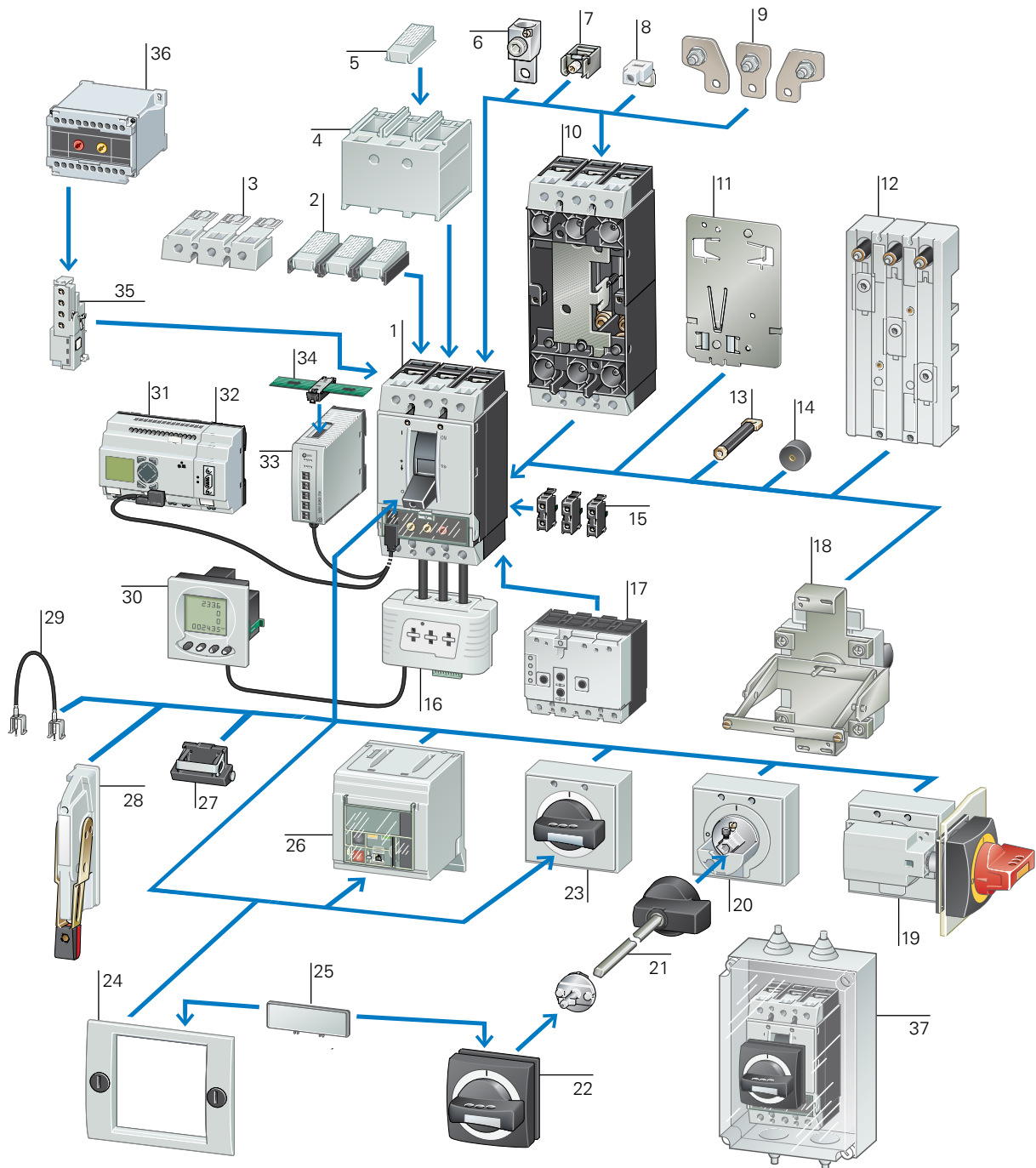


IEC MCCB

NZM range

System overview - Circuit-breakers, Switch-disconnectors

1. Switch-disconnector, circuit-breaker, circuit-breaker for North America; Moulded case switches for North America
2. IP2X protection against contact with a finger
3. Terminal cover, knockout
4. Terminal cover
5. IP2X protection against contact with a finger
6. Tunnel terminal
7. Box terminals
8. Control circuit terminal
9. Connection width extension
10. Plug-in and withdrawable unit
11. Adapter plate
12. Busbar adapters
13. Connection on rear
14. Spacers
15. Standard auxiliary contact (HIV), trip-indicating auxiliary switch (HIA), voltage release
16. Measuring and communication module
17. Residual-current protection device
18. Rear driver
19. Main switch rotary handle for side panel mounting
20. Door coupling rotary handle
21. Extension shaft
22. Door coupling rotary handle
23. Rotary handle
24. Insulating surrounds
25. External warning plate/marketing plate
26. Remote operator
27. Toggle lever locking device
28. Side operator handle
29. Mechanical interlock
30. Display
31. Data management interface (DMI module)
32. PROFIBUS-DP interface
33. NZM communication module
34. NZM communication module for Smartwire-DT
35. Early-make auxiliary contacts
36. Delay unit for undervoltage releases
37. Insulated enclosures



IEC MCCB

NZM range

NZM range up to 1600 A –

New ideas for better circuit-breakers

The new Eaton circuit-breakers cover a range from 15 to 1600 A with just four frame sizes. And they are optimally matched to one another. The wide application spectrum covers every requirement as Eaton has closely examined what every customer needs and implemented the appropriate solutions. Outstanding, for example, is the continuous switching power range – which extends from the smallest to the largest circuit-breaker or the modular system which can be matched without difficulty to suit the specific application. Thus, the circuit-breakers can be used universally – from the smallest of service distribution boards, to machine controls or motor starter combinations, up to large energy distribution systems with a short-circuit breaking capacity of up to 150 kA.



1-pole

3-pole circuit-breaker

Excellent under load –

Switch-disconnector's for safe switching under load

Even under load conditions the Eaton switch-disconnector operates safely. The reason: the 3- or 4-pole snap-action closing mechanism which is also applied with circuit-breakers.

That's why the rated short time withstand current is so high and can handle currents up to 150 000 A. The long lifetime with up to 7 500 switching operations in AC3 mode enables usage as a motor switch, in order to switch large motors during operation. Application as a main switch with an emergency-stop function via a remote pushbutton is easily implemented in conjunction with the double early-make auxiliary contacts and undervoltage release. This in conjunction with the UL/CSA approvals is a prerequisite for use in process and processing machines which are destined for export.



4-pole circuit-breaker

Control circuit terminals

The control circuit terminals are simply screwed onto the respective connection type. The tap-offs for voltage meters, control transformers and undervoltage releases are implemented quickly.

The spacer – saving time and expense

All switches including the accessories fitted on them were designed with the grid spacing of the spacer. Different depths of switches are evened-out simply by means of inexpensive, rapidly fitted spacers.

The result is a cost-effective alternative to the door coupling rotary handle with extension shaft for external operation of the circuit-breaker. This worldwide innovation gains time and saves expense.

Clever installation and terminations

Fast and efficient top-hat rail installation with the use of a clip plate. Just simply attach the clip plate from the rear onto the circuit-breaker and clip it onto the top-hat rail. No need to drill holes in the mounting plate.

The particular advantage of the small NZM1: the "standard dimension" enables side-by-side installation with miniature circuit breakers in service distribution boards.



IEC MCCB

Thermomagnetic release



NZMN1-A100



NZMN1-4-A125



NZMN2-A160



NZMH2-4-A250



NZMN3-A500

Rated current = rated uninterrupted current $I_n = I_u$ A	Overload release 1-pole I_r A	Overload release Setting range overload release I_r A	Short-circuit release 1-pole I_i A	Short-circuit release adjustable 3-pole I_i A
Supplied with box terminals				
16	16	-	350	-
20	20	15-20	350	350
25	25	20-25	350	350
32	32	25-32	350	350
40	40	32-40	350	320-400
50	50	40-50	600	300-500
63	63	50-63	600	380-630
80	80	63-80	1000	480-800
100	100	80-100	1000	600-1000
125	125	100-125	1000	750-1250
160	160	125-160	-	1280
Supplied with screw terminals				
20		15-20		350
25		20-25		350
32		25-32		350
40		32-40		320-400
50		40-50		300-500
63		50-63		380-630
80		63-80		480-800
100		80-100		600-1000
125		100-125		750-1250
160		125-160		960-1600
160		125-160		960-1600
200		160-200		1280-2000
200		160-200		1280-2000
250		200-250		1500-2500
250		200-250		1500-2500
300		240-300		2000-2500
300		240-300		2000-2500
Supplied with screw terminals				
320		250-320		1920-3200
320		250-320		1920-3200
400		320-400		2400-4000
400		320-400		2400-4000
500		400-500		3000-5000
500		400-500		3000-5000

IEC MCCB

Thermomagnetic release

Circuit-breaker with Basic switching capacity 25 kA at 415Vac 50/60 Hz		Circuit-breaker with Basic switching capacity 25 kA at 415Vac 50/60 Hz		Circuit-breaker with Normal switching capacity 50 kA at 415Vac 50/60 Hz		Circuit-breaker with High switching capacity 100 ^① /150 ^② kA at 415Vac 50/60 Hz	
Item no. 1-pole	Item no. 3-pole	Item no. 4-pole	Item no. 3-pole	Item no. 4-pole	Item no. 3-pole	Item no. 4-pole	
Supplied with box terminals							
NZMB1-1-AF16	-	-	-	-	-	-	
NZMB1-1-AF20	NZMB1-A20	NZMB1-4-A20	NZMN1-A20 ^⑥	NZMN1-4-A20	NZMH1-A20 ^⑦	NZMH1-4-A20	
NZMB1-1-AF25	NZMB1-A25	NZMB1-4-A25	NZMN1-A25 ^⑥	NZMN1-4-A25	NZMH1-A25 ^⑦	NZMH1-4-A25	
NZMB1-1-AF32	NZMB1-A32	NZMB1-4-A32	NZMN1-A32 ^⑥	NZMN1-4-A32	NZMH1-A32 ^⑦	NZMH1-4-A32	
NZMB1-1-AF40	NZMB1-A40	NZMB1-4-A40	NZMN1-A40 ^⑥	NZMN1-4-A40	NZMH1-A40 ^⑦	NZMH1-4-A40	
NZMB1-1-AF50	NZMB1-A50	NZMB1-4-A50	NZMN1-A50 ^⑥	NZMN1-4-A50	NZMH1-A50 ^⑦	NZMH1-4-A50	
NZMB1-1-AF63	NZMB1-A63	NZMB1-4-A63	NZMN1-A63 ^⑥	NZMN1-4-A63	NZMH1-A63 ^⑦	NZMH1-4-A63	
NZMB1-1-AF80	NZMB1-A80	NZMB1-4-A80	NZMN1-A80 ^⑥	NZMN1-4-A80	NZMH1-A80 ^⑦	NZMH1-4-A80	
NZMB1-1-AF100	NZMB1-A100	NZMB1-4-A100	NZMN1-A100 ^⑥	NZMN1-4-A100	NZMH1-A100 ^⑦	NZMH1-4-A100	
NZMB1-1-AF125	NZMB1-A125	NZMB1-4-A125	NZMN1-A125 ^⑥	NZMN1-4-A125	NZMH1-A125 ^⑦	NZMH1-4-A125	
-	NZMB1-A160	NZMB1-4-A160	NZMN1-A160 ^⑥	NZMN1-4-A160	NZMH1-A160 ^⑦	NZMH1-4-A160	
Supplied with screw terminals							
-	-	-	-	-	NZMH2-A20 ^⑦	NZMH2-4-A20	
-	-	-	-	-	NZMH2-A25 ^⑦	NZMH2-4-A25	
-	-	-	-	-	NZMH2-A32 ^⑦	NZMH2-4-A32	
-	-	-	-	-	NZMH2-A40 ^⑦	NZMH2-4-A40	
-	-	-	-	-	NZMH2-A50 ^⑦	NZMH2-4-A50	
-	-	-	-	-	NZMH2-A63 ^⑦	NZMH2-4-A63	
-	-	-	-	-	NZMH2-A80 ^⑦	NZMH2-4-A80	
-	-	-	-	-	NZMH2-A100 ^⑦	NZMH2-4-A100	
-	-	-	-	-	NZMH2-A125 ^⑦	NZMH2-4-A125	
-	NZMB2-A160	NZMB2-4-A160	NZMN2-A160 ^⑥	NZMN2-4-A160	NZMH2-A160 ^⑦	NZMH2-4-A160	
-	-	NZMB2-4-A160/100 ^③	-	NZMN2-4-A160/100 ^③	-	NZMH2-4-A160/100 ^③	
-	NZMB2-A200	NZMB2-4-A200	NZMN2-A200 ^⑥	NZMN2-4-A200	NZMH2-A200 ^⑦	NZMH2-4-A200	
-	-	NZMB2-4-A200/125 ^③	-	NZMN2-4-A200/125 ^③	-	NZMH2-4-A200/125 ^③	
-	NZMB2-A250	NZMB2-4-A250	NZMN2-A250 ^⑥	NZMN2-4-A250	NZMH2-A250 ^⑦	NZMH2-4-A250	
-	-	NZMB2-4-A250/160 ^③	-	NZMN2-4-A250/160 ^③	-	NZMH2-4-A250/160 ^③	
-	NZMB2-A300	NZMB2-4-A300	NZMN2-A300 ^⑥	NZMN2-4-A300	NZMH2-A300 ^⑦	NZMH2-4-A300	
-	-	NZMB2-4-A300/200 ^③	-	NZMN2-4-A300/200 ^③	-	NZMH2-4-A300/200 ^③	
Supplied with screw terminals							
-	-	-	NZMN3-A320 ^⑥	NZMN3-4-A320	NZMH3-A320 ^⑦	NZMH3-4-A320	
-	-	-	-	NZMN3-4-A320/200 ^③	-	NZMH3-4-A320/200 ^③	
-	-	-	NZMN3-A400 ^⑥	NZMN3-4-A400	NZMH3-A400 ^⑦	NZMH3-4-A400	
-	-	-	-	NZMN3-4-A400/250 ^③	-	NZMH3-4-A400/250 ^③	
-	-	-	NZMN3-A500 ^⑥	NZMN3-4-A500	NZMH3-A500 ^⑦	NZMH3-4-A500	
-	-	-	-	NZMN3-4-A500/320 ^③	-	NZMH3-4-A500/320 ^③	

① Applies for NZM1

② Applies for NZM2 and NZM3

③ 60% release on neutral pole

④ Max. DC voltage rating 500Vdc I_{cu}/I_{cs} 15/15kA

⑤ Max. DC voltage rating 500Vdc I_{cu}/I_{cs} 30/30kA

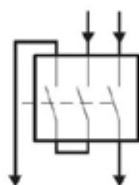
⑥ Max. DC voltage rating 750Vdc I_{cu}/I_{cs} 30/7.5kA

⑦ Max. DC voltage rating 750Vdc I_{cu}/I_{cs} 60/15kA

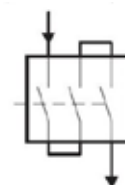
⑧ Max. DC voltage rating 750Vdc I_{cu}/I_{cs} 30/30kA

⑨ Max. DC voltage rating 750Vdc I_{cu}/I_{cs} 70/70kA

Permitted circuit configurations for Eaton NZM breakers for DC voltage switching



Option 1
Two pole switching, with one pole switched via two contacts in series.



Option 2
One pole switching, via three contacts in series

Low Voltage Circuit Protection & Switchgear

IEC MCCB

Circuit breakers with electronic trip units

Rated current = rated uninterrupted current $I_n = I_u$ A	Overload release Setting range overload release I_r A	Short circuit release Non-Delayed $I_i = I_n \times A$	Circuit breaker with normal switching capacity 50kA at 415V 50/60Hz Item no.	Circuit breaker with high switching capacity 150 ^① /85kA ^② at 415V 50/60Hz Item no.
--------------------------------------------------------------------	------------------------------------------------------------------	--------------------------------------------------------------	---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Supplied with screw terminals

Systems protection, cable protection, selectivity, generator protection, 3 pole

100	50-100	1200A fixed	NZMN2-VE100	NZMH2-VE100
160	80-160	1920A fixed	NZMN2-VE160	NZMH2-VE160
250	125-250	3000A fixed	NZMN2-VE250	NZMH2-VE250
250	125-250	500-2750	NZMN3-VE250	NZMH3-VE250
400	200-400	800-4400	NZMN3-VE400	NZMH3-VE400
630	315-630	1260-5040	NZMN3-VE630	NZMH3-VE630
630	315-630	1260-7560	NZMN4-VE630	NZMH4-VE630
800	400-800	1600-9600	NZMN4-VE800	NZMH4-VE800
1000	500-1000	2000-12000	NZMN4-VE1000	NZMH4-VE1000
1250	630-1250	2500-15000	NZMN4-VE1250	NZMH4-VE1250
1600	800-1600	3200-19200	NZMN4-VE1600	NZMH4-VE1600

Systems protection, cable protection, selectivity, generator protection, 4 pole

100	50-100	1200A fixed	NZMN2-4-VE100	NZMH2-4-VE100
160	80-160	1920A fixed	NZMN2-4-VE160	NZMH2-4-VE160
250	125-250	3000A fixed	NZMN2-4-VE250	NZMH2-4-VE250
400	200-400	800-4400	NZMN3-4-VE400	NZMH3-4-VE400
630	315-630	1260-5040	NZMN3-4-VE630	NZMH3-4-VE630
800	400-800	1600-9600	NZMN4-4-VE800	NZMH4-4-VE800
1000	500-1000	2000-12000	NZMN4-4-VE1000	NZMH4-4-VE1000
1250	630-1250	2500-15000	NZMN4-4-VE1250	NZMH4-4-VE1250
1600	800-1600	3200-19200	NZMN4-4-VE1600	NZMH4-4-VE1600

① Applies for NZM2 & NZM3

② Applies for NZM4



NZMN2-VE160



NZMN3-VE250



NZMH4-VE1250



NZMN4-4-VE800

Eaton LV switchgear is now available in the innovative PowerCad electrical engineering design software.

Eaton products that are featured on PowerCad-5™:

- Eaton Magnum MWI Series Air Circuit Breakers – up to 6300A.
- Eaton NZM Series Moulded Case Circuit Breakers – up to 1600A including the B, N & H type breaking capacity options and the A, M, AE, VE & ME type trip units.
- Eaton PLS6, PLSM and PLHT MCB ranges.
- Eaton eRB6, eRBM and PKNM RCBO ranges.
- Eaton Dumeco Load Break Switches ranging from 160A to 3150A



EATON
Powering Business Worldwide



IEC MCCB

Circuit breakers for motor protection

Rated operational current = rated uninterrupted current $I_n = I_u$ A	Overload releases Setting range I_r A	Short-circuit releases Non-delayed $I_s = I_n \times \dots$	Rated operating power AC-3 50/60 Hz 400 V P kW	Rated operational current AC-3 50/60 Hz 400 V I_n A	Basic switching capacity 25 kA 400/415V 50/60 Hz Item no.	Normal switching capacity 50 kA 400/415V 50/60 Hz Item no.	High switching capacity 85 kA ^③ / 100kA ^④ / 150kA ^⑤ 400/415V 50/60 Hz Item no.
--------------------------------------------------------------------------	--------------------------------------------	----------------------------------------------------------------	------------------------------------------------------	-------------------------------------------------------------	-----------------------------------------------------------------	------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------

Motor protection, thermomagnetic release NZM...1-M...: with phase failure sensitivity, tripping class 10 A

Supplied with box terminals

40	32-40	8 - 14	18.5	36	NZMB1-M40	NZMN1-M40	NZMH1-M40
50	40-50	8 - 14	22	41	NZMB1-M50	NZMN1-M50	NZMH1-M50
63	50-63	8 - 14	30	55	NZMB1-M63	NZMN1-M63	NZMH1-M63
80	63-80	8 - 14	37	68	NZMB1-M80	NZMN1-M80	NZMH1-M80
100	80-100	8 - 12.5	45	81	NZMB1-M100	NZMN1-M100	NZMH1-M100

Supplied with screw terminals

125	100-125	8 - 14	55	99	NZMB2-M125	NZMN2-M125	NZMH2-M125
160	125-160	8 - 14	75	134	NZMB2-M160	NZMN2-M160	NZMH2-M160
200	160-200	8 - 14	110	196	NZMB2-M200	NZMN2-M200	NZMH2-M200

Motor protection, electronic releases with phase failure sensitivity, tripping class adjustable

Supplied with screw terminals

90	45-90	2 - 14	45	81	NZMN2-ME90	NZMH2-ME90
140	70-140	2 - 14	75	134	NZMN2-ME140	NZMH2-ME140
220	110-220	2 - 12	110	196	NZMN2-ME220	NZMH2-ME220
220	110-220	2 - 14	110	196	NZMN3-ME220	NZMH3-ME220
350	175-350	2 - 14	200	349	NZMN3-ME350	NZMH3-ME350
450	225-450	2 - 12	250	437	NZMN3-ME450	NZMH3-ME450
550	275-550	2 - 14	315	544	NZMN4-ME550	NZMH4-ME550
875	483-875	2 - 14	500	820	NZMN4-ME875	NZMH4-ME875
1400	700-1400	2 - 14	630	1066	NZMN4-ME1400	NZMH4-ME1400

③ Applies for NZMH4

④ Applies for NZMH1

⑤ Applies for NZMH2 & NZMH3

690Vac Switch disconnectors

- 690V ac voltage rating
- Frame sizes are the same form and fit as NZM MCCBs

Switch-disconnectors Rated current = Rated uninterrupted current $I_n = I_u$ A	3-pole IEC	4-pole IEC
	2 switch positions Item no. ①	3 switch positions Item no. ②
	2 switch positions Item no. ①	3 switch positions Item no. ②

Supplied with box terminals

63	PN1-63	N1-63	PN1-4-63	N1-4-63
100	PN1-100	N1-100	PN1-4-100	N1-4-100
125	PN1-125	N1-125	PN1-4-125	N1-4-125
160	PN1-160	N1-160	PN1-4-160	N1-4-160

Supplied with screw terminals

200	PN2-200	N2-200	PN2-4-200	N2-4-200
250	PN2-250	N2-250	PN2-4-250	N2-4-250
400	PN3-400	N3-400	PN3-4-400	N3-4-400
630	PN3-630	N3-630	PN3-4-630	N3-4-630
800		N4-800		N4-4-800
1000		N4-1000		N4-4-1000
1250		N4-1250		N4-4-1250
1600		N4-1600		N4-4-1600

① 2 switch positions I,0; cannot be tripped remotely

② 3 switch position I,+0; can be tripped remotely with undervoltage or shunt trip devices



NZMN1-63



NZMN2-ME90



NZMN3-ME350



N1-125



N4-1600

IEC MCCB

1000Vdc / 1500Vdc Photovoltaic Switch disconnectors

- 4-pole basic device usable for both 1-pole and 2-pole configuration depending on the connection
- Industry leading DC22-A ratings across the entire range
- IEC/EN 60947-3 compliant



N2-4-200-S15-DC



N3-4-400-S15-DC

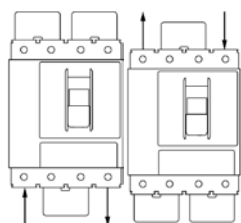


N4-4-1250-S15-DC

Rated current = Rated uninterrupted current $I_n = I_u$ A	1000Vdc Item no.	1500Vdc Item no.
160	N2-4-160-S1-DC	N2-4-160-S15-DC
200	N2-4-200-S1-DC	N2-4-200-S15-DC
250	N2-4-250-S1-DC	N2-4-250-S15-DC
320	N3-4-320-S1-DC	N3-4-320-S15-DC
400	N3-4-400-S1-DC	N3-4-400-S15-DC
500	N3-4-500-S1-DC	N3-4-500-S15-DC
550	N3-4-550-S1-DC	N3-4-550-S15-DC
800	N4-4-800-S1-DC	N4-4-800-S15-DC
1000	N4-4-1000-S1-DC	N4-4-1000-S15-DC
1250	N4-4-1250-S1-DC	N4-4-1250-S15-DC
1400	N4-4-1400-S1-DC	N4-4-1400-S15-DC
1600	N4-4-1600-S1-DC	N4-4-1600-S15-DC

Bridging Kits for 1 pole configuration

- Bridging kit contains parts for upper and lower connection points for the 4 pole devices
- Detailed assignment taking into account ambient temperature, degree of protection and fitting position is listed on pages 434-435



Rated operational current I_n A	Protection Class	For use with	Notes	Item no.
200A at 40°C 160A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	Limited to 200A devices	NZM2-4-XKV1P
225A at 40°C 170A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	Includes heatsink	NZM2-4-XKV1P-K
400A at 40°C 388A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	Limited to 400A devices	NZM3-4-XKV1P
517A at 40°C 435A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	Limited to 500A devices Includes heatsink	NZM3-4-XKV1P-K
1274A at 40°C 1138A at 65°C	IP2X	N4-4-xxx-S1 (S15)-DC	Limited to 1250A devices	NZM4-4-XKV1P
213A at 40°C 160A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	Limited to 200A devices	NZM2-4-XKVI1P
238A at 40°C 180A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	Limited to 250A devices Includes heatsink	NZM2-4-XKVI1P-K
501A at 40°C 418A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKVI1P
534A at 40°C 451A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	Includes heatsink	NZM3-4-XKVI1P-K
1260A at 40°C 1138A at 65°C	IP00	N4-4-xxx-S1 (S15)-DC	-	NZM4-4-XKVI1P
1552A at 40°C 1448A at 65°C	IP00	N4-4-xxx-S1 (S15)-DC	Includes heatsink	NZM4-4-XKVI1P-K



NZM2-4-XKV1P-K

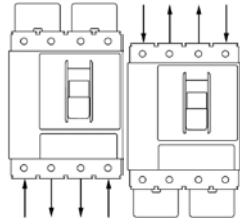


NZM4-4-XKVI1P-K

IEC MCCB

Bridging Kits for 2 pole configuration - Connection option 1

- Bridging kit contains parts for either upper or lower connection points for the 4 pole devices
- Detailed assignment taking into account ambient temperature, degree of protection and fitting position is listed on pages 434-435



Rated operational current In A	Protection Class	For use with	Notes	Item no.
225A at 40°C 170A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	-	NZM2-4-XKV2P
250A at 40°C 190A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	Includes heatsink	NZM2-4-XKV2P-K
517A at 40°C 435A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKV2P
550A at 40°C 468A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	Includes heatsink	NZM3-4-XKV2P-K
1400A at 40°C 1260A at 65°C	IP2X	N4-4-xxx-S1 (S15)-DC	Limited to 1400A devices	NZM4-4-XKV2P
238A at 40°C 180A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	-	NZM2-4-XKVI2P
250A at 40°C 213A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	Includes heatsink	NZM2-4-XKVI2P-K
534A at 40°C 451A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKVI2P
550A at 40°C 501A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	Includes heatsink	NZM3-4-XKVI2P-K
1400A at 40°C 1260A at 65°C	IP00	N4-4-xxx-S1 (S15)-DC	Limited to 1400A devices	NZM4-4-XKVI2P
1600A at 40°C 1500A at 65°C	IP00	N4-4-xxx-S1 (S15)-DC	Includes heatsink	NZM4-4-XKV2P-K



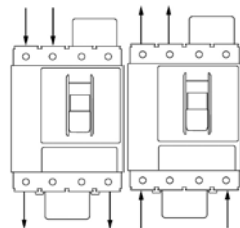
NZM3-4-XKV2P



NZM2-4-XKVI2P

Bridging Kits for 2 pole configuration - Connection option 2

- Bridging kit contains parts for upper and lower connection points for the 4 pole devices
- Detailed assignment taking into account ambient temperature, degree of protection and fitting position is listed on pages 434-435



Rated operational current In A	Protection Class	For use with	Notes	Item no.
200A at 40°C 160A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	Limited to 200A devices	NZM2-4-XKV2POU
225A at 40°C 170A at 65°C	IP2X	N2-4-xxx-S1 (S15)-DC	Includes heatsink	NZM2-4-XKV2POU-K
501A at 40°C 418A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKV2POU
517A at 40°C 435A at 65°C	IP2X	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKV2POU-K
213A at 40°C 160A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	-	NZM2-4-XKVI2POU
238A at 40°C 180A at 65°C	IP00	N2-4-xxx-S1 (S15)-DC	Includes heatsink	NZM2-4-XKVI2POU-K
501A at 40°C 418A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	-	NZM3-4-XKVI2POU
534A at 40°C 451A at 65°C	IP00	N3-4-xxx-S1 (S15)-DC	Includes heatsink	NZM3-4-XKVI2POU-K



NZM2-4-XKVI2POU-K



NZM3-4-XKVI2POU

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System benefits – the universal accessory range

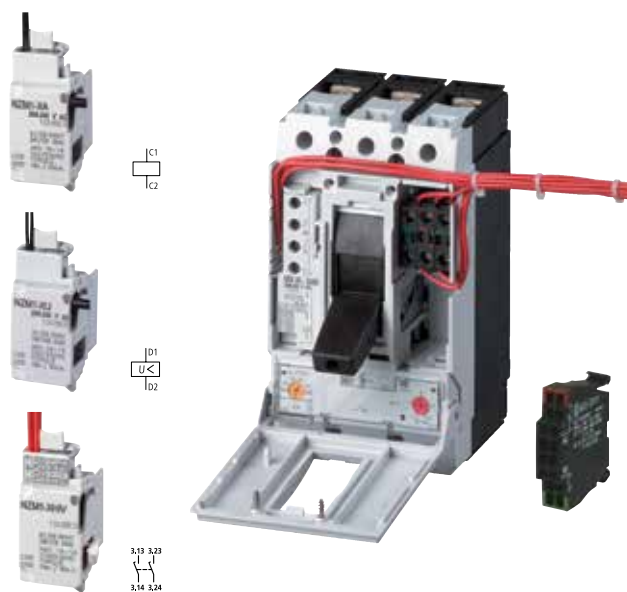
The method of functioning and fitting of the accessories is identical for every size. Contact elements from the RMQ-Titan® range of control circuit devices are used for the entire NZM range of circuit-breakers.

This has many advantages: it ensures a reduction in the variety of types, a decrease in ordering expense and effort and consequently, simpler inventory management. The contact elements can be simply clipped-on from the front. The position determines the function: signalling contact or trip-indicating auxiliary contact, and like all auxiliary contacts and releases, they are available with terminal bolts or spring-loaded connections, for circuit-breakers or switch-disconnector's.

The new twin contacts provide twice as many auxiliary and signalling contacts in the same amount of space. They feature spring-loaded terminal connections.

Flexible solutions for safety and interlock functions

Effective shunt or undervoltage releases, combined also with early-make auxiliary contacts for Emergency-Stop functions or load-shedding circuits, offer elegant solutions for a wide range of functioning applications. All contact points are available with sturdy bolt connection.



Auxiliary contacts

Item no.	Version	For use with	Max no. of auxiliary contacts per switch	Contacts N/O = normally open N/C = normally closed	
Standard auxiliary contact (HIN). Switching with the main contacts. Used for indicating and interlocking tasks.			N1, PN1, NZM1: 1		
			N2, PN2, NZM2: 2		
			N3, PN3, NZM3: 3		
			N4, NZM4: 3		
M22-K10	With bolt connection	NZM1(-4), 2(-4), 3(-4), 4(-4)		1 N/O	–
M22-K01		PN1(-4), 2(-4), 3(-4)		-	1 N/C
			N1(-4), 2(-4), 3(-4), 4(-4)		
M22-CK11	With cage clamp connection.	NZM1(-4), 2(-4), 3(-4), 4(-4)		1 N/O	1 N/C
M22-CK20		PN1(-4), 2(-4), 3(-4)		2 N/O	–
M22-CK02		N1(-4), 2(-4), 3(-4), 4(-4)		–	2 N/C
Trip indicating auxiliary contact (HIA)¹⁾ General trip indication “+” with trip by voltage release, overload release or short-circuit release			N1, PN1, NZM1: 1		
			N2, PN2, NZM2: 1		
			N3, PN3, NZM3: 1		
			N4, NZM4: 2		
M22-K10	With bolt connection	NZM1(-4), 2(-4), 3(-4), 4(-4)		1 N/O	–
M22-K01		N1(-4), 2(-4), 3(-4), 4(-4)		-	1 N/C
			NZM1(-4), 2(-4), 3(-4), 4(-4)		
M22-CK11	With cage clamp connection.	NZM1(-4), 2(-4), 3(-4), 4(-4)		1 N/O	1 N/C
M22-CK20		N1(-4), 2(-4), 3(-4), 4(-4)		2 N/O	–
M22-CK02				–	2 N/C
Early-make auxiliary contacts For interlock and load-shedding circuits,as well as for early-make switching of the undervoltage release with main switch / emergency-Stop applications					
NZM1-XHIV	With clamp terminal on the left-hand switch side.	NZM1(-4)		2 N/O	–
		PN1(-4)			
		N1(-4)			
NZM1-XHIVR	With clamp terminal on the right-hand switch side.	NZM1(-4)		2 N/O	–
		PN1(-4)			
		N1(-4)			
NZM1-XHIVL	With 3 m connecting cables instead of bolt connection.	NZM1(-4)		2 N/O	–
		PN1(-4)			
		N1(-4)			
NZM2/3-XHIV	With bolt connection	NZM2(-4), 3(-4)	N1, NZM1: 1	2 N/O	–
		PN2(-4), 3(-4)	N2, NZM2: 1		
		N2(-4), 3(-4)	N3, NZM3: 1		
			N4, NZM4: 2		
NZM4-XHIV		NZM4(-4)		2 N/O	–
		N4(-4)			

¹⁾ not in conjunction with switch-disconnector PN

¹⁾ not in conjunction with switch-disconnector PN



M22-K01 M22-K10



M22-CK20 M22-CK02



NZM2/3-XHIV

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Undervoltage & shunt trip release devices without auxiliary contact

- Undervoltage releases cannot be installed simultaneously with shunt trip releases
- Shunt trip releases cannot be installed simultaneously with undervoltage releases
- Undervoltage releases and shunt trip releases are all left side mount

Release		Undervoltage release ① without auxiliary contact		Shunt trip release ② without auxiliary contact	
Version	For use with	Item no.	Rated control voltage Us V	Item no.	Rated control voltage Us V
With clamp terminal on the left-hand side	NZM1 (-4), N1(-4)	NZM1-XU24AC	24 V 50/60 Hz	NZM1-XA12AC/DC	12V AC/DC
		NZM1-XU110-130AC	110V-130V 50/60 Hz	NZM1-XA24AC/DC	24V AC/DC
		NZM1-XU208-240AC	208V-240V 50/60 Hz	NZM1-XA110-130AC/DC	110V-130V AC/DC
		NZM1-XU380-440AC	380V-440V 50/60 Hz	NZM1-XA208-250AC/DC	208V-250V AC/DC
		NZM1-XU12DC	12V DC	NZM1-XA380-440AC/DC	380V-440V AC/DC
		NZM1-XU24DC	24V DC		
		NZM1-XU110-130DC	110V-130V DC		
With 3m connection cable instead of screw termination	NZM1(-4), N1(-4)	NZM1-XU220-250DC	220V-250V DC		
		NZM1-XUL24AC	24 V 50/60 Hz	NZM1-XAL12AC/DC	12V AC/DC
		NZM1-XUL110-130AC	110V-130V 50/60 Hz	NZM1-XAL24AC/DC	24V AC/DC
		NZM1-XUL208-40AC	208V-240V 50/60 Hz	NZM1-XAL110-130AC/DC	110V-130V AC/DC
		NZM1-XUL380-440AC	380V-440V 50/60 Hz	NZM1-XAL208-250AC/DC	208V-250V AC/DC
		NZM1-XUL12DC	12V DC	NZM1-XAL380-440AC/DC	380V-440V AC/DC
		NZM1-XUL24DC	24V DC		
With clamp-type terminals	NZM2(-4), N2(-4), NZM3(-4), N3(-4)	NZM1-XUL110-130DC	110V-130V DC		
		NZM1-XUL220-250DC	220V-250V DC		
		NZM2/3-XU24AC	24 V 50/60 Hz	NZM2/3-XA12AC/DC	12V AC/DC
		NZM2/3-XU110-130AC	110V-130V 50/60 Hz	NZM2/3-XA24AC/DC	24V AC/DC
		NZM2/3-XU208-240AC	208V-240V 50/60 Hz	NZM2/3-XA110-130AC/DC	110V-130V AC/DC
		NZM2/3-XU380-440AC	380V-440V 50/60 Hz	NZM2/3-XA208-250AC/DC	208V-250V AC/DC
		NZM2/3-XU12DC	12V DC	NZM2/3-XA380-440AC/DC	380V-440V AC/DC
With clamp-type terminals	NZM4(-4), N4(-4)	NZM2/3-XU24DC	24V DC		
		NZM2/3-XU110-130DC	110V-130V DC		
		NZM2/3-XU220-250DC	220V-250V DC		
		NZM4-XU24AC	24 V 50/60 Hz	NZM4-XA12AC/DC	12V AC/DC
		NZM4-XU110-130AC	110V-130V 50/60 Hz	NZM4-XA24AC/DC	24V AC/DC
		NZM4-XU208-240AC	208V-240V 50/60 Hz	NZM4-XA110-130AC/DC	110V-130V AC/DC
		NZM4-XU380-440AC	380V-440V 50/60 Hz	NZM4-XA208-250AC/DC	208V-250V AC/DC
		NZM4-XU12DC	12V DC	NZM4-XA380-440AC/DC	380V-440V AC/DC
		NZM4-XU24DC	24V DC		
		NZM4-XU110-130DC	110V-130V DC		
		NZM4-XU220-250DC	220V-250V DC		



NZM1-XU380-440AC



NZM1-XA208-240AC



NZM2/3-XA380-440AC/DC



NZM4-XU380-440AC

① non-delayed shut down of circuit-breaker NZM or switch-disconnector N with drop of the control voltage below 35 – 70% U_s . For use with Emergency-Stop devices in conjunction with Emergency-Stop button.

② switches are tripped by a voltage pulse or by the application of uninterrupted voltage.



NZM1-XTVDV



NZM1-XTVDVR



NZM3/4-XV4



NZM1-XDV



NZM1-XKAV

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Door coupling rotary handles (excludes extension shaft)

Item no.	For use with	Version
NZM1-XTVDV	NZM1(-4), PN1(-4), N1(-4)	IP66 Black-Grey Lockable on handle and switch. Can be locked in 0 position, with adequate modification also in I position. Lockable door as additional feature, locking facility on circuit-breaker in 0 position.
NZM2-XTVDV	NZM2(-4), PN2(-4), N2(-4)	
NZM3-XTVDV	NZM3(-4), PN3(-4), N3(-4)	
NZM4-XTVDV	NZM4(-4), N4(-4)	
NZM1-XTVDVR	NZM1(-4), PN1(-4), N1(-4)	IP66 Red-Yellow for Emergency-Stop Lockable on handle and switch. Can be locked in 0 position, with adequate modification also in I position. Lockable door as additional feature, locking facility on circuit-breaker in 0 position.
NZM2-XTVDVR	NZM2(-4), PN2(-4), N2(-4)	
NZM3-XTVDVR	NZM3(-4), PN3(-4), N3(-4)	
NZM4-XTVDVR	NZM4(-4), N4(-4)	

Extension shaft

Item no.	For use with	Version
NZM1/2-XV4	NZM1(-4), PN1(-4), N1(-4), NZM2(-4), PN2(-4), N2(-4)	400 mm Max. mounting depth
NZM3/4-XV4	NZM3(-4), PN3(-4), N3(-4), NZM4(-4), N4(-4)	
NZM1/2-XV6	NZM1(-4), PN1(-4), N1(-4), NZM2(-4), PN2(-4), N2(-4)	600 mm Max. mounting depth
NZM3/4-XV6	NZM3(-4), PN3(-4), N3(-4), NZM4(-4), N4(-4)	

Rotary handles direct mount

Item no.	For use with	Version
NZM1-XDV	NZM1(-4), PN1(-4), N1(-4)	Black/Grey Lockable in 0 position on switch with up to 3 padlocks.
NZM2-XDV	NZM2(-4), PN2(-4), N2(-4)	
NZM3-XDV	NZM3(-4), PN3(-4), N3(-4)	
NZM4-XDV	NZM4(-4), N4(-4)	
NZM1-XDVR	NZM1(-4), PN1(-4), N1(-4)	Red-yellow for Emergency-Stop Lockable in 0 position on switch with up to 3 padlocks.
NZM2-XDVR	NZM2(-4), PN2(-4), N2(-4)	
NZM3-XDVR	NZM3(-4), PN3(-4), N3(-4)	
NZM4-XDVR	NZM4(-4), N4(-4)	

* other handle options available contact Eaton for details.

Toggle lever locking devices

Item no.	For use with	Version
NZM1-XKAV	NZM1(-4), PN2(-4), N1(-4)	Toggle lever locking facilities
NZM2/3-XKAV	NZM2/3(-4), PN2/3(-4), N2/3(-4)	

Fixed Padlocking devices

For use with	Item no.
NZM1, PN1, N1	PADLOCK-BRKT-NZM1
NZM2, PN2, N2	PADLOCK-BRKT-NZM2
NZM3, PN3, N3	PADLOCK-BRKT-NZM3
NZM4, N4	PADLOCK-BRKT-NZM4

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Shrouds & connection kits

Item no.	For use with	Current Rating	No. of poles	Comments
Terminal shrouds				
NZM1-1-XKSA	NZM1-1	-	1	Contains enough items for either LINE or LOAD side only
NZM1-XKSA	NZM1, PN1, N1	-	3	Contains enough items for either LINE or LOAD side only
NZM1-4-XKSA	NZM1-4, PN1-4, N1-4	-	4	Contains enough items for either LINE or LOAD side only
NZM2-XKSA	NZM2, PN2, N2	-	3	Contains enough items for either LINE or LOAD side only
NZM2-4-XKSA	NZM2-4, PN2-4, N2-4	-	4	Contains enough items for either LINE or LOAD side only
NZM3-XKSA	NZM3, PN3, N3	-	3	Contains enough items for either LINE or LOAD side only
NZM3-4-XKSA	NZM3-4, PN3-4, N3-4	-	4	Contains enough items for either LINE or LOAD side only
NZM4-XKSA	NZM4, N4	-	3	Contains enough items for either LINE or LOAD side only
NZM4-4-XKSA	NZM4-4, N4-4	-	4	Contains enough items for either LINE or LOAD side only
Tunnel terminals				
NZM1-XKA	NZM1, PN1, N1	160A	3	Contains enough items for either LINE or LOAD side only
NZM1-4-XKA	NZM1-4, PN1-4, N1-4	160A	4	Contains enough items for either LINE or LOAD side only
NZM2-XKA	NZM2, PN2, N2	300A	3	Contains enough items for either LINE or LOAD side only
NZM2-4-XKA	NZM2-4, PN2-4, N2-4	300A	4	Contains enough items for either LINE or LOAD side only
NZM3-XKA2	NZM3, PN3, N3	630A	3	Contains enough items for either LINE or LOAD side only
NZM3-4-XKA2	NZM3-4, PN3-4, N3-4	630A	4	Contains enough items for either LINE or LOAD side only
NZM4-XKA	NZM4, N4	1400A	3	Contains enough items for either LINE or LOAD side only
NZM4-4-XKA	NZM4-4, N4-4	1400A	4	Contains enough items for either LINE or LOAD side only
Rear connection kits				
NZM1-XKR	NZM1, PN1, N1	160A	3	Contains enough items for either LINE or LOAD side only
NZM1-4-XKR	NZM1-4, PN1-4, N1-4	160A	4	Contains enough items for either LINE or LOAD side only
NZM2-XKR	NZM2, PN2, N2	300A	3	Contains enough items for either LINE or LOAD side only
NZM2-4-XKR	NZM2-4, PN2-4, N2-4	300A	4	Contains enough items for either LINE or LOAD side only
NZM3-XKR	NZM3, PN3, N3	630A	3	Contains enough items for either LINE or LOAD side only
NZM3-4-XKR	NZM3-4, PN3-4, N3-4	630A	4	Contains enough items for either LINE or LOAD side only
NZM4-XKR	NZM4, N4	1250A	3	Contains enough items for either LINE or LOAD side only
NZM4-4-XKR	NZM4-4, N4-4	1250A	4	Contains enough items for either LINE or LOAD side only
Control cable terminals				
NZM1-XSTS	NZM1, PN1, N1 & NZM1-4, PN1-4, N1-4	-	3 & 4	Contains only 2 pieces
NZM2-XSTS	NZM2, PN2, N2 & NZM2-4, PN2-4, N2-4	-	3 & 4	Contains only 2 pieces
NZM3/4-XSTS	NZM3, PN3, N3 & NZM3-4, PN3-4, N3-4 & NZM4, N4 & NZM4-4, N4-4	-	3 & 4	Contains only 2 pieces



NZM1-1-XKSA



NZM1-XKSA



NZM1-XKA



NZM1-XKR



NZM1-XSTS

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Remote operators



NZM2-XR208-240AC



NZM4-XR24-30DC

Description	For use with	Rated control voltage Us, V	Item no.
Remote operators, for remote switching of circuit-breakers & switch-disconnectors ON & OFF switching & resetting by means of 2-wire or 3-wire control Can be synchronised. Local switching by hand possible. Lockable in the 0 position of the remote operator with up to 3 padlocks (hasp thickness: 4 – 8 mm)	NZM2 N2	110 – 130 V 50/60 Hz	NZM2-XR110-130AC
		208 – 240 V 50/60 Hz	NZM2-XR208-240AC
		380 – 440 V 50/60 Hz	NZM2-XR380-440AC
		24 – 30 V DC	NZM2-XR24-30DC
		4th pole cover ^①	NZM2-XAVPV
	NZM3 N3	110 – 130 V 50/60 Hz	NZM3-XR110-130AC
		208 – 240 V 50/60 Hz	NZM3-XR208-240AC
		380 – 440 V 50/60 Hz	NZM3-XR380-440AC
		24 – 30 V DC	NZM3-XR24-30DC
		4th pole cover ^①	NZM3-XAVPR
	NZM4 N4	110 – 130 V 50/60 Hz	NZM4-XR110-130AC
		208 – 240 V 50/60 Hz	NZM4-XR208-240AC
		380 – 440 V 50/60 Hz	NZM4-XR380-440AC^②
		24 – 30 V DC	NZM4-XR24-30DC

① Additional cover required for 4 pole MCCBs

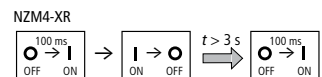
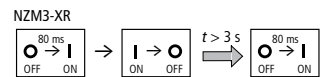
② Not UL/CSA approved.

Remote operators are combinable with NZM circuit-breakers & N switch-disconnectors but not with PN switch-disconnectors. A standard auxiliary contact (HIN) for the switch position detection is supplied.

Switching cycle: NZM2-XR.

The time interval between OFF & ON is 3 seconds.

On commands received during the time interval are ignored within the first 3 seconds after switch off.



Accessories, mechanical interlock



NZM1/2-XAB



NZM1-XMV



NZM3-XMVR

Description	For use with	Item no.
Spacers Enables fast & low-priced adjustment of differing frame sizes with/without rotary handle to the same front depth One set contains 4 spacers	NZM1, PN1, N1, NZM2, PN2, N2	NZM1/2-XAB
	NZM3, PN3, N3, NZM4, N4	NZM3-XAB
Interpole phase barriers - 2 pieces per set	NZM1, PN1, N1	NZM1-XKP
	NZM2, PN2, N2	NZM2-XKP
	NZM3, PN3, N3	NZM3-XKP
	NZM4, N4	NZM4-XKP
Mechanical interlocking of (door coupling) rotary handles	NZM1, PN1, N1	NZM1-XMV
	NZM2, PN2, N2	NZM2-XMV
	NZM3, PN3, N3	NZM3-XMV
	NZM4, N4	NZM4-XMV
Bowden cables For mechanical interlocking of (door coupling) rotary handles	NZM1, PN1, N1	NZM-XBZ225
	NZM2, PN2, N2	NZM-XBZ600
	NZM3, PN3, N3, NZM4, N4	NZM-XBZ1000
Mechanical interlock for remote operator For 2 switches of the same or next frame size with each other. Mounting beside one another. Type contains parts for both switches	NZM2(-4), N2(-4) +NZM2(-4), N2(-4)	NZM2-XMVR
	NZM2(-4), N2(-4) +NZM3(-4), N3(-4)	NZM2/3-XMVR
	NZM3(-4), N3(-4) +NZM3(-4), N3(-4)	NZM3-XMVR
	NZM3(-4), N3(-4) +NZM4(-4), N4(-4)	NZM3/4-XMVR
	NZM4(-4), N4(-4) +NZM4(-4), N4(-4)	NZM4-XMVR
Mechanical interlock for remote operator For 2 switches of the same or next frame size with each other. Extra long Bowden cables for mounting in neighbouring control panel fields. Type contains parts for both switches	NZM2(-4), N2(-4) +NZM2(-4), N2(-4)	NZM2-XMVRL
	NZM2(-4), N2(-4) +NZM3(-4), N3(-4)	NZM2/3-XMVRL
	NZM3(-4), N3(-4) +NZM3(-4), N3(-4)	NZM3-XMVRL
	NZM3(-4), N3(-4) +NZM4(-4), N4(-4)	NZM3/4-XMVRL
	NZM4(-4), N4(-4) +NZM4(-4), N4(-4)	NZM4-XMVRL

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Paralleling mechanisms, energy metering and communication

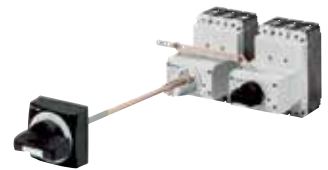
Description	For use with	Item no.
Paralleling mechanisms, simultaneous actuation of 2 PN switch-disconnectors of the same type mounted side-by-side	PN1 + PN1	PN1-XPA ①
	PN2 + PN2	PN2-XPA ①
	PN3 + PN3	PN3-XPA ①②

① A non-lockable rotary handle is supplied (necessary due to the double torque).

② Rotary handle on switch or door coupling rotary handle per PN... is additionally required. Combinations as required are also possible. Cannot be combined with mechanical interlock, insulating surrounds, side wall operators or remote operators.

PN3-XPA: Only in conjunction with non lockable rotary handles or door coupling rotary handles.

Rotary handle on switch: NZM3...-XD • Door coupling rotary handle: NZM3...-XTD Not suitable for use as a main switch.



PN1-XPA

Description	Item no.
Diagnostic & configurator software for NZM & DMI (at the machine) PC software for direct connection to all new NZM circuit-breakers with electronic releases (IEC & UL/CSA devices) or for direct connection to the DMI module, including the connection cable. Protection parameters: Online display & characteristic representation, export option to "CurveSelect" characteristics program. Warning & trip messages: Read of the diagnostics memory even in a no-voltage state. Load currents: Display & trend representation. Recording & export feature to MS-Excel for load currents & diagnostic messages. Configuration of the DMI: motor starter, remote operator, assignment of the DMI inputs & outputs & displays.	NZM-XPC-KIT



NZM-XDMI612

Data Management Interface (DMI Module)	
Query of diagnostics & operational data, display of currents, motor starter function, parameterisation & control of the circuit-breaker with electronic release. Comprehensive remote diagnostic options & remote operation via fieldbus in combination with fieldbus connection. Inclusive NZM-XDMI-CAB connection cable between NZM & DMI (length: 2m).	NZM-XDMI612

Expansion unit, networking
Connection to the DMI module for transfer of the phase currents, parameter-, status- & diagnostics data as well as the position of the circuit-breaker (wiring of the auxiliary contact to the DMI inputs). DMI configuration via field bus. Actuation of the DMI motor starter function & the NZM remote operator (via DMI output wiring). Detection of digital inputs & actuation of the outputs via the fieldbus.

Fieldbus interface: to PROFIBUS-DPV1 slave. Can be operated with class 1 & class 2 masters. Addresses available: 1 to 126	NZM-XDMI-DPV1
Fieldbus connection to CANopen Addresses available: 1 to 127	EASY221-CO
Fieldbus connection to DeviceNet Addresses available: 0 to 63	EASY222-DN



EASY221-CO

IEC MCCB

Flexible fault current protection

The new Eaton relay/transducer combination covers operating currents in a range from 1 to 1800 A. The wide spectrum of applications ranges from general power distribution tasks to individual Motor controls. The fault currents which are detected and processed by the relay range from 30 mA to 5 A. The adjustable relay provides a pre-warn function which alerts before the set fault current is exceeded. The prewarning allows preventative action to be taken to prevent shutdown of the electrical energy.

The application range of the relay/transducer combinations extend – depending on the regulations which apply – from personnel protection to fire protection, and even extends up to protection of systems for 1 to 4 pole power grids. The current relay signals that the set fault current has been exceeded with a changeover contact. Depending on the application, the contact signal can be subsequently processed in the controls, as well as by the shunt or undervoltage releases of a circuit-breaker which initiate the trip. The relay and transducer can be combined with every circuit-breaker. The compact ring-type transducer with no particular space requirement is placed at a suitable position on the cable run. The relay simply requires a free electrical cable connection.



PFR-003



PFR-03



PFR-5



PFR-W-20

Compact, safe, adaptable... just as it should be, the fault current protection which is particularly suited for cramped spaces such as for example in service distribution systems. Ring-type transducers which are arranged in a space saving manner on the cabling run and the measuring relay which is simply snapped onto the DIN mounting rail, combine to form a functional unit.

After a critical fault current has been exceeded, the output signal can be optionally channelled to an acoustic/optical signalling device, upstream control or directly to the shunt or undervoltage release of a motor-protective circuitbreaker/circuit-breaker for instantaneous shutdown. Three different relay variants are available for

different protective tasks: 30 mA as well as 300 mA sensitivity with a fixed setting and 30 mA to 5 A adjustable in fixed steps, which can be combined with a time delay of 20 ms to 5 s.

The non-delayed standard devices are particularly suited for protection of systems. The time-delayed variants are intended for discriminative series connection of multiple switch/relay combinations. This ensures, that only the switch in the direct vicinity of the fault will trip.

Two colour LED's signal operating and fault states. Possible wiring faults between relay and transducers are indicated by illumination of both LED's. Diagnostics function with adjustable PFR-5 relay: If the set fault current is

exceeded by more than 25, 50 or 75%, the red LED will flash at different frequencies. This alert feature ensures that trouble-shooting for the cause of the fault can commence before a critical state is reached.

Two pushbuttons enable test and reset of the relay Test: The function of the relay electronics is tested and the trip signal can be used to control the shunt or undervoltage release of the connected circuit-breaker. This test checks the operation of the entire function chain comprised of measured value input, processing, signal routing as well as switch release. Reset: The release signal is reset regardless of if it is received from a fault current or by operation of the test button.

Description	Item no.	
Residual current relay Pulse current sensitive	Rated control voltage: $U_s = 230V \text{ A.C. (50/60 Hz)}$ Integrated auxiliary switch (1 changeover contact)	
Rated fault current $I_n = 0.03 \text{ A}$		PFR-003
Rated fault current $I_n = 0.3 \text{ A}$		PFR-03
Rated fault current $I_n = 0.03...5 \text{ A}$ Adjustable fault current and delay time Fault current prewarning by flashing red LED	PFR-5: Adjustable fault current: 0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 A Adjustable delay time: 0.02 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 s	PFR-5
Ring-type transducer		
Internal diameter 20 mm	PFR-W-20 and PFR-W-30	PFR-W-20
Internal diameter 30 mm	incl. attachment clip for DIN top-hat rail	PFR-W-30
Internal diameter 35 mm	PFR-W-35 and all larger transducers	PFR-W-35
Internal diameter 70 mm	incl. screw fitting	PFR-W-70
Internal diameter 105 mm	Engineering note: The transducer diameter must be selected to be 1.5 times larger than the diameter of the conductor lead through (see Technical Data).	PFR-W-105
Internal diameter 140 mm		PFR-W-140
Internal diameter 210 mm		PFR-W-210

IEC MCCB

Flexible fault current protection

The residual-current protection modules can be connected to the bottom of the circuit-breaker NZM1 and NZM2, and on the NZM1 also on the right hand side with the same contour design. A compact and mounting friendly solution. An external auxiliary voltage is not required. The residual current protection module of the NZM2 is independent of the mains voltage. It is available in pulse current sensitive and also in AC/DC current sensitive devices. In almost every mains configuration 3-pole and 4-pole variants as well as rated fault currents from 30 mA to time-discriminating 3 A are on offer.

During a fault the rising fault current will initially be indicated by an LED on the RCCB for the NZM1. The circuit breaker trips via the residual-current release only after the set fault current is exceeded, i.e. the main contacts will be opened. The cause of the fault is indicated mechanically on the device with the NZM1 and 2. Optional auxiliary contacts can be clipped on in order to remotely indicate the trip. The circuit breaker and the residual-current release must be reset and switched back on in order to restore the power supply.



Accessories

Earth-fault release

Rated fault current	For use with	3 pole Item no.	For use with	4 pole Item no.
Not UL/CSA approved. Suitability for use in three- & single-phase systems. Pulse current sensitive acc. to core-balance principle				
For 3 & 4 pole circuit-breakers NZM1(-4) & switch-disconnectors N1(-4), dependant on mains power $U_e = 200 - 415 \text{ V } 50/60 \text{ Hz}$, lateral mounting on the right hand side up to 125 A				
Rated fault current $I_{\Delta n} = 0.03 \text{ A}$	NZM1 N1	NZM1-XFI30R	NZM1-4 N1-4	NZM1-4-XFI30R
Rated fault current $I_{\Delta n} = 0.3 \text{ A}$		NZM1-XFI300R		NZM1-4-XFI300R
Rated fault current $I_{\Delta n} = 0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 \text{ A}$		NZM1-XFIR		
Delay time $t_v = 10 - 60 - 150 - 300 - 450 \text{ ms}$.			NZM1-4 N1-4	NZM1-4-XFIR
For 3 & 4 pole circuit-breakers NZM1(-4) & switch-disconnectors N1(-4), dependant on mains power $U_e = 200 - 415 \text{ V } 50/60 \text{ Hz}$, bottom mounting up to 100 A				
Rated fault current $I_{\Delta n} = 0.03 \text{ A}$	NZM1 N1	NZM1-XFI30U	NZM1-4 N1-4	NZM1-4-XFI30U
Rated fault current $I_{\Delta n} = 0.3 \text{ A}$		NZM1-XFI300U		NZM1-4-XFI300U
Rated fault current $I_{\Delta n} = 0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 \text{ A}$, delay time $t_v = 10 - 60 - 150 - 300 - 450 \text{ ms}$.		NZM1-XFIU		NZM1-4-XFIU
Pulse current sensitive acc. to core-balance principle				
For 4 pole circuit-breakers NZM2-4 & switch-disconnectors N2-4, independent of mains voltage $U_e = 280 - 690 \text{ V } 50/60 \text{ Hz}$, bottom mounting up to 250 A				
Rated fault current $I_{\Delta n} = 0.03 \text{ A}$			NZM2-4 N2-4	NZM2-4-XFI30
Rated fault current $I_{\Delta n} 0.1 - 0.3 - 1 - 3 \text{ A}$, delay time $t_v = 60 - 150 - 300 - 450 \text{ ms}$				NZM2-4-XFI
Core-balance principle with AC/DC current sensitivity (in range 0 – 100 kHz)				
For 4 pole circuit-breakers NZM2-4 & switch-disconnectors N2-4, internal power supply $U_e = 50 - 400 \text{ V}$, bottom mounting up to 250 A				
Rated fault current $I_{\Delta n} = 0.03 \text{ A}$				NZM2-4-XFIA30
Rated fault current $I_{\Delta n} 0.1 - 0.3 - 1 \text{ A}$, delay time $t_v = 60 - 150 - 300 - 450 \text{ ms}$			NZM2-4 N2-4	NZM2-4-XFIA



NZM1-XFI30R



NZM1-4-XFIU

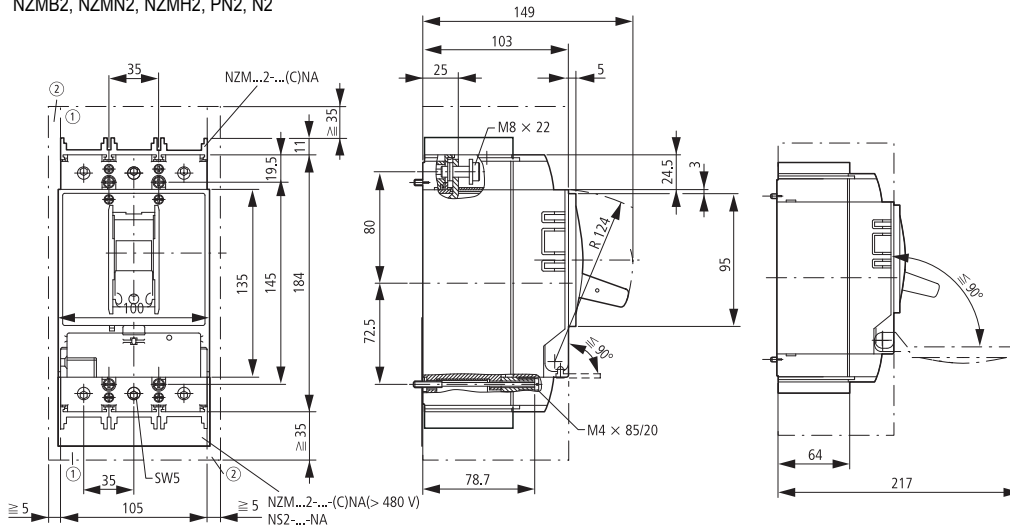


NZM2-4-XFIA30

IEC MCCB

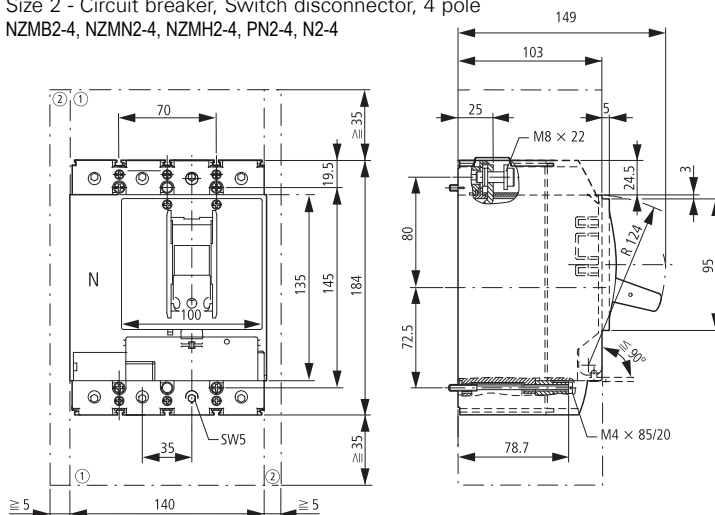
Dimensions

Size 2 - Circuit breaker, Switch disconnecter, 3 pole
NZMB2, NZMN2, NZMH2, PN2, N2



- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

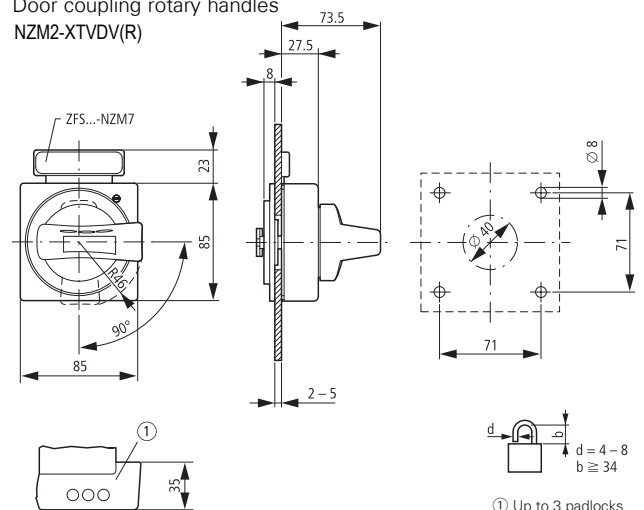
Size 2 - Circuit breaker, Switch disconnecter, 4 pole
NZMB2-4, NZMN2-4, NZMH2-4, PN2-4, N2-4



- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

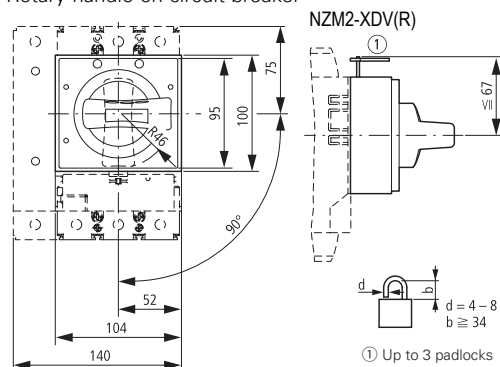
Size 2 - Accessories

Door coupling rotary handles
NZM2-XTVDV(R)



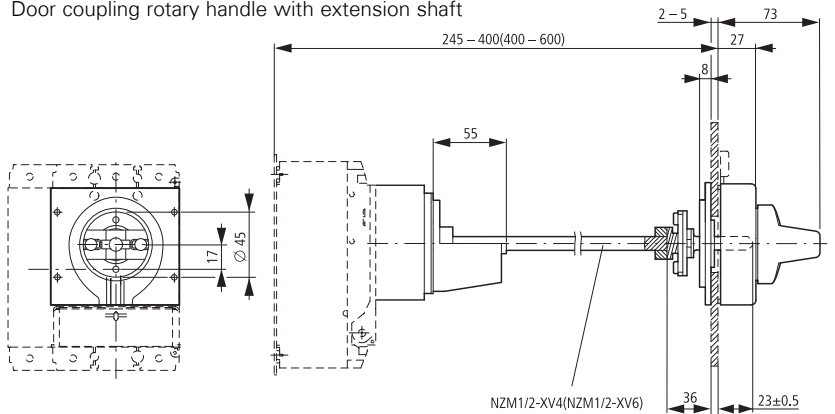
- ① Up to 3 padlocks

Rotary handle on circuit breaker



- ① Up to 3 padlocks

Door coupling rotary handle with extension shaft

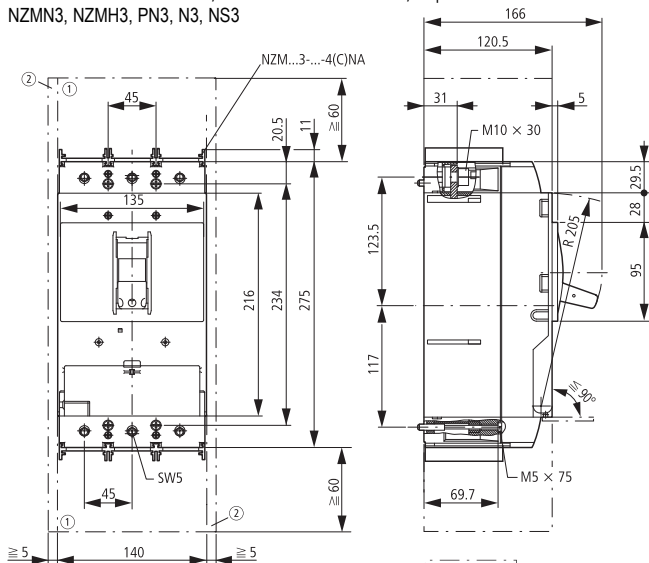


Low Voltage Circuit Protection & Switchgear

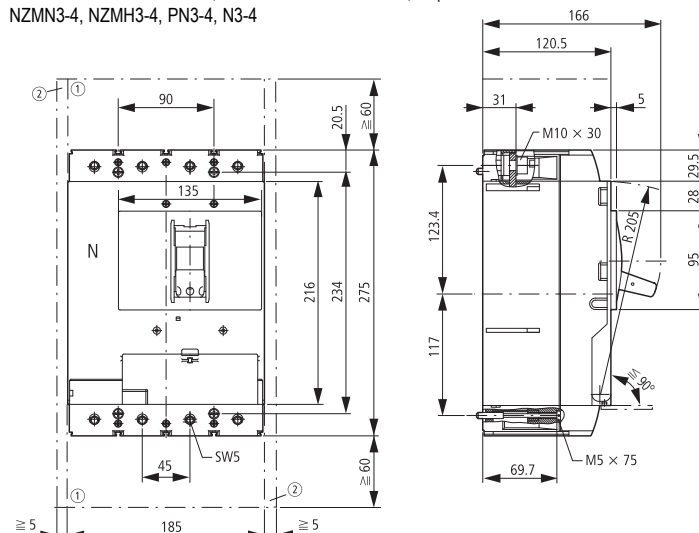
IEC MCCB

Dimensions

Size 3 - Circuit breaker, Switch disconnecter, 3 pole
NZMN3, NZMH3, PN3, N3, NS3



Size 3 - Circuit breaker, Switch disconnecter, 4 pole
NZMN3-4, NZMH3-4, PN3-4, N3-4

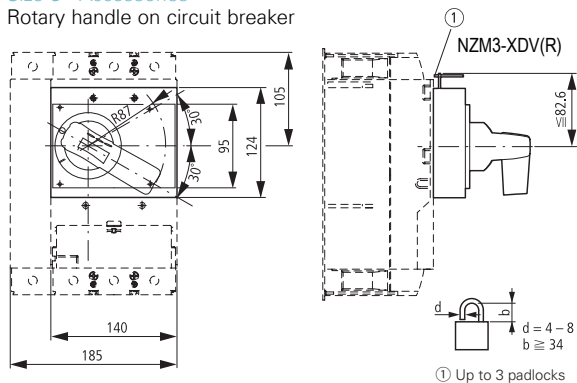


- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

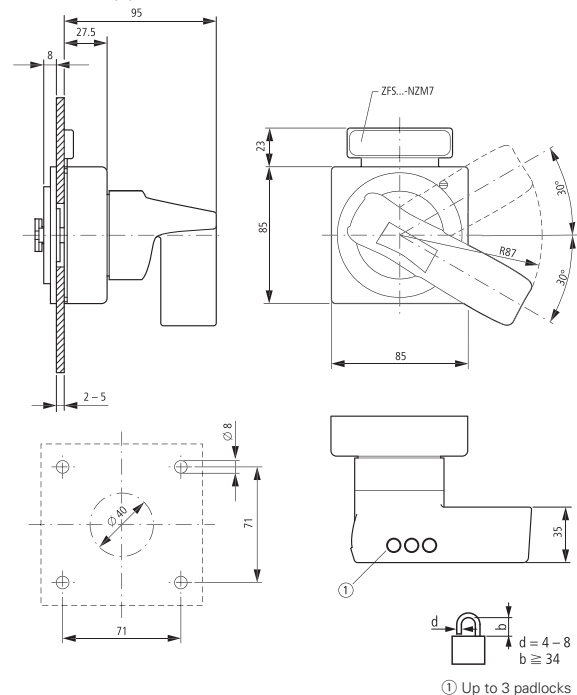
Size 3 - Accessories

Rotary handle on circuit breaker

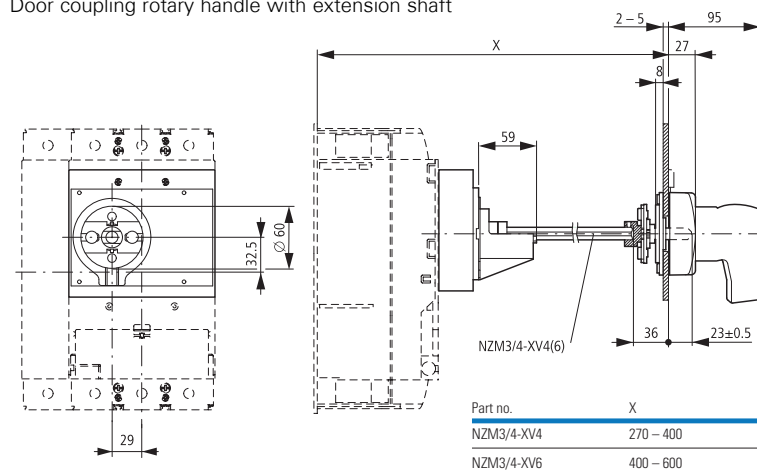


① Up to 3 padlocks

Door coupling rotary handle
NZM3-XTVDV(R)

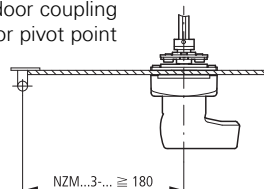


Door coupling rotary handle with extension shaft



Part no.	X
NZM3/4-XV4	270 – 400
NZM3/4-XV6	400 – 600

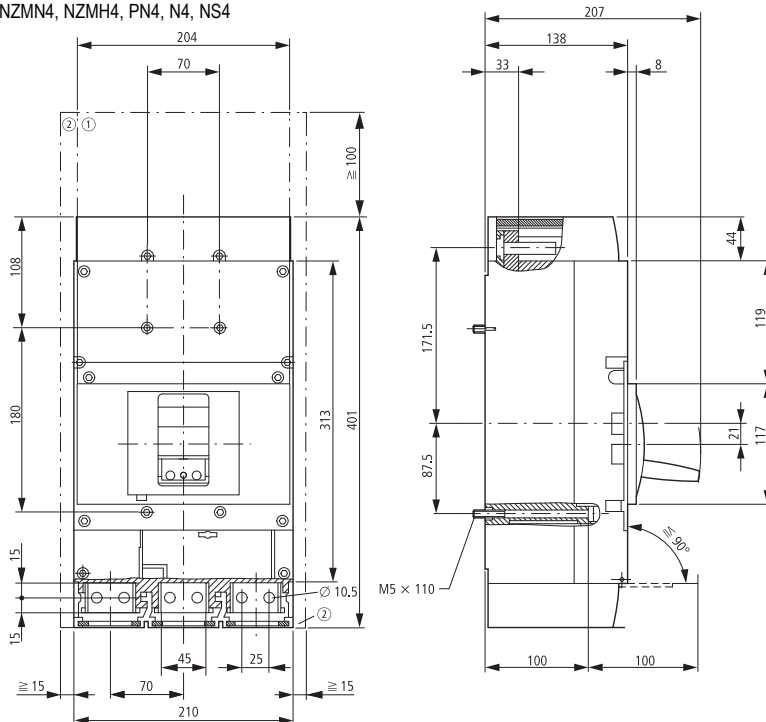
Minimum distance of door coupling rotary handle from door pivot point



IEC MCCB

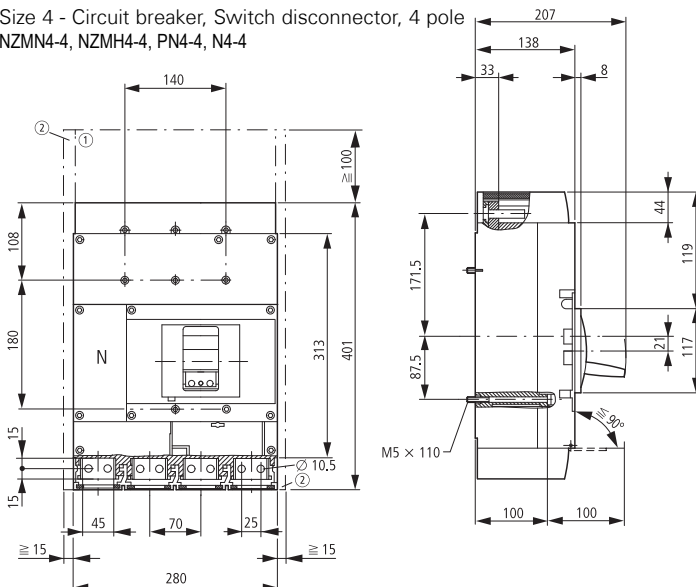
Dimensions

Size 4 - Circuit breaker, Switch disconnector, 3 pole
NZMN4, NZMH4, PN4, N4, NS4



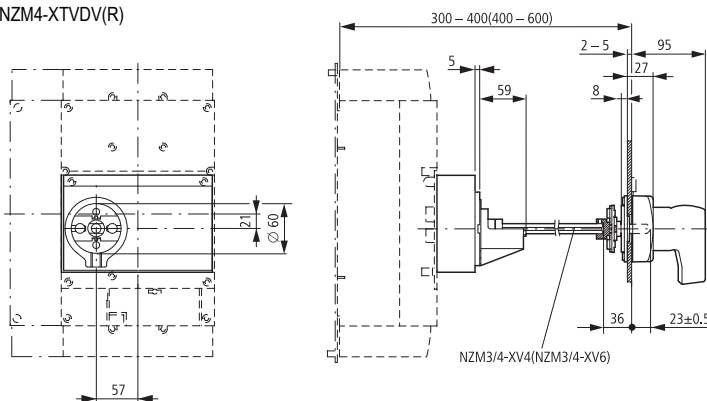
- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

Size 4 - Circuit breaker, Switch disconnector, 4 pole
NZMN4-4, NZMH4-4, PN4-4, N4-4



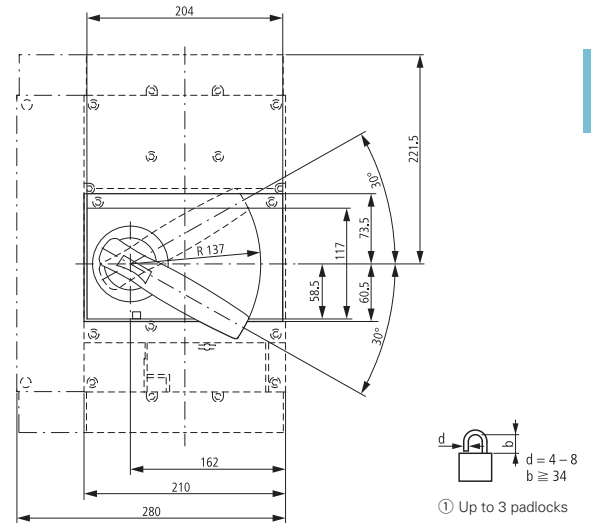
- ① Blow-out area, minimum distance to other parts ≥ 35 mm
- ② Minimum distance to adjacent parts ≥ 5 mm

Door coupling rotary handle with extension shaft
NZM4-XTVDV(R)

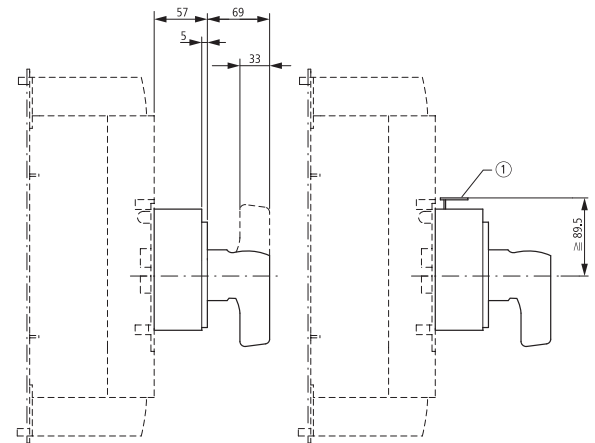


Size 4 - Accessories

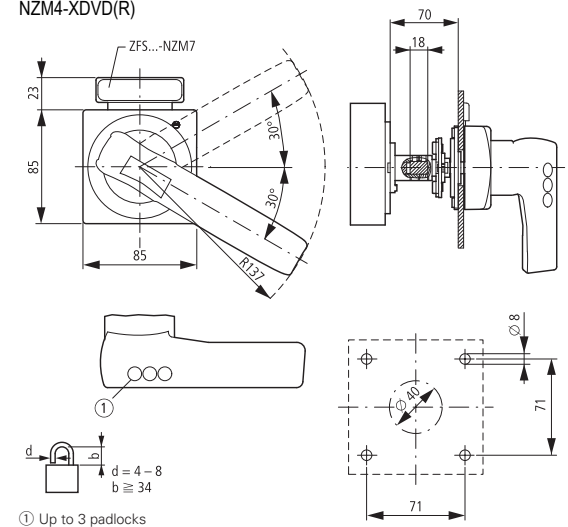
Rotary handle on circuit breaker
NZM4-XDV(R)



- ① Up to 3 padlocks



Door coupling rotary handle
NZM4-XDVR(R)



- ① Up to 3 padlocks