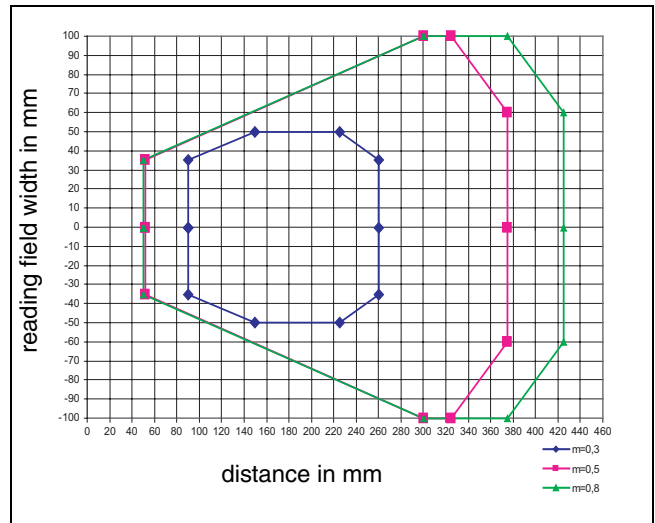
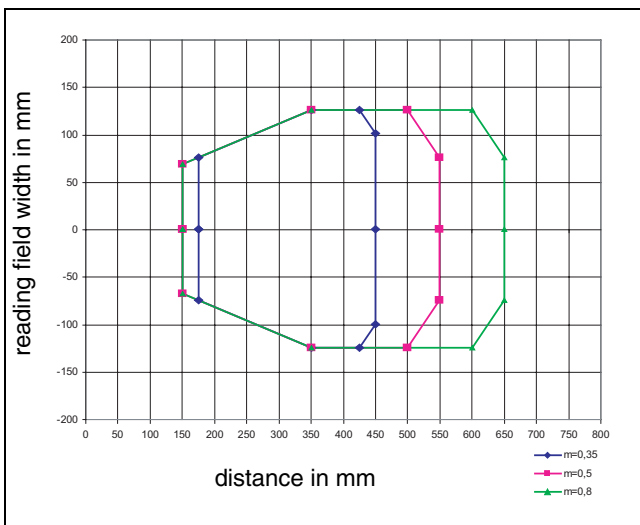
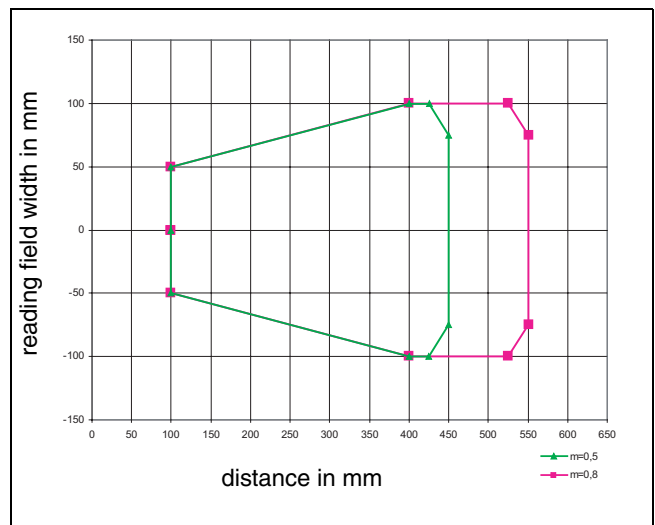
BCL 31/32 type J with 1000 scans/s<sup>1)</sup>



1) The specified reading curve applies to the standard case: black on white, sharp contours, homogeneously printed code.

The actual reading field for an ink-jet application must be checked for the respective application.

## Reading curves for devices with heating

**BCL 31/32 type M with 1000 scans/s with heating**

**BCL 31/32 type F with 800 scans/s with heating**

**BCL 31/32 type L with 800 scans/s with heating**

**BCL 31/32 type J with 1000 scans/s with heating <sup>1)</sup>**


1) The specified reading curve applies to the standard case:  
black on white, sharp contours, homogeneously printed code.

The actual reading field for an ink-jet application must be checked for the respective application.



## BCL 31/32

### Description

The BCL 31/32 bar code readers are high-performance scanners with a scanning rate of up to 1000 scans/s which can read all common bar codes with great reliability. They are capable of resolving module widths from  $m = 0.2$  to  $0.8$  mm.

A special bar code reader with optics version J is available for all ink jet applications. This reader has been optimised for low contrast bar codes that generally feature gaps.

The available **heating devices** are optimally suited for use in outdoor and refrigeration applications. The device's regulated body heating brings the device to the required operating temperature, and the window heating prevents condensing air humidity from fogging the window.

The scanners are provided with various methods of activation. These include, for example, the switching inputs for external sensors, the online command "+" for activation via the host interface or the newly patented **autoReflAct**.

**autoReflAct** stands for automatic reflector activation and makes possible **activation without additional sensors**. This is achieved by directing the scanner with reduced scanning beam towards a reflector mounted behind the conveyor path. As long as the scanner is targeted at the reflector, the read gate remains closed. If, however, the reflector is blocked by an object such as a container with a bar code label, the scanner activates the read procedure, and the label on the container is read. When the path from the scanner to the reflector has cleared, the read procedure has completed and the scanning beam is reduced and again directed onto the reflector. The read gate is closed.

As a standalone device, the BCL 31/32 is used in conjunction with a connector unit MA 2, MA 2 L, MA 4, or MA 4 D.

In addition, the BCL 31/32 scanner versions offer various networking options.

As a slave for the Leuze network, multiNet Plus, the BCL 31 is used in combination with the connector units MA 2, MA 2 L, MA 4 and MA 4 D, the BCL 32 in combination with the connector units MA 4 1xx/MA 4 D 1xx/MA 4 1xx L. Hence, up to 30 scanners can be networked together with the network master unit MA 31.

The BCL 32 can be used to network 4 scanners via RS 232 using the Daisy Chain Protocol and the connector unit MA 22 DC.

**Order guide**

<b>Type</b>	<b>Description</b>	<b>Part No.</b>
BCL 32 S M 100	Single line scanner, RS 232 interface, M optics	500 36272
BCL 32 S F 100	Single line scanner, RS 232 interface, F optics	500 36274
BCL 32 S L 100	Single line scanner, RS 232 interface, L optics	500 41384
BCL 32 S J 100	Single line scanner, RS 232 interface, J optics for ink-jet applications	501 04020
BCL 32 R1 M 100	Raster scanner, RS 232 interface, M optics	500 36271
BCL 32 R1 F 100	Raster scanner, RS 232 interface, F optics	500 36273
BCL 32 R1 L 100	Raster scanner, RS 232 interface, L optics	500 41383
BCL 32 R1 J 100	Raster scanner, RS 232 interface, J optics for ink-jet applications	500 41800
BCL 32 S M 100 H	Single line scanner, RS 232 interface, M optics, with heating	501 01898
BCL 32 S F 100 H	Single line scanner, RS 232 interface, F optics, with heating	501 01899
BCL 32 S L 100 H	Single line scanner, RS 232 interface, L optics, with heating	501 01900
BCL 32 R1 M 100 H	Raster scanner, RS 232 interface, M optics, with heating	501 01894
BCL 32 R1 F 100 H	Raster scanner, RS 232 interface, F optics, with heating	501 01895
BCL 32 R1 L 100 H	Raster scanner, RS 232 interface, L optics, with heating	501 01896
BCL 32 R1 J 100 H	Raster scanner, RS 232 interface, J optics for ink-jet applications, with heating	501 01897
BCL 31 S M 100	single line scanner with RS 485 interface and M optics	500 36276
BCL 31 S F 100	single line scanner with RS 485 interface and F optics	500 36278
BCL 31 S L 100	single line scanner with RS 485 interface and L optics	500 41379
BCL 31 S J 100	Single line scanner with RS 485 interface and J optics for ink-jet applications	501 04019
BCL 31 R1 M 100	raster scanner with RS 485 interface and M optics	500 36275
BCL 31 R1 F 100	Raster scanner with RS 485 interface and F optics	500 36277
BCL 31 R1 L 100	raster scanner with RS 485 interface and L optics	500 41380
BCL 31 R1 J 100	raster scanner with RS 485 interface and J optics for ink-jet applications	500 41798
BCL 31 S M 100 H	Single line scanner, RS 485 interface, M optics, with heating	501 01891
BCL 31 S F 100 H	Single line scanner, RS 485 interface, F optics, with heating	501 01892
BCL 31 S L 100 H	Single line scanner, RS 485 interface, L optics, with heating	501 01893
BCL 31 R1 M 100 H	Raster scanner, RS 485 interface, M optics, with heating	501 01887
BCL 31 R1 F 100 H	Raster scanner, RS 485 interface, F optics, with heating	501 01888
BCL 31 R1 L 100 H	Raster scanner, RS 485 interface, L optics, with heating	501 01889
BCL 31 R1 J 100 H	Raster scanner, RS 485 interface, J optics for ink-jet applications, with heating	501 01890