

RCD module for MCCBs Ex9ML

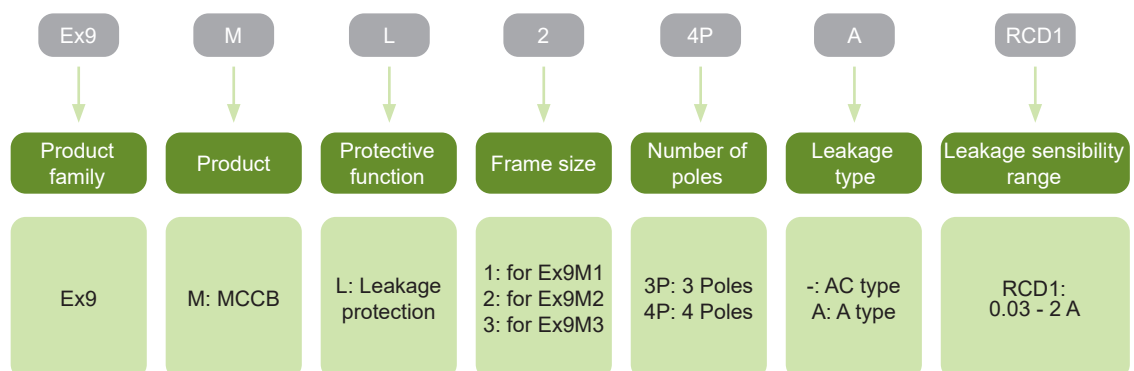


- Voltage dependent Residual Current Device
- Tested according IEC / EN 60947-2
- Up to frame size Ex9M3
- 3 and 4-pole versions
- AC and A sensibility type
- Adjustable leakage current range
- Adjustable time delay
- Electronic and TM MCCBs compatible

Electronic RCD modules for Ex9M series are intended for applications mainly in power distribution. It is designed to provide an additional residual current protection to the moulded case circuit breaker on which it is installed.

Testing according to IEC / EN 60947-2 standards ensures functions and reliability of the device, the compatibility with electronic and thermomagnetic circuit breakers and the significative variety of adjustable settings, makes this series suitable for a wide range of applications.

Type Key

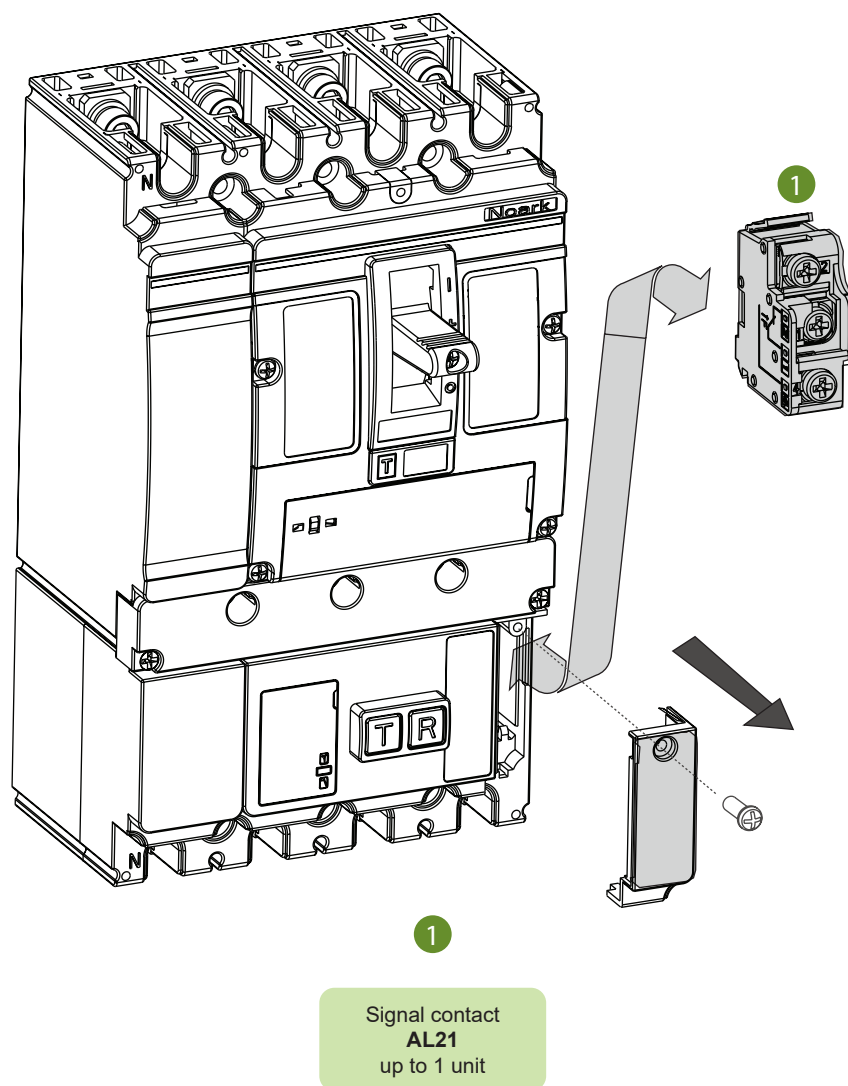


Certification marks



RCD module for MCCBs Ex9ML

Internal accessories



Signal contact AL21

RCD module for MCCBs Ex9ML

RCD module for Ex9M1

- 3 and 4-pole Electronic RCD module for MCCBs
- AC and A type modules
- Rated residual making and breaking capacity $I_{\Delta m} = 0.25 \times I_{cu}$
- $I_{\Delta n}$ can be set in 8 step: 0.03A, 0.05A, 0.1A, 0.2A, 0.3A, 0.5A, 1A, 2A
- non-actuating time Δt can be set in 6 steps: 0, 60, 200, 500, 1000, 2000 ms
- If $I_{\Delta n} = 0.03A$, non-actuation time Δt must be set to 0 ms
- Mounting screws in the scope of delivery



Poles	Applicable MCCB	Leakage type	Leakage sensibility	Article No.	Type	Packing
3	Ex9M1	AC	0.03A-2A	114681	Ex9ML1 3P RCD1	1/1
4	Ex9M1	AC	0.03A-2A	114682	Ex9ML1 4P RCD1	1/1
3	Ex9M1	A	0.03A-2A	114687	Ex9ML1 3P A RCD1	1/1
4	Ex9M1	A	0.03A-2A	114688	Ex9ML1 4P A RCD1	1/1

RCD module for Ex9M2

- 3 and 4-pole Electronic RCD module for MCCBs
- AC and A type modules
- Rated residual making and breaking capacity $I_{\Delta m} = 0.25 \times I_{cu}$
- $I_{\Delta n}$ can be set in 8 step: 0.03A, 0.05A, 0.1A, 0.2A, 0.3A, 0.5A, 1A, 2A
- non-actuating time Δt can be set in 6 steps: 0, 60, 200, 500, 1000, 2000 ms
- If $I_{\Delta n} = 0.03A$, non-actuation time Δt must be set to 0 ms
- Mounting screws in the scope of delivery



Poles	Applicable MCCB	Leakage type	Leakage sensibility	Article No.	Type	Packing
3	Ex9M2	AC	0.03A-2A	114683	Ex9ML2 3P RCD1	1/1
4	Ex9M2	AC	0.03A-2A	114684	Ex9ML2 4P RCD1	1/1
3	Ex9M2	A	0.03A-2A	114689	Ex9ML2 3P A RCD1	1/1
4	Ex9M2	A	0.03A-2A	114690	Ex9ML2 4P A RCD1	1/1

RCD module for Ex9M3

- 3 and 4-pole Electronic RCD module for MCCBs
- AC and A type modules
- Rated residual making and breaking capacity $I_{\Delta m} = 0.25 \times I_{cu}$
- $I_{\Delta n}$ can be set in 8 step: 0.03A, 0.05A, 0.1A, 0.2A, 0.3A, 0.5A, 1A, 2A
- non-actuating time Δt can be set in 6 steps: 0, 60, 200, 500, 1000, 2000 ms
- If $I_{\Delta n} = 0.03A$, non-actuation time Δt must be set to 0 ms
- Mounting screws in the scope of delivery



Poles	Applicable MCCB	Leakage type	Leakage sensibility	Article No.	Type	Packing
3	Ex9M3	AC	0.03A-2A	114685	Ex9ML3 3P RCD1	1/1
4	Ex9M3	AC	0.03A-2A	114686	Ex9ML3 4P RCD1	1/1
3	Ex9M3	A	0.03A-2A	114691	Ex9ML3 3P A RCD1	1/1
4	Ex9M3	A	0.03A-2A	114692	Ex9ML3 4P A RCD1	1/1

Technical Data Ex9ML

Electronic RCD module for MCCBs

General parameters

Suitable for household as well as industrial applications

Adjustable delay time Δt : 0, 60, 200, 500, 1000, 2000 ms

Adjustable leakage current sensitivity $I_{\Delta n}$ can be set in 8 step: 0.03A, 0.05A, 0.1A, 0.2A, 0.3A, 0.5A, 1A, 2A

Internal accessories

Alarm contact unit

AL21 / AL21M

101396 / 112072

Max. number of installed internal accessories is 1 pcs of alarm contact

Mounting screws in the scope of delivery

Electrical parameters

	Ex9ML1	Ex9ML2	Ex9ML3
Tested according to	IEC/EN 60947-2		
Rated op. voltage U_e	380 / 400 / 415 / 440 V AC		
Rated insulation voltage U_i	1000 V		
Rated impulse withstand voltage U_{imp}	8 kV		
Rated frequency	50/60 Hz		
Compatible MCCB	Ex9M1	Ex9M2	Ex9M3
Rated residual making and breaking capacity $I_{\Delta m}$	$0.25 \times I_{cu}$		
Rated current I_n	160 A	250 A	630 A
Rated residual non-operating current $I_{\Delta n}$ (A)	$0.5 \times I_{\Delta n}$		
RCD1 type	0.03A, 0.05A, 0.1A, 0.2A, 0.3A, 0.5A, 1A, 2A		
Leakage current detection type	AC / A		
Total disconnection time (adjustable)	0, 60, 200, 500, 1000, 2000 ms		
Line voltage connection	arbitrary above or below, 3 phase only		

Wiring diagram



Technical Data Ex9ML

Electronic RCD module for MCCBs

Mechanical parameters

	Ex9ML1	Ex9ML2	Ex9ML3
Device width 3P / 4P	90 / 120 mm	105 / 140 mm	140 / 185 mm
Device height (attached on MCCB)	205 mm	232 mm	355 mm
Device depth	85 mm	94.5 mm	118.5 mm
Mounting	attached to Ex9M1	attached to Ex9M2	attached to Ex9M3
Terminals	Box	Box	Screw
Terminals capacity	4 — 95 mm ²	10 — 120 mm ²	
Bushbar width	—	—	≤ 50 mm
Fastening torque of terminals	8Nm	25 Nm	25 — 30 Nm
Operating temperature	-25 — +70 °C		
Altitude	≤ 2 000 m		
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average		
Pollution degree	3		
Weight 3P / 4P	0.43 / 0.51 kg	0.84 / 1.08 kg	1.98 / 2.69 kg

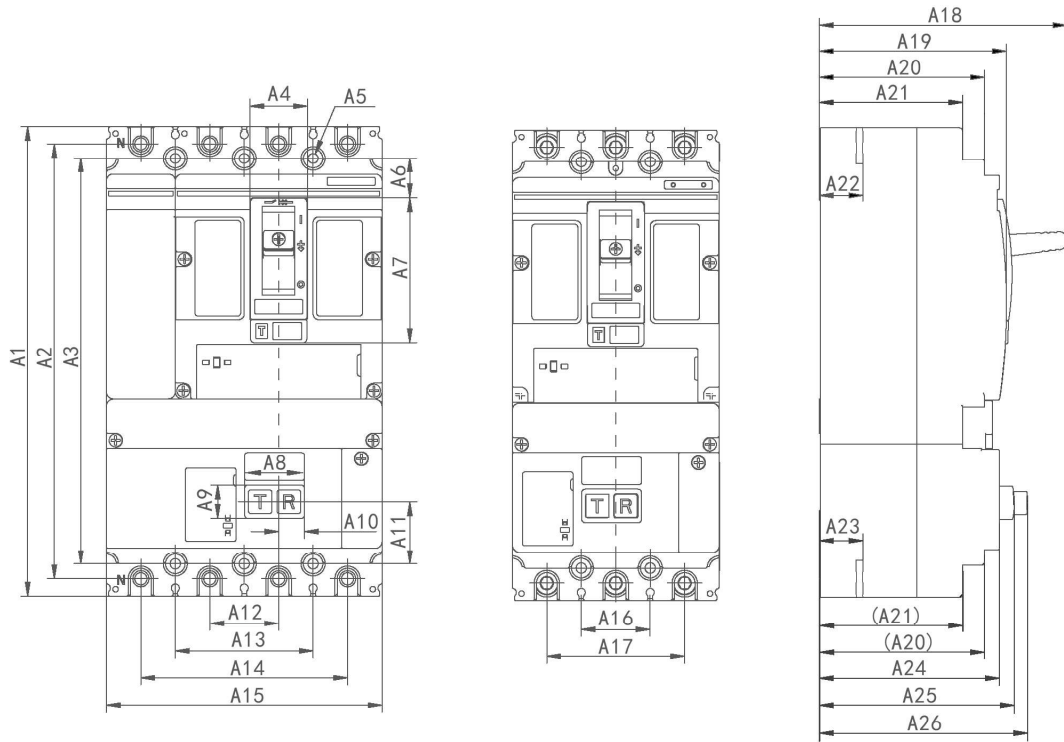
Derating factor

	Ex9ML1	Ex9ML2		Ex9ML3	
Applied MCCB	+Ex9M1 (TM)	+Ex9M2 (TM)	+Ex9M2 (SU)	+Ex9M3 (TM)	+Ex9M3 (SU)
16 A	1	—	—	—	—
20 A	1	—	—	—	—
25 A	1	—	—	—	—
32 A	1	—	1	—	—
40 A	1	—	—	—	—
50 A	1	—	—	—	—
63 A	1	—	1	—	—
80 A	0.95	—	—	—	—
100 A	0.9	—	1	—	—
125 A	0.8	1	—	—	—
160 A	0.82	1	1	—	—
180 A	—	1	—	—	—
200 A	—	0.9	—	—	—
225 A	—	0.9	—	—	—
250 A	—	0.9	0.95	1	1
315 A	—	—	—	0.96	—
350 A	—	—	—	0.95	—
400 A	—	—	—	0.93	1
500 A	—	—	—	0.87	—
630 A	—	—	—	—	0.95

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Electronic RCD module for MCCBs

Dimensions



mm/in	Ex9ML1/3P	Ex9ML1/4P	Ex9ML2/3P	Ex9ML2/4P	Ex9ML3/3P	Ex9ML3/4P
A1	205 / 8.07		232 / 9.13		355 / 13.98	
A2	190 / 7.48		215 / 8.46		327 / 12.87	
A3	177 / 6.97		200 / 7.87		301 / 11.85	
A4	25 / 0.98		27 / 1.06		51.8 / 2.04	
A5	4×Φ4.5 / 4×Φ0.18	6×Φ4.5 / 6×Φ0.18	4×Φ5.5 / 4×Φ0.22	6×Φ5.5 / 6×Φ0.22	4×Φ5.5 / 4×Φ0.22	6×Φ5.5 / 6×Φ0.22
A6	17.3 / 0.68		21.2 / 0.83		38.3 / 1.51	
A7	63 / 2.48		71.4 / 2.81		103.5 / 4.07	
A8	26 / 1.02		30 / 1.18		45 / 1.77	
A9	14.5 / 0.57		16 / 0.63		27 / 1.06	
A10	11.2 / 0.44		15 / 0.59		22.5 / 0.89	
A11	27.3 / 1.07		32 / 1.26		38.5 / 1.52	
A12	-	30 / 1.18	-	35 / 1.38	-	45 / 1.77
A13	-	60 / 2.36	-	70 / 2.76	-	90 / 3.54
A14	-	90 / 3.54	-	105 / 4.13	-	135 / 5.31
A15	90 / 3.54	120 / 4.72	105 / 4.13	140 / 5.51	140 / 5.51	185 / 7.28
A16	30 / 1.18	-	35 / 1.38	-	45 / 1.77	-
A17	60 / 2.36	-	70 / 2.76	-	90 / 3.54	-
A18	109 / 4.29		125 / 4.92		170.8 / 6.72	
A19	81.6 / 3.21		91.5 / 3.60		118.5 / 4.67	
A20	72 / 2.83		82 / 3.23		108 / 4.25	
A21	62.5 / 2.46		72.5 / 2.85		96 / 3.78	
A22	19 / 0.75		22.5 / 0.89		27(≤ 400 A) / 1.06 28(> 400 A) / 1.10	
A23	19 / 0.75		22.5 / 0.89		27 / 1.06	
A24	78.5 / 3.09		88 / 3.46		113 / 4.45	
A25	85 / 3.35		94.5 / 3.72		118.5 / 4.67	
A26	90.7 / 3.57		100.2 / 3.94		124.2 / 4.89	

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Electronic RCD module for MCCBs

Installation space

