

Disconnect Switches, Molded Case Switches  
Circuit Breakers

8

## NZM 10

### 1 Molded Case Breaker – Page 8/58 – 60

600 VAC, 600 Amp rating  
Up to 100 kA @ 480 VAC Interrupting rating  
Standard and fuseless current limiting versions  
Solid State Trip  
Field installable accessories  
Supplied with terminals for cable hookup or bolt-on connection  
UL Listed (UL 489), CSA certified (C 22.2 # 5.1)  
Conformity with IEC/EN 60 947-2 (Circuit Breakers)

### 1 Molded Case Switch – Page 8/61

600 VAC, 600 Amp rating  
Field installable accessories  
UL Listed (UL 1087), CSA certified (C 22.2 # 5.2)  
Conformity with IEC/EN 60 947-3 (Switch-Disconnectors)

### 2 Auxiliary Contacts – Page 8/64

Type **NHI**... standard auxiliary contact:  
*For signalling ON and OFF positions*  
Type **RHI**... trip-indicating auxiliary contact:  
*For signalling the Tripped ("+") position*

### 3 Auxiliary Contacts & Voltage Trips – Page 8/64 – 66

Type **VHI**... Early-Make auxiliary contact:  
*For interlocking and load shedding purposes.*  
*To power up the undervoltage trip prior to main contact closing*

#### Voltage Trips:

##### Shunt Trips

AC & DC versions

##### Undervoltage Trips

AC & DC versions

### 4 Terminal Connections – Page 8/

Pressure wire terminations for cable connection.  
Bolt-on connection for crimped lug or busbar.  
Terminal covers for additional protection against shock hazards.

### 5 Remote Control Drive – Page 8/67

Electrical operation of the circuit breaker from a remote location:  
Remote ON/OFF  
Remote Reset after Trip  
Local manual operation possible  
Padlockable OFF position

### 6 Rotary Handle – Page 8/68

To operate switch equipped with rotary drive mechanism.

### 7 Rotary Drive Mechanism – Page 8/68

Converts toggle switch operation of the switch into a rotary movement suitable for rotary style operators.  
Lockable in the OFF position.












### 8 Ground Fault Trip Module – Page 8/67

Plugs directly into the breaker or mounts separately.  
Not fed from separate power source.  
Adjustable ground fault trip and time delay settings.  
Automatic Reset.

### 9 Signalling Block – Page 8/64

Differentiated fault indication  
Overload early warning signal for load shedding purposes  
Local or remote signalling of breaker status  
Local, remote or automatic reset.

# Molded Case Circuit Breakers and Switches Type NZM 10... Overview of Combination Options

Type	Solid State Trip Modules			Solid State Trip Modules with pick-up delay for selectivity			Auxiliary contacts (NHI...: Standard) (RHI...: Trip Indicating) (VHI...: Early-Make)			Signalling Block	
	 ZM(A)-...-NA 250 400 600			 ZMV(A)-...-NA 250 400 600			 NHI-NZM 10	 RHI-NZM 10	 VHI-NZM 10 Not in conjunction with R-NZM 10	 M-NZM 10	
<b>Molded Case Circuit Breakers</b>  NZM 10-...(N)(S)/ZM(V)(A)...-NA	○	○	○	or	○	○	○	●	●	●	●
NZM 10-...H/ZM(A)...-NA	○	○	○	—	—	—	●	●	●	●	
<b>Molded Case Switches</b>  NZM 10-...N/B-NA	—	—	—	—	—	—	●	●	●	—	
<b>Circuit Breakers equipped with Remote Control Drive</b>  NZM 10-...(N)(S)/ZM(V)(A)...-NA +R-NZM 10	○	○	○	or	○	○	○	●	●	—	●
NZM 10-...H/ZM(A)...-NA + R-NZM 10	○	○	○	—	—	—	●	●	—	●	
<b>Molded Case Switches equipped with Remote Control Drive</b>  NZM 10-...N/B-NA +R-NZM 10	—	—	—	—	—	—	●	●	—	—	
<b>Circuit Breaker Switch blocks without Trip Modules</b>  NZM 10-400N-NA NZM 10-400S-NA NZM 10-400H-NA NZM 10-600N-NA NZM 10-600S-NA NZM 10-600H-NA	●	●	—	●	●	—	●	●	●	●	
	●	●	—	●	●	—	●	●	●	●	
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	●	●	●	●	●	●	●	●	●	●	
	●	●	●	—	—	—	●	●	●	●	

- Options for combination
- Included as standard

Disconnect Switches, Molded Case Switches  
Circuit Breakers



# Molded Case Circuit Breakers and Switches Type NZM 10... Overview of Combination Options

Voltage Trips (A...: Shunt Trip) (U...: Undervoltage Trip)			Ground-Fault Trip Drive	Remote Control Door coupling	Rotary Drive Mechanism Rotary Handle			Terminals Bolt connection included as standard	
A-NZM 10	U-NZM 10	TV-NZM 10	R-NZM 10	D-NZM 10	H 10U-NZM 10	(R)H 10-NZM 10	Bolt-on connection	Cable Terminals	

● or ●	●	● or ●	● or ●	●	● or ●	●	●	or	●
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Circuit Breakers  
Disconnect Switches, Molded Case Switches



**Inverse Time Circuit Breakers, 600 Amps, 600V AC  
Solid State Trip, Type NZM 10...-NA**

**UL/CSA, IEC/EN 60 947-2, CE**

1	2	3	4	5	6
	Long Time Response Current Setting (I <sub>r</sub> )  Amps	Adjustable instantaneous Pick-up Setting  Amps	Adjustable Short Time Delay Pick-up setting for selectivity in networks  Time delay Range: 0 – 1000 ms  Amps	<b>Type</b>  (N) Normal Level Interrupting:  42 kA @ 480 VAC	<b>Price</b>  \$
<b>Fixed Long Time response settings for Type NZM 10... N/ZMA-...-NA</b>					
	200	400 – 2400	—	NZM 10-400 N/ZMA-200-NA	See Price List
	225	450 – 2700	—	NZM 10-400 N/ZMA-225-NA	See Price List
	250	500 – 3000	—	NZM 10-400 N/ZMA-250-NA	See Price List
	300	600 – 3600	—	NZM 10-400 N/ZMA-300-NA	See Price List
	350	700 – 4200	—	NZM 10-400 N/ZMA-350-NA	See Price List
	400	800 – 4800	—	NZM 10-400 N/ZMA-400-NA	See Price List
	500	1000 – 6000	—	NZM 10-600 N/ZMA-500-NA	See Price List
	600	1200 – 7200	—	NZM 10-600 N/ZMA-600-NA	See Price List
<b>Adjustable Long Time response settings for Type NZM 10... N/ZM-...-NA</b>					
	200 – 400	400 – 4800	—	NZM 10-400 N/ZM-400-NA	See Price List
	300 – 600	600 – 7200	—	NZM 10-600 N/ZM-600-NA	See Price List
<b>Fixed Long Time response settings for Type NZM 10.../ZMVA-...-NA with Short-Time Delay pick-up for Selectivity</b>					
	200	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-200-NA	See Price List
	225	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-225-NA	See Price List
	250	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-250-NA	See Price List
	300	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-300-NA	See Price List
	350	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-350-NA	See Price List
	400	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-400 N/ZMVA-400-NA	See Price List
	500	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-600 N/ZMVA-500-NA	See Price List
	600	1000 – 9000	2 – 12 x I <sub>r</sub>	NZM 10-600 N/ZMVA-600-NA	See Price List
<b>Adjustable Long Time response settings for Type NZM 10.../ZMV-...-NA with Short-Time Delay pick-up for Selectivity</b>					
	200 – 400	1000 – 9000	400 – 4800	NZM 10-400 N/ZMV-400-NA	See Price List
	300 – 600	1000 – 9000	600 – 7200	NZM 10-600 N/ZMV-600-NA	See Price List

Type **NZM 10...(N)(S)/ZM(A)-...-NA** Molded Case Circuit Breakers are UL Listed (UL 489) and CSA Certified (22.2 Nr. 5.1) Inverse Time, Solid State Trip Circuit Breakers with a fixed or adjustable Long Time Response and adjustable instantaneous pick-up range.

Type **NZM 10...(N)(S)/ZMV(A)-...-NA** are UL Listed (UL 489) and CSA Certified (22.2 Nr. 5.1) and have an additional short time delay pick-up range for selectivity in energy distribution networks. The time delay response is adjustable from 0 to 1000 milliseconds.

Type **NZM 10...H/ZM(A)-...-NA** Molded Case Circuit Breakers are UL Listed (UL 489) and CSA Certified (22.2 Nr. 5.1)

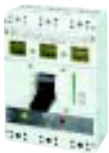
Current Limiting Inverse Time, Solid State Trip Circuit Breakers with a fixed or adjustable Long Time Response and adjustable instantaneous pick-up range.

**Ordering Information:**

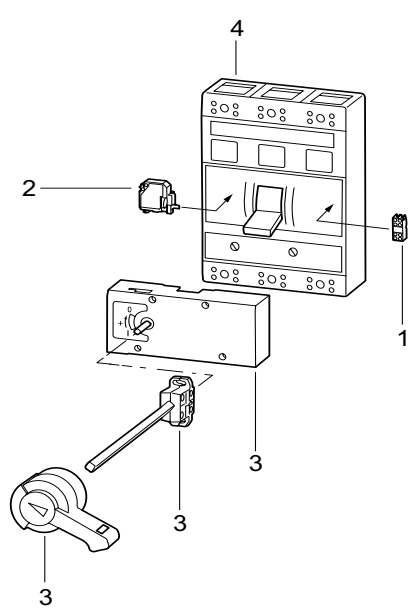
State type from Column 5, 7 or 9. Example: **NZM 10-600 H/ZMA-500-NA**.

**Note:**

- **NZM 10** Circuit Breakers and Molded Case Switches are supplied with toggle operator. Consult page 8/68 for additional handle types.
- Consult pages 8/62 – 71 for additional accessories.
- **NZM 10** Circuit Breakers and Molded Case Switches are supplied standard with bolt-on connection. For Line and Load field-wiring terminals for cable connection, refer to page 8/70 – 71 for details on available terminals.




(600A)

7	8	9	10	11										
Type	Price	Type	Price											
(S) Super Level Interrupting:  65 kA @ 480 VAC	\$	(H) Highest Level Interrupting:  Fuseless Current Limiting Circuit Breaker 100 kA @ 480 VAC	\$											
NZM 10-400 S/ZMA-200-NA NZM 10-400 S/ZMA-225-NA NZM 10-400 S/ZMA-250-NA NZM 10-400 S/ZMA-300-NA NZM 10-400 S/ZMA-350-NA NZM 10-400 S/ZMA-400-NA NZM 10-600 S/ZMA-500-NA NZM 10-600 S/ZMA-600-NA	See Price List See Price List See Price List See Price List See Price List See Price List See Price List See Price List	NZM 10-400 H/ZMA-200-NA NZM 10-400 H/ZMA-225-NA NZM 10-400 H/ZMA-250-NA NZM 10-400 H/ZMA-300-NA NZM 10-400 H/ZMA-350-NA NZM 10-400 H/ZMA-400-NA NZM 10-600 H/ZMA-500-NA NZM 10-600 H/ZMA-600-NA	See Price List See Price List See Price List See Price List See Price List See Price List See Price List See Price List	 <table border="1"> <thead> <tr> <th>Accessories</th> <th>Page</th> </tr> </thead> <tbody> <tr> <td>1 Auxiliary contacts</td> <td>8/64</td> </tr> <tr> <td>2 Voltage Trips</td> <td>8/65, 66</td> </tr> <tr> <td>3 Handles and operators</td> <td>8/69</td> </tr> <tr> <td>4 Terminals</td> <td>8/71</td> </tr> </tbody> </table>	Accessories	Page	1 Auxiliary contacts	8/64	2 Voltage Trips	8/65, 66	3 Handles and operators	8/69	4 Terminals	8/71
Accessories	Page													
1 Auxiliary contacts	8/64													
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3 Handles and operators	8/69													
4 Terminals	8/71													
NZM 10-400 S/ZM-400-NA NZM 10-600 S/ZM-600-NA	See Price List See Price List	NZM 10-400 H/ZM-400-NA NZM 10-600 H/ZM-600-NA	See Price List See Price List											
NZM 10-400 S/ZMVA-200-NA NZM 10-400 S/ZMVA-225-NA NZM 10-400 S/ZMVA-250-NA NZM 10-400 S/ZMVA-300-NA NZM 10-400 S/ZMVA-350-NA NZM 10-400 S/ZMVA-400-NA NZM 10-600 S/ZMVA-500-NA NZM 10-600 S/ZMVA-600-NA	See Price List See Price List See Price List See Price List See Price List See Price List See Price List See Price List	— — — — — — — —	See Price List See Price List See Price List See Price List See Price List See Price List See Price List See Price List											
NZM 10-400 S/ZMV-400-NA NZM 10-600 S/ZMV-600-NA	See Price List See Price List	— —	See Price List See Price List											
<b>UL/CSA Interrupting ratings (AC, 60Hz)</b>			<b>Features of ZMV(A)...Trip Modules used for Selectivity:</b>											
Type	RMS Sym kAmps @				Fixed (ZMVA...) or adjustable (ZMV...) long time response current. Adjustable time delay (2 – 20 sec.) for current levels at 6 x the long time response current (I <sub>p</sub> ). Long time response current can be disconnected. Adjustable time delay (0 – 1000 ms) pick-up setting. Adjustable instantaneous pick-up response.									
	240 V	480 V	600 V											
NZM 10-... N/ ZM(V)(A)-...-NA	65	42	35											
NZM 10-... S/ ZM(V)(A)-...-NA	100	65	42											
NZM 10-... H/ ZM(A)-...-NA	200	100	50											



## Molded Case Circuit Breakers - Instantaneous Trip type, 600 Amp NZM 10-.../ZM-...-OBI...-CNA

1	2	3	4	5
Frame Rating	Continuous Current Rating	Adjustable Instantaneous Trip Response Range	Type	Price
	Amps	Amps		\$
<b>Solid State Instantaneous Trip Circuit Breakers</b> 600 V AC, UL/CSA (N) Normal Level Short circuit Rating				See Price List
	400	800...4800	NZM 10-400 N/ZM -400-OBI-CNA	See Price List
	600	1200...7200	NZM 10-600 N/ZM -600-OBI-CNA	See Price List
<b>NZM 10-...N/ZM-...-OBI-CNA</b> (600 Amps)				See Price List
<b>Solid State Instantaneous Trip Circuit Breakers</b> 600 V AC, UL/CSA (H) High Level Short circuit Rating				See Price List
	400	800...4800	NZM 10-400 H/ZM -400-OBI-CNA	See Price List
	600	1200...7200	NZM 10-600 H/ZM -600-OBI-CNA	See Price List
<b>NZM 10-...N/ZM-...-OBI-CNA</b> (600 Amps)				See Price List

Disconnect Switches, Molded Case Switches  
Circuit Breakers




Type **NZM10-...N/ZM-...-OBI...-CNA** and **NZM10-...H/ZM-...-OBI...-CNA** Molded Case Circuit Breakers are UL Recognized (UL 489) and CSA Certified (22.2 Nr. 5.1) Instantaneous Trip type Circuit Breakers with an adjustable instantaneous trip function. Per NEC, they provide motor short circuit protection as part of a listed combination motor controller that includes coordinated motor overload protection. Short circuit interrupting ratings are, therefore, established and valid only for the listed combination motor controller assembly and associated housing or enclosure.

The **NZM 10...H** instantaneous trip circuit breaker features a current limiting design contact assembly and can provide high fault short circuit current ratings for motor starters of up to 65kA @ 480VAC.

Consult Moeller Electric for Combination Motor Controller high fault short circuit ratings as Motor Control Center unit starters featuring Type **NZM10...N** and **NZM10...H** Instantaneous Trip Circuit Breakers.

Ordering Information:  
State type from Column 4. Example: **NZM 10-600 H/ZM-600-OBI-CNA**

Note:  
 - **NZM 10** Circuit Breakers and Molded Case Switches are supplied with toggle operator. Consult page 8/69 for additional handle types.  
 - Consult page 8/67 for additional accessories.  
 - **NZM 10** Circuit Breakers and Molded Case Switches are supplied standard with bolt-on connection. For Line and Load field-wiring terminals for cable connection, refer to page 8/71 for details on available terminals.

1	2	3	4	5
	Ampere Rating	Type	Price	Notes
	Amps		\$	
<b>Molded Case Switches</b> With provisions for bolt-on connection				
	400	NZM 10-400 N/B-NA	See Price List	UL/CSA Short Circuit Current Rating: 25 kA RMS Sym @ 600 VAC
	600	NZM 10-600 N/B-NA	See Price List	

Type **NZM 10...N/B-NA** Molded Case Switches are virtually identical in construction to **NZM 10** Molded Case Circuit Breakers except that they are manual, non-automatic switches without any overload or overcurrent protective features. They are equally rated up to 600 Amps. All Molded Case Switches are UL Listed (UL 1087)/ CSA certified (C 22.2 Nr. 5.2), in conformity with IEC/EN 60 947-3 (Switch-Disconnectors) and CE marked.

Molded Case Switches are tested to determine their acceptability for continuous operation at their marked rated load. In addition, they are tested at six times their full ampere rating to cover motor circuit applications and are suitable for use as motor circuit disconnects per Section 430-109 of the National Electrical Code.

Accessories such as voltage trips, auxiliary contacts, rotary handles etc. are common to all NZM 10 circuit breakers and molded case switches and are UL listed and CSA certified for field installation.

Ordering Information:  
Specify Type from Column 3. Example: **NZM 10-400 N/B-NA**.

- Note:
- **NZM 10** Circuit Breakers and Molded Case Switches are supplied with toggle operator. Consult page 8/69 for additional handle types.
  - Consult page 8/67 for additional accessories.
  - **NZM 10** Circuit Breakers and Molded Case Switches are supplied standard with bolt-on connection. For Line and Load field-wiring terminals for cable connection, refer to page 8/71 for details on available terminals.

# Inverse Time Circuit Breaker Components, 600 Amps, 600VAC Type NZM 10...-NA Switch Blocks, Solid State Trip Modules

UL/CSA, IEC/EN 60 947-2, CE

1	2	3	4	5	6
<p>The NZM 10 Inverse Time Molded Case Breaker is made up of a Switch Block and a protective Trip Module. Switch Blocks and Trip Modules can be ordered separately and combined per the charts and columns shown here to suit any particular application. Refer to chart at bottom of page for resultant interrupting ratings.</p>	<p>Switch Block Ratings</p> <p>Continuous Current (<math>I_u</math>)</p>	<p>Trip Module Ratings</p>			<p>Compatibility of Switch Block with Trip Module</p> <p>Dots (●) in each row indicate which Trip Module (Refer to column 7) can be used with the Switch Block type shown below. Dashes (—) indicate incompatibility.</p>
	<p>Amps</p>	<p>Long Time Response Current Setting (<math>I_t</math>)</p> <p>Amps</p>	<p>Adjustable instantaneous Pick-up Setting</p> <p>Amps</p>	<p>Adjustable Short Time Delay Pick-up setting for selectivity in networks</p> <p>Time delay range: 0 – 1000 ms</p> <p>Amps</p>	

## Switch Blocks, Suitable for insertion of Trip Modules



400  
400  
400  
600  
600  
600

## Solid State Trip Modules



Fixed Long Time Response	200	400 – 2400	—	●	●
	225	450 – 2700	—	●	●
	250	500 – 3000	—	●	●
	300	600 – 3600	—	●	●
	350	700 – 4200	—	●	●
	400	800 – 4800	—	●	●
	500	1000 – 6000	—	—	●
	600	1200 – 7200	—	—	●
Adjustable Long Time Response	200 – 400	400 – 4800	—	●	●
	300 – 600	600 – 7200	—	—	●

## Solid State Trip Modules for Selectivity in networks

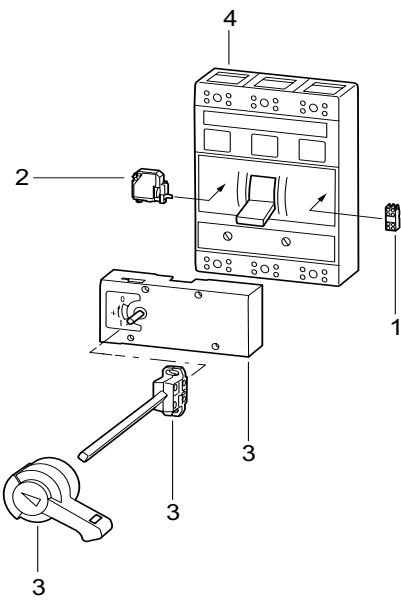


Fixed Long Time Response	200	1000 – 9000	2 – 12 x $I_t$	●	●
	225	1000 – 9000	2 – 12 x $I_t$	●	●
	250	1000 – 9000	2 – 12 x $I_t$	●	●
	300	1000 – 9000	2 – 12 x $I_t$	●	●
	350	1000 – 9000	2 – 12 x $I_t$	●	●
	400	1000 – 9000	2 – 12 x $I_t$	●	●
	500	1000 – 9000	2 – 12 x $I_t$	—	●
	600	1000 – 9000	2 – 12 x $I_t$	—	●
Adjustable Long Time Response	200...400	1000...9000	400...4800	●	●
	300...600	1000...9000	600...7200	—	●

## UL/CSA Interrupting ratings (AC, 60Hz)

Type	RMS Sym kA @		
	240 V	480 V	600 V
NZM 10... N/ ZM(V)(A)-...-NA	65	42	35
NZM 10... S/ ZM(V)(A)-...-NA	100	65	42
NZM 10... H/ ZM(A)-...-NA	200	100	50

Type NZM 10... Molded Case Circuit Breakers can be ordered complete (consult p. 8/58,59), or assembled from components by combining Switch Blocks and protective Trip Modules.  
Example: NZM10-600N-NA (Switch Block) +ZMA-500-NZM 10-NA (Trip Module) = NZM 10-600 N/ZMA-500-NA Molded Case Circuit Breaker

7 Type	8 Price	9 Notes	10
NZM 10-400N-NA NZM 10-400S-NA NZM 10-400H-NA NZM 10-600N-NA NZM 10-600S-NA NZM 10-600H-NA	See Price List \$	<p><b>NZM 10</b> Switch Blocks make up a complete breaker minus the protective Trip Module.                      Add a Trip Module from below to complete the breaker assembly. Refer to Column 6 for compatibility information on Switch Blocks and Trip Modules.                      Refer to chart at bottom of opposite page for resultant circuit breaker interrupting ratings.</p>	
ZMA-200-NZM 10-NA ZMA-225-NZM 10-NA ZMA-250-NZM 10-NA ZMA-300-NZM 10-NA ZMA-350-NZM 10-NA ZMA-400-NZM 10-NA ZMA-500-NZM 10-NA ZMA-600-NZM 10-NA	See Price List	<p>ZMA solid state trip modules have a fixed long time response and an adjustable instantaneous pick-up range.</p>	
ZM-400-NZM 10-NA ZM-600-NZM 10-NA	See Price List	<p>ZM solid state trip modules have an adjustable long time response and an adjustable instantaneous pick-up range.</p>	
ZMVA-200-NZM 10-NA ZMVA-225-NZM 10-NA ZMVA-250-NZM 10-NA ZMVA-300-NZM 10-NA ZMVA-350-NZM 10-NA ZMVA-400-NZM 10-NA ZMVA-500-NZM 10-NA ZMVA-600-NZM 10-NA	See Price List	<p>Features of <b>ZMV(A)...</b> Trip Modules used for Selectivity:                      Fixed (<b>ZMVA...</b>) or adjustable (<b>ZMV...</b>) long time response current.                      Adjustable time delay (2 – 20 sec.) for current levels at 6 x the long time response current (I<sub>l</sub>).                      Long time response current can be disconnected.                      Adjustable time delay (0 – 1000 ms) pick-up setting.                      Adjustable instantaneous pick-up response.</p> <p>Note: <b>ZMVA...</b> and <b>ZMV</b> Trip Modules cannot be combined with <b>NZM 10-400 H-NA</b> and <b>NZM 10-600 H-NA</b> Switch Blocks.</p>	
ZMV-400-NZM 10-NA ZMV-600-NZM 10-NA	See Price List		

Accessories		Page
1	Auxiliary contacts	8/64
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3	Handles and operators	8/69
4	Terminals	8/71


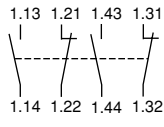

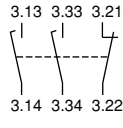

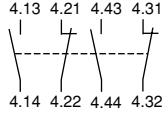

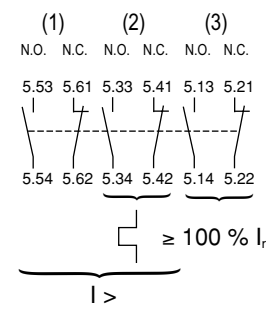
Ordering Information: Specify Type from column 7. Example: **NZM 10-600 N-NA**

Note:

- Compatible Trip Modules will easily fit into the front part of the switch block. Incompatible Trip Modules and Switch Block combinations are mechanically blocked to prevent creation of improper combinations. (Refer to columns 6 & 7)
- **NZM 10** Switch Blocks are supplied with toggle operator. Consult page 8/69 for additional handle types.
- Consult page 8/67 for additional accessories.
- **NZM 10** Circuit Breakers and Molded Case Switches are supplied standard with bolt-on connection. For Line and Load field-wiring terminals for cable connection, refer to page 8/71 for details on available terminals.

# Molded Case Circuit Breakers and Switches

## Auxiliary Contacts, Signalling Unit for Type NZM 10...-NA


1	2	3	4
	Contact sequence	Type	Price
			\$
<p><b>Auxiliary Contacts</b>  <b>NHI standard auxiliary contacts</b>                      Switching simultaneously with the main contacts. They can be typically used for signalling, interlocking or switching auxiliary circuits such as a control circuit.</p> 		<b>NHI-NZM 10</b>	<a href="#">See Price List</a>
<p><b>VHI Early-Make auxiliary contacts</b>                      Typically used for powering up the undervoltage trip prior to closing of main contacts and for control circuit interlocking tasks. Cannot be used in conjunction with <b>R-NZM 10</b> Remote Control Drive</p> 		<b>VHI-NZM 10</b>	<a href="#">See Price List</a>
<p><b>RHI trip-indicating auxiliary contacts</b>                      Actuating independently of the normal ON and OFF operations of the device, switching only when the device has tripped due to overcurrents or other tripping causes such as those initiated by voltage trips.</p> 		<b>RHI-NZM 10</b>	<a href="#">See Price List</a>
<p><b>Signalling Block</b>                      Differential fault indication and visual display of breaker operating states</p> <p>(1) Tripping due to short-circuit.                      (2) Tripping due to overload and general trip condition.                      (3) Overload early warning signal in the event that the long time response setting is about to be exceeded (i.e. useful for load shedding purposes)</p> <p>Each function signals via a pair of contacts (1 N.O. &amp; 1 N.C.)</p> <p>Mounts directly onto lower portion of circuit-breaker                      Supply voltage necessary:                      24 – 230 V, AC or DC</p> 		<b>M-NZM 10</b>	<a href="#">See Price List</a>

Auxiliary Contacts and Signalling Blocks are field installable.

Ordering information:  
 Specify Type from column 3.  
 Example: **NHI-NZM 10**

If ordering with device, just specify a “+” in front of the Type number. Example: **+ NHI-NZM 10**

## Molded Case Circuit Breakers and Switches Shunt Trips for Type NZM 10...-NA

1	2	3	4	5
	Rated Actuating Voltage (U <sub>s</sub> )	Type	Price \$ each	
<p><b>Shunt Trips</b> Shunt Trips are typically used to electrically trip the device from a remote location. The <b>A...-NZM 10</b> series is rated for 100% continuous duty. Shunt Trips cannot be mounted together with Undervoltage Trips.</p>				
				
	AC/DC 24	A-NZM 10 (24V)	See Price List	<p>Field installable and suitable for mounting into <b>NZM 10</b> Molded Case Circuit Breakers and Switches. Shunt Trips are rated for both AC and DC voltages and can accommodate a frequency range between 0 and 400 Hz.</p>
	48	A-NZM 10 (48V)	See Price List	
	60	A-NZM 10 (60V)	See Price List	
	110 – 120	A-NZM 10 (110-120V)	See Price List	
	125 – 130	A-NZM 10 (125-130V)	See Price List	
	208 – 215	A-NZM 10 (208-215V)	See Price List	
	220 – 240	A-NZM 10 (220-240V)	See Price List	
	380 – 415	A-NZM 10 (380-415V)	See Price List	
	440 – 480	A-NZM 10 (440-480V)	See Price List	
	500	A-NZM 10 (500V)	See Price List	
	600	A-NZM 10 (600V)	See Price List	

Shunt trips are field installable.


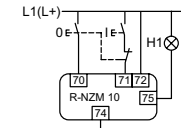
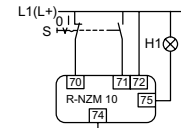
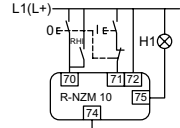





Ordering information:  
Specify Type from column 3.  
Example: **A-NZM 10 (110-120V)**

If ordering with device, just specify a "+" in front of the Type number.  
Example: **+ A-NZM 10 (110-120V)**









## Type NZM 10...-NA Molded Case Circuit Breakers and Switches Remote Control Drives and Accessories

1	2	3	4	5
	Contact diagram	Rated Actuating Voltage (U <sub>c</sub> ) 50/60 Hz	Type	Price
				\$
<p><b>Remote Control Drive</b> For both Circuit Breakers and Molded Case Switches Switching times: ON 60 ms, OFF 30 ms Manual switching possible</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2;"> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>3-wire control</p> </div> <div style="text-align: center;">  <p>2-wire control</p> </div> <div style="text-align: center;">  <p>3-wire control with automatic reset to the OFF position after the switch has tripped.</p> </div> </div> </div> </div>		<p>110 – 120 AC</p> <p>220 – 240 AC</p> <p>380 – 415 AC</p> <p>24 DC</p> <p>48 – 60 DC</p> <p>100 – 130 DC</p> <p>220 – 240 DC</p>	<p><b>R-NZM 10 (110-120V AC)</b></p> <p><b>R-NZM 10 (220-240V AC)</b></p> <p><b>R-NZM 10 (380-415V AC)</b></p> <p><b>R-NZM 10 (24V DC)</b></p> <p><b>R-NZM 10 (48-60V DC)</b></p> <p><b>R-NZM 10 (100-130V DC)</b></p> <p><b>R-NZM 10 (220-240V DC)</b></p>	<p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p>
<p><b>Pushbutton operator</b> For manual ON-OFF switching of encapsulated <b>NZM 10</b> breakers and switches equipped with a remote control drive. Not for use in conjunction with <b>KVR2-NZM 10</b> mechanical interlock.</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2;"> <p>Mounting depth 250 – 285 mm</p> <p>Mounting depth 285 – 400 mm</p> </div> </div>			<p><b>MD-NZM 10</b></p> <p><b>MDV-NZM 10</b></p>	<p>See Price List</p> <p>See Price List</p>
<p><b>IP 54 Protective cover for door cutout area</b> Transparent cover to provide a panel cutout area with IP 54 protection For use where the Remote Control Drive protrudes from the cutout area of the enclosure door.</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> </div>			<b>RTR-NZM 10</b>	See Price List
<p><b>Sealing plate</b> To block off manual switching access of the remote control drive at the device. Electrical switching from a remote location and manual tripping of the circuit breaker (push to trip feature) are not affected.</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> </div>			<b>PL-NZM 10</b>	See Price List

Ordering information: Specify Type from column 4. Example: **R-NZM 10 (110-120V AC)**  
If ordering with device, just specify a "+" in front of the Type number.  
Example: **+ R-NZM 10 (110-120V AC)**

# Molded Case Circuit Breakers and Switches Accessories for Type NZM 10...-NA

1	2	3	4
	Type	Price	Notes
		€	
<p><b>Toggle switch interlock</b></p> 	SVB-NZM 10	See Price List	Permits the OFF position of the toggle operator to be locked with up to 3 padlocks (hasp thickness 6 – 8 mm)
<p><b>Insulating cutout frame</b></p> 	RT-NZM 10	See Price List	For use where the toggle switch protrudes from the enclosure. Provides degree of protection IP 40. Affixed from the rear with screws. Can be inscribed.
<p><b>Rotary Drive Mechanism</b></p> 	D-NZM 10	See Price List	Converts ON and OFF switching from a vertical toggle movement to a rotary motion. Required for the use of rotary and door coupling/interlocking rotary handles. Can be locked in the OFF position with up to 3 padlocks. Hasp thickness, 4 – 8 mm.
<p><b>Rotary Handle, for open or panel mounted devices</b></p> 	H10U-SW	See Price List	Black color. Suitable for open mount switches. No door interlocking or padlocking provisions. Requires Rotary Drive mechanism.
<p><b>Extension shaft</b></p>  <p>For mounting depths 175 – 400 mm</p> <p>For mounting depths 260 – 600 mm</p>	A-NZM 10 A600-NZM 10	See Price List	Can be cut to required length.
<p><b>Maintenance Handle</b></p> <p>To actuate the device when the panel door is open.</p>  <p>For Type A-NZM 10 Extension shafts</p> <p>For Type A600-NZM 10 Extension shafts</p>	H10UZ H12UZ	See Price List	For panel mounted switches Push-fits onto the extension shaft



Disconnect Switches, Molded Case Switches



Ordering information:  
Specify Type from column 2. Example: **D-NZM 10**

If ordering with device, just specify a “+” in front of the Type number.  
Example: **+ D-NZM 10**



## Molded Case Circuit Breakers and Switches Type NZM 10...-NA Accessories

1	2	3	4																				
		<b>Type</b>	<b>Price</b>																				
			\$																				
<p><b>Handle for Cover/Door Interlocking</b>                      Degree of protection UL/NEMA 3R/12; IEC IP 55                      With cover interlocking and padlocking feature                      Rotary Drive Mechanism required.                      Can be locked in the OFF or ON position with up to 3 padlocks                      3 distinct Handle positions: OFF- +(tripped)- ON</p> <p><b>Black color:</b> For standard Main Disconnect Switch applications</p>			<b>H 10-SW-NA</b>  <a href="#">See Price List</a>																				
<p><b>Red-yellow color:</b>                      Enables the switch to be used as the Emergency-Stop Disconnect</p>			<b>RH 10-NA</b>  <a href="#">See Price List</a>																				
<p><b>Switch position indicator</b>                      Indicates position of switch (OFF, tripped or ON) when panel door is open.</p>			<b>SA-NZM 10</b>  <a href="#">See Price List</a>																				
<p><b>Main Disconnect Switch Assembly Kits                      for CE marked control panels per IEC/EN 60 204-1</b>                      Type <b>NZM 10...-NA</b> breakers and switches have dual UL/CSA and IEC/EN ratings. They are suitable for use as Main Disconnect Switches in control panels that must be CE marked and designed to comply with the Machinery Directive standard EN 60 204-1.                      Kit includes:</p> <ul style="list-style-type: none"> <li>• Door interlocking rotary handle, color Black</li> <li>• Rotary Drive Mechanism</li> <li>• Extension shaft for 400 mm mounting depth</li> <li>• External warning plate</li> <li>• Black lightning symbol</li> </ul> <p>Same as above, but with red-yellow door interlocking rotary handle.                      For use when Main Disconnect also fulfills Emergency-Stop function per IEC/EN 60204-1</p>			<b>V-NZM 10-SW</b>  <a href="#">See Price List</a>																				
			<b>V-NZM 10</b>  <a href="#">See Price List</a>																				
<p><b>Main Disconnect Warning plates</b>                      English Inscription: "Main Switch – Open only in OFF position"                      Warning plates also available in other languages:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">61 German</td> <td style="width: 25%;">67 Dutch</td> <td style="width: 25%;">72 Portuguese</td> <td style="width: 25%;">77 Spanish</td> </tr> <tr> <td>63 French</td> <td>68 Italian</td> <td>73 Romanian</td> <td>78 Czech</td> </tr> <tr> <td>64 Bulgarian</td> <td>69 Greek</td> <td>74 Russian</td> <td>79 Turkish</td> </tr> <tr> <td>65 Danish</td> <td>70 Norwegian</td> <td>75 Swedish</td> <td>80 Hungarian</td> </tr> <tr> <td>66 Finnish</td> <td>71 Polish</td> <td>76 Serbo-Croatia</td> <td>81 Afrikaans</td> </tr> </table> <p>To obtain warning plates in other languages, insert the language code number into the type reference.                      Example: External warning plate in Spanish would be: <b>ZS 77-NZM 10</b></p> <p>Blank plate (for engraving or printing)</p>		61 German	67 Dutch	72 Portuguese	77 Spanish	63 French	68 Italian	73 Romanian	78 Czech	64 Bulgarian	69 Greek	74 Russian	79 Turkish	65 Danish	70 Norwegian	75 Swedish	80 Hungarian	66 Finnish	71 Polish	76 Serbo-Croatia	81 Afrikaans		<b>ZS 62-NZM 10</b>  <a href="#">See Price List</a>
61 German	67 Dutch	72 Portuguese	77 Spanish																				
63 French	68 Italian	73 Romanian	78 Czech																				
64 Bulgarian	69 Greek	74 Russian	79 Turkish																				
65 Danish	70 Norwegian	75 Swedish	80 Hungarian																				
66 Finnish	71 Polish	76 Serbo-Croatia	81 Afrikaans																				
			<b>ZS..-NZM 10</b>  <a href="#">See Price List</a>																				
			<b>ZS 60-NZM 10</b>  <a href="#">See Price List</a>																				

Ordering information:  
 Specify Type from column 3.  
 Example: **H 10-SW-NA**

If ordering with device, just specify a "+" in front of the Type number.  
 Example: **+ H 10-SW-NA**

# Molded Case Circuit Breakers and Switches Accessories for Type NZM 10...-NA







1	2	3	4																		
		<b>Type</b>	<b>Price</b>																		
			\$																		
<p><b>Mechanical interlocks</b> For mechanically interlocking two <b>NZM 10</b> Circuit Breakers or Molded Case Switches mounted in a panel. Fits toggle operators or rotary drive mechanisms</p> <p style="margin-left: 40px;">For two circuit breakers</p> <p style="margin-left: 40px;">For two circuit-breakers equipped with <b>R-NZM 10</b> Remote Control Drives. (<b>R-NZM 10</b> must be electrically interlocked at the same time)</p>			<p><b>KV2-NZM 10</b></p> <p><b>KVR2-NZM 10</b></p>																		
			<p><b>KV3-NZM 10</b></p>	<p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p>																	
<p>For mechanically interlocking three <b>NZM 10</b> Circuit Breakers or Molded Case Switches mounted in a panel. Fits toggle operators or rotary drive mechanisms</p>			<p><b>KVA3-NZM 10</b></p>																		
<p>For emergency power supplies: Mechanically interlocking two incoming supply circuit breakers with one emergency supply breaker. Fits toggle operators or rotary drive mechanisms.</p> <p>Possible switching positions:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Incomer 1</th> <th>Emergency</th> <th>Incomer 2</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>V</td> <td>0</td> </tr> <tr> <td>1</td> <td>V</td> <td>1</td> </tr> <tr> <td>0</td> <td>V</td> <td>1</td> </tr> <tr> <td>V</td> <td>1</td> <td>V</td> </tr> </tbody> </table> <p style="margin-left: 40px;">0 = OFF V = Interlocked 1 = ON</p>		Incomer 1	Emergency	Incomer 2	0	0	0	1	V	0	1	V	1	0	V	1	V	1	V		<p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p> <p>See Price List</p>
Incomer 1	Emergency	Incomer 2																			
0	0	0																			
1	V	0																			
1	V	1																			
0	V	1																			
V	1	V																			

Disconnect Switches, Molded Case Switches



Ordering information:  
Specify Type from column 3.  
Example: **KV2-NZM 10**

## Molded Case Circuit Breakers and Switches Terminals for Type NZM 10...-NA

1	2	3	4	5	6	7
General info	Maximum Rated Current  Amps	Conductor Cross-section Range and Material	<b>Type suffix<sup>1)</sup></b> Sets of three terminals ordered with breaker or molded case switch: <b>O</b> = Mounted on Top <b>U</b> = Mounted on Bottom	<b>Price</b>  \$	<b>Type</b>  Individual terminals supplied separately for field mounting	<b>Price</b>  \$
<b>Terminals</b>						
Supplied with 3 terminal covers (Type <b>H-NZM 10</b> ) and an insulating plate onto which the circuit breaker is mounted.	 600	2 x AWG 2 – 500 kcmil Cu/Al	+ <b>K2X240IP-NZM 10-O</b> + <b>K2X240IP-NZM 10-U</b>	See Price List	— —	See Price List
Supplied with 1 terminal cover (Type <b>H-NZM 10</b> ) and an insulating plate onto which the circuit breaker is mounted.	 600	2 x AWG 2 – 500 kcmil Cu/Al	—	See Price List	<b>K2X240IP-NZM 10<sup>2)</sup></b>	See Price List
Supplied with 1 terminal cover (Type <b>H-NZM 10</b> )	600	2 x AWG 2 – 500 kcmil Cu/Al	—	See Price List	<b>K2X240-NZM 10<sup>2)</sup></b>	See Price List
Single cable clamp terminal. Not supplied with terminal cover. Suitable terminal cover is Type <b>HH-NZM 10</b>	 350	250 – 500 kcmil Cu only	+ <b>K300-NZM 10-O</b> + <b>K300-NZM 10-U</b>	See Price List	<b>K300-NZM 10</b>	See Price List
Double cable clamp terminal. Not supplied with cover. Suitable terminal cover is Type <b>HH-NZM 10</b>	 500	2 x AWG 3/0 – 250 kcmil Cu only	+ <b>K2x120-NZM 10-O</b> + <b>K2x120-NZM 10-U</b>	See Price List	<b>K2x120-NZM 10</b>	See Price List
<b>Terminal Covers</b>						
<b>Single pole terminal cover.</b> Supplied standard with Type <b>K2x240(IP)</b> terminals. Can be used for bolt-on or cable lug connection.			+ <b>H-NZM 10-O</b> + <b>H-NZM 10-U</b>	See Price List	<b>H-NZM 10</b>	See Price List
One piece, 3 pole terminal cover. Suitable for use with Type <b>K300</b> or <b>K2x120</b> terminals.			+ <b>HH-NZM 10-O</b> + <b>HH-NZM 10-U</b>	See Price List	<b>HH-NZM 10</b>	See Price List

**NZM 10** Circuit Breakers and Molded Case Switches are supplied standard with bolt-on connection. For Line and Load field-wiring terminals for cable connection, select from information specified above. All terminals can be ordered factory installed with the device (Column 4) or separately for field installation (Column 6).

Ordering information:  
Specify Type from Columns 4 or 6. Example: + **K2 x 240IP-NZM 10-O**

1) When ordering with the device (Column 4), the Type suffix specifies which side should be equipped with terminals:  
Suffix **O** - Denotes a set of three terminals and covers mounted on the top.  
Suffix **U** - Denotes a set of three terminals and covers mounted on the bottom.  
Note: All Moeller Electric Molded Case Circuit Breakers, including the **NZM 10**, are UL listed and CSA certified for reverse feed connection and can therefore be fed optionally from top or bottom.

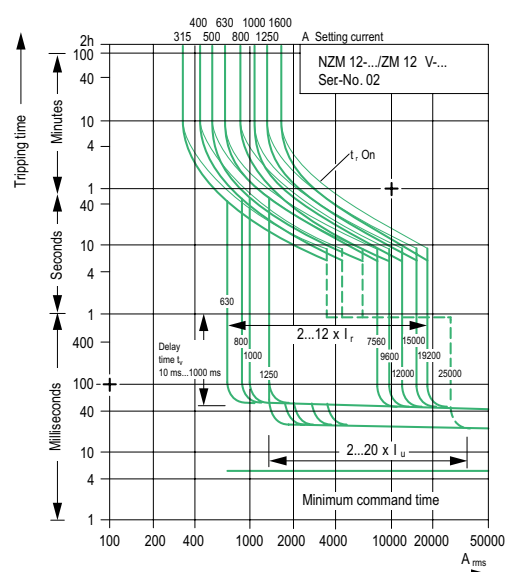
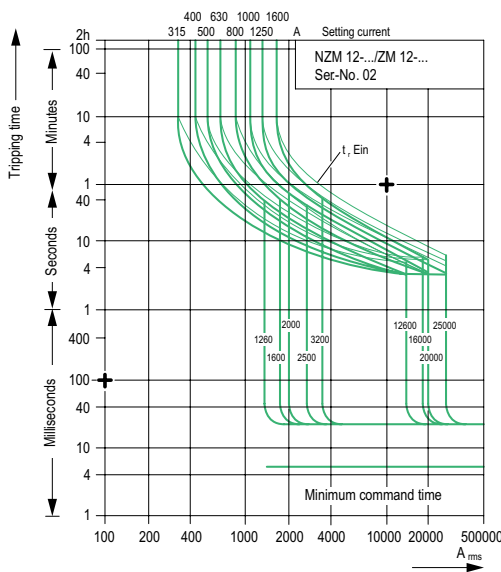
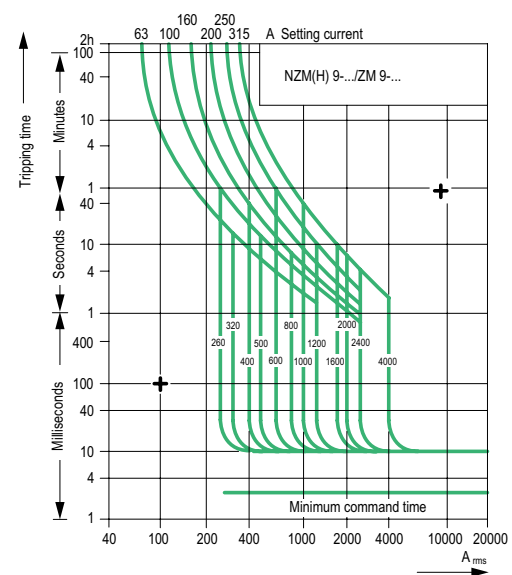
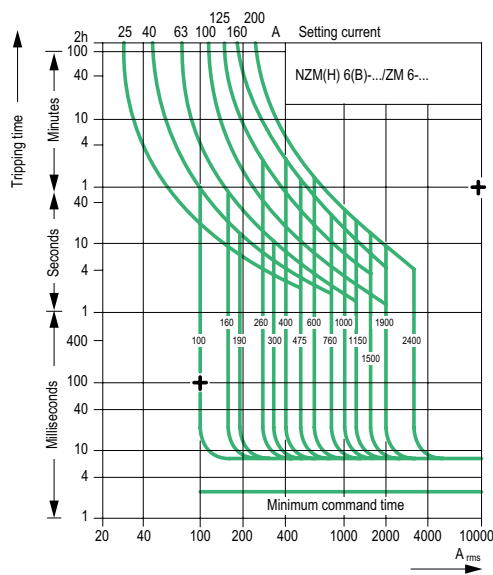
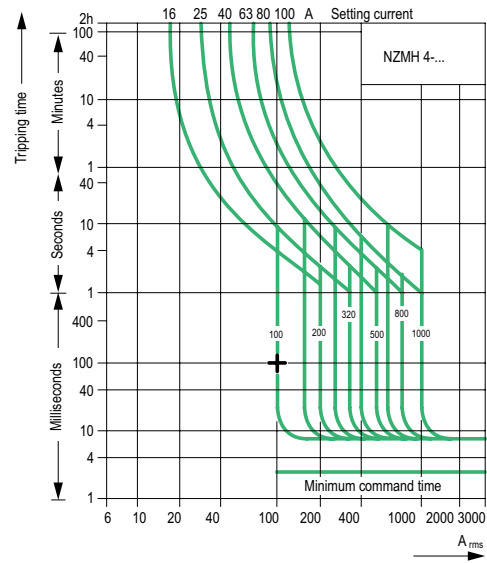
2) Complete set of three (for top or bottom) Type **K2x240(IP)** terminals for field installation (column 6) consists of the following:  
- Qty. of one **K2x240IP** terminal, which is supplied with one **H-NZM 10** terminal cover and one insulating plate.  
- Qty. of two **K2x240** terminals, which are supplied each with one **H-NZM 10** terminal cover.



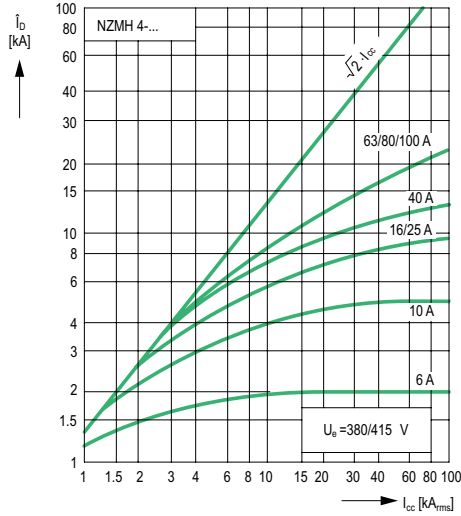
# Circuit-Breakers, NZM... 4, 6, 9, 12 Tripping Characteristics

## Tripping characteristics

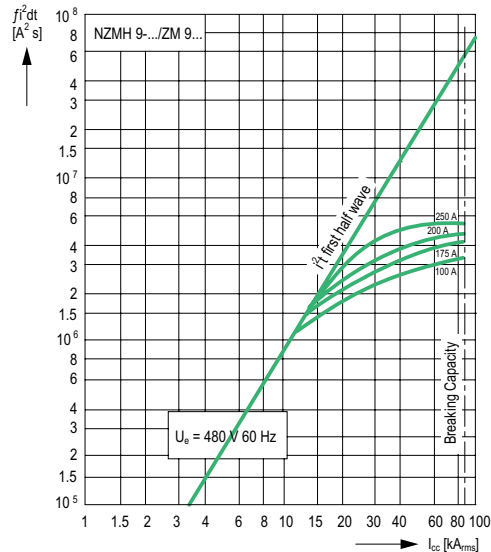
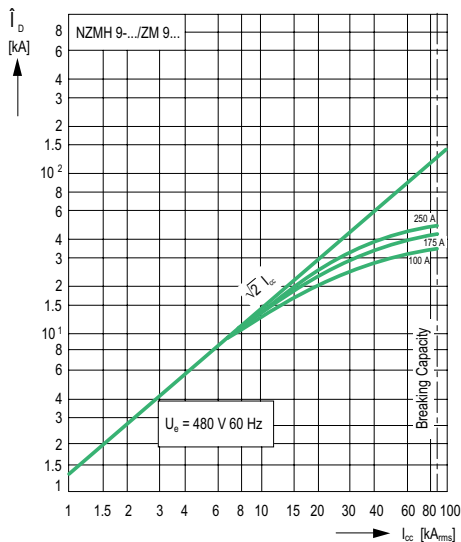
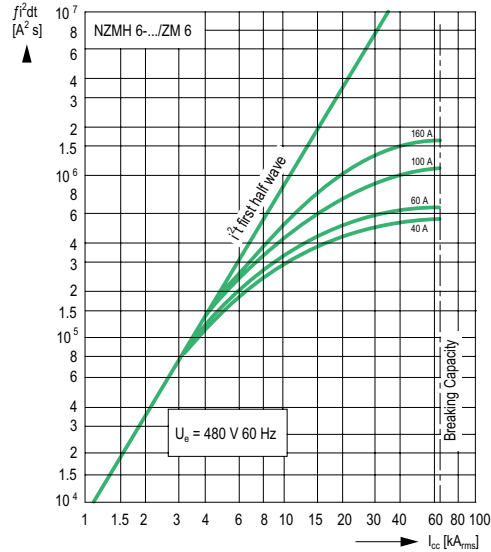
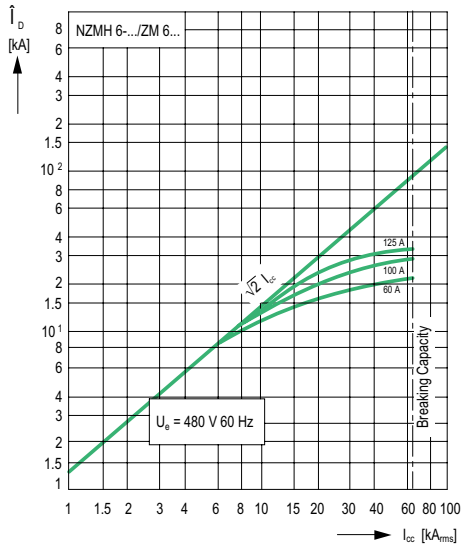
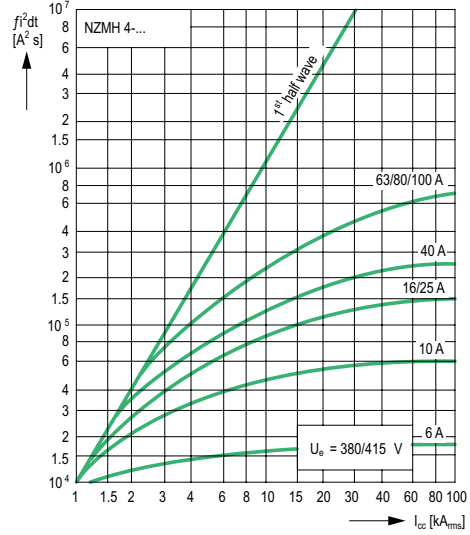
The tripping characteristics show the tripping time of the breakers in relation to the response current. The mean values of the tolerance bands are indicated at an ambient temperature of 20°C, starting from cold. The tripping time of overload releases at operational temperature reduces to approximately 1/4 of that shown.



## Let-through current $\hat{I}_D$

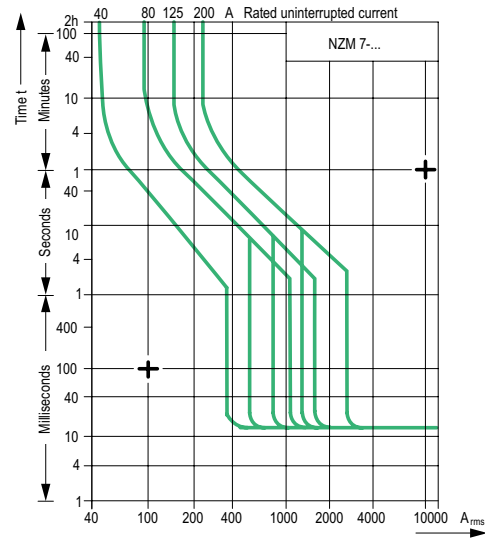
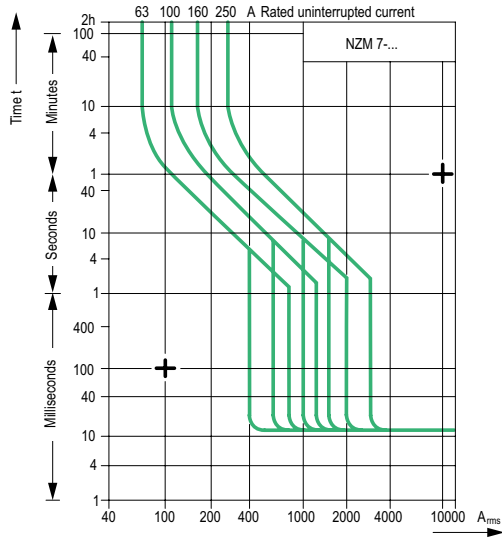


## Let-through energy $I^2t$

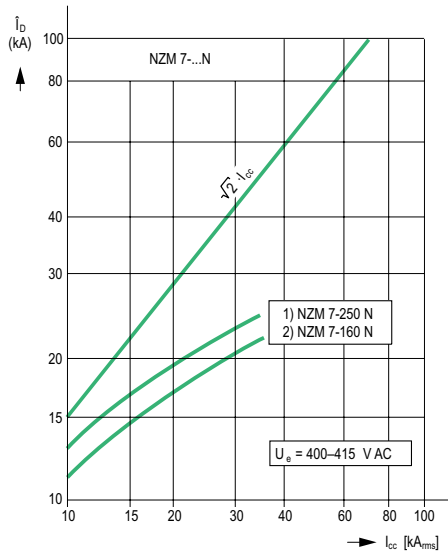


# Circuit-Breakers, NZM 7 Tripping Characteristics, Let-Through Characteristics

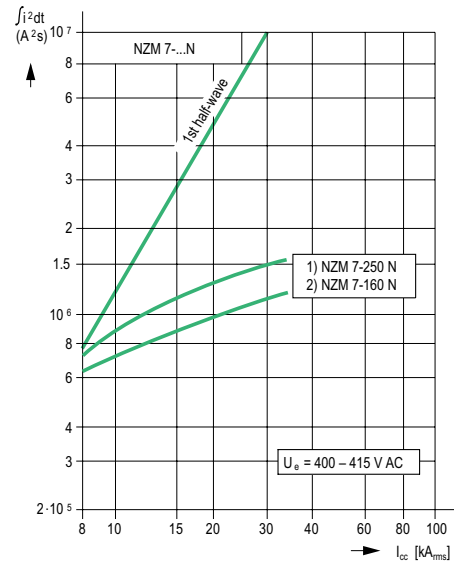
## Tripping characteristics, System protection



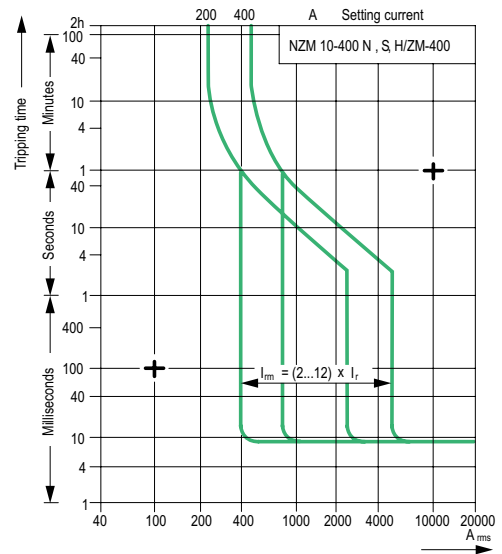
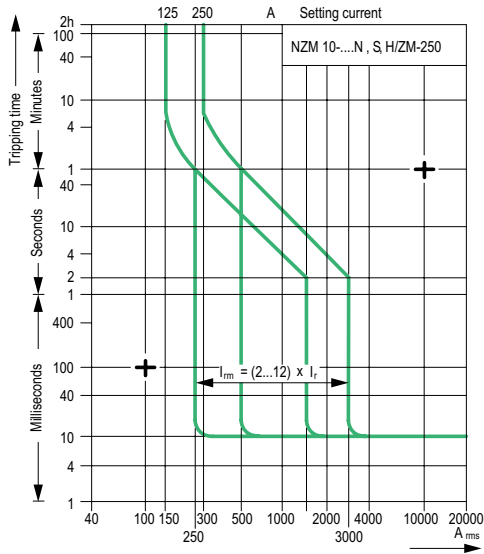
## Let-through current $\hat{I}_D$



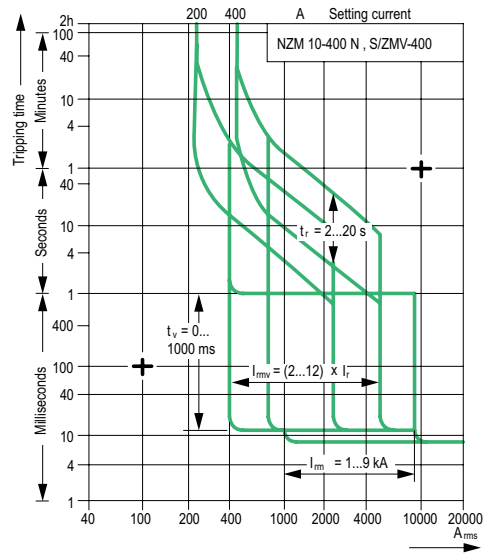
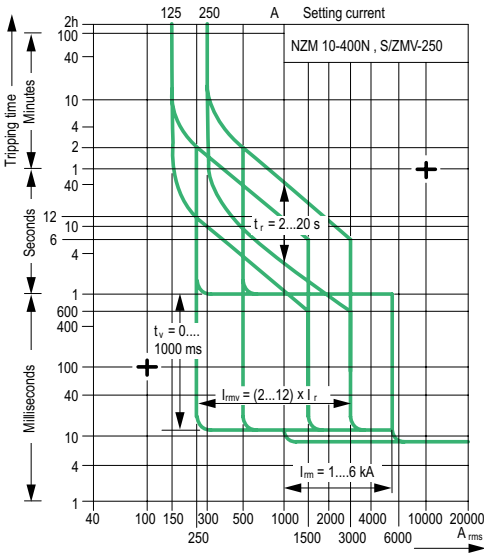
## Let-through energy $\int i^2 dt$



## Inverse time and Instantaneous response

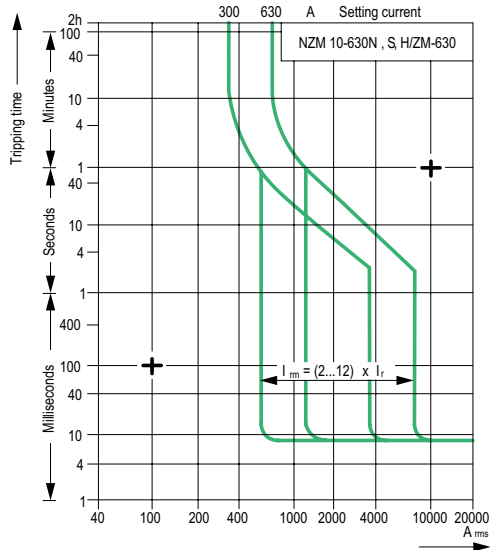


## With selectivity settings

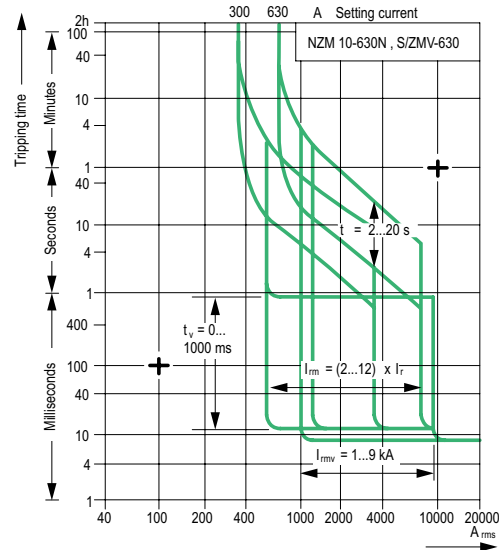


# Circuit-Breakers, NZM 10 Tripping Characteristics

## Inverse time and Instantaneous response



## With selectivity settings



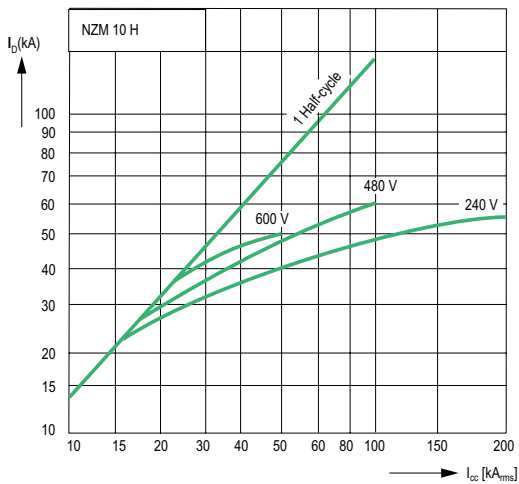
The tripping characteristics show the tripping time of the breakers in relation to the response current. The mean values of the tolerance bands are indicated at an ambient temperature of 20°C, starting from cold.

Disconnect Switches, Molded Case Switches

Circuit Breakers



## Let-through current $\hat{I}_D$



## Let-through energy $I^2t$

