



**Part no.: 50132828**  
**BCL 604i SF 102 H**  
**Stationary bar code reader**



Figure can vary

## Contents

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- Electrical connection
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## Technical data

<b>Basic data</b>	
Series	BCL 600i
<b>Functions</b>	
Functions	AutoConfig Alignment mode Heating AutoControl Reference code comparison Code fragment technology AutoReflAct LED indicator
<b>Characteristic parameters</b>	
MTTF	42.4 years
<b>Read data</b>	
Code types, readable	Code 93 Codabar 2/5 Interleaved UPC GS1 Databar Limited EAN 128 GS1 Databar Omnidirectional EAN 8/13 EAN Addendum Code 128 GS1 Databar Expanded Code 39
Scanning rate, typical	800 scans/s
Bar codes per reading gate, max. number	64 Piece(s)
<b>Optical data</b>	
Reading distance	450 ... 1,450 mm
Light source	Laser, Blue
Laser light wavelength	405 nm
Laser class	2, IEC/EN 60825-1:2007
Transmitted-signal shape	Continuous
Usable opening angle (reading field opening)	60 °
Bar code contrast (PCS)	60 %
Module size	0.3 ... 0.5 mm
Reading method	Line scanner
Beam deflection	Via rotating polygon wheel
Light beam exit	Front
<b>Electrical data</b>	
Protective circuit	Polarity reversal protection
<b>Performance data</b>	
Supply voltage $U_B$	10 ... 30 V, DC
Power consumption, max.	14 W

**Inputs/outputs selectable**

Output current, max.	60 mA
Number of inputs/outputs selectable	4 Piece(s)
Voltage type	DC
Switching voltage, outputs	Typ. $U_B / 0 V$
Voltage type	DC
Switching voltage, inputs	Typ. $U_B / 0 V$
Input current, max.	8 mA

**Interface**

Type	PROFIBUS DP
<b>PROFIBUS DP</b>	
Function	Process
Classification	V1
Transmission speed	9,600 ... 12,000,000 Mbit/s

**Service interface**

Type	USB
<b>USB</b>	
Function	Configuration via software Service

**Connection**

Number of connections	5 Piece(s)
<b>Connection 1</b>	
Type of connection	USB
Designation on device	SERVICE
Function	Service interface
Connector type	USB 2.0 Standard-A
<b>Connection 2</b>	
Type of connection	Connector
Designation on device	PWR
Function	Signal OUT Voltage supply Signal IN
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded
<b>Connection 3</b>	
Type of connection	Connector
Designation on device	SW IN/OUT
Function	Signal IN Signal OUT
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

**Connection 4**

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

**Connection 5**

Type of connection	Connector
Designation on device	BUS OUT
Function	BUS OUT
Thread size	M12
Type	Male
No. of pins	5 -pin

**Mechanical data**

Design	Cubic
Dimension (W x H x L)	123.5 mm x 63 mm x 104.2 mm
Housing material	Metal, Diecast aluminum
Lens cover material	Glass
Net weight	1,400 g
Housing color	Red, RAL 3000 Silver
Type of fastening	Dovetail grooves Via optional mounting device Mounting thread

**Operation and display**

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

**Environmental data**

Ambient temperature, operation	0 ... 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 EN 61000-6-2
Test procedure for shock in accordance with standard	IEC 60068-2-27, test Ea

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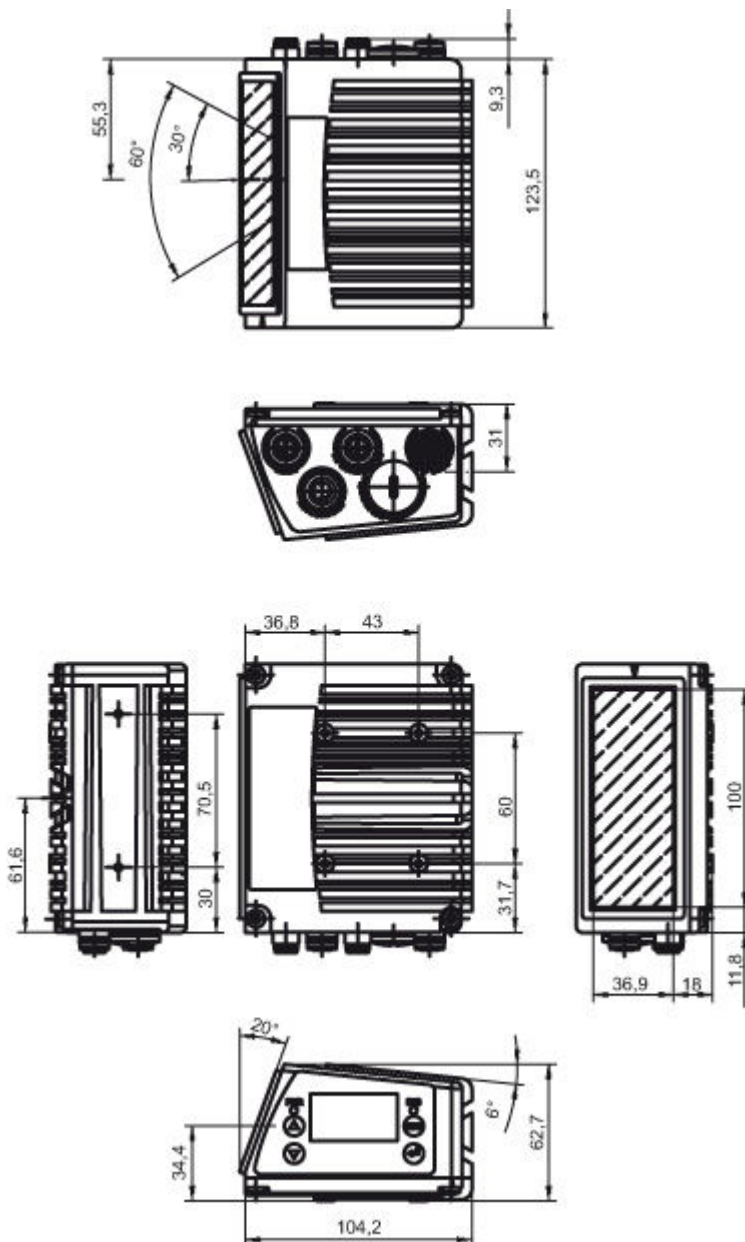
Test procedure for continuous shock in accordance with standard	IEC 60068-2-29, test Eb
Test procedure for vibration in accordance with standard	IEC 60068-2-6, test Fc
US patents	US 6,854,649 B

**Classification**

eCl@ss 8.0	27280102
eCl@ss 9.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550

### Dimensioned drawings

All dimensions in millimeters



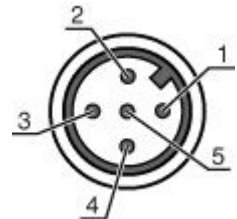
## Electrical connection

Connection 1	SERVICE
Type of connection	USB
Function	Service interface
Connector type	USB 2.0 Standard-A

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

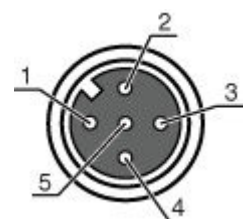
Connection 2	PWR
Type of connection	Connector
Function	Signal OUT Voltage supply Signal IN
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

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



Connection 3	SW IN/OUT
Type of connection	Connector
Function	Signal IN Signal OUT
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

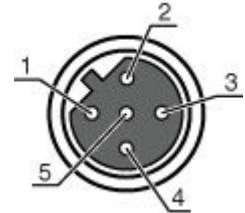
Pin	Pin assignment
1	VOUT
2	SWIO 1
3	GND
4	SWIO 2
5	FE



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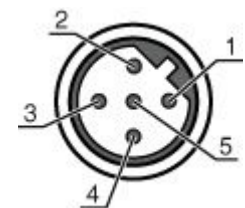
Connection 4	HOST / BUS IN
Type of connection	Connector
Function	BUS IN
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	B-coded

Pin	Pin assignment
1	Res.
2	A (N)
3	Res.
4	B (P)
5	FE



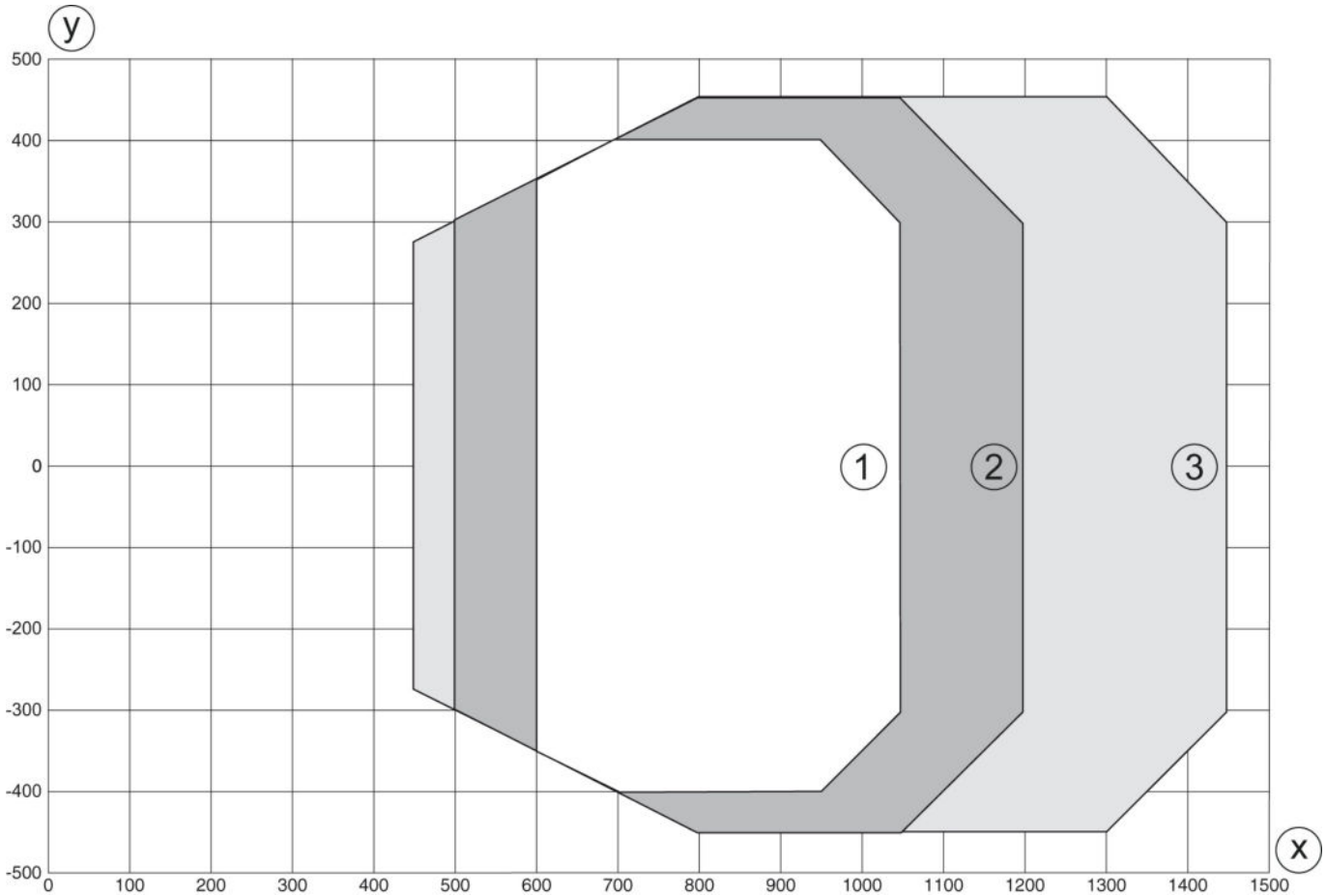
Connection 5	BUS OUT
Type of connection	Connector
Function	BUS OUT
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	B-coded

Pin	Pin assignment
1	VP
2	A (N)
3	GND 485
4	B (P)
5	FE



**Diagrams**

Reading field curve - Low Density



- y Reading field width [mm]
- x Reading field distance [mm]
- 1 Module = 0.3 mm: 600 mm - 1050 mm (450 mm depth of field)
- 2 Module = 0.35 mm: 500 mm - 1200 mm (700 mm depth of field)
- 3 Module = 0.5 mm: 450 mm - 1450 mm (1000 mm depth of field)

**Operation and display**

LEDs

LED	Display	Meaning	
1	PWR	Off	No supply voltage
		Green, flashing	Initialization
		Green, continuous light	Device OK
		Orange, flashing	Service operation
		Orange, continuous light	Reset
		Red, flashing	Device OK, warning set
		Red, continuous light	Device error
2	NET	Off	No supply voltage
		Green, flashing	BUS initialization
		Green, continuous light	Bus operation ok
		Orange, flashing	Service mode

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LED	Display	Meaning
	Orange, continuous light	Reset
	Red, flashing	Communication error
	Red, continuous light	Network error





## Part number code

Part designation: **BCL XXXX YYZ AAA B**

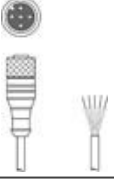







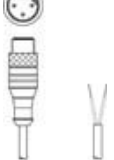
BCL	<b>Operating principle:</b> BCL: bar code reader
XXXX	<b>Series/interface (integrated fieldbus technology):</b> 600i: RS 232/RS 422/ RS 485 (multiNet master) 601i: RS 485 (multiNet slave) 604i: PROFIBUS DP 608i: Ethernet 648i: PROFINET
YY	<b>Scanning principle:</b> S: line scanner (single line) O: oscillating-mirror scanner (oscillating mirror)
Z	<b>Optics:</b> N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances)
AAA	<b>Beam exit:</b> 100: lateral 102: front
BB	<b>Special equipment:</b> H: with heating

## Accessories

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50135243	KD PB-M12-4A-P3-050	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50135244	KD PB-M12-4A-P3-100	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR
	50135245	KD PB-M12-4A-P3-150	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR
	50135246	KD PB-M12-4A-P3-300	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 30,000 mm Sheathing material: PUR

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	Part no.	Designation	Article	Description
	50132077	KD U-M12-5A-V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
	50132079	KD U-M12-5A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50132080	KD U-M12-5A-V1-100	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC
	50132432	KD U-M12-5A-V1-300	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 30,000 mm Sheathing material: PVC
	50135247	KS PB-M12-4A-P3-020	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR
	50135248	KS PB-M12-4A-P3-050	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50135249	KS PB-M12-4A-P3-100	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR
	50135250	KS PB-M12-4A-P3-150	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR
	50135251	KS PB-M12-4A-P3-300	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 30,000 mm Sheathing material: PUR

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## 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
	50135252	KDS PB-M12-4A-M12-4A-P3-010	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 1,000 mm Sheathing material: PUR
	50135253	KDS PB-M12-4A-M12-4A-P3-020	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR
	50135254	KDS PB-M12-4A-M12-4A-P3-050	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50135255	KDS PB-M12-4A-M12-4A-P3-100	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR
	50135256	KDS PB-M12-4A-M12-4A-P3-150	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR
	50135257	KDS PB-M12-4A-M12-4A-P3-300	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 2 -pin Connection 2: Connector, M12, Axial, Male, B-coded, 4 -pin Shielded: Yes Cable length: 30,000 mm Sheathing material: PUR


## Connection technology - Connectors

	Part no.	Designation	Article	Description
	50038538	KD 02-5-BA	Connector	Suitable for interface: PROFIBUS DP, MultiNet Plus Connection: Connector, M12, Axial, Female, B-coded, 5 -pin
	50038537	KD 02-5-SA	Connector	Suitable for interface: PROFIBUS DP, MultiNet Plus Connection: Connector, M12, Axial, Male, B-coded, 5 -pin



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	Part no.	Designation	Article	Description
	50020501	KD 095-5A	Connector	Connection: Connector, M12, Axial, Female, A-coded, 5 -pin



### Connection technology - Terminating resistors

	Part no.	Designation	Article	Description
	50038539	TS 02-4-SA	Terminator plug	Suitable for: MultiNet Plus, PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin Function: Bus termination

### Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50027375	BT 56	Mounting device	Functions: Static applications Design of mounting device: Mounting system Fastening, at system: For 16 mm rod, For 18 mm rod, For 20 mm rod Mounting bracket, at device: Clampable Material: Metal Tightening torque of the clamping jaws: 8 N·m
	50121435	BT 56 - 1	Mounting device	Functions: Static applications Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, For 14 mm rod, For 16 mm rod Mounting bracket, at device: Clampable Material: Metal Tightening torque of the clamping jaws: 8 N·m

### 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
	50124941	BTU 0300M-W	Mounting device	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, Groove mounting Material: Metal

	Part no.	Designation	Article	Description
	50108833	USB Memory Set	USB memory set	Function: Service interface, Connection to device Connection: USB 1.1 Standard-A

## Services

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