

MCB INS18 (space reduction up to 50%)

Data Sheet V1.2



The SEP INS18 is a miniature circuit breaker suitable for domestic, utility as well as in small industrial applications. The INS18 design is based on the SEP Compact range of products and is therefore easy to combine together. The extended range of busbars is also available to connect the items together. The INS18 has a breaking capacity of 6kA, is available in a range of current up to 40A and in characteristics B or C.

INS18 miniature circuit breaker

INS18 is a MCB compliant to product standard IEC/EN 60898 and with the following main technical features

- Breaking capacity 6kA
- Rated current up to 40A
- 1p+n, 2p+2n
- Characteristics B and C

Application benefits

- Supply possible from top and bottom
- Pin type busbar connection (above and below) up to 16mm² and connection up to 16mm² cables.
- Locking possibility for the handle in off position by attribute
- Family feeling in the SEP Compact range modular components

CE

UK
CA

CB

KEMA
EUR

RoHS

MCB INS18

Technical Data



Type			INS18	INS18-2N
Standards			IEC/EN 60898-1	
Certification			CE, UKCA, CB, KEMA KEUR	
Country of origin			CN	
RoHS Compliance Status			Compliant, No Exemption	
Number of poles			1p+n	2p+2n
Number of modules (18mm)			1	2
Tripping characteristics			B, C	
Rated current	In	A	1 ≤ In ≤ 40A	16 ≤ In ≤ 25A
Rated voltage	Ue	V	230 / 240	
Min. operating voltage		V	12	
Max. operating voltage		V	264	
Insulation voltage	Ui	V	500 V AC	
Overvoltage category			III	
Pollution degree			2	
Rated frequency			50 - 60 Hz	
Rated breaking capacity acc. to IEC/EN 60898	Icu	A	6.000	
Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	Ultimate Icu	kA	6*	
	Service Ics	kA	6*	
Rated impulse withstand voltage (1.2/50) Uimp		kV	4	
Dielectric test voltage at ind. freq. for 1 min.			2.5 kV (50 / 60Hz, 1 min.)	
Thermomagnetic release – characteristics	B: 3 In ≤ In ≤ 5 In		■	
	C: 5 In ≤ In ≤ 10 In		■	
	D: 10 In ≤ In ≤ 20 In		■	
Energy limiting class acc. to EN 61009-1			3	
Mechanical features	Housing		Insulation group I - II, RAL 7035	
	Toggle		Insulation group II, RAL 5017	
	Contact position indication		Green / Red window	
	Electrical life	operations	10.000	
	Mechanical life	operations	20.000	
	Protection degree acc. to EN 60529	housing	IP4X	
		terminals	IP2X	
	Shock resistance acc. to IEC/EN 60068-2-27		30g - 2 shocks - 13ms	
	Vibration resistance acc. to IEC/EN 60068-2-6		0.35 mm or 5 g - 20 cycles at 5...150...5 Hz	
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30	°C/RH	28 cycles with 55°C/90-96% and 25°C/95-100%	
	Reference temperature for setting of thermal element	°C	30	
	Ambient temperature (with daily average ≤ +35 °C)	°C	-25... +55	
	Storage temperature	°C	-40... +70	

* IEC/EN 60947-2 certificate and test-report are not available at present, the use of these values is the responsibility of the user

MCB INS18

Technical Data



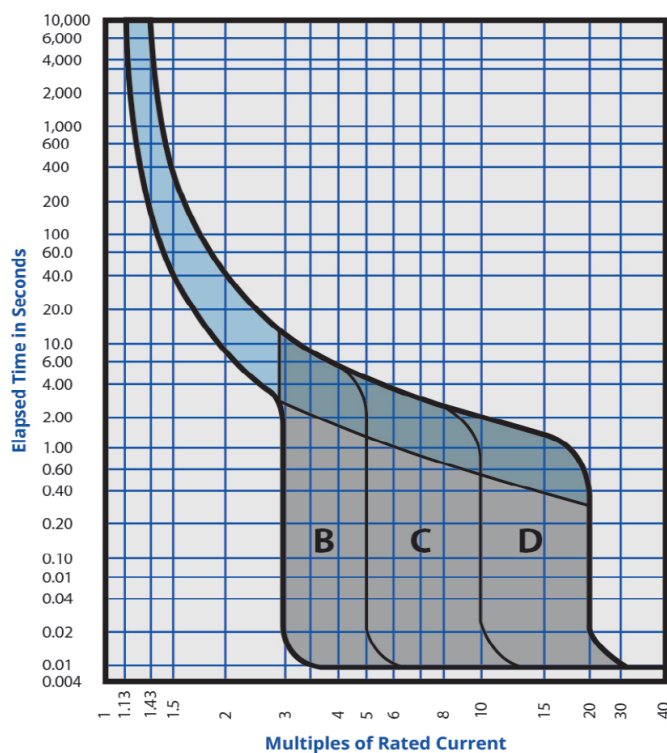
				INS18	INS18-2N
Installation	Type			lift / open-mouthed	
	Terminal type	bottom / top		16/10	
	Terminal size for cables	bottom / top	mm ²	10	
	Terminal size for PIN busbar	bottom / top	mm ²	1x 1.5mm ² - 16mm ² 2 x 1.5mm ² - 6mm ² *	
	Solid /stranded wiring			1x 1.5mm ² - 10mm ² 2 x 1.5mm ² - 6mm ² *	
	Flexible wires with or without ferrules			1.2 Nm	
	Tightening torque	bottom / top		10mm	
	Stripping length of the cable			on DIN rail EN 60715 (35mm) by means of mounting clip	
	Mounting			Any	
	Mounting position			Top / bottom terminals	
	Supply from			86 x 18 x 77	86 x 36 x 77
	Dimensions (H x W x D)		mm		
	Weight		kg	0,127	0,260
Packing	Packing A	QTY		1	1
		Dimensions (H x W x D)	mm	90 x 20 x 80	90 x 37,5 x 80
		Weight	kg	0,13	0,27
	Packing B (x A)	QTY		10	5
		Dimensions (H x W x D)	mm	225 x 95 x 85	
		Weight	kg	1,34	
	Packing C (x B)	QTY		120	60
		Dimensions (H x W x D)	mm	470 x 310 x 190	
		Weight	kg	16	
	CN-code			85362010	
Combination with auxiliary elements	Auxiliary contact			Yes	NA
	Alarm contact			NA	
	Shunt trip			NA	
	Auxiliary contact for bottom fitting			NA	
	Undervoltage release			NA	
	Overvoltage release			NA	
	Motor operating device			NA	

* Check local installation rules, this type of connection is not advised. Special add-on terminals are available.

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Tripping Characteristics



Performance in altitude*

Elevation [m]	2000	3000	4000	5000	6000
Rated current [A]	1 x I _n	0,95 x I _n	0,92 x I _n	0,90 x I _n	0,88 x I _n
Rated voltage [V]	1 x U _n	0,85 x U _n	0,75 x U _n	0,65 x U _n	0,55 x U _n

* the MCB is designed for standard level operations, performance information on higher altitude is not available

Influence of adjacent devices

Number of devices	1	2-3	4-5	6-9	≥10
Correction factor	1	0,9	0,8	0,7	0,6

These values are provided by recommendation IEC 61439-1 and standards EN 61439-1. In order to avoid having to use these coefficients there must be good ventilation and the devices must be kept apart using the spacing element article number 2119000010 (0.5 module).

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Derating in temperature *INS18*

Max operating current depending on the ambient temperature (daily average $\leq +35\text{ }^{\circ}\text{C}$)

In [A]	Ambient temperature [°C]										
	-25	-15	-5	10	30	40	45	55	60	65	70
1	1,2	1,17	1,13	1,08	1	0,96	0,94	0,9	0,88	0,86	0,84
2	2,35	2,29	2,23	2,13	2	1,93	1,89	1,82	1,78	1,74	1,71
3	3,52	3,43	3,34	3,2	3	2,9	2,84	2,73	2,68	2,63	2,57
4	4,75	4,62	4,49	4,9	4	3,85	3,77	3,61	3,53	3,45	3,37
6	7,59	7,32	7,5	6,62	6	5,66	5,49	5,12	4,92	4,75	4,58
8	10,12	9,76	10	8,83	8	7,53	7,3	6,79	6,51	6,23	5,95
10	11,75	11,45	11,14	10,67	10	9,65	9,47	9,09	8,9	8,71	8,52
13	16,29	15,74	15,17	14,29	13	12,24	11,86	11,04	10,59	10,12	9,65
16	19,3	18,74	18,17	17,27	16	15,32	14,97	14,25	13,87	13,48	13,08
20	24,09	23,40	22,69	21,58	20	19,16	18,73	17,82	17,36	16,89	16,41
25	29,36	28,62	27,86	26,67	25	24,12	23,67	22,74	22,26	21,77	21,27
32	38,93	37,76	36,56	34,68	32	30,57	29,83	28,28	27,48	26,66	25,81
40	47,81	46,48	45,13	43	40	38,41	37,59	35,89	35,01	34,10	33,16

Power loss INS18

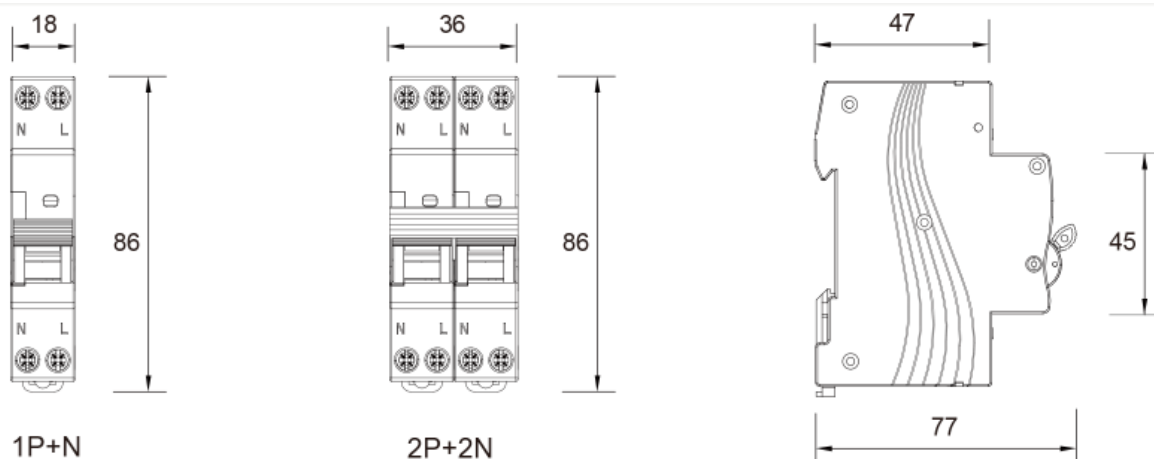
In [A]	1p+n (W)	2p+2n (W)
1	0,7	-
2	0,6	-
3	1,2	-
4	1,75	-
6	2,28	-
8	2,08	-
10	1,3	-
13	1,56	-
16	2,42	4,84
20	2,1	4,2
25	2,75	5,5
32	3,14	-
40	4,6	-

MCB INS18

Technical Data

Overall dimensions

All measurements in mm



INS18

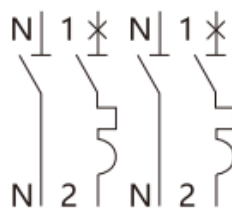
Connection diagram



1+N - pole








2+2N - pole




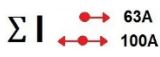
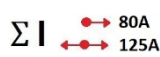
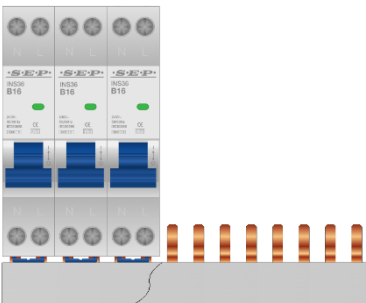
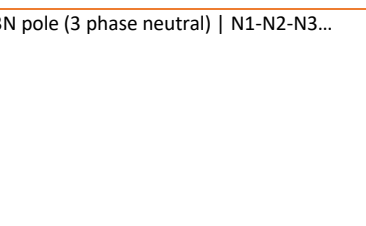

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Order codes

Reference image	Inom	Characteristics	
		B	C
	1 A	3101541001	3101551001
	2 A	3101541002	3101551002
	3 A	3101541003	3101551003
	4 A	3101541004	3101551004
	6 A	3101541006	3101551006
	8 A	3101541008	3101551008
	10 A	3101541010	3101551010
	13 A	3101541013	3101551013
	16 A	3101541016	3101551016
	20 A	3101541020	3101551020
	25 A	3101541025	3101551025
	32 A	3101541032	3101551032
	40 A	3101541040	3101551040
	16 A	3101541116	3101551116
	20 A	3101541120	3101551120
	25 A	3101541125	3101551125
Auxiliary contact	1CO	3104500001	
			
	Terminal cover 2p (yellow)	3102290010	
	Terminal cover 4p (yellow)	3102490010	

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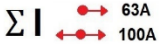
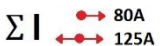
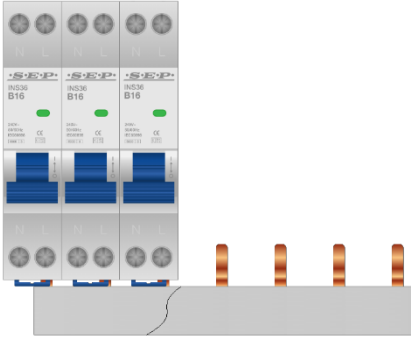
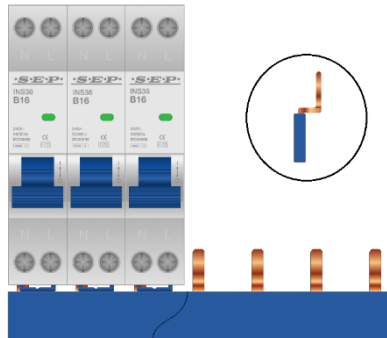

Order codes for connective rail

Busbar / connective rail type		10mm ² (closed end - non cuttable)	16mm ² (cut to size with end- caps)
		 PIN	 PIN
 2 pole (phase neutral) N1-N1-N1... 12-12-12	3	2305122906	2306020906
	4	2305122908	2306020908
	5	2305122910	2306020910
	6	2305122912	2306020912
	8	2305122916	-
	9	-	2306020918
	10	2305122920	-
	12	2305122924	2306020924
	18	-	2306020936
	24	-	2306020948
	54	-	2306162200
 3N pole (3 phase neutral) N1-N2-N3...	6	2305142912	2306050912
	9	2305142920	2306050918
	12	2305142924	2306050924
	15	-	2306050930
	18	-	2306050936
	21	-	2306050942
	24	-	2306050948
	54	-	2306162400
 Open mouth covers for busbar PIN 9/18	2115900015		

* pictures are indicative – other combinations are possible


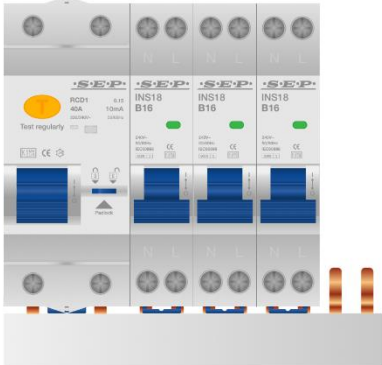


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Order codes for connective rail

Busbar / connective rail type	INS18 	10mm ² (closed end - non cuttable) 		16mm ² (cut to size with end- caps) 	
		PIN		PIN	
		Grey	Blue	Grey	Blue
1 pole – phase/neutral bar (17,8mm) 	2	2305101002	2305101902	-	-
	3	2305101003	2305101903	-	-
	4	2305101004	2305101904	-	-
	5	2305101005	2305101905	-	-
	6	2305101006	2305101906	230601006	2306019006
	7	2305101007	2305101907	-	-
	8	2305101008	2305101908	-	-
	9	2305101009	2305101909	230601009	2306019009
	10	2305101010	2305101910	-	-
	11	2305101011	2305101911	-	-
	12	2305101012	2305101912	2306010012	2306019012
	13	2305101013	2305101913	-	-
	15	-	-	2306010015	2306019015
	18	-	-	2306010018	2306019018
	21	-	-	2306010021	2306019021
	24	-	-	2306010024	2306019024
	54	-	-	2306160100	2306160101
1 pole – neutral bar (17,8mm) 	2	-	2305101992	-	-
	3	-	2305101993	-	-
	4	-	2305101994	-	-
	5	-	2305101995	-	-
	6	-	2305101996	-	-
	8	-	2305101998	-	-
	10	-	2305101990	-	-
	12	-	2305101991	-	-
	Open mouth covers for busbar PIN	2115900010			

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Order codes for connective rail


		<p>10mm² (closed end - non cuttable)</p> <p>ΣI \rightarrow 63A \leftarrow 100A</p>
<p>Busbar / connective rail type</p> <p>Bottom Combi-rail (L1-L2) RCD1 – INS18/INS36</p> 	<p>No. devices</p> <p>1x 2p + 2x 2P (18mm) 1x 2p + 3x 2P (18mm) 1x 2p + 4x 2P (18mm) 1x 2p + 5x 2P (18mm)</p>	<p>2305192306 2305192308 2305192310 2305192312</p>
<p>Bottom Combi-rail (N-L1-L2-L3-N1-N2-N3-N1) RCD1 – INS18/INS36</p> 	<p>1x 4p + 4x 2P (18mm)</p>	<p>2305194312</p>
	<p>Open mouth covers for busbar PIN 9/18</p>	<p>2115900015</p>

* pictures are indicative – other combinations are possible


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Order codes accessories


Add-on terminals

Reference image	Wire size	PIN connection high		PIN connection Low	
		Grey	Blue	Grey	Blue
	2x10mm ² solid/stranded 2x6mm ² flexible	2115900040	2115900540	2115900041	2115900541

Marker - spacer

Reference image	Description	Code
	Component Spacer 0,5mm	2119000010

Lockout

Reference image	Description	Code
	Lockout set - complete	2115909099
	Locking devices adaptor	2115909015
	Locking device screw adaptor	2115909010
	Padlock with 2 identical keys	2115909020
	Warning tag (English)	2115909030

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