RESIDUAL CURRENT CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION OLI

- The device is a combination of residual current circuit breaker and circuit breaker.
- Breaking capacity 10 kA.
- For building, commercial and industrial installations up to 40 A, AC 230 V
- For protection:
  – against dangerous contact with live parts ($I_{\Delta n} \leq 30$ mA)
  – against dangerous contact with dead parts
  – against fire
  – against overload
  – against short-circuit.
- Tripping characteristics B, C according to EN 61009-1.
- Double terminal with a fixed barrier in the middle enables comfort connection of conductors and interconnecting busbar from both sides of the device. It enables connection of:
  – conductors of various cross sections
  – up to 4 conductors in the terminal
  – conductor of cross section up to 35 mm^2.
- Double terminal enables easy check of conductors at simultaneous connection of interconnecting busbar - the interconnecting busbar does not cover the conductor connecting place - see the LTN terminal on page B3.
- Status indicator - signalization of on/off position.
- Wide range of accessories – auxiliary and signal switches, undervoltage releases and shunt trips, interconnecting busbars.
- Possibility of locking and sealing in off or on position.

OLI-16C-1N-030AC

Residual current circuit breakers with overcurrent protection, type AC

- They react to sine-wave residual current (type AC).

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$I_{\Delta n}$ [mA]	I_n [A]	Characteristic B Type	Order code	Characteristic C Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	6	**OLI-6B-1N-030AC**	OEZ:38271	**OLI-6C-1N-030AC**	OEZ:38278	2	0.25	1
	10	**OLI-10B-1N-030AC**	OEZ:38272	**OLI-10C-1N-030AC**	OEZ:38279	2	0.25	1
	16	**OLI-16B-1N-030AC**	OEZ:38273	**OLI-16C-1N-030AC**	OEZ:38280	2	0.25	1
	20	**OLI-20B-1N-030AC**	OEZ:38274	**OLI-20C-1N-030AC**	OEZ:38281	2	0.25	1
	25	**OLI-25B-1N-030AC**	OEZ:38275	**OLI-25C-1N-030AC**	OEZ:38282	2	0.25	1
	32	**OLI-32B-1N-030AC**	OEZ:38276	**OLI-32C-1N-030AC**	OEZ:38283	2	0.25	1
	40	**OLI-40B-1N-030AC**	OEZ:38277	**OLI-40C-1N-030AC**	OEZ:38284	2	0.25	1
300	6	-	-	**OLI-6C-1N-300AC**	OEZ:38285	2	0.25	1
	10	-	-	**OLI-10C-1N-300AC**	OEZ:38286	2	0.25	1
	16	-	-	**OLI-16C-1N-300AC**	OEZ:38287	2	0.25	1
	20	-	-	**OLI-20C-1N-300AC**	OEZ:38288	2	0.25	1
	25	-	-	**OLI-25C-1N-300AC**	OEZ:38289	2	0.25	1
	32	-	-	**OLI-32C-1N-300AC**	OEZ:38290	2	0.25	1
	40	-	-	**OLI-40C-1N-300AC**	OEZ:38291	2	0.25	1

OLI-16C-1N-030A

Residual current circuit breakers with overcurrent protection, type A

- They react to both sine-wave residual current and pulsating direct residual current (type A).

10 000 / 3

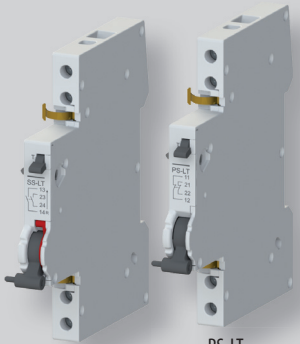
$I_{\Delta n}$ [mA]	I_n [A]	Characteristic B Type	Order code	Characteristic C Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	6	**OLI-6B-1N-030A**	OEZ:38292	**OLI-6C-1N-030A**	OEZ:38299	2	0.26	1
	10	**OLI-10B-1N-030A**	OEZ:38293	**OLI-10C-1N-030A**	OEZ:38300	2	0.26	1
	16	**OLI-16B-1N-030A**	OEZ:38294	**OLI-16C-1N-030A**	OEZ:38301	2	0.26	1
	20	**OLI-20B-1N-030A**	OEZ:38295	**OLI-20C-1N-030A**	OEZ:38302	2	0.26	1
	25	**OLI-25B-1N-030A**	OEZ:38296	**OLI-25C-1N-030A**	OEZ:38303	2	0.26	1
	32	**OLI-32B-1N-030A**	OEZ:38297	**OLI-32C-1N-030A**	OEZ:38304	2	0.26	1
	40	**OLI-40B-1N-030A**	OEZ:38298	**OLI-40C-1N-030A**	OEZ:38305	2	0.26	1
300	6	-	-	**OLI-6C-1N-300A**	OEZ:38306	2	0.26	1
	10	-	-	**OLI-10C-1N-300A**	OEZ:38307	2	0.26	1
	16	-	-	**OLI-16C-1N-300A**	OEZ:38308	2	0.26	1
	20	-	-	**OLI-20C-1N-300A**	OEZ:38309	2	0.26	1
	25	-	-	**OLI-25C-1N-300A**	OEZ:38310	2	0.26	1
	32	-	-	**OLI-32C-1N-300A**	OEZ:38311	2	0.26	1
	40	-	-	**OLI-40C-1N-300A**	OEZ:38312	2	0.26	1

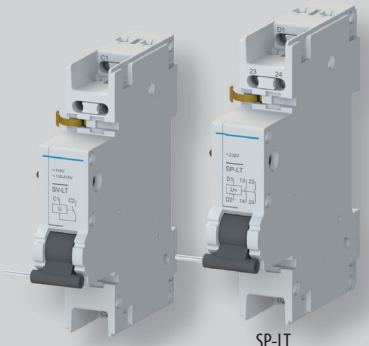
RESIDUAL CURRENT CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION OLI

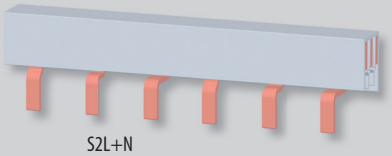
OLI-16B-1N-030AC-G


OD-LT-VP01

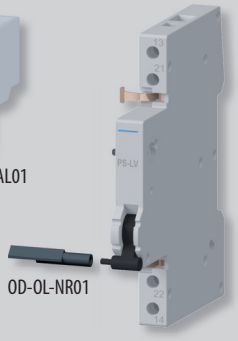

OD-LT-VU01






S2L+N

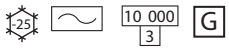

AS-50-S-AL01



OD-0L-NR01

Residual current circuit breakers with overcurrent protection, type AC-G

- They react to sine-wave residual current (type AC).
- Special residual current circuit breakers which reduce the number of undesirable releases.
- It is recommended to install them before the equipment causing short-time (up to 10 ms) stray currents – heavy induction motors, large heating bodies, interference suppressors, surge voltage arresters etc.
- Surge resistance: 3 kA (8/20 µs).
- Release delay: 10 ms.



$I_{\Delta n}$ [mA]	I_n [A]	Characteristic B Type	Order code	Characteristic C Type	Order code	Number of modules	Weight [kg]	Package [pcs]
30	10	**OLI-10B-1N-030AC-G**	OEZ:38328	**OLI-10C-1N-030AC-G**	OEZ:38333	2	0,25	1
	16	**OLI-16B-1N-030AC-G**	OEZ:38329	**OLI-16C-1N-030AC-G**	OEZ:38334	2	0,25	1
	20	**OLI-20B-1N-030AC-G**	OEZ:38330	**OLI-20C-1N-030AC-G**	OEZ:38335	2	0,25	1
	25	**OLI-25B-1N-030AC-G**	OEZ:38331	**OLI-25C-1N-030AC-G**	OEZ:38336	2	0,25	1

Accessories

Auxiliary and signal switches	**PS-LT, SS-LT** [1]	page B36
Shunt trips	**SV-LT** [1]	page B37
Undervoltage releases	**SP-LT** [1]	page B37
Interconnecting busbars	**S2L, S2L+N, S3L+N**	page B45
Terminal extensions	**AS-50-S-AL01**	page B47
Locking inserts	**OD-LT-VU01**	page B38
Sealing insert	**OD-LT-VP01**	page B39

[1] Installation requires OD-0L-NR01 handle adapter.

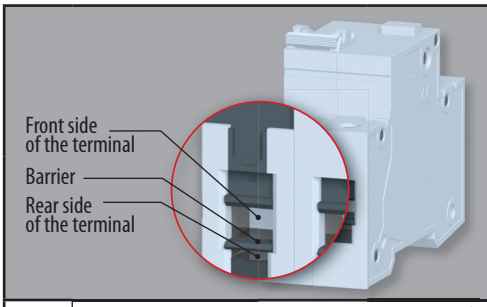
RESIDUAL CURRENT CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION OLI

Specifications

Type		OLI-..AC	OLI-..A	OLI-..AC-G
Standards		EN 61009-1	EN 61009-1	EN 61009-1
Approval marks				
Number of poles		2	2	2
Tripping characteristics		B, C	B, C	B, C
Type		AC	A	AC-G
Rated current	I_n	6 ÷ 40 A	6 ÷ 40 A	10 ÷ 25 A
Rated residual current	$I_{\Delta n}$	30, 300 mA	30, 300 mA	30 mA
Rated operating voltage	U_e	AC 230 V	AC 230 V	AC 230 V
Min. operating voltage [1]	U_{min}	AC 100 V	AC 100 V	AC 100 V
Max. operating voltage	U_{max}	AC 255 V	AC 255 V	AC 255 V
Rated frequency	f_n	50 ÷ 60 Hz	50 ÷ 60 Hz	50 ÷ 60 Hz
Surge resistance (8/20 µs)		1 kA	1 kA	3 kA
Rated short-circuit breaking capacity	I_{cn}	10 kA	10 kA	10 kA
Rated residual making and breaking capacity	$I_{\Delta m}$	10 kA	10 kA	10 kA
Rated impulse withstand voltage (1.2/50 µs)	U_{imp}	6 kV	6 kV	6 kV
Release delay		-	-	10 ms
Mechanical endurance		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
Energy limitation class		3	3	3
Degree of protection		IP20	IP20	IP20
Mounting on "U" rail according to EN 60715 – type		TH 35	TH 35	TH 35
Connection				
Conductor Cu		Conductor flexible with a sleeve	Conductor flexible with a sleeve	Conductor flexible with a sleeve
Torque		2.5 ÷ 3 Nm	2.5 ÷ 3 Nm	2.5 ÷ 3 Nm
Top or bottom connection		top/bottom	top/bottom	top/bottom
Operating conditions				
Ambient temperature		-5 ÷ 40 °C	-25 ÷ 40 °C	-25 ÷ 40 °C
Working position		arbitrary	arbitrary	arbitrary

[1] For preserving the function of the test push-button

Connection range



Type and cross-section of conductor for **front side** of the terminal			Type and cross-section of conductor for **rear side** of the terminal													
			Interconnecting busbar	1x conductor rigid			2x conductor rigid	1x conductor flexible [1]			2x conductor flexible [1]		1x conductor flexible with a sleeve			2x conductor flexible with a sleeve	
				0.75 ÷ 10 mm²	16 mm²	25 mm²	0.75 ÷ 6 mm²	1 ÷ 6 mm²	10 mm²	16 mm²	1 ÷ 2.5 mm²	4 mm²	0.75 ÷ 6 mm²	10 mm²	16 mm²	0.75 ÷ 2.5 mm²	4 mm²
Type and cross-section of conductor for **front side** of the terminal	**1x conductor rigid**	0.75 ÷ 16 mm²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		25 mm²	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		35 mm²	✓	✓	×	×	✓	✓	✓	×	✓	✓	✓	×	×	✓	×
	2x conductor rigid	0.75 ÷ 10 mm²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1x conductor rigid [1]	1 ÷ 16 mm²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		25 mm²	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
	2x conductor rigid [1]	1 ÷ 6 mm²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1x conductor flexible with a sleeve	0.75 ÷ 16 mm²	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		25 mm²	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
	2x conductor flexible with a sleeve	0.75 ÷ 6 mm²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[1] The conductor must be twisted before insertion to a terminal; individual conductor fibres must not stick out of the terminal.
Conductors of the same type and cross-section must be used for connection of two conductors to the same level of a terminal.

RESIDUAL CURRENT CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION OLI

Internal impedance Z and powers losses P

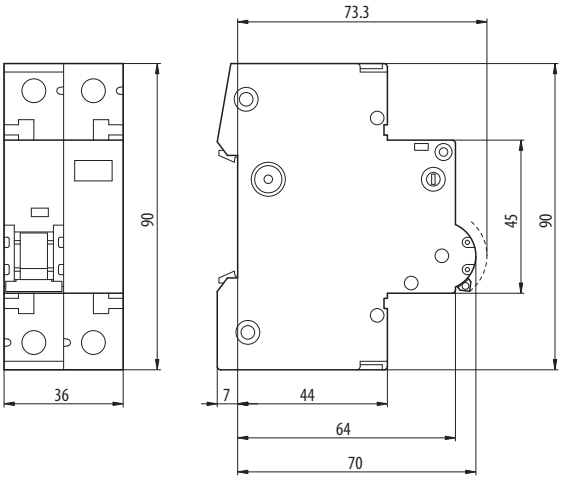
I_n [A]	Characteristic B			Characteristic C		
	L-Pole Z [mΩ]	N-Pole Z [mΩ]	Power loss P [W/pole]	L-Pole Z [mΩ]	N-Pole Z [mΩ]	Power loss P [W/pole]
6	72.0	2.1	2.7	52.0	2.1	1.9
10	15.4	2.1	1.8	13.4	2.1	1.6
16	9.6	2.1	3.0	8.7	2.1	2.8
20	7.1	2.1	3.7	6.1	2.1	3.3
25	6.1	2.1	5.1	6.0	2.1	5.1
32	4.1	1.5	5.7	4.1	1.5	5.7
40	3.4	1.5	7.8	3.4	1.5	7.8

Correction of rated currents

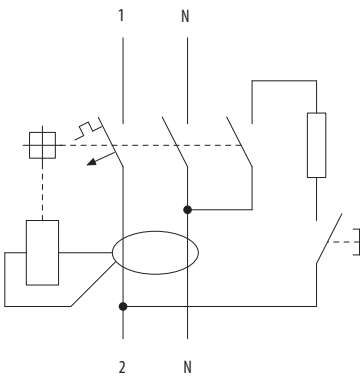
I_n [A]	Correction of rated currents for ambient temperature -25 °C up to + 40 °C [A] [2]							
	-25 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C
6	7.20	7.08	6.8	6.7	6.4	6.2	6	5.7
10	12.00	11.80	11.4	11.2	10.7	10.4	10	9.5
16	19.20	18.88	18.2	17.9	17.1	16.6	16	15.2
20	24.00	23.60	22.8	22.4	21.4	20.8	20	19.0
25	30.00	29.50	28.5	28.0	26.8	26.0	25	23.8
32	38.40	37.76	36.5	35.8	34.2	33.3	32	30.4
40	48.00	47.20	45.6	44.8	42.8	41.6	40	38.0

[2] Reference temperature: 30 °C

Dimensions

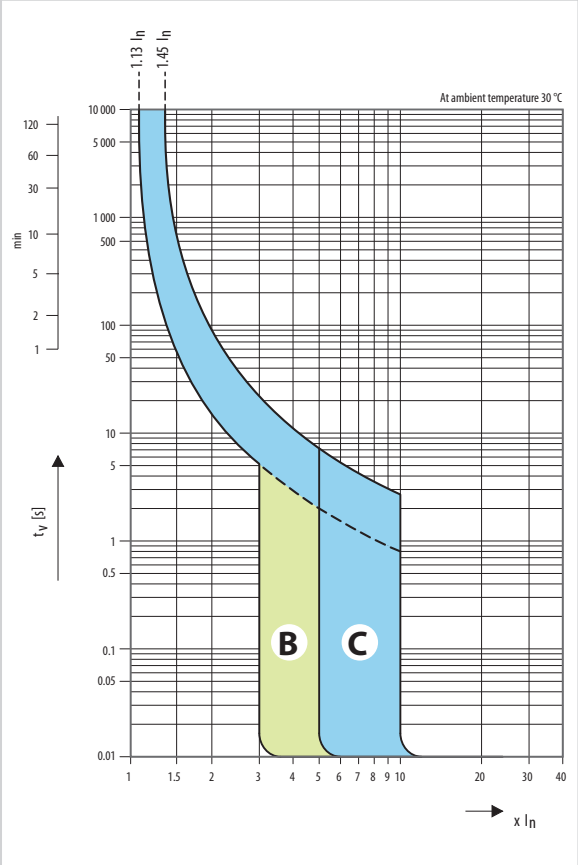


Diagram



RESIDUAL CURRENT CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION OLI

Characteristic



- **Characteristic B**: or 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 61009-1

Thermal release	Tripping characteristic type B, C
Conventional non-tripping current I_{nt} for t ≥ 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 1 s < t < 120 s and $I_n > 32$ 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) 0.1 s < t < 90 s (for $I_n > 32$ A)	$I_4 = 3\ I_n$	
	0.1 s < t < 15 s (for $I_n \leq 32$ A) 0.1 s < t < 30 s (for $I_n > 32$ 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