

UL 1053 DIN Rail RCCB



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### UL 1053 DIN Rail RCCB 480/277 Vac

#### Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

#### Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection
- European housing

#### Features

- Wide range of compact RCCB types serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

#### Standards and Certifications

- UL 1053
- IEC/EN 61008
- CSA
- ÖVE
- CE Marked



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## Miniature Circuit Breakers and Supplementary Protectors

UL 1053 DIN Rail RCCB

### Product Selection

#### UL 1053 RCCB 480Y/277V Type A

##### Two-Pole



#### Conditionally Surge Current-Proof 250A, Sensitive to Residual Pulsating DC, Type A

##### Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167113	FRCmM-25/2/003-A-NA
	300	167116	FRCmM-25/2/03-A-NA
40	30	167114	FRCmM-40/2/003-A-NA
	300	167117	FRCmM-40/2/03-A-NA
63	30	167115	FRCmM-63/2/003-A-NA
	300	167118	FRCmM-63/2/03-A-NA

##### Four-Pole



#### Conditionally Surge Current-Proof 250A, Sensitive to Residual Pulsating DC, Type A

##### Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167125	FRCmM-25/4/003-A-NA
	300	167104	FRCmM-25/4/03-A-NA
40	30	167102	FRCmM-40/4/003-A-NA
	300	167105	FRCmM-40/4/03-A-NA
63	30	167103	FRCmM-63/4/003-A-NA
	300	167106	FRCmM-63/4/03-A-NA

#### UL 1053 RCCB 480Y/277V Type G/A

Type G/A has a 10 ms delay.

##### Two-Pole



#### Surge Current-Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

##### Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167119	FRCmM-25/2/003-G/A-NA
	300	167122	FRCmM-25/2/03-G/A-NA
40	30	167120	FRCmM-40/2/003-G/A-NA
	300	167123	FRCmM-40/2/03-G/A-NA
63	30	167121	FRCmM-63/2/003-G/A-NA
	300	167124	FRCmM-63/2/03-G/A-NA

##### Four-Pole



#### Surge Current-Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

##### Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167107	FRCmM-25/4/003-G/A-NA
	300	167110	FRCmM-25/4/03-G/A-NA
40	30	167108	FRCmM-40/4/003-G/A-NA
	300	167111	FRCmM-40/4/03-G/A-NA
63	30	167109	FRCmM-63/4/003-G/A-NA
	300	167112	FRCmM-63/4/03-G/A-NA

##### Note

<sup>①</sup> Has no thermal element; must be paired with FAZ-NA or FAZ per application.

### Accessories

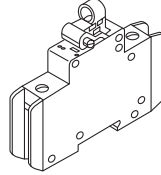
#### UL 1053 DIN Rail RCCB 480/277 Vac

##### Contact



Description	Catalog Number
Two-pole contact or auxiliary contact / trip indicating contact	Z-NHK <sup>①</sup>

##### Padlock Hasp



Description	Catalog Number
Padlock hasp	IS/SPE-1TE

##### Note

- <sup>①</sup> Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

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## Miniature Circuit Breakers and Supplementary Protectors

### UL 1053 DIN Rail RCCB

#### Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 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 meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- 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 (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

#### UL 1053 DIN Rail RCCB Technical Data

Description	Specification
<b>Electrical According to IEC/EN 61008</b>	
Design according to	IEC/EN 61008 ÖVE E 8601
Current test marks as printed onto the device	
Tripping Type G	10 ms delay
Rated voltage $U_n$	230/400V, 50 Hz
Rated tripping current $I_{\Delta n}$	30, 300 mA
Sensitivity	AC and pulsating DC
Rated insulation voltage $U_i$	440V
Rated impulse withstand voltage $U_{imp}$	4 kV
Rated short-circuit capacity $I_{nc}$	10 kA
Maximum backup fuse	Overload protection      Short-circuit protection
$I_n = 25-40A$	25A gG/gL                      63A gG/gL
$I_n = 63A$	40A gG/gL                      63A gG/gL
Rated breaking capacity $I_m$ bzw. Rated fault breaking capacity $I_{\Delta m}$	
$I_n = 25-40A$	500A
$I_n = 63A$	630A
Voltage range of test button	Two-pole                      184-250V- Four-pole                      184-440V-
Endurance	Electrical                      >4000 operating cycles Mechanical                      >20,000 operating cycles
Overvoltage category	III

#### UL 1053 DIN Rail RCCB Technical Data, continued

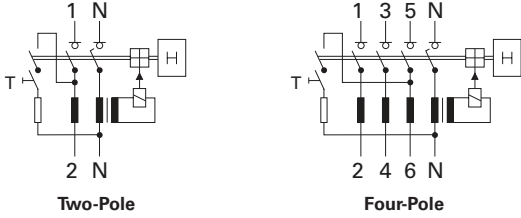
Description	Specification
<b>Electrical According to UL 1053</b>	
Design according to	UL 1053
Current test marks as printed onto the device	
Tripping Type G	8 ms delay
Rated voltage $U_n$	480Y/277V, 60 Hz
Pickup current	22, 200 mA
Sensitivity	AC and pulsating DC
Overvoltage tested	530V
Rated impulse withstand voltage $U_{imp}$	4 kV
Rated short-circuit capacity $I_{nc}$	5 kA according to CSA
Maximum backup fuse	Overload protection      Short-circuit protection
$I_n = 25-40A$	25A gG/gL                      63A gG/gL
$I_n = 63A$	40A gG/gL                      63A gG/gL
Rated breaking capacity $I_m$ or Rated fault breaking capacity $I_{\Delta m}$	
$I_n = 25-40A$	500A
$I_n = 63A$	630A
Voltage range of test button	Two-pole                      184-305V- Four-pole                      184-528V-
Endurance	Electrical                      >4000 operating cycles Mechanical                      >20,000 operating cycles
<b>Mechanical</b>	
Frame size	45.0 mm
Device height	80.0 mm
Device width	35 mm (2TE), 70 mm (4TE)
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Degree of protection in moisture-proof enclosure	IP54
Upper and lower terminals	Lift terminals
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6
Terminal capacity	1.5-35 mm <sup>2</sup> single-wire 2 x 16 mm <sup>2</sup> multi-wire
Busbar material thickness	0.8-2 mm
Tripping temperature	-25°C to +60°C
Resistance to climatic conditions	According to IEC 61008
Humidity	5-95%

# Miniature Circuit Breakers and Supplementary Protectors

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UL 1053 DIN Rail RCCB

### Connection Diagram



### Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

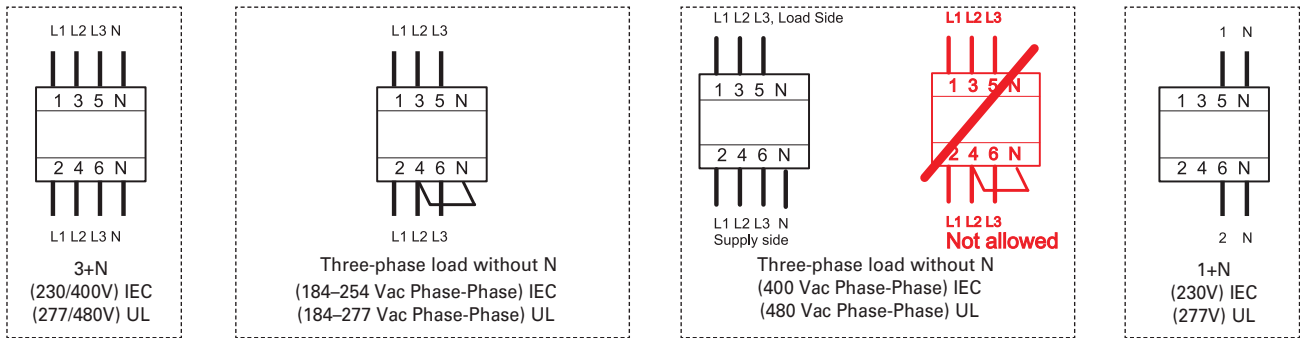
Tripping Temperature	16A		25A		40A		63A	
	Two-Pole	Four-Pole	Two-Pole	Four-Pole	Two-Pole	Four-Pole	Two-Pole	Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

#### Notes

① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

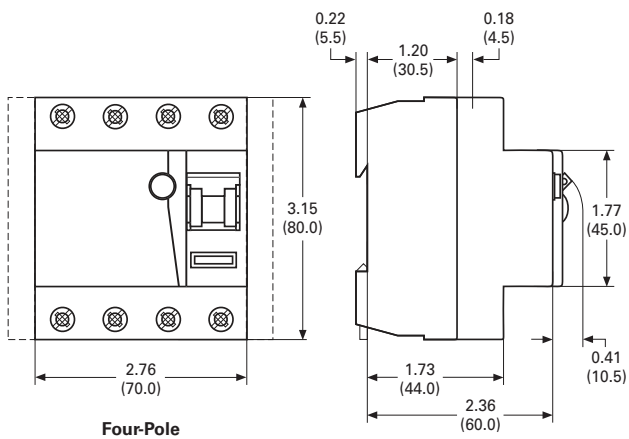
### Correct Connection



### Dimensions

Approximate Dimensions in Inches (mm)

### UL 1053 DIN Rail RCCB



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## Miniature Circuit Breakers and Supplementary Protectors

UL 1053 DIN Rail RCCB

### Accessories Technical Data

Description	Z-NHK
<b>Electrical</b>	
Contact function	2C0
Rated voltage	230V
Frequency	50/60 Hz
Rated current	2A
Rated thermal current $I_{th}$	2A
Utilization category AC13 Rated operational current $I_e$	3A/250 Vac
Utilization category AC15 Rated operational current $I_e$	2A/250 Vac
Utilization category DC12 Rated operational current $I_e$	0.5A/110 Vdc
Rated insulation voltage $U_i$	250 Vac
Minimum operational voltage per contact $U_{min}$	5 Vdc
Minimum operational current $I_{min}$	10 mA DC
Rated peak withstand voltage $U_{imp}$ (1.2/50 $\mu$ )	2.5 kV
Conditional short-circuit current $I_k$ with backup fuse 6A	1 kA
Maximum backup fuse, overload and short circuit	6A gL
<b>Mechanical</b>	
Tripping indicator "electrical tripping"	Blue/white
Frame size	45 mm
Device height	80 mm
Device width	8.8 mm (0.5MU)
Mounting	Onto switching device
Degree of protection, built-in	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals
Terminal capacity	20–14 AWG
Terminal screws	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum

UL 1053 DIN Rail RCCB



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### UL 1053 DIN Rail RCCB 208Y/120 Vac

#### Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

#### Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection

#### Features

- Wide range of compact RCD type serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use in the 110V range of applications
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

#### Standards and Certifications

- UL 1053
- IEC/EN 61008



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## Miniature Circuit Breakers and Supplementary Protectors

### UL 1053 DIN Rail RCCB

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#### Product Selection

##### UL 1053 RCCB 208Y/120 Vac Type A

###### Four-Pole



##### Conditionally Surge Current-Proof 250A, Sensitive to Residual Pulsating DC, Type A

###### Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167699	FRCmM-25/4/003-A-NA-110
	300	167702	FRCmM-25/4/03-A-NA-110
40	30	167700	FRCmM-40/4/003-A-NA-110
	300	167703	FRCmM-40/4/03-A-NA-110
63	30	167701	FRCmM-63/4/003-A-NA-110
	300	167704	FRCmM-63/4/03-A-NA-110

##### UL 1053 RCCB 208Y/120 Vac Type G/A

Type G/A has a 10 ms delay.

###### Two-Pole



##### Surge Current-Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

###### Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167693	FRCmM-25/2/003-G/A-NA-110
	300	167696	FRCmM-25/2/03-G/A-NA-110
40	30	167694	FRCmM-40/2/003-G/A-NA-110
	300	167697	FRCmM-40/2/03-G/A-NA-110
63	30	167695	FRCmM-63/2/003-G/A-NA-110
	300	167698	FRCmM-63/2/03-G/A-NA-110

###### Four-Pole



##### Surge Current-Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

###### Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number <sup>①</sup>	Designation
25	30	167705	FRCmM-25/4/003-G/A-NA-110
	300	167708	FRCmM-25/4/03-G/A-NA-110
40	30	167706	FRCmM-40/4/003-G/A-NA-110
	300	167709	FRCmM-40/4/03-G/A-NA-110
63	30	167707	FRCmM-63/4/003-G/A-NA-110
	300	167710	FRCmM-63/4/03-G/A-NA-110

###### Note

<sup>①</sup> Has no thermal element; must be paired with FAZ-NA or FAZ per application.

### Accessories

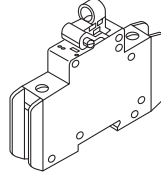
#### UL 1053 DIN Rail RCCB 208Y/120 Vac

##### Contact



Description	Catalog Number
Two-pole contact or auxiliary contact / trip indicating contact	Z-NHK <sup>①</sup>

##### Padlock Hasp



Description	Catalog Number
Padlock hasp	IS/SPE-1TE

##### Note

- <sup>①</sup> Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

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## Miniature Circuit Breakers and Supplementary Protectors

### UL 1053 DIN Rail RCCB

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#### Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electrical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 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 meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- 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 (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

#### UL 1053 DIN Rail RCCB Technical Data

Description	Specification	
<b>Electrical According to IEC/EN 61008</b>		
Design according to	IEC/EN 61008 ÖVE E 8601	
Current test marks as printed onto the device		
Tripping Type G	10 ms delay	
Rated voltage $U_n$	230/400V, 50 Hz	
Rated tripping current $I_{\Delta n}$	30, 300 mA	
Sensitivity	AC and pulsating DC	
Rated insulation voltage $U_i$	440V	
Rated impulse withstand voltage $U_{imp}$	4 kV	
Rated short-circuit capacity $I_{nc}$	10 kA	
Maximum backup fuse	Overload protection	Short-circuit protection
$I_n = 25-40A$	25A gG/gL	63A gG/gL
$I_n = 63A$	40A gG/gL	63A gG/gL
Rated breaking capacity $I_n$ bzw. Rated fault breaking capacity $I_{\Delta m}$		
$I_n = 25-40A$	500A	
$I_n = 63A$	630A	
Voltage range of test button	Two-pole	100-132V~
	Four-pole	100-230V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Overvoltage category	III	

#### UL 1053 DIN Rail RCCB Technical Data, continued

Description	Specification	
<b>Electrical According to UL1053</b>		
Design according to	UL 1053	
Current test marks as printed onto the device		
Tripping Type G	8 ms delay	
Rated voltage $U_n$	208Y/120V, 60 Hz	
Pickup current	22, 200 mA	
Sensitivity	AC and pulsating DC	
Overvoltage tested	530V	
Rated impulse withstand voltage $U_{imp}$	4 kV	
Rated short-circuit capacity $I_{nc}$	5 kA according to CSA	
Maximum backup fuse	Overload protection	Short-circuit protection
$I_n = 25-40A$	25A gG/gL	63A gG/gL
$I_n = 63A$	40A gG/gL	63A gG/gL
Rated breaking capacity $I_n$ or Rated fault breaking capacity $I_{\Delta m}$		
$I_n = 25-40A$	500A	
$I_n = 63A$	630A	
Voltage range of test button	Two-pole	100-121V~
	Four-pole	100-210V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
<b>Mechanical</b>		
Frame size	45.0 mm	
Device height	80.0 mm	
Device width	35 mm (2TE), 70 mm (4TE)	
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	
Degree of protection in moisture-proof enclosure	IP54	
Upper and lower terminals	Lift terminals	
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6	
Terminal capacity	1.5-35 mm <sup>2</sup> single-wire	
	2 x 16 mm <sup>2</sup> multi-wire	
Busbar material thickness	0.8-2 mm	
Tripping temperature	-25°C to +60°C	
Resistance to climatic conditions	According to IEC 61008	
Humidity	5-95%	

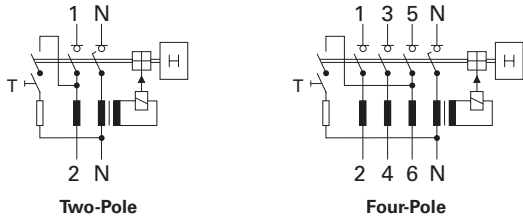
# Miniature Circuit Breakers and Supplementary Protectors

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UL 1053 DIN Rail RCCB

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### Connection Diagram



### Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

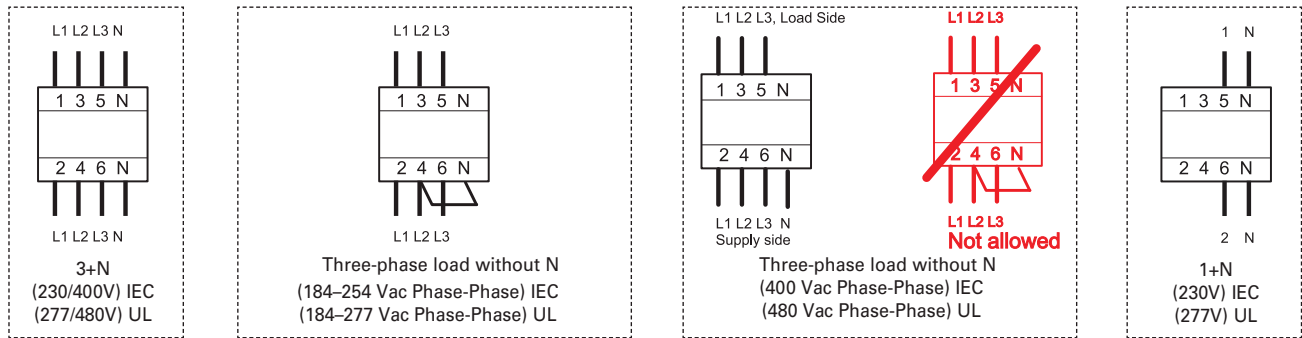
Tripping Temperature	16A		25A		40A		63A	
	Two-Pole	Four-Pole	Two-Pole	Four-Pole	Two-Pole	Four-Pole	Two-Pole	Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

#### Notes

① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

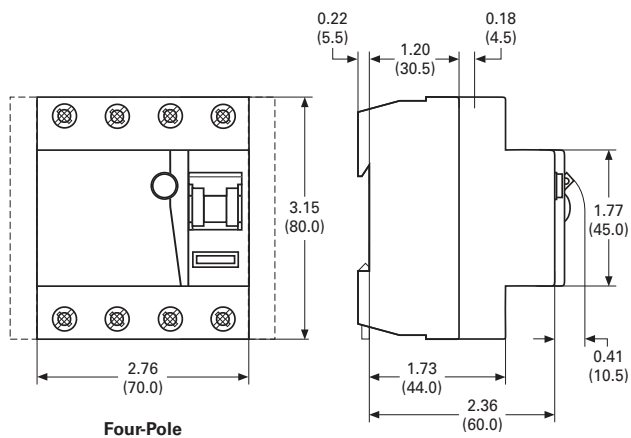
### Correct Connection



### Dimensions

Approximate Dimensions in Inches (mm)

#### UL 1053 DIN Rail RCCB



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## Miniature Circuit Breakers and Supplementary Protectors

UL 1053 DIN Rail RCCB

### Accessories Technical Data

Description	Z-NHK	Z-IHK-NA
<b>Electrical</b>		
Contact function	2C0	1N0 + 1NC
Rated voltage	230V	250V
Frequency	50/60 Hz	50/60 Hz
Rated current	2A	6A
Rated thermal current $I_{th}$	2A	6A
Utilization category AC13 Rated operational current $I_e$	3A/250 Vac	3A/250 Vac
Utilization category AC15 Rated operational current $I_e$	2A/250 Vac	2A/250 Vac
Utilization category DC12 Rated operational current $I_e$	0.5A/110 Vdc	0.5A/110 Vdc 0.25A/220 Vdc
Rated insulation voltage $U_i$	250 Vac	250 Vac
Minimum operational voltage per contact $U_{min}$	5 Vdc	5 Vdc
Minimum operational current $I_{min}$	10 mA DC	10 mA AC/DC
Rated peak withstand voltage $U_{imp}$ (1.2/50 $\mu$ )	2.5 kV	4 kV
Conditional short-circuit current $I_k$ with backup fuse 6A	1 kA	1 kA
Maximum backup fuse, overload and short circuit	6A gL	—
<b>Mechanical</b>		
Tripping indicator "electrical tripping"	Blue/white	—
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	Onto switching device	—
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals	Lift terminals
Terminal capacity	20–14 AWG	0.5–2.5 mm <sup>2</sup>
Terminal screws	M3 (Posidrive Z0)	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum	1.2 Nm