

MINIATURE CIRCUIT BREAKERS LVN

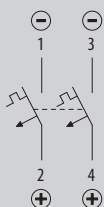


LVN-XC-125C-1



LVN-XC-100C-2

LVN-XC-2



- Series of miniature circuit breakers is intended for protection of direct current (DC) circuits up to 125 A, DC 220 V/pole.
- For protection of cables and conductors against overload and short-circuit.
- Tripping characteristic C according to EN 60947-2.
- Status indicator - indicates on/off position.
- Possibility of locking and sealing in off or on position.

■ In connection of circuit breakers LVN-XC it is mandatory to observe device polarity, see page 4.

Circuit breakers for direct current (DC) 1-pole.

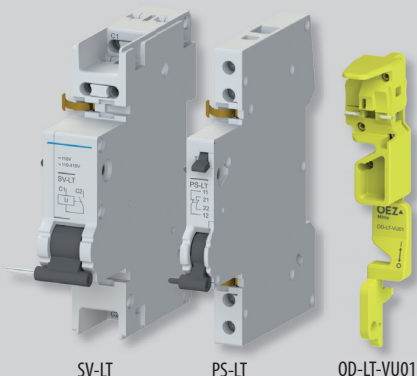
| I _n [A] | Characteristic C | | Number of modules | Weight [kg] | Package [pcs] |
|-----------------------|------------------|------------|----------------------|----------------|------------------|
| | Type | Order code | | | |
| 80 | LVN-XC-80C-1 | OEZ:46831 | 1.5 | 0.283 | 1 |
| 100 | LVN-XC-100C-1 | OEZ:46832 | 1.5 | 0.281 | 1 |
| 125 | LVN-XC-125C-1 | OEZ:46833 | 1.5 | 0.260 | 1 |

Circuit breakers for direct current (DC), 2-pole

| I _n [A] | Characteristic C | | Number of modules | Weight [kg] | Package [pcs] |
|-----------------------|------------------|------------|----------------------|----------------|------------------|
| | Type | Order code | | | |
| 80 | LVN-XC-80C-2 | OEZ:46834 | 1.5 | 0.283 | 1 |
| 100 | LVN-XC-100C-2 | OEZ:46835 | 1.5 | 0.281 | 1 |
| 125 | LVN-XC-125C-2 | OEZ:46836 | 1.5 | 0.260 | 1 |

Accessories

| | | |
|-------------------------------|--------------|---------|
| Auxiliary and signal switches | PS-LT, SS-LT | page 7 |
| Shunt trips | SV-LT | page 8 |
| Undervoltage releases | SP-LT | page 8 |
| Remote control | RC-LT | page 9 |
| Locking insert | OD-LT-VU01 | page 10 |
| Sealing insert | OD-LT-VP01 | page 10 |







SV-LT

PS-LT

OD-LT-VU01

MINIATURE CIRCUIT BREAKERS LVN

Specifications

| Type | LVN-XC |
|---|---|
| Standards | EN 60947-2 |
| Approval marks |     |
| Number of poles | 1, 2 |
| Tripping characteristics | C |
| Rated current | I_n 80 ÷ 125 A |
| Rated operating voltage | U_e DC 220 V (1-pole), DC 440 V (2-pole) |
| Max. operating voltage | U_{max} DC 250 V / pole |
| Min. operating voltage | U_{min} DC 24 V / pole |
| Rated insulation voltage | U_i - |
| Rated frequency | f_n - |
| Rated short-circuit breaking capacity (EN 60898-1) | I_{cn} - |
| Rated short-circuit breaking capacity (EN 60898-2) | I_{cn} - |
| Rated short-circuit ultimate breaking capacity (EN 60947-2) | I_{cu} - |
| Rated short-circuit ultimate breaking capacity (EN 60947-2) | I_{cu} 10 kA |
| Mechanical endurance | 10 000 operating cycles |
| Electrical endurance | 10 000 operating cycles (8 000 operating cycles for 125 A) |
| Mounting on "U" rail according to EN 60715 - type | TH 35 |
| Degree of protection - with connected conductors | IP20 |
| Connection | |
| Cu conductor - rigid (solid, stranded) | 4 ÷ 50 mm ² |
| Cu conductor - flexible with a sleeve | 1.5 ÷ 35 mm ² |
| Screw head type | PZ2 |
| Torque | max. 3.5 Nm |
| Top or bottom connection | top/bottom |
| Operating conditions | |
| Ambient temperature | -25 ÷ +55 °C, max. 95 % air humidity |
| Working position | arbitrary |
| Climatic resistance (EN 60068-2-30) | 6 operating cycles |
| Shocks (EN 60068-2-27) | 150 m/s ² in 11 ms half-sine pulse |
| Resistance to sinusoidal vibration (EN 60068-2-6) | 50 m/s ² at 25 ÷ 150 Hz and 60 at 35 Hz (4 s) |

MINIATURE CIRCUIT BREAKERS LVN

Internal impedance Z, powers losses P, impedance Z_s for circuit breakers LVN-XC

| I _n [A] | Z ¹⁾ [mΩ/pole] | P ¹⁾ [W/pole] | Max. impedance of fault loop Z _s [Ω] ²⁾ | | |
|-----------------------|------------------------------|-----------------------------|---|----------------------------------|------------------------------------|
| | | | t ≤ 1 s, U _n DC 220 V | t ≤ 5 s, U _n DC 220 V | t ≤ 0.1 s, U _n DC 440 V |
| 80 | 1.10 | 7.1 | 0.34 | 0.69 | 0.41 |
| 100 | 0.81 | 8.1 | 0.23 | 0.47 | 0.33 |
| 125 | 0.66 | 10.3 | 0.15 | 0.22 | 0.29 |

¹⁾ average values

²⁾ according to EN 33 2000-4-41

Correction of rated current I_n for circuit breakers LVN-XC

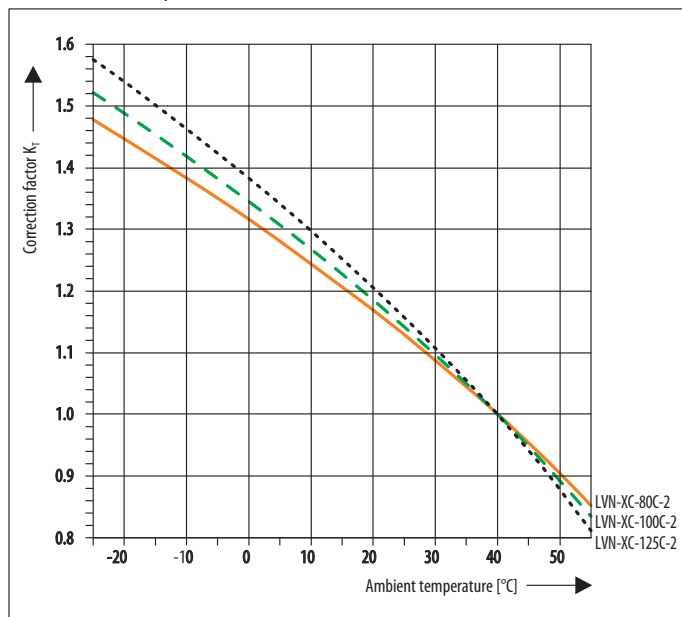
Correction of circuit breaker rated current I_n is determined by relation $I_{n1} = K_T \times K_N \times I_n$ where:

- 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 40 °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

According to the correction curve of concrete circuit breaker type and given ambient temperature on the graph, determine correction factor K_T.

Correction factor K_T depending on ambient temperature



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 circuit breakers LVN placed side-by-side | 1 | 2 ÷ 3 | 4 ÷ 6 | > 7 |
| Correction factor K _N | 1.00 | 0.90 | 0.88 | 0.85 |

Example

Task: how rated current I_n = 100 A will change for circuit breaker LVN-XC-100C-2 at ambient temperature 10 °C and for 4 circuit breakers placed side-by-side?

Determination of K_T: for I_n 100 A it is possible to determine correction curve from the table. For intersection of the correction curve LVN-XC-100C-2 and ambient temperature 10 °C it is possible to determine correction factor factor K = 1.27_T on the vertical scale of the graph.

Determination of K_N: for 4 circuit breakers LVN-XC-100C-2 placed side-by-side it is possible to determine from the table correction factor K_N = 0.88.

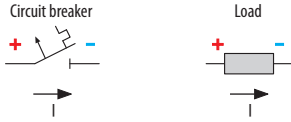
Correction I_n: new rated current I_{n1} = K_T x K_N x I_n = 1.27 x 0.88 x 100 A = 111.8 A

MINIATURE CIRCUIT BREAKERS LVN

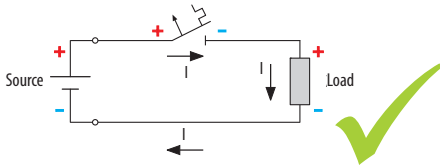
Protection of DC circuits

Correct polarity connection of DC circuit breakers, loads etc. in the circuit has to follow the direction of current flow in DC circuit that is from (+) to (-).

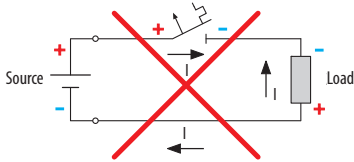
Example of current flow according to polarity is shown by the arrow:



1) **Correct connection of devices** = equal direction of current flow on the devices



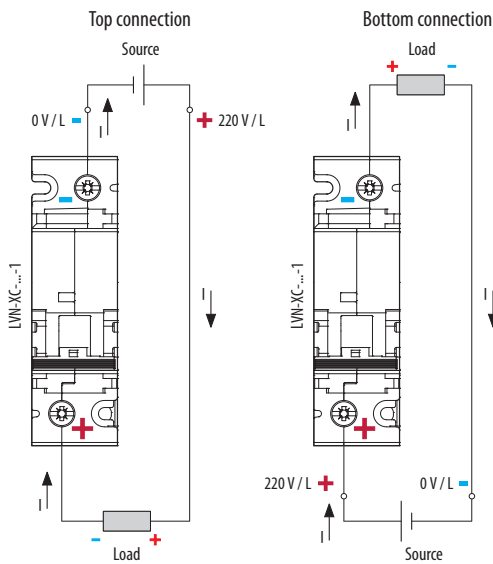
2) **Wrong connection of devices** = contradictory current flow on the devices



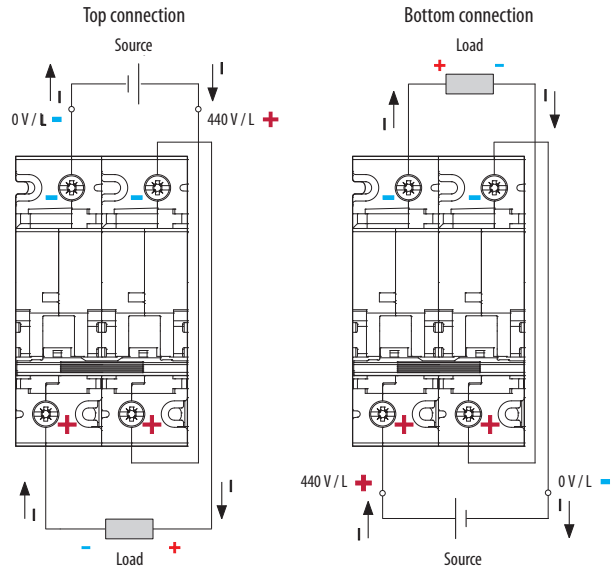
The correct connection of devices (point 1) seems to be illogical due to connection of load terminal (+) and circuit breaker terminal (-). However, it is **correct connection**.

Wiring diagram LVN-XC

1-pole connection of LVN-XC



2-pole connection of LVN-XC

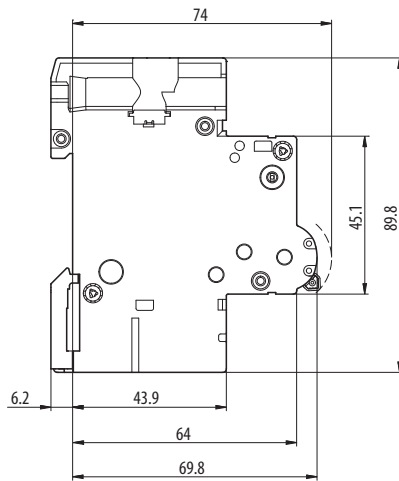
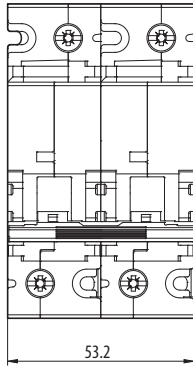


MINIATURE CIRCUIT BREAKERS LVN

Dimensions

LVN-XC...-1

LVN-XC...-2

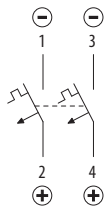


Diagram

LVN-XC...-1



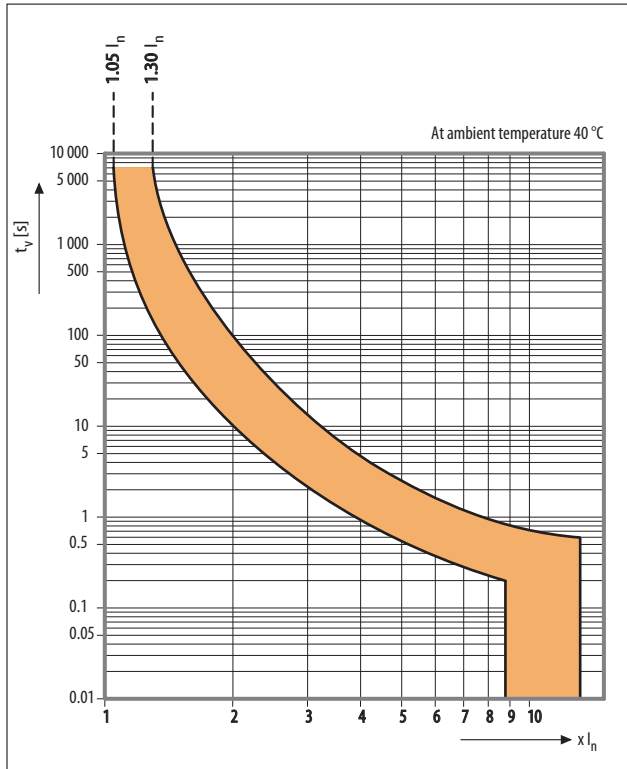
LVN-XC...-2



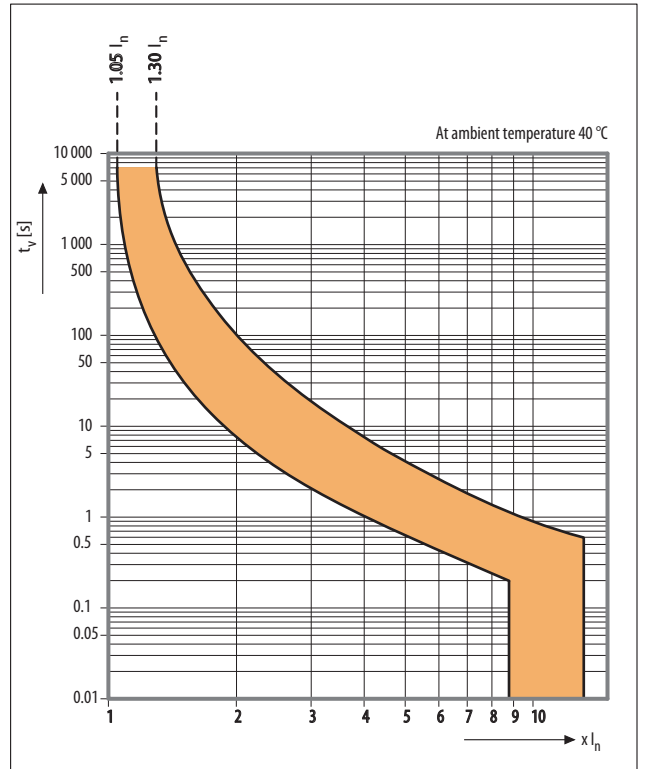
MINIATURE CIRCUIT BREAKERS LVN

Characteristics LVN-XC in DC circuit (EN 60947-2)

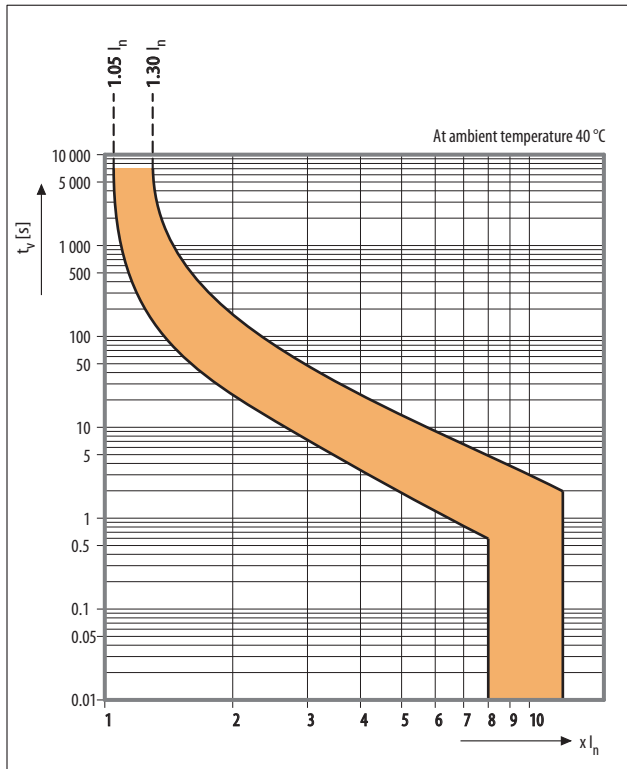
LVN-XC-80C..



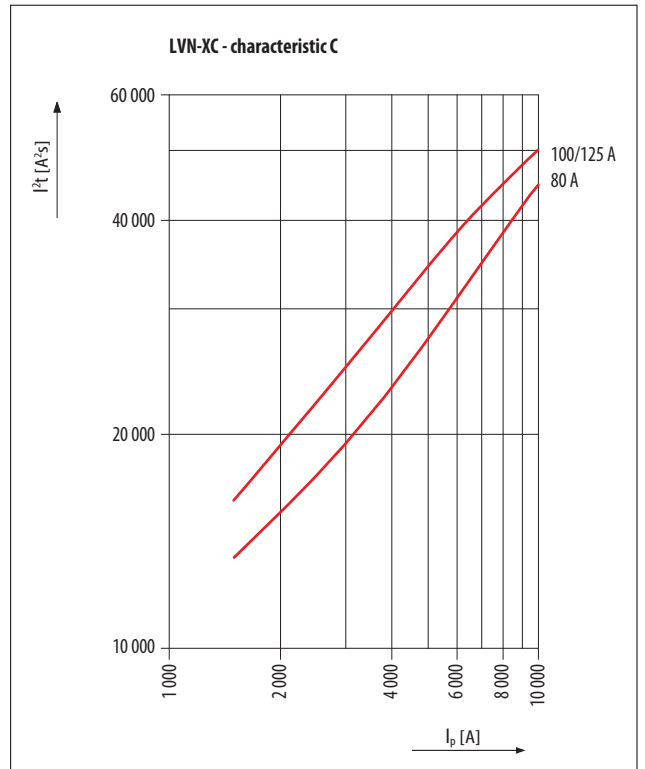
LVN-XC-100C..



LVN-XC-125C..



Characteristics I²t

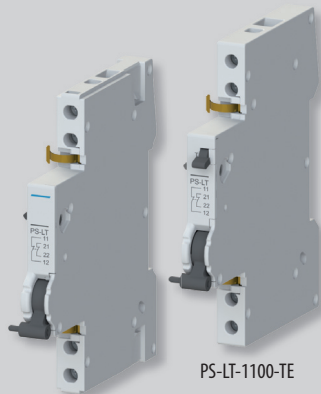


Tripping characteristics of circuit breakers according to EN 60947-2

| Thermal release | Tripping characteristic type | |
|-----------------------------------|---|---------------------|
| | C | |
| Conventional non-tripping current | I_{nt} for $t \geq 2$ hr (for $I_n > 63$ A) | $I_{nt} = 1.05 I_n$ |
| Conventional tripping current | I_t for $t < 2$ hr (for $I_n > 63$ A) | $I_t = 1.30 I_n$ |

t - break time of the circuit breaker

ACCESSORIES



PS-LT-1100

PS-LT-1100-TE

Auxiliary switches

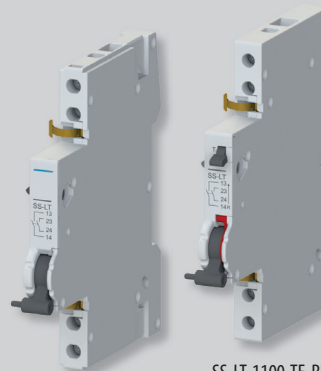
- Accessory to:
 - miniature circuit breakers: LTE, LTN, LTN-UC, LVN, LVN-XC
 - residual current circuit breakers: LFN, LFE
 - residual current circuit breakers with overcurrent protection: OLI, OLE (installation on OLI/OLE requires handle adapter OD-OL-NR01)
 - switches: MSO, MSN, AVN-DC.
- For signalling 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 16.
- 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 contacts.

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.



SS-LT-1100

SS-LT-1100-TE-RE

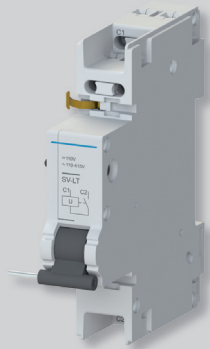
Signal switches

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LTN-UC, LVN, LVN-XC
 - 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 16.
- 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 11.

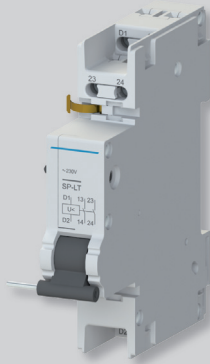
| Design | Arrangement of contacts ¹⁾ | Type | Order code | Number of modules | Weight [kg] | Package [pcs] |
|---------------------------|---------------------------------------|------------------|------------|-------------------|-------------|---------------|
| Standard | 11 | SS-LT-1100 | OEZ:42306 | 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 contacts.

ACCESSORIES



SV-LT-X400



SP-LT-A230

Shunt trips

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LTN-UC, LVN, LVN-XC
 - 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.
- 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 16.

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

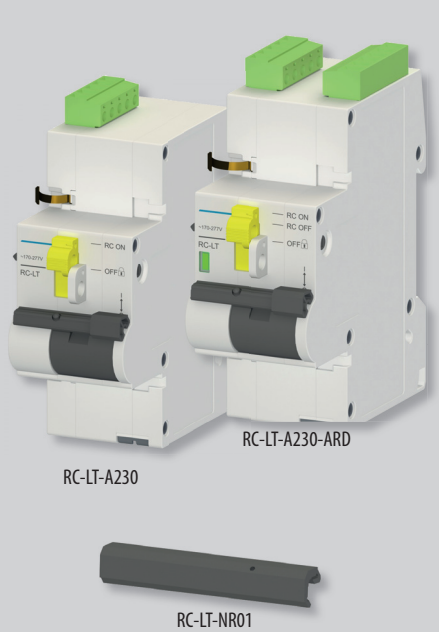
Undervoltage releases

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LTN-UC, LVN, LVN-XC
 - 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.
- 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 16.

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

¹⁾ Each digit indicates successively the number of make and break contacts.

ACCESSORIES



Remote controls

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LTN-UC, LVN, LVN-XC
 - residual current circuit breakers: LFE, LFN (only in combination with RCD and 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.
- To connect to the device, it is necessary to use a suitable remote control adapter.
- RCD and ARD designs with integrated make-and-break auxiliary and signaling contacts.

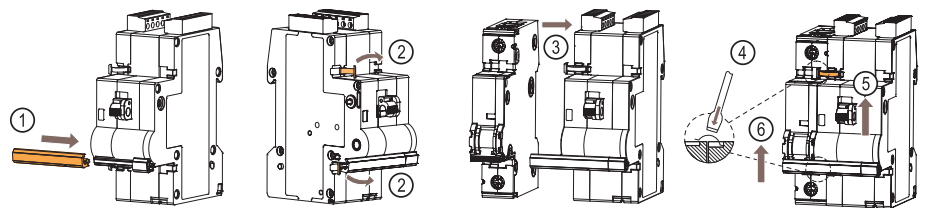
| Rated voltage U_c | Arrangement of contacts ¹⁾ | Type | Order code | Number of modules | Weight [kg] | Package [pcs] |
|---------------------|---------------------------------------|-----------------------|------------|-------------------|-------------|---------------|
| AC 230 V | - | RC-LT-A230 | OEZ:46474 | 2 | 0.229 | 1 |
| | 0011 | RC-LT-A230-RCD | OEZ:46476 | 2 | 0.234 | 1 |
| | 0011 | RC-LT-A230-ARD | OEZ:46478 | 2 | 0.237 | 1 |
| AC/DC 24 V | - | RC-LT-X024 | OEZ:46473 | 1.5 | 0.188 | 1 |
| | 0011 | RC-LT-X024-RCD | OEZ:46475 | 2 | 0.234 | 1 |
| | 0011 | RC-LT-X024-ARD | OEZ:46477 | 2 | 0.237 | 1 |

¹⁾ 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 [pcs] |
|-------------------|------------|---|-------------|---------------|
| RC-LT-NR01 | OEZ:46480 | for 1-pole and 2-pole devices LTE, LTN, LTN-UC, LVN, LVN-XC and MSN | 0.013 | 5 |
| RC-LT-NR02 | OEZ:46481 | for 3-pole and 4-pole devices LTE, LTN, LVN, MSN and AVN-DC | 0.011 | 5 |
| RC-LT-NR03 | OEZ:46482 | for 2-pole devices OLE, OLI | 0.010 | 5 |
| RC-LT-NR04 | OEZ:46483 | for 1-pole and 2-pole devices LFE, LFN and MSO | 0.009 | 5 |
| RC-LT-NR05 | OEZ:46484 | for 3-pole and 4-pole devices LFE, LFN and MSO | 0.011 | 5 |

Example of installation



ACCESSORIES



OD-LT-VU01



OD-LT-VU02



OD-LT-VP01



Locking insert OD-LT-VU01

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LVN
 - 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 |

Locking insert OD-LT-VU02

- Accessory to:
 - 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 |



Sealing insert OD-LT-VP01

- Accessory to:
 - miniature circuit breakers: LTE, LTN, LVN
 - 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 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 | - | |
| | | 220 V | 1 A/0.5 A | - | |
| | DC-13 ²⁾ | 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 mm ² | 0.5 ÷ 2.5 mm ² | | |
| Conductor Cu flexible | | 0.5 ÷ 2.5 mm ² | 0.5 ÷ 2.5 mm ² | | |
| 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 ² in 11 ms half-sine pulse | 150 m/s ² in 11 ms half-sine pulse | | |
| Vibration resistance according to IEC 60068-2-6 | | 50 m/s ² at 10 ÷ 150 Hz | 50 m/s ² at 10 ÷ 150 Hz | | |

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

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 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 110 ÷ 415 V / DC 110 ÷ 220 V | AC 230 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 - DC 24 V - DC 110 V - | 5 VA 1.4 W 1.8 W |
| Contact | | | |
| Arrangement of contacts ¹⁾ | | - | 20 |
| Min. voltage/current | | - | 24 V / 50 mA |
| Backup protection - fuse / miniature circuit breaker | | - | 6 A gG / 6 A characteristic B, C |
| Connection | | | |
| Cu conductor - rigid (solid, stranded) | | 0.5 ÷ 2.5 mm ² | 0.5 ÷ 2.5 mm ² |
| Conductor Cu flexible | | 0.5 ÷ 2.5 mm ² | 0.5 ÷ 2.5 mm ² |
| Torque | | 0.8 Nm | 0.8 Nm |
| Top or bottom connection | | top/bottom | top/bottom |
| Operating conditions | | | |
| 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 ² in 11 ms half-sine pulse | 50 m/s ² in 11 ms half-sine pulse |
| Vibration resistance according to IEC 60068-2-6 | | 50 m/s ² at 10 ÷ 150 Hz | 50 m/s ² at 10 ÷ 150 Hz |

¹⁾ Each digit indicates successively the number of make and break contacts.

ACCESSORIES

Specifications of remote controls

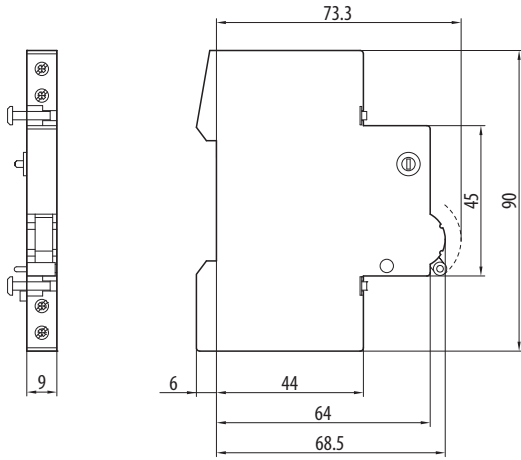
| Type | | RC-LT-X024 | RC-LT-A230 | RC-LT-X024-RCD RC-LT-A230-RCD | RC-LT-X024-ARD RC-LT-A230-ARD |
|--|-------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| Standards | | EN 50557 | EN 50557 | EN 50557 | EN 50557 |
| Approval marks | | CE | CE | CE | CE |
| Mounting | | on the right side of the device | on the right side of the device | on the right side of the device | on the right side of the device |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Rated voltage | U_c | RC-LT-X024... AC/DC 24 V | - | AC/DC 24 V | AC/DC 24 V |
| Range of rated voltage | | RC-LT-A230... - | AC 230 V | AC 230 V | AC 230 V |
| | | RC-LT-X024... AC 12 ÷ 30 V | - | AC 12 ÷ 30 V | AC 12 ÷ 30 V |
| | | RC-LT-X024... DC 12 ÷ 48 V | - | DC 12 ÷ 48 V | DC 12 ÷ 48 V |
| | | RC-LT-A230... - | AC 177 ÷ 270 V | AC 177 ÷ 270 V | AC 177 ÷ 270 V |
| Rated frequency | f_n | 50/60 Hz | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Max. length of remote control conductors | | 1 500 m | 1 500 m | 1 500 m | 1 500 m |
| Power loss | P | 1 VA | 1 VA | 1 VA | 1 VA |
| Number of remote switching on/of dálkově per 1 minute | | 2 | 2 | 2 | 2 |
| Change-over switch with device locking function | | - | yes | yes | yes |
| Switching off the remote control function (manual switching on only) | | - | - | yes | yes |
| State signalling | | - | - | green/red LED | green/red LED |
| ARD - auto reclose device | | | | | |
| Number of attempts | | 0 | 0 | 0 | 3 |
| Time after which the automatic switching on again takes place | | - | - | - | 10 s, 1 min, 10 min |
| Auxiliary and signal contacts | | | | | |
| Arrangement of contacts ¹⁾ | | - | - | 0011 | 0011 |
| Rated operating voltage/current | | - | - | AC 250 V / 2 A | AC 250 V / 2 A |
| Connection | | | | | |
| Cu conductor - rigid (solid, stranded) | | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² |
| Conductor Cu flexible | | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² | 0.5 ÷ 1.5 mm ² |
| Torque | | 0.25 Nm | 0.25 Nm | 0.25 Nm | 0.25 Nm |
| Operating conditions | | | | | |
| Mechanical endurance | | 10 000 operating cycles | 10 000 operating cycles | 10 000 operating cycles | 10 000 operating cycles |
| Electrical endurance | | 10 000 operating cycles | 10 000 operating cycles | 10 000 operating cycles | 10 000 operating cycles |
| Ambient temperature | | -40 ÷ 55 °C | -40 ÷ 55 °C | -40 ÷ 55 °C | -40 ÷ 55 °C |

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

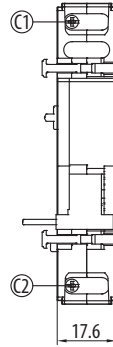
ACCESSORIES

Dimensions

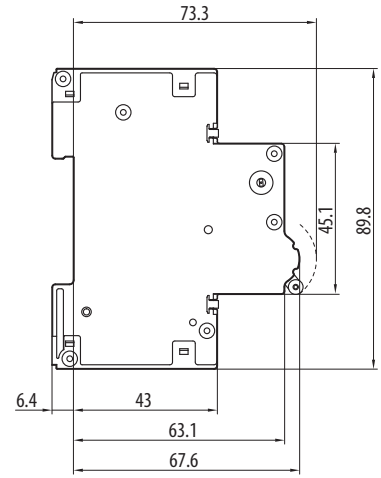
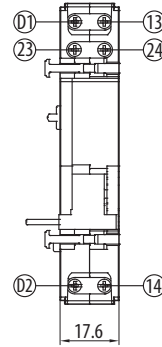
PS-LT, SS-LT



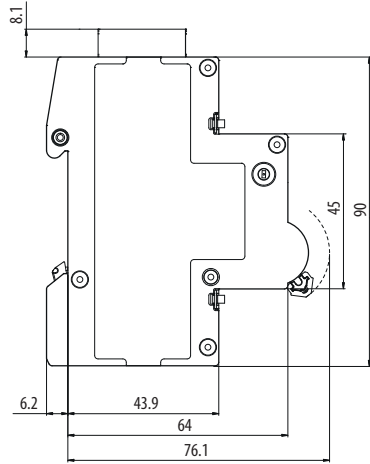
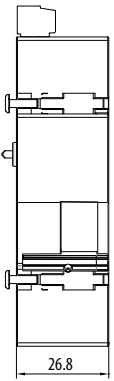
SV-LT



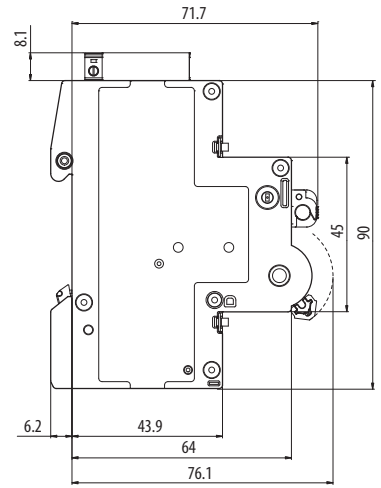
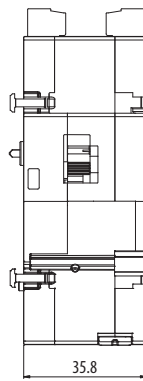
SP-LT



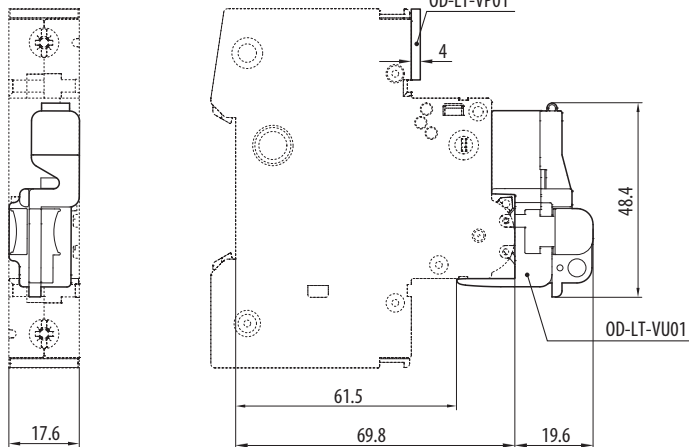
RC-LT-X024



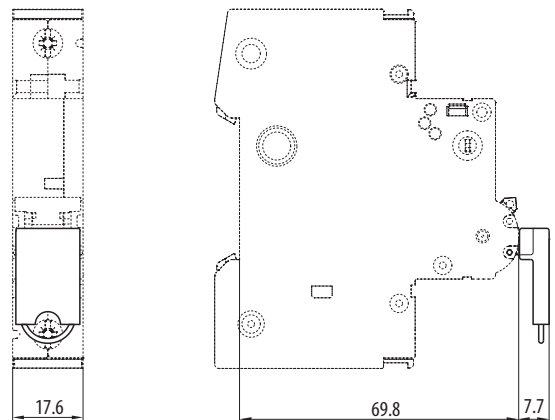
RC-LT-A230
RC-LT-...-RCD
RC-LT-...-ARD



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



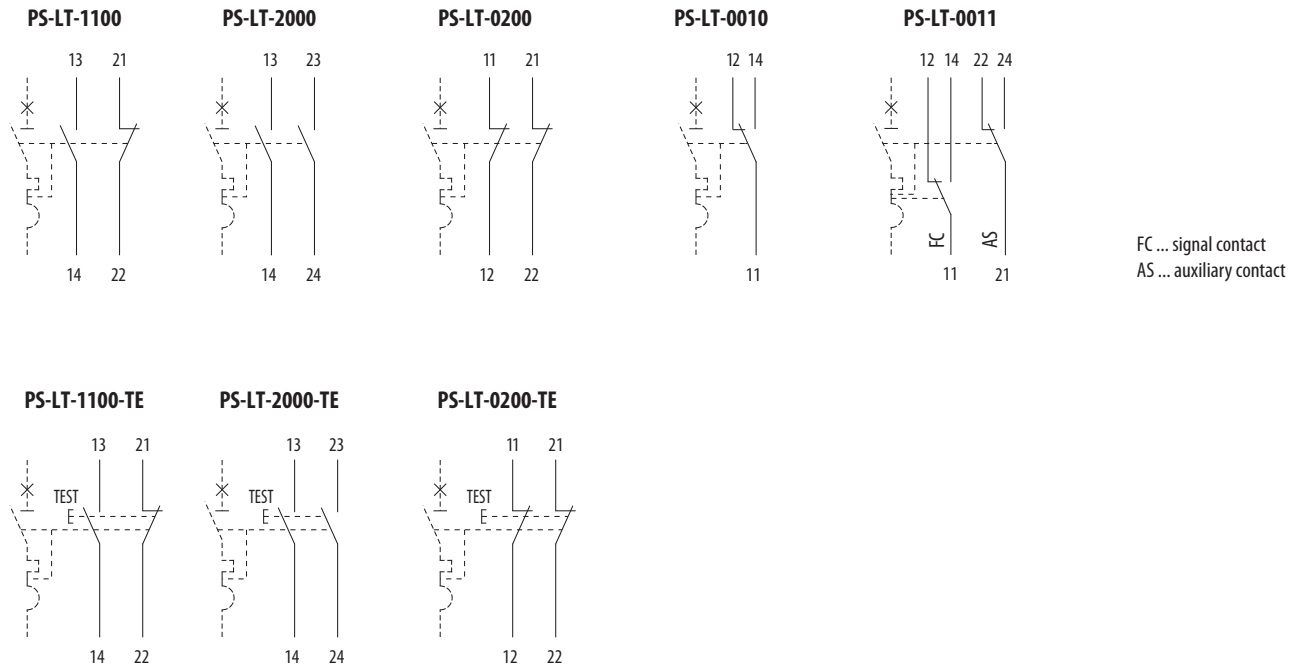
LFN, LFE, MSO + OD-LT-VU02



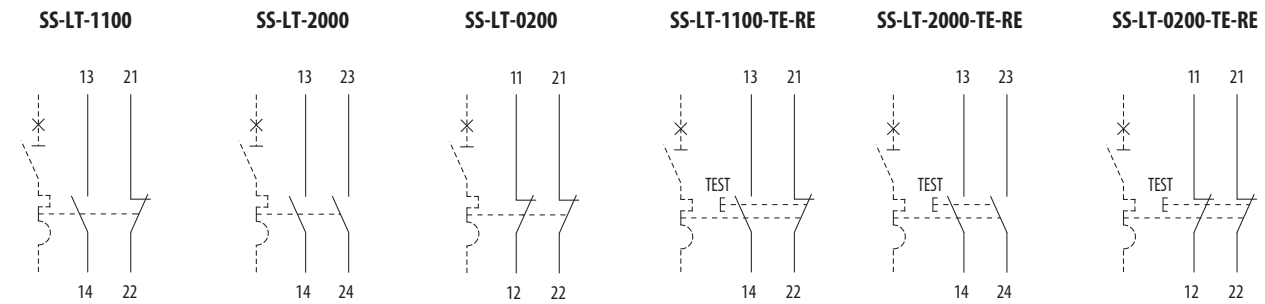
ACCESSORIES

Diagram

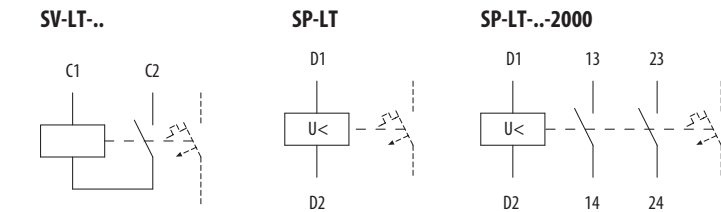
Auxiliary switches



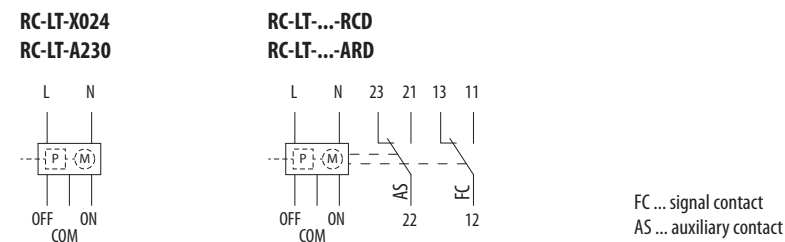
Signal switches



Shunt trips and undervoltage releases



Remote control

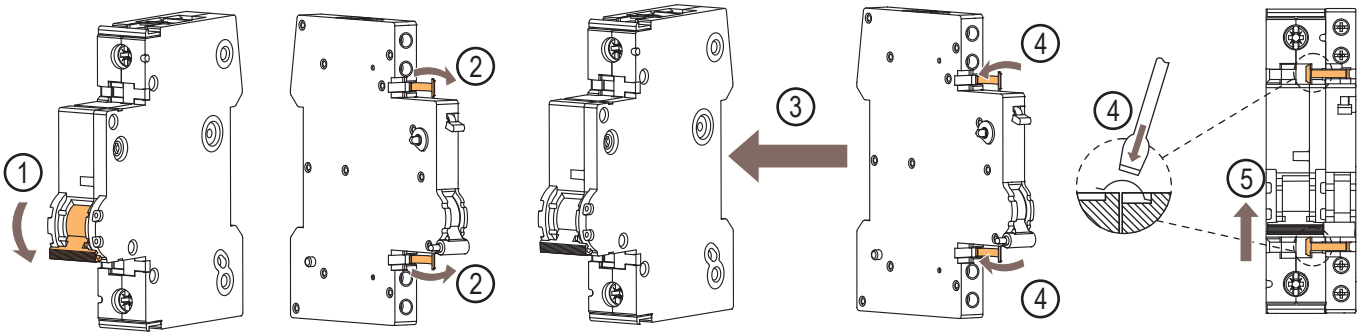


ACCESSORIES

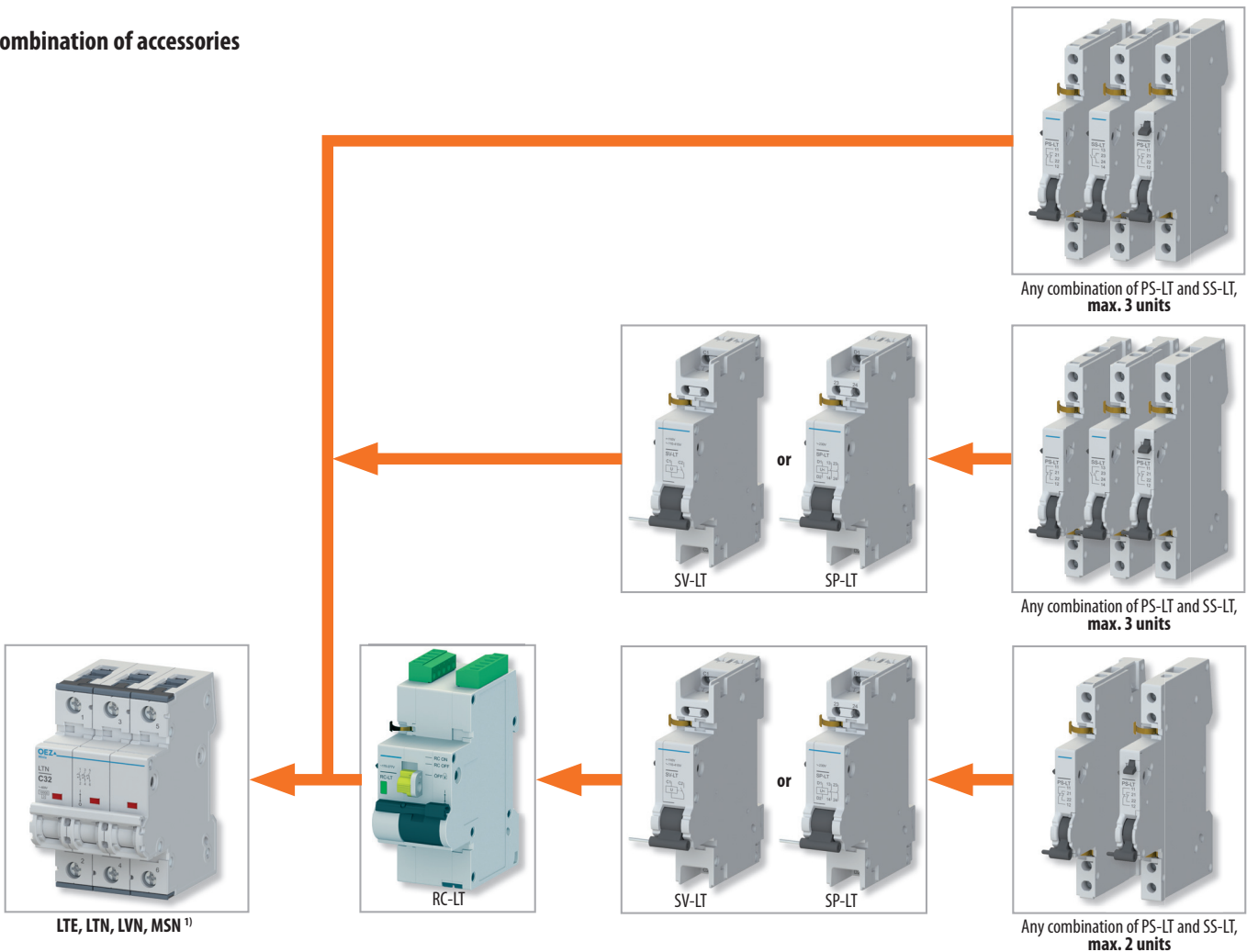
Installation of auxiliary switch, shunt trips or undervoltage releases

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



¹⁾ Installation of signal switches SS-LT on the MSN, switch, only with SP-LT or SV-LT.