

Technical data sheet Stationary bar code reader

Part no.: 50105517

BCL 508i SM 102 H



Contents

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- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- Notes
- Accessories











Technical data



Series	BCL 500i
Special version	
Special version	Heating
Functions	
Functions	Alignment mode
runctions	Alignment mode AutoConfig
	AutoControl
	AutoReflAct
	Code fragment technology
	Heating
	LED indicator
	Reference code comparison
Characteristic parameters	
MTTF	93 years
Read data	
Code types, readable	2/5 Interleaved
typoo, roudubio	Codabar
	Code 128
	Code 39
	Code 93
	EAN 128
	EAN 8/13
	EAN Addendum
	GS1 Databar Expanded
	GS1 Databar Limited
	GS1 Databar Omnidirectional
	UPC
Scanning rate, typical	1,000 scans/s
Bar codes per reading gate, max.	64 Piece(s)
number	
number Optical data	
Optical data	300 1,000 mm
Optical data Reading distance	300 1,000 mm Laser, Red
Optical data	300 1,000 mm Laser, Red 650 nm
Optical data Reading distance Light source	Laser, Red
Optical data Reading distance Light source Wavelength Laser class	Laser, Red 650 nm
Optical data Reading distance Light source Wavelength	Laser, Red 650 nm 2, IEC/EN 60825-1:2007
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening)	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 °
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS)	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 °
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS)	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method Scanning rate	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner 800 1,200 scans/s
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method Scanning rate Beam deflection	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner 800 1,200 scans/s Via rotating polygon wheel
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method Scanning rate Beam deflection Light beam exit	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner 800 1,200 scans/s Via rotating polygon wheel
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method Scanning rate Beam deflection Light beam exit Electrical data Protective circuit	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner 800 1,200 scans/s Via rotating polygon wheel Front
Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Bar code contrast (PCS) Modulus size Reading method Scanning rate Beam deflection Light beam exit	Laser, Red 650 nm 2, IEC/EN 60825-1:2007 Continuous 60 ° 60 % 0.35 0.8 mm Line scanner 800 1,200 scans/s Via rotating polygon wheel Front

Inputs/outputs selectable	
Output current, max.	100 mA
Number of inputs/outputs selectable	4 Piece(s)
Voltage type, outputs	DC
Switching voltage, outputs	Typ. U _B / 0 V
Voltage type, inputs	DC
Switching voltage, inputs	Typ. U _B / 0 V
Input current, max.	8 mA
Interface	
Туре	Ethernet
Ethernet	0" 1
Architecture	Client
	Server
Address assignment	DHCP
	Manual address assignment
Transmission speed	10 Mbit/s
	100 Mbit/s
Function	Process
Switch functionality	Integrated
Transmission protocol	TCP/IP
Service interface	
_	
Туре	USB
USB	
Function	Configuration via software
runction	Service
	Service
Connection	
	5 Piece(s)
Connection Number of connections	5 Piece(s)
	5 Piece(s)
Number of connections	5 Piece(s) Service interface
Number of connections Connection 1	
Number of connections Connection 1 Function	Service interface
Number of connections Connection 1 Function Type of connection	Service interface USB
Number of connections Connection 1 Function Type of connection Designation on device	Service interface USB SERVICE
Number of connections Connection 1 Function Type of connection Designation on device	Service interface USB SERVICE USB 2.0 Standard-A
Number of connections Connection 1 Function Type of connection Designation on device Connector type	Service interface USB SERVICE USB 2.0 Standard-A Signal IN
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2	Service interface USB SERVICE USB 2.0 Standard-A Signal IN
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function Type of connection Designation on device	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector PWR
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function Type of connection Designation on device Thread size	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector PWR M12
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function Type of connection Designation on device Thread size Type	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector PWR M12 Male
Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function Type of connection Designation on device Thread size Type Material	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector PWR M12 Male Metal
Number of connections Connection 1 Function Type of connection Designation on device Connector type Connection 2 Function Type of connection Designation on device Thread size Type Material No. of pins Encoding Connection 3 Function Type of connection Designation on device Thread size Type	Service interface USB SERVICE USB 2.0 Standard-A Signal IN Signal OUT Connector SW IN/OUT M12 Female Metal 5 -pin A-coded Signal IN Signal OUT Voltage supply Connector PWR M12 Male

Technical data



Connection 4	
Function	BUS IN
Type of connection	Connector
Designation on device	HOST / BUS IN
Thread size	M12
Туре	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded
Connection 5	
Function	BUS OUT
Type of connection	Connector
Designation on device	BUS OUT
Thread size	M12
Туре	Female
No. of pins	4 -pin

Mec	han	ical	d	ata
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Design	Cubic
Dimension (W x H x L)	123.5 mm x 63 mm x 106.5 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Glass
Net weight	1,100 g
Housing color	Red
	Silver
Type of fastening	Dovetail grooves
	Mounting thread
	Via optional mounting device

Operation and display

Type of display	LED
	Monochromatic graphical display, 128x64 pixel, with background lighting
Number of LEDs	2 Piece(s)
Type of configuration	Via web browser
Operational controls	Button(s)

Environmental data

Ambient temperature, operation	-35 40 °C
Ambient temperature, storage	-20 +70 °C
Relative humidity (non-condensing)	90 %
Extraneous light tolerance on the bar code, max.	2,000 lx

Certifications

Degree of protection	IP 65
Protection class	III
Certifications	c UL US
Test procedure for EMC in accordance with standard	EN 55022
	EN 61000-4-2, -3, -4, -6
Test procedure for shock in accordance with standard	IEC 60068-2-27, test Ea
Test procedure for continuous shock in accordance with standard	IEC 60068-2-29, test Eb
Test procedure for vibration in accordance with standard	IEC 60068-2-6, test Fc

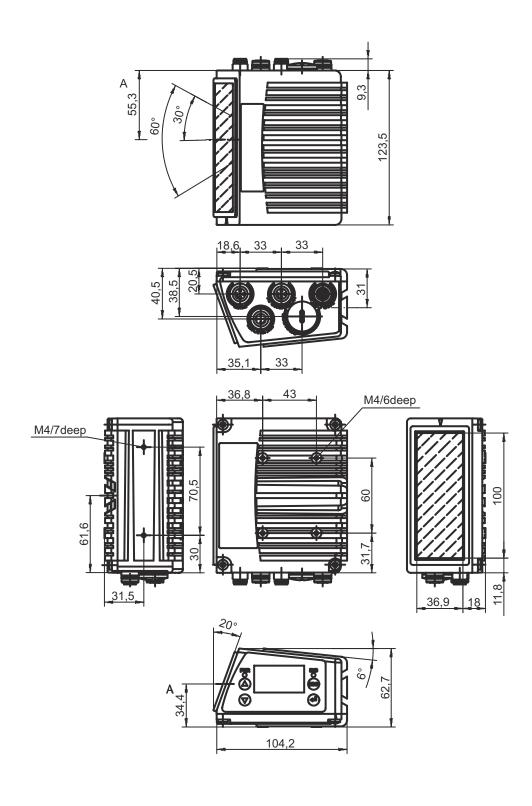
Classification

Customs tariff number	84719000
ECLASS 5.1.4	27280102
ECLASS 8.0	27280102
ECLASS 9.0	27280102
ECLASS 10.0	27280102
ECLASS 11.0	27280102
ECLASS 12.0	27280102
ECLASS 13.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550

Dimensioned drawings

Leuze

All dimensions in millimeters



Phone: +49 7021 573-0 • Fax: +49 7021 573-199

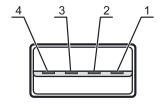
Electrical connection



Connection 1	SERVICE

Function	Service interface
Type of connection	USB
Connector type	USB 2.0 Standard-A

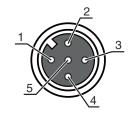
Pin	Pin assignment
1	+5 V DC
2	D Data
3	D+ - Data
4	GND



Connection 2 SW IN/OUT

Function	Signal IN
	Signal OUT
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment
1	VOUT
2	SWIO 1
3	GND
4	SWIO 2
5	FE



Connection 3	PWR
Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Туре	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

3 5
4

Pin	Pin assignment
1	VIN
2	SWIO 3
3	GND
4	SWIO 4
5	FE

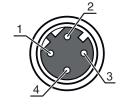




Connection 4	HOST / BUS IN

Function	BUS IN
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded .

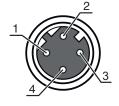
Pin	Pin assignment
1	TD+
2	RD+
3	TD-
4	RD-



BUS OUT Connection 5

Function	BUS OUT
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

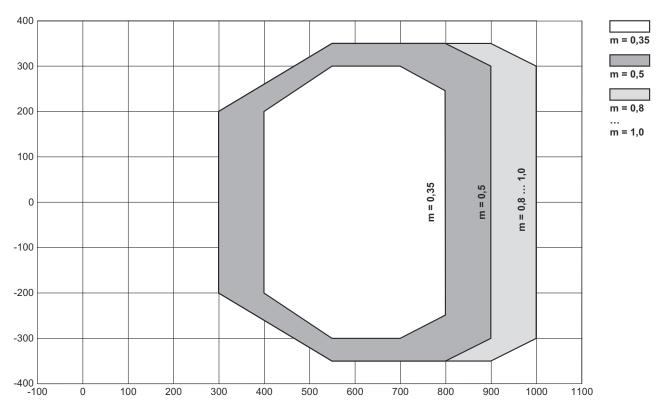
Pin	Pin assignment
1	TD+
2	RD+
3	TD-
4	RD-



Diagrams



Reading field curve



- x Reading field distance [mm]
- y Reading field width [mm]

Operation and display

LE	D	Display	Meaning
1 PWR		Off	Device switched off
		Green, flashing	Device ok, initialization phase
		Green, continuous light	Device OK
		Orange, continuous light	Service operation
		Red, flashing	Device OK, warning set
		Red, continuous light	Device error
2	2 BUS	Off	No supply voltage
		Green, flashing	Initialization
		Green, continuous light	Bus operation ok
		Red, flashing	Communication error
		Red, continuous light	Network error

Part number code



Part designation: BCL XXXX YYZ AAA B

BCL Operating principle BCL: bar code reader XXXX Series/interface (integrated fieldbus technology) 500i: RS 232 / RS 422 / RS 485 (multiNet master) 501i: RS 485 (multiNet slave) 504i: PROFIBUS DP 508i: EtherNet TCP/IP, UDP 548i: PROFINET RT 558i: EtherNet/IP YY Scanning principle S: line scanner (single line) O: oscillating-mirror scanner (oscillating mirror) Z Optics N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances) AAA Beam exit 100: lateral 102: front		
500i: RS 232 / RS 422 / RS 485 (multiNet master) 501i: RS 485 (multiNet slave) 504i: PROFIBUS DP 508i: EtherNet TCP/IP, UDP 548i: PROFINET RT 558i: EtherNet/IP YY Scanning principle S: line scanner (single line) O: oscillating-mirror scanner (oscillating mirror) Z Optics N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances) AAA Beam exit 100: lateral	BCL	
S: line scanner (single line) O: oscillating-mirror scanner (oscillating mirror) Z Optics N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances) AAA Beam exit 100: lateral	XXXX	500i: RS 232 / RS 422 / RS 485 (multiNet master) 501i: RS 485 (multiNet slave) 504i: PROFIBUS DP 508i: EtherNet TCP/IP, UDP 548i: PROFINET RT
N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances) AAA Beam exit 100: lateral	YY	S: line scanner (single line)
100: lateral	z	N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote)
	AAA	100: lateral
B Special equipment H: With heating	В	

Note



A list with all available device types can be found on the Leuze website at www.leuze.com.

Notes



Observe intended use!



- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- by Only use the product in accordance with its intended use.

ATTENTION! LASER RADIATION - CLASS 2 LASER PRODUCT



Do not stare into beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 2 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.

- 🔖 Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ♥ Do not point the laser beam of the device at persons!
- 🖖 Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- 🔖 CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- Observe the applicable statutory and local laser protection regulations.
- $\$ The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.

The Sensor People In der Braike 1, 73277 Owen

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Notes



NOTE



Affix laser information and warning signs!

Laser information and warning signs are affixed to the device. In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages.

- Affix the laser information sheet to the device in the language appropriate for the place of use. When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" note.
- Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
- Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

Accessories

Connection technology - Connection cables

Part no.	Designation	Article	Description
50132079	KD U-M12-5A-V1- 050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC

Connection technology - Interconnection cables

		Part no.	Designation	Article	Description
·	· · ·	50107726	KB USB A - USB A	Interconnection cable	Suitable for interface: USB Connection 1: USB Connection 2: USB Shielded: Yes Cable length: 1,800 mm Sheathing material: PVC
		50137077	KSS ET-M12-4A- M12-4A-P7-020	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Connector, M12, Axial, Male, D-coded, 4 -pin Shielded: Yes Cable length: 2.000 mm Sheathing material: PUR
		50137078	KSS ET-M12-4A- M12-4A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Connector, M12, Axial, Male, D-coded, 4 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
		50135081	KSS ET-M12-4A- RJ45-A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

Accessories



Mounting technology - Other

Part no.	Designation	Article	Description
50111224	BT 59	Mounting bracket	Fastening, at system: Groove mounting Mounting bracket, at device: Clampable Material: Metal Shock absorber: No

Services

	Part no.	Designation	Article	Description
₽	S981020	CS30-E-212	Hourly rate	Details: Compilation of the application data, selection and suggestion of suitable sensor system, drawing prepared as assembly sketch. Conditions: Completed questionnaire or project specifications with a description of the application have been provided. Restrictions: Travel and accommodation charged separately and according to expenditure.
	S981014	CS30-S-110	Start-up support	Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.
	S981019	CS30-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.
 	S981021	C\$30-V-212	Hourly rate	Details: REA evaluation with creation of a test report, evaluation of the code quality. Conditions: Original bar codes to be provided by the client.

Note



🔖 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.