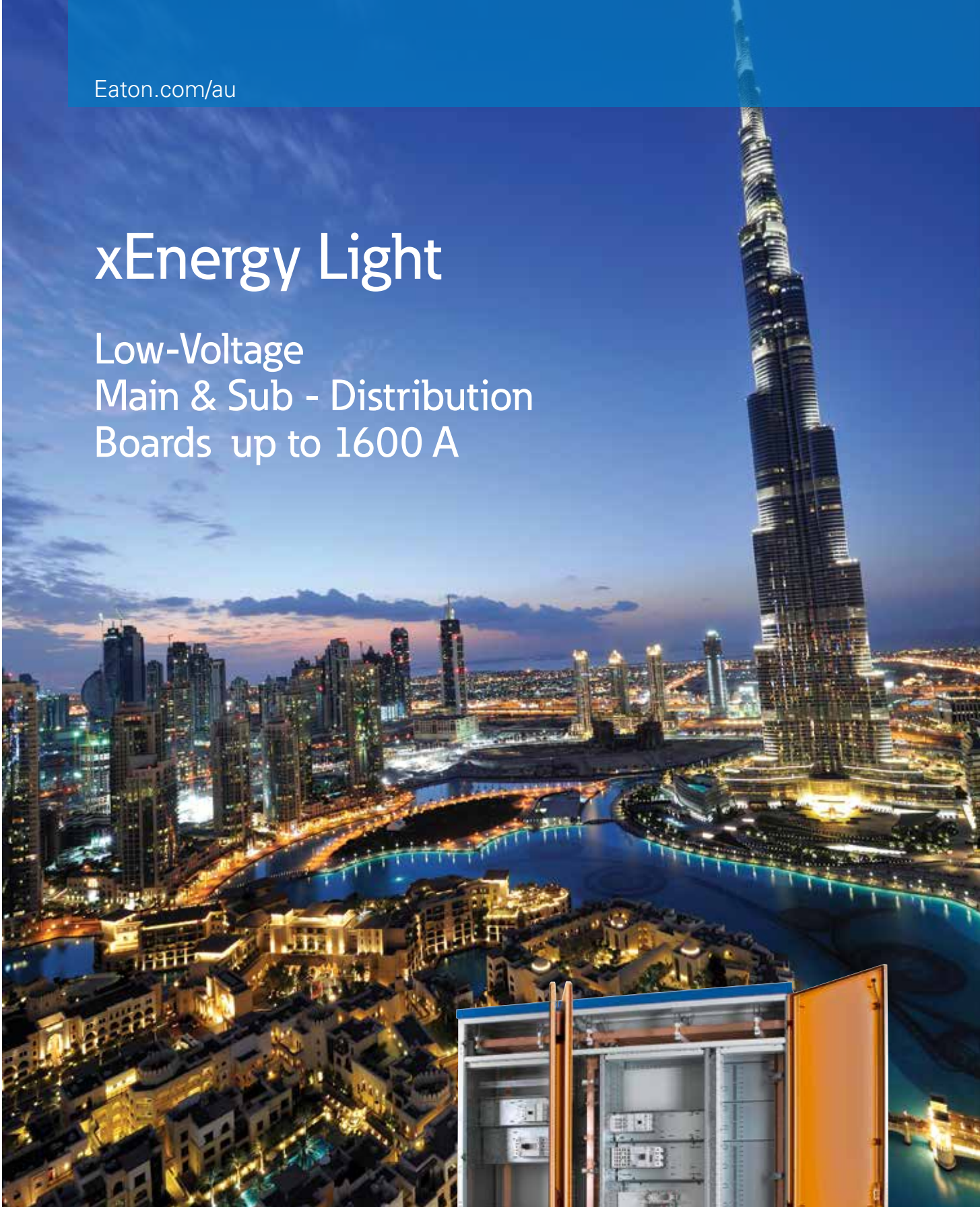


xEnergy Light

Low-Voltage
Main & Sub - Distribution
Boards up to 1600 A



Powering Business Worldwide



We make what matters work.*



At Eaton, we believe that power is a fundamental part of just about everything people do. That's why we're dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because this is what really matters. And we're here to make sure it works.

To learn more go to: [Eaton.com/whatmatters](https://www.eaton.com/whatmatters)

EATON

Powering Business Worldwide

We make what matters work.

xEnergy Light Distribution Boards

Contents of the systems

- **Chapter 1**
 - 1600 mm height.....Page 4
 - 2000 mm height.....Page 7

- **Chapter 2**
 - Busbar SystemPage 9

- **Chapter 3**
 - Technical DataPage 15








- **Chapter 4**
 - AppendixPage 28

1

xEnergy Light Distribution Boards








**xEnergy
Light**

1600 mm height, IP55

									
Height [mm]	Width [mm]	Depth [mm]	High profile (Set)	top plate bottom plate closed, material = sheet steel/ powder coated/ thickness=1,25mm, (IP55), with rubber sealing	Base frame	Side walls	Back-plate (IP55)	Door (IP55)	Glazed Doors (IP55)

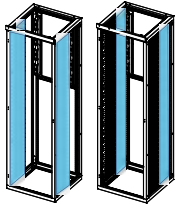
1600 mm height, IP55

1600	600	300	XLST563 114679	XLB0603 132928	XLSS163 114718	XLSR5166 114753	XLSD5S166 132942	XLSD5GS166 187996
		400	XLST564 284304	XLB0604 284234	XLSS164 114722			
	800	300	XLST583 114681	XLB0803 132930	XLSS163 114718	XLSR5168 114755	XLSD5S168 132943	XLSD5GS168 187997
		400	XLST584 284307	XLB0804 284237	XLSS144 114722			

									
Height [mm]	Width [mm]	Depth [mm]	High profile (Set)	top plate bottom plate closed, material = sheet steel/ powder coated/ thickness=1,25mm, (IP55), with rubber sealing	Base frame	Side walls	Back-plate (IP55)	Door (IP55)	Glazed Doors (IP55)

1600 mm height, IP55

1600	1000	300	XLST5103 114683	XLB1003 132932	XLSS163 114718	XLSR51610 114757	XLSD5S1610 132944 single wing	XLSD5GS1610 187998 single wing
		400	XLST5104 284310	XLB1004 284240	XLSS164 114722			
	1200	300	XLST5123 114685	XLB1203 132934	XLSS163 114718	XLSR51612 114759	XLSD5D1612 132946 double wing	
		400	XLST5124 284313	XLB1204 132935	XLSS164 114722			



wa_ren_07319



wa_ren_07319



wa_ren_07319



Height [mm]	Width [mm]	Depth [mm]	Field mounting kit right	Field mounting kit left	Add on partition to field mounting kit	Depth supporter for Basic Mounting Wall
-------------	------------	------------	--------------------------	-------------------------	--	---

Bus Bar Back 1600mm height

1600	600	400	XLFFR16 196213	XLFFL16 196857		
	800	400	XLFFR16 196213	XLFFL16 196857		

wa_ren_07419



wa_ren_07419



wa_ren_07419

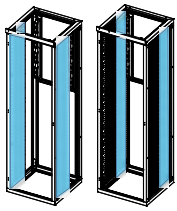


Height [mm]	Width [mm]	Depth [mm]	Mounting profile - height vertical profile in section height (assembling area) for bus bar top assemblies the vertical bar needs to be combined with an horizontal bar (XLASRD.S), so a reduction of 200 mm is possible, or in case of two bus bar (top and bottom) the full height needs to be reduced for 400 mm.	Mounting profile - depth profile in section depth needed in combination with field mounting Kit (XLFF1.) when bus bar top is in place. If two bus bars in place (top and bottom) two bars are required incl. screw material	Mounting profile - width vertical profile in section height (assembling area) for bus bar top assemblies the vertical bar needs to be combined with an horizontal bar (XLASRD.S), so a reduction of 200mm is possible, or in case of two bus bars (top and bottom) the full height needs to be reduced for 400 mm.
-------------	------------	------------	---	--	---

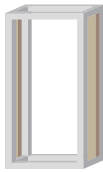
Bus Bar Back 1600mm height

1600	600	400		XLASRD4S 196220	
	800	400		XLASRD4S 196220	

Bus Bar Back 1600 mm height



wa_ren_07319



wa_ren_07319



wa_ren_07319



Height [mm]	Width [mm]	Depth [mm]	Field mounting kit right	Field mounting kit left	Add on partition to field mounting kit	Depth supporter for Basic Mounting Wall
-------------	------------	------------	--------------------------	-------------------------	--	---

Bus Bar Back 1600mm height

1600	1000	400	XLFFR16 196213	XLFFL16 196857		
	1200	400	XLFFR16 196213	XLFFL16 196857		

wa_ren_07419



wa_ren_07419





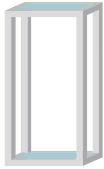

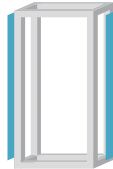


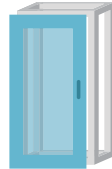
wa_ren_07419



Height [mm]	Width [mm]	Depth [mm]	Mounting profile - height vertical profile in section height (assembling area) for bus bar top assemblies the vertical bar needs to be combined with an horizontal bar (XLASRD.S), so a reduction of 200 mm is possible, or in case of two bus bar (top and bottom) the full height needs to be reduced for 400 mm.	Mounting profile - depth profile in section depth needed in combination with field mounting Kit (XLFF1.) when bus bar top is in place. If two bus bars in place (top and bottom) two bars are required incl. screw material	Mounting profile - width vertical profile in section height (assembling area) for bus bar top assemblies the vertical bar needs to be combined with an horizontal bar (XLASRD.S), so a reduction of 200mm is possible, or in case of two bus bars (top and bottom) the full height needs to be reduced for 400 mm.
-------------	------------	------------	--	---	--



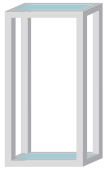

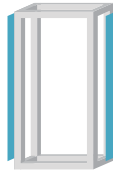


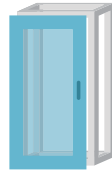
Basic Mounting Wall 1600 mm height

1600	1000	400		XLASRD4S 196220	
	1200	400		XLASRD4S 196220	

									
Height [mm]	Width [mm]	Depth [mm]	High profile (Set)	top plate bottom plate closed, material = sheet steel/ powder coated/ thickness=1,25mm, (IP55), with rubber sealing	Base frame	Side walls	Back-plate (IP55)	Door (IP55)	Glazed Doors (IP55)

2000 mm height, IP55

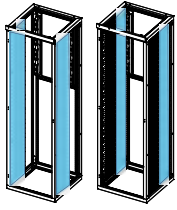
2000	600	300	XLST563 114679	XLB0603 132928	XLSS203 114717	XSWC2006 284356	XSDMC2006 284199	XSDMD2006 284204
		400	XLST564 284304	XLB0604 284234	XLSS144 283856			
	800	300	XLST583 114681	XLB0803 132930	XLSS203 114720	XSWC2008 284357	XSDMC2008 284200	XSDMD2008 284701
		400	XLST584 284307	XLB0804 284237	XAW2004 283856			

									
Height [mm]	Width [mm]	Depth [mm]	High profile (Set)	top plate bottom plate closed, material = sheet steel/ powder coated/ thickness=1,25mm, (IP55), with rubber sealing	Base frame	Side walls	Back-plate (IP55)	Door (IP55)	Glazed Doors (IP55)

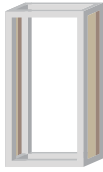
2000 mm height, IP55

2000	1000	300	XLST5103 114683	XLB1003 132932	XLSS203 114720	XSWC2010 284358	XSDMC2010 284201 single wing	XSDMD2010-S 143334 double wing
		400	XLST5104 284310	XLB1004 284240	XAW2004 283856			
	1200	300	XLST5123 114685	XLB1203 132934	XLSS203 114720	XSWC2012 284359	XSDMC2012-S 284202 double wing	XSDMD2012-S 143336 double wing
		400	XLST5124 284313	XLB1204 132935	XAW2004 283856			

Basic Mounting Wall



wa_ren_07319



wa_ren_07319



wa_ren_07319

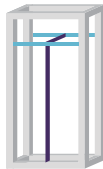


Height [mm]	Width [mm]	Depth [mm]	Field Mounting right	Field Mounting left	Add on Partition to Field Mounting	Depth supporter for Basic Mounting Wall
-------------	------------	------------	----------------------	---------------------	------------------------------------	---

Basic Mounting Wall 2000 mm height

2000	600	400	XLFFR20 196215	XLFFL20 196859	
	800	400	XLFFR20 196215	XLFFL20 196859	

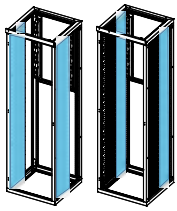
wa_ren_07419



Mounting profile - depth profile in section depth needed in combination with field mounting Kit (XLFF1.) when bus bar top is in place. if two bus bars in place (top and bottom) two bars are required incl. screw material

Basic Mounting Wall 2000 mm height

2000	600	400	XLASRD4S 196220		
	800	400	XLASRD4S 196220		



wa_ren_07319



wa_ren_07319



wa_ren_07319



Height [mm]	Width [mm]	Depth [mm]	Field Mounting right	Field Mounting left	Add on Partition to Field Mounting	Depth supporter for Basic Mounting Wall
-------------	------------	------------	----------------------	---------------------	------------------------------------	---

Basic Mounting Wall 2000 mm height

2000	1000	400	XLFFR20 196215	XLFFL20 196859	-	XLASRD4S 196220
	1200	400	XLFFR20 196215	XLFFL20 196859	-	XLASRD4S 196220

wa_ren_07419



wa_ren_07419



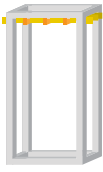
Mounting profile - height vertical profile in section height (assembling area) for bus bar top assemblies the vertical bar needs to be combined with an horizontal bar (XLASRD.S), so a reduction of 200 mm is possible, or in case of two bus bar (top and bottom) the full height needs to be reduced for 400 mm.

Mounting profile - depth profile in section depth needed in combination with field mounting Kit (XLFF1.) when bus bar top is in place. If two bus bars in place (top and bottom) two bars are required incl. screw material

XLASRH20 196186	XLASRD4S 1196220
	XLASRD4S 196220

Bus Bar Systems

wa_ren_09219

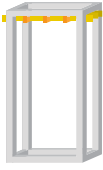


vt_14719



Height [mm]	Width [mm]	Depth [mm]	BBT Holder 2x20x10	BBT Holder 2x30x10
			1200A	1600A
			3 & 4 polig	3 & 4 polig
1600-2000				
600	400		XLABT20 196193	XLABT30 196194
800	400		XLABT20 196193	XLABT30 196194
1000	400		XLABT20 196193	XLABT30 196194
1200	400		XLABT20 196193	XLABT30 196194

wa_ren_09219



wa_vt15013



wa_ren_07619



Height [mm]	Width [mm]	Depth [mm]	xE Ligth BBT Supporter Section depth	xE Ligth BBT Supporter Section width	Fixing Profiles and Cover for BBT
-------------	------------	------------	--------------------------------------	--------------------------------------	-----------------------------------

size of the BusBar area is 200 mm

600	400	–		XBBB06 283860	XLASRW6 196205
800	400	–		XBBB08 283861	XLASRW8 196206
1000	400	–		XBBB10 177082	XLASRW10 196208
1200	400	–		XBBB11 133098	XLASRW12 196210

Bus Bar Systems

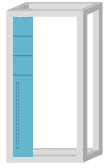
wa_ren_08519



wa_ren_08419



wa_ren_07819



Height [mm]	Width [mm]	Depth [mm]	DBB Holder 2x20x10 Dropper BusBar	DBB Holder 2x30x10 Dropper BusBar	DBB Holder 2x40x10 Dropper BusBar	DBB Holder 2x50x10 Dropper BusBar	DBB Holder 2x60x10 Dropper BusBar	DBB Cooper Supporter Endplate for all Dropper BusBar dimension	Dropper BusBar Frontcover
			1200A	1600A	1600A	1600A	1600A		size of the BusBar area is 200 mm
			3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	
1600-2000	300	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	425	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	600	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	650	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	800	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	850	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	1000	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419

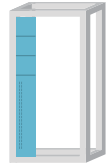
wa_ren_08519



wa_ren_08419



wa_ren_07819



Height [mm]	Width [mm]	Depth [mm]	DBB Holder 2x20x10 Dropper BusBar	DBB Holder 2x30x10 Dropper BusBar	DBB Holder 2x40x10 Dropper BusBar	DBB Holder 2x50x10 Dropper BusBar	DBB Holder 2x60x10 Dropper BusBar	DBB Cooper Supporter Endplate for all Dropper BusBar dimension	Dropper BusBar Frontcover
			1200A	1600A	1600A	1600A	1600A		size of the BusBar area is 200 mm
			3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	3 & 4 polig	
1600-2000	1100	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	1200	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419
	1350	400	XLAD20 196427	XLAD30 196428	XLAD40 196429	XLAD50 196430	XLAD60 196431	XLADE 196425	XLFGV220 196419

vt_19119



Height [mm]	Width [mm]	Depth [mm]	N Supporter flexible and rotatable adjustable		Insulated Shutter to N BBT	PE Supporter flexible and rotatable adjustable	
			vertical	horizontal		vertical	horizontal
600	400		XLSVN 196883	XLSHN 196887	XLSBST 196886	XLSVPE 196885	XLSHPE 196888
		600	XLSVPE 196884				
		800	end termination				
800	400		XLSVN 196883 196884	XLSHN 196887	XLSBST 196886	XLSVPE 196885	XLSHPE 196888
1000	400		XLSVN 196883 196884	XLSHN 196887	XLSBST 196886	XLSVPE 196885	XLSHPE 196888
			end termination				
1200	400		XLSVN 196883 196884	XLSHN 196887	XLSBST 196886	XLSVPE 196885	XLSHPE 196888
			end termination				

XP - Power sections

Incoming supplies, outgoers up to 1600 A

- Cable connection from the top and bottom
- Busbar positions rear-mounted - bottom/top mounted
- Section height 1600/2000 mm / section depth 400 mm
- Internal separations up to Form 4b

v115819



Air circuit breakers series IZMX16/40

- Widths of 600/800 mm
- Fixed or withdrawable
- 3 or 4 poles
- Up to 1600 A
- Up to Form 4b
- IP31, IP42, IP55 with IP2X protective cover
- Suitable for drill-free cable connection, can be installed at the top or bottom
- To be operated from outside

v117019



Compact circuit breakers NZM3/4 in Form 4

- Widths of 600/800 mm
- Fixed or withdrawable
- 3 or 4 poles
- 250 - 630 A (NZM3)
- 630 - 1600 A (NZM4)
- Up to Form 4b
- IP31, IP42, IP55
- Suitable for drill-free cable connection, can be installed at the top or bottom
- To be operated from outside
- Installation of two switching devices in one section is possible

XF - Outgoing sections - Fixed design

- Outgoers with circuit breakers PKZ, NZM, FAZ, switch fuse units and fuse switch disconnectors up to 630 A
- For busbar positions at the rear - top/bottom or running under the top panel
- Section height 1400, 1600, 1800, 2000 mm / section depth 400 mm

vt16719



Outgoing sections for outgoers up to 630 A in Form 2

- Widths of 600/800/1000 mm
- Module widths of 600 and 1200 mm
- 3 or 4 poles
- Form 2
- IP55
- Consistent mounting height of switchgear
- Circuit breakers suitable for use with plug base
- Single-wing section door up to 800/1000 mm, 2-wing door for 1200 mm
- Suitable for switchgear with remote operation
- Operation behind the door
- Dropper bar up to 1600 A

vt16119



Outgoing sections for fixed outgoers up to 630 A in Form 4

- Widths of 600/800/1000 mm
- Module widths of 600 and 1200 mm
- Each module comes with its own front panel
- 3 or 4 poles
- Up to Form 4b
- IP55
- Circuit breakers suitable for use with plug base
- Suitable for switchgear with remote operation
- Separate doors to switchgear area and connection area
- Transparent doors (glass doors) are possible
- Dropper bar up to 1600 A

XP Power sections XP for single ACBs of the IZMX16 up to 1600 A

For air circuit breakers IZMX16:

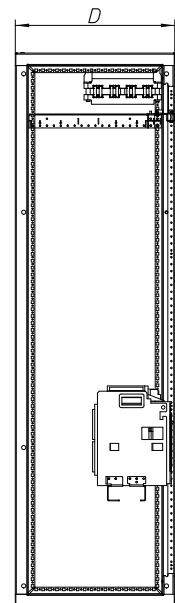
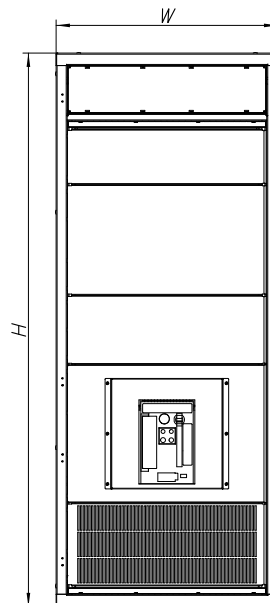
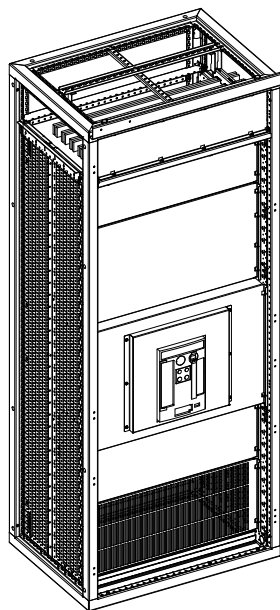
- In withdrawable design
- 3-pole, 4-pole (or 3P+N version)
- Sections can be realised as incoming, outgoing
- Optimal conditions for energy/transformer measurements
- Transformer straps integrated in the copper

Dimensions

- Section depth (D): 400 mm
- In addition, you can add a cable guidance cabinet at the back of the XP section
- Section width (W): 425, 600, 800 mm
- Section height (H): 1600/2000 mm, optionally with a plinth (x) of 100 or 200 mm

Main Busbar Top (MBT)

D = 400*) 600, 800 mm
***) IZMX16**



XP Power sections for single MCCB of the NZM3/4 up to 1600 A

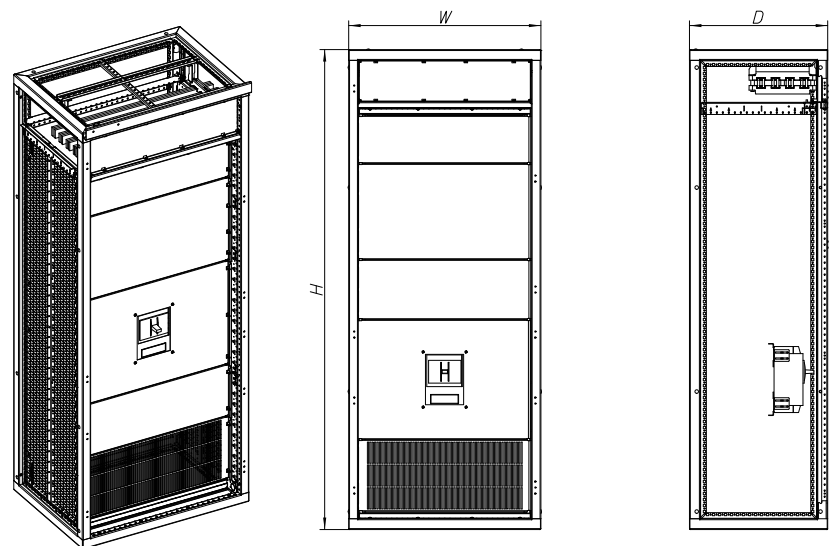
For NZM3/4 module circuit breakers:

- In fixed design
- In withdrawable design
- In 3-pole, 4-pole or as a 3P+N version
- Optional use of motor drive, rotary drive or mechanical lock a motor drive
- Can be used as a feeder, outgoing or coupler switch
- Transformer straps integrated into the copper connection
- Fitting kits/covers for IP55

Dimensions

- Section depth (D): 400 mm
- In addition, you can add a cable guidance cabinet at the back of the XP section
- Section width (W): 600/800 mm
- Section height (H): 1600/2000 mm, optionally with a plinth of (x) 100 or 200 mm

Main Busbar Top (MBT)



Main busbar

- possible positions: top, middle, bottom

Technical Data

Enclosure Data

Degree of protection	IP31, IP42 and IP55 with closed doors IP2XB with open doors
Mechanical impact	IK10 for steel covers/doors
Form of separation	Up to Form 4b (IEC 61439-2 Annex AA) Up to Form 4b, Type 6 (BS EN 61439-2 Annex AA)
Type of enclosure	Metal
Cable connection	Top and bottom
Lock mechanism	Espagnolette lock with 2 or 4-point locking and turn-lock 3 mm two-way key bit
Sheet steel thickness	Door and frame = 2 mm, Rear, side and top panels = 1.5 mm

Busbar systems Data

Rated voltage (U_n):	400/415 V
Rated frequency (f):	50/60 Hz

Main busbars back and top (MBB, MBF, MBT)

ACB feeder/outgoing units and Distribution busbars XF

(fixed outgoing section):

Rated current (I_{nA})	Up to 1600 A
Short circuit withstand rating (I_{cw})	Up to 66 kA /1,0 s;
Short circuit conditional rating (I_{cc})	Up to 66 kA at 415 V;
Rated insulation voltage (U_i)	1000 V
Rated impulse withstand voltage (U_{imp})	12 kV

Fixed units XF (fixed MCCB's)

Rated current (I_{nA})	Up to 1600 A
Short circuit conditional rating (I_{cc})	Up to 66 kA at 415 V
Rated insulation voltage (U_i)	690 / 1000 V
Rated impulse withstand voltage (U_{imp})	Up to 6 / 8 kV

Environmental Data

Operation temperature range	-5...35°C average; 40°C peak
Humidity	50 % at 40°C (non-condensing), 90% at 20°C (non-condensing)
Altitude	2000 m
Pollution degree	3
Indoor/outdoor operation	Indoor
EMC environment (imm./em)	Environment A

Summary of design verification

The verification of the low-voltage switchgear and control gear assembly is done in conformity with IEC/EN continue with IEC 61439 and complies with all clauses listed below.

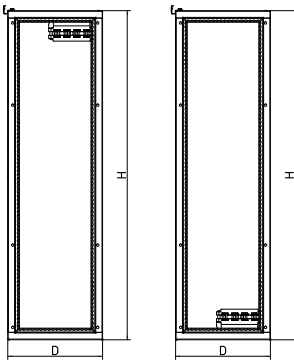
Construction	
Clause 10.2	Strength of materials and parts
Clause 10.2.2	Verification of resistance to corrosion
Clause 10.2.3	Properties of insulating materials
Clause 10.2.5	Lifting
Clause 10.2.6	Mechanical impact
Clause 10.2.7	Marking
Clause 10.3	Degree of protection of assembly
Clause 10.4	Clearances and creepage distances
Clause 10.5	Protection against electric shock and integrity of protective circuits
Clause 10.6*	Incorporation of switching devices and components
Clause 10.7	Internal electrical circuits and connections
Clause 10.8	Terminals for external conductors
Performance	
Clause 10.9	Dielectric properties
Clause 10.10	Verification of temperature rise
Clause 10.10.2.3.7	Verification considering individual functional units and the main and distribution busbars separately as well as the complete assembly
Clause 10.11	Short-circuit withstand strength
Clause 10.12	Electromagnetic compatibility (EMC)
Clause 10.13	Mechanical operation
Remark	
The design verification was executed at the Prof. Ir Damstra Laboratory in Hengelo/Netherlands and also by I ² PS Laboratory in Bonn/Germany.	
Original Manufacturer:	Eaton Industries GmbH, Austria.
Documentation for ASSEMBLY:	see www.eaton.com
	IL - Assembly manuals for metal construction
	BA - Assembly manuals for busbar connections
	Test results for design verification

**Main Busbar Top (BBT)
Dropper busbar (DBB)**

vt14719



**Busbar holder type:
XLABT**



Back top and back bottom position

**Dimensions of busbars:
[mm]**

- 2 x 20 x 10
- 2 x 30 x 10
- 2 x 40 x 10
- 2 x 50 x 10
- 2 x 60 x 10

**60 x 10 mm
Copper bar**

Support Distance [mm]	I _{cw} [kA]
350	66.0
400	55.9
450	48.5
500	43.0
550	38.5
600	35.0
650	32.0
700	29.3
750	27.0
800	25.2

**50 x 10 mm
Copper bar**

Support Distance [mm]	I _{cw} [kA]
350	57.4
400	50.0
450	44.0
500	38.7
550	34.1
600	30.5
650	27.9
700	25.5
750	23.7
800	21.9

**40 x 10 mm
Copper bar**

Support Distance [mm]	I _{cw} [kA]
350	50.0
400	43.6
450	37.9
500	33.2
550	29.2
600	26.3
650	23.9
700	22.2
750	20.3
800	18.7

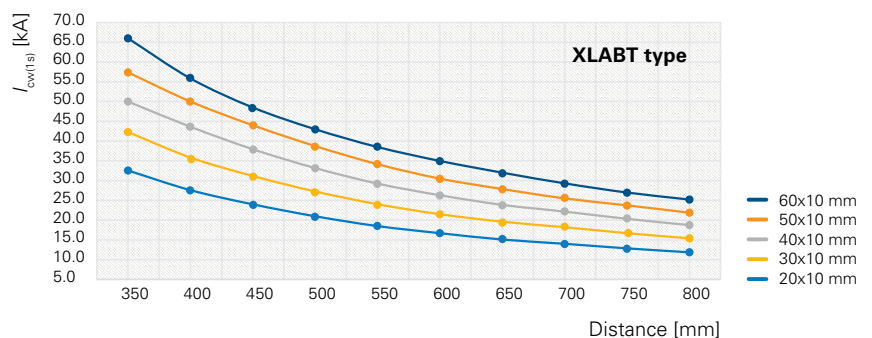
**30 x 10 mm
Copper bar**

Support Distance [mm]	I _{cw} [kA]
350	42.3
400	35.8
450	31.2
500	27.3
550	24.0
600	21.5
650	19.6
700	18.2
750	16.7
800	15.4

**20 x 10 mm
Copper bar**

Support Distance [mm]	I _{cw} [kA]
350	32.6
400	27.6
450	24.0
500	21.0
550	18.5
600	16.7
650	15.1
700	14.0
750	12.9
800	11.9

Rated short-circuit withstand current I_{cw(1s)}



Main Busbar Top (BBT) in top and bottom position

Phase busbar	Cross section [mm]			Main busbar rated at 25°C		Main busbar rated at normal ambient (35°C)		Main busbar rated at 50°C		Short circuit withstand strength		Supporter	
	Neutral busbar (phase busbar supporter)	Neutral busbar turnable ¹⁾	PE busbar (min.)	Ventilated	Non vent.	Ventilated	Non vent.	Ventilated	Non vent.	I _{cw} (1s)	I _{pk}	Supporter distance	Phase distance
				IP31/IP42	IP55	IP31/IP42	IP55	IP31/IP42	IP55				
	[mm]	[mm]	[mm]	[A]	[A]	[A]	[A]	[A]	[A]	[kA]	[kA]	[mm]	[mm]
2x60x10										66	145,2	350 ³⁾	60
	2x60x10			1600	1600	1600	1600	1600	1600	66	145,2	350 ³⁾	60
		2x60x10								60	132	375	min. 415 ²⁾
			1x40x10							39,6	83,15	375	n.a
2x50x10										57	125,4	350 ³⁾	60
	2x50x10			1600	1600	1600	1600	1600	1490	57	125,4	350 ³⁾	60
		2x50x10								60	132	375	min. 415 ²⁾
			1x40x10							39,6	83,15	375	n.a
2x40x10										50	105	350 ³⁾	60
	2x40x10			1600	1500	1600	1425	1600	1275	50	105	350 ³⁾	60
		2x40x10								51	112,2	375	min. 415 ²⁾
			1x30x10							n.a	n.a	n.a	n.a
2x30x10										42	88,2	350 ³⁾	60
	2x30x10			1600	1230	1480	1170	1355	1045	42	88,2	350 ³⁾	60
		2x30x10								49,9	104,8	375	min. 415 ²⁾
			1x30x10							n.a	n.a	n.a	n.a
2x20x10										32,6	68,4	350 ³⁾	60
	2x20x10			1245	960	1150	910	1055	815	32,6	68,4	350 ³⁾	60
		2x20x10								33,8	71	375	min. 415 ²⁾
			1x20x10							n.a	n.a	n.a	n.a

Notes:

- 1) for XLSHN (separate N-Supporter)
- 2) minimum distance to the next phase
- 3) bolt between the supporter

n.a. - not applicable

N Busbar (rotatable)

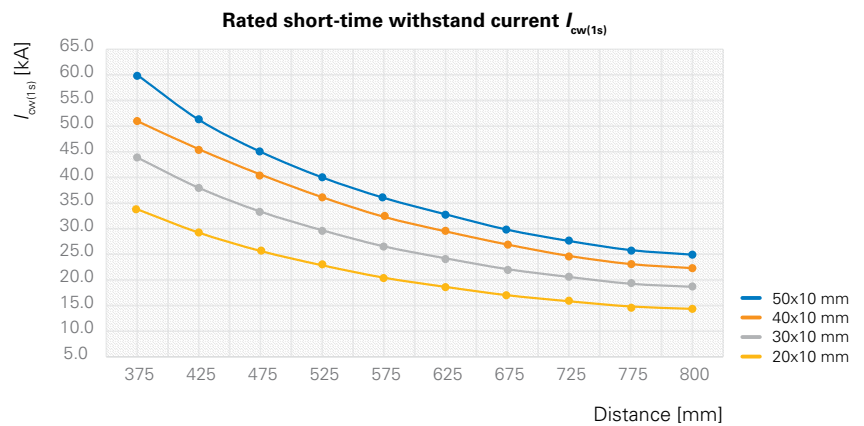


Copper bar [mm]	Distance [mm]	I_{cw} [kA]
50x10mm	375	60.0
50x10mm	425	51.2
50x10mm	475	45.0
50x10mm	525	40.0
50x10mm	575	36.0
50x10mm	625	32.8
50x10mm	675	29.8
50x10mm	725	27.6
50x10mm	775	25.8
50x10mm	800	24.9

Copper bar [mm]	Distance [mm]	I_{cw} [kA]
40x10mm	375	51.0
40x10mm	425	45.5
40x10mm	475	40.6
40x10mm	525	36.1
40x10mm	575	32.3
40x10mm	625	29.5
40x10mm	675	26.9
40x10mm	725	24.7
40x10mm	775	23.1
40x10mm	800	22.3

Copper bar [mm]	Distance [mm]	I_{cw} [kA]
30x10mm	375	43.9
30x10mm	425	38.0
30x10mm	475	33.3
30x10mm	525	29.7
30x10mm	575	26.6
30x10mm	625	24.2
30x10mm	675	22.1
30x10mm	725	20.6
30x10mm	775	19.3
30x10mm	800	18.7

Copper bar [mm]	Distance [mm]	I_{cw} [kA]
20x10mm	375	33.8
20x10mm	425	29.2
20x10mm	475	25.7
20x10mm	525	22.9
20x10mm	575	20.4
20x10mm	625	18.6
20x10mm	675	17.0
20x10mm	725	15.8
20x10mm	775	14.8
20x10mm	800	14.4



Vertical / Dropper Busbar system (DBB) for XF connected to Main Busbar Top (MBT)

Connected with solid copper

Cross section [mm]			Main busbar rated at 25°C		Main busbar rated at normal ambient (35°C)		Main busbar rated at 50°C		Short circuit withstand strength		Supporter						
Phase Busbar	Neutral Busbar	PE Busbar	Ventilated IP31/IP42	Non vent. IP55	Ventilated IP31/IP42	Non vent. IP55	Ventilated IP31/IP42	Non vent. IP55	I _{cw} (1s)	I _{pk}	Supporter distance	Phase distance					
[mm]	[mm]	[mm]	[A]	[A]	[A]	[A]	[A]	[A]	[kA]	[kA]	[mm]	[mm]					
2x60x10			1600	1600	1600	1600	1600	1600	66	145,2	350	60					
	2x60x10													39,6	83,15	350	60
		1x60x10												39,6	83,15	400	n.a
2x50x10			1600	1600	1600	1600	1600	1495	57	125,4	350	60					
	2x50x10													34,2	71,8	350	60
		1x50x10												39,6	83,15	400	n.a
2x40x10			1600	1600	1600	1600	1600	1275	50	105	350	60					
	2x40x10													30	63	350	60
		1x40x10												n.a	n.a	400	n.a
2x30x10			1510	1200	1450	1170	1350	1050	42	88,2	350	60					
	2x30x10													25,4	52,9	350	60
		1x30x10												n.a	n.a	n.a	n.a
2x20x10			1175	935	1130	910	1055	815	32,6	68,4	350	60					
	2x20x10													19,5	39,1	350	60
		1x30x10												n.a	n.a	n.a	n.a

Notes:

1) bolt between the supporter

n.a. - not applicable

Busbar holder type:**XLABT**

[mm]

2 × 20 × 10

2 × 30 × 10

2 × 40 × 10

2 × 50 × 10

2 × 60 × 10

Connection between top busbars (MBT) and dropper busbars (DBB)

The power section XP with Air Circuit Breaker (ACB) ACBs

Type of ACB Form 4b	Size of enclosure [mm]	Busbar connection [mm]	Main busbar rated at 25°C		Main busbar rated at normal ambient (35°C)		Main busbar rated at 50°C		Short circuit strenght	
			Ventilated	Non vent.	Ventilated	Non vent.	Ventilated	Non vent.	lcw	lcc
			IP31/IP42	IP55	IP31/IP42	IP55	IP31/IP42	IP55	1 s	at 415 V
[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[kA]	[kA]	
IZMX 16 800A	425 x 400 x 1600	2x50x10 (L1/L3) 2x60x10 (L2)	800	800	800	800	800	800	42	50 ¹⁾
IZMX 16 1000A	425 x 400 x 1600	2x50x10 (L1/L3) 2x60x10 (L2)	1000	1000	1000	1000	1000	1000	42	50 ¹⁾
IZMX 16 1250A	425 x 400 x 1600	2x50x10 (L1/L3) 2x60x10 (L2)	1250	1240	1250	1190	1175	1050	42	50 ¹⁾
IZMX 16 1600A	425 x 400 x 1600	2x50x10 (L1/L3) 2x60x10 (L2)	1400	1240	1300	1190	1175	1050	42	50 ¹⁾
IZMX 40 800A	600 x 600 x 1800	1x80x10	800	800	800	800	800	800	66	66
IZMX 40 1000A	600 x 600 x 1800	1x80x10	1000	1000	1000	1000	1000	1000	66	66
IZMX 40 1250A	600 x 600 x 1800	1x80x10	1250	1250	1250	1250	1250	1250	66	66
IZMX 40 1600A	600 x 600 x 1800	1x80x10	1600	1600	1600	1600	1550	1516	66	66

Power section XP with ACB up to 1600 A (IZMX16 series)



The power section XP with Moulded Case Circuit Breaker (MCCB)

Type of MCCB Form 4b	Fixed / withdrawable	Minimal size of enclosure WxDxH [mm]	Busbar connection [mm]	Main busbar rated at 25°C		Main busbar rated at normal ambient (35°C)		Main busbar rated at 50°C		Short circuit strenght	
				Ventilated	Non vent.	Ventilated	Non vent.	Ventilated	Non vent.	lcw	lcc
				IP31/IP42	IP55	IP31/IP42	IP55	IP31/IP42	IP55	1 s	at 415 V
[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[kA]	[kA]	
NZM 3 250 A	fixed	425 x 400 x 1400	1x30x10	250	250	250	250	250	250	3,3	66
NZM 3 400 A	fixed	425 x 400 x 1400	1x30x10	400	400	400	400	400	400	3,3	66
NZM 3 500 A	fixed	425 x 400 x 1400	1x30x10	500	500	500	500	500	400	3,3	66
NZM 3 630 A	fixed	425 x 400 x 1400	1x30x10	602	529	559	559	518	400	3,3	66
NZM 3 250 A	withdrawable	425 x 400 x 1400	1x30x10	250	250	250	250	250	250	3,3	66
NZM 3 400 A	withdrawable	425 x 400 x 1400	1x30x10	400	400	400	400	400	348	3,3	66
NZM 3 630 A	withdrawable	425 x 400 x 1400	1x30x10	524	460	486	486	451	348	3,3	66
NZM 4 630 A	fixed	425 x 400 x 1400	2x50x10	630	630	630	630	630	630	19,2	50
NZM 4 800 A	fixed	425 x 400 x 1400	2x50x10	800	800	800	800	800	800	19,2	50
NZM 4 1000 A	fixed	425 x 400 x 1400	2x50x10	1000	1000	1000	1000	1000	811	19,2	50
NZM 4 1250 A	fixed	425 x 400 x 1400	2x50x10	1250	1250	1250	1088	1088	811	19,2	50
NZM 4 1600 A	fixed	425 x 400 x 1400	2x50x10	1350	1350	1260	1088	1088	811	19,2	50
NZM 4 630 A	withdrawable	425 x 400 x 1400	2x50x10	630	630	630	630	630	630	19,2	50
NZM 4 800 A	withdrawable	425 x 400 x 1400	2x50x10	800	800	800	800	800	795	19,2	50
NZM 4 1000 A	withdrawable	425 x 400 x 1400	2x50x10	1000	1000	1000	1000	1000	795	19,2	50
NZM 4 1250 A	withdrawable	425 x 400 x 1400	2x50x10	1250	1250	1250	1066	1066	795	19,2	50
NZM 4 1600 A	withdrawable	425 x 400 x 1400	2x50x10	1323	1323	1235	1066	1066	795	19,2	50

Distribution sections XF fixed type, outgoing units with single MCCB outgoing units

Outgoing module [nominal rating]	Rated currents at normal ambient 35°C [A]			Rated currents at 50°C [A]			Rated conditional short-circuit current I _{cc} at 415V [kA]
	Ventilated	Non vent.		Ventilated	Non vent.		
	IP31 top vent.	IP42 top vent.	IP55	IP31 top vent.	IP42 top vent.	IP55	
NZM1 – feeder	130	130	116	100	100	90	50
NZM2 – feeder	210	210	176	176	176	176	80
NZM3 – feeder (flexibar)	430	420	280	340	340	280	80

System Overview

Eaton Online Catalog - find product details quickly and efficiently!

You can find comprehensive up-to-date product information at <http://ecat.eaton.com/catalog>

Online Catalogue

Lookup

You can search by keywords, product names, article numbers, technical data: The search understands everything and takes you straight to the product you're looking for.

Graphical navigation

Graphical representation of the fields of application and product groups.

Selection aids

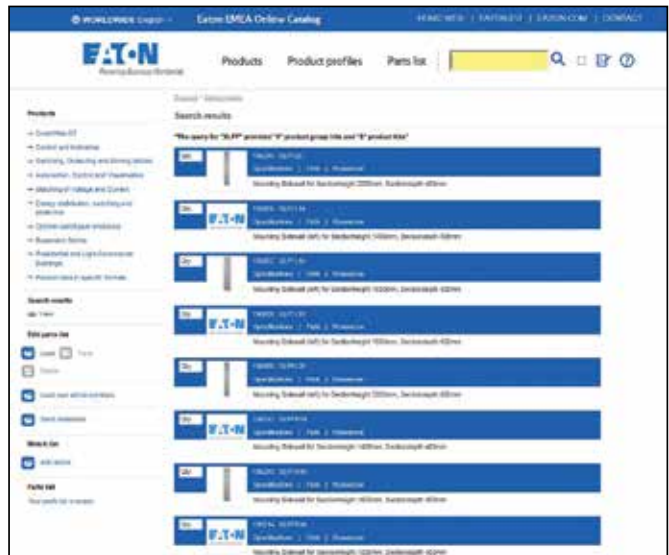
Tailored to the typical expert's approach, this search aid helps you quickly find the product you need.

Data sheets

For every article the catalog can generate a technical data sheet, which you can convert to a PDF file for printing or saving with a single click.

Parts lists

From your search results you can create a parts list that you can then send to your Eaton sales partner as a query.



Parts list, e.g. for queries to Eaton Sales.

Eaton xEnergy Configurator - makes it easy to configure your product!

The Eaton configurator helps you by assembling the switchboard systems by keeping all standards.

If you are interested, please contact your local Eaton representative.



Eaton Temperature Calculator Tool - temperature rise verification by calculation!

Calculating the temperature rise within the switchgear and controlgear assembly: Calculate power loss of all circuits including the internal conductor on the basis of the rated current. Power loss of the switchgear and controlgear assembly is calculated by adding up the power losses of the circuit (total load current is limited to the rated current of the switchgear and controlgear assembly).



Design verification

The purpose of a design verification is to verify that the design of the switchgear and controlgear assembly meets the requirements of IEC 61439 standard. If the switchgear and controlgear assembly has been tested in accordance with the IEC 61439 by original manufacturer and the test results meet the respective requirements, the corresponding requirements do not need to be verified again by assembly manufacturer.

The three different verification options are available:

- Testing
- Comparison with reference design (derivation from similar tested variants)
- Assessment (calculations).

If the switchgear and controlgear assembly has been tested in accordance with the IEC 61439 series of standards, and the test results meet the requirements in the applicable part of IEC 61439, the corresponding requirements do not need to be verified again.

Low-voltage switchgear and controlgear assemblies

Low-voltage switchgear and controlgear assemblies are classified as electrical equipment because they contain power switches, circuit breakers, residual current circuit breakers, wires, terminals, etc.

Basic standards related to low-voltage assemblies

- IEC 62208 Empty enclosures for low-voltage switchgear and controlgear assemblies
- IEC 61439 Low-voltage switchgear and controlgear assemblies
- IEC 60529 Degrees of protection provided by enclosures (IP code)
- IEC 62262 Degrees of protection provided by enclosures regarding external mechanical impact (IK code)
- IEC 60364-4-41 Protection against electric shock.
- etc.

IEC 62208 applies to empty enclosures and specifies general definitions, classifications, characteristics and test requirements of enclosures to be used as part of switchgear and controlgear assemblies (in accordance with the IEC 61439 series).

Compliance with the safety requirements of the applicable product standard is the responsibility of the assembly manufacturer.

Note: The term “enclosure” is used for empty enclosure. Alternative terms are boxes, cubicles, desks or cabinets for enclosures.

IEC 61439 applies to low-voltage switchgear and controlgear assemblies.

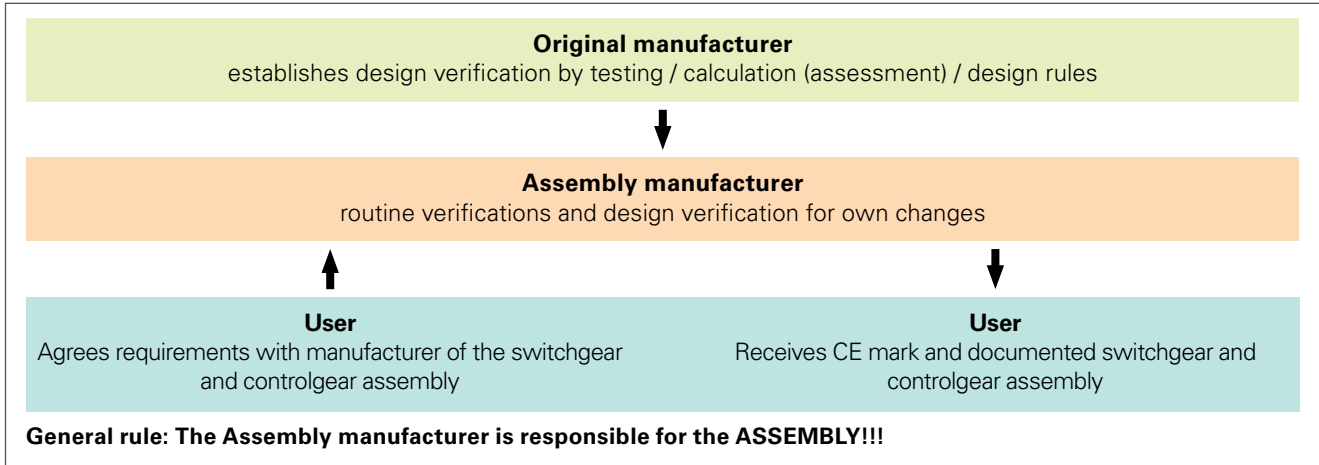
The IEC 61439 standard contains several parts:

- **IEC 61439-1 General rules**
- **IEC 61439-2 Power switchgear and controlgear assemblies (PSC)**
- **IEC 61439-3** Distribution boards intended to be operated by ordinary persons (DBO)
- **IEC 61439-4** Particular requirements for assemblies for construction sites (ACS)
- **IEC 61439-5** Assemblies for power distribution in public networks
- **IEC 61439-6** Busbar trunking systems / busways (BTS)
- **IEC 61439-7** Assemblies for specific applications such as marinas, camping sites, market squares, electrical vehicles charging stations

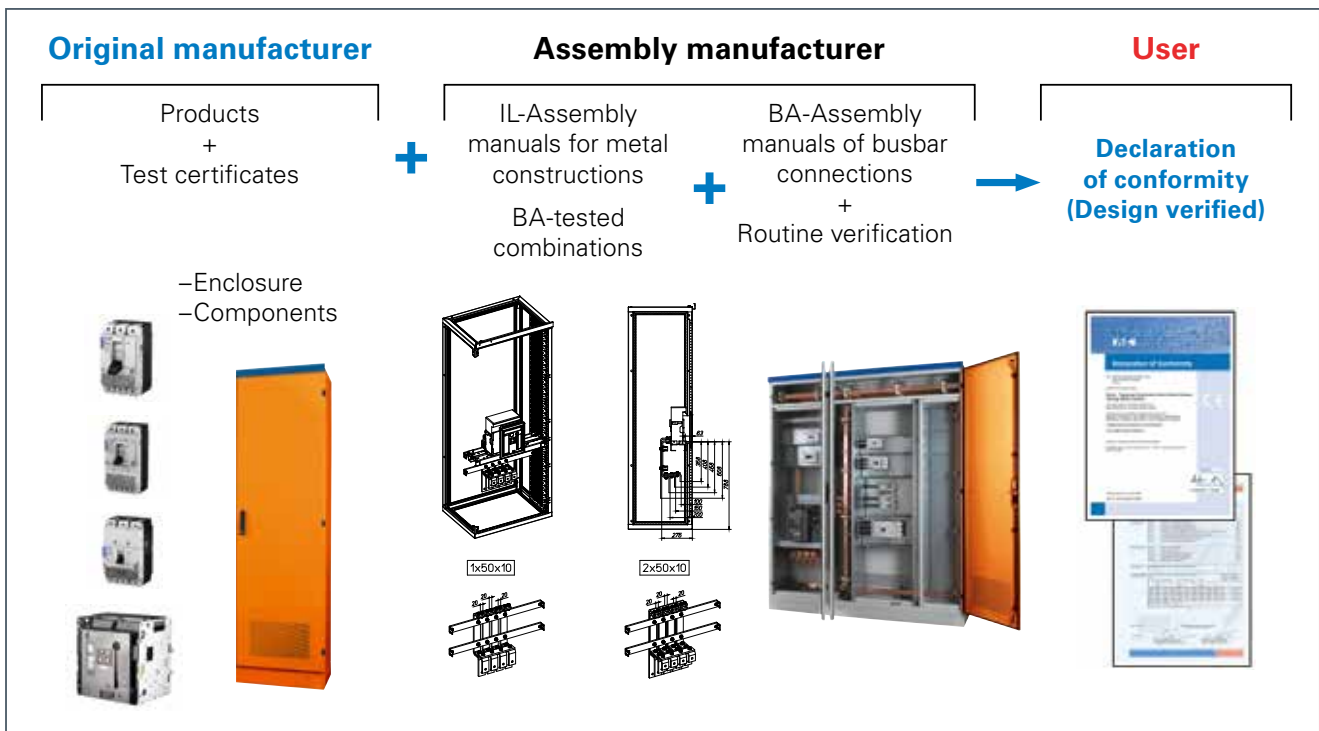
Additionally is available also IEC/TR 61439-0 Guidance to specifying assemblies. This Technical Report (Planning Guide) explains the series of standards IEC 61439 (Part 1-7).

Responsibility of manufacturers and users according to IEC 61439-1/2

In order to have clear a definition of roles in the assembly process, it is necessary to respect the basic definition of the responsibilities of the Original manufacturer, Assembly manufacturer and User.



Responsibilities and tasks of the Original manufacturer, Assembly manufacturer and User



System name: xEnergy Light
Original manufacturer: Eaton
Assembly manufacturer: Panel builder

xEnergy Light as an example of assembly responsibilities

Characteristic to be verified		Verification options available		
		Testing	Comparison with reference design	Assessment (Calculations)
10.2	Strength of material and parts	Yes	No	No
10.3	Degree of protection of enclosures	Yes	No	Yes
10.4	Clearances and creepage distances	Yes	Yes	Yes
10.5.2	Effective continuity between parts and PE	Yes	No	No
10.5.3	Effectiveness of the ASSEMBLY for external faults	Yes	Yes	No
10.6	Incorporating of apparatus	No	No	Yes
10.7	Internal electrical circuits and connections	No	No	Yes
10.8	Terminals for external conductors	No	No	Yes
10.9.2	Power frequency withstand voltage	Yes	No	No
10.9.3	Impulse withstand voltage	Yes	No	Yes
10.10	Temperature rise limits	Yes	Yes	Yes
10.11	Short-circuit withstand strength	Yes	Yes	No
10.12	EMC	Yes	No	Yes
10.13	Mechanical operation	Yes	No	No

List of Design Verifications (according to IEC 60439-1)

Design verification can be split to:

- a) construction (cl. 10.2 - cl. 10.8)
- b) performance (cl. 10.9 - cl. 10.13)

The most important design verifications are:

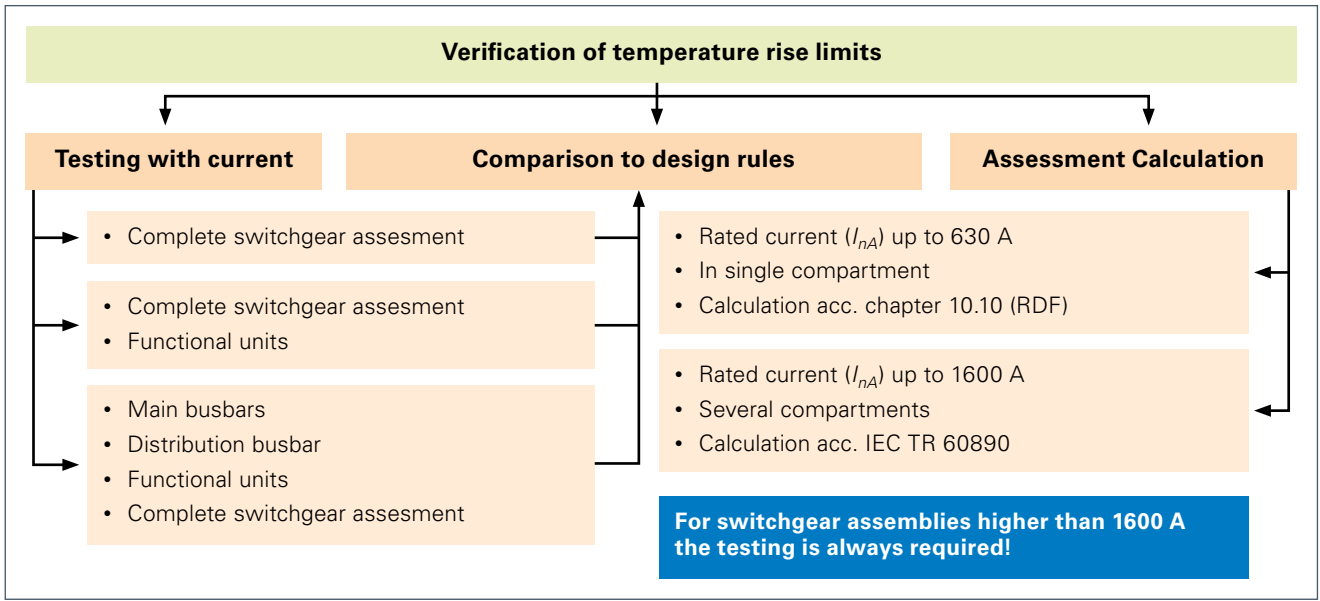
- Temperature rise limits (clause 10.10 of IEC 61439-1)
- Short-circuit rating, applicable also for replacing of protective devices (clause 10.11)

Verification of temperature rise limit (clause 10.10)

A heat dissipation capability of enclosure is depending mainly on IP rating (Ventilation), arrangement or size of enclosure and on ambient temperature. The original manufacturer must verify that the heat generated in the switchgear and controlgear assembly do not exceed the upper allowed limits.

Three different methods of temperature rise verification are allowed (see the table: List of design verifications):

- a) Testing with current
- b) Comparison with reference design (derivation from similar tested variants)
- c) Assessment (calculations)



Verification of temperature rise limits (IEC 61439-2)

Rated Diversity Factor (RDF) for single compartments up to 630 A

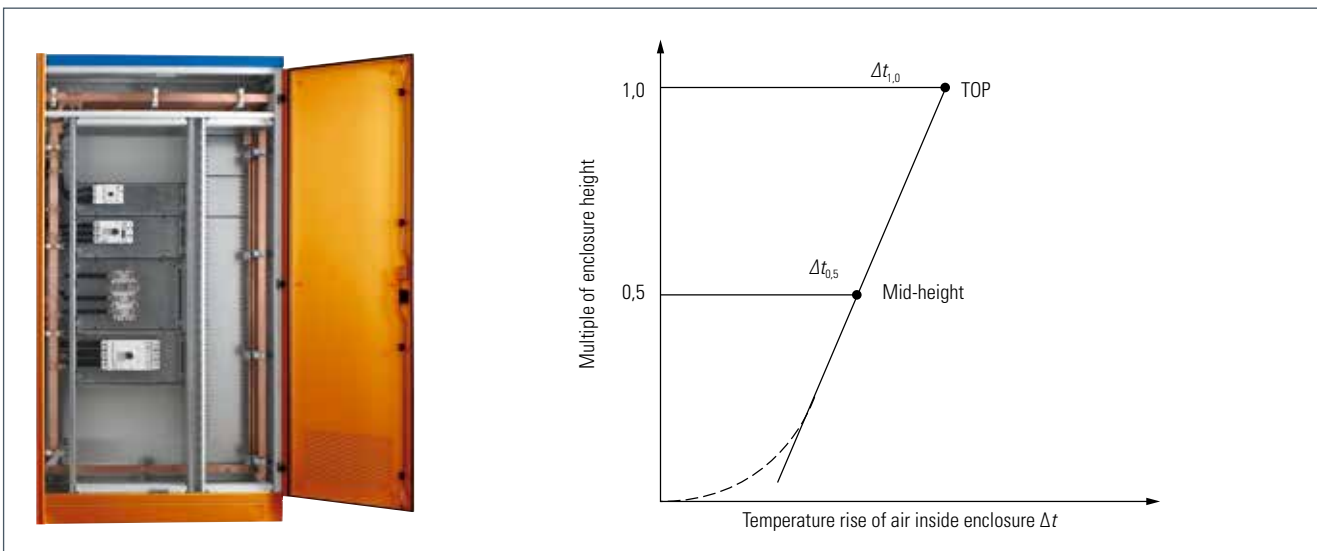
In practice it is recognised that not all circuits in an assembly operate at rated current continuously and this allows efficient use of materials and resources. It can be declared for groups of circuits or for the whole assembly.

The RDF must be assigned by the assembly manufacturer. If not specified, it is assumed to be equal to 1.

Type of load / number of outgoing circuits	Assued load factor
Energy distribution: 2 and 3	0.9
Energy distribution: 4 and 5	0.8
Energy distribution: 6 up to and including 9	0.7
Energy distribution: 10 (and more)	0.6
Electric actuator	0.2
Motors \leq 100 kW	0.8
Motors $>$ 100 kW	1.0

Rated diversity factors values for the assumed load (IEC 61439-2)

Calculation according to IEC TR 61439



Example of temperature-rise curve for enclosures with specified effective cooling surface ($A_e > 1,25 \text{ m}^2$), in accordance with IEC TR 60890

Derating of protective devices

Rated values of protective devices are tested on open air (without any cover) according to test conditions written in respective product standards (e.g. NZM3 has rated current $I_n = 630$ A on open air). The IP degree of protection of a switchboard and various ambient temperature of electrical device decreasing efficient ventilation and has a direct impact on its heat dissipation.

The higher the IP degree of protection, the less heat is able to dissipate. Thus, the temperature inside the switchboard will rise.

Power loss of electrical devices and other current carrying elements needs to be equal or less the heat dissipation of the enclosure.

Generally, the internal temperature in the control panel is the ambient temperature of the electrical device. To maintain the temperature inside the switchboard within the operating limits of the devices, it may be necessary to limit the permissible current carried by the devices. This is called derating.

The original manufacturer provides tables that describe performance of enclosures, devices depending on the switchboard characteristics and environmental conditions.

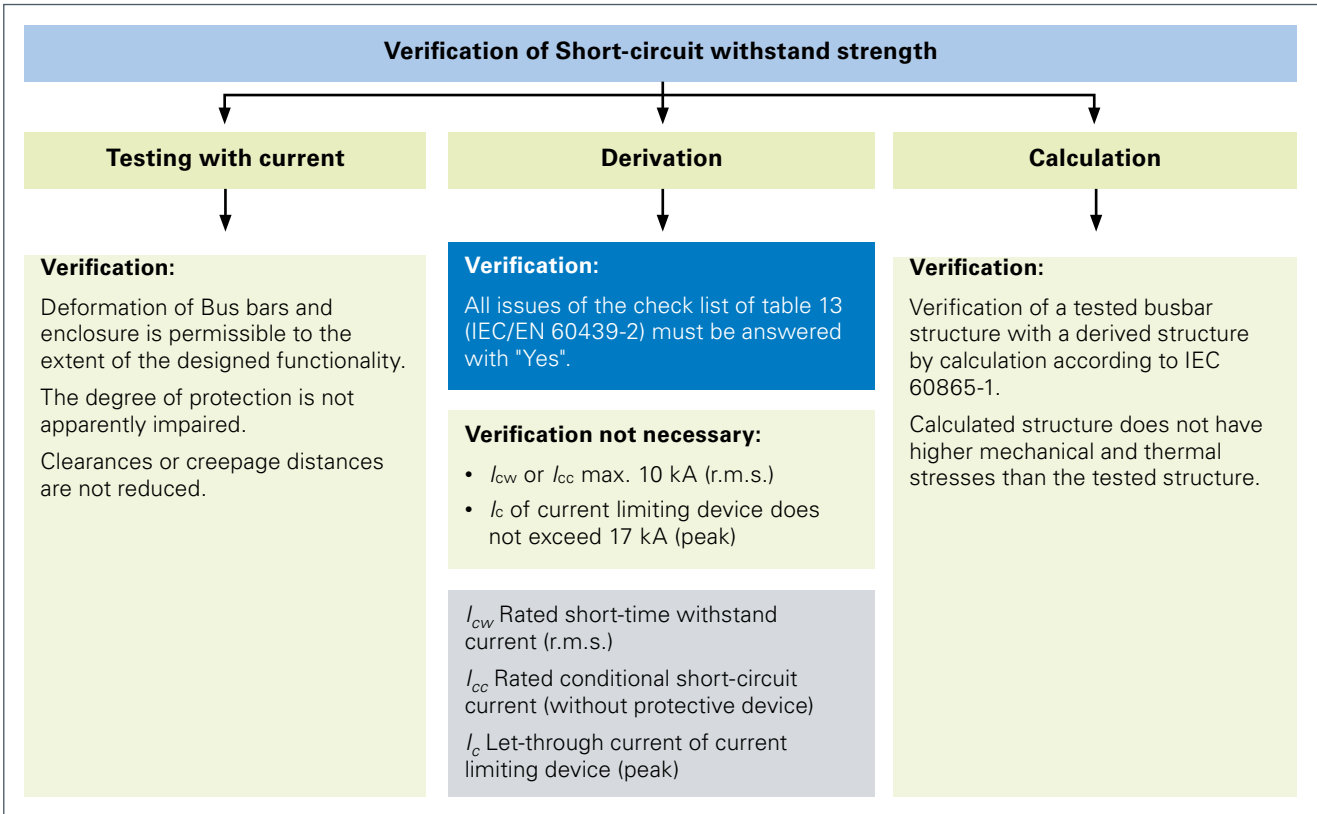
The assembly manufacturer must follow the published derating values.

Verification of short circuit-current strength

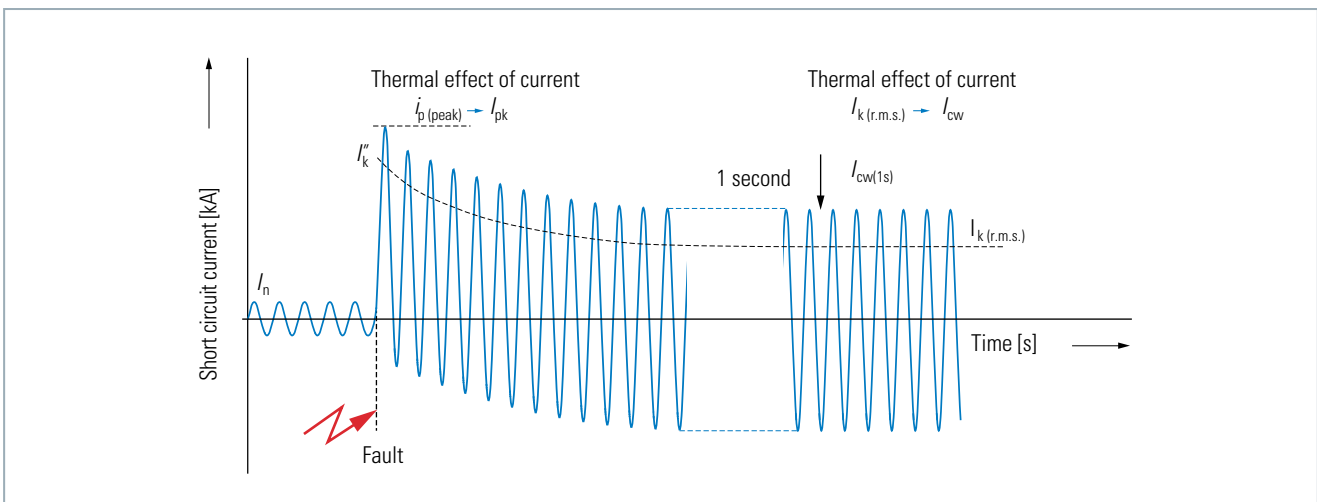
The verification of the short circuit withstand strength (IEC 61439-2) is required for all circuits of an assembly with exception of:

1. An assembly having a rated short-time withstand current (I_{cw}) or rated conditional short circuit current (I_{cc}) not exceeding 10 kA (r.m.s.).
2. An assembly protected by current-limiting devices having a limited current (cut-off current for fuses) not exceeding 17 kA (peak) at the maximum permitted prospective short-circuit current at the terminals of the incoming circuit of the assembly.

Note: IEC 61439 specifies exception also for auxiliary circuits intended to be connected to transformers the rated power of which does not exceed 10 kVA for a rated secondary voltage of not less than 110 V, or 1.6 kVA for a rated secondary voltage less than 110 V, and the short circuit impedance of which is not less than 4%.

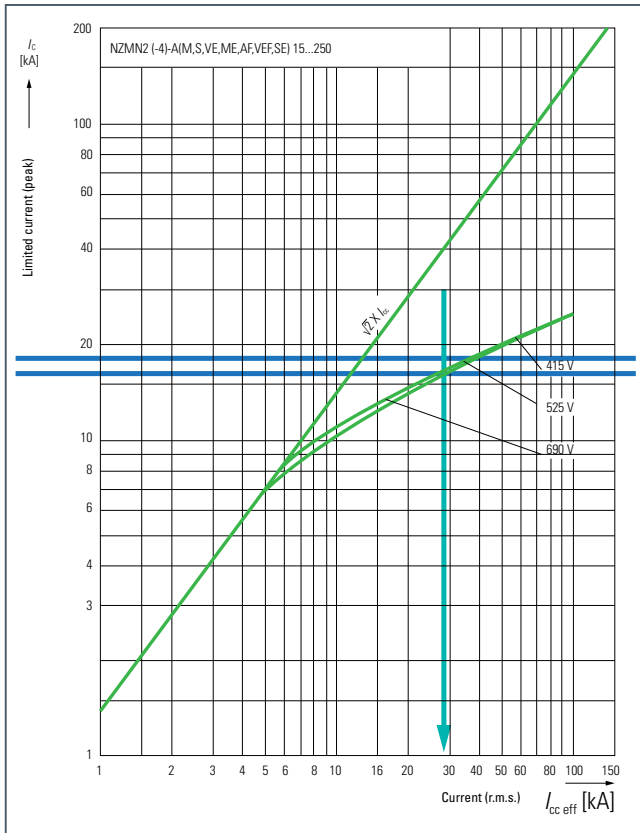


Verification of short-circuit withstand strength



Relation between parameters of switchboards and short circuit-current

If the switchboard is protected by a current limiting device (MCCB, MCB, fuse link), it is possible to use the current limiting characteristic and check the maximum value of the prospective circuit current at which the current limiting device will reduce peak current to the allowed value 17 kA, to avoid short circuit tests.



Use of current limiting circuit breaker at the maximum allowed peak current up to 17 kA

Example:

- Transformer 630 kVA, $u_k = 4\%$, with 400 V, 909 A rated current and 22,7 kA prospective short circuit current (r.m.s.) on secondary terminals.
- The selected current limiting circuit breaker (NZM2 series) on secondary side reduces the maximum available short circuit current 22,7 kA (r.m.s) to ca 14 kA (peak). Finally, this type of breaker can be used for connection to the installation with prospective short circuit current (I_{cc}) up to ca 28 kA.
- **Conclusion:** Selected circuit breaker ensure reduction of peak current lower below 17 kA, short circuit current test is not required.

Routine verification

The purpose of the routine verification is to determine any potential material and manufacturing faults and to ensure the proper functioning of the completed switchgear and controlgear assembly.

Routine verification is performed by the **assembly manufacturer** for each assembly and is part of the assembly documentation.

Routine verification Subclause in IEC 61439-1	Content
11.2	Degree of protection of enclosures
11.3	Clearances and creepage distances
11.4	Protection against electric shock and integrity of protective circuits
11.5	Incorporation of built-in components
11.6	Internal electrical circuits and connections
11.7	Terminals for external conductors
11.8	Mechanical operation
11.9	Dielectric properties
11.10	Wiring, operational performance and function

Content of routine verification, overview

Degree of protection (IP code)

Selection of enclosures should begin with consideration of the protection (see clause. 10.2, IEC 61439-2). This is in accordance with IEC 60529 - Specification for degrees of protection provided by enclosures (IP code).

Code letter	IP	Protection of equipment	Protection of persons against access to hazardous part with
First numeral (access of solid foreign objects)	0		not protected
	1	≥ 50 mm diameter	back of hand
	2	≥ 12.5 mm diameter	finger
	3	≥ 2.5 mm diameter	tool
	4	≥ 1 mm diameter	wire
	5	dust-protected	wire
	6	dust-tight	wire
Second numeral (ingress of water)	0	non-protected	
	1	vertically dripping	
	2	dripping (15 degree tilted)	
	3	limited spraying	
	4	splashing from all directions	
	5	hosing jet from all directions	
	6	strong hosing jet from all directions	
	7	temporary immersion	
	8	continuous immersion	
9	high pressure and temperature water jet		
Additional letter (optional)	A		back of hand
	B		finger
	C		tool
	D		wire
Supplementary letter (optional)	H	High-voltage apparatus	
	M	Motion during water test	
	S	Stationary during water test	
	W	Weather conditions	

Elements of the IP Code and their meanings (see IEC 60529)

- IP code define the ingress of solid objects (Ingress Protection against accidental contact with live parts) and water into an enclosure.
- IP code do not define forms of separation between functional units or define an expected arc containment outcome.

Degree of protection against external mechanical impacts, IK code

Verification of the degree of protection against mechanical impacts shall be carried out in accordance with IEC 62262: Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code). This standard refers to the classification of the degrees of protection provided by enclosures against external mechanical impacts.

Degree of protection against mechanical impacts is a level of protection of the equipment provided by an enclosure against harmful mechanical impacts and verified by standardised test methods. Tests are performed with a hammer suitable for the dimensions of the enclosure.

IK 09

Codes letters (international mechanical protection)

Characteristic group numeral (00 to 10)

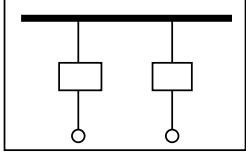
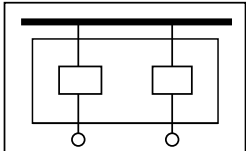
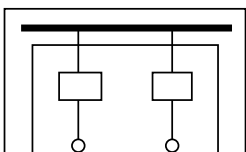
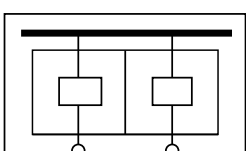
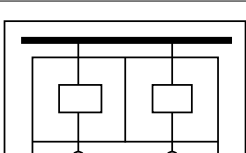
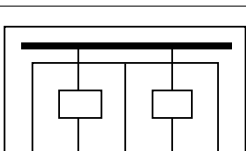
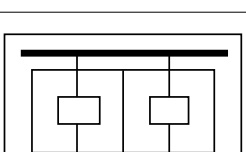
xEnergy Light is tested for IK09, which is highest protection level.

Forms of separation

Separation is achieved by means of barriers or partitions of metallic or non-metallic material and is subject to agreement between manufacturer and user.

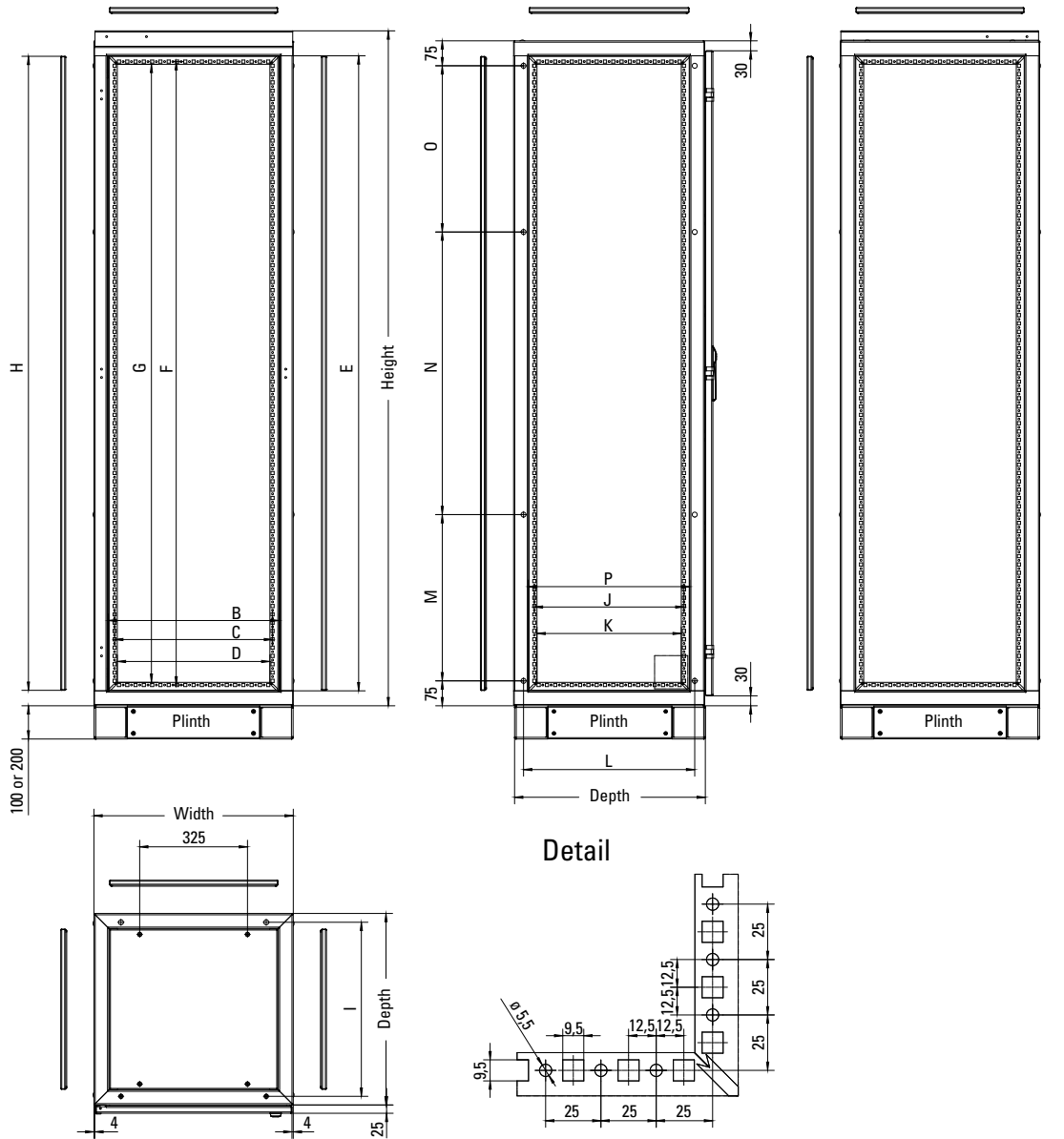
- Protection against contact with hazardous parts. The degree of protection shall be at least IPXXB,
- Protection against the passage of solid foreign bodies. The degree of protection shall be at least IP2X.

The degree of protection IP2X covers the degree of protection IPXXB (finger proofed).

Form	Main criteria	Further criteria	Figure
Form 1	No separation		
Form 2a	Separation of busbar from functional units.	The terminals for external conductors do not need to be separated from the busbars.	
Form 2b	Separation of busbars from functional units.	The terminals for external conductors are separated from the busbar.	
Form 3a	Separation of busbars from functional units and separation of all functional units from one another. Separation of the terminals for external conductors from the units, but not from each other.	The terminal for external conductors do not need to be separated from the busbars.	
Form 3b	Separation of busbars from functional units and separation of all functional units from one another. Separation of the terminals for external conductors from the units, but not from each other.	The terminals for external conductors are separated from the busbars.	
Form 4a	Separation of busbars from functional units and separation of all functional units from one another including the terminals for external conductors which are an integral part of the functional unit.	The terminals for external conductors are in the same compartment as the associated functional unit.	
Form 4b	Separation of busbars from functional units and separation of all functional units from one another including the terminals for external conductors which are an integral part of the functional unit.	Terminals for external conductors are not in the same compartment as the associated function unit, but in individual, separate, enclosed protected spaces or compartments.	

Forms of internal separation

xEnergy Light Dimensions (mm)



Width	A	B	C	D
600	325	520	475	460
800	525	720	675	660
1000	725	920	875	860
1200	925	1120	1075	1060

Height	E	F	G	H
1600	1510	1475	1459	1507
2000	1910	1875	1859	1907

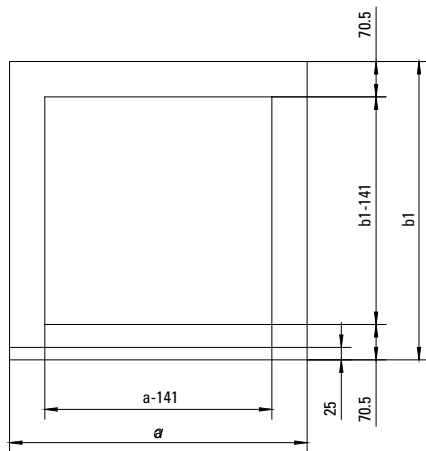
Depth *	Depth **	I	J	K	L	P
300	275	223	150	135	215	182
400	375	323	250	235	315	282

Distance between the holes

Height	M	N	O
1600	450	550	450
2000	500	850	500

* Depth according Ordering Part
 ** Real Depth

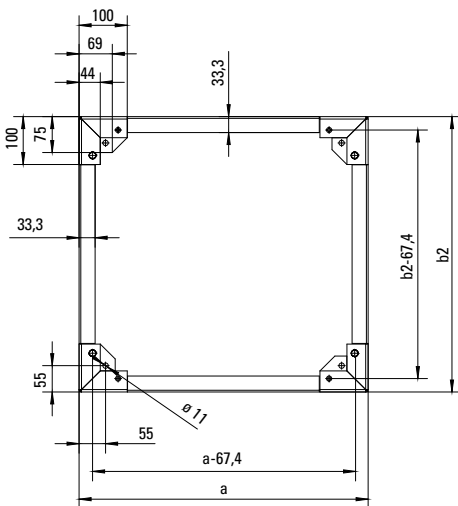
Section bottom clearance, XSFB...



b1	b2
600	575
800	775

a	
425	
600	
800	
1000	
1200	

Floor-fixing of plinth, XAP...



Eaton's mission is to improve the quality of life and the environment through the use of power management technologies and services. We provide sustainable solutions that help our customers effectively manage electrical, hydraulic, and mechanical power – more safely, more efficiently, and more reliably. Eaton's 2019 revenues were \$21.4 billion, and we sell products to customers in more than 175 countries. We have approximately 95,000 employees.

For more information, visit Eaton.com.



Eaton Electrical
10 Kent Road
Mascot 2020 NSW, Australia
Tel: 1300 332 866
Email: australiasales@eaton.com

Eaton Industries Company
Enable House, 106 Wrights Road
Christchurch 8041 New Zealand
Tel: 0800 327 6937
Email: nzorders@eaton

Changes to the products, to the information contained in this document, and to prices are reserved; as are errors and omissions. Only order confirmations and technical documentation by Eaton is binding. Photos and pictures also do not warrant a specific layout or functionality. Their use in whatever form is subject to prior approval by Eaton. The same applies to trademarks (especially Eaton, Moeller, and Cutler-Hammer). The Terms and Conditions of Eaton apply, as referenced on Eaton Internet pages and Eaton order confirmations.

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Follow us on social media to get the latest product and support information.

