

MCCB Panel Boards

400A / 630A / 800A



- XBoard Consumer Units
- XPole Miniature Circuit Breakers, RCDs and RCBOs
- A + B Type Distribution Boards
- Mini Panel Boards
- Panel Boards**

Product Catalogue and Selection Guide

MCCB Panel Boards

Moulded Case Circuit Breakers and Accessories

MOELLER 

Think future. Switch to green.

MCCB Panel Boards – 400/630/800A

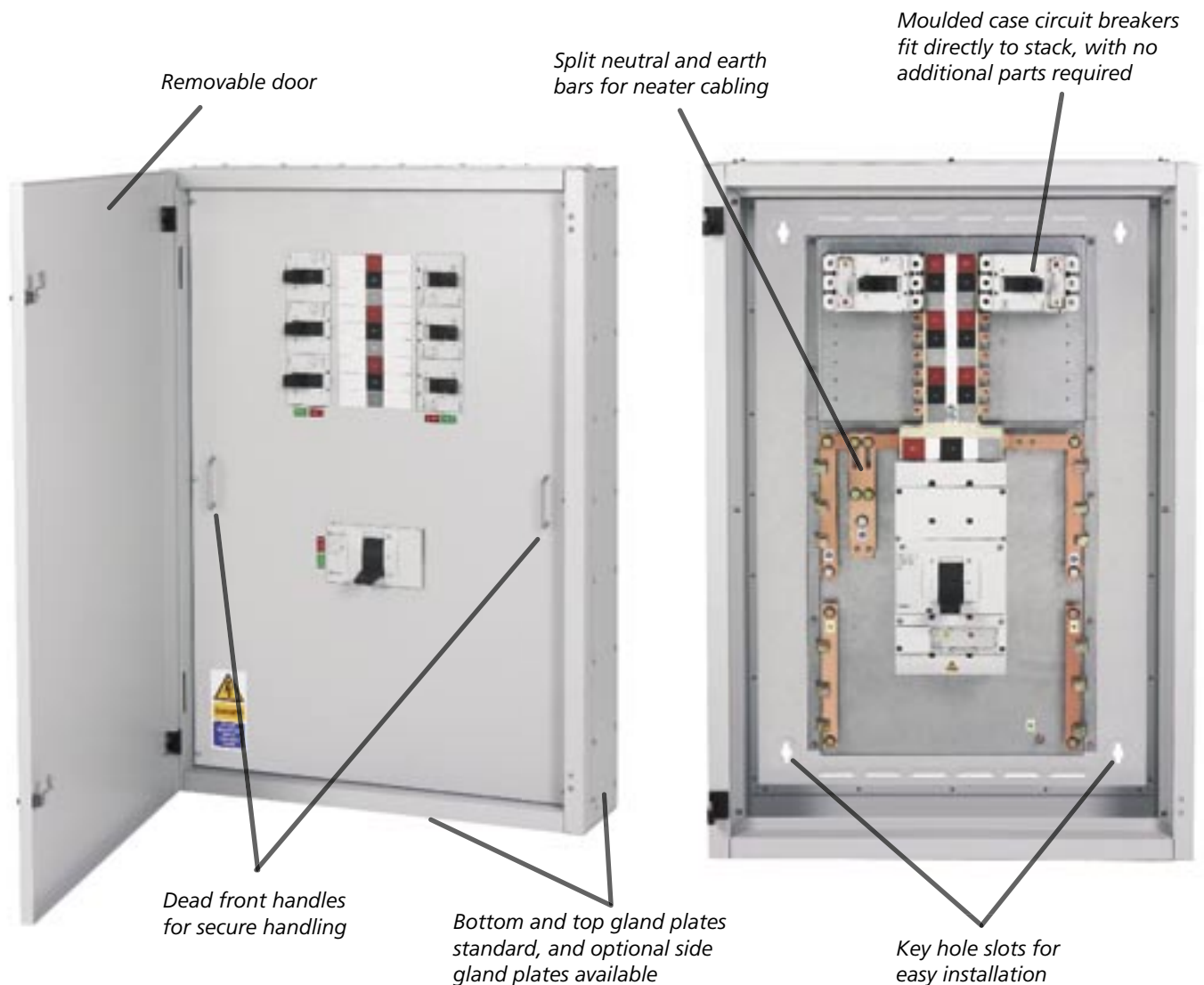
Moeller's new MCCB Panel Boards are designed and built to the latest British and European standards. The panel boards are ASTA certified and fully type tested to BS EN 60439-1.

Wall mounted with Form 2 separation as standard (Form 3b with additional shrouding), they provide a flexible solution for a wide range of distribution requirements up to 800A.

As well as Moeller's PMC range of moulded case circuit breakers and PSC switch disconnectors, the panel boards can also hold Moeller's NZM range of moulded case circuit breakers to provide diagnostic and operational data. The NZM range can give information on energy use around a building and is also ideal for diagnostics in high integrity applications.

This leaflet covers the most popular parts of the range; please contact your Moeller distributor if you have additional specific requirements.

- Busbar rating options for 400A, 630A and 800A.
- Incoming MCCBs or switch disconnectors from 250A to 800A.
- Outgoing ways from 20A to 250A for 3 pole and 20A to 125A for 1 pole.
- High quality steel-plate enclosure to IP40.
- Fully shrouded busbars.
- Full range of accessories.
- Supplied as separate components or fully assembled on request.
- Metering available on request.



Panel Board Enclosures and Accessories

Panel Boards for 3 pole Incomer

Number of Outgoing Ways	Rating (A)	Part Number
6	400	PB06/400
12	400	PB12/400
6	630	PB06/630
12	630	PB12/630
6	800	PB06/800
12	800	PB12/800

Panel Boards for 4 pole Incomer

Number of Outgoing Ways	Rating (A)	Part Number
6	400	PB06/400-4
12	400	PB12/400-4
6	630	PB06/630-4
12	630	PB12/630-4
6	800	PB06/800-4
12	800	PB12/800-4

See page 9 for dimensions and technical data.



Panel Board Accessories

Description	Part Number	Notes
Plinth	PBPL	Fits both PB06/** and PB12/**
Spreader Box – Short	PBSBS	Fit both PB06/** and PB12/**. PBSBL can only be used when fitting two vertical cable ways.
Spreader Box – Long	PBSBL	
Vertical Cable Ways – 6-way	PBVCW6	Order two if required on both sides.
Vertical Cable Ways – 12-way	PBVCW12	
Side Gland Plate 2mm thick for PB06/** (1 only)	PBGP-06	Supplied as optional extra for side entry to panel board. (Comes with 1.6mm blank side plates as standard.)
Side Gland Plate 2mm thick for PB12/** (1 only)	PBGP-12	
Lockable door handle with key	PBLOCK	
Toggle lever locking device (toggle switch interlock)	NZM2/3-XKAV	Lockable in Off position with up to three padlocks (hasp 4–8 mm). Can be used with PMC/PSC/NZM2 and 3.
Single Pole Blanking Plate	PBSP-BL	This item includes single pole blank for dead front and tag shroud for busbar. Please order 3-off for each spare 3-pole outgoing way.
Single Pole PLHT Adapter	PBPLHT-ADP	Single pole adapter kit for 3-pole ways, enabling up to three PLHT MCBs to be fitted as outgoing.



Lockable handle with key
PBLOCK



Toggle lever locking device
NZM2/3-XKAV

Incoming Devices

Moulded Case Circuit-Breakers – PMC

Electronic release, switching capacity 50kA at 415V 50/60Hz

Number of Poles	Rated current = rated uninterrupted current $I_n = I_u$ (A)	Setting range			Part Number
		Overload releases I_r (A)	Neutral conductor I_r (A)	Short-circuit releases Non-delayed I_i (A)	
3	250	125–250		500–2750	PMC3-250/3
3	400	200–400		800–4400	PMC3-400/3
3	630	315–630		1260–5040	PMC3-630/3
3	800	400–800		1600–9600	PMC4-800/3
4	400	200–400	125–250	800–4400	PMC3-400/250/4
4	630	315–630	200–400	1260–5040	PMC3-630/400/4
4	800	400–800	250–500	1600–9600	PMC4-800/500/4



Switch Disconnectors – PSC

Number of Poles	Rated current = rated uninterrupted current $I_n = I_u$ (A)	Short-circuit protection max. fuse gL-characteristic A gL	Part Number
3	400	630	PSC3-400/3
3	630	630	PSC3-630/3
3	800	1600	PSC4-800/3
4	400	630	PSC3-400/4
4	630	630	PSC3-630/4
4	800	1600	PSC4-800/4



Note (PMC, PSC and NZM):

- 1) Three switch positions I, +, 0; can be tripped remotely with shunt/undervoltage release (see page 6).
- 2) Bolt terminals as standard. Optional box terminals on page 5.

Outgoing Devices

Moulded Case Circuit Breakers – PMC

Thermomagnetic release, 3-pole, switching capacity 25kA at 415V 50/60Hz

Rated current = rated uninterrupted current $I_n = I_u$ (A)	Setting range		Part Number
	Overload releases I_r (A)	Short-circuit releases Non-delayed I_i (A)	
20	15–20	350	PMC2-20/3
25	20–25	350	PMC2-25/3
32	25–32	350	PMC2-32/3
40	32–40	320–400	PMC2-40/3
50	40–50	300–500	PMC2-50/3
63	50–63	380–630	PMC2-63/3
80	63–80	480–800	PMC2-80/3
100	80–100	600–1000	PMC2-100/3
125	100–125	750–1250	PMC2-125/3
160	125–160	960–1600	PMC2-160/3
200	160–200	1200–2000	PMC2-200/3
250	200–250	1500–2500	PMC2-250/3



Note:

- 1) Three switch positions I, +, 0; can be tripped remotely with shunt/undervoltage release (see page 6).
- 2) Order 3 x PBSP-BL on page 3 for each spare 3-pole outgoing way.

Single Pole Miniature Circuit Breakers – PLHT

Thermomagnetic release, 1-pole, Characteristic C, switching capacity up to 25kA at 415V 50/60Hz

Rated current I_n (A)	Rated ultimate short circuit breaking capacity I_{cu} (kA)	Part Number
20	25	PLHT-C20
25	25	PLHT-C25
32	25	PLHT-C32
40	25	PLHT-C40
50	25	PLHT-C50
63	25	PLHT-C63
80	20	PLHT-C80
100	20	PLHT-C100
125	15	PLHT-C125



Note:

- 1) Order PBPLHT-ADP on page 3 to install single pole outgoing ways in panel board.

Accessories for Circuit Breakers and Switch Disconnectors

To achieve Form 3b separation, covers and terminal covers (second and third tables below) must be used.

Cable Lugs

Cable size (mm ²)	For use with	Poles	Part Number
95	PMC/PSC/NZM2	3	KS95-NZM7
120	PMC/PSC/NZM2	3	KS120-NZM7
150	PMC/PSC/NZM2	3	KS150-NZM7
185	PMC/PSC/NZM2	3	NZM2-XKS185
185	PMC/PSC/NZM3 & 4	3/4	NZM3-XKS185
240	PMC/PSC/NZM3 & 4	3/4	NZM3-XKS240



Note:

- 1) Order 3 off for 3-pole and 4 off for 4-pole.
- 2) Can be used in conjunction with NZM*-XKSA.

Covers provide degree of protection IP4X when using cable lugs

For use with	Poles	Part Number
PMC/PSC/NZM2	3	NZM2-XKSA
PMC/PSC/NZM3	3	NZM3-XKSA
PMC/PSC/NZM3	4	NZM3-4-XKSA
PMC/PSC/NZM4	3	NZM4-XKSA
PMC/PSC/NZM4	4	NZM4-4-XKSA



Terminal Covers for above cover

For use with	Poles	Part Number
PMC/PSC/NZM2	3	NZM2-XIPA
PMC/PSC/NZM3	3	NZM3-XIPA
PMC/PSC/NZM3	4	NZM3-4-XIPA



Note:

- 1) NZM*-XIPA can be used in conjunction with NZM*-XKSA for protection against direct contact box terminals IP2X.

Box Terminals copper cable, stranded

For use with	Poles	Terminal Capacity	I _n (A)	Part Number
PMC/PSC/NZM2	3	1 x (4–16) + 2 x (4–16)	160	NZM2-160-XKC
PMC/PSC/NZM2	3	1 x (25–185) + 2 x (25–70)	250	NZM2-250-XKC
PMC/PSC/NZM3	3	1 x (35–240) + 2 x (16–120)	500	NZM3-XKC
PMC/PSC/NZM3	4	1 x (35–240) + 2 x (16–120)	500	NZM3-4-XKC



Note:

- 1) Conversion kit for bolted terminals on PMC/PSC/NZM2(3).
- 2) Can be used in conjunction with NZM*-XIPK.

Box Terminal Covers protection against direct contact with box terminals IP2X

For use with	Poles	Part Number
PMC/PSC/NZM2	3	NZM2-XIPK
PMC/PSC/NZM3	3	NZM3-XIPK
PMC/PSC/NZM3	4	NZM3-4-XIPK



Tunnel Terminals includes terminal covers NZM*-XKSA

For use with	Poles	Conductor	Terminal Capacity	I _n (A)	Part Number
PMC/PSC/NZM2	3	Copper cable	solid 1 x 16 stranded 1 x (25–185)	250	NZM2-XKA
PMC/PSC/NZM3	3	Copper cable	stranded 1 x (25–185)	350	NZM3-XKA1
PMC/PSC/NZM3	3	Copper cable	stranded 1 x (50–240)	630	NZM3-XKA2
PMC/PSC/NZM3	4	Aluminium cable	solid 1 x 16 stranded 1 x (25–185)	350	NZM3-4-XKA1
PMC/PSC/NZM3	4	Aluminium cable	stranded 1 x (50–240) and 2 x (50–240)	630	NZM3-4-XKA2



Accessories for Circuit Breakers and Switch Disconnectors (continued)

Auxiliary Contacts

Standard auxiliary contact. Switching with the main contacts. Used for indication and interlocking tasks.

For use with	Contacts	Part Number
PMC/PSC/NZM2 /3 /4	1 N/O	M22-K10
	1 N/C	M22-KO1



Undervoltage Release

Non-delayed tripping of the switch when the rated control voltage is removed. Suitable for use in emergency-stop circuits.

For use with	Rated control voltage U_s (V)	Part Number
PMC/PSC/NZM2 /3	208–240V 50/60Hz	NZM2/3-XU208-240AC
	380–440V 50/60Hz	NZM2/3-XU380-440AC
PMC/PSC/NZM4	208–240V 50/60Hz	NZM4-XU208-240AC
	380–440V 50/60Hz	NZM4-XU380-440AC



Shunt Release

Non-delayed tripping of the switch when the rated control voltage is applied. Not suitable for use in emergency-stop circuits.

For use with	Rated control voltage U_s (V)	Part Number
PMC/PSC/NZM2 /3	208–250V 50/60Hz	NZM2/3-XA208-250AC/DC
	380–440V 50/60Hz	NZM2/3-XA380-440AC/DC
PMC/PSC/NZM4	208–250V 50/60Hz	NZM4-XA208-250AC/DC
	380–440V 50/60Hz	NZM4-XA380-440AC/DC



Diagnostics and Metering Options

Moulded Case Circuit Breakers – NZM

As standard, these NZM MCCBs have a built-in LED to indicate when the load has reached 70%, 100% and 120% of the set thermal current. NZM-XPC-Soft can be used to access more detailed information held within the breaker.

Electronic release, switching capacity 50kA at 415V 50/60 Hz.

Poles	Rated current = rated uninterrupted current $I_n = I_u$ (A)	Setting range				Part Number
		Overload releases		Short-circuit releases		
		Main Poles I_r (A)	Neutral I_r (A)	Non-delayed I_i (A)	Delayed I_{sd} (A)	
3	100	50–100		1200	100–1000	NZMN2-VE100
3	160	80–160		1920	160–1600	NZMN2-VE160
3	250	125–250		3000	250–2500	NZMN2-VE250
3	250	125–250		500–2750	250–2500	NZMN3-VE250
3	400	200–400		800–4400	400–4000	NZMN3-VE400
3	630	315–630		1260–5040	472–4410	NZMN3-VE630
3	630	315–630		1260–7560	630–6300	NZMN4-VE630
3	800	400–800		1600–9600	800–8000	NZMN4-VE800
4	400	200–400	200–400	800–4400	400–4000	NZMN3-4-VE400
4	630	315–630	315–630	1260–5040	472–4410	NZMN3-4-VE630
4	800	400–800	400–800	1600–9600	800–8000	NZMN4-4-VE800



Diagnostic Software for communication-enabled NZM circuit breakers

Using a simple connection from any NZM 2, 3 and 4 electronic circuit breaker to a PC, the software displays:

- Phase currents
- Status data
- Load warnings
- Current trending
- Diagnostic data
- Event history (last ten events), even when the MCCB is de-energised.

The software also configures the Data Management Interface (DMI).

Description	Part Number
Diagnostics and parameterisation software	NZM-XPC-KIT

Note:

- 1) Only for use in combination with circuit breakers with electronic releases.
- 2) Get a copy of the free demo software NZM-XPC-Soft Demo at www.moeller.net.



Data Management Interface (DMI) Modules

The DMI can be used in conjunction with the NZM 2, 3 and 4 electronic circuit breakers to collect and communicate diagnostic and operational data, as well as currents, motor starter function, parameterisation and control of the circuit breaker. This information can also be accessed and transferred via Profibus (using an NZM-XDMI-DPV1).

Description	Part Number
Data Management Interface (DMI) Module	NZM-XDMI612



Diagnostics and Metering Options (continued)

Metering Options

Supplied with relevant CTs and protection for meters.

Type	Outgoing No. of Ways / Incoming MCCB rating	Meters	Part Number
Outgoing sections	for 6 way panel board	6 x kWh meters (250A)	PBMET-6/***
	for 12 way panel board	12 x kWh meters (250A)	PBMET-12/***
Incoming sections	for 400A rated	1 x digital power meter	PBMET-INC/400*
	for 630A rated	1 x digital power meter	PBMET-INC/630*
	for 800A rated	1 x digital power meter	PBMET-INC/800*

Residual Current Protection – PFR

The new Moeller relay/transducer combination covers operating currents from 1A to 1800A. Fault currents are detected and processed by the relay from 30mA to 5A. The adjustable relay provides a pre-warn function which alerts before the set fault current is exceeded. The pre-warning allows preventative action to be taken to avoid shutdown of the supply. 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 release fitted to the circuit breaker, which initiates the trip. The relay and transducer can be combined with every moulded case circuit breaker and switch disconnecter. The ring-type transducer can be placed at a suitable position on the cable run.



Description		Part Number	
Residual current 30mA		PFR-003	
Differential relay 300mA		PFR-03	
Differential relay 0.03–5A		PFR-5	
Transducers and magnetic screens	Internal diameter:	Transducer	Magnetic screen
		21mm	PFR-W-20
Internal diameter:	30mm	PFR-W-30	–
	35mm	PFR-W-35	PFR-WMA-35
	70mm	PFR-W-70	PFR-WMA-70
	105mm	PFR-W-105	PFR-WMA-105
	140mm	PFR-W-140	PFR-WMA-140
	210mm	PFR-W-210	PFR-WMA-210
Attachment clip for DIN mount of PFR-WMA-35 to -210		PFR-WC	



Technical Data

Moulded Case Circuit Breaker Panel Board

General		Comments	
Construction	Steel structure		
Type	3 Phase, 4 Wire		
Forms of segregation	Form 2 standard, Form 3b with additional shrouding		
Incoming options	3P MCCB / Isolator		
	4P MCCB / Isolator		
Incoming Device Ratings	400A, 630A and 800A	PMC/PSC/NZM3 /4	
Outgoing Device Ratings	20–250A	PMC/NZM2 (three pole)	
	20–125A	PLHT (single pole)	
Applicable Standards	Type Tested according to BS EN 60439-1 (ASTA Certified)		
Degree of Protection	IP40		
Electrical Data			
Busbar Nominal Rating	800A		
Busbar Short Circuit Withstand	Up to 35kA for 1s		
Rated Operational Voltage (U _e)	415V 50/60Hz		
Rated Insulation Voltage (U _i)	690V AC		
Maximum Incomer Rating	800A		
Maximum Outgoer Rating	250A		
Mechanical			
Paint Finish	RAL7035 Light Grey	Semi-textured	
Enclosure Steel Gauge	1.6mm, 2.5mm, 1.0mm	Enclosure, top and bottom gland plates, dead-front	
Max. Incoming Cable Capacity	1 x 240mm ² or 2 x 120mm ²	For 400A and 630A PMC/PSC/NZM3 devices	
	1 x 185mm ² or 2 x 185mm ²	For 800A PMC/PSC/NZM4 devices	
Max. Outgoing Cable Capacity	1 x 120mm ² or 2 x 70mm ²	For 250A PMC/NZM2 devices	
	1 x 50mm ²	For PLHT devices	
Neutral Connection Cable Capacity	120mm ²		
Earth Connection Cable Capacity	70mm ²		
Main Earth Bolt Cable Capacity	120mm ²		
	Dimensions w x h x d (mm)	Weight (Kg) Empty Full*	
For PB06/** Panel Board	900 x 1285 x 230	92	113
For PB12/** Panel Board	900 x 1600 x 230	120	168
For PBPL – Standard Plinth	900 x 300 x 230		
For PBSBS – Spreader Box Short	900 x 300 x 230		
For PBSBL – Spreader Box Long	1500 x 300 x 230		
For PBVCW6 – Vertical Cable way for PB06/**	300 x 1285 x 230		
For PBVCW12 – Vertical Cable way for PB12/**	300 x 1600 x 230		
* These weights are indications only and depend on number of breakers fitted			

Moulded Case Circuit Breakers – PMC and NZM

General								
Standards	IEC/EN 60947, VDE 0660							
Protection against direct contact	Finger and back-of-hand proof to VDE 0160 part 100							
Climatic proofing	Damp heat, constant, to IEC 60068-2-78, Damp heat, cyclic, to IEC 60068-2-30							
Ambient temperature	-25°C / +70°C							
Mechanical shock resistance	20g (half-sinusoidal shock 20ms)							
Safe isolation to VDE 0106 part 101 & 101/A1	Between auxiliary contacts and main circuits: 500V AC · Between the auxiliary contacts: 300V AC							
Mounting position	Vertical and 90° in all directions							
Direction of incoming supply	As required							
Device type by rated uninterrupted current								
			250A max. PMC2-...	630A max. PMC3-...	800A max. PMC4-...	NZMN2-...	NZMN3-...	NZMN4-...
Rated impulse withstand voltage	Main contacts	U_{imp} (V)	8000	8000	8000	8000	8000	8000
	Auxiliary contacts	U_{imp} (V)	6000	6000	6000	6000	6000	6000
Rated operational voltage	U_e (VAC)		690	690	690	690	690	690
Rated insulation voltage	U_i (V)		1000	1000	1000	1000	1000	1000
Overvoltage category / pollution degree			III/3	III/3	III/3	III/3	III/3	III/3
Switching capacity								
Rated short-circuit making capacity	240V AC	I_{cm} (kA)	63	187	105	187	187	110
	400/415V AC	I_{cm} (kA)	53	105	105	110	110	110
Rated short-circuit breaking capacity								
I_{cu} to IEC/EN 60947 test cycle O-t-CO	240V AC	I_{cu} (kA)	30	85	50	85	85	50
	400/415V AC	I_{cu} (kA)	25	50	50	50	50	50
I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO	240V AC	I_{cs} (kA)	15	42.5	25	85	85	37
	400/415V AC	I_{cs} (kA)	12.5	25	25	50	50	37
Utilisation category			A	A	B	A	A	B
Rated making and breaking capacity								
Rated operational current AC-1	240V AC	I_e (A)	250	630	800	–	–	–
	400/415V AC	I_e (A)	250	630	800	250	630	1600
Lifespan, mechanical (of which max. 20% trip by shunt/undervoltage release)	operations		10000	7500	5000	(Note 1)	(Note 1)	(Note 1)
Maximum operating frequency	S/h		30	30	30	120	60	60
Lifespan, electrical AC-1	240V AC	operations	5000	2500	1500	–	–	–
	400/415V AC	operations	5000	2500	1500	10000	5000	3000
Current heat loss per pole at I_u	W		19	40	97	19	40	97
Overload releases								
Temperature compensation for PMC2 to IEC/EN 60947, VDE 0660, part 101. Residual error in range -25°C/+70°C (ref. temperature 40°C)	thermomagnetic	%/K	0.3	–	–	–	–	–
	electronic	%/K	0.3	0.3	0.3	–	–	–
Total opening delay on short-circuit	ms		< 10	< 10	<25 <415V <35 >415V	< 10	< 10	<25 <415V <35 >415V

Note:

1) For additional technical information on the NZM range please refer to the main catalogue for industrial switchgear.

Switch Disconnectors – PSC

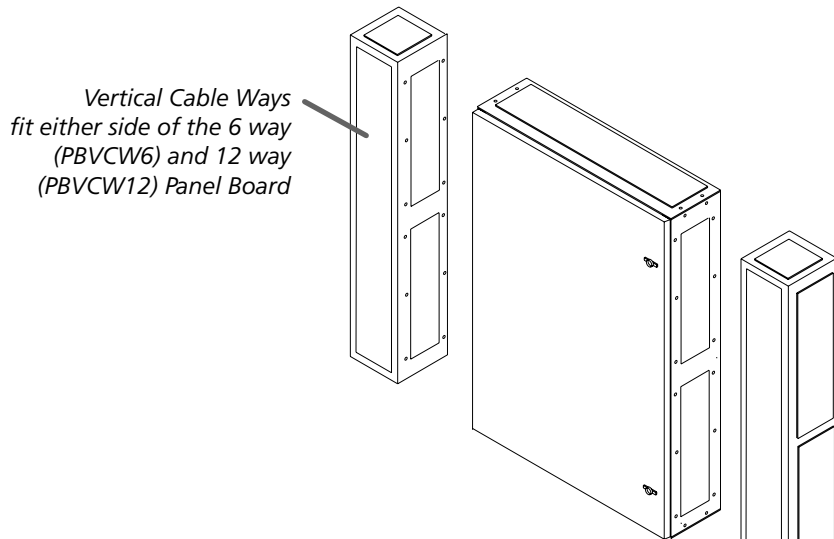
		Rated uninterrupted current		
			630A max. PSC3-...	800A max. PSC4-...
Rated impulse withstand voltage	Main contacts	U_{imp} (V)	8000	8000
	Auxiliary contacts	U_{imp} (V)	6000	6000
Rated operational voltage		U_e (VAC)	525	525
Overvoltage category / pollution degree			III/3	III/3
Switching capacity				
Rated short-circuit making capacity		I_{cm} (kA)	25	53
Rated short-time withstand current	$t = 0.3s$	I_{cw} (kA)	12	25
	$t = 1s$	I_{cw} (kA)	12	25
Rated conditional short-circuit current with back-up fuse		A gG/gL	630	800
		240V AC	kA	100
		400/415V AC	kA	100
Rated making and breaking capacity				
Rated operational current AC-22/23A	240V AC	I_e (A)	630	800
	400/415V AC	I_e (A)	630	800
Lifespan, mechanical		operations	7500	5000
Maximum operating frequency		S/h	30	30
Lifespan, electrical AC-1	240V AC	operations	2500	1500
	400/415V AC	operations	2500	1500
Current heat loss per pole at I_u		W	40	97

Miniature Circuit Breaker – PLHT

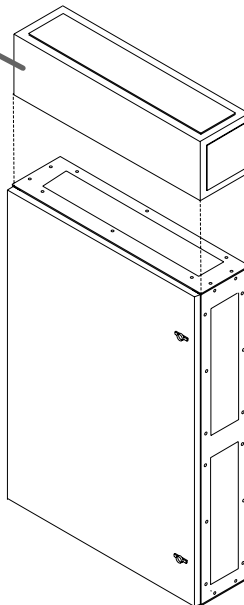
Electrical	
Design according to	EN 60947-2
Current test marks as printed onto the device	
Rated voltage	
AC	230/400V
DC	60V (per pole)
Ultimate short circuit breaking capacity according to IEC/EN 60947-2	
Characteristics B, C	$I_n = 20-63A$ 25kA
	$I_n = 80-100A$ 20kA
	$I_n = 125A$ 15kA
Characteristic D	$I_n = 63A$ 25kA
	$I_n = 80A$ 20kA
	$I_n = 100A$ 15kA
Characteristic	in accordance with characteristics B, C, D
Back-up fuse max.	200 A gL
Rated insulation voltage	440V
Peak withstand voltage U_{imp}	4kV
Selectivity class	in accordance with class 3
Endurance	$\geq 20,000$ operating cycles

Mechanical	
Frame size	45mm
Device height	90mm
Device width	27mm (1.5MU) per pole
Mounting	quick fastening with two lock-in positions on DIN rail EN 50022
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	2.5-50 mm ²

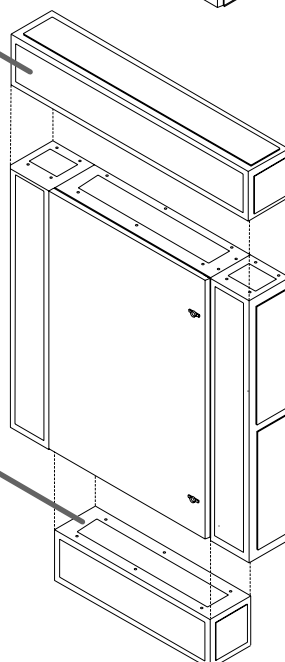
Vertical Cable Ways, Spreader Box and Plinth Combinations



Spreader Box – Short (PBSBS) fits either the top or bottom of both the 6 way and 12 way Panel Board



Spreader Box – Long (PBSBL) fits either the top or bottom of the Panel Board, extending across Vertical Cables Ways fitted each side.



Plinth (PBPL) can be fitted to the bottom of the Panel Board, enabling it to be floor standing.

Please note: the Panel Board will still need to be bolted to a wall – it is **not** free standing.

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