4 Technical Data

4.1 General Technical Data

Manufacturer:	Leuze electronic GmbH + Co.,In der Braike 1, D-73277 Owen / Teck
Type:	BCL 80, bar code reader with integrated decoder MA 10, connector / interface unit for BCL 80

Technical Data BCL 80

General Specifications	
Housing	Diecast aluminium
Dimensions	100 x 155 x 90 mm (H x W x D)
Weight	approx. 1.63 kg approx. 2.7 kg (version with oscillating mirror)
Protection class	IP 65
Scanner	
Resolution	0.2 ... 1 mm
Reading distance	300 ... 2300 mm 300 ... 1800 mm (version with oscillating mirror)
Scanning rate	600 Scans/s (adjustable)
Laser source	laser diode, red 660 nm, 1 mW, protection class 2
Beam deflection	by means of rotating polygon mirror wheel
Optical window	glass with scratch-resistant Indium coating
Mirror oscillating frequency	0.2 ... 5.0 Hz (adjustable)
Decoder	
Code types	2/5 Interleaved Code 39 UPC (A, E) EAN Code 128 / EAN 128 Pharmacode Add-On (EAN) CODABAR
Code reconstruction	all versions of the BCL 80 are available with optional code reconstruction technology
Interfaces	
Type	can be switched between RS 232 and RS 485, additional service interface (RS 232)
Baud rate	110 ... 57600 Baud selectable (host only)
Switching input	12 ... 36 V DC / AC voltage, selectable galvanic isolation or supplied operating voltage, max. insulation voltage: 250 V (with galvanic isolation)
Power supply	
Operating voltage	18 ... 36 V DC
Power consumption	6 VA max. 18 VA max. (version with oscillating mirror)

Environmental conditions

Operating temperature range	0 … + 40°C
Storage temperature range	- 20 … + 60°C
Air humidity	max. 90% rel. humidity, non-condensing
Vibration	accord. to IEC 68.2.6
Shock	accord. to IEC 68.2.27
EMC	accord. to IEC 801

Technical Data MA 10

General Specifications

Housing	Diecast aluminium
Dimensions	130 x 90 x 78 mm (H x W x D)
Weight	approx. 0.74 kg
Protection class	IP 65
Interfaces	
Type (optional)	RS 232, with galvanic isolation RS 422, with galvanic isolation RS 485, with galvanic isolation TTY, with galvanic isolation
Service interface	RS 232 internal, 9 pin Sub D plug, male
Inputs/outputs	
2 switched inputs	galvanically isolated, with supply voltage terminal for sensors 12 … 36 V DC/AC, insulation voltage 500 V
2 switched outputs	can be operated galvanically isolated or not isolated switching voltage 5 … 48 V DC, max. load 500 mA
Power supply	
Operating voltage	18 … 36 V DC
Power consumption	2 VA max.
Environmental conditions	
Operating temperature range	0 … +50°C
Storage temperature range	-20 … +60°C
Air humidity	max. 90% rel. humidity, non-condensing
Vibration	accord. to IEC 68.2.6
Shock	accord. to IEC 68.2.27
EMC	accord. to IEC 801

4.2 Dimensioned drawings

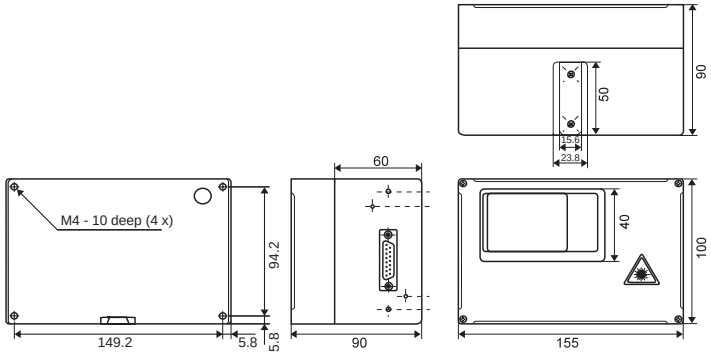


Figure 4.1: Dimensioned drawing BCL 80

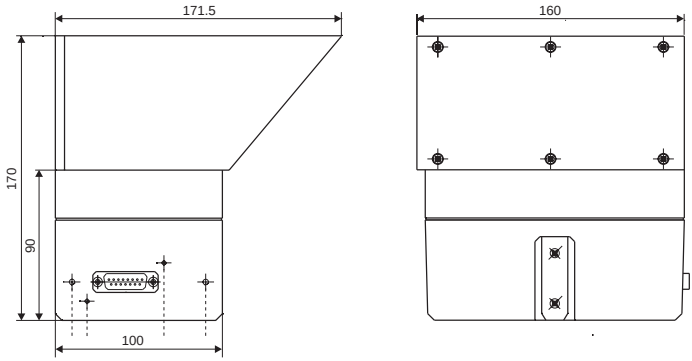


Figure 4.2: Dimensioned drawing of BCL 80 with oscillating mirror add-on

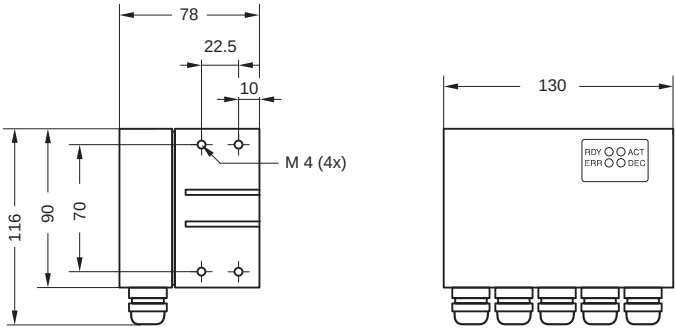


Figure 4.3: Dimensioned drawing MA 10

4.3.1 Type overview

Type	Maximum range (mm)	Module/ resolution (mm)	Sweep principle S*, OM** or R1***	Scanning rate (scan/s)	Part No.
BCL 80 S N1 100	500	0.2	S	600	500 31668
BCL 80 S N2 100	900	0.3	S	600	500 31669
BCL 80 S M 100	1600	0.5	S	600	500 26181
BCL 80 S L 100	2300	0.7	S	480	500 31607
BCL 80 O1 N1 100	500	0.2	OM	600	500 36447
BCL 80 O1 N2 100	800	0.3	OM	600	500 36449
BCL 80 O1 M 100	1400	0.5	OM	600	500 36450
BCL 80 O1 L 100	1800	0.7	OM	480	500 36451
BCL 80 CRT M 100	1600	0.5	S	600	500 29025
BCL 80 CRT O1 M 100	1400	0.5	OM	600	500 36452
BCL 80 R1 M 100	1600	0.5	R1	600	500 29221

S*: Line Scanner Single Line (1 line)
OM**: Line Scanner with oscillating mirror add-on
R1***: Raster Scanner (8 lines)

4.3.2 Sweep principle

Line scanner (single line)

1 line scans the label.

Areas of use:

- when the bar code is printed in the conveying direction ('ladder arrangement')
- with bar codes having very short bar lengths
- when the scanning distance is large

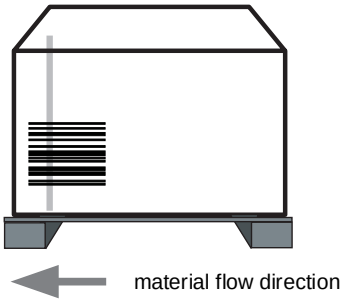


Figure 4.5: Sweep principle for the line scanner

Line scanner with oscillating mirror add-on

1 line that is continuously deflected by a mirror during scanning scans the label at varying heights.

Areas of use:
- when the label's position is not fixed, e.g., on palettes
- when the bar code is printed in the conveying direction ('picket fence arrangement')
- when reading stationary objects
- when the scanning distance is large
- when a large reading field has to be covered

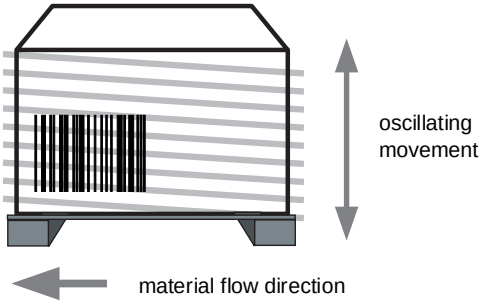


Figure 4.6: Sweep principle for the line scanner with oscillating mirror add-on

4.3.3 Reading Fields

The BCL 80 is available in two different versions (with / without oscillating mirror add-on) that also differ in range and resolution (see Chapter 4.3.1).

Version S (BCL 80 **S** N1 100 / BCL 80 **S** N2 100 / BCL 80 **S** M 100 / BCL 80 **S** L 100):
Standard version with / without CRT
Medium to very long range for barcodes with a medium module.

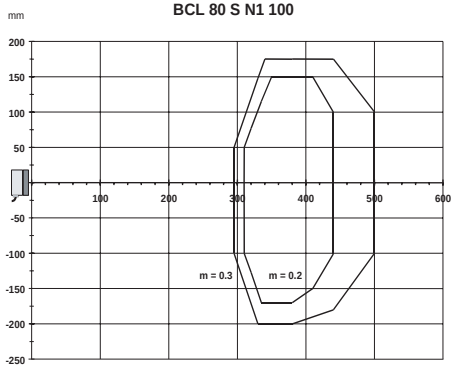
Version O (BCL 80 **O** N1 100 / BCL 80 **O** N2 100 / BCL 80 **O** M 100 / BCL 80 **O** L 100):
Version with oscillating mirror add-on and with / without CRT
Medium to very long range for barcodes with a medium module.

The following graphic displays the scanning curves of the various BCL models.

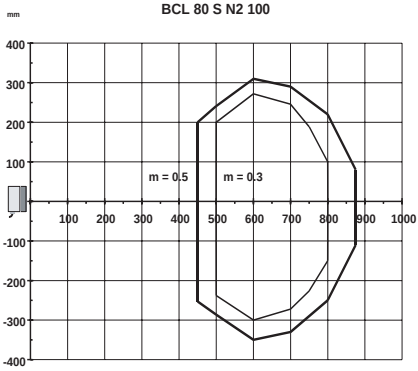
Note!
Please note that the actual scanning curves can vary due to factors such as label material, print quality, reading angle, print contrast, etc.

4.3.4 Scanning curves of the BCL 80

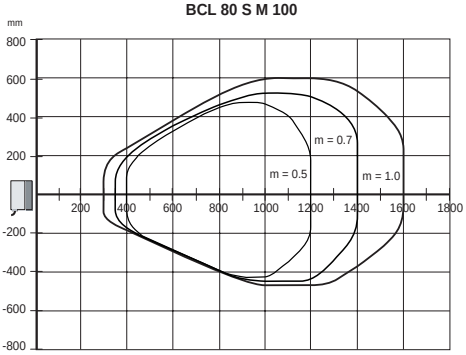
BCL 80 S N1 100



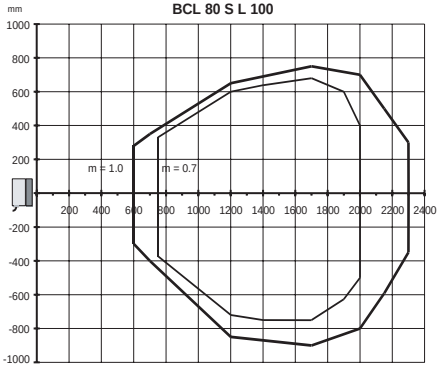
BCL 80 S N2 100



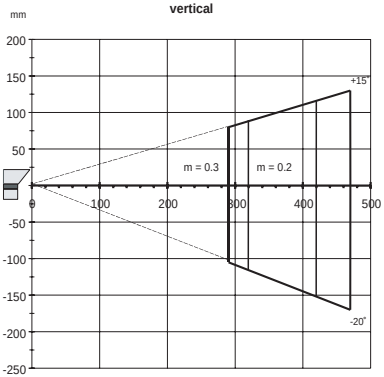
BCL 80 S M 100



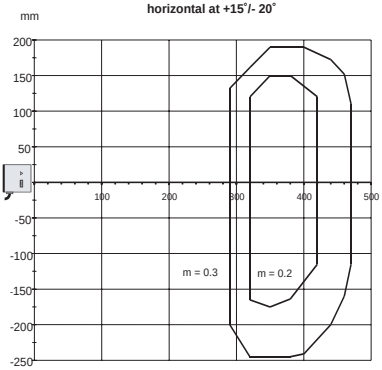
BCL 80 S L 100



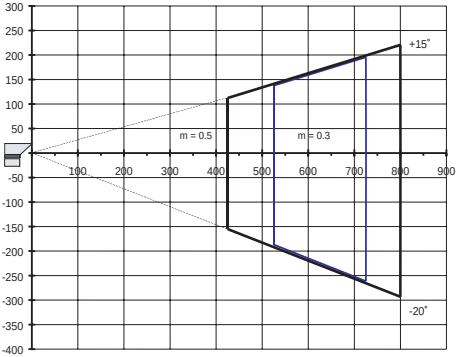
BCL 80 O N1 100
vertical



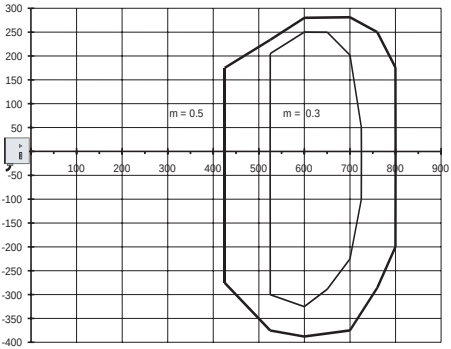
BCL 80 O N1 100
horizontal at +15°/- 20°



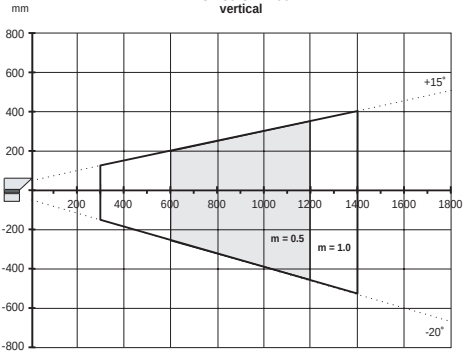
BCL 80 O N2 100
vertical



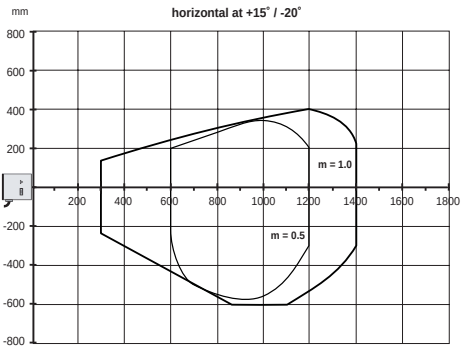
BCL 80 O N2 100
horizontal at +15°/-20°



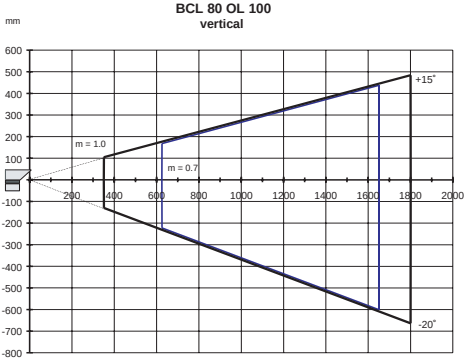
BCL 80 O M 100
vertical



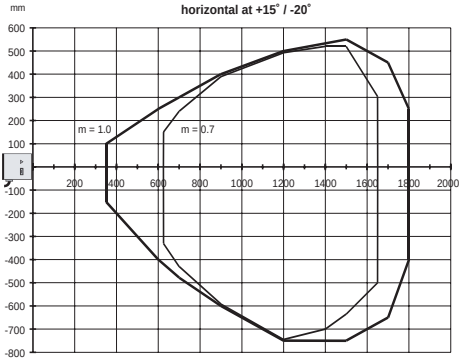
BCL 80 O M 100
horizontal at +15° / -20°



BCL 80 OL 100
vertical



BCL 80 OL 100
horizontal at +15° / -20°



5 Accessories / Order Designation

Addresses for ordering
Products from Leuze electronic GmbH + Co. can be ordered from any of the sales and service offices listed on the back page of this operating manual.

5.1 Connector and interface unit MA 10

Type	Short Description	Part No.
MA 10 100	standard model, multiNet Slave with host interface RS 485	500 26110
MA 10 110	standard, with host interface RS 232	500 26109
MA 10 120	standard, active and passive operation with host interface TTY	500 27186
MA 10 130	standard, with host interface RS 422	500 27187

Note!
All MA 10 units are supplied with an additional RS 232 service interface (9 pin Sub D).

5.2 Mounting accessories

A wide range of mounting accessories are available for mounting the BCL 80 and MA 10.

Mounting device BT 56

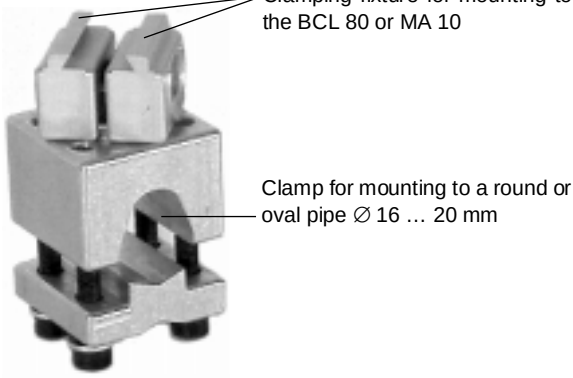


Figure 5.1: Mounting device BT 56

Note!
For weight reasons, the mounting kit BT 56 is not suitable for the version with oscillating mirror add-on.

Mounting device BT 57

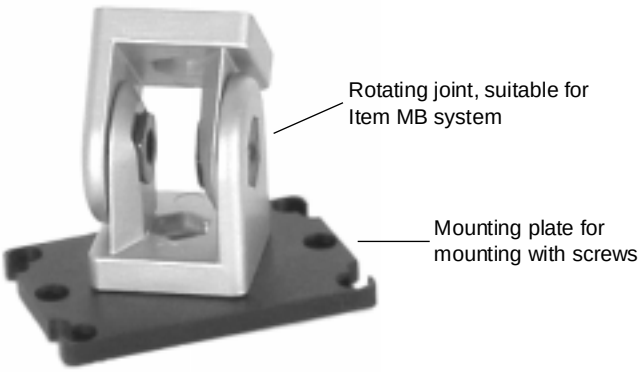


Figure 5.2: Mounting device BT 57

Mounting device BT 58

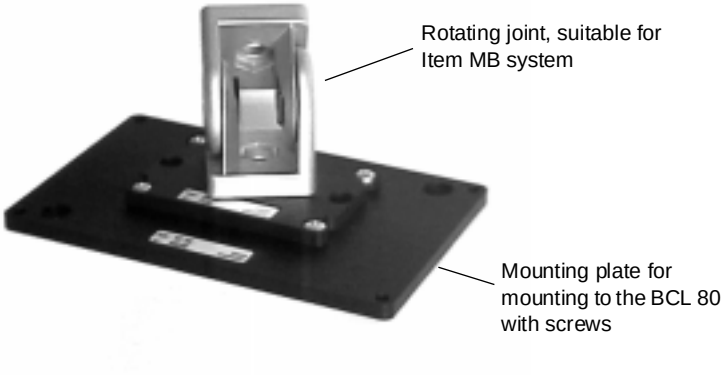


Figure 5.3: Mounting device BT 58

Type	Short Description	Part No.
BT 56	Mounting kit with dovetail for mounting on round rods ∅ 16 … 20 mm	500 27375
BT 57	Mounting kit suitable for ITEM MB system	500 27167
BT 58	Mounting kit suitable for ITEM MB system	500 27394

5.3 Cable accessories

KB 040 xxxx
15-conductor connection cable BCL 80 / MA 10, Sub D plug and socket
xxxx = Length in mm

Figure 5.4: Connection cable between the BCL 80 and MA 10

KB 040-xxxx-B
15-conductor connection cable, Sub D socket with open strand ends for connecting in switching cabinets or terminal boxes
xxxx = Length in mm

Figure 5.5: Connection cable BCL 80 'stand alone'

Type	Short Description	Part No.
KB 040-3000	15-conductor connection cable BCL 80 / MA 10, Sub D plug and socket, length: 3 m	500 26658
KB 040-6000	as above, length: 6 m	500 29381
KB 040-10000	as above, length: 10 m	500 29382
KB 040-3000-B	15-conductor connection cable BCL 80 'stand alone', open strand ends, Sub D socket, length: 3 m	500 29316
KB 040-6000-B	as above, length: 6 m	500 29317
KB 040-10000-B	as above, length: 10 m	500 29318

Note!
The requirements for protection class IP 65 are fulfilled with this cable type only!

Software

Type	Short Description	Part No.
BCL-Config	terminal software for on-line and off-line programming via PC or programming device with serial RS 232 interface (V.24)	500 31298