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xPole Home

New residential breaker range for protection and safety of your home



Catalog

Powering Business Worldwide

sg01018_r



Description

- A compact range of residual current devices for a wide range of applications
- For fault current/residual current protection and additional protection
- Selection of nominal currents
- Basic range of accessories
- Real contact position indicator

$I_r/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package

Type AC

Conditionally surge current-proof 250 A, type AC

sg02118_r



2-pole

25/0.03	HNC-25/2/003	194690	1/60
40/0.03	HNC-40/2/003	194691	1/60
63/0.03	HNC-63/2/003	194692	1/60

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4-pole

25/0.03	HNC-25/4/003	194693	1/30
40/0.03	HNC-40/4/003	194694	1/30
63/0.03	HNC-63/4/003	194695	1/30

Type A

Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

sg02118_r



2-pole

25/0.03	HNC-25/2/003-A	194684	1/60
40/0.03	HNC-40/2/003-A	194685	1/60
63/0.03	HNC-63/2/003-A	194686	1/60

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4-pole

25/0.03	HNC-25/4/003-A	194687	1/30
40/0.03	HNC-40/4/003-A	194688	1/30
63/0.03	HNC-63/4/003-A	194689	1/30

Specifications | Residual Current Devices HNC

Description

- Residual Current Devices
- Tripping is line voltage-independent. Consequently, the RCD is suitable for fault current/residual current protection and additional protection
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Universal tripping signal switch can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green
- Suitable for being used with standard fluorescent tubes with or without electronical ballast (typically up to 20 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for “fault current/residual current protection” and “additional protection” within the the meaning of the applicable installation rules
- Mains connection at either side
- The 4-pole device can also be used for 2- or 3-pole connection. See connection possibilities.
- The test key “T” must be pressed every 6 month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed). The test intervall of 6 month is valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environments), it’s recommended to test in shorter intervalls (e.g. monthly).
- Pressing the test key “T” serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- **Type -A**: Protects against special forms of residual pulsating DC which have not been smoothed

Accessories:

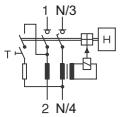
Auxiliary switch for subsequent installation to the left	Z-HK	248432
Remote tripping module	Z-FAM	248293

Technical Data

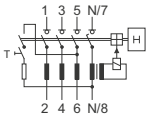
		HNC	
Electrical			
Design according to		IEC/EN 61008	
Current test marks as printed onto the device			
Tripping		instantaneous	
Rated voltage	U_n	230/400 V AC, 50 Hz	
Rated tripping current	$I_{\Delta n}$	30 mA	
Sensitivity		AC and pulsating DC	
Rated insulation voltage	U_i	440 V	
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)	
Rated short circuit strength	I_{cn}	6 kA	
Maximum back-up fuse		Short circuit	Overload
I_n = 25 A		63 A gG/gL	16 A gG/gL
I_n = 40 A		63 A gG/gL	25 A gG/gL
I_n = 63 A		63 A gG/gL	40 A gG/gL
In the case that the maximal possible operating current of the electrical installation don´t exceed the rated current of the RCD only short circuit protection must be implemented. Overload protection must be implemented in the case if the maximal possible operating current of the electrical installation can exceed the rated current of the RCD.			
Rated breaking capacity	I_m		
Rated fault breaking capacity	$I_{\Delta m}$		
I_n = 25-40 A		500 A	
I_n = 63 A		630 A	
Voltage range of test button			
2-pole		196 - 264 V~	
4-pole		196 - 264 V~	
Endurance			
electrical components		≥ 4,000 switching operations	
mechanical components		≥ 20,000 switching operations	
Mechanical			
Frame size		45 mm	
Device height		80 mm	
Device width		35 mm (2MU), 70 mm (4MU)	
Mounting		quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in		IP40	
Upper and lower terminals		open mouthed/lift terminals	
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274	
Terminal capacity		1.5 - 35 mm² single wire	
		2 x 16 mm² multi wire	
Busbar thickness		0.8 - 2 mm	
Operating temperature		-25°C to +40°C	
Storage- and transport temperature		-35°C to +60°C	
Resistance to climatic conditions		25-55°C/90-95% relative humidity according to IEC 60068-2	
Climatic conditions		Acc. to IEC 68-2 (25...55°C / 90...95% RH)	

Connection diagrams

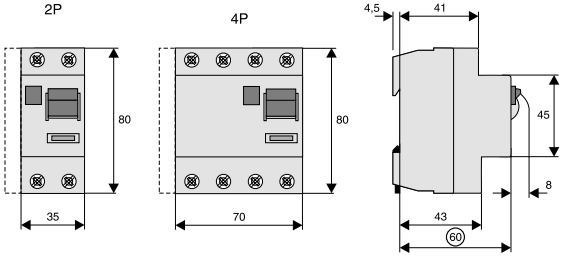
2-pole



4-pole

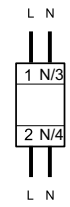


Dimensions (mm)



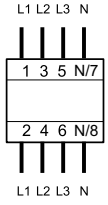
Correct connection

2-pole

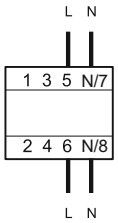


2-pole
(230V AC)

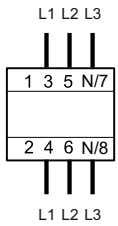
4-pole



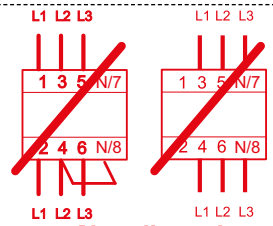
3+N
(230/400V AC)



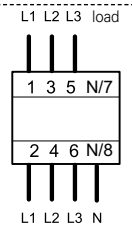
2-pole
(230V AC)



3-phase application without N
(230V AC phase-phase)



Not allowed
3-phase application without N
(400V AC phase-phase)



3-phase load without N
(400V AC phase-phase)

sg01018_r



Description

- A compact range of residual current devices for a wide range of applications
- For fault current/residual current protection and additional protection
- Selection of nominal currents
- Basic range of accessories
- Real contact position indicator

Type AC

Conditionally surge current-proof 250 A, type AC

sg02118_r



2-pole

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
25/0.1	HNC-25/2/01-HX	302342	1/60
25/0.03	HNC-25/2/003-HX	194702	1/60
40/0.1	HNC-40/2/01-HX	302343	1/60
40/0.03	HNC-40/2/003-HX	194703	1/60
63/0.1	HNC-63/2/01-HX	302344	1/60
63/0.03	HNC-63/2/003-HX	194704	1/60

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4-pole

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
25/0.1	HNC-25/4/01-HX	302345	1/30
25/0.03	HNC-25/4/003-HX	194705	1/30
40/0.1	HNC-40/4/01-HX	302346	1/30
40/0.03	HNC-40/4/003-HX	194706	1/30
63/0.1	HNC-63/4/01-HX	302347	1/30
63/0.03	HNC-63/4/003-HX	194707	1/30

Type A

Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

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2-pole

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
25/0.03	HNC-25/2/003-A-HX	194696	1/60
40/0.03	HNC-40/2/003-A-HX	194697	1/60
63/0.03	HNC-63/2/003-A-HX	194698	1/60

sg01018_r



4-pole

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
25/0.03	HNC-25/4/003-A-HX	194699	1/30
40/0.03	HNC-40/4/003-A-HX	194700	1/30
63/0.03	HNC-63/4/003-A-HX	194701	1/30

Specifications | Residual Current Devices HNC-HX

Description

- Residual Current Devices
- Tripping is line voltage-independent. Consequently, the RCD is suitable for fault current/residual current protection and additional protection
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Universal tripping signal switch can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green
- Suitable for being used with standard fluorescent tubes with or without electronical ballast (typically up to 20 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for “fault current/residual current protection” and “additional protection” within the the meaning of the applicable installation rules
- Mains connection at either side
- The 4-pole device can also be used for 2- or 3-pole connection. See connection possibilities.
- The test key “T” must be pressed every 6 month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed). The test intervall of 6 month is valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environments), it’s recommended to test in shorter intervalls (e.g. monthly).
- Pressing the test key “T” serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- **Type -A**: Protects against special forms of residual pulsating DC which have not been smoothed

Accessories:

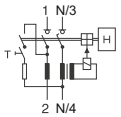
Auxiliary switch for subsequent installation to the left	Z-HK	248432
Remote tripping module	Z-FAM	248293

Technical Data

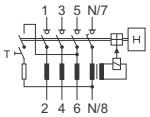
		HNC-HX	
Electrical			
Design according to Current test marks as printed onto the device		IEC/EN 61008	
Tripping		instantaneous	
Rated voltage	U_n	230/400 V AC, 50 Hz	
Rated tripping current	$I_{\Delta n}$	30 mA	
Sensitivity		AC and pulsating DC	
Rated insulation voltage	U_i	440 V	
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)	
Rated short circuit strength	I_{cn}	6 kA	
Maximum back-up fuse		Short circuit	Overload
I_n = 25 A		63 A gG/gL	16 A gG/gL
I_n = 40 A		63 A gG/gL	25 A gG/gL
I_n = 63 A		63 A gG/gL	40 A gG/gL
In the case that the maximal possible operating current of the electrical installation don´t exceed the rated current of the RCD only short circuit protection must be implemented. Overload protection must be implemented in the case if the maximal possible operating current of the electrical installation can exceed the rated current of the RCD.			
Rated breaking capacity	I_m		
Rated fault breaking capacity	$I_{\Delta m}$		
I_n = 25-40 A		500 A	
I_n = 63 A		630 A	
Voltage range of test button			
2-pole		196 - 264 V~	
4-pole		196 - 264 V~	
Endurance			
electrical components		≥ 4,000 switching operations	
mechanical components		≥ 20,000 switching operations	
Mechanical			
Frame size		45 mm	
Device height		80 mm	
Device width		35 mm (2MU), 70 mm (4MU)	
Mounting		quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in		IP40	
Upper and lower terminals		open mouthed/lift terminals	
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274	
Terminal capacity		1.5 - 35 mm² single wire 2 x 16 mm² multi wire	
Busbar thickness		0.8 - 2 mm	
Operating temperature		-25°C to +40°C	
Storage- and transport temperature		-35°C to +60°C	
Resistance to climatic conditions		25-55°C/90-95% relative humidity according to IEC 60068-2	
Climatic conditions		Acc. to IEC 68-2 (25...55°C / 90...95% RH)	

Connection diagrams

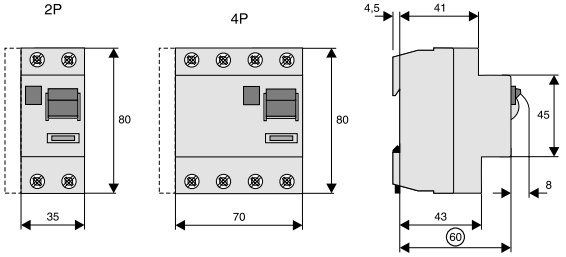
2-pole



4-pole

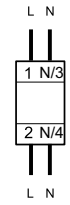


Dimensions (mm)



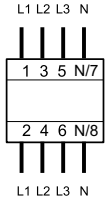
Correct connection

2-pole

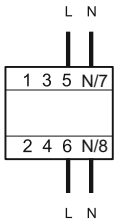


2-pole
(230V AC)

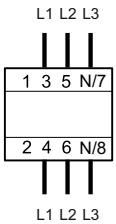
4-pole



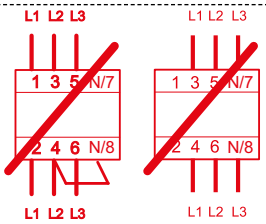
3+N
(230/400V AC)



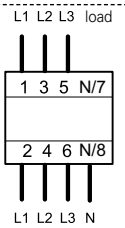
2-pole
(230V AC)



3-phase application without N
(230V AC phase-phase)



Not allowed
3-phase application without N
(400V AC phase-phase)



3-phase load without N
(400V AC phase-phase)

1.12

sg00818_r



Description

- High-quality residual current device / miniature circuit breaker combination, line voltage-independent
- Contact position indicator red - green
- Basic range of accessories can be mounted subsequently
- 3-position DIN rail clip, permits removal from existing busbar system
- Rated currents up to 40 A
- Tripping characteristics B, C
- Rated breaking capacity 6 kA

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package

Type A

6 kA, 1+N-pole
Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

sg00818_r



Characteristic B

6/0.03	HNB-B6/1N/003-A	195130	1/60
10/0.03	HNB-B10/1N/003-A	195131	1/60
13/0.03	HNB-B13/1N/003-A	195132	1/60
16/0.03	HNB-B16/1N/003-A	195133	1/60
20/0.03	HNB-B20/1N/003-A	195134	1/60
25/0.03	HNB-B25/1N/003-A	195135	1/60
32/0.03	HNB-B32/1N/003-A	303360	1/60
40/0.03	HNB-B40/1N/003-A	303361	1/60

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Characteristic C

6/0.03	HNB-C6/1N/003-A	195136	1/60
10/0.03	HNB-C10/1N/003-A	195137	1/60
13/0.03	HNB-C13/1N/003-A	195138	1/60
16/0.03	HNB-C16/1N/003-A	195139	1/60
20/0.03	HNB-C20/1N/003-A	195140	1/60
25/0.03	HNB-C25/1N/003-A	195141	1/60
32/0.03	HNB-C32/1N/003-A	303356	1/60
40/0.03	HNB-C40/1N/003-A	303357	1/60

Type AC

6 kA, 1+N-pole
Conditionally surge current-proof 250 A, type AC

sg00818_r



Characteristic B

6/0.03	HNB-B6/1N/003	195118	1/60
10/0.03	HNB-B10/1N/003	195119	1/60
13/0.03	HNB-B13/1N/003	195120	1/60
16/0.03	HNB-B16/1N/003	195121	1/60
20/0.03	HNB-B20/1N/003	195122	1/60
25/0.03	HNB-B25/1N/003	195123	1/60
32/0.03	HNB-B32/1N/003	303363	1/60
40/0.03	HNB-B40/1N/003	303364	1/60

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Characteristic C

6/0.03	HNB-C6/1N/003	195124	1/60
10/0.03	HNB-C10/1N/003	195125	1/60
13/0.03	HNB-C13/1N/003	195126	1/60
16/0.03	HNB-C16/1N/003	195127	1/60
20/0.03	HNB-C20/1N/003	195128	1/60
25/0.03	HNB-C25/1N/003	195129	1/60
32/0.03	HNB-C32/1N/003	303358	1/60
40/0.03	HNB-C40/1N/003	303359	1/60

Specifications | RCBO Devices HNB xPole Home

Description

- Combined RCD/MCB Devices
- Line voltage-independent tripping
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Contact position indicator red - green
- Basic range of accessories can be mounted subsequently
- The test key “T” must be pressed every 6 month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed). The test intervall of 6 month is valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environments), it’s recommended to test in shorter intervalls (e.g. monthly).
- Pressing the test key “T” serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- **Type -A**: Protects against special forms of residual pulsating DC which have not been smoothed

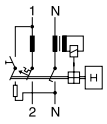
Accessories:		
Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Shunt trip release	ZP-ASA/..	248438, 248439
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35 mm^2	BB-UL-TEPA735	169823

Technical Data

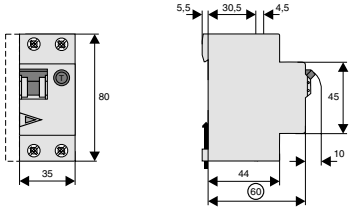
		HNB, 1+N-pole
Electrical		
Design according to Current test marks as printed onto the device		IEC/EN 61009
Line voltage-independent tripping		instantaneous 250 A (8/20 µs), surge current proof
Rated voltage	U_e	230 V AC; 50 Hz
Operational voltage range		196-253 V
Rated tripping current	$I_{\Delta n}$	30 mA
Rated non-tripping current	$I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity		AC and pulsating DC
Selectivity class		3
Rated breaking capacity	I_{cn}	6 kA
Rated current		6 - 40 A
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)
Characteristic		B, C
Maximum back-up fuse (short circuit)		100 A gL (>6 kA)
Endurance		
electrical components		≥ 4,000 switching operations
mechanical components		≥ 20,000 switching operations
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		35 mm (2MU)
Mounting		3-position DIN rail clip, permits removal from existing busbar system
Degree of protection, switch		IP20
Degree of protection, built-in		IP40
Upper and lower terminals		open mouthed/lift terminals
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity		1 - 25 mm^2
Terminal torque		2 - 2.4 Nm
Busbar thickness		0.8 - 2 mm
Tripping temperature		-25°C to +40°C
Storage- and transport temperature		-35°C to +60°C
Resistance to climatic conditions		according to IEC/EN 61009
Climatic conditions		Acc. to IEC 68-2 (25...55°C / 90...95% RH)

Connection diagram

1+N-pole



Dimensions (mm)

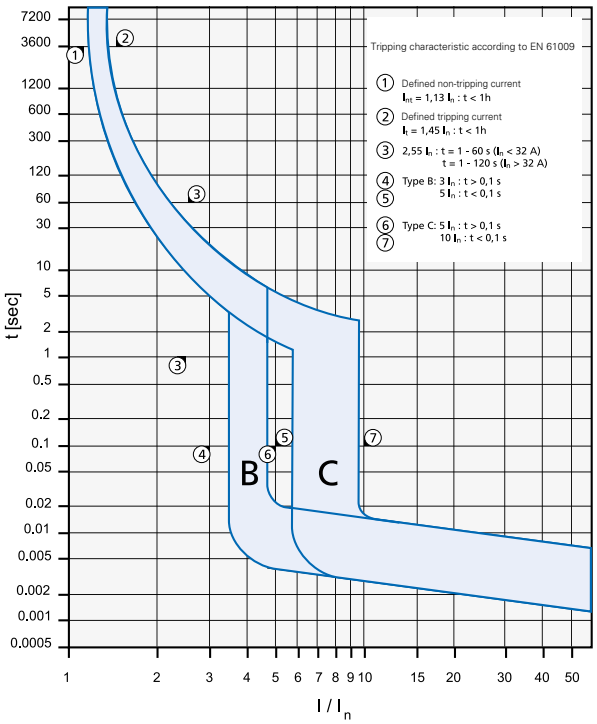


Load Capacity HNB

Effect of ambient temperature (MCB component)

	Ambient temperature T [°C]								
I_n [A]	-25	-20	-10	0	10	20	30	35	40
6	7.4	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8
10	12	12	12	11	11	10	10	9.9	9.7
13	16	16	15	15	14	14	13	13	13
16	20	19	19	18	17	17	16	16	15
20	25	24	23	22	22	21	20	20	19
25	31	30	29	28	27	26	25	25	24
32	40	38	37	36	35	33	32	32	31
40	49	48	47	45	43	42	40	39	39

Tripping Characteristic HNB, Characteristics B and C



Short Circuit Selectivity HNB towards DII-DIV fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB 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

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

HNB	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.7	1.0	2.9	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			0.6	0.9	1.9	3.3	6.0[2]	6.0[2]	6.0[2]
13			0.5	0.7	1.6	2.8	5.7	6.0[2]	6.0[2]
16				0.7	1.4	2.4	4.4	6.0[2]	6.0[2]
20					1.3	2.2	4.0	6.0[2]	6.0[2]
25					1.3	2.1	3.8	5.8	6.0[2]
32						2.0	3.5	5.2	9.5
40							3.1	4.5	8.1

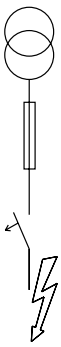
Short circuit selectivity **Characteristic C** towards fuse link **DII-DIV***)

HNB	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.6	1.0	2.9	5.8	6.0[2]	6.0[2]	6.0[2]
10			<0.5	0.7	1.5	2.6	5.3	6.0[2]	6.0[2]
13					1.4	2.3	4.6	6.0[2]	6.0[2]
16					1.2	1.8	3.4	5.5	6.0[2]
20					1.2	1.7	3.1	5.0	6.0[2]
25						1.6	2.9	4.6	6.0[2]
32							2.3	3.4	7.7
40								2.9	6.2

[1] Selectivity limit current I_s under 0.5 kA.

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

Darker areas: no selectivity



Short Circuit Selectivity HNB towards D01-D03 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB 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

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

HNB	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.5	0.8	2.4	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.8	1.6	3.7	6.0[2]	6.0[2]	6.0[2]
13			0.6	0.7	1.4	3.0	4.7	6.0[2]	6.0[2]
16				0.6	1.2	2.6	3.9	6.0[2]	6.0[2]
20					1.2	2.5	3.6	6.0[2]	6.0[2]
25					1.2	2.3	3.3	5.7	6.0[2]
32						2.3	3.1	5.1	10.0[2]
40							2.8	4.5	9.5

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

HNB	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	<0.5[1]	0.8	2.3	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			<0.5	0.6	1.3	2.9	4.5	6.0[2]	6.0[2]
13					1.2	2.5	3.9	6.0[2]	6.0[2]
16					1.0	2.1	3.0	5.5	6.0[2]
20					1.0	2.0	2.7	5.0	6.0[2]
25						1.9	2.6	4.5	6.0[2]
32							2.1	3.4	10.0[2]
40								3.0	8.7

Short Circuit Selectivity HNB towards NH-00 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB 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

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

HNB	D01-D03 gL/gG									
I_n [A]	16	20	25	32	35	40	50	63	80	100
6	<0.5[1]	0.5	0.8	1.4	2.2	3.3	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10		<0.5[1]	0.7	0.9	1.5	2.1	3.4	4.3	6.0[2]	6.0[2]
13		<0.5[1]	0.6	0.8	1.4	1.8	2.8	3.6	5.7	6.0[2]
16			0.6	0.7	1.2	1.5	2.4	3.0	4.5	6.0[2]
20				0.7	1.1	1.5	2.2	2.8	4.2	6.0[2]
25				0.7	1.1	1.4	2.1	2.6	4.0	6.0[2]
32					1.0	1.4	2.0	2.5	3.7	7.1
40								2.3	3.4	6.2

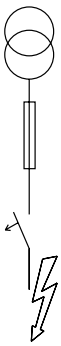
Short circuit selectivity **Characteristic C** towards fuse link **NH-00***)

HNB	D01-D03 gL/gG									
I_n [A]	16	20	25	32	35	40	50	63	80	100
6	<0.5[1]	<0.5[1]	0.7	1.3	2.2	3.3	5.9	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.8	1.2	1.7	2.7	3.4	5.5	6.0[2]
13					1.1	1.5	2.3	2.9	4.7	6.0[2]
16					1.0	1.3	1.8	2.3	3.7	6.0[2]
20					0.9	1.1	1.7	2.2	3.4	6.0[2]
25							1.6	2.1	3.2	6.0[2]
32								1.7	2.6	5.3
40									2.4	4.5

[1] Selectivity limit current I_s under 0.5 kA.

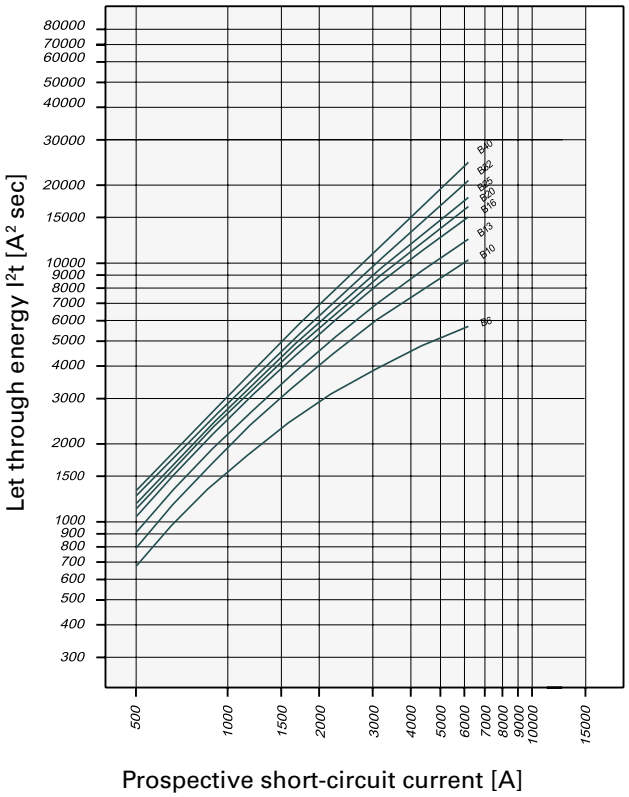
[2] Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

Darker areas: no selectivity

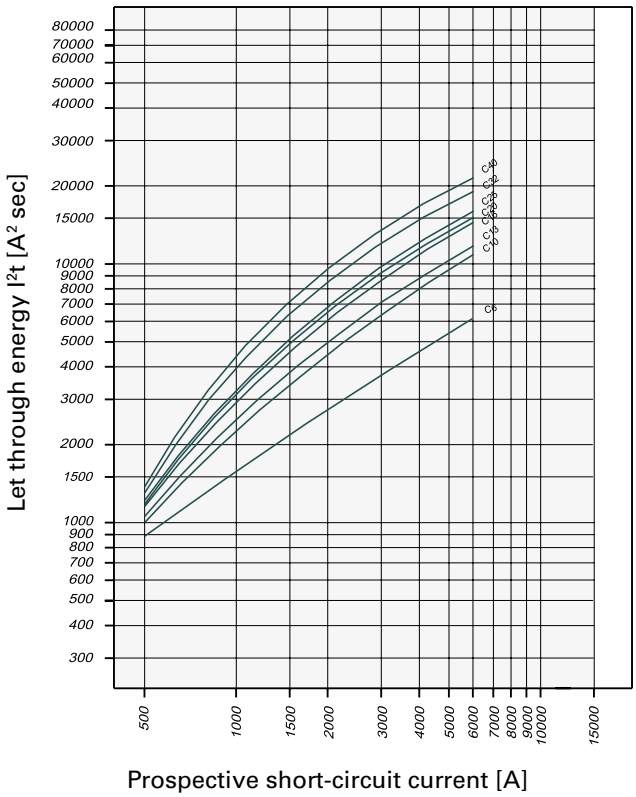


Let-through Energy HNB

Let-through Energy HNB, Characteristic B, 1+N-pole



Let-through Energy HNB, Characteristic C, 1+N-pole



sg00818_r



Description

- High-quality residual current device / miniature circuit breaker combination, line voltage-independent
- Contact position indicator red - green
- Basic range of accessories can be mounted subsequently
- 3-position DIN rail clip, permits removal from existing busbar system
- Rated currents up to 25 A
- Tripping characteristics B, C
- Rated breaking capacity 6 kA

Type A

6 kA, 1+N-pole
Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

sg00818_r



Characteristic B

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
6/0.03	HNB-B6/1N/003-A-HX	195154	1/60
10/0.03	HNB-B10/1N/003-A-HX	195155	1/60
13/0.03	HNB-B13/1N/003-A-HX	195156	1/60
16/0.03	HNB-B16/1N/003-A-HX	195157	1/60
20/0.03	HNB-B20/1N/003-A-HX	195158	1/60
25/0.03	HNB-B25/1N/003-A-HX	195159	1/60

sg00818_r



Characteristic C

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
6/0.03	HNB-C6/1N/003-A-HX	195160	1/60
10/0.03	HNB-C10/1N/003-A-HX	195161	1/60
13/0.03	HNB-C13/1N/003-A-HX	195162	1/60
16/0.03	HNB-C16/1N/003-A-HX	195163	1/60
20/0.03	HNB-C20/1N/003-A-HX	195164	1/60
25/0.03	HNB-C25/1N/003-A-HX	195165	1/60

Type AC

6 kA, 1+N-pole
Conditionally surge current-proof 250 A, type AC

sg00818_r



Characteristic B

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
6/0.03	HNB-B6/1N/003-HX	195142	1/60
10/0.03	HNB-B10/1N/003-HX	195143	1/60
13/0.03	HNB-B13/1N/003-HX	195144	1/60
16/0.03	HNB-B16/1N/003-HX	195145	1/60
20/0.03	HNB-B20/1N/003-HX	195146	1/60
25/0.03	HNB-B25/1N/003-HX	195147	1/60

sg00818_r



Characteristic C

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
6/0.03	HNB-C6/1N/003-HX	195148	1/60
10/0.03	HNB-C10/1N/003-HX	195149	1/60
13/0.03	HNB-C13/1N/003-HX	195150	1/60
16/0.03	HNB-C16/1N/003-HX	195151	1/60
20/0.03	HNB-C20/1N/003-HX	195152	1/60
25/0.03	HNB-C25/1N/003-HX	195153	1/60

Specifications | RCBO Devices HNB-HX xPole Home

Description

- Combined RCD/MCB Devices
- Line voltage-independent tripping
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Contact position indicator red - green
- Basic range of accessories can be mounted subsequently
- The test key “T” must be pressed every 6 month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed). The test intervall of 6 month is valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environments), it’s recommended to test in shorter intervalls (e.g. monthly).
- Pressing the test key “T” serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- **Type -A**: Protects against special forms of residual pulsating DC which have not been smoothed

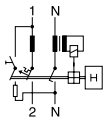
Accessories:		
Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Shunt trip release	ZP-ASA/..	248438, 248439
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35 mm^2	BB-UL-TEPA735	169823

Technical Data

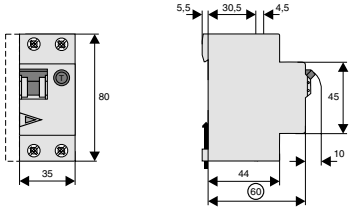
		HNB-HX, 1+N-pole
Electrical		
Design according to Current test marks as printed onto the device		IEC/EN 61009
Line voltage-independent tripping		instantaneous 250 A (8/20 µs), surge current proof
Rated voltage	U_e	230 V AC; 50 Hz
Operational voltage range		196-253 V
Rated tripping current	$I_{\Delta n}$	30 mA
Rated non-tripping current	$I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity		AC and pulsating DC
Selectivity class		3
Rated breaking capacity	I_{cn}	6 kA
Rated current		6 - 25 A
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)
Characteristic		B, C
Maximum back-up fuse (short circuit)		100 A gL (>6 kA)
Endurance		
electrical components		≥ 4,000 switching operations
mechanical components		≥ 20,000 switching operations
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		35 mm (2MU)
Mounting		3-position DIN rail clip, permits removal from existing busbar system
Degree of protection, switch		IP20
Degree of protection, built-in		IP40
Upper and lower terminals		open mouthed/lift terminals
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity		1 - 25 mm^2
Terminal torque		2 - 2.4 Nm
Busbar thickness		0.8 - 2 mm
Tripping temperature		-25°C to +40°C
Storage- and transport temperature		-35°C to +60°C
Resistance to climatic conditions		according to IEC/EN 61009
Climatic conditions		Acc. to IEC 68-2 (25...55°C / 90...95% RH)

Connection diagram

1+N-pole



Dimensions (mm)

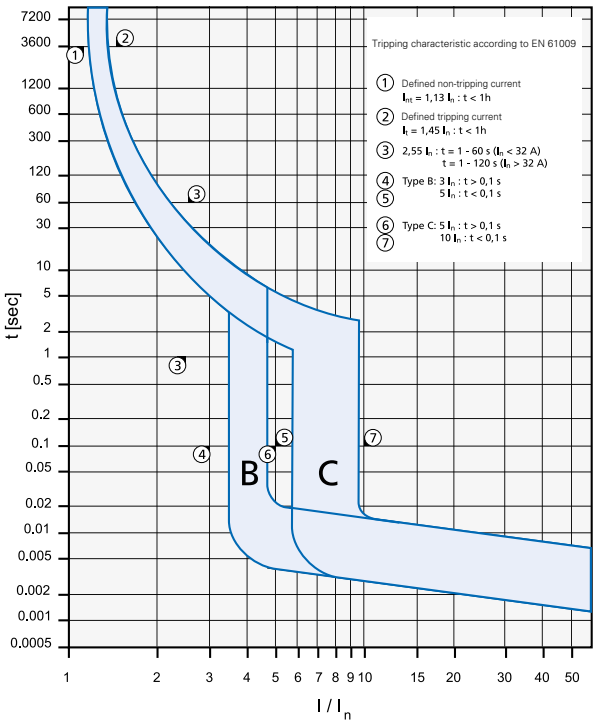


Load Capacity HNB-HX

Effect of ambient temperature (MCB component)

	Ambient temperature T [°C]								
I_n [A]	-25	-20	-10	0	10	20	30	35	40
6	7.4	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8
10	12	12	12	11	11	10	10	9.9	9.7
13	16	16	15	15	14	14	13	13	13
16	20	19	19	18	17	17	16	16	15
20	25	24	23	22	22	21	20	20	19
25	31	30	29	28	27	26	25	25	24

Tripping Characteristic HNB-HX, Characteristics B and C



Short Circuit Selectivity HNB-HX towards DII-DIV fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB-HX 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

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

HNB-HX	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.7	1.0	2.9	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			0.6	0.9	1.9	3.3	6.0[2]	6.0[2]	6.0[2]
13			0.5	0.7	1.6	2.8	5.7	6.0[2]	6.0[2]
16				0.7	1.4	2.4	4.4	6.0[2]	6.0[2]
20					1.3	2.2	4.0	6.0[2]	6.0[2]
25					1.3	2.1	3.8	5.8	6.0[2]

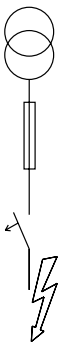
Short circuit selectivity **Characteristic C** towards fuse link **DII-DIV***)

HNB-HX	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.6	1.0	2.9	5.8	6.0[2]	6.0[2]	6.0[2]
10			<0.5	0.7	1.5	2.6	5.3	6.0[2]	6.0[2]
13					1.4	2.3	4.6	6.0[2]	6.0[2]
16					1.2	1.8	3.4	5.5	6.0[2]
20					1.2	1.7	3.1	5.0	6.0[2]
25						1.6	2.9	4.6	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 RCD/MCB device

Darker areas: no selectivity



Short Circuit Selectivity HNB-HX towards D01-D03 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB-HX 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

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

HNB-HX	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	0.5	0.8	2.4	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.8	1.6	3.7	6.0[2]	6.0[2]	6.0[2]
13			0.6	0.7	1.4	3.0	4.7	6.0[2]	6.0[2]
16				0.6	1.2	2.6	3.9	6.0[2]	6.0[2]
20					1.2	2.5	3.6	6.0[2]	6.0[2]
25					1.2	2.3	3.3	5.7	6.0[2]

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

HNB-HX	D01-D03 gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5[1]	<0.5[1]	0.8	2.3	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10			<0.5	0.6	1.3	2.9	4.5	6.0[2]	6.0[2]
13					1.2	2.5	3.9	6.0[2]	6.0[2]
16					1.0	2.1	3.0	5.5	6.0[2]
20					1.0	2.0	2.7	5.0	6.0[2]
25						1.9	2.6	4.5	6.0[2]

Short Circuit Selectivity HNB-HX towards NH-00 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices HNB-HX 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

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

HNB-HX	D01-D03 gL/gG									
I_n [A]	16	20	25	32	35	40	50	63	80	100
6	<0.5[1]	0.5	0.8	1.4	2.2	3.3	6.0[2]	6.0[2]	6.0[2]	6.0[2]
10		<0.5[1]	0.7	0.9	1.5	2.1	3.4	4.3	6.0[2]	6.0[2]
13		<0.5[1]	0.6	0.8	1.4	1.8	2.8	3.6	5.7	6.0[2]
16			0.6	0.7	1.2	1.5	2.4	3.0	4.5	6.0[2]
20				0.7	1.1	1.5	2.2	2.8	4.2	6.0[2]
25				0.7	1.1	1.4	2.1	2.6	4.0	6.0[2]

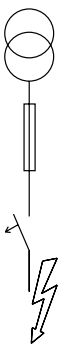
Short circuit selectivity **Characteristic C** towards fuse link **NH-00***)

HNB-HX	D01-D03 gL/gG									
I_n [A]	16	20	25	32	35	40	50	63	80	100
6	<0.5[1]	<0.5[1]	0.7	1.3	2.2	3.3	5.9	6.0[2]	6.0[2]	6.0[2]
10			0.5	0.8	1.2	1.7	2.7	3.4	5.5	6.0[2]
13					1.1	1.5	2.3	2.9	4.7	6.0[2]
16					1.0	1.3	1.8	2.3	3.7	6.0[2]
20					0.9	1.1	1.7	2.2	3.4	6.0[2]
25							1.6	2.1	3.2	6.0[2]

[1] Selectivity limit current I_s under 0.5 kA.

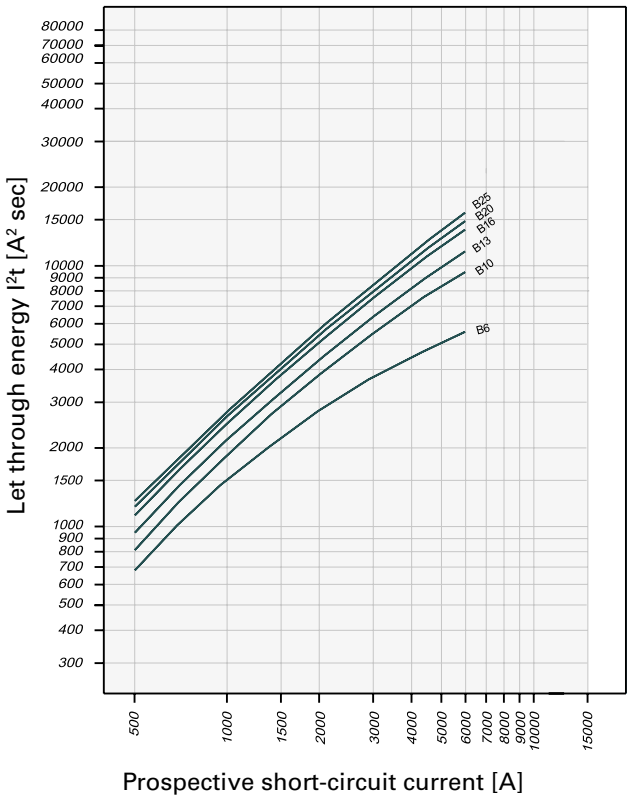
[2] Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

Darker areas: no selectivity

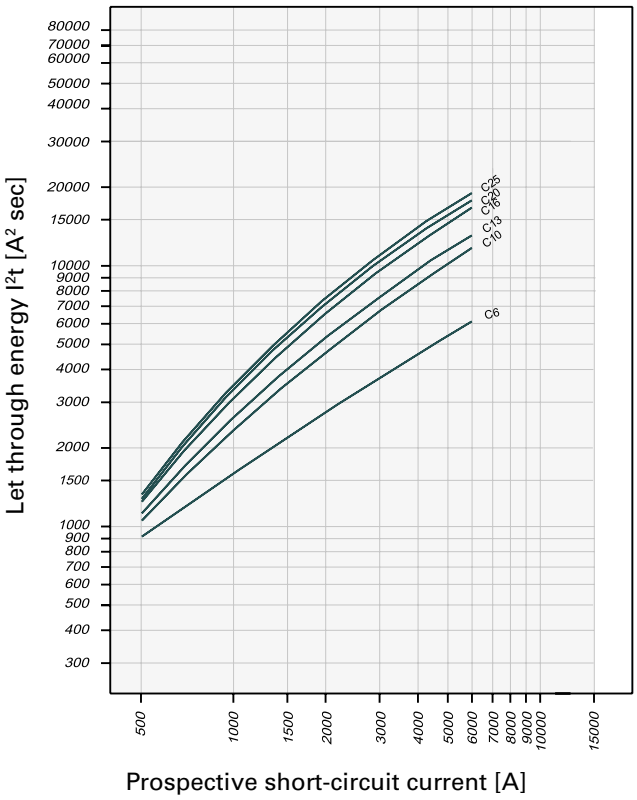


Let-through Energy HNB-HX

Let-through Energy HNB-HX, Characteristic B, 1+N-pole



Let-through Energy HNB-HX, Characteristic C, 1+N-pole



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
- Basic range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C
- Rated breaking capacity 4.5 kA according to IEC/EN 60898-1

4.5 kA, Characteristic B

1-pole

sg02818_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
6	HL-B6/1	194718	12/120
10	HL-B10/1	194719	12/120
13	HL-B13/1	194720	12/120
16	HL-B16/1	194721	12/120
20	HL-B20/1	194722	12/120
25	HL-B25/1	194723	12/120
32	HL-B32/1	194724	12/120
40	HL-B40/1	194725	12/120
50	HL-B50/1	194726	12/120
63	HL-B63/1	194727	12/120

1+N-pole

sg03218_r



6	HL-B6/1N	194738	6/60
10	HL-B10/1N	194739	6/60
13	HL-B13/1N	194740	6/60
16	HL-B16/1N	194741	6/60
20	HL-B20/1N	194742	6/60
25	HL-B25/1N	194743	6/60
32	HL-B32/1N	194744	6/60
40	HL-B40/1N	194745	6/60
50	HL-B50/1N	194746	6/60
63	HL-B63/1N	194747	6/60

2-pole

sg03018_r



6	HL-B6/2	194758	6/60
10	HL-B10/2	194759	6/60
13	HL-B13/2	194760	6/60
16	HL-B16/2	194761	6/60
20	HL-B20/2	194762	6/60
25	HL-B25/2	194763	6/60
32	HL-B32/2	194764	6/60
40	HL-B40/2	194765	6/60
50	HL-B50/2	194766	6/60
63	HL-B63/2	194767	6/60

3-pole

sg03318_r



6	HL-B6/3	194778	4/40
10	HL-B10/3	194779	4/40
13	HL-B13/3	194780	4/40
16	HL-B16/3	194781	4/40
20	HL-B20/3	194782	4/40
25	HL-B25/3	194783	4/40
32	HL-B32/3	194784	4/40
40	HL-B40/3	194785	4/40
50	HL-B50/3	194786	4/40
63	HL-B63/3	194787	4/40

sg03518_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
3+N-pole			
6	HL-B6/3N	194798	3/30
10	HL-B10/3N	194799	3/30
13	HL-B13/3N	194800	3/30
16	HL-B16/3N	194801	3/30
20	HL-B20/3N	194802	3/30
25	HL-B25/3N	194803	3/30
32	HL-B32/3N	194804	3/30
40	HL-B40/3N	194805	3/30
50	HL-B50/3N	194806	3/30
63	HL-B63/3N	194807	3/30

4.5 kA, Characteristic C

sg02818_r



1-pole			
6	HL-C6/1	194728	12/120
10	HL-C10/1	194729	12/120
13	HL-C13/1	194730	12/120
16	HL-C16/1	194731	12/120
20	HL-C20/1	194732	12/120
25	HL-C25/1	194733	12/120
32	HL-C32/1	194734	12/120
40	HL-C40/1	194735	12/120
50	HL-C50/1	194736	12/120
63	HL-C63/1	194737	12/120

sg03218_r



1+N-pole			
6	HL-C6/1N	194748	6/60
10	HL-C10/1N	194749	6/60
13	HL-C13/1N	194750	6/60
16	HL-C16/1N	194751	6/60
20	HL-C20/1N	194752	6/60
25	HL-C25/1N	194753	6/60
32	HL-C32/1N	194754	6/60
40	HL-C40/1N	194755	6/60
50	HL-C50/1N	194756	6/60
63	HL-C63/1N	194757	6/60

sg03018_r



2-pole			
6	HL-C6/2	194768	6/60
10	HL-C10/2	194769	6/60
13	HL-C13/2	194770	6/60
16	HL-C16/2	194771	6/60
20	HL-C20/2	194772	6/60
25	HL-C25/2	194773	6/60
32	HL-C32/2	194774	6/60
40	HL-C40/2	194775	6/60
50	HL-C50/2	194776	6/60
63	HL-C63/2	194777	6/60

sg03318_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
6	HL-C6/3	194788	4/40
10	HL-C10/3	194789	4/40
13	HL-C13/3	194790	4/40
16	HL-C16/3	194791	4/40
20	HL-C20/3	194792	4/40
25	HL-C25/3	194793	4/40
32	HL-C32/3	194794	4/40
40	HL-C40/3	194795	4/40
50	HL-C50/3	194796	4/40
63	HL-C63/3	194797	4/40

sg03518_r



3+N-pole			
6	HL-C6/3N	194808	3/30
10	HL-C10/3N	194809	3/30
13	HL-C13/3N	194810	3/30
16	HL-C16/3N	194811	3/30
20	HL-C20/3N	194812	3/30
25	HL-C25/3N	194813	3/30
32	HL-C32/3N	194814	3/30
40	HL-C40/3N	194815	3/30
50	HL-C50/3N	194816	3/30
63	HL-C63/3N	194817	3/30

Specifications | Miniature Circuit Breakers HL

Description

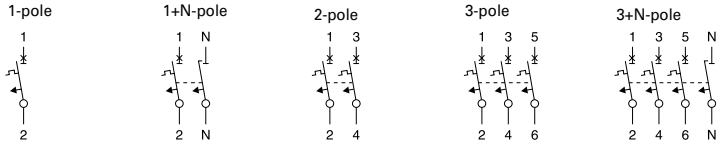
- High selectivity between and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 4 mm, 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	BB-UL-TEPA735	169823
Switching interlock	Z-IS/SPE-1TE	274418

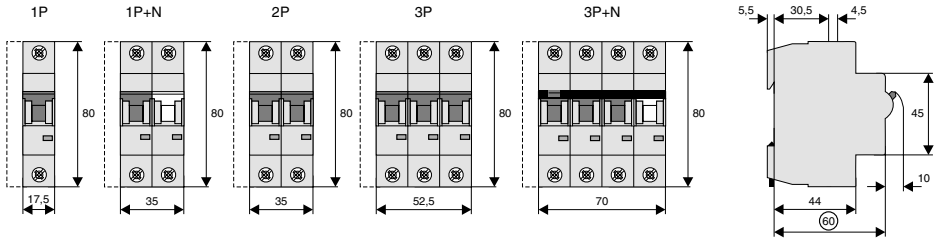
Technical Data

		HL
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}	4.5 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

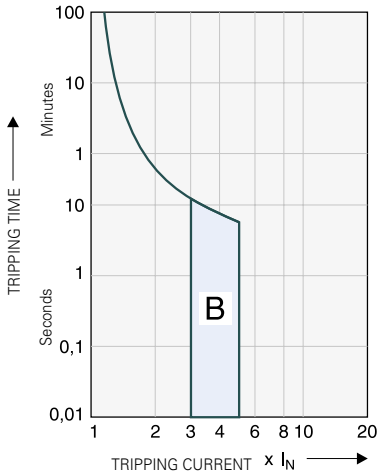


Dimensions (mm)

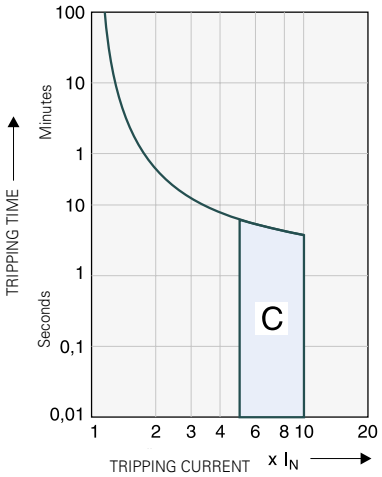


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



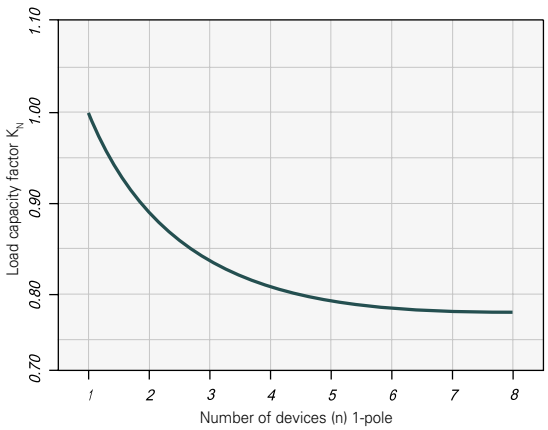
Quick-acting (B), slow (C)

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



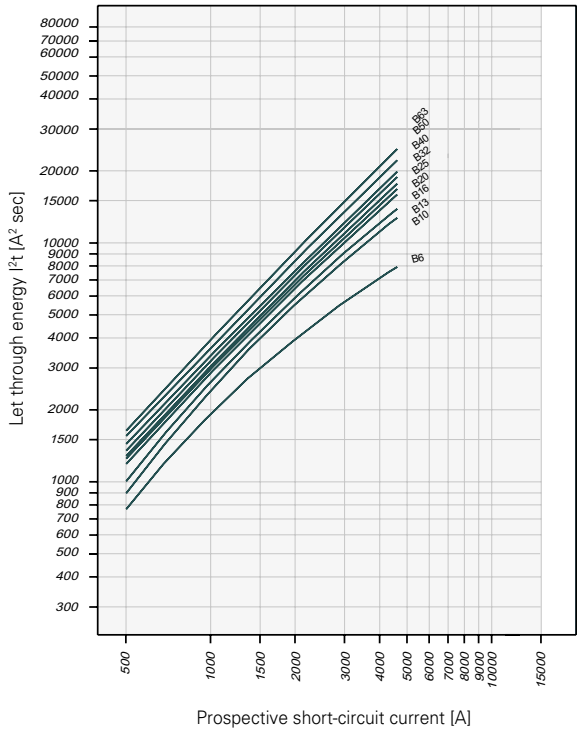
Effect of Power Frequency

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

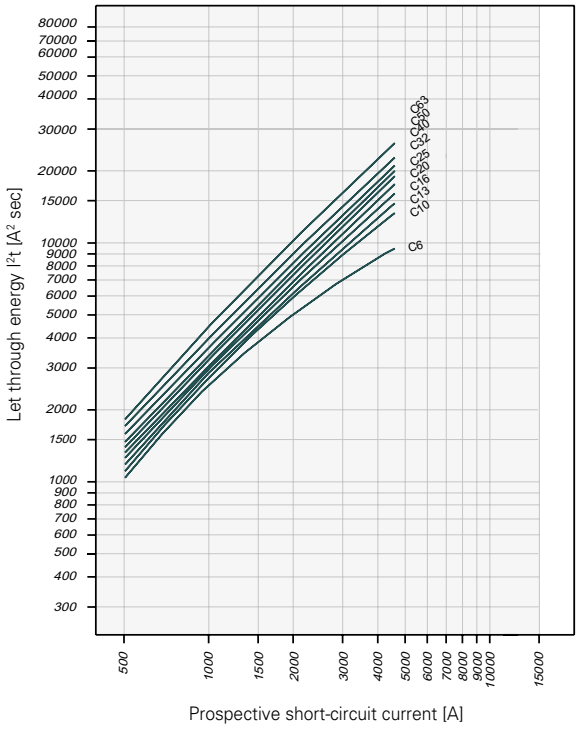
	Power frequency f [Hz]						
	$16^2/_3$	**50**	**60**	**100**	**200**	**300**	**400**
$I_{MA}(f)/I_{MA}(50\ Hz)$ [%]	91	100	101	106	115	134	141

Let-through Energy HL

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



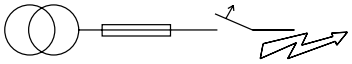
Let-through Energy HL, Characteristic C, 1-pole



Short Circuit Selectivity HL towards DII-DIV fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers HL 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***)

HL	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	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.8	1.4	2.2	3.9	4.5[2]	4.5[2]
13			0.5	0.7	1.3	2.0	3.6	4.5[2]	4.5[2]
16				0.6	1.2	1.9	3.2	4.5[2]	4.5[2]
20					1.2	1.8	3.1	4.4	4.5[2]
25					1.2	1.8	3.0	4.2	4.5[2]
32						1.7	2.8	3.9	4.5[2]
40							2.7	3.8	4.5[2]
50							2.5	3.5	4.5[2]
63									4.5[2]

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

HL	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	4.5[2]	4.5[2]	4.5[2]
10			<0.5[1]	0.6	1.3	2.0	3.6	4.5[2]	4.5[2]
13					1.3	1.9	3.3	4.5[2]	4.5[2]
16					1.2	1.8	3.2	4.4	4.5[2]
20					1.2	1.8	3.1	4.1	4.5[2]
25						1.7	2.8	3.8	4.5[2]
32							2.7	3.7	4.5[2]
40								3.5	4.5[2]
50									4.5[2]
63									

Towards D01-D03 fuse link

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

HL	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	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.7	1.3	2.4	3.4	4.5[2]	4.5[2]
13			<0.5[1]	0.7	1.2	2.3	3.2	4.5[2]	4.5[2]
16				0.6	1.1	2.2	2.9	4.5[2]	4.5[2]
20					1.1	2.1	2.8	4.4	4.5[2]
25					1.1	2.0	2.7	4.2	4.5[2]
32						2.0	2.6	4.0	4.5[2]
40							2.5	3.8	4.5[2]
50							2.3	3.4	4.5[2]
63									4.5[2]

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

HL	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[2]	4.5[2]	4.5[2]
10			<0.5[1]	<0.5[1]	1.2	2.3	3.1	4.5[2]	4.5[2]
13					1.1	2.2	3.0	4.5[2]	4.5[2]
16					1.1	2.1	2.8	4.4	4.5[2]
20					1.0	2.0	2.6	4.0	4.5[2]
25						1.9	2.5	3.8	4.5[2]
32							2.5	3.7	4.5[2]
40								3.5	4.5[2]
50									4.5[2]
63									

Towards NH-00 fuse link

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

HL	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	4.5[2]	4.5[2]	4.5[2]	4.5[2]
10		<0.5[1]	0.6	0.9	1.2	1.5	2.2	2.7	4.0	4.5[2]	4.5[2]	4.5[2]
13		<0.5[1]	0.6	0.8	1.1	1.4	2.1	2.6	3.8	4.5[2]	4.5[2]	4.5[2]
16			0.5	0.7	1.0	1.3	1.9	2.4	3.4	4.5[2]	4.5[2]	4.5[2]
20				0.7	1.0	1.3	1.9	2.4	3.3	4.5[2]	4.5[2]	4.5[2]
25				0.7	1.0	1.3	1.8	2.3	3.2	4.5[2]	4.5[2]	4.5[2]
32					0.9	1.2	1.7	2.2	3.1	4.5[2]	4.5[2]	4.5[2]
40								2.1	3.0	4.5[2]	4.5[2]	4.5[2]
50								1.9	2.8	4.5[2]	4.5[2]	4.5[2]
63										4.4	4.5[2]	4.5[2]

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

HL	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	4.5[2]	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	4.5[2]	4.5[2]	4.5[2]
13					1.0	1.3	1.9	2.4	3.6	4.5[2]	4.5[2]	4.5[2]
16					1.0	1.3	1.8	2.3	3.3	4.5[2]	4.5[2]	4.5[2]
20					1.0	1.2	1.7	2.2	3.2	4.5[2]	4.5[2]	4.5[2]
25							1.6	2.1	3.0	4.5[2]	4.5[2]	4.5[2]
32								2.1	2.9	4.5[2]	4.5[2]	4.5[2]
40									2.8	4.5[2]	4.5[2]	4.5[2]
50										4.5[2]	4.5[2]	4.5[2]
63											4.5[2]	4.5[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

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
- Basic range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C
- Rated breaking capacity 4.5 kA according to IEC/EN 60898-1

4.5 kA, Characteristic B

sg02818_r



1-pole

Rated current I_n (A)	Type Designation	Article No.	Units per package
6	HL-B6/1-HX	194918	12/120
10	HL-B10/1-HX	194919	12/120
13	HL-B13/1-HX	194920	12/120
16	HL-B16/1-HX	194921	12/120
20	HL-B20/1-HX	194922	12/120
25	HL-B25/1-HX	194923	12/120
32	HL-B32/1-HX	194924	12/120
40	HL-B40/1-HX	194925	12/120
50	HL-B50/1-HX	194926	12/120
63	HL-B63/1-HX	194927	12/120

sg03218_r



1+N-pole

6	HL-B6/1N-HX	194938	6/60
10	HL-B10/1N-HX	194939	6/60
13	HL-B13/1N-HX	194940	6/60
16	HL-B16/1N-HX	194941	6/60
20	HL-B20/1N-HX	194942	6/60
25	HL-B25/1N-HX	194943	6/60
32	HL-B32/1N-HX	194944	6/60
40	HL-B40/1N-HX	194945	6/60
50	HL-B50/1N-HX	194946	6/60
63	HL-B63/1N-HX	194947	6/60

sg03018_r



2-pole

6	HL-B6/2-HX	194958	6/60
10	HL-B10/2-HX	194959	6/60
13	HL-B13/2-HX	194960	6/60
16	HL-B16/2-HX	194961	6/60
20	HL-B20/2-HX	194962	6/60
25	HL-B25/2-HX	194963	6/60
32	HL-B32/2-HX	194964	6/60
40	HL-B40/2-HX	194965	6/60
50	HL-B50/2-HX	194966	6/60
63	HL-B63/2-HX	194967	6/60

sg03318_r



3-pole

6	HL-B6/3-HX	194978	4/40
10	HL-B10/3-HX	194979	4/40
13	HL-B13/3-HX	194980	4/40
16	HL-B16/3-HX	194981	4/40
20	HL-B20/3-HX	194982	4/40
25	HL-B25/3-HX	194983	4/40
32	HL-B32/3-HX	194984	4/40
40	HL-B40/3-HX	194985	4/40
50	HL-B50/3-HX	194986	4/40
63	HL-B63/3-HX	194987	4/40

sg03518_r



3+N-pole

Rated current I_n (A)	Type Designation	Article No.	Units per package
6	HL-B6/3N-HX	194998	3/30
10	HL-B10/3N-HX	194999	3/30
13	HL-B13/3N-HX	195000	3/30
16	HL-B16/3N-HX	195001	3/30
20	HL-B20/3N-HX	195002	3/30
25	HL-B25/3N-HX	195003	3/30
32	HL-B32/3N-HX	195004	3/30
40	HL-B40/3N-HX	195005	3/30
50	HL-B50/3N-HX	195006	3/30
63	HL-B63/3N-HX	195007	3/30

4.5 kA, Characteristic C

sg02818_r



1-pole

6	HL-C6/1-HX	194928	12/120
10	HL-C10/1-HX	194929	12/120
13	HL-C13/1-HX	194930	12/120
16	HL-C16/1-HX	194931	12/120
20	HL-C20/1-HX	194932	12/120
25	HL-C25/1-HX	194933	12/120
32	HL-C32/1-HX	194934	12/120
40	HL-C40/1-HX	194935	12/120
50	HL-C50/1-HX	194936	12/120
63	HL-C63/1-HX	194937	12/120

sg03218_r



1+N-pole

6	HL-C6/1N-HX	194948	6/60
10	HL-C10/1N-HX	194949	6/60
13	HL-C13/1N-HX	194950	6/60
16	HL-C16/1N-HX	194951	6/60
20	HL-C20/1N-HX	194952	6/60
25	HL-C25/1N-HX	194953	6/60
32	HL-C32/1N-HX	194954	6/60
40	HL-C40/1N-HX	194955	6/60
50	HL-C50/1N-HX	194956	6/60
63	HL-C63/1N-HX	194957	6/60

sg03018_r



2-pole

6	HL-C6/2-HX	194968	6/60
10	HL-C10/2-HX	194969	6/60
13	HL-C13/2-HX	194970	6/60
16	HL-C16/2-HX	194971	6/60
20	HL-C20/2-HX	194972	6/60
25	HL-C25/2-HX	194973	6/60
32	HL-C32/2-HX	194974	6/60
40	HL-C40/2-HX	194975	6/60
50	HL-C50/2-HX	194976	6/60
63	HL-C63/2-HX	194977	6/60

sg03318_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
6	HL-C6/3-HX	194988	4/40
10	HL-C10/3-HX	194989	4/40
13	HL-C13/3-HX	194990	4/40
16	HL-C16/3-HX	194991	4/40
20	HL-C20/3-HX	194992	4/40
25	HL-C25/3-HX	194993	4/40
32	HL-C32/3-HX	194994	4/40
40	HL-C40/3-HX	194995	4/40
50	HL-C50/3-HX	194996	4/40
63	HL-C63/3-HX	194997	4/40

sg03518_r



3+N-pole			
6	HL-C6/3N-HX	195008	3/30
10	HL-C10/3N-HX	195009	3/30
13	HL-C13/3N-HX	195010	3/30
16	HL-C16/3N-HX	195011	3/30
20	HL-C20/3N-HX	195012	3/30
25	HL-C25/3N-HX	195013	3/30
32	HL-C32/3N-HX	195014	3/30
40	HL-C40/3N-HX	195015	3/30
50	HL-C50/3N-HX	195016	3/30
63	HL-C63/3N-HX	195017	3/30

Specifications | Miniature Circuit Breakers HL-HX

Description

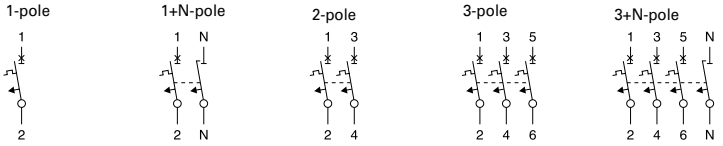
- High selectivity between and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 4 mm, 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	BB-UL-TEPA735	169823
Switching interlock	Z-IS/SPE-1TE	274418

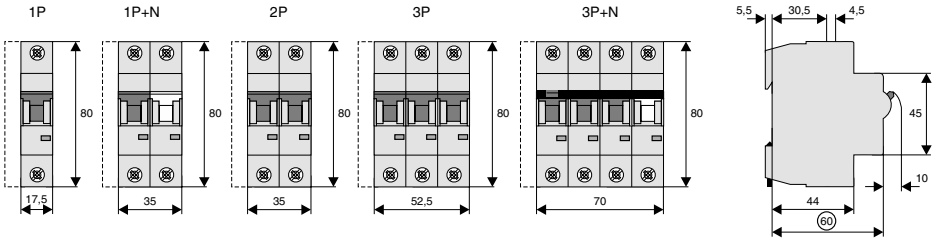
Technical Data

		HL-HX
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}	4.5 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)

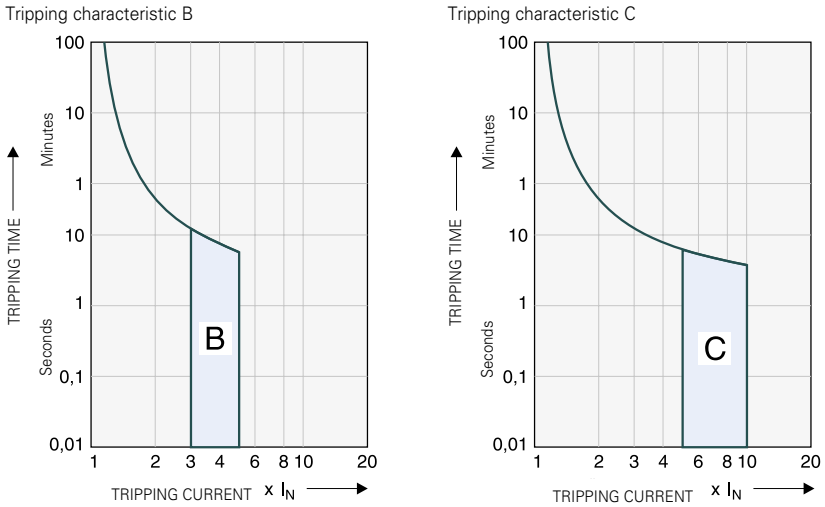
Connection diagrams



Dimensions (mm)



Tripping Characteristics (IEC/EN 60898-1)



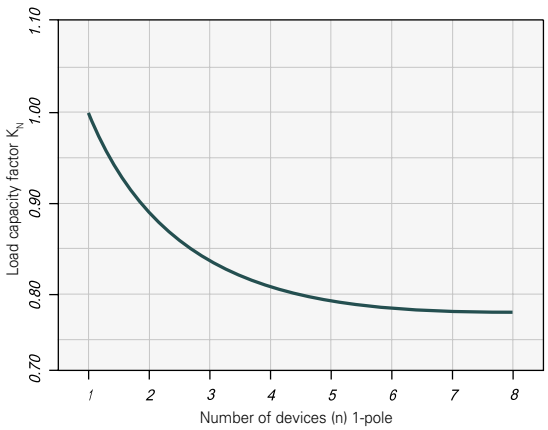
Quick-acting (B), slow (C)

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



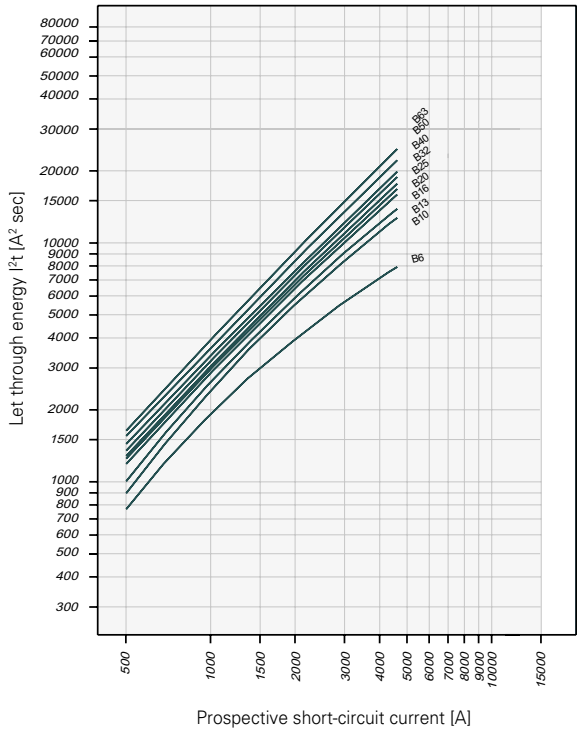
Effect of Power Frequency

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

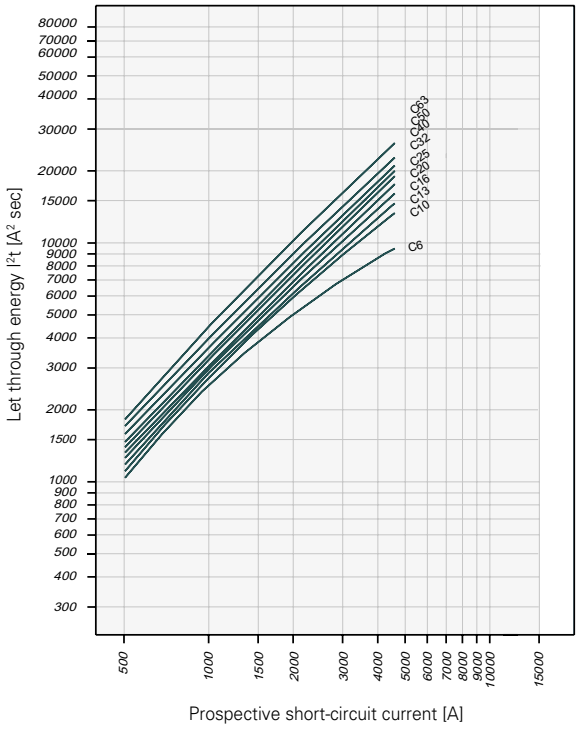
	Power frequency f [Hz]						
	$16^2/_3$	**50**	**60**	**100**	**200**	**300**	**400**
$I_{MA}(f)/I_{MA}(50\ Hz)$ [%]	91	100	101	106	115	134	141

Let-through Energy HL-HX

Let-through Energy HL-HX, Characteristic B, 1-pole



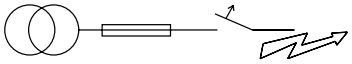
Let-through Energy HL-HX, Characteristic C, 1-pole



Short Circuit Selectivity HL-HX towards DII-DIV fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers HL-HX 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***)

HL-HX	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	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.8	1.4	2.2	3.9	4.5[2]	4.5[2]
13			0.5	0.7	1.3	2.0	3.6	4.5[2]	4.5[2]
16				0.6	1.2	1.9	3.2	4.5[2]	4.5[2]
20					1.2	1.8	3.1	4.4	4.5[2]
25					1.2	1.8	3.0	4.2	4.5[2]
32						1.7	2.8	3.9	4.5[2]
40							2.7	3.8	4.5[2]
50							2.5	3.5	4.5[2]
63									4.5[2]

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

HL-HX	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	4.5[2]	4.5[2]	4.5[2]
10			<0.5[1]	0.6	1.3	2.0	3.6	4.5[2]	4.5[2]
13					1.3	1.9	3.3	4.5[2]	4.5[2]
16					1.2	1.8	3.2	4.4	4.5[2]
20					1.2	1.8	3.1	4.1	4.5[2]
25						1.7	2.8	3.8	4.5[2]
32							2.7	3.7	4.5[2]
40								3.5	4.5[2]
50									4.5[2]
63									

Towards D01-D03 fuse link

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

HL-HX	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	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.7	1.3	2.4	3.4	4.5[2]	4.5[2]
13			<0.5[1]	0.7	1.2	2.3	3.2	4.5[2]	4.5[2]
16				0.6	1.1	2.2	2.9	4.5[2]	4.5[2]
20					1.1	2.1	2.8	4.4	4.5[2]
25					1.1	2.0	2.7	4.2	4.5[2]
32						2.0	2.6	4.0	4.5[2]
40							2.5	3.8	4.5[2]
50							2.3	3.4	4.5[2]
63									4.5[2]

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

HL-HX	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[2]	4.5[2]	4.5[2]
10			<0.5[1]	<0.5[1]	1.2	2.3	3.1	4.5[2]	4.5[2]
13					1.1	2.2	3.0	4.5[2]	4.5[2]
16					1.1	2.1	2.8	4.4	4.5[2]
20					1.0	2.0	2.6	4.0	4.5[2]
25						1.9	2.5	3.8	4.5[2]
32							2.5	3.7	4.5[2]
40								3.5	4.5[2]
50									4.5[2]
63									

Towards NH-00 fuse link

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

HL-HX	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	4.5[2]	4.5[2]	4.5[2]	4.5[2]
10		<0.5[1]	0.6	0.9	1.2	1.5	2.2	2.7	4.0	4.5[2]	4.5[2]	4.5[2]
13		<0.5[1]	0.6	0.8	1.1	1.4	2.1	2.6	3.8	4.5[2]	4.5[2]	4.5[2]
16			0.5	0.7	1.0	1.3	1.9	2.4	3.4	4.5[2]	4.5[2]	4.5[2]
20				0.7	1.0	1.3	1.9	2.4	3.3	4.5[2]	4.5[2]	4.5[2]
25				0.7	1.0	1.3	1.8	2.3	3.2	4.5[2]	4.5[2]	4.5[2]
32					0.9	1.2	1.7	2.2	3.1	4.5[2]	4.5[2]	4.5[2]
40								2.1	3.0	4.5[2]	4.5[2]	4.5[2]
50								1.9	2.8	4.5[2]	4.5[2]	4.5[2]
63										4.4	4.5[2]	4.5[2]

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

HL-HX	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	4.5[2]	4.5[2]	4.5[2]	4.5[2]
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	4.5[2]	4.5[2]	4.5[2]
13					1.0	1.3	1.9	2.4	3.6	4.5[2]	4.5[2]	4.5[2]
16					1.0	1.3	1.8	2.3	3.3	4.5[2]	4.5[2]	4.5[2]
20					1.0	1.2	1.7	2.2	3.2	4.5[2]	4.5[2]	4.5[2]
25							1.6	2.1	3.0	4.5[2]	4.5[2]	4.5[2]
32								2.1	2.9	4.5[2]	4.5[2]	4.5[2]
40									2.8	4.5[2]	4.5[2]	4.5[2]
50										4.5[2]	4.5[2]	4.5[2]
63											4.5[2]	4.5[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

WA_SG03522_L



Description

- Top-quality miniature circuit breakers 1P+N with a width of 1 module unit requiring little space for installation
- Contact position indicator red - green
- Guide for secure terminal connection
- Comprehensive range of accessories can be mounted subsequently
- Rated currents up to 40 A
- Tripping characteristics B, C
- Rated breaking capacity 4.5 kA according to IEC/EN 60898-1

WA_SG03522_L



4.5 kA, Characteristic B

1+N-pole

Rated current I_n (A)	Type Designation	Article No.	Units per package
6	HLN-B6/1N	501048	12/120
10	HLN-B10/1N	501049	12/120
13	HLN-B13/1N	501050	12/120
16	HLN-B16/1N	501051	12/120
20	HLN-B20/1N	501052	12/120
25	HLN-B25/1N	501053	12/120
32	HLN-B32/1N	501054	12/120
40	HLN-B40/1N	501055	12/120

WA_SG03522_L



4.5 kA, Characteristic C

1+N-pole

2	HLN-C2/1N	501056	12/120
4	HLN-C4/1N	501057	12/120
6	HLN-C6/1N	501058	12/120
10	HLN-C10/1N	501059	12/120
13	HLN-C13/1N	501060	12/120
16	HLN-C16/1N	501061	12/120
20	HLN-C20/1N	501062	12/120
25	HLN-C25/1N	501063	12/120
32	HLN-C32/1N	501064	12/120
40	HLN-C40/1N	501065	12/120

Specifications | Miniature Circuit Breakers HLN

Description

- High selectivity between MCB and back-up fuse due to low let-through energy
- Busbar positioning optionally above or below
- Compatible with standard busbar
- Switching toggle in colour designating the rated current
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 4 mm, for secure isolation
- 1-pole breaking capacity I_{cn1} = 3 kA

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

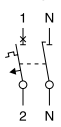
Busbars:	see capter busbar systems

Technical Data

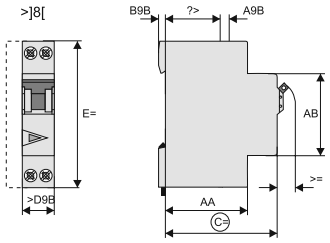
		HLN
Electrical		
Design according to Current test marks as printed onto the device		IEC/EN 60898-1
Rated voltage	U_n	230 VAC
Rated frequency		50/60 Hz
Rated breaking capacity according to IEC/EN 60898-1	I_{cn}	
HLN		4.5 kA
Characteristic		B, C
Back-up fuse		
>4.5 kA		max. 80 A gL/gG
Selectivity class		3
Endurance electrical components		≥ 8,000 switching operations
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		17.5 mm (1MU for 1+N)
Mounting		quick fastening with 2 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		1-16 mm^2

Connection diagram

1+N-pole

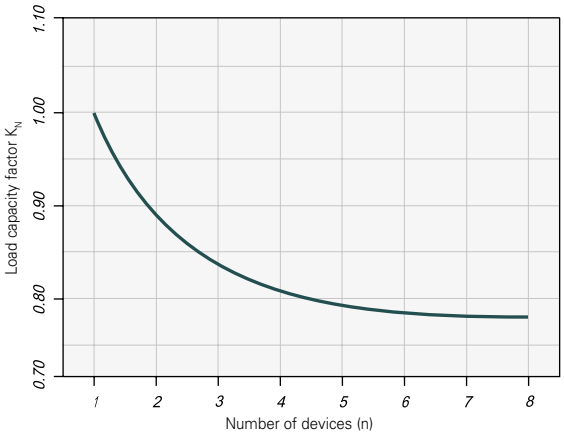


Dimensions (mm)

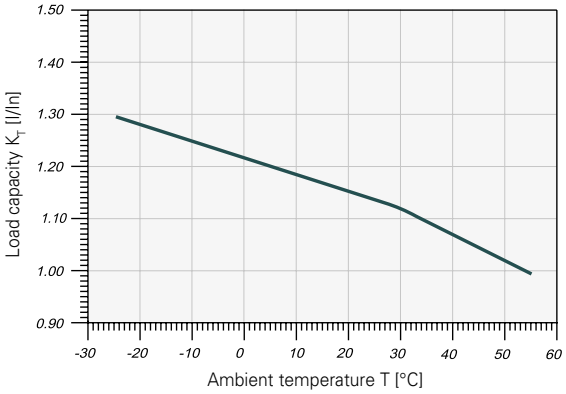


Load Capacity HLN

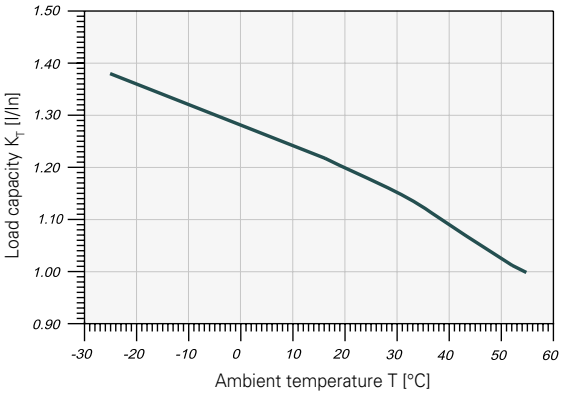
Load capacity in case of MCB block installation



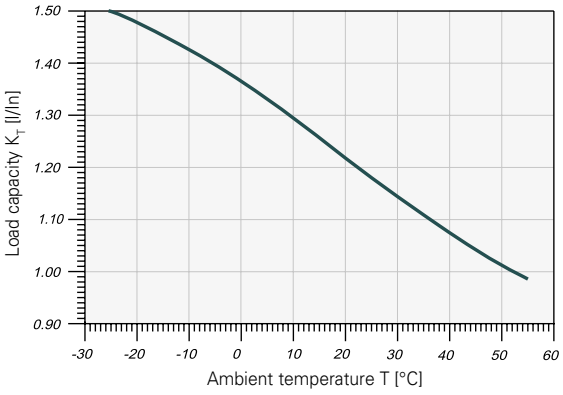
Current carrying capacity at ambient temperature (I_n = 2-13 A)



Current carrying capacity at ambient temperature (I_n = 16-25 A)



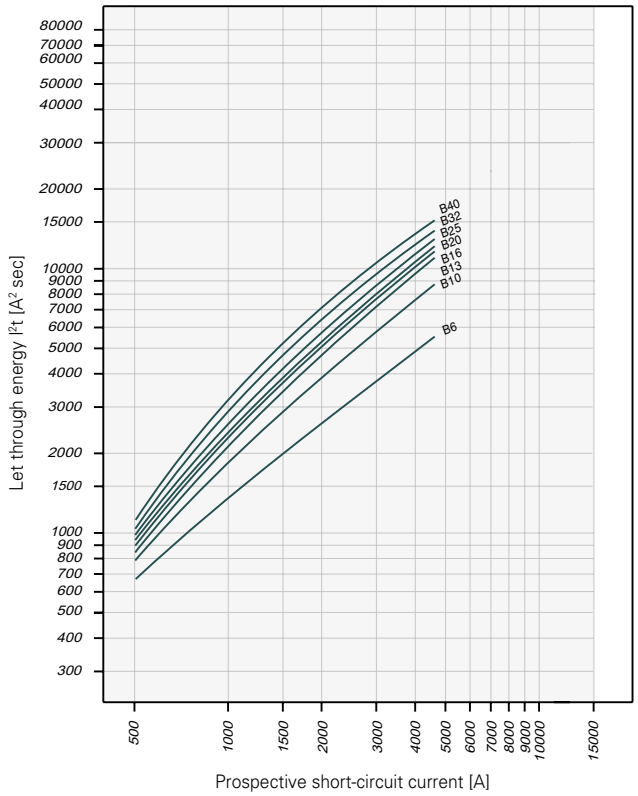
Current carrying capacity at ambient temperature (I_n = 32, 40 A)



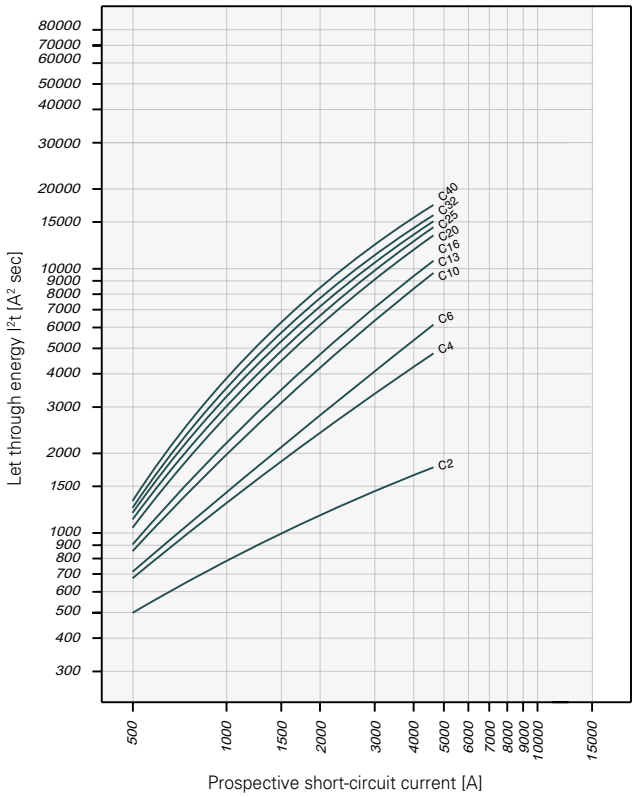
Permitted permanent load at ambient temperature T (°C) with n devices: $I_{DL} = I_n K_T(T) K_N(N)$.

Let-through Energy HLN

Maximum let-through energy HLN, Characteristic B



Maximum let-through energy HLN, Characteristic C

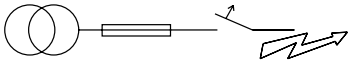


Determined according to 60898-1.

Short-circuit Selectivity HLN

In case of short-circuit, there is selectivity between the miniature circuit breakers HLN 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



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

HLN	DII-DIV gL/gG						
I_n [A]	20	25	35	50	63	80	100
6	0.7	1.2	2.9	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	0.6	0.9	1.9	3.1	4.5[2)]	4.5[2)]	4.5[2)]
13	0.5	0.7	1.5	2.5	4.5[2)]	4.5[2)]	4.5[2)]
16	0.5	0.7	1.4	2.3	4.3	4.5[2)]	4.5[2)]
20	0.5	0.7	1.4	2.2	4.0	4.5[2)]	4.5[2)]
25	0.5	0.6	1.3	2.0	3.8	4.5[2)]	4.5[2)]
32	0.5	0.6	1.2	1.8	3.4	4.5[2)]	4.5[2)]
40	<0.5[1)]	0.6	1.1	1.7	3.1	4.5[2)]	4.5[2)]

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

HLN	DII-DIV gL/gG						
I_n [A]	20	25	35	50	63	80	100
2	1.5	3.8	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
4	0.7	1.2	3.3	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
6	0.7	1.1	2.6	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	0.5	0.8	1.7	2.8	4.5[2)]	4.5[2)]	4.5[2)]
13	0.5	0.7	1.5	2.5	4.5[2)]	4.5[2)]	4.5[2)]
16	0.5	0.6	1.2	2.0	3.6	4.5[2)]	4.5[2)]
20	0.5	0.6	1.2	1.8	3.3	4.5[2)]	4.5[2)]
25	<0.5[1)]	0.6	1.1	1.7	3.0	4.5[2)]	4.5[2)]
32	<0.5[1)]	0.6	1.0	1.6	2.8	4.5[2)]	4.5[2)]
40	<0.5[1)]	0.6	1.0	1.5	2.6	4.0	4.5[2)]

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

HLN	D01-D03 gL/gG						
I_n [A]	20	25	35	50	63	80	100
6	0.6	0.9	2.5	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	0.5	0.8	1.6	3.4	4.5[2)]	4.5[2)]	4.5[2)]
13	0.5	0.7	1.3	2.7	4.0	4.5[2)]	4.5[2)]
16	0.5	0.6	1.3	2.5	3.8	4.5[2)]	4.5[2)]
20	<0.5[1)]	0.6	1.3	2.4	3.6	4.5[2)]	4.5[2)]
25	<0.5[1)]	0.6	1.2	2.3	3.3	4.5[2)]	4.5[2)]
32	<0.5[1)]	0.6	1.1	2.1	3.0	4.5[2)]	4.5[2)]
40	<0.5[1)]	0.6	1.0	2.0	2.8	4.5[2)]	4.5[2)]

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

HLN	D01-D03 gL/gG						
I_n [A]	20	25	35	50	63	80	100
2	1.1	2.0	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
4	0.6	0.9	2.7	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
6	0.6	0.9	2.3	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	0.5	0.7	1.5	3.0	4.5[2)]	4.5[2)]	4.5[2)]
13	0.5	0.7	1.3	2.7	4.0	4.5[2)]	4.5[2)]
16	<0.5[1)]	0.6	1.1	2.2	3.1	4.5[2)]	4.5[2)]
20	<0.5[1)]	0.6	1.1	2.1	2.9	4.5[2)]	4.5[2)]
25	<0.5[1)]	0.5	1.0	2.0	2.7	4.5[2)]	4.5[2)]
32	<0.5[1)]	0.5	1.0	1.9	2.6	4.5[2)]	4.5[2)]
40	<0.5[1)]	0.5	0.9	1.7	2.3	4.0	4.5[2)]

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

HLN	NH-00 gL/gG								
I_n [A]	20	25	32	35	40	50	63	80	100
6	0.5	0.9	1.5	2.3	3.2	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	<0.5[1)]	0.7	1.2	1.5	2.0	3.1	3.9	4.5[2)]	4.5[2)]
13	<0.5[1)]	0.6	1.0	1.3	1.7	2.5	3.1	4.5[2)]	4.5[2)]
16	<0.5[1)]	0.6	1.0	1.3	1.6	2.4	2.9	4.5[2)]	4.5[2)]
20	<0.5[1)]	0.5	0.9	1.3	1.5	2.3	2.8	4.3	4.5[2)]
25	<0.5[1)]	0.5	0.9	1.1	1.4	2.1	2.6	4.0	4.5[2)]
32	<0.5[1)]	0.5	0.8	1.0	1.3	1.9	2.4	3.6	4.5[2)]
40	<0.5[1)]	0.5	0.8	0.9	1.1	1.7	2.2	3.3	4.5[2)]

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

HLN	NH-00 gL/gG								
I_n [A]	20	25	32	35	40	50	63	80	100
2	0.7	2.1	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
4	0.5	0.9	1.6	2.6	3.7	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
6	0.5	0.8	1.4	2.1	2.9	4.5[2)]	4.5[2)]	4.5[2)]	4.5[2)]
10	<0.5[1)]	0.6	1.0	1.4	1.9	2.8	3.5	4.5[2)]	4.5[2)]
13	<0.5[1)]	0.6	0.9	1.3	1.7	2.5	3.1	4.5[2)]	4.5[2)]
16	<0.5[1)]	0.5	0.7	1.0	1.3	2.0	2.5	3.8	4.5[2)]
20	<0.5[1)]	0.5	0.7	0.9	1.2	1.8	2.3	3.5	4.5[2)]
25	<0.5[1)]	0.5	0.7	0.9	1.1	1.6	2.1	3.3	4.5[2)]
32	<0.5[1)]	<0.5[1)]	0.6	0.8	1.1	1.5	2.0	3.1	4.5[2)]
40	<0.5[1)]	<0.5[1)]	0.6	0.8	1.0	1.4	1.9	2.9	4.5[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

1.48

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
- Basic 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
2	HN-B2/1	500760	12/120
4	HN-B4/1	500761	12/120
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

sg02718_r



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

sg03118_r



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

sg03418_r



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

sg03618_r



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

sg02918_r



1-pole			
2	HN-C2/1	500762	12/120
4	HN-C4/1	500763	12/120
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

sg02718_r



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

sg03118_r



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

sg03418_r



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

sg03618_r



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

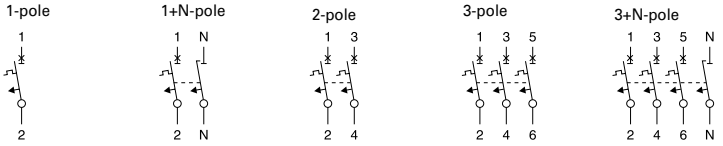
- High selectivity between MCB and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 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	BB-UL-TEPA735	169823
Switching interlock	Z-IS/SPE-1TE	274418

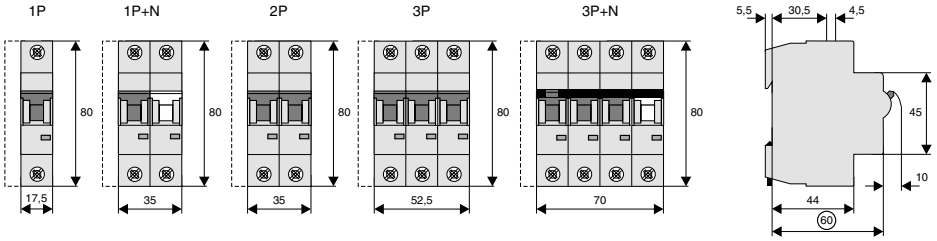
Technical Data

		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

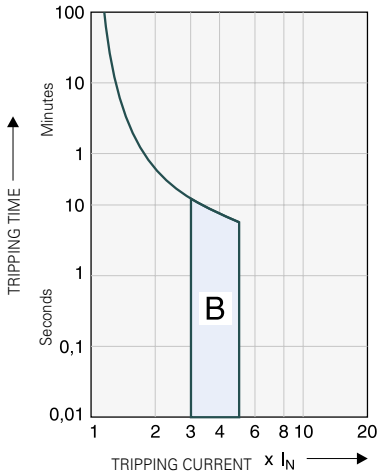


Dimensions (mm)

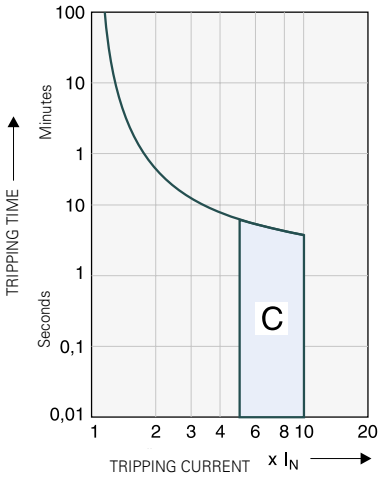


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



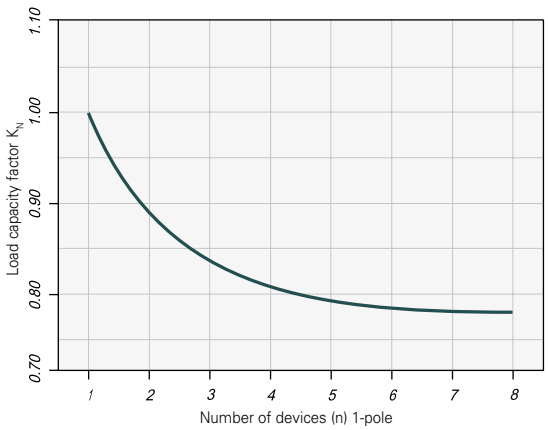
Quick-acting (B), slow (C)

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



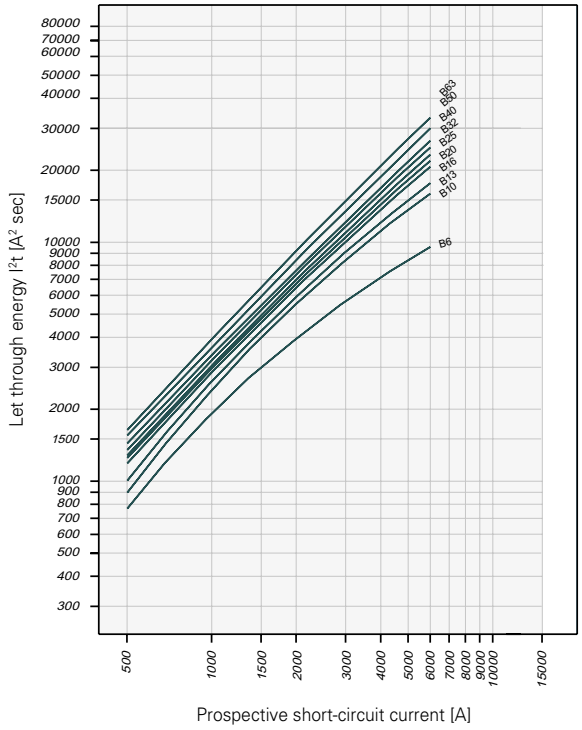
Effect of Power Frequency

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

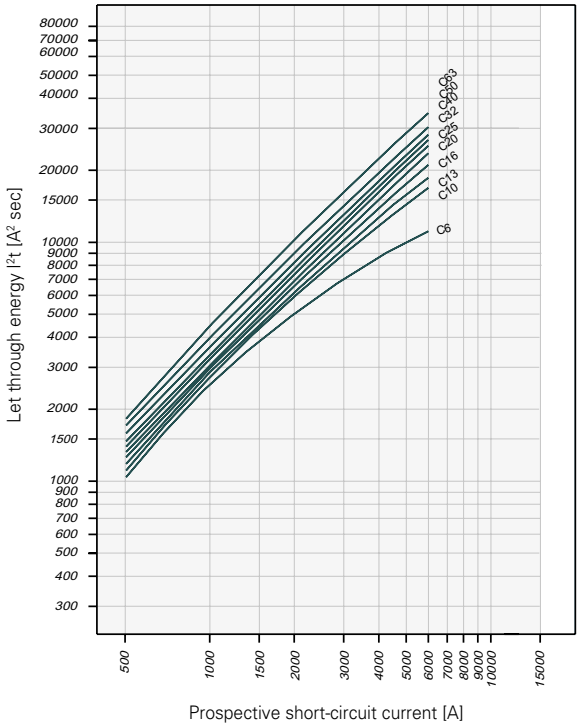
	Power frequency f [Hz]						
	$16^2/_3$	**50**	**60**	**100**	**200**	**300**	**400**
$I_{MA}(f)/I_{MA}(50\ Hz)$ [%]	91	100	101	106	115	134	141

Let-through Energy HN

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



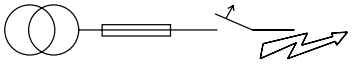
Let-through Energy HN, Characteristic C, 1-pole



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

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
- Basic 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-HX	195018	12/120
10	HN-B10/1-HX	195019	12/120
13	HN-B13/1-HX	195020	12/120
16	HN-B16/1-HX	195021	12/120
20	HN-B20/1-HX	195022	12/120
25	HN-B25/1-HX	195023	12/120
32	HN-B32/1-HX	195024	12/120
40	HN-B40/1-HX	195025	12/120
50	HN-B50/1-HX	195026	12/120
63	HN-B63/1-HX	195027	12/120

1+N-pole

sg02718_r



6	HN-B6/1N-HX	195038	6/60
10	HN-B10/1N-HX	195039	6/60
13	HN-B13/1N-HX	195040	6/60
16	HN-B16/1N-HX	195041	6/60
20	HN-B20/1N-HX	195042	6/60
25	HN-B25/1N-HX	195043	6/60
32	HN-B32/1N-HX	195044	6/60
40	HN-B40/1N-HX	195045	6/60
50	HN-B50/1N-HX	195046	6/60
63	HN-B63/1N-HX	195047	6/60

2-pole

sg03118_r



6	HN-B6/2-HX	195058	6/60
10	HN-B10/2-HX	195059	6/60
13	HN-B13/2-HX	195060	6/60
16	HN-B16/2-HX	195061	6/60
20	HN-B20/2-HX	195062	6/60
25	HN-B25/2-HX	195063	6/60
32	HN-B32/2-HX	195064	6/60
40	HN-B40/2-HX	195065	6/60
50	HN-B50/2-HX	195066	6/60
63	HN-B63/2-HX	195067	6/60

3-pole

sg03418_r



6	HN-B6/3-HX	195078	4/40
10	HN-B10/3-HX	195079	4/40
13	HN-B13/3-HX	195080	4/40
16	HN-B16/3-HX	195081	4/40
20	HN-B20/3-HX	195082	4/40
25	HN-B25/3-HX	195083	4/40
32	HN-B32/3-HX	195084	4/40
40	HN-B40/3-HX	195085	4/40
50	HN-B50/3-HX	195086	4/40
63	HN-B63/3-HX	195087	4/40

sg03618_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
3+N-pole			
6	HN-B6/3N-HX	195098	3/30
10	HN-B10/3N-HX	195099	3/30
13	HN-B13/3N-HX	195100	3/30
16	HN-B16/3N-HX	195101	3/30
20	HN-B20/3N-HX	195102	3/30
25	HN-B25/3N-HX	195103	3/30
32	HN-B32/3N-HX	195104	3/30
40	HN-B40/3N-HX	195105	3/30
50	HN-B50/3N-HX	195106	3/30
63	HN-B63/3N-HX	195107	3/30

6 kA, Characteristic C

sg02918_r



1-pole			
6	HN-C6/1-HX	195028	12/120
10	HN-C10/1-HX	195029	12/120
13	HN-C13/1-HX	195030	12/120
16	HN-C16/1-HX	195031	12/120
20	HN-C20/1-HX	195032	12/120
25	HN-C25/1-HX	195033	12/120
32	HN-C32/1-HX	195034	12/120
40	HN-C40/1-HX	195035	12/120
50	HN-C50/1-HX	195036	12/120
63	HN-C63/1-HX	195037	12/120

sg02718_r



1+N-pole			
6	HN-C6/1N-HX	195048	6/60
10	HN-C10/1N-HX	195049	6/60
13	HN-C13/1N-HX	195050	6/60
16	HN-C16/1N-HX	195051	6/60
20	HN-C20/1N-HX	195052	6/60
25	HN-C25/1N-HX	195053	6/60
32	HN-C32/1N-HX	195054	6/60
40	HN-C40/1N-HX	195055	6/60
50	HN-C50/1N-HX	195056	6/60
63	HN-C63/1N-HX	195057	6/60

sg03118_r



2-pole			
6	HN-C6/2-HX	195068	6/60
10	HN-C10/2-HX	195069	6/60
13	HN-C13/2-HX	195070	6/60
16	HN-C16/2-HX	195071	6/60
20	HN-C20/2-HX	195072	6/60
25	HN-C25/2-HX	195073	6/60
32	HN-C32/2-HX	195074	6/60
40	HN-C40/2-HX	195075	6/60
50	HN-C50/2-HX	195076	6/60
63	HN-C63/2-HX	195077	6/60

sg03418_r



Rated current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
6	HN-C6/3-HX	195088	4/40
10	HN-C10/3-HX	195089	4/40
13	HN-C13/3-HX	195090	4/40
16	HN-C16/3-HX	195091	4/40
20	HN-C20/3-HX	195092	4/40
25	HN-C25/3-HX	195093	4/40
32	HN-C32/3-HX	195094	4/40
40	HN-C40/3-HX	195095	4/40
50	HN-C50/3-HX	195096	4/40
63	HN-C63/3-HX	195097	4/40

sg03618_r



3+N-pole			
6	HN-C6/3N-HX	195108	3/30
10	HN-C10/3N-HX	195109	3/30
13	HN-C13/3N-HX	195110	3/30
16	HN-C16/3N-HX	195111	3/30
20	HN-C20/3N-HX	195112	3/30
25	HN-C25/3N-HX	195113	3/30
32	HN-C32/3N-HX	195114	3/30
40	HN-C40/3N-HX	195115	3/30
50	HN-C50/3N-HX	195116	3/30
63	HN-C63/3N-HX	195117	3/30

Specifications | Miniature Circuit Breakers HN-HX

Description

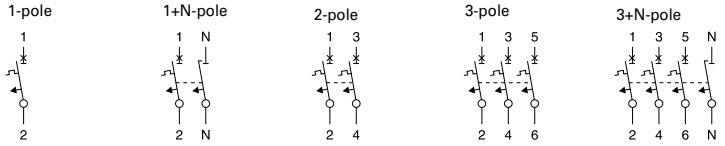
- High selectivity between MCB and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts ≥ 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	BB-UL-TEPA735	169823
Switching interlock	Z-IS/SPE-1TE	274418

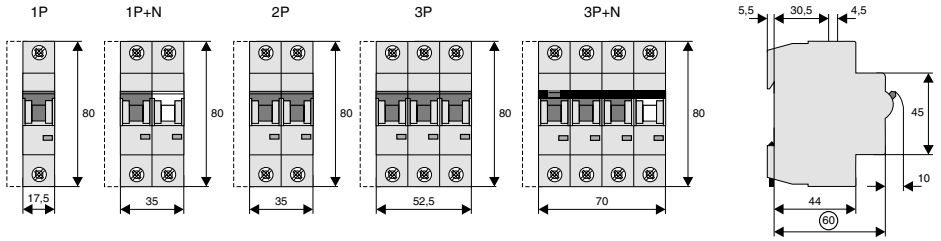
Technical Data

		HN-HX
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

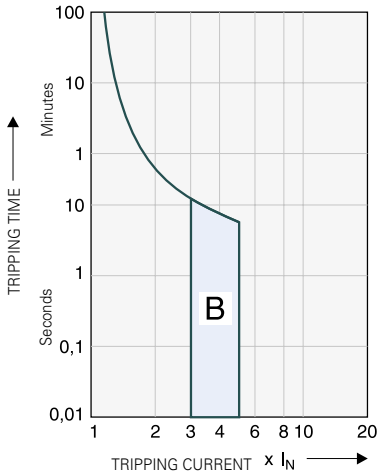


Dimensions (mm)

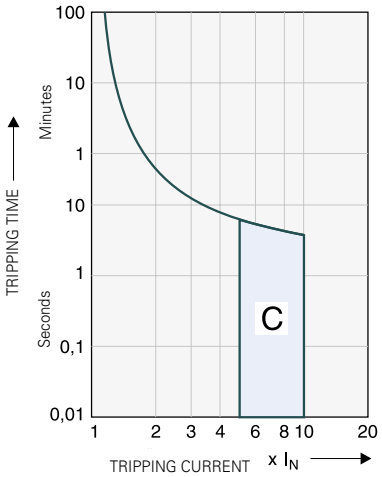


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



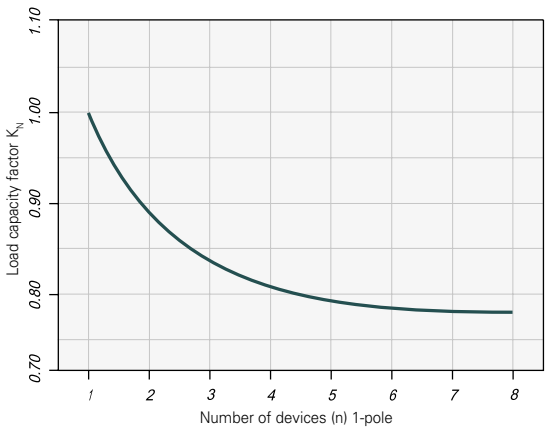
Quick-acting (B), slow (C)

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



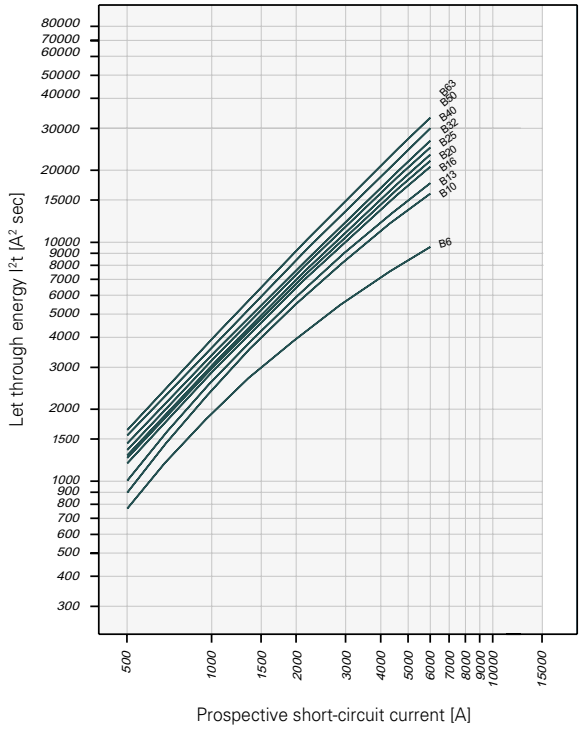
Effect of Power Frequency

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

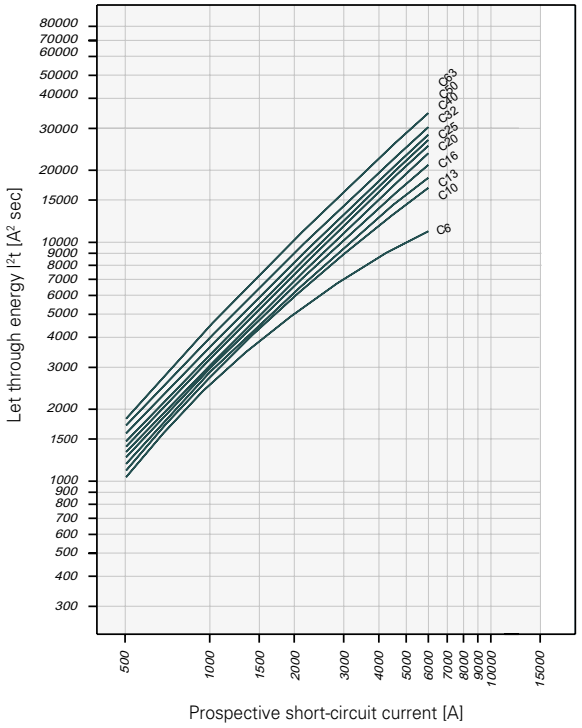
	Power frequency f [Hz]						
	$16^2/_3$	**50**	**60**	**100**	**200**	**300**	**400**
$I_{MA}(f)/I_{MA}(50\ Hz)$ [%]	91	100	101	106	115	134	141

Let-through Energy HN-HX

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



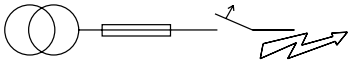
Let-through Energy HN-HX, Characteristic C, 1-pole



Short Circuit Selectivity HN-HX towards DII-DIV fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers HN-HX 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-HX	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-HX	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-HX	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-HX	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-HX	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-HX	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

wa_sg03320_l



Description

- Load circuit breaker with isolating function
- Highly wear resistant contacts
- Quick make
- Terminal capacity 50 mm^2
- Compatible busbars
- 1-, 2-, 3-, 4-pole

wa_sg00920_l



wa_sg01720_l



wa_sg02520_l



wa_sg03320_l



Rated Current (A)	Number of Poles	Type Designation	Article No.	Units per package
20	1	HIS-20/1	167342	12/120
20	2	HIS-20/2	167343	1/60
20	3	HIS-20/3	167344	1/40
20	4	HIS-20/4	167345	1/30
25	1	HIS-25/1	167346	12/120
25	2	HIS-25/2	167347	1/60
25	3	HIS-25/3	167348	1/40
25	4	HIS-25/4	167349	1/30
32	1	HIS-32/1	167350	12/120
32	2	HIS-32/2	167351	1/60
32	3	HIS-32/3	167352	1/40
32	4	HIS-32/4	167353	1/30
40	1	HIS-40/1	142816	12/120
40	2	HIS-40/2	142817	1/60
40	3	HIS-40/3	142818	1/40
40	4	HIS-40/4	142819	1/30
63	1	HIS-63/1	142820	12/120
63	2	HIS-63/2	142821	1/60
63	3	HIS-63/3	142822	1/40
63	4	HIS-63/4	142823	1/30
80	1	HIS-80/1	142824	12/120
80	2	HIS-80/2	142825	1/60
80	3	HIS-80/3	142826	1/40
80	4	HIS-80/4	142827	1/30
100	1	HIS-100/1	142828	12/120
100	2	HIS-100/2	142829	1/60
100	3	HIS-100/3	142830	1/40
100	4	HIS-100/4	142831	1/30
125	1	HIS-125/1	142832	12/120
125	2	HIS-125/2	142833	1/60
125	3	HIS-125/3	142834	1/40
125	4	HIS-125/4	142835	1/30

Accessories

SG47812

PHASE OUT



sg01215



Description	Type Designation	Article No.	Units per package
Switching interlock without lock for Isolators, RCDs, combined RCD/MCBs, ...	IS/SPE-1TE	101911	5/30
Terminal cover	Z-IS/AK-1TE	276290	10/600

Switching interlock IS/SPE-1TE

- Without lock
- Also suitable for PFIM, CFI6, PKNM, CKN6

Terminal Cover Caps Z-IS/AK-1TE

- Can be sealed with leads
- Modular design, width 1 MU

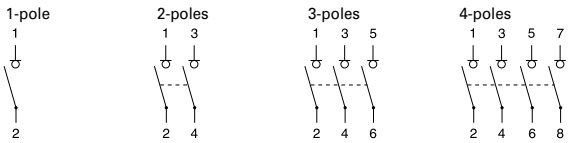
Description

- Load circuit breaker with isolating function
- Design according to IEC/EN 60947-3
- Highly wear resistant contacts
- Quick make, black toggle
- Terminal capacity 50 mm²
- Compatible busbars with switchgear series Xpole by use of the mouth terminal in combination with standard fork busbar

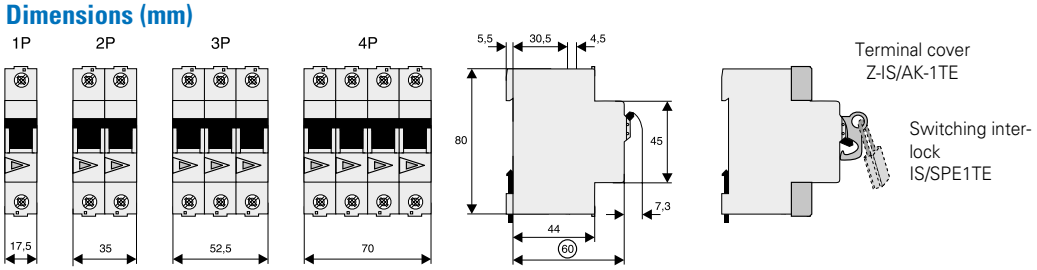
Technical Data

		IS-20	IS-25	IS-32	IS-40	IS-63	IS-80	IS-100	IS-125
Electrical									
Design		according to IEC/EN 60947-3							
Rated voltage		240/415 V							
Frequency		50/60 Hz							
Rated insulation voltage	U_i	690 V~							
Rated impulse withstand voltage	U_{imp}	6 kV							
Pollution degree		3							
Rated short-time withstand current	I_{cw}	2 kA							
Rated short-circuit making capacity	I_{cm}	2.8 kA							
Rated current 240/415V, AC23A		20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A
Number of poles		1-, 2-, 3-, 4-poles							
Maximum back-up fuse		125 A gG							
Short circuit strength - with back-up fuse according to IEC/EN 60947-3		12.5 kA	12.5 kA	12.5 kA	12.5 kA	12.5 kA	12.5 kA	10 kA	10 kA
Endurance									
Electrical components operation cycles		≥ 3,000	≥ 3,000	≥ 3,000	≥ 3,000	≥ 3,000	≥ 3,000	≥ 3,000	≥ 2.000
Mechanical components operation cycles		≥ 16,000	≥ 16,000	≥ 16,000	≥ 16,000	≥ 16,000	≥ 16,000	≥ 16,000	≥ 14.000
Mechanical									
Frame size		45 mm							
Device height		80 mm							
Device width		17.5 mm/Pol							
Mounting		quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715							
Degree of protection, built-in		IP40							
Terminal protection		finger and hand touch safe according to BGV A3							
Terminals top and bottom		open mouthed/lift terminals							
Terminal capacity		2.5 - 50 mm²							
Busbar thickness		0.8 - 2 mm							
Fastening torque of terminal screws		2.5 - 5 Nm							
Function		irrespective of the position of installation							

Connection diagram



Dimensions (mm)



Derating table for Main Load Disconnector Switch (Isolator) HIS above 2000m sea level

60947-3						
U_n 240/415						
Above sea level (m)	Overvoltage category	Disconnect function	U_n	U_i	U_{imp}	I/I_n
m	x	x	V	V	kV	x
<=2000	III	yes	240/415	690	6	1
>2000-2500	III	yes	240/415	415	4	0.93
>2500-3000	III	yes	240/415	415	4	0.88
>3000-3500	III	yes	240/415	415	4	0.83
>3500-4000	III	yes	240/415	415	4	0.78

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Publication No. CA019002EN
Article number 195564-MK
March 2022

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