MINIATURE CIRCUIT BREAKERS LMB

LMB-16B-1N

Description

- Series of 1+N-pole miniature circuit breakers with 1-module width (17.5 mm) for building, housing and similar installations up to 40 A, 230 V AC.
- Tripping characteristics B, C according to EN 60898.
- Breaking capacity 6 kA.
- Possibility of additional mounting of auxiliary switch PS-LT or signal switch SS-LT.

Miniature circuit breakers 1+N-pole

I_n	Characteristic B			Characteristic C			Number	Package
[A]	Type	Order code	Weight [kg]	Type	Order code	Weight [kg]	of modules	[pcs]
2	-	-	-	**LMB-2C-1N**	OEZ:46554	0.140	1	12
4	-	-	-	**LMB-4C-1N**	OEZ:46555	0.134	1	12
6	**LMB-6B-1N**	OEZ:46546	0.133	**LMB-6C-1N**	OEZ:46556	0.118	1	12
8	-	-	-	**LMB-8C-1N**	OEZ:46557	0.137	1	12
10	**LMB-10B-1N**	OEZ:46547	0.133	**LMB-10C-1N**	OEZ:46558	0.123	1	12
13	**LMB-13B-1N**	OEZ:46548	0.120	**LMB-13C-1N**	OEZ:46559	0.097	1	12
16	**LMB-16B-1N**	OEZ:46549	0.122	**LMB-16C-1N**	OEZ:46560	0.115	1	12
20	**LMB-20B-1N**	OEZ:46550	0.113	**LMB-20C-1N**	OEZ:46561	0.132	1	12
25	**LMB-25B-1N**	OEZ:46551	0.137	**LMB-25C-1N**	OEZ:46562	0.126	1	12
32	**LMB-32B-1N**	OEZ:46552	0.148	**LMB-32C-1N**	OEZ:46563	0.145	1	12
40	**LMB-40B-1N**	OEZ:46553	0.113	**LMB-40C-1N**	OEZ:46564	0.144	1	12

Accessories

Auxiliary and signal switches	**PS-LT, SS-LT**	page 4
Remote control	**RC-LT**	page 5
Locking insert	**OD-LT-VU02**	page 5
Interconnecting busbars	**S1L, S2L, S3L**	page 11

Specifications

Type		LMB
Standards		EN 60898-1
Approval marks		
Number of poles		1+N
Tripping characteristics		B, C
Rated current	I_n	2 ÷ 40 A
Rated operating voltage	U_e	AC 230 V
Max. operating voltage	U_{max}	AC 250 V, DC 72 V
Min. operating voltage	U_{min}	AC/DC 24 V
Rated frequency	f_n	50 Hz
Rated short-circuit breaking capacity	I_{cn}	6 kA
Rated insulation voltage		AC 250 V
Electrical endurance with rated load		20 000 operating cycles / 2 A, 4 A, 40 A 8 000 operating cycles
Energy limitation class		3
Overvoltage category		III
Pollution degree		2
Mounting on "U" rail according to EN 60715		TH 35
Degree of protection - with connected conductors		IP20
Connection		
Cu conductor - rigid (solid, stranded)		0.75 ÷ 16 mm²
Cu conductor - flexible with a sleeve		0.75 ÷ 10 mm²
Torque		2 ÷ 2.5 Nm
Screw head type		PZ2
Operating conditions		
Ambient temperature		-25 ÷ +45 °C
Working position		arbitrary

MINIATURE CIRCUIT BREAKERS LMB

Internal impedance Z, powers losses P

I_n	Characteristic B				Characteristic C			
	L-pole		N-pole		L-pole		N-pole	
[A]	Z [mΩ]	P [mW]	Z [mΩ]	P [mW]	Z [mΩ]	P [mW]	Z [mΩ]	P [mW]
2	-	-	-	-	290.0	1 161	3.80	15
4	-	-	-	-	110.0	1 766	4.00	64
6	30.00	1 092	4.20	150	26.0	931	4.30	154
8	-	-	-	-	19.8	1 264	3.90	249
10	15.00	1 539	4.10	407	13.0	1 297	4.10	406
13	9.50	1 598	4.10	692	9.1	1 531	4.40	742
16	8.70	2 219	4.00	1 018	7.5	1 926	3.30	852
20	5.20	2 082	1.10	436	5.3	2 118	1.20	478
25	3.30	2 065	1.30	804	3.0	1 906	1.10	674
32	2.60	2 625	1.20	1 192	2.7	2 718	1.30	1 310
40	2.30	3 619	1.10	1 789	2.2	3 531	1.10	1 820

Correction of rated current I_n

Correction of circuit breaker rated current I_n is determined by relation $I_{n1} = K_T \times K_N \times I_n$ where:

- I_{n1} … is corrected rated current of the circuit breaker
- I_n … is rated current of the circuit breaker (i.e. the one placed separately at reference temperature 30 °C)
- K_T … is correction factor taking ambient temperature into account
- K_N … is correction factor taking into account placement of more loaded circuit breakers side-by-side

1) Correction factor K_T

For concrete circuit breaker type (I_n, characteristic, number of poles), determine correction curve number (1, 2 or 3) in the table, and using the correction curve number and given ambient temperature on the graph, determine Correction factor K_T.

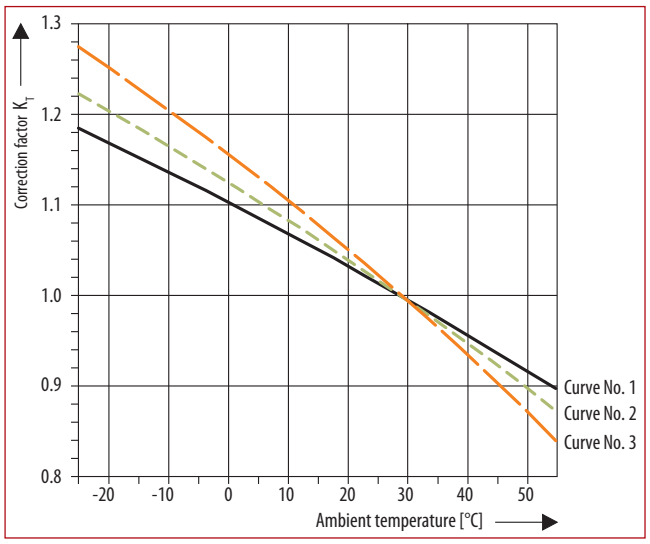
Characteristic	Rated current of the circuit breaker I_n [A]										
	2	4	6	8	10	13	16	20	25	32	40
	Correction curve number										
B	-	-	1	-	2	2	2	2	1	2	2
C	1	1	1	3	2	2	3	3	1	2	2

2) Correction factor K_N

Determine correction factor K_N according to the number of circuit breakers placed side-by-side.

Correction factor K_N for circuit breakers placed side-by-side				
Number of LMB circuit breakers side-by-side	1	2 ÷ 3	4 ÷ 6	> 7
Correction factor K_N	1.00	0.90	0.88	0.85

Correction factor K_T depending on ambient temperature



Example

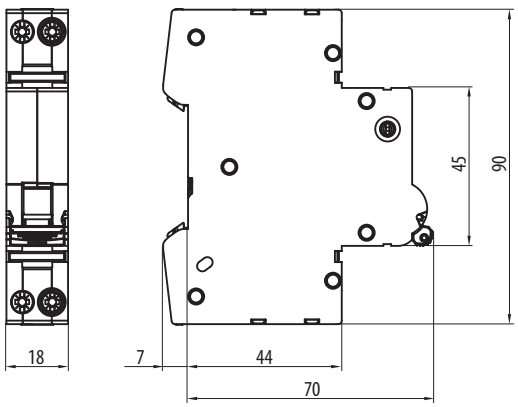
Task: how rated current $I_n = 16$ A will change for circuit breaker LMB-16B-1 at ambient temperature 40 °C and for 4 circuit breakers placed side-by-side?

Determination of K_T: for characteristic B and I_n 16 A it is possible to take correction curve No. 2 from the table. For intersection of the correction curve No. 2 and ambient temperature 40 °C it is possible to determine correction factor $K_T = 0.94$ on the vertical scale of the graph.

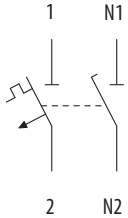
Determination of K_N: for 4 circuit breakers LMB-16B-1 placed side-by-side it is possible to determine from the table correction factor $K_N = 0.88$.

Correction I_n: new rated current $I_{n1} = K_T \times K_N \times I_n = 0.94 \times 0.88 \times 32$ A = 13.24 A

Dimensions

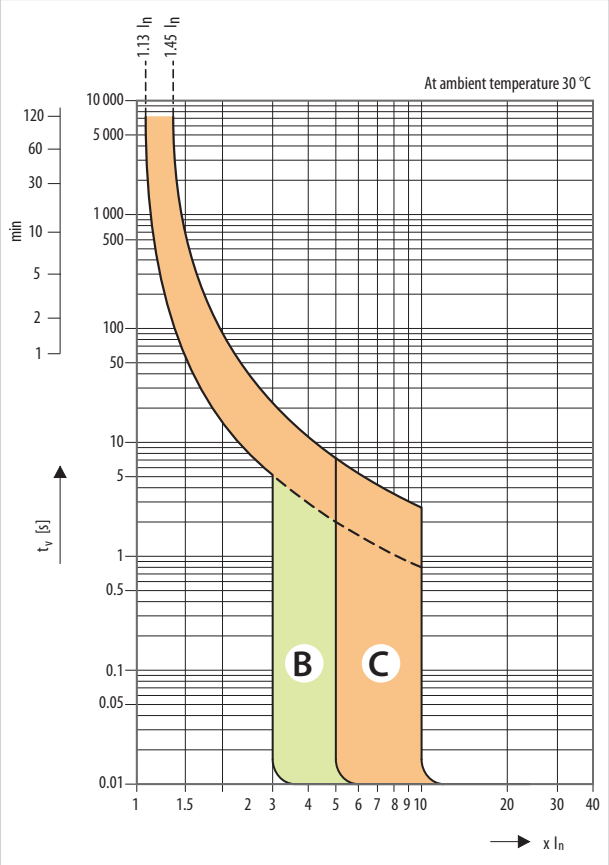


Diagram



MINIATURE CIRCUIT BREAKERS LMB

Characteristics



- **Characteristic B**: for protection of line of electrical circuits with equipment, which does not cause current surges (lighting and socket circuits etc.). The short-circuit release is set to (3 ÷ 5) I_n.
- **Characteristic C**: for protection of line of electrical circuits with equipment, which causes current surges (light bulb groups, motors etc.). The short-circuit release is set to (5 ÷ 10) I_n.

Tripping characteristics of circuit breakers according to EN 60898-1

Thermal release	Tripping characteristic type
	B, C
Conventional non-tripping current I_{nt} for $t \geq 1$ hr	$I_{nt} = 1.13\ I_n$
Conventional tripping current I_t for $t < 1$ hr	$I_t = 1.45\ I_n$
Current I_3 for $1\ s < t < 60\ s$ and $I_n \leq 32$ A	$I_3 = 2.55\ I_n$

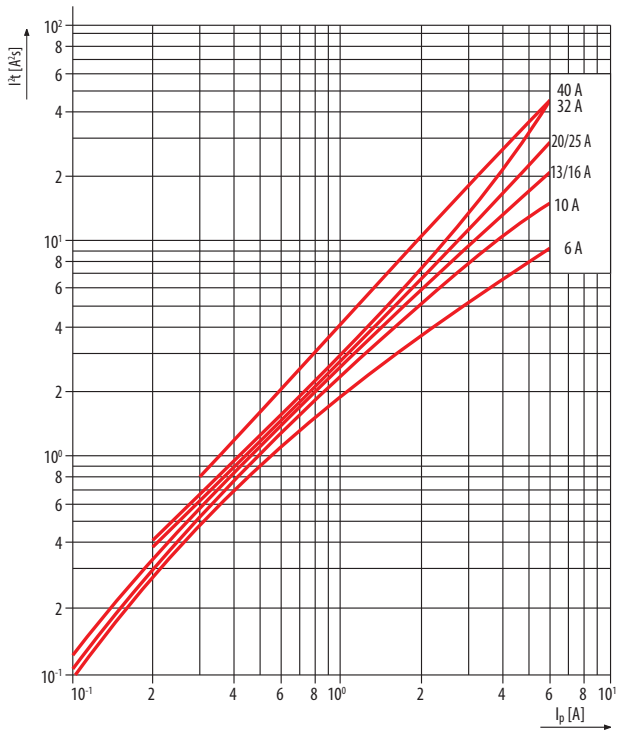
t - break time of the circuit breaker

Electromagnetic release		Tripping characteristic type	
		B	**C**
Current I_4 for	$0.1\ s < t < 45\ s$ (for $I_n \leq 32$ A)	$I_4 = 3\ I_n$	-
	$0.1\ s < t < 15\ s$ (for $I_n \leq 32$ A)	-	$I_4 = 5\ I_n$
Current I_5 for $t < 0.1$ s		$I_5 = 5\ I_n$	$I_5 = 10\ I_n$

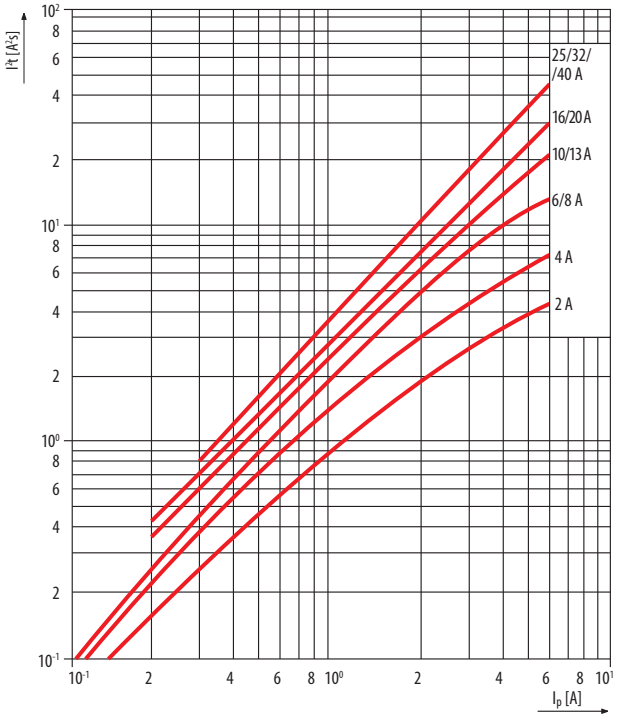
t - break time of the circuit breaker

Characteristics I^2t

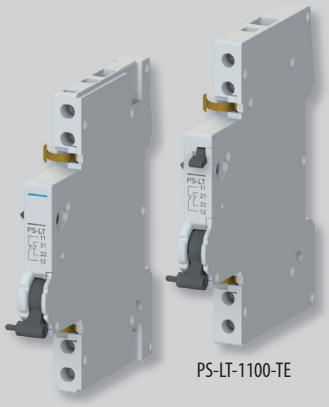
LMB - characteristic B



LMB - characteristic C



ACCESSORIES

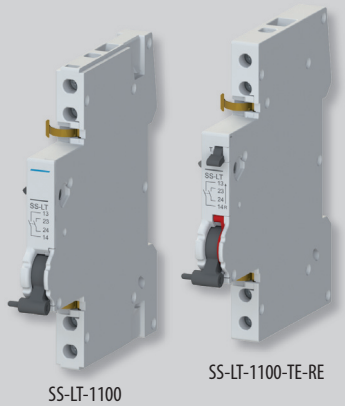


Auxiliary switches

- Accessory to:
  - miniature circuit breakers: LTP, LMB, LTS, LTN, LTN-UC, LVN, LVN-DC
  - residual current circuit breakers: LFN, LFE
  - residual current circuit breakers with overcurrent protection: OLI, OLE (installation on OLI/OLE requires handle adapter OD-OL-NR01)
  - switches: MSO, MSN, AVN-DC.
- For signalling the position of contacts of the device in switching off by releases or manually, i.e. in switching off by overload, short-circuit, shunt trip or undervoltage release, residual current and manually by control lever.
- Mounting on the right side of the device.
- For the number of auxiliary switches connected to the device in combination with the other accessories see page 10.
- Width 9 mm.
- Auxiliary switch function can be checked by test lever on the front side of the device (version PS-..-TE).
- Variant for switching small direct current voltages up to DC 30 V.
- They are suitable for application in SELV and PELV circuits - sufficient insulation is provided between the circuit breaker and the auxiliary switch.

Design	Arrangement of contacts [1]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
Standard	1100	**PS-LT-1100**	OEZ:42297	0.5	0.065	1
	2000	**PS-LT-2000**	OEZ:42299	0.5	0.071	1
	0200	**PS-LT-0200**	OEZ:42298	0.5	0.065	1
	0010	**PS-LT-0010**	OEZ:45595	0.5	0.051	1
With test and reset lever	1100	**PS-LT-1100-TE**	OEZ:42300	0.5	0.054	1
	2000	**PS-LT-2000-TE**	OEZ:42302	0.5	0.058	1
	0200	**PS-LT-0200-TE**	OEZ:42301	0.5	0.080	1
For small voltages standard	1100	**PS-LT-1100-MN**	OEZ:42303	0.5	0.075	1
For small voltages with test lever	1100	**PS-LT-1100-MN-TE**	OEZ:42304	0.5	0.054	1
With handle adapter OD-OL-NR01 [2]	1100	**PS-LT-1100-K**	OEZ:42305	0.5	0.065	1
Combined with signal contact [3]	0011	**PS-LT-0011**	OEZ:46050	0.5	0.056	1

[1] Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacs.
[2] PS-LT-1100-K is a set for convenient ordering in installation on OLI/OLE. The other designs of the auxiliary switches installed on OLI/OLE require separate ordering of OD-OL-NR01.
[3] Signal contact: for position signalling of main contacts of the device in switching off by releases, i.e. in switching off by overload, short-circuit, shunt trip and undervoltage release or residual current.



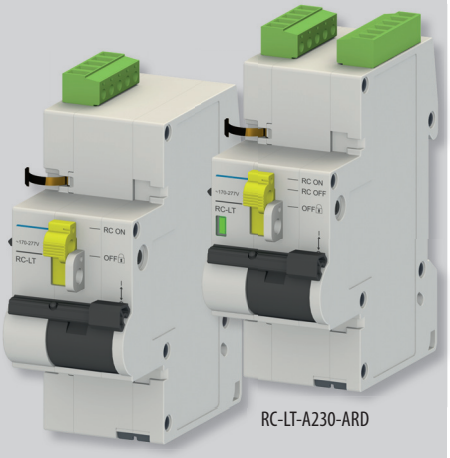
Signal switches

- Accessory to:
  - miniature circuit breakers: LTP, LMB, LTS, LTN, LTN-UC, LVN, LVN-DC
  - residual current circuit breakers: LFN, LFE
  - residual current circuit breakers with overcurrent protection: OLI, OLE (installation on OLI/OLE requires handle adapter OD-OL-NR01)
  - switches: MSN.
- For position signalling of main contacts of the device in switching off by releases, i.e. in switching off by overload, short-circuit, shunt trip and undervoltage release or residual current.
- Mounting on the right side of the device.
- For the number of auxiliary switches connected to the device in combination with the other accessories see page 10.
- Auxiliary switch function can be checked by test lever on the front side of the device (version SS-..-TE).
- Signal switch can be reset by means of the red reset lever on the front side of the device without switching the device on by the control lever (version SS-..-RE).
- They are suitable for application in SELV and PELV circuits - sufficient insulation is provided between the circuit breaker and the signal switch.
- Reaction in switching off by releases: in switching off by releases the make/break contact will break/make – for details see the table on page 6.

Design	Arrangement of contacts [1]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
Standard	11	**SS-LT-1100**	OEZ:42306	0.5	0.065	1
	20	**SS-LT-2000**	OEZ:42307	0.5	0.075	1
	02	**SS-LT-0200**	OEZ:42308	0.5	0.078	1
With test and reset lever	11	**SS-LT-1100-TE-RE**	OEZ:42309	0.5	0.055	1
	20	**SS-LT-2000-TE-RE**	OEZ:42310	0.5	0.057	1
	02	**SS-LT-0200-TE-RE**	OEZ:42311	0.5	0.057	1

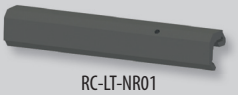
[1] Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacs.

ACCESSORIES



RC-LT-A230-ARD

RC-LT-A230



RC-LT-NR01

Remote control

- Accessory to:
  - miniature circuit breakers: LTP, LMB, LTS, LTN, LTN-UC
  - residual current circuit breakers: LFE, LFN (only in combination with RC-LT-A230-ARD)
  - residual current circuit breakers with overcurrent protection: OLI, OLE
  - switches: MSO, MSN, AVN-DC.
- They are used for remote switching on/off the device.
- ARD (auto reclose device) function is used for automatic reclosing of the controlled device after switching off by release.
- It is necessary to use a suitable remote control adapter for mounting of a remote control.

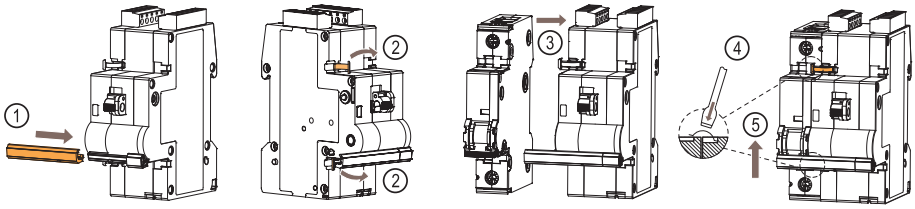
Rated voltage U_c	Arrangement of contacts [1]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
AC 230 V	-	**RC-LT-A230**	OEZ:46474	2	0.229	1
	0011	**RC-LT-A230-ARD**	OEZ:46478	2	0.237	1

[1] Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacs.

Remote control adapter

Type	Order code	Description	Weight [kg]	Package [ks]
RC-LT-NR01	OEZ:46480	for 1-pole and 2-pole LMB, LTN, LTN-UC and MSN	0.013	5
RC-LT-NR02	OEZ:46481	for 3-pole and 4-pole LTN, MSN and AVN-DC	0.011	5
RC-LT-NR03	OEZ:46482	for 2-pole OLE, OLI	0.010	5
RC-LT-NR04	OEZ:46483	for 1-pole and 2-pole LFK, LFN and MSO	0.009	5
RC-LT-NR05	OEZ:46484	for 3-pole and 4-pole LTP, LTS and MSO	0.011	5

Example of installation



OD-LT-VU02

Locking insert OD-LT-VU02

- Accessory to:
  - miniature circuit breakers: LTP, LMB, LTS
  - residual current circuit breakers: LFN, LFE
  - switches: MSO.
- For safe locking of the control lever in off or on position.
- The protective function of the devices is functional even in locked position.
- Maximum diameter of lock rod - 6 mm.
- The lock is not included in the package.
- **In installation it is necessary to press the fixing springs of the insert by two fingers against each other, and then slide them in the holes in the circuit breaker. In case of pressing the insert against the circuit breaker body a part of the plastic cover could break off!**

Type	Order code	Weight [kg]	Package [pcs]
OD-LT-VU02	OEZ:42325	0.003	1

ACCESSORIES

Specifications of auxiliary and signal switches

Type				PS-LT SS-LT	PS-LT-1100-MN PS-LT-1100-MN-TE
Standards				EN 60947-5-1 EN 62019	EN 60947-5-1 EN 62019
Approval marks					
Arrangement of contacts [1]				1100, 2000, 0200, 0010, 0011	1100, 2000, 0200
Rated operating voltage/current	U_e/I_e	AC-13	400 V	2 A	-
			230 V	6 A	-
		AC-14	400 V	2 A	-
			230 V	6 A	-
		DC-13 [2]	220 V	1 A/0.5 A	-
			110 V	1 A/0.75 A	-
			60 V	3 A/1.5 A	-
			24 V	6 A/3 A	-
Max. voltage/current				-	DC 30 V / 100 mA
Min. voltage/current				AC/DC 24 V / 50 mA	DC 5 V / 1 mA
Backup protection - fuse / miniature circuit breaker				6 A gG / 6 A characteristic B, C	6 A gG / 6 A characteristic B, C
Mechanical endurance				10 000 operating cycles	10 000 operating cycles
Electrical endurance at I_e				10 000 operating cycles	10 000 operating cycles
Degree of protection				IP20	IP20
Connection					
Cu conductor - rigid (solid, stranded)				0.5 ÷ 2.5 mm²	0.5 ÷ 2.5 mm²
Cu conductor - flexible				0.5 ÷ 2.5 mm²	0.5 ÷ 2.5 mm²
Torque				0.5 Nm	0.5 Nm
Top or bottom connection				top/bottom	top/bottom
Operating conditions					
Ambient temperature				-25 ÷ +55 °C	-25 ÷ +55 °C
Working position				arbitrary	arbitrary
Climatic resistance according to IEC 60068-2-30				28 operating cycles	28 operating cycles
Shocks (EN 60068-2-27)				150 m/s² in 11 ms half-sine pulse	150 m/s² in 11 ms half-sine pulse
Vibration resistance according to IEC 60068-2-6				50 m/s² at 10 ÷ 150 Hz	50 m/s² at 10 ÷ 150 Hz

[1] Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacs.
[2] Value according to EN 62019 / according to EN 60947-5-1

Function of signal switch SS-LT

Circuit breaker contact state	The state of the MAKE signal contact SS-LT-… *
Initial position - contacts open	switched off
Switching on manually - contacts closed	switched on
Switching off manually - contacts open	switched on
Switching off by release - contacts open	switched off

* The break contact works in opposite way.

ACCESSORIES

Specifications of remote controls

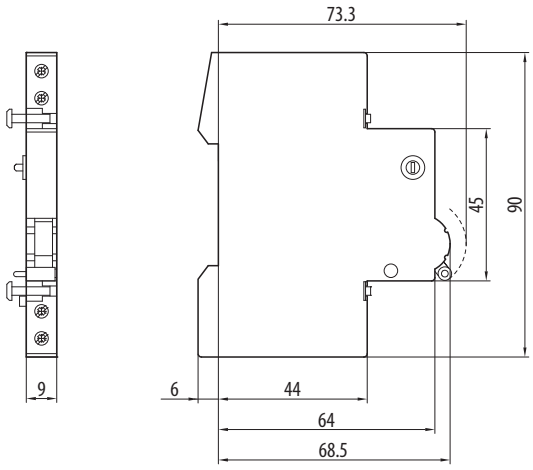
Type			RC-LT-A230	RC-LT-A230-ARD
Standards			EN 50557	EN 50557
Approval marks			CE	CE
Mounting			on the right side of the device	on the right side of the device
Degree of protection			IP20	IP20
Rated voltage	U_c		AC 230 V	AC 230 V
Range of rated voltage			AC 177 ÷ 270 V	AC 177 ÷ 270 V
Rated frequency	f_n		50/60 Hz	50/60 Hz
Max. length of remote control conductors			1 500 m	1 500 m
Power loss	P	AC 230 V	1 VA	-
ARD - auto reclose device				
Number of attempts			0	3
Time after which automatic reclosing will be executed.			-	10 s, 1 min, 10 min
Contact				
Arrangement of contacts [1)]			-	0011
Rated operating voltage/current			-	AC 250 V / 2 A
Connection				
Cu conductor - rigid (solid, stranded)			0.5 ÷ 1.5 mm^2	0.5 ÷ 1.5 mm^2
Cu conductor - flexible			0.5 ÷ 1.5 mm^2	0.5 ÷ 1.5 mm^2
Torque			0.25 Nm	0.25 Nm
Operating conditions				
Mechanical endurance			10 000 operating cycles	10 000 operating cycles
Electrical endurance			10 000 operating cycles	10 000 operating cycles
Ambient temperature			-25 ÷ 45 °C	-25 ÷ 45 °C

[1)] Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacs.

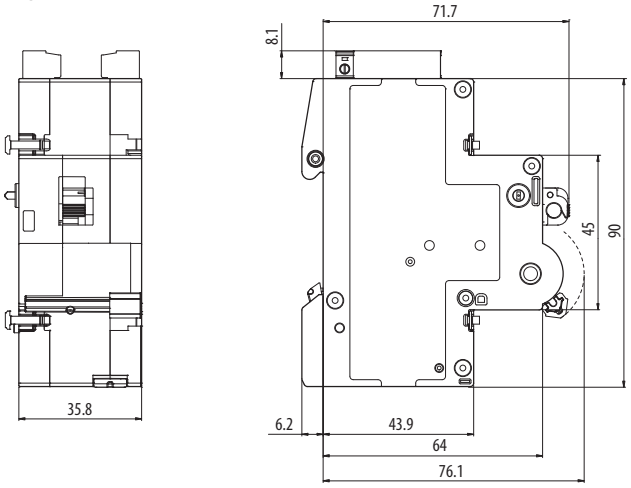
ACCESSORIES

Dimensions

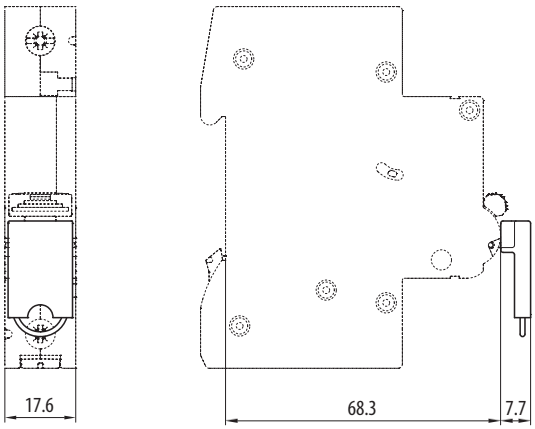
PS-LT, SS-LT



RC-LT



LTP, LMB, LTS, LFN, LFE, MSO + OD-LT-VU02

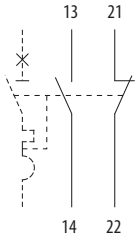


ACCESSORIES

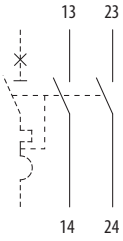
Diagram

Auxiliary switches

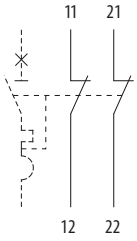
PS-LT-1100



PS-LT-2000



PS-LT-0200



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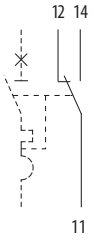

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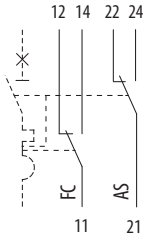
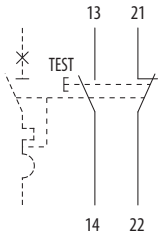


FC ... signal contact
AS ... auxiliary contact

PS-LT-1100-TE



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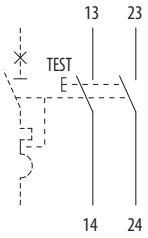

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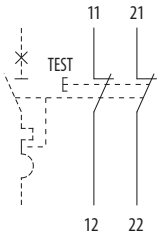
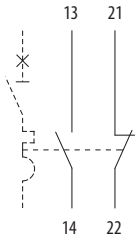


Signal switches

SS-LT-1100



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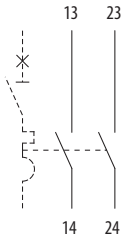

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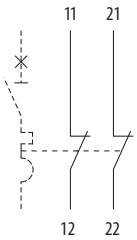
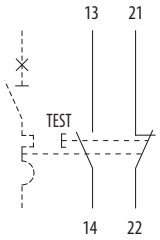
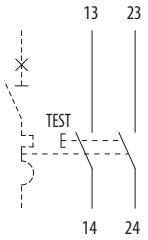


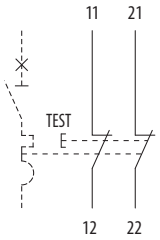
SS-LT-1100-TE-RE



SS-LT-2000-TE-RE

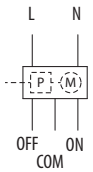


SS-LT-0200-TE-RE

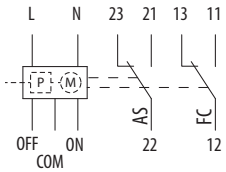


Remote control

RC-LT-A230



RC-LT-A230-ARD



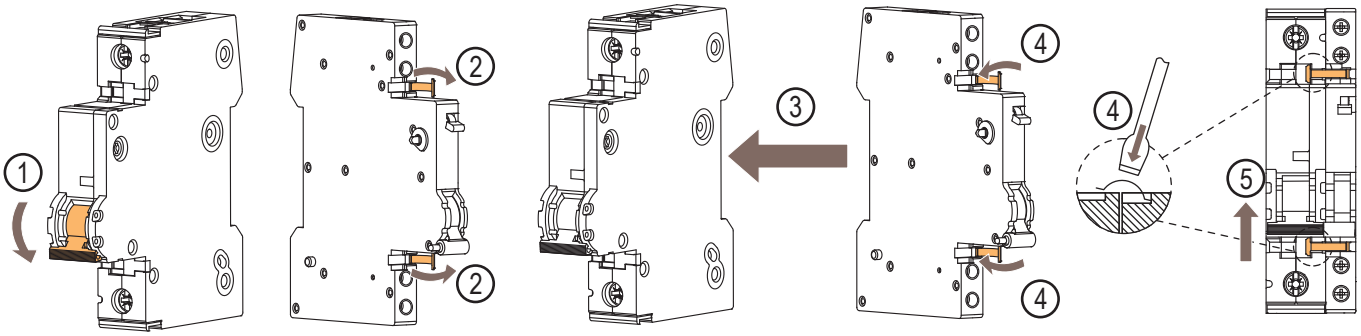
FC ... signal contact
AS ... auxiliary contact

ACCESSORIES

Installation of auxiliary switch, shunt trips or undervoltage releases

For installation of an auxiliary switch, shunt trip or undervoltage releases on a circuit breaker, residual current circuit breaker or switch, the same procedure shall apply as described on the example of installation of the auxiliary switch on the circuit breaker in the following points.

1. In mounting the levers of auxiliary switch and of the circuit breaker are in OFF position.
2. Tilt both fixing springs of the auxiliary switch to the right so that they do not get between the auxiliary switch and circuit breaker in installation.
3. Slide the auxiliary switch onto the circuit breaker from the right.
4. Lock the fixing springs in the circuit breaker body so that the auxiliary switch cannot release.
5. Check correct function by switching.



Combination of accessories

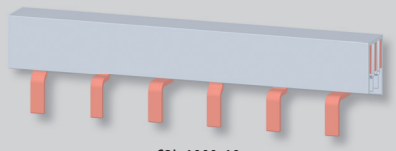

Any combination of PS-LT and SS-LT, **max. 2 units**


LTP, LMB


RC-LT


Any combination of PS-LT and SS-LT, **max. 2 units**

INTERCONNECTING BUSBARS



S3L-1000-10

Interconnecting busbars

- For interconnection of 1 to 4-pole circuit breakers, residual current circuit breakers, switches, lightning current arresters and surge voltage arresters.
- Interconnecting busbars of S3L-...FI design:
  – special interconnecting busbars (without N-pole) for easier connection of the residual current circuit breaker and circuit breaker, where it is required that the row of circuit breakers begins at the N-pole of the residual current circuit breaker.
  – advantage (compared to solution with standard busbar with N-pole) it is not necessary to cut the outlets of the N-pole.

Interconnecting busbars of length 1 m

- For devices with pole spacing 17.8 mm:
  – miniature circuit breakers LTP, LTS, LMB, LTN, LTN-UC
  – residual current circuit breakers LFN, LFE, OLI, OLE
  – switches MSO, MSN etc.

Number of poles	Number of outlets	Cross-section [mm²]	Type	Order code	End cap	Weight [kg]	Package [pcs]
1	57	10	**S1L-1000-10**	OEZ:37373	EKC-1	0.204	50
		16	**S1L-1000-16**	OEZ:37375	EKC-1	0.302	50
2	28x 2	16	**S2L-1000-16**	OEZ:37378	EKC-2+3	0.477	20
3	19x 3	10	**S3L-1000-10**	OEZ:38484	EKC-3	0.505	20
		16	**S3L-1000-16**	OEZ:37379	EKC-2+3	0.737	20
3+N	27x 2	16	**S3L+N-1000-16**	OEZ:38487	EKC-4	1.205	15
4	14x 4	16	**S4L-1000-16**	OEZ:38486	EKC-4	1.205	15

Interconnecting busbars of length 1 m

- For devices with pole spacing 27 mm:
  – miniature circuit breakers LVN
  – 1-module devices (e.g. miniature circuit breakers LTP, LTS, LTN, LTN-UC, switches MSO etc.) with auxiliary switch.

Number of poles	Number of outlets	Cross-section [mm²]	Type	Order code	End cap	Weight [kg]	Package [pcs]
1	37	16	**S1L-27-1000-16**	OEZ:37376	EKC-1	0.201	50
		25	**S1L-27-1000-25**	OEZ:37377	EKC-1-36	0.315	30
3	12x 3	16	**S3L-27-1000-16**	OEZ:37380	EKC-2+3	0.537	20
		25	**S3L-27-1000-25**	OEZ:37381	EKC-3-36	0.995	10
4	9x 4	25	**S4L-27-1000-25 *)**	OEZ:37382	EKC-3-36 + EKC-1-36	1.327	15

*) The busbar consists of one 3-pole and one 1-pole busbar.

Short interconnecting busbars

- For devices with pole spacing 17.8 mm:
  – miniature circuit breakers LTP, LTS, LMB, LTN, LTN-UC
  – residual current circuit breakers LFN, LFE, OLI, OLE
  – switches MSO, MSN etc.
- They are manufactured already covered, and must not be shortened.

Number of poles	Number of outlets	Cross-section [mm²]	Type	Order code	End cap *)	Weight [kg]	Package [pcs]
1	12	10	**S1L-210-10**	OEZ:38475	✓	0.045	50
		16	**S1L-210-16**	OEZ:37374	✓	0.047	50
2	6x 2	10	**S2L-210-10**	OEZ:38476	✓	0.067	20
		16	**S2L-210-16**	OEZ:38477	✓	0.110	20
3	2x 3	10	**S3L-106-10**	OEZ:38478	✓	0.055	25
		16	**S3L-106-16**	OEZ:38479	✓	0.080	25
	3x 3	10	**S3L-160-10**	OEZ:38480	✓	0.085	25
		16	**S3L-160-16**	OEZ:38481	✓	0.115	25
	4x 3	10	**S3L-210-10**	OEZ:38482	✓	0.110	25
		16	**S3L-210-16**	OEZ:38483	✓	0.150	25

*) ✓ = The busbar is covered.

INTERCONNECTING BUSBARS

Special interconnecting busbars

- For 2 and 3-module devices with auxiliary switch.
- For easier connection of circuit breaker with residual current circuit breaker (version S3L-...FI).

Number of poles	Number of outlets	Cross-section [mm²]	Type	Order code	End cap	Weight [kg]	Package [pcs]
2	22x 2	16	**S2L+N+9-1000-16** [1]	OEZ:39849	EKC-2+3	0.710	20
3	3x 3 + 2x 1	10	**S3L-210FI-10** [2]	OEZ:43144	✓ *)	0.074	25
		16	**S3L-210FI-16** [2]	OEZ:43146	✓ *)	0.099	25
	16x 3	16	**S3L+9-1000-16** [3]	OEZ:38485	EKC-2+3	0.720	20
	22x 2	16	**S3L+N+9-1000-16** [1]	OEZ:39616	EKC-4	0.983	15

[1] For 2-module (L+N) devices with auxiliary switch

[2] For interconnection of circuit breakers and residual current circuit breakers, where it is required that the row of circuit breakers begins at the N-pole of the residual current circuit breaker. In connection of the circuit breakers LTP, LTS/LTN and residual current circuit breaker LFN/LFE by the busbar from the bottom the diameter of the connected N conductor is limited to approx. 5 mm, because the busbar covers the N-terminal of the pole for the greater part.

[3] For 3-module (L123) devices with auxiliary switch

*) ✓ = The busbar is covered.

Accessories of interconnecting busbars

End caps

- For covering the ends of interconnecting busbars.


EKC-1


EKC-2+3


EKC-3

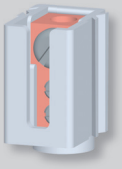

EKC-4


EKC-3-36

Type	Order code	Description	Weight [kg]	Package [pcs]
EKC-1	OEZ:37383	for 1-pole rails by cross-section 10, 12, 16 mm²	0.0005	10
EKC-2+3	OEZ:37384	for 2-pole rails and for 3-pole rails by cross-section 16 mm²	0.0010	10
EKC-3	OEZ:37385	for 3-pole rails by cross-section 10 mm²	0.0010	10
EKC-4	OEZ:37387	for 4-pole rails by cross-section 16 mm²	0.0020	10
EKC-1-36	OEZ:43854	for 1-pole rails by cross-section 25 mm²	0.0010	10
EKC-3-36	OEZ:37386	for 3-pole rails and for 4-pole rails by cross-section 25 mm²	0.0020	10

Power supply unit

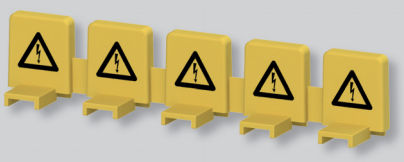
- It enables power supply of interconnecting busbars by conductors of cross-section up to 35 mm².
- The blocks can be assembled in series to create a multi-pole connection unit.
- Degree of protection IP20.


ES-35-GS

Type	Order code	Weight [kg]	Package [pcs]
ES-35-GS	OEZ:37388	0.035	10

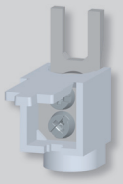
Outlet cover

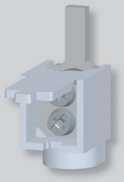
- It enables isolation of unused outlets of interconnecting busbars.
- For covering five unused outlets.


EKD-5

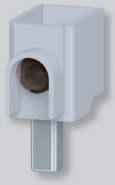
Type	Order code	Weight [kg]	Package [pcs]
EKD-5	OEZ:43147	0.004	10

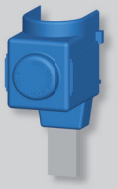
INTERCONNECTING BUSBARS

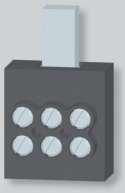

AS-25-G


AS-25-S


AS-50-S-L


AS-50-S-AL01


CS-FH000-1NP95


N3x10-FH000

Terminal extensions

Terminal extension up to 25 mm² with fork

- For connection of another conductor to the head part of the terminal.
- Cross-section of Cu conductors: 6 ÷ 25 mm².

Type	Order code	Accessory to	Weight [kg]	Package [pcs]
AS-25-G	OEZ:37390	SJB, SJBC, SVBC, SVC	0.013	30

Terminal extension up to 25 mm² with pin

- For connection of conductors to the clamp part of the terminal.
- Cross-section of Cu conductors: 6 ÷ 25 mm².

Type	Order code	Weight [kg]	Package [pcs]
AS-25-S	OEZ:37389	0.014	30

Terminal extension up to 50 mm²

- With long terminal.
- Use in combination with interconnecting busbar S1.., S2.., S3..
- For connection of Cu conductors.
- Cross-section of Cu conductors: 6 ÷ 50 mm².

Type	Order code	Weight [kg]	Package [pcs]
AS-50-S-L	OEZ:43149	0.033	1

Terminal extensions up to 50 mm²

- For connection of Cu/Al conductors of cross-section.
- Cross-section of Cu conductors: 2.5 ÷ 50 mm².
- Cross-section of Al conductors: 2.5 ÷ 50 mm².

Type	Order code	Accessory to	Weight [kg]	Package [pcs]
AS-50-S-AL01	OEZ:38749	LTP, LTS, LTN, LVN, LFE, LFN, OLE, OLI, OFI100/125, SJB, SJBC, SVBC, SVC, MSO, MSN	0.018	16

Terminal extensions up to 95 mm²

- For connection of Cu/Al conductors of cross-section 35 ÷ 95 mm².
- With direct or outbowed terminal.

Type	Order code	Description	Accessory to	Weight [kg]	Package [pcs]
CS-FH000-3NP95	OEZ:13740	straight terminal – the package contains the set of 3 pieces	LVN	0.176	1
CS-FH000-1NP95	OEZ:14378	straight terminal	LVN	0.060	1
CS-FH000-3NV95	OEZ:13742	outbowed terminal – the package contains the set of 3 pieces	LVN	0.184	1

Terminal extension up to 3x 10 mm²

- For connection of 3 conductors per device pole of cross -section 10 mm².

Type	Order code	Accessory to	Weight [kg]	Package [pcs]
N3x10-FH000	OEZ:14127	LVN, SJB, SJBC, SVBC	0.06	1

INTERCONNECTING BUSBARS

Specifications

Type		S1L..	S2L-.., S3L-.., S4L-..
Standards		EN 61439-1, ed.2	EN 61439-1, ed.2
Rated operating voltage	U_e	AC 690 V / DC 1000 V	AC/DC 500 V
Loading current		63 ÷ 180 A	63 ÷ 180 A
Cross-section		10 ÷ 25 mm²	10 ÷ 25 mm²
Short-circuit strength with backup fuse 250 A gG		50 kA	50 kA
Overvoltage category		III	III
Rated impulse voltage		8 kV	8 kV
Degree of protection		IP20	IP20
Busbar material		E-Cu-F25	E-Cu-F25
Insulation material		PC/ABS-Blend	PC/ABS-Blend

Max. loading current per phase

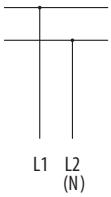
	Rail cross-section			
	10 mm²	16 mm²	20 mm²	25 mm²
Power supply from the rail edge	63 A	80 A	90 A	100 A
Power supply from the rail centre [1)]	100 A	130 A	150 A	180 A

[1)] Max. loading current in one direction must not be higher than max. loading current at power supply from the rail edge.

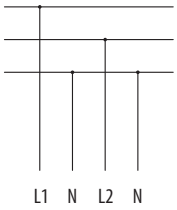
Diagram

S1L

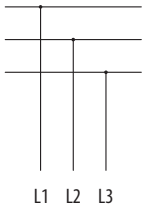
S2L



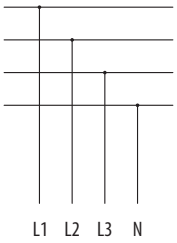
S2L+N



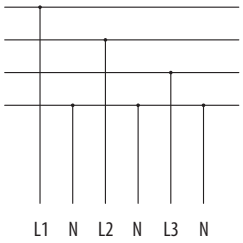
S3L



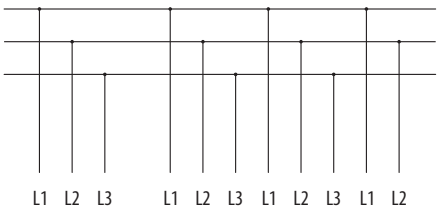
S4L



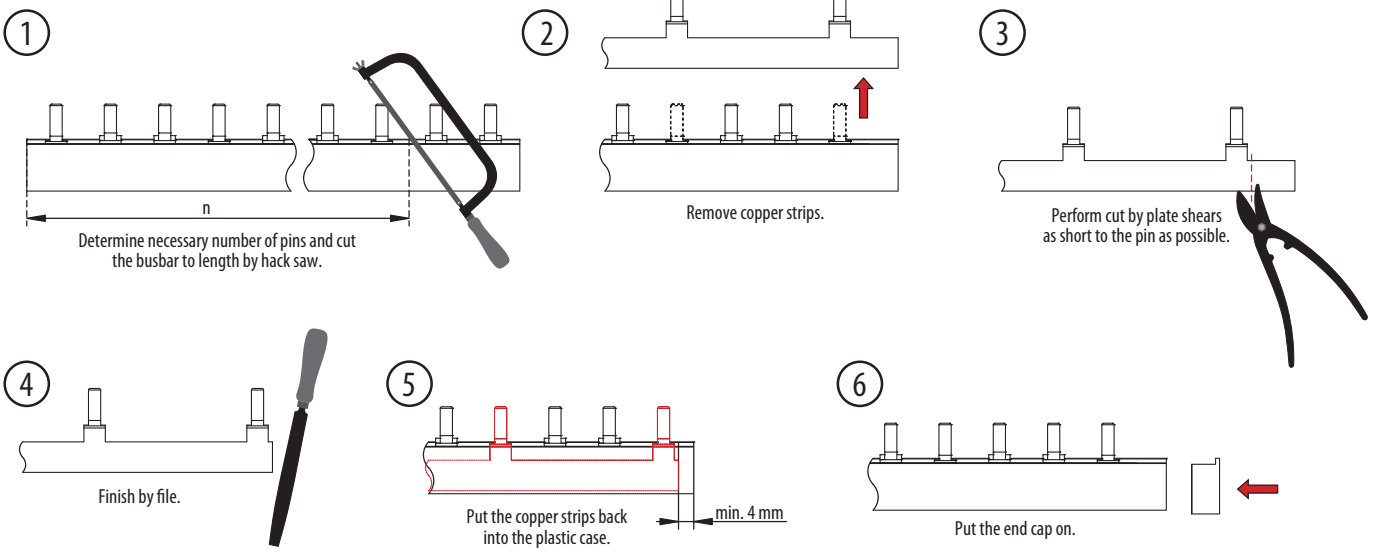
S3L+N



S3L-210FI



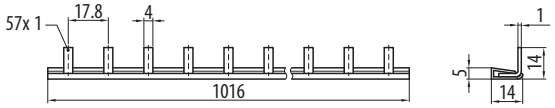
Shortening interconnecting busbars



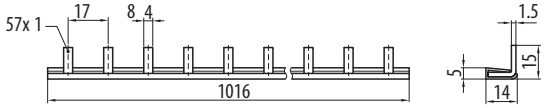
INTERCONNECTING BUSBARS

Dimensions

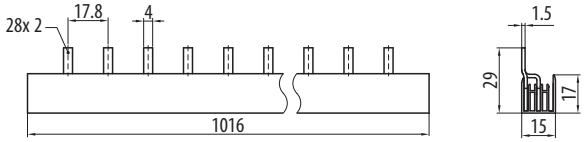
S1L-1000-10



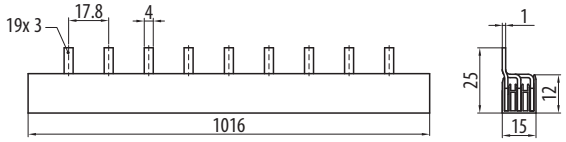
S1L-1000-16



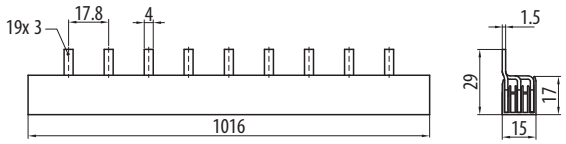
S2L-1000-16



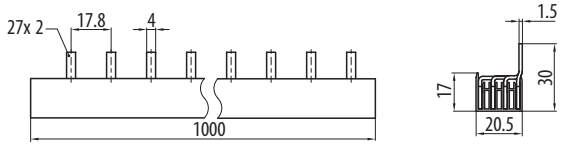
S3L-1000-10



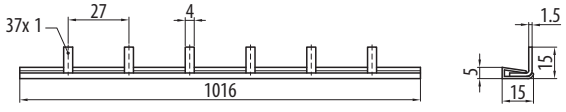
S3L-1000-16



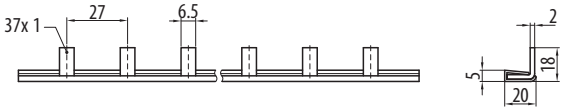
S3L+N-1000-16
S4L-1000-16



S1L-27-1000-16



S1L-27-1000-25



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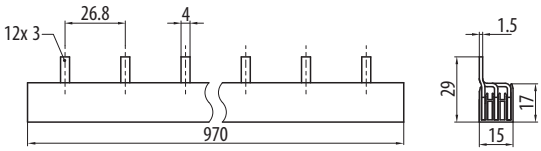
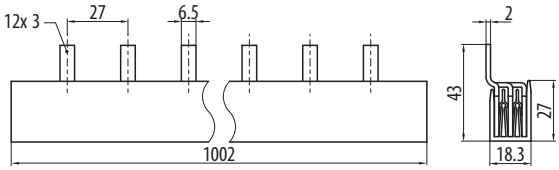
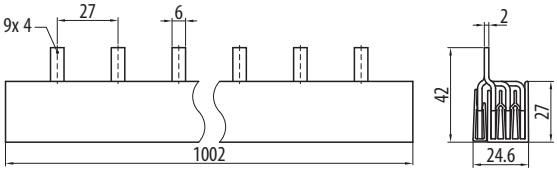


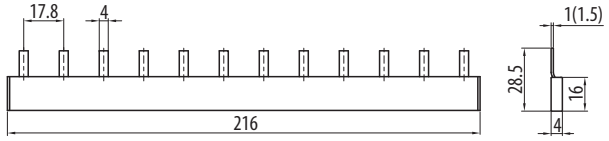
S3L-27-1000-25



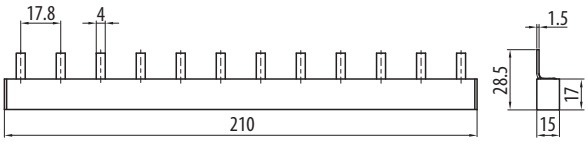
S4L-27-1000-25



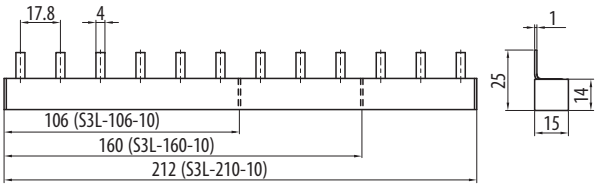
S1L-210-10, S1L-210-16



S2L-210-10, S2L-210-16

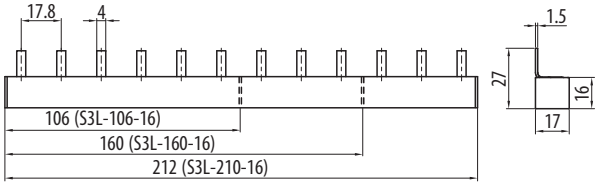


S3L-106-10, S3L-106-10, S3L-210-10

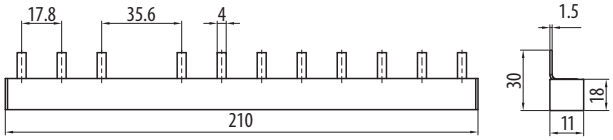


INTERCONNECTING BUSBARS

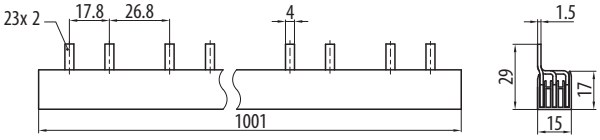
S3L-106-16, S3L-106-16, S3L-210-16



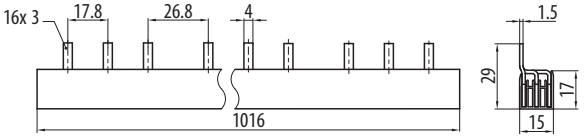
S3L-210FI-16



S2L+N+9-1000-16

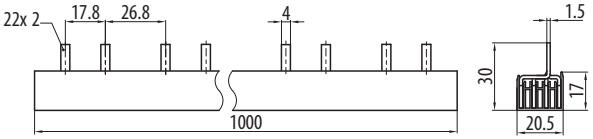


S3L+9-1000-16

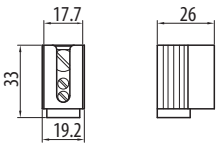


S3L-210FI-10

S3L+N+9-1000-16

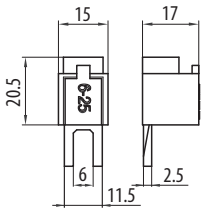


ES-35-GS

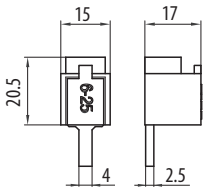


Dimensions of terminal extensions

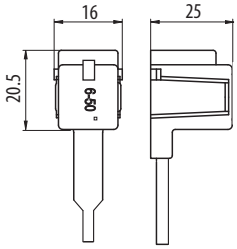
AS-25-G



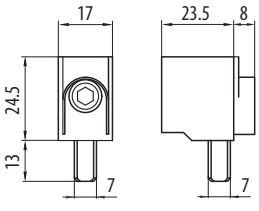
AS-25-S



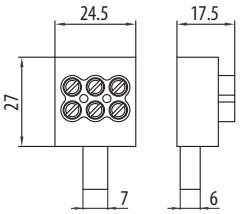
AS-50-S-L



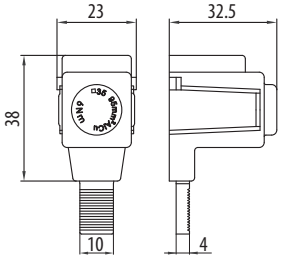
AS-50-S-AL01



N3x10-FH000



CS-FH000-...NP95



CS-FH000-3NV95