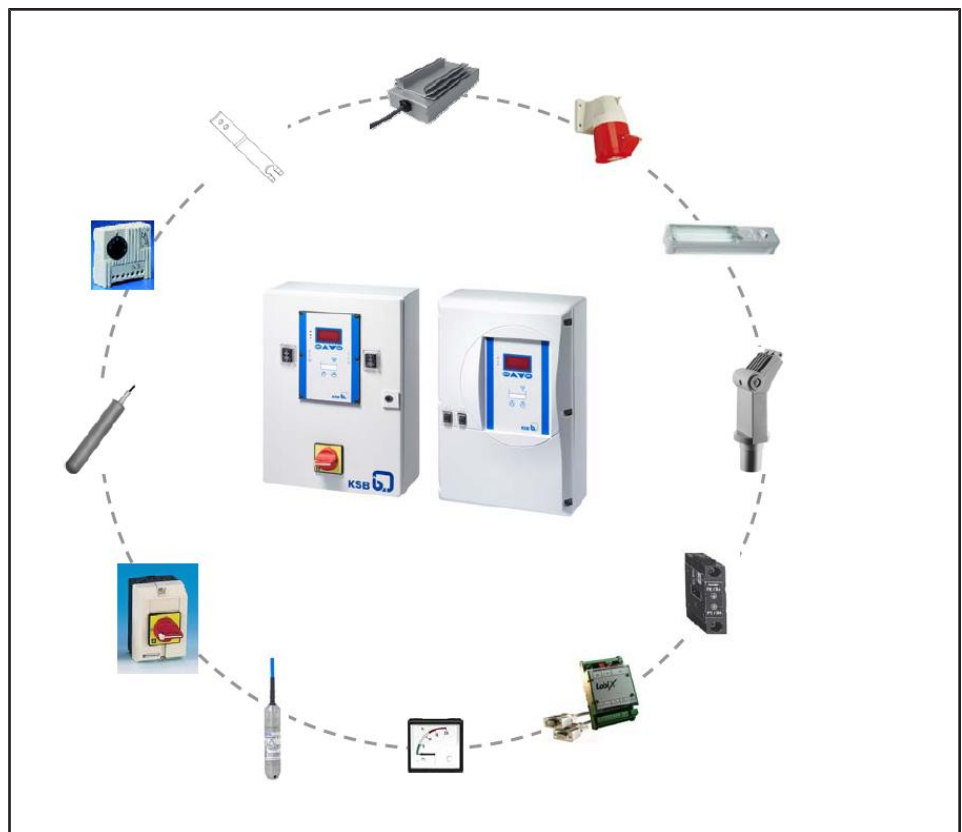


LevelControl Basic 2

Accessories

Type Series Booklet



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Type Series Booklet LevelControl Basic 2

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Pump Switchgear / Control Systems

LevelControl Control Units

LevelControl Basic 2 Accessories

Introduction

The optional components and accessories for LevelControl Basic 2 control units described in this type series booklet have been tested by KSB.

Apart from the standard accessories listed in the type series booklet for LevelControl Basic 2, we recommend using only the accessories listed below, which KSB has already tested together with the control unit.

KSB cannot be held responsible if non-documented accessories are used. Only accessories tested by KSB will ensure safe and reliable operation.

We strongly recommend using the EasySelect selection tool for processing the optional components and accessories described below. EasySelect automatically selects the correct housing sizes and the accessories and optional components suitable for the respective version and allows only meaningful control unit set-ups to be processed.

Control cabinet extension

General

Individual optional components may require a larger control unit housing to accommodate the optional component(s). To document the necessary housing extension, the additional space required per built-in component has been defined in main units ("Haupteinheiten", HE).

A main unit is defined as follows:

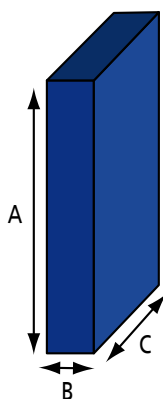


Fig. 1: Main unit dimensions: A = height 120 mm, B = width 22.5 mm, C = depth 120 mm

The minimum depth of 120 mm can be disregarded as the minimum depth is provided by all BS (sheet metal) housings used. Only the area (footprint) required by the built-in components must be considered for determining the housing extension required.

This does not apply to BC (plastic) housings, however, where the depth available for built-in components < 120 mm. The main units required for optional components that can also be fitted in the BC version are indicated in a separate column.

Housing extensions can be supplied in the following incremental sizes:

Table 1: Overview of space increase

Control cabinet extension	Space increase
From type BC 400 x 281 x 135 mm or type BS 400 x 300 x 155 mm to type BS 600 x 400 x 200 mm	18 HE
From type BS 600 x 400 x 200 mm to type BS 800 x 600 x 200 mm	39 HE
From type BS 800 x 600 x 200 mm to type BS 1200 x 800 x 300 mm	74 HE

i A housing extension from type BC at 400 x 281 x 120 mm (installation dimension) to type BS at 400 x 300 x 155 mm is not considered as, for design reasons, no significant additional space would be gained.

The various housing extensions offer a stepped increase in the installation space available, as illustrated below:

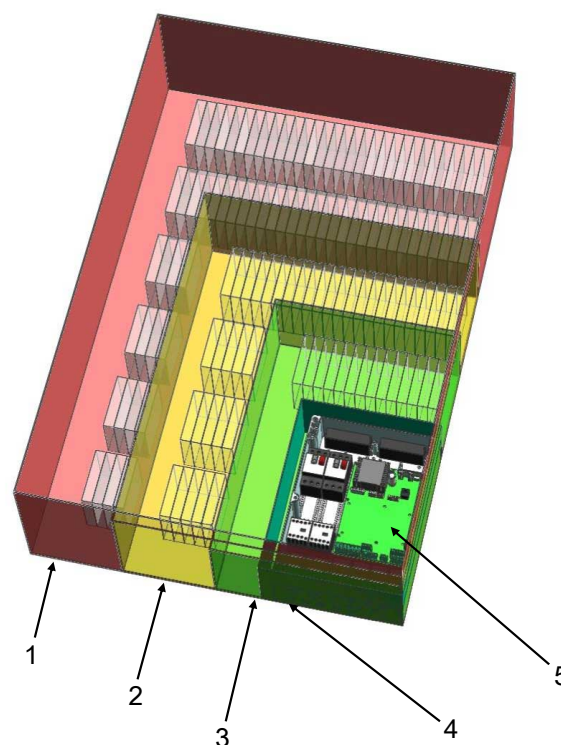


Fig. 2: Housing dimensions / Space available [mm]

1	1200 x 800 x 300
2	800 x 600 x 200
3	600 x 400 x 200
4	400 x 300 x 155
5	400 x 281 x 135

Free main units

Depending on the model, the standard control units differ in terms of the free space available, each offering a defined number of free main units (HE) for accommodating optional components.

The standard control units (devices with material number) are listed in the tables below, with dimensions and free main units. The free space offered by variants not listed, which can be configured via EasySelect, can be implied from the overview below.

LevelControl Basic 2: 1~230 V, 50/60 Hz, non-ATEX

Table 2: Version for float switch incl. 4-20 mA input

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 230 DFNO 100	1	10,0	400 × 281 × 135	4	19073760
BC2 230 DFNO 100	2	10,0	400 × 281 × 135	None	19073774

Table 3: Version for pneumatic measurement (w/o compressor) up to 3.5 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 230 DPNO 100	1	10,0	400 × 281 × 135	4	19073766
BC2 230 DPNO 100	2	10,0	400 × 281 × 135	None	19073780

Table 4: Version for bubbler control up to 2 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 230 DLNO 100	1	10,0	400 × 281 × 135	4	19075146
BS1 230 DLNO 100	1	10,0	400 × 300 × 155	2	19073817
BC2 230 DLNO 100	2	10,0	400 × 281 × 135	None	19075147
BS2 230 DLNO 100	2	10,0	400 × 300 × 155	2	19073859

LevelControl Basic 2: 3~400 V, 50/60 Hz, non-ATEX

Table 5: Version for float switch incl. 4-20 mA input

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 400 DFNO 025	1	2,5	400 × 281 × 135	4	19073762
BC1 400 DFNO 040	1	4,0	400 × 281 × 135	4	19073763
BC1 400 DFNO 063	1	6,3	400 × 281 × 135	4	19073764
BC1 400 DFNO 100	1	10,0	400 × 281 × 135	4	19073765
BS1 400 SFNO 140	1	14,0	600 × 400 × 200	4	19073794
BS1 400 SFNO 180	1	18,0	600 × 400 × 200	4	19073795
BS1 400 SFNO 230	1	23,0	600 × 400 × 200	4	19073796
BS1 400 SFNO 250	1	25,0	600 × 400 × 200	4	19073797
BS1 400 SFNO 400	1	40,0	800 × 600 × 200	30	19073798
BS1 400 SFNO 630	1	63,0	800 × 600 × 200	30	19073799
BC2 400 DFNO 025	2	2,5	400 × 281 × 135	None	19073776
BC2 400 DFNO 040	2	4,0	400 × 281 × 135	None	19073777
BC2 400 DFNO 063	2	6,3	400 × 281 × 135	None	19073778
BC2 400 DFNO 100	2	10,0	400 × 281 × 135	None	19073779
BS2 400 SFNO 100	2	14,0	800 × 600 × 200	25	19073836
BS2 400 SFNO 180	2	18,0	800 × 600 × 200	25	19073837
BS2 400 SFNO 230	2	23,0	800 × 600 × 200	25	19073838

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H x W x D		
		[A]	[mm]		
BS2 400 SFNO 250	2	25,0	800 x 600 x 200	25	19073839
BS2 400 SFNO 400	2	40,0	800 x 600 x 200	10	19073840
BS2 400 SFNO 630	2	63,0	800 x 600 x 200	6	19073841


 For LevelControl Basic 2 with pneumatic measurement and higher ratings see ATEX-compliant version.

Table 6: Version for pneumatic measurement (w/o compressor) up to 3.5 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H x W x D		
		[A]	[mm]		
BC1 400 DPNO 040	1	4,0	400 x 281 x 135	4	19073768
BC1 400 DPNO 063	1	6,3	400 x 281 x 135	4	19073769
BC1 400 DPNO 100	1	10,0	400 x 281 x 135	4	19073770
BC2 400 DPNO 040	2	4,0	400 x 281 x 135	None	19073782
BC2 400 DPNO 063	2	6,3	400 x 281 x 135	None	19073783
BC2 400 DPNO 100	2	10,0	400 x 281 x 135	None	19073784


 For LevelControl Basic 2 with bubbler control and higher ratings see ATEX-compliant version.

Table 7: Version for bubbler control up to 2 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H x W x D		
		[A]	[mm]		
BC1 400 DLNO 040	1	4,0	400 x 281 x 135	4	19075148
BC1 400 DLNO 063	1	6,3	400 x 281 x 135	4	19075149
BC1 400 DLNO 100	1	10,0	400 x 281 x 135	4	19075150
BS1 400 DLNO 040	1	4,0	400 x 300 x 155		19073818
BS1 400 DLNO 063	1	6,3	400 x 300 x 155	2	19073819
BS1 400 DLNO 100	1	10,0	400 x 300 x 155	2	19073820
BC2 400 DLNO 040	2	4,0	400 x 281 x 135	None	19075151
BC2 400 DLNO 063	2	6,3	400 x 281 x 135	None	19075152
BC2 400 DLNO 100	2	10,0	400 x 281 x 135	None	19075153
BS2 400 DLNO 040	2	4,0	400 x 300 x 155	2	19073860
BS2 400 DLNO 063	2	6,3	400 x 300 x 155	2	19073861
BS2 400 DLNO 100	2	10,0	400 x 300 x 155	2	19073862

LevelControl Basic 2: 3~400 V, 50/60 Hz, ATEX-compliant

Table 8: Version for float switch, explosion-proof

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H x W x D		
		[A]	[mm]		
BS1 400 DFEO 040	1	4,0	600 x 400 x 200	10	19073800
BS1 400 DFEO 063	1	6,3	600 x 400 x 200	10	19073801
BS1 400 DFEO 100	1	10,0	600 x 400 x 200	10	19073802
BS1 400 SFEO 140	1	14,0	600 x 400 x 200	2	19073803
BS1 400 SFEO 180	1	18,0	600 x 400 x 200	2	19073804
BS1 400 SFEO 230	1	23,0	600 x 400 x 200	2	19073805
BS1 400 SFEO 250	1	25,0	600 x 400 x 200	2	19073806
BS1 400 SFEO 400	1	40,0	800 x 600 x 200	2	19073807
BS1 400 SFEO 630	1	63,0	800 x 600 x 200	2	19073808
BS2 400 DFEO 040	2	4,0	600 x 400 x 200	6	19073842
BS2 400 DFEO 063	2	6,3	600 x 400 x 200	6	19073843

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BS2 400 DFEO 100	2	10,0	600 × 400 × 200	6	19073844
BS2 400 SFEO 140	2	14,0	800 × 600 × 200	10	19073845
BS2 400 SFEO 180	2	18,0	800 × 600 × 200	10	19073846
BS2 400 SFEO 230	2	23,0	800 × 600 × 200	10	19073847
BS2 400 SFEO 250	2	25,0	800 × 600 × 200	10	19073848
BS2 400 SFEO 400	2	40,0	800 × 600 × 200	4	19073849
BS2 400 SFEO 630	2	63,0	800 × 600 × 200	2	19073850

Table 9: Version for pneumatic measurement (w/o compressor) up to 3.5 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 400 DPEO 040	1	4,0	400 × 281 × 135	4	19073771
BC1 400 DPEO 063	1	6,3	400 × 281 × 155	4	19073772
BC1 400 DPEO 100	1	10,0	400 × 281 × 135	4	19073773
BS1 400 SPEO 140	1	14,0	600 × 400 × 200	4	19073811
BS1 400 SPEO 180	1	18,0	600 × 400 × 200	4	19073812
BS1 400 SPEO 230	1	23,0	600 × 400 × 200	4	19073813
BS1 400 SPEO 250	1	25,0	600 × 400 × 200	4	19073814
BS1 400 SPEO 400	1	40,0	800 × 600 × 200	25	19073815
BS1 400 SPEO 630	1	63,0	800 × 600 × 200	25	19073816
BC2 400 DPEO 040	2	4,0	400 × 281 × 135	None	19073785
BC2 400 DPEO 063	2	6,3	400 × 281 × 135	None	19073786
BC2 400 DPEO 100	2	10,0	400 × 281 × 135	None	19073787
BS2 400 SPEO 140	2	14,0	800 × 600 × 200	25	19073853
BS2 400 SPEO 180	2	18,0	800 × 600 × 200	25	19073854
BS2 400 SPEO 230	2	23,0	800 × 600 × 200	25	19073855
BS2 400 SPEO 250	2	25,0	800 × 600 × 200	25	19073856
BS2 400 SPEO 400	2	40,0	800 × 600 × 200	10	19073857
BS2 400 SPEO 630	2	63,0	800 × 600 × 200	4	19073858



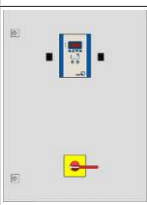
Table 10: Version for bubbler control up to 2 metres of water

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H × W × D		
		[A]	[mm]		
BC1 400 DLEO 040	1	4,0	400 × 281 × 135	4	19075154
BC1 400 DLEO 063	1	6,3	400 × 281 × 135	4	19075155
BC1 400 DLEO 100	1	10,0	400 × 281 × 135	4	19075156
BS1 400 DLEO 040	1	4,0	400 × 300 × 155	2	19073821
BS1 400 DLEO 063	1	6,3	400 × 300 × 155	2	19073822
BS1 400 DLEO 100	1	10,0	400 × 300 × 155	2	19073823
BS1 400 SLEO 140	1	14,0	600 × 400 × 200	2	19073824
BS1 400 SLEO 180	1	18,0	600 × 400 × 200	2	19073825
BS1 400 SLEO 230	1	23,0	600 × 400 × 200	2	19073826
BS1 400 SLEO 250	1	25,0	600 × 400 × 200	2	19073827
BS1 400 SLEO 400	1	40,0	800 × 600 × 200	20	19073828
BS1 400 SLEO 630	1	63,0	800 × 600 × 200	20	19073829
BC2 400 DLEO 040	2	4,0	400 × 281 × 135	None	19075157
BC2 400 DLEO 063	2	6,3	400 × 281 × 135	None	19075158
BC2 400 DLEO 100	2	10,0	400 × 281 × 135	None	19075159
BS2 400 DLEO 040	2	4,0	400 × 300 × 155	2	19073863
BS2 400 DLEO 063	2	6,3	400 × 300 × 155	2	19073864
BS2 400 DLEO 100	2	10,0	400 × 300 × 155	2	19073865

Size	Number of pumps	Nominal current per pump	Dimensions	Free main units	Mat. No.
		Max.	H x W x D		
		[A]	[mm]		
BS2 400 SLEO 140	2	14,0	800 x 600 x 200	20	19073866
BS2 400 SLEO 180	2	18,0	800 x 600 x 200	20	19073867
BS2 400 SLEO 230	2	23,0	800 x 600 x 200	20	19073868
BS2 400 SLEO 250	2	25,0	800 x 600 x 200	20	19073869
BS2 400 SLEO 400	2	40,0	800 x 600 x 200	2	19073870
BS2 400 SLEO 630	2	63,0	800 x 600 x 200	2	19073871

Space increase

Table 11: Overview of control cabinet extensions and space increase

Control unit	Item	Mat. No.	Description	Space increase	
				BC	BS
	O80	19075118	From type BC (400 x 281 x 135 mm) or type BS (400 x 300 x 155 mm) to BS (600 x 400 x 200 mm)	18 HE	18 HE
	O81	19075119	From type BS (600 x 400 x 200 mm) to type BS (800 x 600 x 200 mm)	-	39 HE
	O82	19075120	From type BS (800 x 600 x 200 mm) to type BS (1200 x 800 x 300 mm)	-	74 HE

Overview of outdoor control cabinets with additional installation space

Use:

- Outdoor installation of a control unit
- Accommodation of accessories (e.g. service socket, NH isolator, counter, etc.)
- Free space with a width of at least 350 mm available next to the control unit.

Design:

- Complete with:
 - Rain canopy
 - Mounting plate
 - Base suitable for buried installation
- Door hinges:
 - Up to a width of 750 mm: single door hinged on the right-hand side
 - Widths of 1000 mm and larger: two doors hinged on either side
- Door opening angle up to 180°
- Cable entry at bottom, maximum cable cross-section: 40 mm
- 2 additional cable entries (knock-out openings on the side of the base): PG36 (diameter: 48 mm)
- Locking system with handle, profile half cylinder, and 3 keys

Material:

- Glass fibre reinforced polyester


Colour:

- RAL 7035 (light grey)

Enclosure:

- IP54 to IEC 60529 (weather-proof design)

Table 12: Overview of outdoor control cabinets with additional installation space

	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	O151	19066407	For type BC (400 × 281 × 135 mm), type BS (400 × 300 × 155 mm) and type BS (600 × 400 × 200 mm) Dimensions of upper section H × W × D [mm]: 750 × 750 × 320 Dimensions of base H × W × D [mm]: 900 × 750 × 320	Yes	Yes	48,5
	O152	19066408	For type BS (800 × 600 × 200 mm) Dimensions of upper section H × W × D [mm]: 1000 × 1000 × 420 Dimensions of base H × W × D [mm]: 900 × 1000 × 420	-	Yes	80,5
	O153	19066409	For type BS (1200 × 800 × 300 mm) Dimensions of upper section H × W × D [mm]: 1500 × 1250 × 420 Dimensions of base H × W × D [mm]: 900 × 1250 × 420	-	Yes	117,5

Alternative housing for type BS

Use:

- Outdoor wall-mounted installation of a control unit

Design:

- Control unit fully enclosed in a wall-mounted cabinet
- Control panel fitted in inner door

Material:

- Glass fibre reinforced plastics


Colour:

- RAL 7035 (light grey)

Enclosure:

- IP66 enclosure (version without window)
- IP56 enclosure (version with window)

Table 13: Overview of alternative housing

	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	IP66 enclosure (version without window)					
	O160	19075178	For type BS1 up to 25 A and BS2 up to 10 A	-	Yes	16,5
	O161	19075179	For type BS1 from 40 A and BS2 from 14 A	-	Yes	26
	IP56 enclosure (version with window)					
	O162	19075180	For type BS1 up to 25 A and BS2 up to 10 A	-	Yes	16,5
	O163	19075181	For type BS1 from 40 A and BS2 from 14 A	-	Yes	26

Optional components and accessories

Optional components

Table 14: Overview of options


	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
	O40	01165748	Additional terminal for optional master switch for type BC (see O1, type: Schneider VCDN 20) for connecting the neutral conductor The additional terminal snaps onto the side of, and is automatically actuated together with, the master switch. The additional terminal can be retrofitted on site.	Yes	-	0,02
<i>i</i> The additional terminal can be used independently from the main units ("HE") system defining the space required. It is installed in the installation compartment of the optional master switch.						

Table 15: Overview of options



	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
Master switch feedback terminal						
An auxiliary contact on the master switch enables volt-free signalling of the switching state of the master switch.						
Capacity: 230 V, 10 A						
Can only be used with type BC if optional master switch for type BC is fitted (see O1).						
	O40	01165748	For type BC, 1 NO contact	Yes	-	0,02
	O41	01050069	For type BS, 1 NO contact, 1 NC contact	-	1 HE	0,02
<div><div></div><div>The master switch feedback terminal can be used independently from the main units ("HE") system defining the space required. It is installed in the installation compartment of the optional master switch.</div></div>						

Table 16: Overview of options



	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
Volt-free signal (Finder relay)						
The signals are routed to knife disconnect terminals via Finder relays.						
Technical data						
<ul style="list-style-type: none">▪ Standard relay incl. socket▪ Safe separation between coil and contact set to VDE 0106, EN 50178, EN 60204 and EN 60335▪ Changeover contact, current-carrying capacity: 250 V AC, 8 A▪ Control voltage 24 V AC▪ Control voltage 12 V DC (high water only)						
Dimensions:						
<ul style="list-style-type: none">▪ 29 × 12.4 × 25 mm						
	O50	19075110	Fault pump 1	3 HE	3 HE	0,4
	O51	19075111	Fault pump 2	3 HE	3 HE	0,4
	O52	19075112	High water	3 HE	3 HE	0,4
	O53	19075113	Pump 1 operational (TCB and motor protection not tripped)	3 HE	3 HE	0,4
	O54	19075114	Pump 2 operational (TCB and motor protection not tripped)	3 HE	3 HE	0,4
	O57	19075205	Power supply failure	3 HE	3 HE	0,4
<div><div></div><div>If optional components O50, O51, O53 and O54 are used, at least one motor protection switch per pump must be used. This also applies to 230 V versions.</div></div>						

Table 17: Overview of options



	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
Volt-free "pump in operation" signal						
The messages are generated via the auxiliary contacts of the pump contactors and routed to knife disconnect terminals.						
	O55	19075115	Pump 1 in operation	1 HE	1 HE	0,1
	O56	19075116	Pump 2 in operation	1 HE	1 HE	0,1
						

Table 18: Overview of options





	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
Ammeter for type BC, ready-wired, for measuring the pump current in one phase of the motor cable						
Dimensions: 48 × 48 mm						
	O60	01056383	measuring range: 10 (20) A	Yes	-	0,3
 Ammeters for type BC cannot be used for the 'bubbler control in BC housing' version.						
Ammeter for type BS, ready-wired, for measuring the pump current in one phase of the motor cable						
Installation in type BS from a minimum control cabinet size of 600 × 400 × 200 mm						
Dimensions: 48 × 48 mm						
	O61	01012338	measuring range: 6 (12) A	-	Yes	0,4
	O62	01012339	measuring range: 10 (20) A	-	Yes	0,4
	O63	01012340	measuring range: 15 (30) A	-	Yes	0,4
	O64	01012341	measuring range: 25 (50) A	-	6 HE	0,4
	O65	01012342	measuring range: 40 (80) A	-	6 HE	0,4
 Two units of this optional component are required for dual-pump systems.						

Table 19: Overview of options



	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
	O68	01025827	Voltmeter, with phase switch, for type BS Ready-wired, for indicating the nominal mains voltage of the individual phases. The individual phase conductor voltage values are obtained via the phase switch. Installation in type BS from a minimum control cabinet size of 600 × 400 × 200 mm Dimensions: Size 48 x 48 mm	No	Yes	0,3
 Suitable for three-phase current only. LevelControl Basic 2 comes with an integrated voltmeter. The measured value can be called up on the display.						

Table 20: Overview of options


	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
	O69	01012348	Phase presence and phase sequence indicator for type BS LEDs for monitoring the power supply (phase presence and direction of rotation) Installation in type BS from a minimum control cabinet size of 600 × 400 × 200 mm Dimensions: 72 × 72 mm	No	Yes	0,135
<i>i</i> Suitable for three-phase current only. Phase sequence, phase presence, voltage level and direction of rotation are monitored electronically by the control unit.						

Table 21: Overview of options


	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O70	19075351	Relay for remote release of pump operation Input for processing an external release signal, implemented by means of an additional relay in the control unit. If the relay for remote release is not connected, start-up of all connected pumps both in manual and automatic operation is prevented. Switching of the remote release relay is external voltage controlled (24 V AC/DC). Technical data Remote release input: Actuating voltage (external): 16-30 V AC/DC Actuating current: ~7 mA	3 HE	3 HE	0,25
<i>i</i> The remote release is not suitable for monitoring minimum levels in potentially explosive atmospheres in combination with ATEX-approved float switches.						

Table 22: Overview of options


	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O71	19075352	Intrinsically safe isolating amplifier for redundant float switch for minimum level monitoring in potentially explosive atmospheres Similar to intrinsic safety barrier, for connecting a redundant minimum level float switch in the pump sump for redundant dry running monitoring of the pump(s). For pump stations with potentially explosive atmospheres, redundant dry running monitoring may be necessary depending on the operator's risk assessment. It is the operator's decision whether redundant dry running monitoring is required or not. Can be fitted in BS housing only. An additional float switch with declaration of compliance with explosion protection standards is required (see E63).	-	3 HE	0,2
<i>i</i> Use suitable ATEX-approved float switches with high-quality low-voltage approved contacts only (see E63), otherwise reliable switching of the float switches will not be ensured.						

Table 23: Overview of options



	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O110	19075121	CEE service socket, installed in outdoor cabinet with additional installation space, with residual current device Connected before master switch, with separate automatic circuit breaker and residual current device (30 mA). For use as service socket with the outdoor cabinet door open. Type: 16 A, 5-pole	-	9 HE	1,1
<i>i</i> Can only be used in combination with an outdoor cabinet with additional installation space O150 - O153. Can only be used in combination with type BS. Cannot be used in France.						
	O115	19075122	Shockproof service socket installed in control cabinet or outdoor cabinet with additional installation space, with residual current device Connected before master switch, with separate automatic circuit breaker and residual current device (30 mA). For use as service socket with control cabinet door or outdoor cabinet door open. Type: 230 V, 10 A (16 A) IP20 enclosure in BS housing IP44 enclosure for installation in an outdoor cabinet	-	7 HE	0,4
<i>i</i> Can only be used in combination with type BS. Cannot be used in the UK and France.						

Table 24: Overview of options


	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O120	19075123	Control cabinet light, 7 W, 230 V, 50/60 Hz, with switch for type BS, fits housing sizes 600 x 400 x 200 mm and larger Attaches quickly to DIN rail or to upper control cabinet section by means of magnetic plate. Connected before master switch, with separate automatic circuit breaker up to a continuous load of 10 A..	-	1 HE	0,6
<i>i</i> Installation in type BS from a minimum control cabinet size of 600 x 400 x 200 mm or in an outdoor cabinet with additional installation space O151 - O153.						

Table 25: Overview of options




	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
	O130	19075175	Automatic control cabinet heater for type BS for extended temperature range down to -30 °C, 90 W, 400 V Prevents condensation in the case of frequent, rapid and extreme temperature changes. Temperature settings: <ul style="list-style-type: none"> ON at 15 °C (intrinsic temperature) OFF at 55 °C (intrinsic temperature) No further thermostats required. Heater dimensions without cable: 145 x 72 x 42 mm	-	8 HE	0,039
	O131	19075176	Automatic heater for type BC for extended temperature range down to -30 °C, 20 W, 230 V Prevents condensation in the case of frequent, rapid and extreme temperature changes. Temperature settings: <ul style="list-style-type: none"> ON at 38 °C (intrinsic temperature) OFF at 54 °C (intrinsic temperature) No further thermostats required. Heater dimensions (without cable): 55 x 51 x 20 mm	Yes	-	0,14
<i>i</i> For BC housing of 230 V version. Mounted in connection compartment, therefore independent of main units ("HE") system. Cannot be used in BC2 in combination with O210 - O213 current measuring modules due to lack of installation space.						
	O132	19075177	Automatic heater for type BC for extended temperature range down to -30 °C, 20 W, 400 V Prevents condensation in the case of frequent, rapid and extreme temperature changes. Temperature settings: <ul style="list-style-type: none"> ON at 38 °C (intrinsic temperature) OFF at 54 °C (intrinsic temperature) No further thermostats required. Heater dimensions (without cable): 70 x 70 x 22.5 mm	Yes	-	0,35
<i>i</i> For BC housing of 400 V version. Mounted in connection compartment, therefore independent of main units ("HE") system. Cannot be used in BC2 in combination with O210 - O213 current measuring modules due to lack of installation space.						

Table 26: Overview of options


	Item	Mat. No.	Description	Space required	[kg]
	O140	01206018	Earth rail for potential equalisation to VDE0100-410 For additional on-site potential equalisation, for types BC and BS.	Outdoor cabinet with/ without additional installation space	2,4
<i>i</i> Can only be installed as optional component in outdoor cabinets O10 - O12, O15, or outdoor cabinets with additional installation space O151 - O153. Also available as separate accessory for mounting on the wall below the control unit.					

Table 27: Overview of options



	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
Master switch with housing						
Lockable master switch, installed in separate housing, for installation in the power cable.						
	E301	01212348	Max. nominal current: 16 A	Yes	Yes	0,4
	E300	01118354	Max. nominal current: 32 A	Yes	Yes	0,4
<div><div></div><div>Can also be installed in outdoor cabinets O10 - O12, O15 and outdoor cabinets with additional installation space O151 - O153.</div></div>						

Table 28: Overview of options


	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
	O45	01061067	Plastic housing, IP65, for easier installation of alarm strobe light, for wall mounting Dimensions: H x W x D [mm]: 55 x 82 x 106.5	Yes	Yes	0,2

Table 29: Overview of options














	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
Residual current device per pump, for installation in the motor power cable						
Intended for fitting in the control unit housing						
	O170	00205304	Version: 2 poles, max. residual current: 30 mA Max. pump current: 25 A	-	2 HE	0,4
	O171	01212318	Version: 4 poles, max. residual current: 300 mA Max. pump current: 25 A	-	4 HE	0,431
	O172	01212319	Version: 4 poles, max. residual current: 300 mA Pump current: 25-40 A	-	4 HE	0,433
	O173	00205219	Version: 4 poles, max. residual current: 300 mA Pump current: 40-63 A	-	4 HE	0,436
	O174	01212320	Version: 4-pole, maximum residual current: 300 mA Pump current: 63 - 100 A	-	4 HE	0,8
<div><div></div><div>Suitable for TN-C-S mains, not suitable for frequency inverters. In the case of IT systems and TT systems, RCDs are required for the entire installation.</div></div>						




Table 30: Overview of options



	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
Lightning protection and surge protective device type 1 + 2 to EN 61643-11, as service entrance SPD for mains <ul style="list-style-type: none">▪ Spark gap based combined lightning current and surge arrester▪ Design:<ul style="list-style-type: none">– O220 - O222: compact SPD– O223 - O225: base with plug-in protection modules (modular design)▪ Provides protection of terminal equipment connected by a power cable with a max. length of 10 metres.▪ Protection level: ≤ 1.5 kV▪ Operating state / fault indication by indicator flag in the inspection window and volt-free (changeover) contact▪ Vibration tested and shock tested according to EN 60068-2▪ Easy replacement of protection modules, no tools required (O223 - O225 only)						
	O220 ¹⁾	01920525	Lightning protection and surge protective device type 1 + 2 for TN-C system, 3~ 400 V Wiring: 3 + 0 Design: compact Lightning impulse current (10/350 µs): 37.5 kA Overcurrent protection: 160 A gG (mains-side)	-	7 HE	0,42
	O221	01920526	Lightning protection and surge protective device type 1 + 2 for TN-S system, 3~ 400 V Wiring: 4 + 0 Design: compact Lightning impulse current (10/350 µs): 50 kA Overcurrent protection: 160 A gG (mains-side)	-	7 HE	0,49
	O222 ¹⁾	01920597	Lightning protection and surge protective device type 1 + 2 for TT system, 3~ 400 V Wiring: 3 + 1 Design: compact Lightning impulse current (10/350 µs): 50 kA Overcurrent protection: 160 A gG (mains-side)	-	7 HE	0,56
	O223 ¹⁾	01920601	Lightning protection and surge protective device type 1 + 2 for TN-C system, 3~ 400 V Wiring: 3 + 0 Design: modular Lightning impulse current (10/350 µs): 75 kA Overcurrent protection: 315 A gG (mains-side)	-	7 HE	1
	O224 ¹⁾	01920602	Lightning protection and surge protective device type 1 + 2 for TN-S system, 3~ 400 V Wiring: 4 + 0 Design: modular Lightning impulse current (10/350 µs): 100 kA Overcurrent protection: 315 A gG (mains-side)	-	7 HE	1,318
	O225 ¹⁾	01920603	Lightning protection and surge protective device type 1 + 2 for TT system, 3~ 400 V Wiring: 3 + 1 Design: modular Lightning impulse current (10/350 µs): 100 kA Overcurrent protection: 315 A gG (mains-side)	-	7 HE	1,4
 Selection and order processing as required by the operator's lightning protection concept.						

¹⁾ Processing on request only, contact LAC Building Services Pegnitz.

	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
Lightning protection and surge protective device type 1 to EN 61643-11, as mains service entrance SPD, for high service entrance currents <ul style="list-style-type: none">▪ Spark gap based surge protective device▪ Design:<ul style="list-style-type: none">– Compact SPD– Designated module for each conductor to be protected, variable wiring (3 + 0, 4 + 0, 3 + 1)▪ Provides protection of terminal equipment connected by a power cable with a max. length of 10 metres.▪ Protection level: ≤ 1.5 kV▪ Operating state / fault indication by indicator flag in the inspection window and volt-free (changeover) contact▪ Integrated overcurrent protection▪ Vibration tested and shock tested according to EN 60068-2						
	O226 ¹⁾	01920607	Lightning protection and surge protective device type 1, 3~ 400 V Wiring: variable Design: compact Lightning impulse current (10/350 µs): 25 kA Overcurrent protection: integrated	-	8 HE	0,507
 Selection and order processing as required by the operator's lightning protection concept.						
Lightning protection and surge protective device type 1 + 2 to EN 61643-11, as service entrance SPD for single-phase power supply <ul style="list-style-type: none">▪ Spark gap based surge protective device▪ Design: compact SPD▪ Provides protection of terminal equipment connected by a power cable with a max. length of 10 metres.▪ Protection level: ≤ 1.5 kV▪ Operating state / fault indication by indicator flag in the inspection window and volt-free (changeover) contact▪ Vibration tested and shock tested according to EN 60068-2						
	O227	05011499	Lightning protection and surge protective device type 1 + 2 for TN system, 1~ 230 V Wiring: 2 + 0 Design: compact Lightning impulse current (10/350 µs): 25 kA Overcurrent protection: 160 A gG (mains-side)	-	3 HE	0,243
	O228	05011611	Lightning protection and surge protective device type 1 + 2 for TT system (2P), 1~ 230 V Wiring: 1 + 1 Design: compact Lightning impulse current (10/350 µs): 25 kA Overcurrent protection: 160 A gG (mains-side)	-	3 HE	0,28
 Selection and order processing as required by the operator's lightning protection concept. Processing via LAC Building Services Pegnitz only						
Lightning protection and surge protective device type 2 to EN 61643-11, provides protection downstream of a service entrance SPD <ul style="list-style-type: none">▪ Spark gap based surge protective device▪ Design: base with plug-in protection modules (modular design)▪ Protection level: ≤ 1.5 kV▪ Operating state / fault indication by indicator flag in the inspection window and volt-free (changeover) contact▪ Vibration tested and shock tested according to EN 60068-2▪ Integrated overcurrent protection (O233 - O235 only)						

	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O230 ¹⁾	01920598	Lightning protection and surge protective device type 2 for TN-C system, 3~ 400 V Wiring: 3 + 0 Design: modular Lightning impulse current (8/20 µs): 20 kA Overcurrent protection: 125 A gG (mains-side)	-	7 HE	0,35
	O231	01920599	Lightning protection and surge protective device type 2 for TN-S system, 3~ 400 V Wiring: 4 + 0 Design: modular Lightning impulse current (8/20 µs): 20 kA Overcurrent protection: 125 A gG (mains-side)	-	7 HE	0,451
	O232 ¹⁾	01920600	Lightning protection and surge protective device type 2 for TT system, 3~ 400 V Wiring: 3 + 1 Design: modular Lightning impulse current (8/20 µs): 20 kA Overcurrent protection: 125 A gG (mains-side)	-	7 HE	0,45
	O233 ¹⁾	01920604	Lightning protection and surge protective device type 2 for TN-C system, 3~ 400 V Wiring: 3 + 0 Design: modular Lightning impulse current (8/20 µs): 12.5 kA Overcurrent protection: integrated	-	7 HE	0,35
	O234	01920605	Lightning protection and surge protective device type 2 for TN-S system, 3~ 400 V Wiring: 4 + 0 Design: modular Lightning impulse current (8/20 µs): 12.5 kA Overcurrent protection: integrated	-	7 HE	0,484
	O235 ¹⁾	01920606	Lightning protection and surge protective device type 2 for TT system, 3~ 400 V Wiring: 3 + 1 Design: modular Lightning impulse current (8/20 µs): 12.5 kA Overcurrent protection: integrated	-	7 HE	0,45
 Selection and order processing as required by the operator's lightning protection concept.						
Lightning protection and surge protective device type 2 to EN 61643-11, provides protection downstream of a service entrance SPD, for single-phase power supply <ul style="list-style-type: none"> Varistor based surge protective device Design: base with plug-in protection modules (modular design) Protection level: ≤ 1.5 kV Operating state / fault indication by indicator flag in the inspection window and volt-free (changeover) contact Vibration tested and shock tested according to EN 60068-2 						
	O236	05011613	Lightning protection and surge protective device type 2 for TN system, 1~ 230 V Wiring: 2 + 0 Design: modular Nominal discharge current (8/20 µs): 20 kA Overcurrent protection: 125 A gG (mains-side)	-	3 HE	0,253
	O237	05011614	Lightning protection and surge protective device type 1 + 2 for TT system (2P), 1~ 230 V Wiring: 1 + 2 Design: modular Nominal discharge current (8/20 µs): 20 kA Overcurrent protection: 125 A gG (mains-side)	-	3 HE	0,25

	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	<div><div></div><div>Selection and order processing as required by the operator's lightning protection concept. Processing via LAC Building Services Pegnitz only</div></div>					
	Lightning protection and surge protective device to EN 61643-11, for control cables crossing the boundaries of lightning protection zones as per the operator's lightning protection concept					
	<div><div><div>▪ Varistor based surge protective device</div><div>▪ Design: base with plug-in protection modules (modular design)</div><div>▪ Protection level: ≤ 1.5 kV</div><div>▪ With or without LifeCheck, depending on the design</div><div>▪ Vibration tested and shock tested according to EN 60068-2</div></div></div>					
	O240 ¹⁾	01920609	Base without signal disconnection Protected conductors: 4	-	1 HE	0,046
	O241 ¹⁾	01920611	Base with signal disconnection Protected conductors: 4	-	1 HE	0,048
	O242 ¹⁾	01920613	Protection module for 4 - 20 mA Type 1 Protected conductors: 2 LifeCheck: yes Lightning impulse current (10/350 μ s): 9 kA Nominal discharge current (8/20 μ s): 20 kA	Mounted on base		0,037
	O243 ¹⁾	01920615	Protection module for 4 - 20 mA Type 1 Protected conductors: 4 LifeCheck: yes Lightning impulse current (10/350 μ s): 10 kA Nominal discharge current (8/20 μ s): 20 kA	Mounted on base		0,037
O244 ¹⁾	01920616	Protection module for 4 - 20 mA Type 2 Protected conductors: 2 LifeCheck: no Lightning impulse current (10/350 μ s): 1 kA Nominal discharge current (8/20 μ s): 20 kA	Mounted on base		0,037	
O245 ¹⁾	01920627	Protection module for 4 - 20 mA Type 2 Protected conductors: 4 LifeCheck: no Lightning impulse current (10/350 μ s): 1 kA Nominal discharge current (8/20 μ s): 20 kA	Mounted on base		0,037	
<div><div></div><div>Selection and order processing as required by the operator's lightning protection concept. Processing via LAC Building Services Pegnitz only</div></div>						

	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O246 ¹⁾	01920612	Base without signal disconnection, ATEX-compliant Protected conductors: 4	-	1 HE	0,046
	O247 ¹⁾	01920628	Protection module for 4 - 20 mA, ATEX-compliant Type 2 Protected conductors: 2 LifeCheck: yes Lightning impulse current (10/350 µs): 4 kA Nominal discharge current (8/20 µs): 20 kA	Mounted on base		0,038
	O248 ¹⁾	01920629	Protection module for 4 - 20 mA, ATEX-compliant Type 2 Protected conductors: 4 LifeCheck: yes Lightning impulse current (10/350 µs): 4 kA Nominal discharge current (8/20 µs): 20 kA	Mounted on base		0,038
 Selection and order processing as required by the operator's lightning protection concept. Processing via LAC Building Services Pegnitz only						

Sensors

Table 31: Overview of options

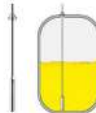


	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
Vega level sensor for hydrostatic level measurement						
Hydrostatic immersion probe for level measurement in clean or slightly contaminated liquids as well as acids, lyes and other aggressive fluids.						
Cable-suspended installation, cable clamp included in scope of supply.						
Technical data						
<ul style="list-style-type: none">2-wire output, 4 - 20 mAMeasuring range: 0 - 2 mWC						
Materials used:						
<ul style="list-style-type: none">Housing material: duplex stainless steel (1.4462)Diaphragm material: sapphire ceramicsCable made of polyethylene						
	Non-ATEX-compliant version:					
	E200	01213466	Sensor with 6-metre cable	Yes	Yes	1,22
	E201	01213647	Sensor with 12-metre cable	Yes	Yes	1,792
	ATEX-compliant version to ATEX II 2G Ex ia IIC T6:					
	E205	01213648	Sensor with 6-metre cable	Yes	Yes	1,257
	E206	01213649	Sensor with 12-metre cable	Yes	Yes	1,792
Additionally recommended:						
Connection box and pressure balancing box by Vega, type Vegabox 03						
For extending the power cable.						
-	E210	01213650	non-ATEX-compliant	Yes	Yes	0,465
-	E211	01213651	ATEX-compliant	Yes	Yes	0,264

Table 32: Overview of options

	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	E230	01201430	Ultrasonic sensor for non-contact level measurement by E.L.B., 0.25 - 5 mWC, 4 - 20 mA Mounted with G2 thread. Narrow cone angle of only 10°. Sensor installation at least 250 mm above the maximum fluid level. Sensor setting via integrated 2-key control panel For use outside potentially explosive atmospheres only, non-ATEX-approved Making settings: When the tank is empty or when the fluid has reached the level where the 4 mA signal is needed, press the 4 mA key twice. When the tank is full or when the fluid has reached the level where the 20 mA signal is needed, press the 20 mA key twice. The minimum and maximum levels can also be entered directly. The sensor supplies a continuous level-dependent analog signal within the set limits.	Yes	Yes	1,441
Additionally required:						
	3-wire sensor cable					
	shielded, type LiYCY 2 × 2 × 0.5 mm ²					
	E235	19075129	Length 5 m	Yes	Yes	0,5
	E236	19075130	Length 10 m	Yes	Yes	0,9


	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	E237	19075131	Length 20 m	Yes	Yes	1,9
	E238	19075132	Length 30 m	Yes	Yes	2,8
	E239	19075133	Length 50 m	Yes	Yes	4,7

Table 33: Overview of options





	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
Level sensor (Wika, type LS-10) for hydrostatic level measurement in clear water, waste water, acids, lyes and other aggressive fluids.						
Cable-suspended installation						
Technical data						
<ul style="list-style-type: none">Output signal: 4-20 mA, 2-wire connectionMeasuring range: 0 - 2.5 mWCIP68 enclosure						
Materials used:						
<ul style="list-style-type: none">Housing made of 1.1471 (V4A)Cable made of PUR						
Without ATEX certification						
	E240	01212446	Version with 5-metre cable	Yes	Yes	0,6
	E241	01212547	Version with 10-metre cable	Yes	Yes	1
	E242	01212548	Version with 20-metre cable	Yes	Yes	1,7
	E243	01212549	Version with 30-metre cable	Yes	Yes	2,5
	E244	01212550	Version with 50-metre cable	Yes	Yes	4
 Longer cables on request. Additionally recommended: cable clamp for cable-suspended installation (E254).						
Intrinsically safe level sensor (Wika, type LF-1) for use in clear water, waste water, acids, lyes and other aggressive fluids.						
Cable-suspended installation						
Technical data						
<ul style="list-style-type: none">Output signal: 4 - 20 mA (2-wire connection), 2-wire connectionMeasuring range: 0 - 2.5 mWCIP68 enclosure						
Materials used:						
<ul style="list-style-type: none">Housing made of 1.4404 or AISI 316LCable made of PUR						
Also suitable for level measurement in potentially explosive atmospheres:						
<ul style="list-style-type: none">Explosion-proof to ATEX II 2G Ex ia IIC T4 / T5 / T6 Gb and IECEx Ex ia IIC T4 / T5 / T6 GbCan be used in zone 1 and zone 2						
	E245	01836350	Version with 5-metre cable	No	Yes	0,71
	E246	01836351	Version with 10-metre cable	No	Yes	1,05
	E247	01836352	Version with 20-metre cable	No	Yes	1,72
	E248	01836353	Version with 30-metre cable	No	Yes	2,415
	E249	01836354	Version with 50-metre cable	No	Yes	3,8
 Longer cables on request. Additionally recommended: cable clamp for cable-suspended installation (E254).						

Table 34: Overview of options





	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
Basic level sensor for hydrostatic level measurement (ADZ Nagano, type PS1) in clear water, waste water, acids, lyes and other aggressive fluids						
Cable-suspended installation						
Technical data						
<ul style="list-style-type: none">▪ Supply voltage: 9 - 32 V DC▪ Output signal: 4 - 20 mA, 2-wire connection▪ Measuring range: 0 - 6 mWC▪ Accuracy: 0.5 %▪ Fluid temperature: -40 °C to +85 °C▪ IP68 enclosure						
Materials used:						
<ul style="list-style-type: none">▪ Wetted sensor components made of 1.4404 (316L)▪ Cable made of PUR						
Without ATEX certification						
	E260	01877762	Version with 10-metre cable	Yes	Yes	0,598
	E261	01877763	Version with 20-metre cable	Yes	Yes	0,937
 Longer cables on request. Additionally recommended: cable clamp for cable-suspended installation (E254).						
Intrinsically safe level sensor for hydrostatic level measurement (Siemens Sitrans LH100) in clear water, waste water, acids, lyes and other aggressive fluids.						
Cable-suspended installation						
Technical data						
<ul style="list-style-type: none">▪ Supply voltage: 10 - 30 V DC▪ Output signal: 4 - 20 mA, 2-wire connection▪ Measuring range: 0 - 6 mWC▪ Accuracy: 0.3 %▪ Fluid temperature: -10 °C to +80 °C▪ IP68 enclosure						
Materials used:						
<ul style="list-style-type: none">▪ Housing made of 1.4404 (316L)▪ Sealing element between sensor and housing: FPM▪ Measuring cell made of Al₂O₃▪ Cable made of PUR						
Also suitable for level measurement in potentially explosive atmospheres:						
<ul style="list-style-type: none">▪ Explosion-proof to ATEX II1 G Ex ia IIC T4 Ga and IECEx Ex ia IIC T4 Ga						
	E265	01877764	Version with 10-metre cable	No	Yes	0,434
	E266	01877765	Version with 20-metre cable	No	Yes	0,646
 Longer cables on request. Additionally recommended: cable clamp for cable-suspended installation (E254).						

Table 35: Overview of options


	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	E254	01204801	Cable clamp For cable-suspended installation of level sensors.	Yes	Yes	0,3

Table 36: Overview of options



	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	E255	01211278	Pressure bell bracket For mounting the pressure bell set of a pneumatic/ bubbler control system on the wall (e.g. concrete sump) The pressure bell is suspended from the bubbler tube and fastened in the bracket by means of the hardware supplied with the set. Material: V2A	Yes	Yes	0,2



Table 37: Overview of options

	Item	Mat. No.	Description	Use		[kg]
				BC	BS	
	E256	01076688	Weight for float switch Weight for setting the switching point of suspended float switches. The float weights snap onto the float switch cable and can be retrofitted. not suitable for drinking water applications	Yes	Yes	0,3

Special optional components and special accessories

The following special optional components and special accessories are available for LevelControl Basic 2. Owing to the large variety of possible applications, these are processed on request only (not available in KSB EasySelect).

Table 38: Overview of options

	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
GSM modem made by Wachendorff, type ALMIOG, for control unit type BS						
24 V power supply, without SIM card (to be supplied by customer), for connection to general fault message relay and volt-free contacts (O50 - O57).						
The GSM modem type ALMIOG03 is easy to configure and allows messages to be transmitted to a mobile phone. The modem features two digital inputs and one analog input. Any value change at one of the inputs will trigger transmission of a text message. In addition, the two relay outputs can be switched by means of a text message, enabling remote switching, remote acknowledgement, etc.						
The modem is configured by means of PC software via the USB parameterisation cable supplied.						
Technical data						
Power supply:						
<ul style="list-style-type: none">12 - 35 V DC, 3.5 W8 - 24 V AC, 3.5 VA, 50/60 Hz						
Configuration interface:						
<ul style="list-style-type: none">1× USB						
Digital inputs:						
<ul style="list-style-type: none">2, electrically isolatedPositive switching (PNP)DC input: 48 V max.						
Relay outputs:						
<ul style="list-style-type: none">2, electrically isolatedNO contactCapacity: max. 48 V DC, 250 mA						
Analog input:						
<ul style="list-style-type: none">1×Resolution: 10 bitsInput range: 0 - 10 V DC						
Modem:						
<ul style="list-style-type: none">GSMGPRS 850 / 900 / 1800 / 1900 MHz						
SIM card slot:						
<ul style="list-style-type: none">1, for micro SIM cardSlot at the front of the device						
Operating range:						
<ul style="list-style-type: none">Operation and storage: -20 °C to +70 °CHumidity: 10 to 80 %, non-condensingEnclosure IP20						
Type of mounting:						
<ul style="list-style-type: none">DIN rail mount						
	O100	01601717	ALMIOG03 set with rod antenna Complete with software CD-ROM and parameterisation cable	-	4 HE	0,3
	O101	01601720	ALMIOG02 set with mobile antenna with 5-metre cable Complete with software CD-ROM and parameterisation cable	-	4 HE	0,5
Accessories:						



	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
Cable extension for GSM antenna <ul style="list-style-type: none">▪ Connection: SMA plug / SMA socket▪ Impedance: 50 Ω▪ Capacity: 82 pF/m▪ Velocity factor: 0.82▪ Shielding effectiveness at 1 GHz: 85 dB(A)▪ Central wire material: copper wire▪ Outer diameter: 5 mm						
	O105	05005972	Cable extension for GSM antenna, SMA plug / SMA socket, length 1 m	-	-	0,042
	O106	05005973	Cable extension for GSM antenna, SMA plug / SMA socket, length 3 m	-	-	0,111
	O107	05005974	Cable extension for GSM antenna, SMA plug / SMA socket, length 5 m	-	-	0,183
Processing via LAC Building Services Pegnitz only						

Table 39: Overview of options

	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
LTE modem made by Phönix Contact, type TC MOBILE I/O X200-4G, for BS version						
24 V power supply, without SIM card (to be supplied by customer), for connection to general fault message relay and volt-free contacts (O50 - O57).						
The LTE modem is a configurable alarm modem for advanced messaging tasks that enables messages to be transmitted to a mobile phone. The modem features four digital inputs and two analog inputs. Any value change at an input will trigger transmission of a text message or e-mail. In addition, the four relay outputs can be switched by means of a text message or e-mail, enabling remote switching. The modem provides additional functions, such as the visualisation of status messages via HTTPS in an app, mobile network diagnosis and logbook dispatch via e-mail.						
For configuration a PC / notebook with USB port and a web browser are required. The matching USB cable is included in the scope of supply.						
Technical data						
Power supply:						
<ul style="list-style-type: none">10 - 60 V DC, 50 - 80 mA						
Configuration interface:						
<ul style="list-style-type: none">1× USB						
Digital input:						
<ul style="list-style-type: none">Quantity: 4Signal voltage 0: ≤ 7 V DCSignal voltage 1: ≥ 17 V DC						
Analog input:						
<ul style="list-style-type: none">Quantity: 2Resolution: 15 bitsInput range:<ul style="list-style-type: none">0 - 60 V DC0 - 20 mA4 - 20 mAAccuracy: +/- 0.1 %Input impedance:<ul style="list-style-type: none">Voltage inputs: 600 kΩCurrent inputs: 50 Ω						
Relay output:						
<ul style="list-style-type: none">Quantity: 4Contact type: NO contactOperating range:<ul style="list-style-type: none">60 V DC, 6 A30 V AC, 6 A						
Modem:						
<ul style="list-style-type: none">EGSM: 850 MHz (2 W), 900 MHz (2 W), 1800 MHz (1 W), 1900 MHz (1 W)LTE: 800 MHz (B20), 1800 MHz (B3), 2600 MHz (B7)						
Operating range:						
<ul style="list-style-type: none">Operation: -25 °C to +70 °CStorage: -40 °C to +85 °CHumidity: 0 to 95 %, non-condensingAltitude: ≤ 2000 mEnclosure IP50						
Type of mounting:						
<ul style="list-style-type: none">DIN rail mount						
	O102	19066538	LTE modem made by Phönix Contact, type TC MOBILE I/O X200-4G, for BS version	-	4 HE	0,5

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	Item	Mat. No.	Description	For use with / Space required		[kg]
				BC	BS	
	O103	05153229	Mobile phone antenna Suitable for LTE, electric cable length: 5 m	-	-	0,2
	O104	05153240	Antenna for magnetic / screwed / adhesive mounting Suitable for LTE, electric cable length: 5 m	-	-	0,3
Processing via LAC Building Services Pegnitz only						
 The required modem antenna is not included in the scope of supply. Order the antenna, see items O103 / O104.						

Table 40: Overview of options





	Item	Mat. No.	Description	Space required		[kg]
				BC	BS	
	O135	01201964	<p>Hygrostat for controlling a control cabinet heater as a function of the relative humidity inside the housing, to prevent condensation.</p> <p>When the heater is switched on, the air inside the housing is heated up, the dew point is increased and the relative humidity is reduced. In this way condensation on assemblies and electronic components can be prevented.</p> <p>The heater is used if the control unit is installed in regions with a high relative humidity, where high temperature fluctuations are to be expected (tropical and subtropical climates).</p> <p>Technical data</p> <ul style="list-style-type: none"> ▪ Contact: 1-pole changeover contact as snap-action contact ▪ Permissible contact rating: AC ~ 5 A (at max. $\cos \phi = 0.6$), DC = max. 20 W ▪ Setting range: 50 - 100 % relative humidity ▪ Dimensions (H x W x D): 71 x 71 x 33.5 mm ▪ Setting range: 50 - 100 % relative humidity ▪ Switching difference: approx. 4 % 	-	4 HE	0,1
Processing via LAC Building Services Pegnitz only						
 The required space indicated only refers to the Hygrostat and does not include the heater. The heater is required in addition; it is not included in the scope of supply.						

Table 41: Overview of options

	Item	Mat. No.	Description	For use with		[kg]
				BC	BS	
Level measurement for particularly low fluid levels / fluid level differences						
For example for clear water or waste water, in weak acids, weak lyes and moderately aggressive fluids.						
Restrictions:						
Can only be used in conductive liquids. Not recommended for use in seawater.						
One sensor and one analysing relay are required per switching point. In addition, a separate sensor is required as earth electrode.						
The order must include the following components (including high water switching point):						
<ul style="list-style-type: none">▪ Single-pump control: 2 × E320 electrode relays, 4 × E321 sensors, E322 cable as required▪ Dual-pump control: 3 × E320 electrode relays, 5 × E321 sensors, E322 cable as required						
	E320	01069615	Electrode relay for conductive level sensors featuring: <ul style="list-style-type: none">▪ Option for setting delay for energising/de-energising of the relay▪ Potentiometer for setting response sensitivity	-	Yes	0,3
	E321	01048984	Sensor for electrode relay Rod sensor for conductive level measurement Cable-suspended installation Sensor material: 1.4301 (V2A)	-	Yes	0,1
Additionally recommended:						
-	E322	01046306	Control current cable Single core, for connecting the sensors to the associated electrode relay	-	Yes	0,01kg/m
Processing via LAC Building Services Pegnitz only						



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