sg03518_r

Description

- High-quality miniature circuit breakers for commercial and residential applications
- Guide for secure terminal connection
- 3-position DIN rail clip, permits removal from existing busbar system
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C
- Rated breaking capacity 6 kA according to IEC/EN 60898-1

6 kA, Characteristic B

1-pole

sg02918_r

Rated current I_n (A)	Type Designation	Article No.	Units per package
6	HN-B6/1	194818	12/120
10	HN-B10/1	194819	12/120
13	HN-B13/1	194820	12/120
16	HN-B16/1	194821	12/120
20	HN-B20/1	194822	12/120
25	HN-B25/1	194823	12/120
32	HN-B32/1	194824	12/120
40	HN-B40/1	194825	12/120
50	HN-B50/1	194826	12/120
63	HN-B63/1	194827	12/120

1+N-pole

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6	HN-B6/1N	194838	6/60
10	HN-B10/1N	194839	6/60
13	HN-B13/1N	194840	6/60
16	HN-B16/1N	194841	6/60
20	HN-B20/1N	194842	6/60
25	HN-B25/1N	194843	6/60
32	HN-B32/1N	194844	6/60
40	HN-B40/1N	194845	6/60
50	HN-B50/1N	194846	6/60
63	HN-B63/1N	194847	6/60

2-pole

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6	HN-B6/2	194858	6/60
10	HN-B10/2	194859	6/60
13	HN-B13/2	194860	6/60
16	HN-B16/2	194861	6/60
20	HN-B20/2	194862	6/60
25	HN-B25/2	194863	6/60
32	HN-B32/2	194864	6/60
40	HN-B40/2	194865	6/60
50	HN-B50/2	194866	6/60
63	HN-B63/2	194867	6/60

3-pole

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6	HN-B6/3	194878	4/40
10	HN-B10/3	194879	4/40
13	HN-B13/3	194880	4/40
16	HN-B16/3	194881	4/40
20	HN-B20/3	194882	4/40
25	HN-B25/3	194883	4/40
32	HN-B32/3	194884	4/40
40	HN-B40/3	194885	4/40
50	HN-B50/3	194886	4/40
63	HN-B63/3	194887	4/40

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Rated current I_n (A)	Type Designation	Article No.	Units per package
3+N-pole			
6	HN-B6/3N	194898	3/30
10	HN-B10/3N	194899	3/30
13	HN-B13/3N	194900	3/30
16	HN-B16/3N	194901	3/30
20	HN-B20/3N	194902	3/30
25	HN-B25/3N	194903	3/30
32	HN-B32/3N	194904	3/30
40	HN-B40/3N	194905	3/30
50	HN-B50/3N	194906	3/30
63	HN-B63/3N	194907	3/30

6 kA, Characteristic C

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1-pole			
6	HN-C6/1	194828	12/120
10	HN-C10/1	194829	12/120
13	HN-C13/1	194830	12/120
16	HN-C16/1	194831	12/120
20	HN-C20/1	194832	12/120
25	HN-C25/1	194833	12/120
32	HN-C32/1	194834	12/120
40	HN-C40/1	194835	12/120
50	HN-C50/1	194836	12/120
63	HN-C63/1	194837	12/120

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1+N-pole			
6	HN-C6/1N	194848	6/60
10	HN-C10/1N	194849	6/60
13	HN-C13/1N	194850	6/60
16	HN-C16/1N	194851	6/60
20	HN-C20/1N	194852	6/60
25	HN-C25/1N	194853	6/60
32	HN-C32/1N	194854	6/60
40	HN-C40/1N	194855	6/60
50	HN-C50/1N	194856	6/60
63	HN-C63/1N	194857	6/60

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2-pole			
6	HN-C6/2	194868	6/60
10	HN-C10/2	194869	6/60
13	HN-C13/2	194870	6/60
16	HN-C16/2	194871	6/60
20	HN-C20/2	194872	6/60
25	HN-C25/2	194873	6/60
32	HN-C32/2	194874	6/60
40	HN-C40/2	194875	6/60
50	HN-C50/2	194876	6/60
63	HN-C63/2	194877	6/60

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Rated current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
6	HN-C6/3	194888	4/40
10	HN-C10/3	194889	4/40
13	HN-C13/3	194890	4/40
16	HN-C16/3	194891	4/40
20	HN-C20/3	194892	4/40
25	HN-C25/3	194893	4/40
32	HN-C32/3	194894	4/40
40	HN-C40/3	194895	4/40
50	HN-C50/3	194896	4/40
63	HN-C63/3	194897	4/40

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3+N-pole			
6	HN-C6/3N	194908	3/30
10	HN-C10/3N	194909	3/30
13	HN-C13/3N	194910	3/30
16	HN-C16/3N	194911	3/30
20	HN-C20/3N	194912	3/30
25	HN-C25/3N	194913	3/30
32	HN-C32/3N	194914	3/30
40	HN-C40/3N	194915	3/30
50	HN-C50/3N	194916	3/30
63	HN-C63/3N	194917	3/30

Specifications | Miniature Circuit Breakers HN

Description

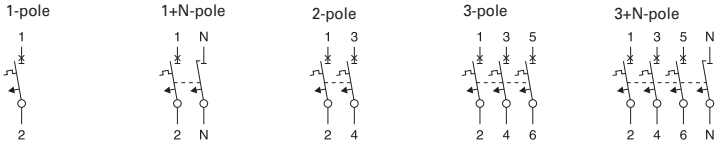
- High selectivity between MCB and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 4 mm, for secure isolation
- Suitable for applications up to 48 V DC

Accessories:		
Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35 mm²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

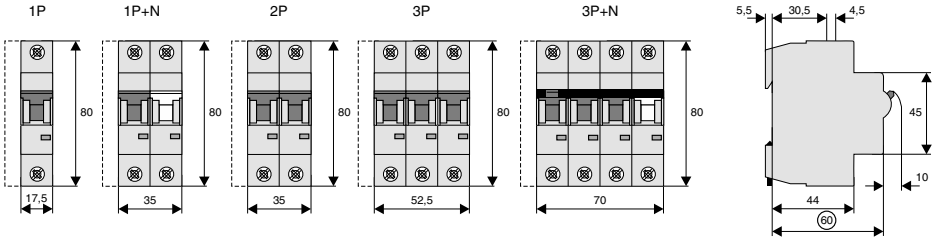
Technical Data

		HN
Electrical		
Design according to Current test marks as printed onto the device		IEC/EN 60898-1
Rated voltage	U_n	AC: 230/400 V DC: 48 V (per pole, max. 2 poles)
Rated frequency		50/60 Hz
Rated breaking capacity according to IEC/EN 60898-1	I_{cn}	6 kA
Characteristic		B, C
Back-up fuse		max. 100 A gL
Selectivity class		3
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)
Endurance		
electrical components		≥ 10,000 switching operations
mechanical components		≥ 20,000 switching operations
Line voltage connection		at will (above/below)
Minimal voltage		12 V AC/DC
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		17.5 mm per pole (1MU)
Mounting		quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Degree of protection		IP20
Upper and lower terminals		open mouthed/lift terminals
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity		1-25 mm²
Terminal torque		2-2.4 Nm
Busbar thickness		0.8 - 2 mm
Mounting		independent of position
Climatic conditions		Acc. to IEC 68-2 (25...55°C / 90...95% RH)

Connection diagrams

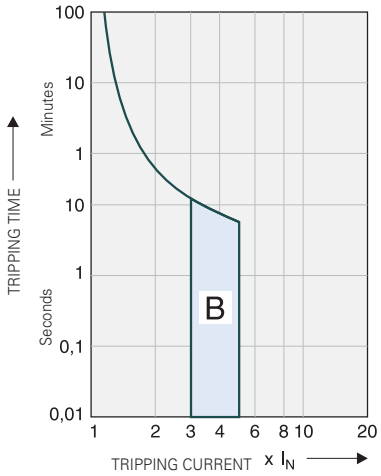


Dimensions (mm)

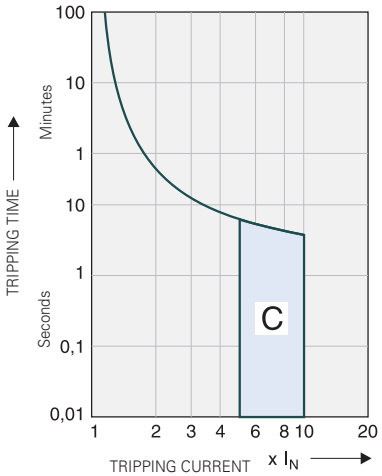


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



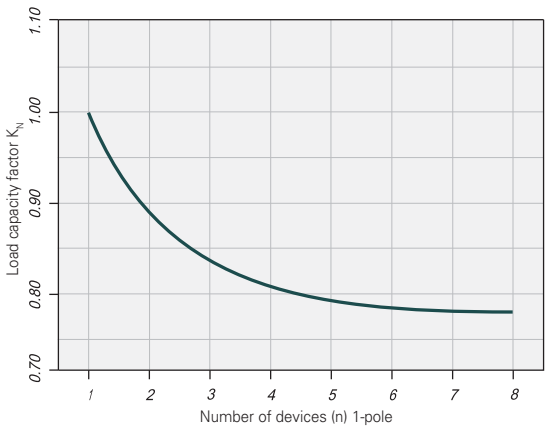
Quick-acting (B), slow (C)

Effect of the Ambient Temperature on Thermal Tripping Behaviour

Adjusted rated current values according to the ambient temperature

	Ambient temperature T [°C]															
I_n [A]	**-25**	**-20**	**-10**	**0**	**10**	**20**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**
6	7.3	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1	5.0
10	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9.0	8.9	8.7	8.5	8.3
13	16	16	15	15	14	14	13	13	13	12	12	12	12	11	11	11
16	20	19	19	18	17	17	16	16	15	15	15	14	14	14	14	13
20	24	24	23	22	22	21	20	20	19	19	19	18	18	17	17	17
25	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	21
32	39	38	37	36	35	33	32	32	31	30	30	29	28	28	27	26
40	49	48	47	45	43	42	40	39	39	38	37	36	35	35	34	33
50	61	60	58	56	54	52	50	49	48	47	46	45	44	43	42	41
63	77	76	73	71	68	66	63	62	61	60	58	57	56	55	53	52

Load Capacity of Series Connected Miniature Circuit Breakers



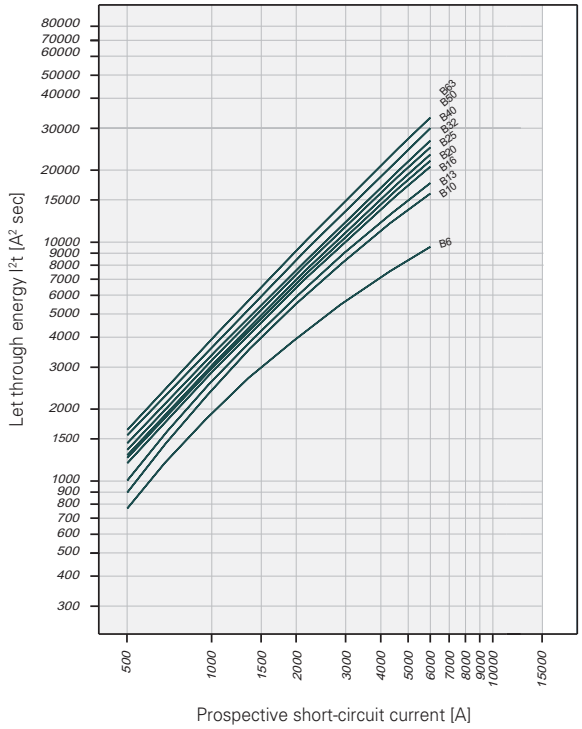
Effect of Power Frequency

Effect of power frequency on the tripping behaviour I_{MA} of the quick release

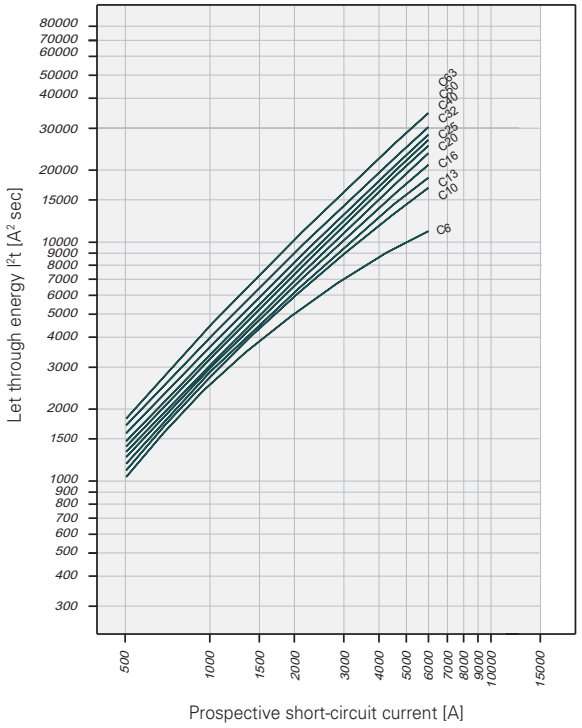
	Power frequency f [Hz]						
	$16^2/_3$	**50**	**60**	**100**	**200**	**300**	**400**
$I_{MA}(f)/I_{MA}(50\ Hz)$ [%]	91	100	101	106	115	134	141

Let-through Energy HN

Let-through Energy HN, Characteristic B, 1-pole



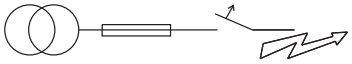
Let-through Energy HN, Characteristic C, 1-pole



Short Circuit Selectivity HN towards DII-DIV fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers HN and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b



Towards DII-DIV fuse link

Short circuit selectivity **Characteristic B** towards fuse link **DII-DIV***)

HN	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.6	0.9	1.8	3.2	6.0[2]	6.0[2]	6.02)
10			0.5	0.8	1.4	2.2	3.9	6.0[2]	6.0[2]
13			0.5	0.7	1.3	2.0	3.6	5.4	6.0[2]
16				0.6	1.2	1.9	3.2	4.6	6.0[2]
20					1.2	1.8	3.1	4.4	6.0[2]
25					1.2	1.8	3.0	4.2	6.0[2]
32						1.7	2.8	3.9	6.0[2]
40							2.7	3.8	6.0[2]
50							2.5	3.5	5.7
63									5.3

Short circuit selectivity **Characteristic C** towards fuse link **DII-DIV***)

HN	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.5	0.6	1.4	2.4	5.5	6.0[2]	6.0[2]
10			<0.5[1]	0.6	1.3	2.0	3.6	6.0[2]	6.0[2]
13					1.3	1.9	3.3	5.0	6.0[2]
16					1.2	1.8	3.2	4.4	6.0[2]
20					1.2	1.8	3.1	4.1	6.0[2]
25						1.7	2.8	3.8	6.0[2]
32							2.7	3.7	6.0[2]
40								3.5	5.9
50									5.5

Towards D01-D03 fuse link

Short circuit selectivity **Characteristic B** towards fuse link **D01-D03***)

HN	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.5	0.8	1.6	3.6	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.7	1.3	2.4	3.4	6.0[2]	6.0[2]
13			<0.5[1]	0.7	1.2	2.3	3.2	5.3	6.0[2]
16				0.6	1.1	2.2	2.9	4.6	6.0[2]
20					1.1	2.1	2.8	4.4	6.0[2]
25					1.1	2.0	2.7	4.2	6.0[2]
32						2.0	2.6	4.0	6.0[2]
40							2.5	3.8	6.0[2]
50							2.3	3.4	6.0[2]
63									6.0[2]

Short circuit selectivity **Characteristic C** towards fuse link **D01-D03***)

HN	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	<0.5[1]	<0.5[1]	1.2	2.7	4.5	6.0[2]	6.0[2]
10			<0.5[1]	<0.5[1]	1.2	2.3	3.1	5.4	6.0[2]
13					1.1	2.2	3.0	4.9	6.0[2]
16					1.1	2.1	2.8	4.4	6.0[2]
20					1.0	2.0	2.6	4.0	6.0[2]
25						1.9	2.5	3.8	6.0[2]
32							2.5	3.7	6.0[2]
40								3.5	6.0[2]
50									6.0[2]

Towards NH-00 fuse link

Short circuit selectivity **Characteristic B** towards fuse link **NH-00***)

HN	NH-00 gL/gG											
I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
6	<0.5[1]	<0.5[1]	0.7	1.1	1.5	2.0	3.3	4.3	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10		<0.5[1]	0.6	0.9	1.2	1.5	2.2	2.7	4.0	6.0[2]	6.0[2]	6.0[2]
13		<0.5[1]	0.6	0.8	1.1	1.4	2.1	2.6	3.8	6.0[2]	6.0[2]	6.0[2]
16			0.5	0.7	1.0	1.3	1.9	2.4	3.4	6.0[2]	6.0[2]	6.0[2]
20				0.7	1.0	1.3	1.9	2.4	3.3	6.0[2]	6.0[2]	6.0[2]
25				0.7	1.0	1.3	1.8	2.3	3.2	5.7	6.0[2]	6.0[2]
32					0.9	1.2	1.7	2.2	3.1	5.4	6.0[2]	6.0[2]
40								2.1	3.0	5.1	6.0[2]	6.0[2]
50								1.9	2.8	4.7	6.0[2]	6.0[2]
63										4.4	6.0[2]	6.0[2]

Short circuit selectivity **Characteristic C** towards fuse link **NH-00***)

HN	NH-00 gL/gG											
I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
6	<0.5[1]	<0.5[1]	0.5	0.8	1.2	1.5	2.5	3.3	5.7	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	6.0[2]	6.0[2]	6.0[2]
13					1.0	1.3	1.9	2.4	3.6	6.0[2]	6.0[2]	6.0[2]
16					1.0	1.3	1.8	2.3	3.3	6.0[2]	6.0[2]	6.0[2]
20					1.0	1.2	1.7	2.2	3.2	5.5	6.0[2]	6.0[2]
25							1.6	2.1	3.0	5.2	6.0[2]	6.0[2]
32								2.1	2.9	5.0	6.0[2]	6.0[2]
40									2.8	4.8	6.0[2]	6.0[2]
50										4.5	6.0[2]	6.0[2]
63											5.9	6.0[2]

[1] Selectivity limit current I_s under 0.5 kA

[2] Selectivity limit current I_s = rated breaking capacity I_{cn} of the MCB

Darker areas: no selectivity