One-module RCBOs
Ex9BL20J, 6kA

- Voltage independent One-module Residual Current Circuit Breakers with Overload protection according to EN 61009-2-1
- Rated breaking capacity I_{cn} 6 kA
- 1+N-pole version
- Rated residual current 30 mA
- Rated currents up to 20 A
- B and C tripping characteristics of integrated circuit breaker
- AC and A type of RCBO
- 1-module width
- Suitable for applications from -35 to +70°C

Ex9BL20J Residual Current Circuit Breakers with Overload protection are suitable for residential applications. With a width of only one module (18mm), it offers a space-saving solution compared to standard two-module RCBOs. They are based on combination of residual current device with magnetic principle and circuit breaker with thermal overload release and magnetic short circuit current release. The voltage-independent function ensures reliable operation, requiring adequate voltage only when testing the RCBO with the T test button.

Magnetic RCBOs should be tested regularly, local law or regulations may apply. It is recommended to test every 6 months in fair environment and every month in heavy conditions.

Type Key

Ex9	BL20	1PN	B	16	30mA	A
Product family	Product	Poles	Tripping characteristic of MCB	Rated current	Rated residual current	Sensitivity to type of current
Ex9	BL20J: 1M RCBO	1P+N	B C	6 — 20 A	30 mA	_: AC A: A

Certification marks

One-module RCBOs **Ex9BL20J,** 6kA

AC type, characteristic B

- AC type of residual current circuit breaker sensitive to residual AC current
- B characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 250 A
- Suitable for protection against direct and indirect contact with live parts and exposed conductive parts in case of a fault

Rated current	Rated residual current	MCB tripping char.	Article No.	Type	Packing
6 A	30 mA	B	117460	Ex9BL20J 1PN B6 30mA	1/12/108
10 A	30 mA	B	117461	Ex9BL20J 1PN B10 30mA	1/12/108
13 A	30 mA	B	117462	Ex9BL20J 1PN B13 30mA	1/12/108
16 A	30 mA	B	117463	Ex9BL20J 1PN B16 30mA	1/12/108
20 A	30 mA	B	117464	Ex9BL20J 1PN B20 30mA	1/12/108

AC type, characteristic C

- AC type of residual current circuit breaker sensitive to residual AC current
- C characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 250 A
- Suitable for protection against direct and indirect contact with live parts and exposed conductive parts in case of a fault

Rated current	Rated residual current	MCB tripping char.	Article No.	Type	Packing
6 A	30 mA	C	117465	Ex9BL20J 1PN C6 30mA	1/12/108
10 A	30 mA	C	117466	Ex9BL20J 1PN C10 30mA	1/12/108
13 A	30 mA	C	117467	Ex9BL20J 1PN C13 30mA	1/12/108
16 A	30 mA	C	117468	Ex9BL20J 1PN C16 30mA	1/12/108
20 A	30 mA	C	117469	Ex9BL20J 1PN C20 30mA	1/12/108

One-module RCBOs **Ex9BL20J,** 6kA

A type, characteristic B

- A type of residual current circuit breaker sensitive to residual AC current and DC current
- B characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 250 A
- Suitable for protection against direct and indirect contact with live parts and exposed conductive parts in case of a fault

Rated current	Rated residual current	MCB tripping char.	Article No.	Type	Packing
6 A	30 mA	B	117470	Ex9BL20J 1PN B6 30mA A	1/12/108
10 A	30 mA	B	117471	Ex9BL20J 1PN B10 30mA A	1/12/108
13 A	30 mA	B	117472	Ex9BL20J 1PN B13 30mA A	1/12/108
16 A	30 mA	B	117473	Ex9BL20J 1PN B16 30mA A	1/12/108
20 A	30 mA	B	117474	Ex9BL20J 1PN B20 30mA A	1/12/108

A type, characteristic C

- A type of residual current circuit breaker sensitive to residual AC current and DC current
- C characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 250 A
- Suitable for protection against direct and indirect contact with live parts and exposed conductive parts in case of a fault

Rated current	Rated residual current	MCB tripping char.	Article No.	Type	Packing
6 A	30 mA	C	117475	Ex9BL20J 1PN C6 30mA A	1/12/108
10 A	30 mA	C	117476	Ex9BL20J 1PN C10 30mA A	1/12/108
13 A	30 mA	C	117477	Ex9BL20J 1PN C13 30mA A	1/12/108
16 A	30 mA	C	117478	Ex9BL20J 1PN C16 30mA A	1/12/108
20 A	30 mA	C	117479	Ex9BL20J 1PN C20 30mA A	1/12/108

Technical Data **Ex9BL20J**

One-module Residual Current circuit Breakers with Overload protection Ex9BL20J, 6 kA

General parameters
Saves one modular space in comparison to standard RCBO
Tripping characteristics of integrated circuit breaker B and C
AC and A type of residual current device
1+N-pole version
Permanent magnet principle of residual current device
Voltage independent RCBO
Device should be tested regularly, local law or regulations may apply. It is recommended to test every 6 months in fair environment and every month in heavy conditions

Electrical parameters	
Tested according to	IEC/EN 61009-2-1
Rated operating voltage U_e	230 / 240 V AC
Min. voltage for RCD function	voltage independent
Voltage range of the test button T	195.5 — 253 V AC
Rated frequency f	50/60 Hz
Rated breaking capacity I_{cn}	6 kA
Rated current I_n	6 — 20 A
Rated residual current $I_{\Delta n}$	30 mA
Sensitivity to residual current	AC type - AC residual current A type - residual AC and pulsating DC current
Time characteristic of RCD	no time delay
Tripping characteristics of MCB	B, C
Rated impulse withstand voltage U_{imp}	4 kV
Rated insulation voltage U_i	500 V
Surge current proof	250 A
Mechanical service life	6 000 operation cycles
Electrical service life	6 000 operation cycles
Energy limited class	3
Line voltage connection	arbitrary above or below

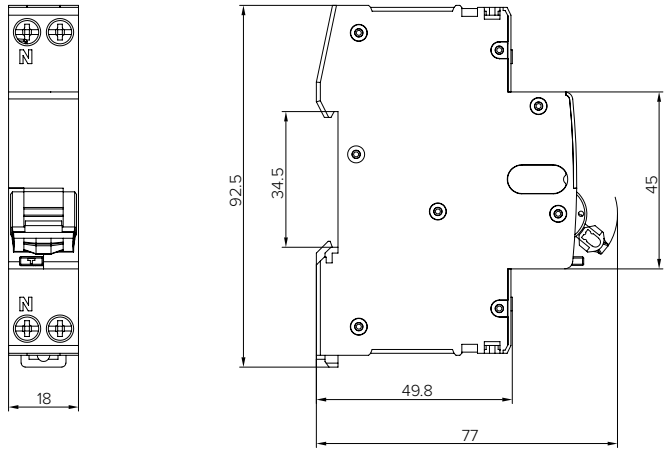
One-module Residual Current circuit Breakers with Overload protection Ex9BL20J, 6 kA

Mechanical parameters	
Device width	18 mm
Device height	92.5 mm (including rail clip)
Frame size	45 mm
Mounting	easy fastening onto 35 mm device rail (DIN)
Degree of protection	IP20
Terminals	combined lift + open mouthed
Terminal capacity	1 — 10 mm^2
Fastening torque of terminals	1.2 Nm
Busbar thickness	0.8 — 1 mm
Ambient temperature	-35 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 95 %
Resistance to humidity and heat	class 2
Pollution degree	2
Installation class	III
Weight	0.135 kg

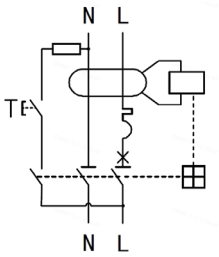
Technical Data **Ex9BL20J**

One-module Residual Current circuit Breakers with Overload protection Ex9BL20J, 6 kA

Dimensions

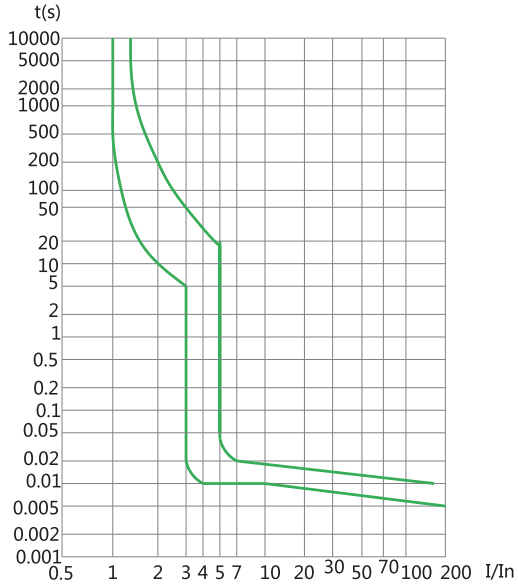


Wiring diagram

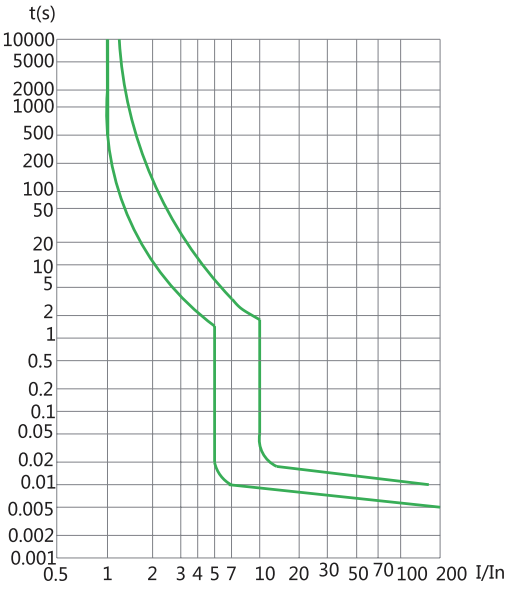


Tripping characteristics of MCB

Characteristic B

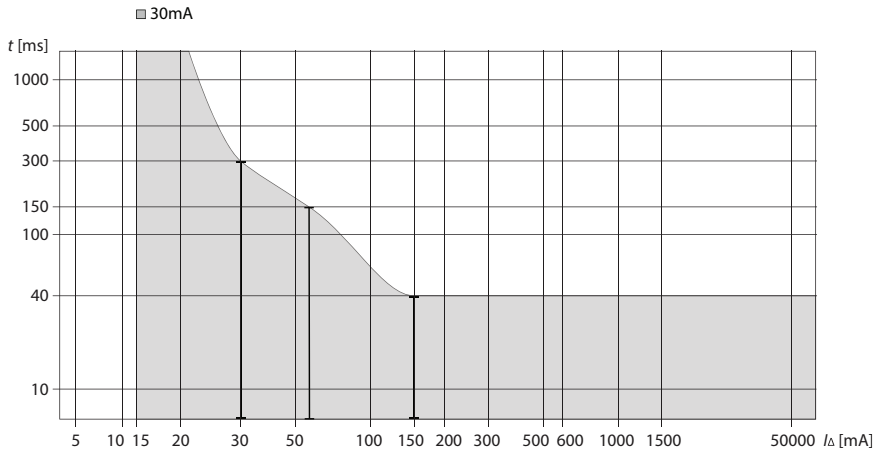


Characteristic C



One-module Residual Current circuit Breakers with Overload protection Ex9BL20J, 6 kA

Tripping characteristics of RCD



Dependence of tripping characteristics on ambient temperature

T [°C]	I_n (T) [A]				
	6A	**10A**	**13A**	**16A**	**20A**
-35	7.8	11.9	15.6	19.2	24
-20	7.5	11.6	15.21	18.56	23.2
-10	7.14	11.3	14.69	18.08	22.6
0	6.84	11	14.3	17.6	22
10	6.48	10.6	13.78	16.96	21.2
20	6.18	10.2	13.26	16.32	20.4
30	6	10	13	16	20
40	5.76	9.6	12.48	15.52	19.4
50	5.4	9.3	11.96	14.88	18.6
60	5.04	8.9	11.44	14.24	17.8
70	4.74	8.5	10.92	13.6	17

Power loss

I_n [A]	**6 A**	**10 A**	**13 A**	**16 A**	**20 A**
L / N [W]	1.21 / 0.09	2.16 / 0.25	1.6 / 0.43	1.92 / 0.65	2.6 / 1.02