

# xPole Home

the new dedicated residential range

Save time selecting the best protection for your residential projects with our new range.



Powering Business Worldwide



www.ebdaaalwakeel.com





The new xPole Home series is tailored to meet the demands of residential applications. xPole Home combines the highest degree of safety with design efficiency and spans the entire MCB, RCCB and RCBO & Isolator residential circuit breaker range. The series is characterized by its streamlined design, its reliability and full compliance with applicable standards. Furthermore, devices belonging to the xPole Home series are both easy to source and install. As domestic appliances, xPole Home circuit breakers are immediately recognizable by means of a grey house symbol, which is featured

on each product belonging to the new range. Their streamlined design, made in Europe, ensures that the devices blend into the background without impacting on a residence's aesthetics. All xPole Home circuit breakers come with a wide range of tried and proven features that further increase both operational safety and ease of handling. The xPole Home series is fully compatible with all corresponding EATON accessories designed for residential applications.



MCB				RCCB				RCBO				Isolator	
4.5 kA		6 kA		4.5 kA		6 kA		4.5 kA		6 kA		CURRENT	NEW
CURRENT	NEW	CURRENT	NEW	CURRENT	NEW	CURRENT	NEW	CURRENT	NEW	CURRENT	NEW	CURRENT	NEW
xClear (CLS4)	xPole Home (HL)	xClear (CLS6)	xPole Home (HN)	xPole (PF4)	xPole Home (HNC)*	xClear (CFI6)	xPole Home (HNC)	xClear (CKN4)	xPole Home (HNB)*	xClear (CKN6)	xPole Home (HNB)	xPole (IS)	xPole Home (HIS)*
xPole (PL4)		xPole (PL6)**	no change			xPole (PF6)**	no change	xPole (PFL4)		xPole (PFL6)**	no change		

\* Only 6kA product is available  
\*\* alternative for residential and (light) commercial use

# 1.1

## Protective Devices

xPole Home

Miniature Circuit Breakers HN xPole Home

sg03518\_r



### Description

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

# 1.1

## Protective Devices

## xPole Home

### Miniature Circuit Breakers HN xPole Home

sg036 18\_r



Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
<b>3+N-pole</b>			
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

sg029 18\_r



<b>6 kA, Characteristic C</b>			
<b>1-pole</b>			
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

sg027 18\_r



<b>1+N-pole</b>			
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

sg001 18\_r



<b>2-pole</b>			
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	Units per Article No. package	
<b>3-pole</b>			
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



<b>3+N-pole</b>			
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  $\geq 4$  mm, for secure isolation
- Suitable for applications up to 48 V DC

#### Accessories:

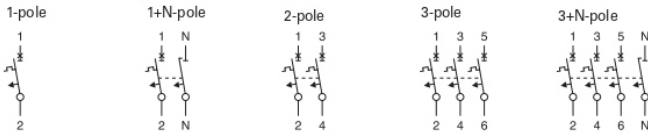
Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure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

### Technical Data

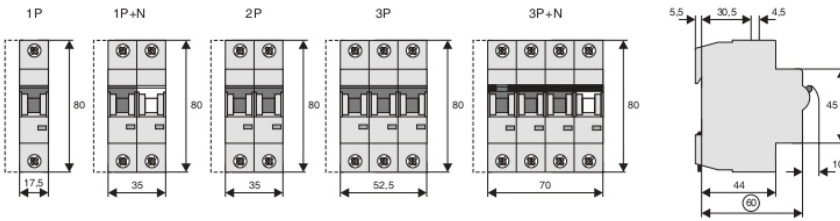
		HN
<b>Electrical</b>		
Design according to		IEC/EN 60898-1
Current test marks as printed onto the device		
Rated voltage	$U_n$	AC: 230/400 V DC: 48 V (per pole, max. 2 poles)
Rated frequency		50/60 Hz
Rated breaking capacity according to IEC/EN 60898-1	$I_{cn}$	6 kA
Characteristic		B, C
Back-up fuse		max. 100 A gL
Selectivity class		3
Rated impulse withstand voltage	$U_{imp}$	4 kV (1.2/50 $\mu$ s)
Endurance		
electrical components		$\geq 10,000$ switching operations
mechanical components		$\geq 20,000$ switching operations
Line voltage connection		at will (above/below)
Minimal voltage		12 V AC/DC
<b>Mechanical</b>		
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 mm <sup>2</sup>
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

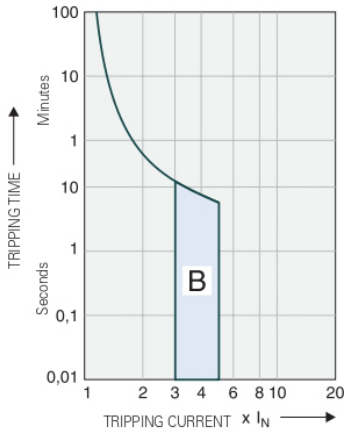


Dimensions (mm)

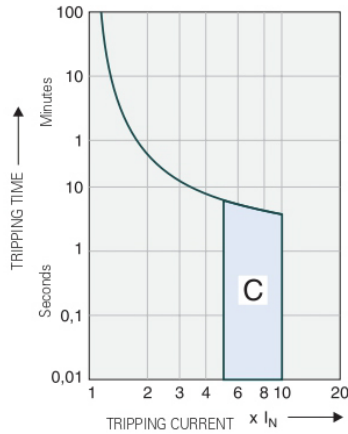


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



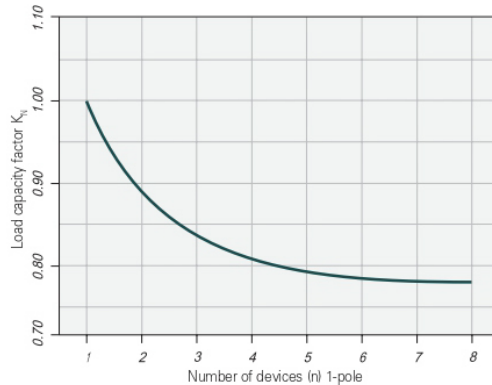
Quick-acting (B), slow (C)

Effect of the Ambient Temperature on Thermal Tripping Behaviour

Adjusted rated current values according to the ambient temperature

$I_n$ [A]	Ambient temperature T [°C]															
	-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



# 1.1

## Protective Devices

xPole Home

Miniature Circuit Breakers HN xPole Home - Technical Data

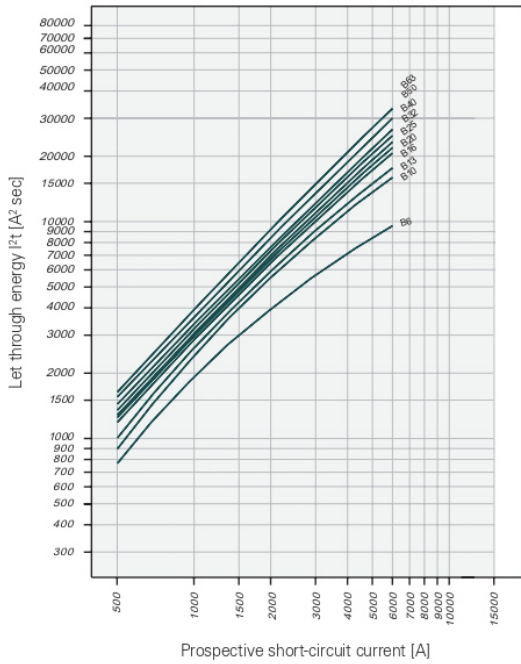
### Effect of Power Frequency

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

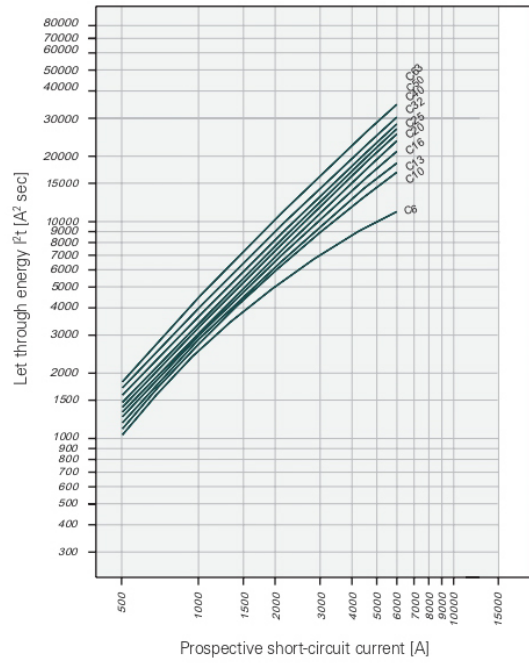
	Power frequency f [Hz]						
	16 <sup>2</sup> / <sub>3</sub>	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}(50 \text{ Hz})$ [%]	91	100	101	106	115	134	141

### Let-through Energy HN

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



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





# 1.2

## Protective Devices

xPole Home

Miniature Circuit Breakers HL xPole Home

sg03518\_r



### Description

- High-quality miniature circuit breakers for commercial and residential applications
- Guide for secure terminal connection
- 3-position DIN rail clip, permits removal from existing busbar system
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C
- Rated breaking capacity 4.5 kA according to IEC/EN 60898-1

Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
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**4.5 kA, Characteristic B**

sg028 18\_r



**1-pole**

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

sg032 18\_r



**1+N-pole**

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

sg030 18\_r



**2-pole**

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

sg033 18\_r



**3-pole**

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



### 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  $\geq 4$  mm, for secure isolation
- Suitable for applications up to 48 V DC

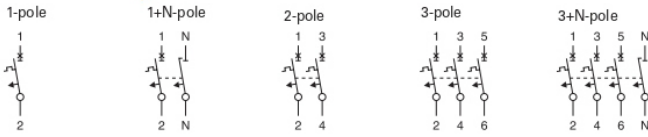
#### Accessories:

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 mm <sup>2</sup>	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

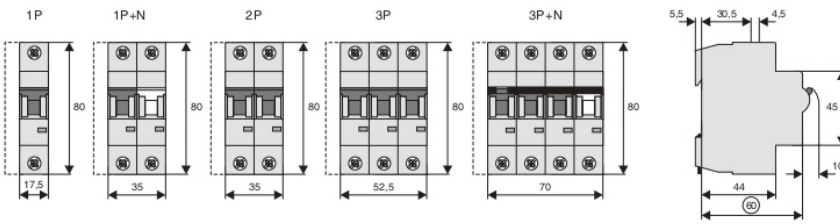
### Technical Data

		HL
<b>Electrical</b>		
Design according to		IEC/EN 60898-1
Current test marks as printed onto the device		
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 $\mu$ s)
Endurance		
electrical components		$\geq 10,000$ switching operations
mechanical components		$\geq 20,000$ switching operations
Line voltage connection		at will (above/below)
Minimal voltage		12 V AC/DC
<b>Mechanical</b>		
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 mm <sup>2</sup>
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

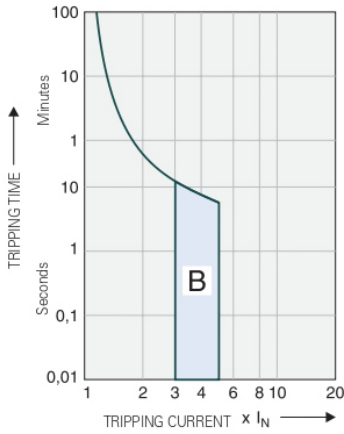


Dimensions (mm)

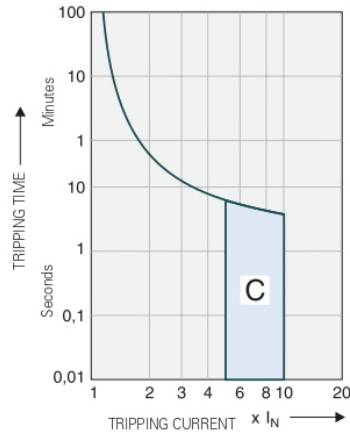


Tripping Characteristics (IEC/EN 60898-1)

Tripping characteristic B



Tripping characteristic C



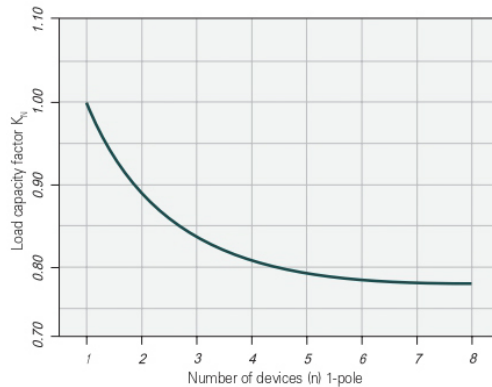
Quick-acting (B), slow (C)

Effect of the Ambient Temperature on Thermal Tripping Behaviour

Adjusted rated current values according to the ambient temperature

$I_n$ [A]	Ambient temperature T [°C]															
	-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



# 1.2

## Protective Devices

xPole Home

Miniature Circuit Breakers HL xPole Home- Technical Data

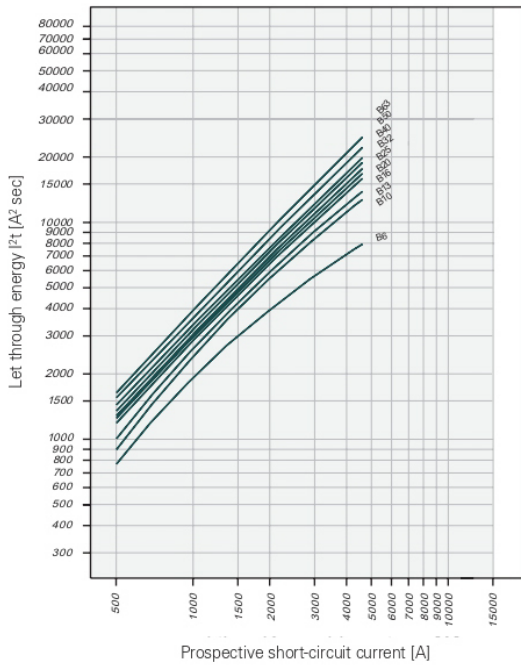
### Effect of Power Frequency

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

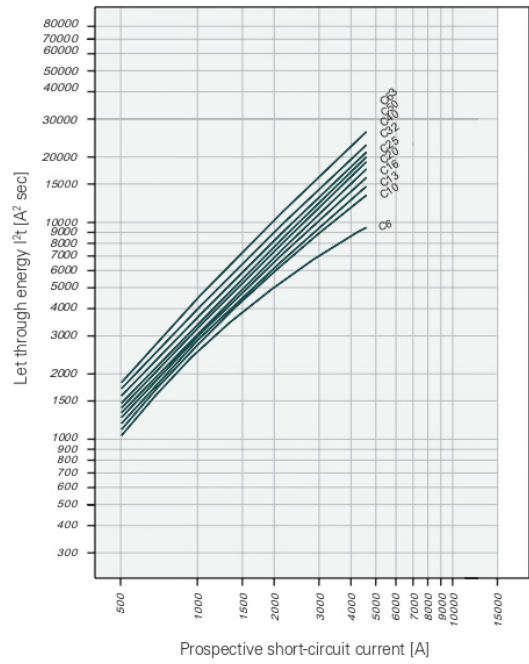
	Power frequency f [Hz]						
	$16\frac{2}{3}$	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}(50\text{ Hz})$ [%]	91	100	101	106	115	134	141

### 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 <sup>1)</sup>	0.6	0.9	1.8	3.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10		0.5	0.8	1.4	2.2	3.9	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13		0.5	0.7	1.3	2.0	3.6	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16			0.6	1.2	1.9	3.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20				1.2	1.8	3.1	4.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25				1.2	1.8	3.0	4.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32					1.7	2.8	3.9	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40						2.7	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50						2.5	3.5	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63								4.5 <sup>2)</sup>	4.5 <sup>2)</sup>

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 <sup>1)</sup>	0.5	0.6	1.4	2.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	0.6	1.3	2.0	3.6	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13				1.3	1.9	3.3	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16				1.2	1.8	3.2	4.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20				1.2	1.8	3.1	4.1	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25					1.7	2.8	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32						2.7	3.7	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40							3.5	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50								4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63									4.5 <sup>2)</sup>

**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 <sup>1)</sup>	0.5	0.8	1.6	3.6	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10		0.5	0.7	1.3	2.4	3.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13		<0.5 <sup>1)</sup>	0.7	1.2	2.3	3.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16			0.6	1.1	2.2	2.9	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20				1.1	2.1	2.8	4.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25				1.1	2.0	2.7	4.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32					2.0	2.6	4.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40						2.5	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50						2.3	3.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63								4.5 <sup>2)</sup>	4.5 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	<0.5 <sup>1)</sup>	1.2	2.7	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	<0.5 <sup>1)</sup>	1.2	2.3	3.1	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13				1.1	2.2	3.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16				1.1	2.1	2.8	4.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20				1.0	2.0	2.6	4.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25					1.9	2.5	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32						2.5	3.7	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40							3.5	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50								4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63									4.5 <sup>2)</sup>

**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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.7	1.1	1.5	2.0	3.3	4.3	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	0.6	0.9	1.2	1.5	2.2	2.7	4.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13		<0.5 <sup>1)</sup>	0.6	0.8	1.1	1.4	2.1	2.6	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16			0.5	0.7	1.0	1.3	1.9	2.4	3.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20				0.7	1.0	1.3	1.9	2.4	3.3	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25				0.7	1.0	1.3	1.8	2.3	3.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32					0.9	1.2	1.7	2.2	3.1	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40						2.1	3.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50						1.9	2.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63								4.4	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.5	0.8	1.2	1.5	2.5	3.3	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
13					1.0	1.3	1.9	2.4	3.6	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
16					1.0	1.3	1.8	2.3	3.3	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
20					1.0	1.2	1.7	2.2	3.2	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
25						1.6	2.1	3.0	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
32							2.1	2.9	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
40								2.8	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
50									4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>
63										4.5 <sup>2)</sup>	4.5 <sup>2)</sup>	4.5 <sup>2)</sup>

<sup>1)</sup> Selectivity limit current  $I_s$  under 0.5 kA

<sup>2)</sup> Selectivity limit current  $I_s$  = rated breaking capacity  $I_{cn}$  of the MCB

Darker areas: no selectivity



# 1.3

## Protective Devices

xPole Home

Residual Current Devices HNC xPole Home

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
- Comprehensive range of accessories
- Real contact position indicator

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

Conditionally surge current-proof 250 A, type AC 

sg02118\_r



**2-pole**

25/0.1	HNC-25/2/01	500764	1/60
25/0.03	HNC-25/2/003	194690	1/60
40/0.1	HNC-40/2/01	500765	1/60
40/0.03	HNC-40/2/003	194691	1/60
63/0.1	HNC-63/2/01	500766	1/60
63/0.03	HNC-63/2/003	194692	1/60

sg01018\_r



**4-pole**

25/0.1	HNC-25/4/01	500767	1/30
25/0.03	HNC-25/4/003	194693	1/30
40/0.1	HNC-40/4/01	500768	1/30
40/0.03	HNC-40/4/003	194694	1/30
63/0.1	HNC-63/4/01	500769	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

sg01018\_r



**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 (ÖVE/ONORM E 8001-1 § 6.1.2)
- 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 electrical 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 have not been smoothed

#### Accessories:

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

# 1.4

## Protective Devices

xPole Home

RCBO Devices HNB xPole Home

I <sub>n</sub> /I <sub>dN</sub> (A)	Type Designation	Article No.	Units per package
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### 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

sg00818\_r



#### 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

sg00818\_r



#### 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
- Comprehensive 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 interval 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 have not been smoothed

**Accessories:**

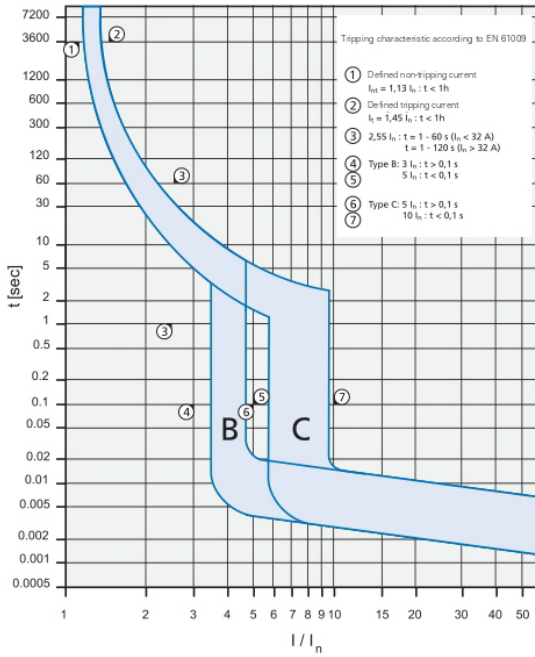
Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Shunt trip release	ZP-ASA..	248438, 248439
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35 mm <sup>2</sup>	Z-HA-EK/35	263960

**Load Capacity HNB**

Effect of ambient temperature (MCB component)

I <sub>n</sub> [A]	Ambient temperature T [°C]								
	-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, 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<sub>s</sub> [kA] (i. e. in case of short-circuit currents I<sub>sc</sub> under I<sub>s</sub>, 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 I <sub>n</sub> [A]	DII-DIV gL/gG								
	10	16	20	25	35	50	63	80	100
6	<0.5 <sup>1)</sup>	0.7	1.0	2.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		0.6	0.9	1.9	3.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		0.5	0.7	1.6	2.8	5.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16			0.7	1.4	2.4	4.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				1.3	2.2	4.0	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25				1.3	2.1	3.8	5.8	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

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

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

<sup>1)</sup> Selectivity limit current I<sub>s</sub> under 0.5 kA.

<sup>2)</sup> Selectivity limit current I<sub>s</sub> = rated breaking capacity I<sub>cn</sub> 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 <sup>1)</sup>	0.5	0.8	2.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		0.5	0.8	1.6	3.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		0.6	0.7	1.4	3.0	4.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16			0.6	1.2	2.6	3.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				1.2	2.5	3.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25				1.2	2.3	3.3	5.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.8	2.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		<0.5	0.6	1.3	2.9	4.5	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13				1.2	2.5	3.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16				1.0	2.1	3.0	5.5	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				1.0	2.0	2.7	5.0	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25					1.9	2.6	4.5	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

#### 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 <sup>1)</sup>	0.5	0.8	1.4	2.2	3.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	0.7	0.9	1.5	2.1	3.4	4.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		<0.5 <sup>1)</sup>	0.6	0.8	1.4	1.8	2.8	3.6	5.7	6.0 <sup>2)</sup>
16			0.6	0.7	1.2	1.5	2.4	3.0	4.5	6.0 <sup>2)</sup>
20				0.7	1.1	1.5	2.2	2.8	4.2	6.0 <sup>2)</sup>
25				0.7	1.1	1.4	2.1	2.6	4.0	6.0 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.7	1.3	2.2	3.3	5.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10			0.5	0.8	1.2	1.7	2.7	3.4	5.5	6.0 <sup>2)</sup>
13					1.1	1.5	2.3	2.9	4.7	6.0 <sup>2)</sup>
16					1.0	1.3	1.8	2.3	3.7	6.0 <sup>2)</sup>
20					0.9	1.1	1.7	2.2	3.4	6.0 <sup>2)</sup>
25						1.6	2.1	3.2	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

<sup>1)</sup> Selectivity limit current  $I_s$  under 0.5 kA.

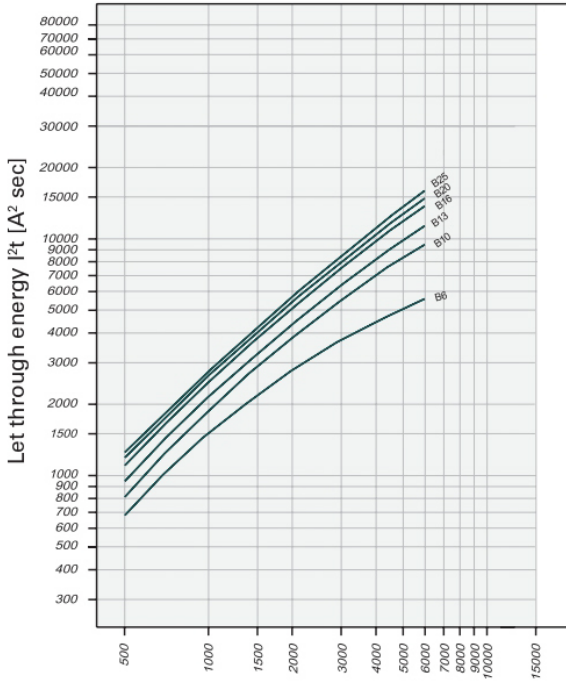
<sup>2)</sup> Selectivity limit current  $I_s$  = rated breaking capacity  $I_{cn}$  of the RCD/MCB device

Darker areas: no selectivity



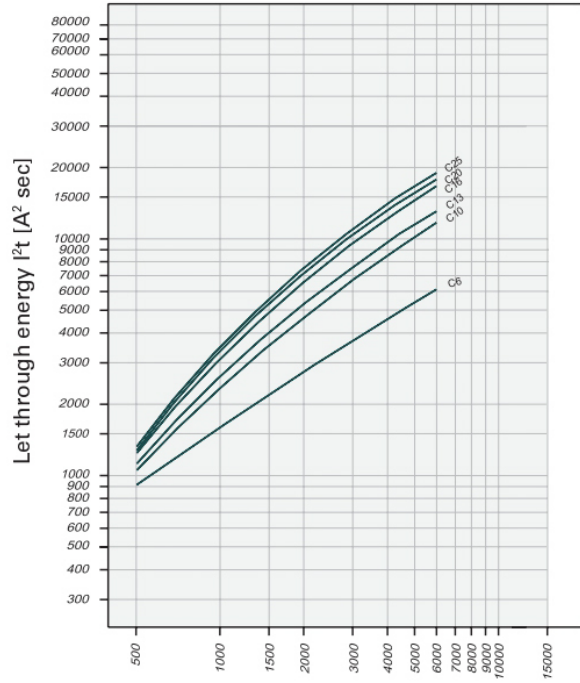
Let-through Energy HNB

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



Prospective short-circuit current [A]





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





Prospective short-circuit current [A]





	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

Description	Type Designation	Article No.	Units per package
 <b>PHASE OUT</b> 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, CF16, PKNM, CKN6

### Terminal Cover Caps Z-IS/AK-1TE

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



# 2.1

## Controlling & Switching

xPole Home

Main Load Disconnecter Switch (Isolator) HIS

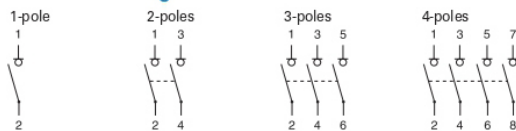
### Description

- Load circuit breaker with isolating function
- Design according to IEC/EN 60947-3
- Highly wear resistant contacts
- Quick make, black toggle
- Terminal capacity 50 mm<sup>2</sup>
- Compatible busbars with switchgear series Xpole by use of the mouth terminal in combination with standard fork busbar

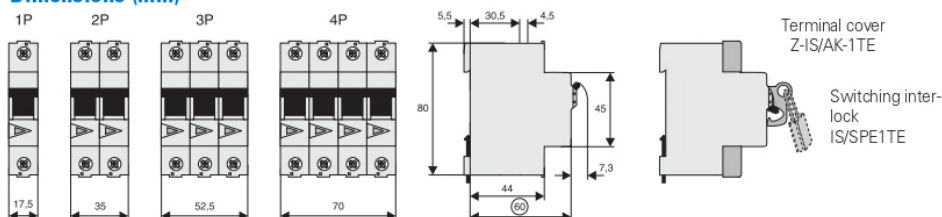
### Technical Data

	HIS-20	HIS-25	HIS-32	HIS-40	HIS-63	HIS-80	HIS-100	HIS-125
<b>Electrical</b>								
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	$I_{sw}$	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
<b>Endurance</b>								
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
<b>Mechanical</b>								
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 mm <sup>2</sup>							
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 Disconnecter 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



**Notes:**



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**xPole Home**  
the new dedicated residential range



Save time selecting the best protection for your residential projects with our new range.

- ✓ Dedicated residential range
- ✓ Optimised portfolio
- ✓ Easier to select
- ✓ Always on stock at your Electrical Wholesaler
- ✓ Highest reliability and safety

Approximately **100 million households** equipped with Eaton miniature circuit breakers worldwide.

**MCB**

- 4.5 OR 6 kA
- 1, 1N, 2, 3, 3N poles
- B&C curves
- 6-40 A
- (50, 63 A on Request)

**RCCB**

- 6 kA
- 30 mA, 100mA
- 2, 4 poles
- AC&A types
- 25, 40, 63 A

**RCBO**

- 6 kA
- 30 mA
- 1N pole
- B&C curves
- AC&A types
- 6, 10, 13, 16, 20, 25 A

**Isolator**

- 20-125A
- 1, 2, 3, 4 Pole

# From residential to (light) commercial applications



RCCB			MCB			RCBO			Isolator		
	xPole Home	xPole		xPole Home	xPole		xPole Home	xPole		xPole Home	xPole
	<b>Shortcut</b>			<b>Shortcut</b>			<b>Shortcut</b>			<b>Shortcut</b>	
	HNC	PF6		HL or HN	PL6		HNB	PFL6		HIS	IS
	<b>kA</b>			<b>kA</b>			<b>kA</b>			<b>Poles</b>	
	6	6		4,5 or 6	6		6	6	1	✓	✓
	<b>Poles</b>			<b>Poles</b>			<b>Poles</b>		2	✓	✓
2	✓	✓	1	✓	✓	1N	✓	✓	3	✓	✓
4	✓	✓	1N	✓	✓		<b>Curve</b>		4	✓	✓
	<b>Amps</b>		2	✓	✓	B	✓	✓		<b>Amps</b>	
16	25-63 Amp	16-80 Amp	3	✓	✓	C	✓	✓		20-125 Amp	16-125 Amp
	<b>mAmps</b>		3N	✓	✓		<b>Amps</b>				
30	✓	✓	4	✓	✓		6-25 Amp	6-40 Amp			
300	✓	✓		<b>Curves</b>			<b>mAmps</b>				
100	✓	✓	B	✓	✓	30	✓	✓			
500	✓	✓	C	✓	✓	300	✓	✓			
	<b>Types</b>		D	✓	✓		<b>Types</b>				
	A, AC	A, AC, G, G/A, S, S/A		<b>Amps</b>			A, AC	A, AC, G			
				6-63 Amp	0,16-63 Amp						



# Electrically-ignited fires are a hidden but significant threat only recently beginning to be addressed.

Arc faults, which occur out of sight within installations, have the potential to ignite fires and cause enormous damage. Statistics show that the source of over 25% of fires is an electrical system.



## The next step in the evolution of protection

The EATON AFDD+ is not simply a development of devices that already exist. It is the next step in the evolution of protection devices, incorporating the benefits of digitalization.

A complete range of devices, that offer protection for people, property and assets including the next step in protection - prevention against electrically ignited fires caused by serial and parallel arcs.





Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
----------------------------	---------------------	----------------------------------	--

**6 kA, Characteristic B**

sg029 18\_r



**1-pole**

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

sg027 18\_r



**1+N-pole**

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

sg031 18\_r



**2-pole**

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

sg034 18\_r



**3-pole**

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



**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 <sup>1)</sup>	0.6	0.9	1.8	3.2	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		0.5	0.8	1.4	2.2	3.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		0.5	0.7	1.3	2.0	3.6	5.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16			0.6	1.2	1.9	3.2	4.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				1.2	1.8	3.1	4.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25				1.2	1.8	3.0	4.2	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
32					1.7	2.8	3.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
40						2.7	3.8	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
50						2.5	3.5	5.7	6.0 <sup>2)</sup>
63								5.3	6.0 <sup>2)</sup>

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 <sup>1)</sup>	0.5	0.6	1.4	2.4	5.5	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	0.6	1.3	2.0	3.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13				1.3	1.9	3.3	5.0	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16					1.2	1.8	3.2	4.4	6.0 <sup>2)</sup>
20					1.2	1.8	3.1	4.1	6.0 <sup>2)</sup>
25						1.7	2.8	3.8	6.0 <sup>2)</sup>
32							2.7	3.7	6.0 <sup>2)</sup>
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 <sup>1)</sup>	0.5	0.8	1.6	3.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		0.5	0.7	1.3	2.4	3.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		<0.5 <sup>1)</sup>	0.7	1.2	2.3	3.2	5.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16			0.6	1.1	2.2	2.9	4.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				1.1	2.1	2.8	4.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25				1.1	2.0	2.7	4.2	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
32					2.0	2.6	4.0	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
40						2.5	3.8	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
50						2.3	3.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
63								6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	<0.5 <sup>1)</sup>	1.2	2.7	4.5	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	<0.5 <sup>1)</sup>	1.2	2.3	3.1	5.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13				1.1	2.2	3.0	4.9	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16					1.1	2.1	2.8	4.4	6.0 <sup>2)</sup>
20					1.0	2.0	2.6	4.0	6.0 <sup>2)</sup>
25						1.9	2.5	3.8	6.0 <sup>2)</sup>
32							2.5	3.7	6.0 <sup>2)</sup>
40								3.5	6.0 <sup>2)</sup>
50									6.0 <sup>2)</sup>

**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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.7	1.1	1.5	2.0	3.3	4.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10		<0.5 <sup>1)</sup>	0.6	0.9	1.2	1.5	2.2	2.7	4.0	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13		<0.5 <sup>1)</sup>	0.6	0.8	1.1	1.4	2.1	2.6	3.8	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16			0.5	0.7	1.0	1.3	1.9	2.4	3.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20				0.7	1.0	1.3	1.9	2.4	3.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
25				0.7	1.0	1.3	1.8	2.3	3.2	5.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
32					0.9	1.2	1.7	2.2	3.1	5.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
40						2.1	3.0	5.1	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
50							1.9	2.8	4.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
63									4.4	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>

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 <sup>1)</sup>	<0.5 <sup>1)</sup>	0.5	0.8	1.2	1.5	2.5	3.3	5.7	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
13					1.0	1.3	1.9	2.4	3.6	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
16						1.0	1.3	1.8	2.3	3.3	6.0 <sup>2)</sup>	6.0 <sup>2)</sup>
20							1.0	1.2	1.7	2.2	3.2	5.5
25								1.6	2.1	3.0	5.2	6.0 <sup>2)</sup>
32									2.1	2.9	5.0	6.0 <sup>2)</sup>
40										2.8	4.8	6.0 <sup>2)</sup>
50											4.5	6.0 <sup>2)</sup>
63												5.9

<sup>1)</sup> Selectivity limit current  $I_s$  under 0.5 kA

<sup>2)</sup> Selectivity limit current  $I_s$  = rated breaking capacity  $I_{cn}$  of the MCB

Darker areas: no selectivity

# 1.2

## Protective Devices

## xPole Home

Miniature Circuit Breakers HL xPole Home

sg036 18\_r



Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
<b>3+N-pole</b>			
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

sg028 18\_r



<b>4.5 kA, Characteristic C</b>			
<b>1-pole</b>			
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

sg032 18\_r



<b>1+N-pole</b>			
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

sg030 18\_r



<b>2-pole</b>			
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

sg03018\_r



Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
<b>3-pole</b>			
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

sg03018\_r

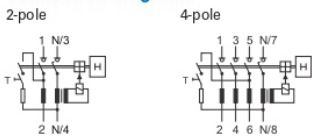


Rated current $I_n$ (A)	Type Designation	Units per Article No. package	
<b>3+N-pole</b>			
6	HL-C6/3N	194808	3/30
10	HL-C10/3N	194809	3/30
13	HL-C13/3N	194810	3/30
16	HL-C16/3N	194811	3/30
20	HL-C20/3N	194812	3/30
25	HL-C25/3N	194813	3/30
32	HL-C32/3N	194814	3/30
40	HL-C40/3N	194815	3/30
50	HL-C50/3N	194816	3/30
63	HL-C63/3N	194817	3/30

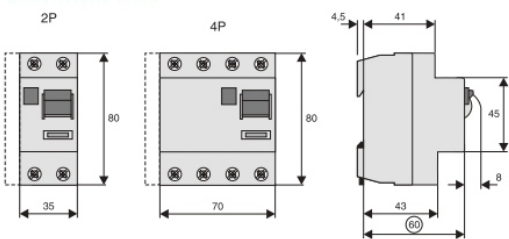
Technical Data

HNC		
<b>Electrical</b>		
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	$I_{Dn}$	30 mA / 100 mA
Sensitivity	AC and pulsating DC	
Rated insulation voltage	$U_i$	440 V
Rated impulse withstand voltage	$U_{imp}$	4 kV (1.2/50 $\mu$ s)
Rated short circuit strength	$I_{cn}$	6 kA
Maximum back-up fuse		Short circuit
	$I_n = 25$ A	63 A gG/gL
	$I_n = 40$ A	63 A gG/gL
	$I_n = 63$ A	63 A gG/gL
		Overload
		16 A gG/gL
		25 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	$I_{Dm}$	500 A
		630 A
Voltage range of test button	2-pole	196 - 264 V~
	4-pole	196 - 264 V~
Endurance	electrical components	$\geq 4,000$ switching operations
	mechanical components	$\geq 20,000$ switching operations
<b>Mechanical</b>		
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, DGVV VS3, EN 50274	
Terminal capacity	1.5 - 35 mm <sup>2</sup> single wire	
	2 x 16 mm <sup>2</sup> multi wire	
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	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



Dimensions (mm)



# 1.3

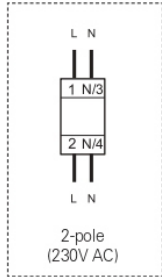
## Protective Devices

xPole Home

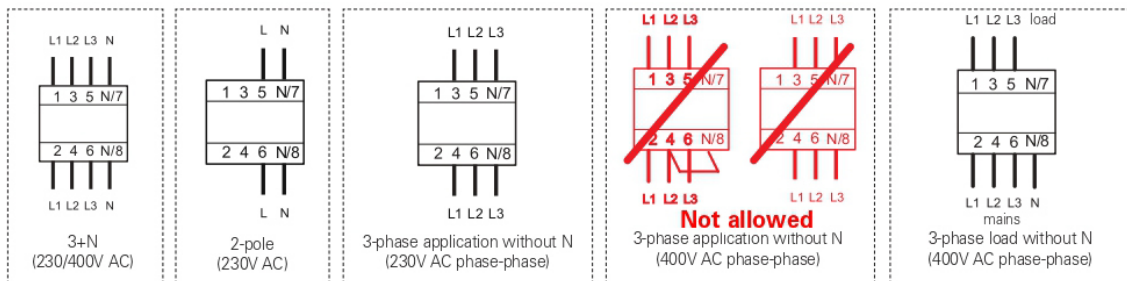
Residual Current Devices HNC xPole Home - Technical Data

### Correct connection

#### 2-pole



#### 4-pole





sg00818\_r



### Description

- High-quality residual current device / miniature circuit breaker combination, line voltage-independent
- Contact position indicator red - green
- Comprehensive 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

# 1.4

## Protective Devices

xPole Home

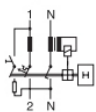
RCBO Devices HNB xPole Home - Technical Data

### Technical Data

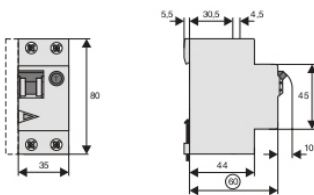
		HNB, 1+N-pole
<b>Electrical</b>		
Design according to		IEC/EN 61009
Current test marks as printed onto the device		
Line voltage-independent tripping		instantaneous 250 A (8/20 $\mu$ s), surge current proof
Rated voltage	$U_n$	230 V AC; 50 Hz
Operational voltage range		196-253 V
Rated tripping current	$I_{Dn}$	30 mA
Rated non-tripping current	$I_{Dnn}$	0.5 $I_{Dn}$
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 $\mu$ s)
Characteristic		B, C
Maximum back-up fuse (short circuit)		100 A gL (>6 kA)
Endurance		
electrical components		$\geq 4,000$ switching operations
mechanical components		$\geq 20,000$ switching operations
<b>Mechanical</b>		
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, DGVV VS3, EN 50274
Terminal capacity		1 - 25 mm <sup>2</sup>
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)



# 2.1

## Controlling & Switching

xPole Home

Main Load Disconnecter Switch (Isolator) HIS

wa\_sg03320\_1



### Description

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

Eaton's electrical business is a global leader with deep regional application expertise in power distribution and circuit protection; power quality, back-up power and energy storage; control and automation; life safety and security; structural solutions; and harsh and hazardous environment solutions. Through end-to-end services, channel and an integrated digital platform and insights, Eaton is powering what matters across industries and around the world, helping customers solve their most critical electrical power management challenges. For more information please visit [www.eaton.com](http://www.eaton.com)

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