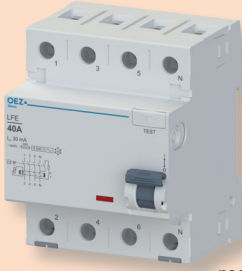
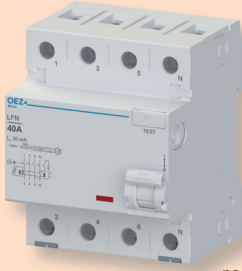
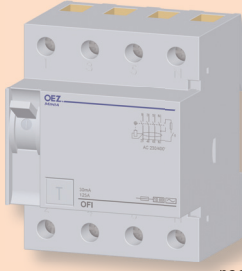







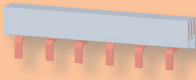

# Modular devices





**SUMMARY OF MODELS**

Type AC			
	 page C14	 page C18	 page C32
Type	LFE	LFN	OFI
Function	<b>Residual current circuit breaker</b>		
Conditional short-circuit current $I_{nc}$	6 kA	10 kA	10 kA
Design	standard	standard / G	standard
Rated current $I_n$	25 ÷ 80 A	16 ÷ 63 A	100 ÷ 125 A
Rated residual current $I_{\Delta n}$	30, 300 mA	10 ÷ 500 mA	30 ÷ 500 mA
Rated voltage $U_n$	AC 230/400 V	AC 230/400 V	AC 230/400 V
Number of poles	2, 4	2, 4	4

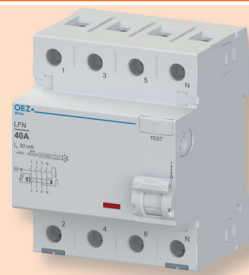
Accessories			
<b>Auxiliary switches</b> 		PS-LT	PS-OF125-1100
<b>Signal switches</b> 		SS-LT	-
<b>Shunt trips</b> 		SV-LT	-
<b>Undervoltage releases</b> 		SP-LT	-
<b>Remote control</b> 		RC-LT	-
<b>Inter-connecting busbars</b> 		S2L, S2L+N, S3L, S3L+N, S3L-...FI, S4L	S3L, S3L-...FI, S4L
<b>Locking insert</b> 		OD-LT-VU02	-

## SUMMARY OF MODELS

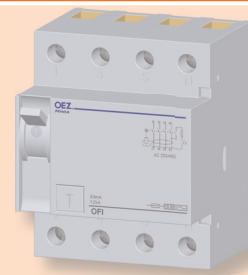
### Type A



page C15

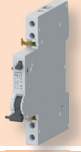



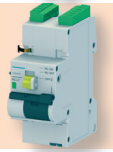
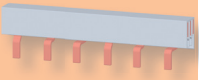



page C20



page C32

Type	LFE	LFN	OFI
Function	Residual current circuit breaker		
Conditional short-circuit current $I_{nc}$	6 kA	10 kA	10 kA
Design	standard	standard / G / S	standard
Rated current $I_n$	25 ÷ 80 A	16 ÷ 80 A	100 ÷ 125 A
Rated residual current $I_{\Delta n}$	30, 300 mA	10 ÷ 500 mA	30 ÷ 500 mA
Rated voltage $U_n$	AC 230/400 V	AC 230/400 V	AC 230/400 V
Number of poles	2, 4	2, 4	4

Accessories		
 Auxiliary switches	PS-LT	PS-OF125-1100
 Signal switches	SS-LT	-
 Shunt trips	SV-LT	-
 Undervoltage releases	SP-LT	-
 Remote control	RC-LT	-
 Interconnecting busbars	S2L, S2L+N, S3L, S3L+N, S3L-...FI, S4L	S3L, S3L-...FI, S4L
 Locking insert	OD-LT-VU02	-

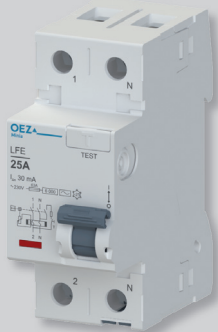
## RESIDUAL CURRENT CIRCUIT BREAKERS LFE

- Conditional short-circuit current 6 kA.
- For protection:
  - against dangerous contact with live parts ( $I_{\Delta n} \leq 30 \text{ mA}$ )
  - against dangerous contact with dead parts
  - against fire or short-circuit in reduced insulation capacity of electrical equipment.
- Mounting/dismantling on/from "U" rails: the latches enable very quick mounting and dismantling by hand, without any tool needed.
- Operating ambient temperature is for all designs already from  $-25 \text{ }^\circ\text{C}$  to  $+45 \text{ }^\circ\text{C}$ .
- Status indicator - signalization of on/off position.
- Wide range of accessories - auxiliary and signal switches, undervoltage releases and shunt trips, interconnecting busbars etc.
- Possibility of locking and sealing in off or on position.
- Possibility of interconnection with circuit breakers LTP, LTS, LTN by means of interconnecting busbars up or down.
- N-pole of residual current circuit breakers in switching on it closes before and in switching off it opens after the other poles.
- Residual current circuit breaker are testing once per 6 months.

### Residual current circuit breakers, type AC



- They react to sine-wave residual current (type AC).
- They can be put out of operation by direct residual current.
- Surge current resistance 250 A (8/20  $\mu\text{s}$ ).
- Standard type for common use in building and housing installations.



LFE-25-2-030AC



LFE-40-4-030AC

#### 2-pole design

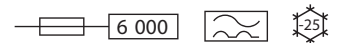
$I_{\Delta n}$ [mA]	$I_n$ [A]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	25	LFE-25-2-030AC	OEZ:42389	2	0.219	1
	40	LFE-40-2-030AC	OEZ:42390	2	0.240	1
300	25	LFE-25-2-300AC	OEZ:42393	2	0.214	1
	40	LFE-40-2-300AC	OEZ:42394	2	0.212	1

#### 4-pole design

$I_{\Delta n}$ [mA]	$I_n$ [A]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	25	LFE-25-4-030AC	OEZ:42395	4	0.389	1
	40	LFE-40-4-030AC	OEZ:42396	4	0.375	1
	63	LFE-63-4-030AC	OEZ:42397	4	0.425	1
	80	LFE-80-4-030AC	OEZ:42398	4	0.424	1
300	25	LFE-25-4-300AC	OEZ:42402	4	0.375	1
	40	LFE-40-4-300AC	OEZ:42403	4	0.375	1
	63	LFE-63-4-300AC	OEZ:42404	4	0.389	1
	80	LFE-80-4-300AC	OEZ:42405	4	0.410	1

# RESIDUAL CURRENT CIRCUIT BREAKERS LFE

## Residual current circuit breakers, type A



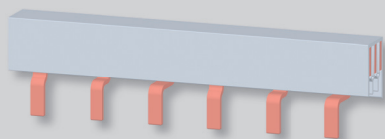
- They react to both sine-wave residual current and pulsating direct residual current (type A).
- They can be put out of operation by direct residual current 6 mA.
- Surge current resistance 250 A (8/20  $\mu$ s).
- Standard type for common use in building and industrial installations.



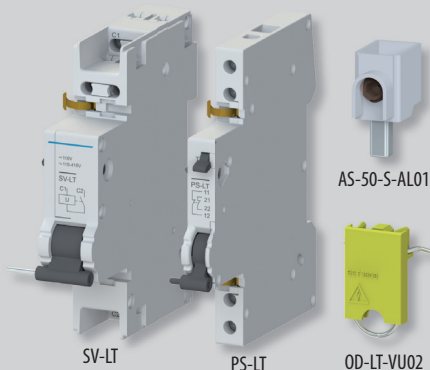
LFE-25-2-030A



LFE-40-4-030A



S3L



SV-LT

PS-LT

AS-50-S-AL01

OD-LT-VU02

### 2-pole design

$I_{\Delta n}$ [mA]	$I_n$ [A]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	25	LFE-25-2-030A	OEZ:46395	2	0.198	1
	40	LFE-40-2-030A	OEZ:46396	2	0.203	1
300	25	LFE-25-2-300A	OEZ:46397	2	0.187	1
	40	LFE-40-2-300A	OEZ:46398	2	0.186	1

### 4-pole design

$I_{\Delta n}$ [mA]	$I_n$ [A]	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	25	LFE-25-4-030A	OEZ:46399	4	0.362	1
	40	LFE-40-4-030A	OEZ:46400	4	0.340	1
	63	LFE-63-4-030A	OEZ:46401	4	0.392	1
	80	LFE-80-4-030A	OEZ:46402	4	0.391	1
300	25	LFE-25-4-300A	OEZ:46403	4	0.320	1
	40	LFE-40-4-300A	OEZ:46404	4	0.323	1
	63	LFE-63-4-300A	OEZ:46405	4	0.355	1
	80	LFE-80-4-300A	OEZ:46406	4	0.358	1









### Accessories

Auxiliary and signal switches	PS-LT, SS-LT	page B44
Shunt trips	SV-LT	page B45
Undervoltage releases	SP-LT	page B45
Remote control	RC-LT	page B46
Locking insert	OD-LT-VU02	page B47
Interconnecting busbars	S1L, S2L, S2L+N, S3L, S3L+N, S3L-...FI-.. <sup>1)</sup> , S4L	page B55
Terminal extension	AS-50-S-AL01	page B57

<sup>1)</sup> For interconnection of the residual current circuit breaker with a series of circuit breakers where the series of circuit breakers needs to start from N-pole of the residual current circuit breaker.

## RESIDUAL CURRENT CIRCUIT BREAKERS LFE

### Specifications

Type		LFE--2	LFE--4
Standards		EN 61008-1 EN 61008-2-1 EN 61543	EN 61008-1 EN 61008-2-1 EN 61543
Approval marks		 	 
Number of poles		2	4
Type		AC, A  	AC, A  
Rated current	$I_n$	25, 40 A	25, 40, 63, 80 A
Rated residual current	$I_{\Delta n}$	30, 300 mA	30, 300 mA
Rated operating voltage	$U_e$	AC 230 V	AC 230/400 V
Min. operating voltage (for test button function)	$U_{min}$ for $I_{\Delta n} = 30$ mA $U_{min}$ for $I_{\Delta n} \neq 30$ mA	AC 195 V AC 100 V	AC 195 V AC 100 V
Max. operating voltage	$U_{max}$	AC 250 V	AC 250/440 V
Rated frequency	$f_n$	50 Hz	50 Hz
Rated conditional short-circuit current	$I_{nc}$	6 kA (see table below)	6 kA (see table below)
Rated making and breaking capacity	$I_m$	500 A	800 A
Surge resistance		250 A	250 A
Mechanical endurance		10 000 operating cycles	10 000 operating cycles
Electrical endurance		10 000 operating cycles	10 000 operating cycles
Degree of protection - with connected conductors		IP20	IP20
Mounting on "U" rail according to EN 60715 – type		TH 35	TH 35
Connection			
Conductor Cu - rigid (solid, stranded) <sup>1)</sup>		0.75 ÷ 35 mm <sup>2</sup>	0.75 ÷ 35 mm <sup>2</sup>
Conductor Cu - flexible <sup>1)</sup>		0.75 ÷ 25 mm <sup>2</sup>	0.75 ÷ 25 mm <sup>2</sup>
Screw head type		PZ2	PZ2
Torque		2.5 ÷ 3 Nm	2.5 ÷ 3 Nm
Top or bottom connection		top/bottom	top/bottom
Operating conditions			
Ambient temperature		-25 ÷ +45 °C	-25 ÷ +45 °C
Working position		arbitrary	arbitrary
Climatic resistance (EN 60068-2-30)		28 operating cycles (55 °C, 95 % relative air humidity)	28 operating cycles (55 °C, 95 % relative air humidity)

<sup>1)</sup> For detailed connection of conductors see table on page C17.

### Protection of residual current circuit breakers

#### A) Short-circuit protection

In function principle, residual current circuit breaker is not possible to use for short-circuit protection. For circuit protection it is necessary to use a fuse or a circuit breaker, that cuts the short-circuited circuit safely off. The residual current circuit breaker must only withstand the through-going short-circuit current. The amplitude of the maximum through short-circuit current is defined as rated conditional short-circuit current  $I_{nc}$ . The table below indicates the rated conditional short-circuit current depending on the max. backup fuse and the circuit breaker.

Rated conditional short-circuit current with backup fuse

Design	$I_n$ [A]	Maximum backup fuse gG	Rated conditional short-circuit current $I_{nc}$ [kA]
2-pole	25 ÷ 40	63 A	6 kA
4-pole	25 ÷ 40	80 A	6 kA
	63 ÷ 80	100 A	6 kA

Rated conditional short-circuit current with backup circuit breaker

Residual current circuit breaker	Backup circuit breaker		Rated conditional short-circuit current $I_{nc}$ [kA]
	Type	$I_n$ of the circuit breaker	
LFE	LTP, LTK, LTS, LTN, LVN	$I_{nMCCB} \leq I_{nRCCB}$	6 kA

#### B) Protection against overload

Protection of the residual current circuit breakers against overload may be provided by fuses or circuit breakers subject to following conditions:

- rated current of the fuse-link must be by one degree lower than rated current of the residual current circuit breaker  $I_{n \text{ of the fuse by one degree lower}} \leq I_n \text{ of the residual current circuit breaker}$
- rated current of the circuit breaker must be equal or lower than the rated current of the residual current circuit breaker  $I_{n \text{ of the circuit breaker}} \leq I_n \text{ of the residual current circuit breaker}$

### Powers losses P

Design	Rated current $I_n$ [A]	Rated residual current $I_{\Delta n}$ [mA]	
		30	300
LFN		AC, A	AC, A
2-pole	25	1.0 W/pole	0.6 W/pole
	40	2.6 W/pole	1.6 W/pole
4-pole	25	1.3 W/pole	0.7 W/pole
	40	3.9 W/pole	2.0 W/pole
	63	3.9 W/pole	3.9 W/pole
	80	4.1 W/pole	4.1 W/pole

# RESIDUAL CURRENT CIRCUIT BREAKERS LFE

## Connection range

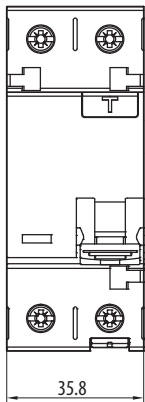
Number of connected conductors	Rigid conductor (solid, stranded)	Conductor flexible with a sleeve	Conductor flexible without a sleeve <sup>1)</sup>
1x conductor	1x (0.75 ÷ 35) mm <sup>2</sup>	1x (0.75 ÷ 25) mm <sup>2</sup>	1x (1 ÷ 35) mm <sup>2</sup>
2x conductor	2x (0.75 ÷ 10) mm <sup>2</sup>	2x (0.75 ÷ 4) mm <sup>2</sup>	2x (1 ÷ 4) mm <sup>2</sup>
1x conductor + interconnecting busbar	1x (10 ÷ 25) mm <sup>2</sup> + interconnecting busbar pin thickness max. 1.5 mm	1x (6 ÷ 16) mm <sup>2</sup> <sup>2)</sup> + interconnecting busbar pin thickness max. 1.5 mm	-

<sup>1)</sup> The conductor must be twisted before insertion to a terminal; individual conductor fibres must not stick out of the terminal.

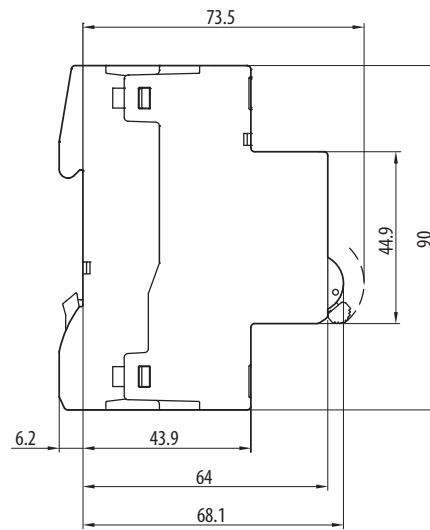
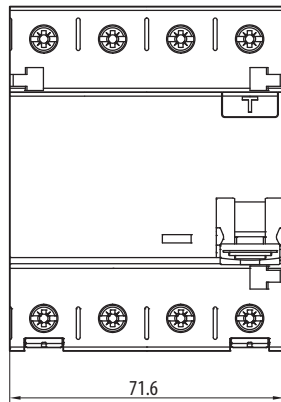
<sup>2)</sup> In case of use of a sleeve without plastic neck: conductor 1x (6 ÷ 25) mm<sup>2</sup>  
If more conductors are used they must be of the same type and cross-section.

## Dimensions

LFE...- 2

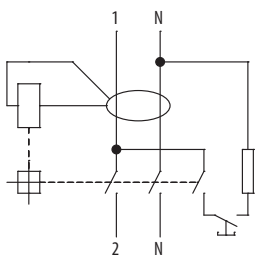


LFE...-4

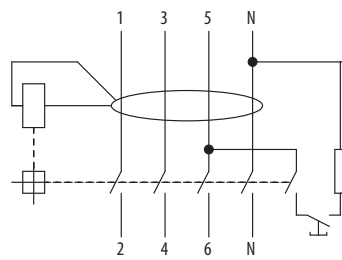


## Diagram

LFE...- 2

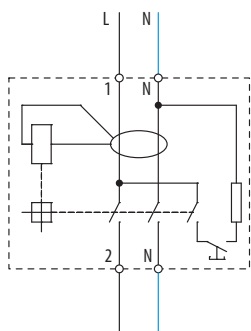


LFE...-4

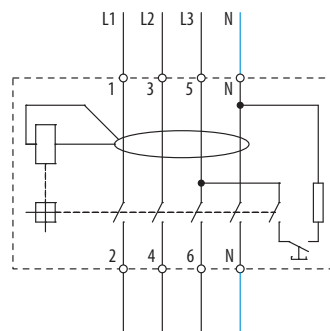


## Connection

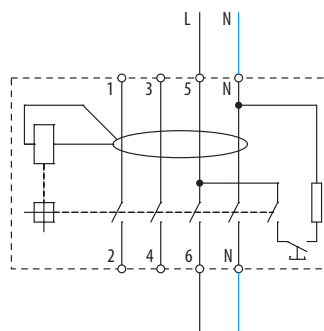
Standard connection of 2-pole residual current circuit breaker LFE



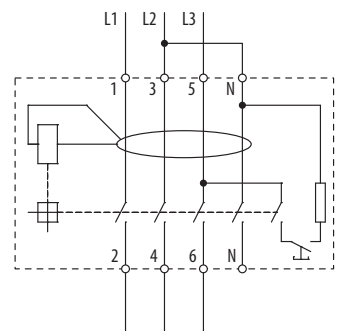
Standard connection of 4-pole residual current circuit breaker LFE



4-pole residual current circuit breaker LFE in 1-phase circuits with N-pole



4-pole residual current circuit breaker LFE in 3-phase circuits without N-pole





ACCESSORIES



PS-LT-1100

PS-LT-1100-TE

Auxiliary switches

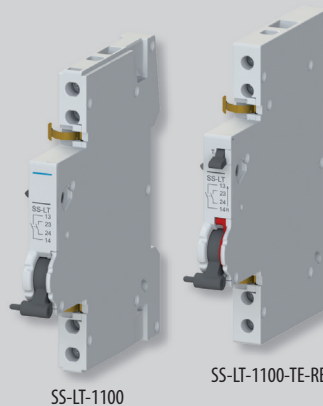
- Accessory to:
  - miniature circuit breakers: LTP, LTK, LTS, LTN, LTN-UC, LVN, LVN-DC
  - residual current circuit breakers: LFN, LFE
  - residual current circuit breakers with overcurrent protection: OLI, OLE (installation on OLI/OLE requires handle adapter OD-OL-NR01 see page B46 except for PS-LT-1100-K)
  - 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 B53, B54.
- 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 <sup>1)</sup>	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
Standard	1100	<b>PS-LT-1100</b>	OEZ:42297	0.5	0.065	1
	2000	<b>PS-LT-2000</b>	OEZ:42299	0.5	0.071	1
	0200	<b>PS-LT-0200</b>	OEZ:42298	0.5	0.065	1
	0010	<b>PS-LT-0010</b>	OEZ:45595	0.5	0.051	1
With test and reset lever	1100	<b>PS-LT-1100-TE</b>	OEZ:42300	0.5	0.054	1
	2000	<b>PS-LT-2000-TE</b>	OEZ:42302	0.5	0.058	1
	0200	<b>PS-LT-0200-TE</b>	OEZ:42301	0.5	0.080	1
For small voltages standard	1100	<b>PS-LT-1100-MN</b>	OEZ:42303	0.5	0.075	1
For small voltages with test lever	1100	<b>PS-LT-1100-MN-TE</b>	OEZ:42304	0.5	0.054	1
With handle adapter OD-OL-NR01 <sup>2)</sup>	1100	<b>PS-LT-1100-K</b>	OEZ:42305	0.5	0.065	1
Combined with signal contact <sup>3)</sup>	0011	<b>PS-LT-0011</b>	OEZ:46050	0.5	0.056	1

<sup>1)</sup> Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacts.

<sup>2)</sup> 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.

<sup>3)</sup> 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.



SS-LT-1100

SS-LT-1100-TE-RE

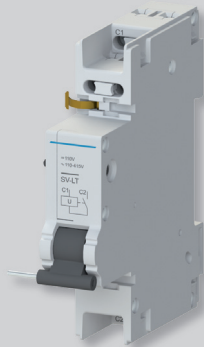
Signal switches

- Accessory to:
  - miniature circuit breakers: LTP, LTK, 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 see page B46)
  - 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 B53, B54.
- 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 B48.

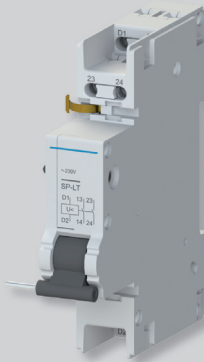
Design	Arrangement of contacts <sup>1)</sup>	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
Standard	11	<b>SS-LT-1100</b>	OEZ:42306	0.5	0.065	1
	20	<b>SS-LT-2000</b>	OEZ:42307	0.5	0.075	1
	02	<b>SS-LT-0200</b>	OEZ:42308	0.5	0.078	1
With test and reset lever	11	<b>SS-LT-1100-TE-RE</b>	OEZ:42309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

<sup>1)</sup> Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacts.

**ACCESSORIES**



SV-LT-X400



SP-LT-A230

**Shunt trips**

- Accessory to:
  - miniature circuit breakers: 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 see page B46)
  - switches: MSN.
- They are used for device switching off by applied voltage.
- Mounting:
  - on the right side of the device
  - one shunt trip can be connected to one device in combination with the other accessories - see page B54.

Rated voltage $U_c$	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
AC/DC 24 ÷ 60 V.	<b>SV-LT-X060</b>	OEZ:42312	1	0.106	1
AC 110 ÷ 415 V / DC 110 ÷ 220 V	<b>SV-LT-X400</b>	OEZ:42313	1	0.098	1

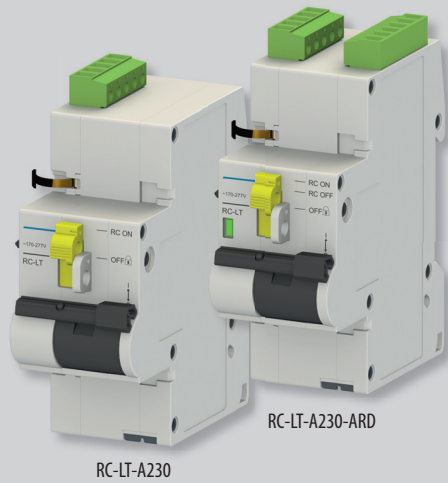
**Undervoltage releases**

- Accessory to:
  - miniature circuit breakers: 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 see page B46)
  - switches: MSN.
- They are used for tripping the device at loss of voltage as well as at gradual decrease of voltage.
- They are used for elimination of closing of circuit breaker if voltage is lower than 35 %  $U_c$  (switching is possible at voltage higher than 85 %  $U_c$ ).
- They are often used for protection against device restart following mains failure.
- Mounting:
  - on the right side of the device
  - one undervoltage release can be connected to one device in combination with the other accessories - see page B54.

Rated voltage $U_c$	Arrangement of contacts <sup>1)</sup>	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
AC 230 V	-	<b>SP-LT-A230</b>	OEZ:42315	1	0.109	1
	20	<b>SP-LT-A230-2000</b>	OEZ:42317	1	0.123	1
DC 24 V	-	<b>SP-LT-D024</b>	OEZ:42319	1	0.113	1
	20	<b>SP-LT-D024-2000</b>	OEZ:42321	1	0.117	1
DC 110 V	-	<b>SP-LT-D110</b>	OEZ:42320	1	0.105	1
	20	<b>SP-LT-D110-2000</b>	OEZ:42322	1	0.128	1

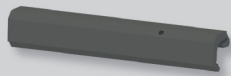
<sup>1)</sup> Each digit indicates successively the number of make and break contacts.

## ACCESSORIES



RC-LT-A230

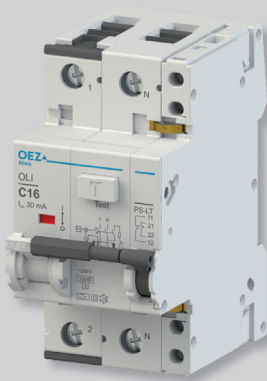
RC-LT-A230-ARD



RC-LT-NR01



OD-OL-NR01



### Remote control

- Accessory to:
  - miniature circuit breakers: LTP, LTK, 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.

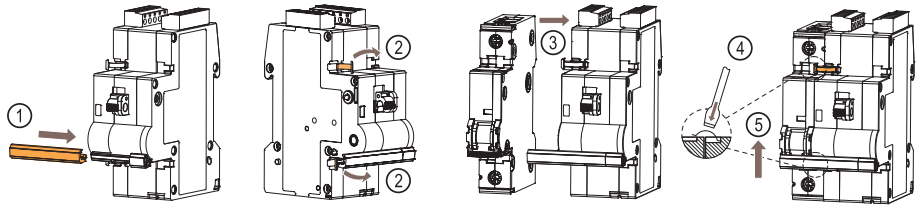
Rated voltage $U_c$	Arrangement of contacts <sup>1)</sup>	Type	Order code	Number of modules	Weight [kg]	Package [pcs]
AC 230 V	-	<b>RC-LT-A230</b>	OEZ:46474	2	0.229	1
	0011	<b>RC-LT-A230-ARD</b>	OEZ:46478	2	0.237	1

<sup>1)</sup> Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacts.

### Remote control adapter

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

### Example of installation

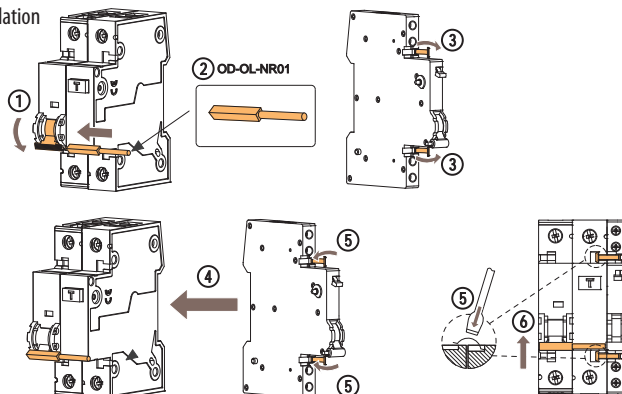


### Handle adapter OD-OL-NR01

- Accessory to: OLI, OLE.
- It enables installation of the following accessories on residual current circuit breakers with overcurrent protection OLI, OLE
  - auxiliary switches (PS-LT)
  - signal switches (SS-LT)
  - undervoltage releases (SP-LT)
  - shunt trips (SV-LT).
- Special auxiliary switch PS-LT-1100-K contains the handle adapter OD-OL-NR01. So it is not necessary to order it separately.

Type	Order code	Weight [kg]	Package [pcs]
<b>OD-OL-NR01</b>	OEZ:38270	0.002	5

### Example of installation



ACCESSORIES



OD-LT-VU01



**Locking insert OD-LT-VU01**

- Accessory to:
  - miniature circuit breakers: LTK, LTN, LTN-UC, LVN, LVN-DC
  - residual current circuit breakers: OLI, OLE
  - switches: MSN, AVN-DC.
- 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 - 3 mm.
- The lock is not included in the package.

Type	Order code	Weight [kg]	Package [pcs]
OD-LT-VU01	OEZ:42324	0.012	1



OD-LT-VU02



**Locking insert OD-LT-VU02**

- Accessory to:
  - miniature circuit breakers: LTP, 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



OD-LT-VP01





**Sealing insert OD-LT-VP01**

- Accessory to:
  - miniature circuit breakers: LTP, LTS, LTN, LTN-UC, LVN, LVN-DC
  - residual current circuit breakers with overcurrent protection: OLI, OLE
  - switches: MSO, MSN, AVN-DC.
- For covering and sealing of terminal screws.

Type	Order code	Weight [kg]	Package [pcs]
OD-LT-VP01	OEZ:42323	0.002	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 <sup>1)</sup>		1100, 2000, 0200, 0010, 0011	1100, 2000, 0200		
Rated operating voltage/current	U <sub>e</sub> /I <sub>e</sub>	AC-13	400 V	2 A	-
			230 V	6 A	-
		AC-14	400 V	2 A	-
			230 V	6 A	-
		DC-13 <sup>2)</sup>	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 <sub>e</sub>		10 000 operating cycles	10 000 operating cycles		
Degree of protection		IP20	IP20		
Connection					
Cu conductor - rigid (solid, stranded)		0.5 ÷ 2.5 mm <sup>2</sup>	0.5 ÷ 2.5 mm <sup>2</sup>		
Cu conductor - flexible		0.5 ÷ 2.5 mm <sup>2</sup>	0.5 ÷ 2.5 mm <sup>2</sup>		
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/s <sup>2</sup> in 11 ms half-sine pulse	150 m/s <sup>2</sup> in 11 ms half-sine pulse		
Vibration resistance according to IEC 60068-2-6		50 m/s <sup>2</sup> at 10 ÷ 150 Hz	50 m/s <sup>2</sup> at 10 ÷ 150 Hz		

<sup>1)</sup> Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacts.

<sup>2)</sup> 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 shunt trips and undervoltage releases

Type		SV-LT	SP-LT
Standards		EN 60947-1	EN 60947-1
Approval marks			
Mounting		on the right side of the device	on the right side of the device
Degree of protection		IP20	IP20
Control circuit coil			
Rated voltage	$U_c$	AC/DC 24 ÷ 60 V.	AC 230 V
		AC 110 ÷ 415 V / DC 110 ÷ 220 V	DC 24, 110 V
Range of rated voltage		0.7 ÷ 1.1 $U_c$	0.85 ÷ 1.1 $U_c$
Voltage range for switching off		-	< 0.35 ÷ 0.7 $U_c$
Rated frequency	$f_n$	50/60 Hz	50/60 Hz
Backup protection - fuse / miniature circuit breaker		6 A gG / 6 A characteristic B, C	6 A gG / 6 A characteristic B, C
The length of impulse necessary for device switching off		15 ms	-
Power loss	P		
		AC 230 V -	5 VA
		DC 24 V -	1.4 W
		DC 110 V -	1.8 W
<b>Contact</b>			
Arrangement of contacts <sup>1)</sup>		-	20
Min. voltage/current		-	24 V / 50 mA
Backup protection - fuse / miniature circuit breaker		-	6 A gG / 6 A characteristic B, C
<b>Connection</b>			
Cu conductor - rigid (solid, stranded)		0.5 ÷ 2.5 mm <sup>2</sup>	0.5 ÷ 2.5 mm <sup>2</sup>
Cu conductor - flexible		0.5 ÷ 2.5 mm <sup>2</sup>	0.5 ÷ 2.5 mm <sup>2</sup>
Torque		0.8 Nm	0.8 Nm
Top or bottom connection		top/bottom	top/bottom
<b>Operating conditions</b>			
Mechanical endurance		10 000 operating cycles	10 000 operating cycles
Electrical endurance		2 000 operating cycles	2 000 operating cycles
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)		50 m/s <sup>2</sup> in 11 ms half-sine pulse	50 m/s <sup>2</sup> in 11 ms half-sine pulse
Vibration resistance according to IEC 60068-2-6		50 m/s <sup>2</sup> at 10 ÷ 150 Hz	50 m/s <sup>2</sup> at 10 ÷ 150 Hz

<sup>1)</sup> Each digit indicates successively the number of make and break contacts.

## ACCESSORIES

## Specifications of remote controls

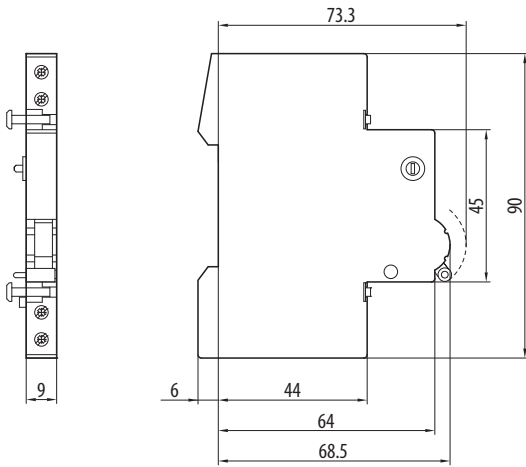
Type		RC-LT-A230	RC-LT-A230-ARD
Standards		EN 50557	EN 50557
Approval marks			
Mounting		on the right side of the device	on the right side of the device
Degree of protection		IP20	IP20
Rated voltage	$U_c$	AC 230 V	AC 230 V
Range of rated voltage		AC 177 ÷ 270 V	AC 177 ÷ 270 V
Rated frequency	$f_n$	50/60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

<sup>1)</sup> Each digit indicates successively the number of make, break, auxiliary make-and-break and signal make-and-break contacts.

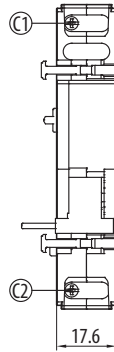
**ACCESSORIES**

**Dimensions**

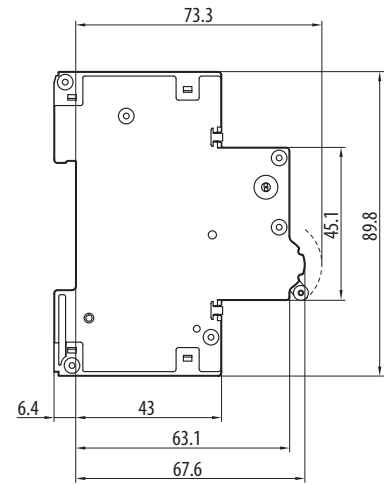
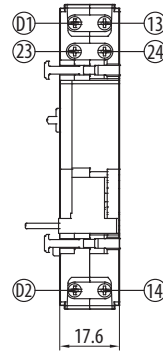
**PS-LT, SS-LT**



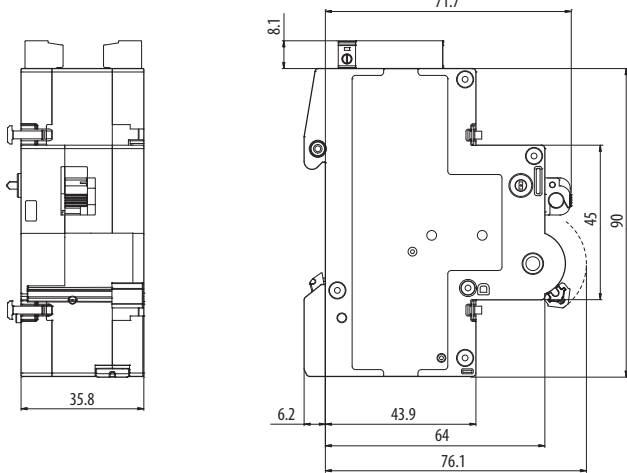
**SV-LT**



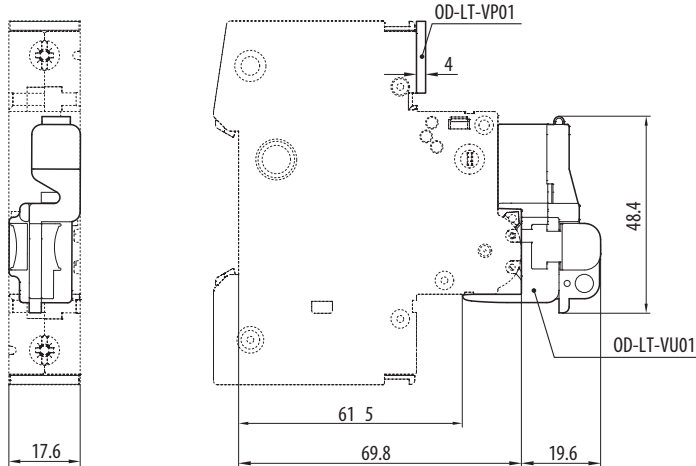
**SP-LT**



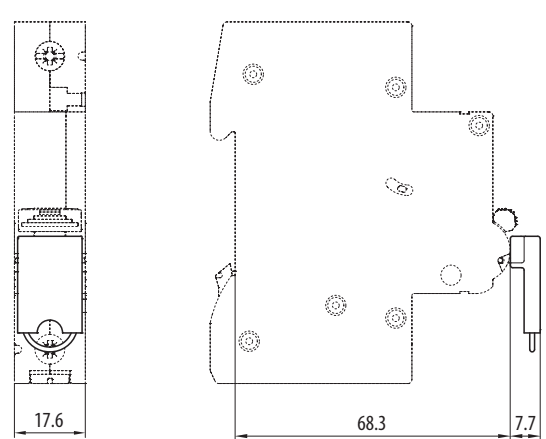
**RC-LT**



**LTK, LTN, LVN, OLI, OLE, MSN, AVN-DC + OD-LT-VU01 + OD-LT-VP01**



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

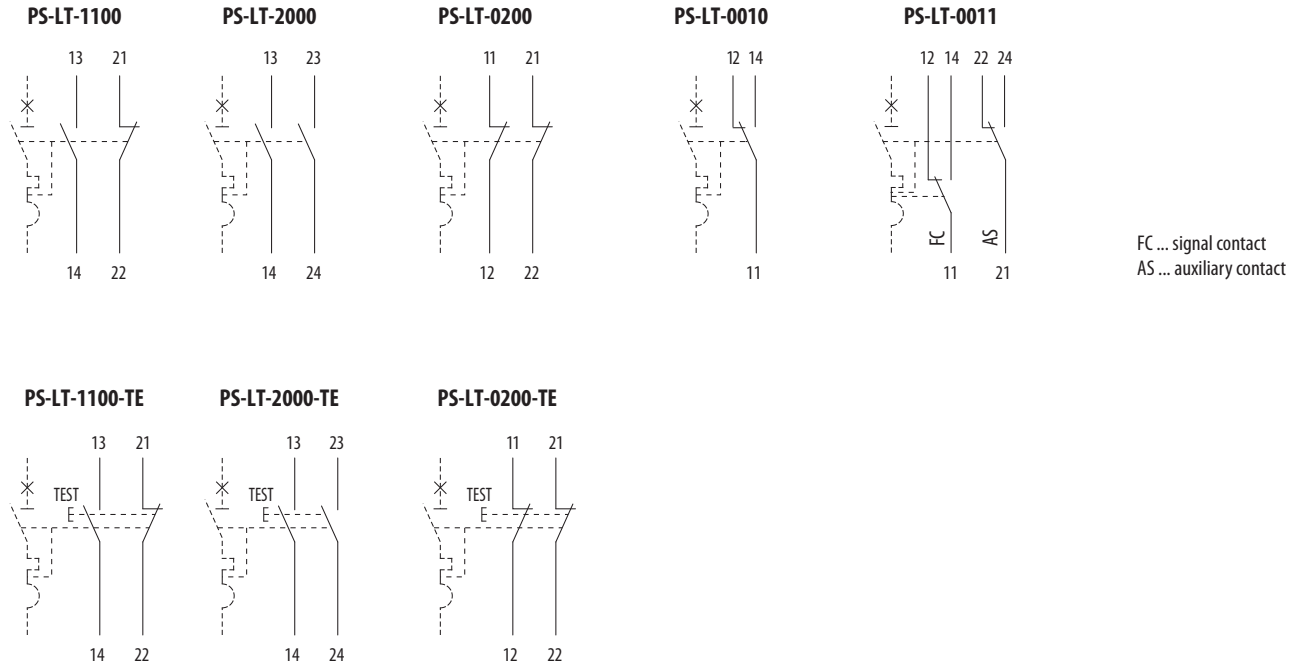




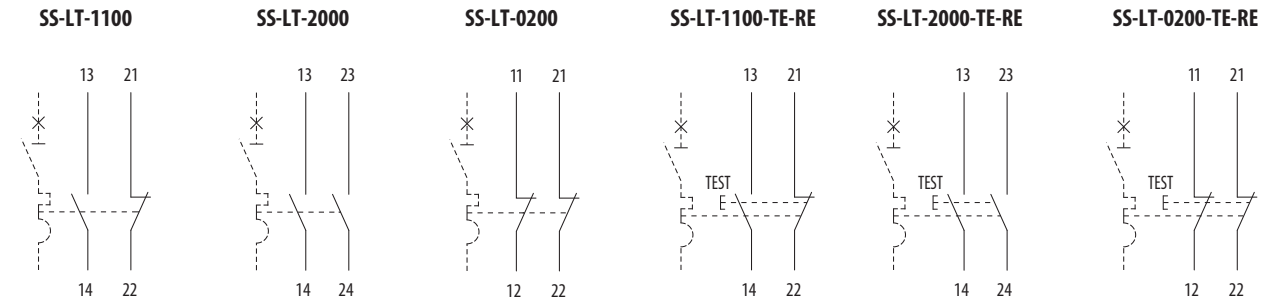
## ACCESSORIES

### Diagram

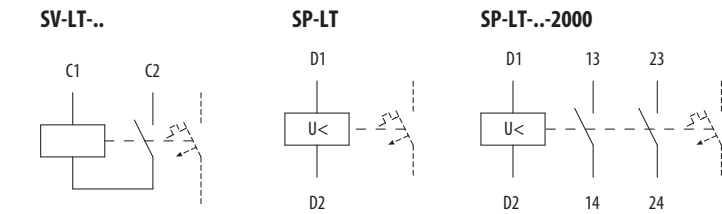
#### Auxiliary switches



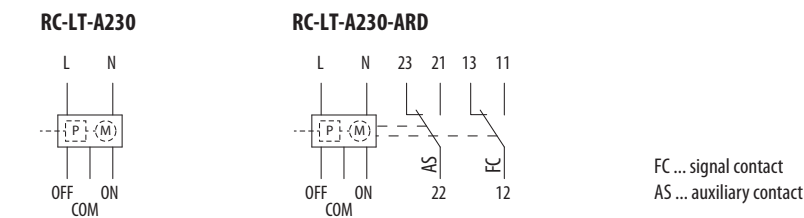
#### Signal switches



#### Shunt trips and undervoltage releases



#### Remote control

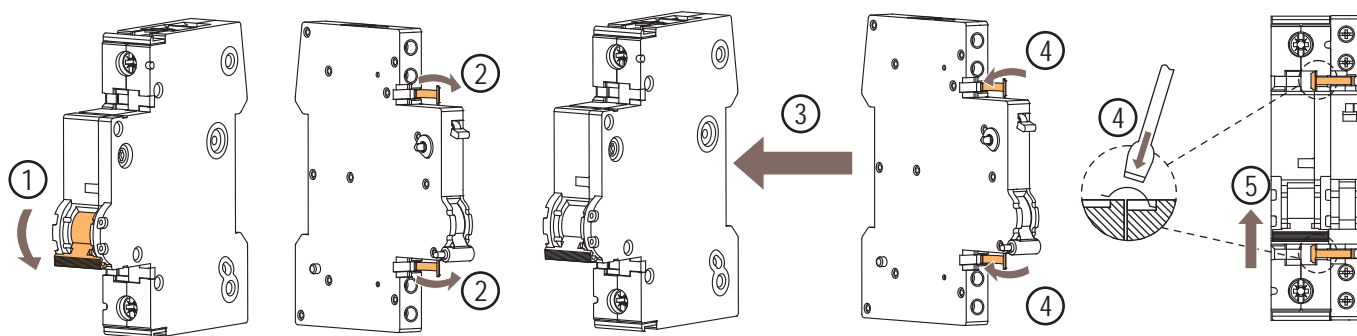


## ACCESSORIES

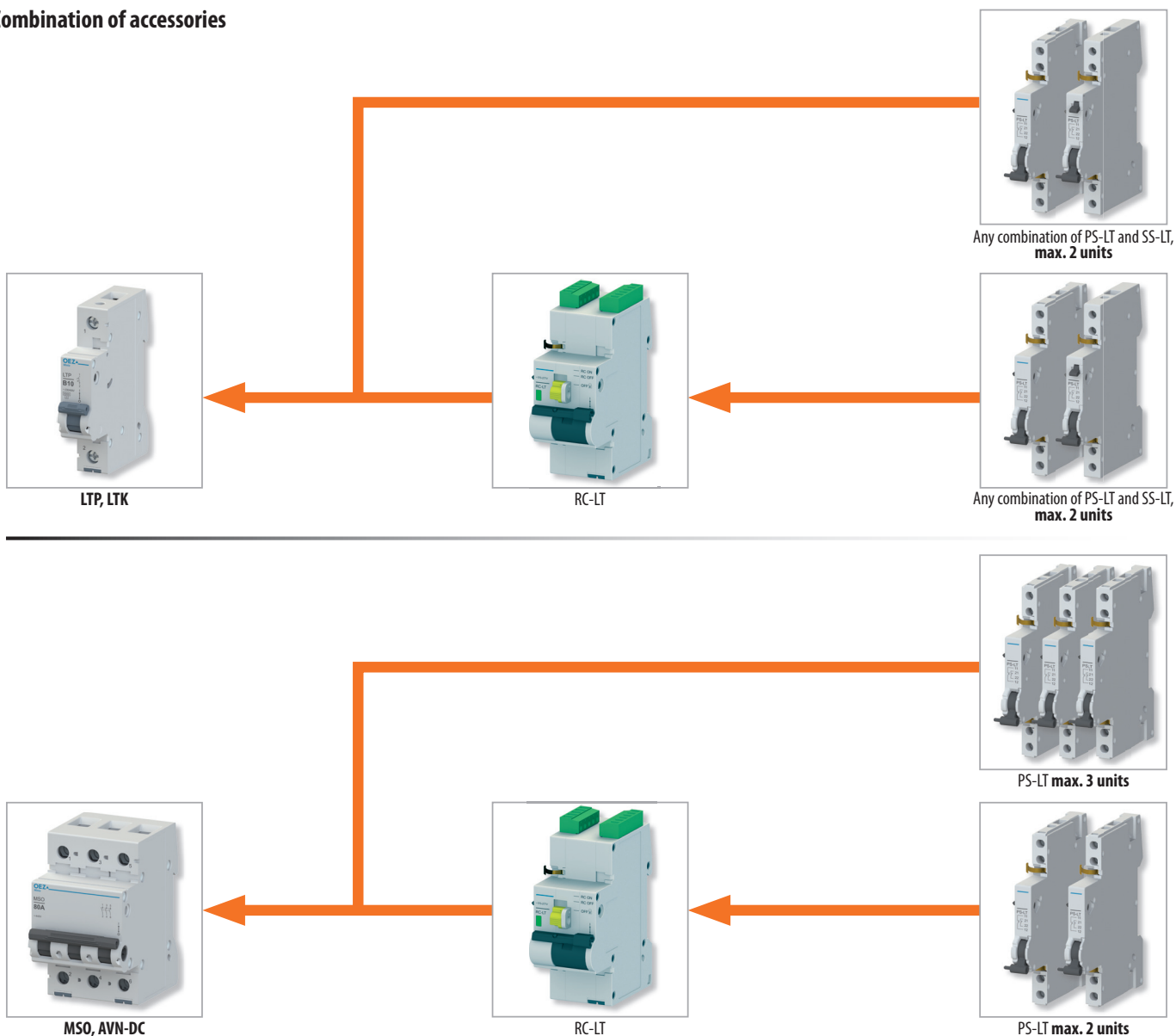
### Installation of auxiliary switch, shunt trips or undervoltage releases

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.

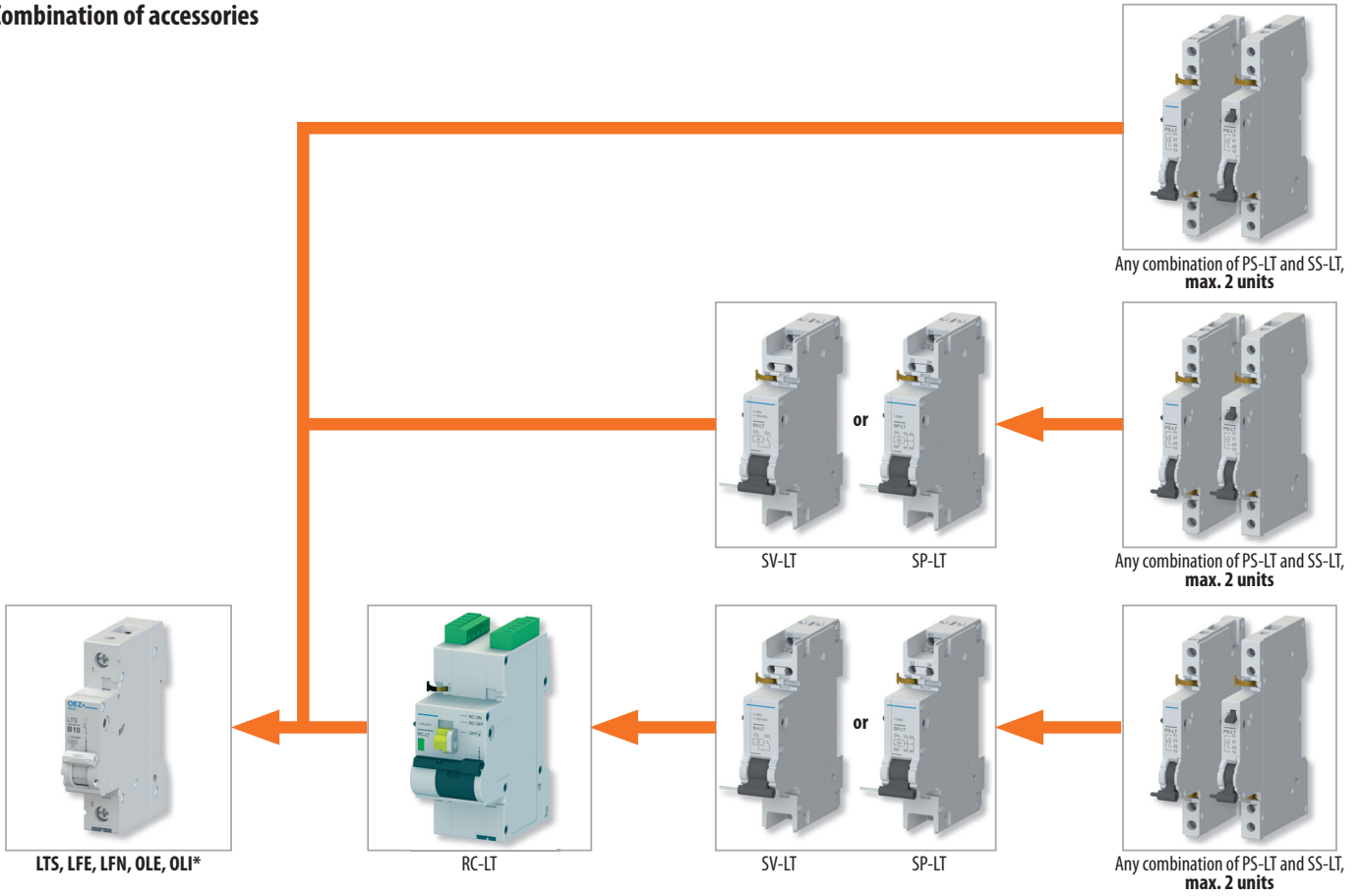


### Combination of accessories

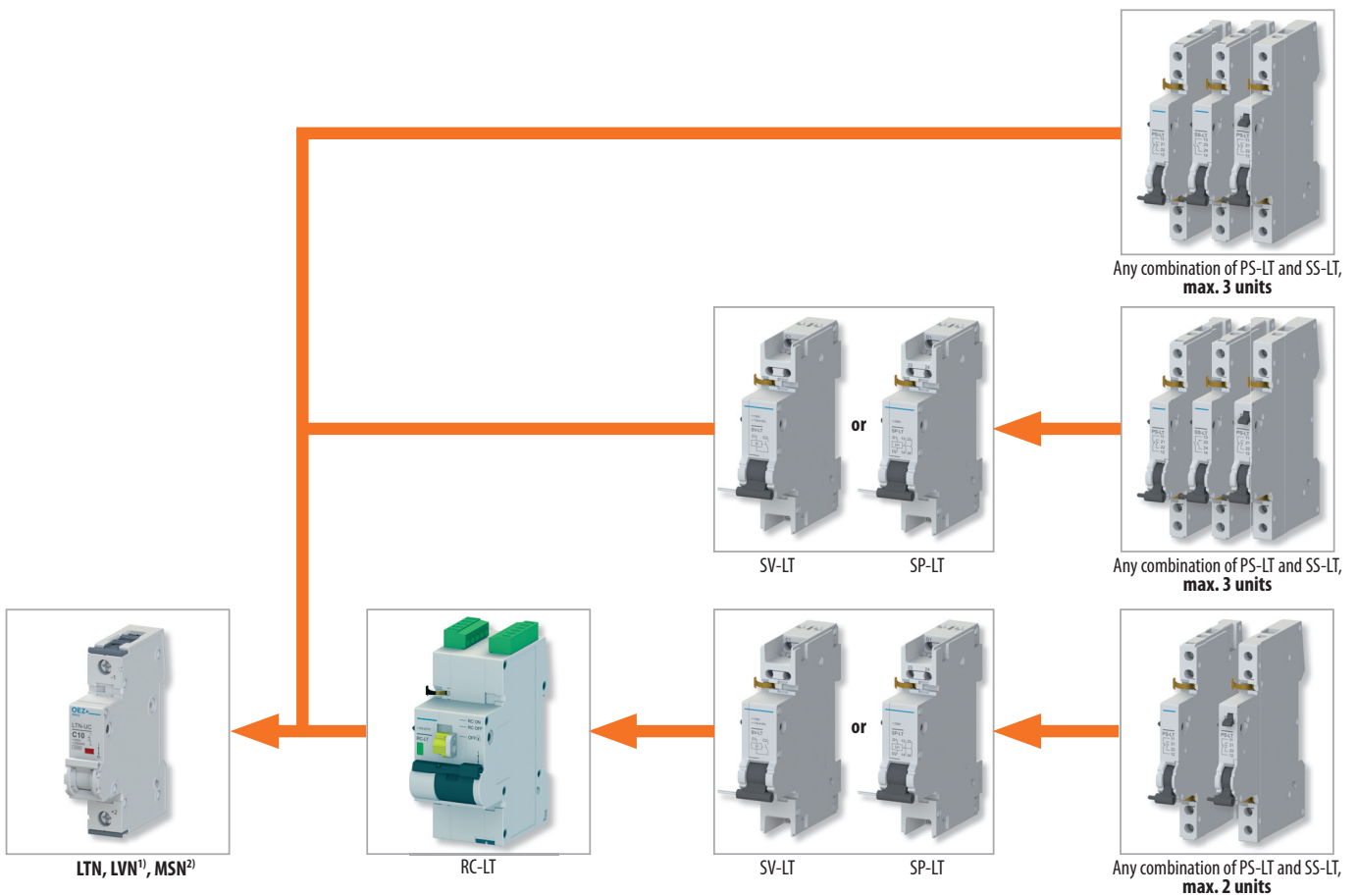


## ACCESSORIES

### Combination of accessories



\* Installation of accessories on OLE/OLI requires handle adapter OD-OL-NR01, see page B35.



<sup>1)</sup> Remote control RC-LT cannot be combined with miniature circuit breaker LVN.

<sup>2)</sup> Installation of signal switches SS-LT on the MSN, switch, only with SP-LT or SV-LT.

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