Eaton – convincing in terms of safety, performance and operational availability.

Technical Guide –
xEnergy
Switchboard systems

IEC/EN 61439
With Eaton, you have a business partner who supports your expertise in every respect. With Eaton xEnergy, you have a switchboard system that provides you with a wide variety of options for reliable power distribution and individual solutions to meet your customers’ needs.

The xEnergy system range thinks ahead. This means it is designed to meet constantly increasing requirements. Geared towards a maximum of efficiency in implementing your individual projects, Eaton xEnergy provides optimum conditions for building-infrastructure up to 5000 A.

Every single function module in this switchgear assembly is perfectly prepared and systematically planned – from the switchgear and fitting system technology to enclosures and software tools.

Systematic switching = Shaping the future
You too should opt for this technically sophisticated and cost-effective unit of switchgear and protective devices, fitting systems and switchboard systems. It helps you to optimally switch and control power, in other words to dominate it. The system is module-based and offers smart combination options.

And there is a wide range of benefits for you. They do not only include the optimal added value in your own panel building business and the certainty that – with Eaton – you will always be building state-of-the-art and safety-tested panels. They will also help you to save time, money and space.
IZM

**The variable circuit breaker up to 6300 A**

Its module width will increase depending on the rated current, while height and depth of the switchgear will remain the same. Increased operational availability thanks to its robustness and the ability to communicate, cost-optimized planning thanks to modular design, suitable for worldwide use, with xEnergy and xVTL.

NZM

**The compact circuit breaker up to 1600 A**

Available in four breaking capacity levels, compact and space-saving, suitable as a main circuit breaker for machinery controlgear, incoming supply switches in installation distribution boards or outgoing switches in power distribution boards, for xEnergy and xVTL, for worldwide use.

SASY 60i

**Modular busbar system**

For effective power distribution in the switchboard cabinet. In combination with the latest motor protectors and circuit breakers, it forms a consistent solution for switching, controlling and distributing power. UL-certified.

PIFT

**Plug In Fuse Terminal**

Revolutionizes the fuse-related technology in distribution board building. With its wide range of different types, its modular setup and its uncomplicated options for expansion and conversion, it offers the required flexibility. It is convincing thanks to the extremely high level of short-circuit strength of up to 120 kA with AC500V, optional fuse monitoring and an integrated switch-on lock.
5 variants, with maximum benefits.

XP Power Sections
- Incoming supplies, outgoers and couplings with circuit breakers
- Internal separation up to form 4
- Cable connection from the top or bottom
- Incoming supply system for drill-free cable connection

XF Fixed
- Power outgoers with circuit breakers and fuse switch disconnectors up to 630 A
- Internal separation up to form 4
- Individual outgoers, such as controlgear, motor starters, small power outgoers etc.

XG General
- Power factor corrections
- Fitting systems for sub-distribution with devices for modular installation
- Control technology with SASY 60i and xStart
- Individual fixed units on a mounting plate

XR Removable
- Power outgoers with circuit breakers and strip type switch-disconnector-fuse, up to 630 A
- Empty modules for individual applications
- Plug-in modules and strip type switch-disconnector-fuse can be replaced under live-line working conditions
- Internal separation up to form 4
- Easy maintenance and reduced down times

XW Withdrawable
- Power outgoers with circuit breakers up to 630 A
- Outgoers for motor starters up to 250 KW
- Empty drawers for individual applications
- Easy and uniform handling for all drawer sizes
- Drawers can be replaced under live-line working conditions
- Internal separation up to form 4
- Unambiguous position indicator for operating, test or de-energized status
- Easy maintenance without the need of using any special tools for replacement jobs
- Minimum down times
IEC/EN 61439

Eaton implements the new series of standards for low-voltage switchgear assemblies as early as NOW – and makes it significantly easier for panel builders to do their job.

To ensure the safety of low-voltage switchgear assemblies, many and the most varied characteristics of the individual components need to be harmonized and defined in a generally applicable standard. So far the IEC/EN60439 series of standards covered this requirement. As of 2014, it will be replaced by a new standard. But Eaton builds its switchgear in line with the new standard as of now.

Innovations at a glance
The new standard makes a difference between the manufacturers – as usually practiced – between the original manufacturers on the one hand and the panel builders on the other hand. These two parties involved in building a switchboard system have to separately provide evidence of conformity to show that the part each one is responsible for meets the requirements of the standard.

This actually means that the panel builder now has to pay a lot more attention to providing the evidence of conformity for his part of the technical execution.

- The distinction between "type-tested assembly TTA" and "partially type-tested assembly PTTA" no longer exists in the new standard.
- Evidence of conformity with the standard is provided through design verifications, they include tests, calculations and the verification of whether the design rules have been respected – i.e. that from now on the systems will be design-verified. Panel builders who already build TTAs now do not have to expect many changes.
- The panel builder can depending on the type of system – choose between three different ways of providing evidence of conformity: Verification by testing, Verification by design rules or Verification by calculation. All of them are equally valid, as defined by the standard.
- The term "TTA Switchgear assembly and controlgear assembly according to IEC/EN 60439-1" will be replaced by: "Power switchgear and controlgear assembly according to IEC/EN 61439-2, design verification by testing."
- If the panel builder carries out changes in the original system of a switchgear and controlgear assembly that are not covered in the design verification, these changes must be specified in a separate design-verification document.
- The new standard also includes requirements of the standard for empty enclosures, such as resistance to corrosion, resistance to heat of enclosure parts made of insulating material and protection against mechanical impacts.

xEnergy, in conformity with the standard
As an original manufacturer, we will continue to provide evidence of conformity for the system in the future as well. In order to make it easier for the panel builder to provide evidence of conformity for his part of the responsibility, a large number of applications have been split up into standardized modules and the design verification by testing has been carried out for them to provide the evidence of conformity. These modules, assembled in accordance with the corresponding instructions, will enable you to carry out your projects in a cost-effective way and in compliance with the requirements of the standard.
Eaton actively supports the “Services in Automation” initiative of ZVEI (Association of the German electrical and electronics industry). For the services we offer, this means: The services are tailored to the customer’s needs, they are easy to identify, they guarantee that the competences required for the services offered are available and that the results and performance data are defined together with the customer.

Service

Design-verified quality

Eaton is DIN ISO 9001 certified. The quality of Eaton products is reliable. For switchboard systems, Eaton trusts in a modular design principle consisting of accurately fitting function modules, design-verified in accordance with the IEC/EN 61439 standard. The system modules can be arranged to comply with specific national requirements such as DIN VDE, CEI, NF or UNE.

So Eaton offers all relevant protective switchgear assemblies in the respective degree of protection up to 5000 A. In addition, design verification of the entire unit of switchgear, fitting system technology and cabinet in accordance with IEC/EN 61439 provides for a high level of safety.

This modular system allows for easy expansion to meet increasing future requirements.

Delivery according to customer’s needs

Eaton offers the entire product range in flat-packed versions, functionally packed as assembly groups, or as cabinets pre-assembled to customer specifications. Short delivery times make it easy to react to enquiries or modifications requested by the customer.

- Easy configuration and ordering thanks to tools that support the setup of parts lists
- Fast delivery ex warehouse thanks to lean logistic processes
- Easy handling of individual parts thanks to convenient packaging units
- Safe and time-saving assembly based on Eaton assembly instructions

The system offer is optimized for the incorporation of internationally available Eaton switchgear and protective devices and it is completed by configuration and planning tools. The right tool for every project stage and safe power distribution!

Technical support

Eaton’s technical support is both competent and reliable. New customers are offered optional training on how to build a design-verified switchgear assembly.

The advantage of realizing the first switchgear assembly directly with the panel builder is an opportunity to communicate the optimal workflow.

Field Service:
+49 228602 3640

Product Support:
Support Distributionboard Austria@eaton.com

Website:
www.moeller.net/xEnergy
Eaton provides you with the appropriate tools. Software tools for planning, documentation and calculation not only support planning engineers, but also panel builders or installers. Eaton’s toolbox is perfectly designed for network and system planning right through to ordering. Using Eaton’s tools including the system-specific data ensures a safer, faster and more efficient way of processing orders.

CurveSelect
The program for characteristic curves of protective devices is available free of charge and allows the user to display setup-specific tripping curves of several protective devices simultaneously – both in terms of time and electric current values. The tool makes it easy for the user to analyze the interaction of NZM and IZM circuit breakers, PKZ motor-protective circuit breakers, ZB overload relays and circuit breakers as well as h.b.c. fuses.

Freely defined curves (FreeStyleCurves = FSC) enable the user to directly compare the
- selected motor protector and motor starter characteristics,
- incoming supply switches and up-stream medium-voltage protection
- intended expansions and existing protective equipment.

CurveSelect supports you in planning and documenting your system.

xSpider
A graphic-oriented draft system for dimensioning low-voltage networks equipped with Eaton protective switchgear. xSpider is available for free download. The software includes a database with all protective switchgear (MCBs, MCCBs, ACBs, fuses, motor starters). MatSelect is a database for the management of product and material data in both user-defined and standardized classification systems.

xSpider

MatSelect MatSelect database
With MatSelect, you can manage all your product and material data in user-defined and standard classification systems.

Configurator for xEnergy
For a quick and easy configuration of the xEnergy switchgear assembly you want. Sets up an offer in no time and generates the parts list at the push of a button.

MatSelect Database
Configurator for xEnergy
Safe yesterday. Standard today.
Pioneer in protective technologies of tomorrow.

Eaton’s early-warning systems: More safety for your switchboard.

Machines and systems simply have to work.
No matter whether it is in industrial or functional buildings – unscheduled standstills are always costly and annoying. The best thing to avoid undesirable downtimes is to take appropriate precautions.

For reliable operation
Trust in proven technologies! A design-verified switchgear assembly ensures safe power distribution and a smooth workflow.

For the protection of people and systems
Wherever power is involved, safety is paramount. Eaton has always been a pioneer in the protection of people and systems. Apart from our proven protective switchgear, there are additional innovations to still increase the high level of safety for staff while operating a system. Be it in the power supply for tunnels, paper mills or data centers – uninterrupted power supply through ARCON® is key for the protection of people and machinery.

This is because an arc-fault will be extinguished by Eaton’s arc-fault protection system before it can deploy its destructive impact on the power supply system. Eaton provides additional safety through internal compartment separation up to Form 4 and passive arc-fault protection. The result: Systems that ensure a maximum of operational availability and security and a minimum of downtimes.

Power management for the future
Power is precious. It should be used in a resource-efficient and careful way. The new metering and communication modules are a valuable contribution to a responsible way of using energy resources.

Proven components in this field:
- xEnergy removable and xEnergy withdrawable technology
- IZM Open-type circuit breakers
- NZM Compact circuit breakers
- ARCON® arc-fault protection system
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xEnergy power distribution
System description

xEnergy product features

- Enclosures for side-by-side and stand-alone cabinets
- Degree of protection IP31 or IP55
- Main busbars up to 5000 A
- 2 Main busbar systems are possible in each section
- Clear separations into functional areas from form 1 to form 4 to provide even better protection for people and equipment
- Widths of 425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm
- Height 2000 mm
- Color RAL 7035 (other colors upon request)
- Network types TN-C, TN-C-S, TN-S, TT, IT
- Type-tested switchgear assemblies in accordance with IEC/EN 61439
- Optimized for 3 and 4 pole switchgear from Eaton
XP - Power sections

Incoming supplies, outgoers and couplings up to 5000 A

- cable connection from the top and bottom
- busbar positions rear-mounted - bottom/top mounted or running under the top panel
- section height 2000 mm / section depth 400/600/800/1000 (1000 = 800+200) mm
- internal separations up to Form 4

Air circuit breakers IZM 20 up to 63

- widths of 425/600/800/1000/1100/1200/1350 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 630 - 5000 A
- Form 4
- IP31, IP55 with IZM-XDT protective cover
- suitable for drill-free cable connection,
can be installed at the top or bottom
- to be operated from outside
- suitable for switchgear with remote operation

Compact circuit breakers NZM3/4 in Form 4

- widths of 425/600/800 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 250 - 630 A (NZM3)
- 630 - 1600 A (NZM4)
- Form 4
- IP31/55
- 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
- suitable for switchgear with remote operation

Compact circuit breakers NZM4 in Form 2

- widths of 425/600/800 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 630 - 1600 A
- Form 2
- IP31/55
- suitable for drill-free cable connection,
can be installed at the top or bottom
- to be operated behind the door as high as the section
- suitable for switchgear with remote operation
Outgoing sections for fuse strips up to 630 A (SL)
- widths of 600/800/1000 mm
- vertical position of fuse strips
- IP31/IP55 with door in section height
- outgoers are possible downwards and upwards
- Form 2
- operation from outside or behind the door

Outgoing section for fuse strips up to 630A with section dropper bar up to 1600-3200 A (SL-I) across two sections
- widths of 600/800/1000 mm
- dropper bar to be selected from 1600-3200 A
- Form 2
- fuse strips in vertical position
- IP31/IP55 with door as high as the section
- outgoers are possible downwards and upwards
- up to 40% Cu savings
- operation from outside or behind the door
- quick and easy mounting of fuse strips thanks to the double-bar system

Box solution
- widths of 600/1000/1200 mm
- module widths of 425/600 mm
- each module comes with its own front panel
- 3 or 4 poles
- Form 4
- IP31/55
- circuit breakers suitable for use with plug base - NZM3 with plug base in 800 mm deep sections
- suitable for switchgear with remote operation
- separate doors to switchgear area and connection area
- transparent doors (glass doors) are possible
- dropper bar to be selected from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area
XR - Outgoing sections - Removable design

Outgoing sections for switch fuse units (load disconnector units) up to 630 A (SSL)
- widths of 600/800/1000/1200 mm
- suitable for rear-mounted main busbar HSS
- horizontal and vertical position of fuse switch disconnector strips is possible
- can be installed while energized (fuse strips)
- IP31
- outgoers are possible downwards and upwards
- Form 4
- operation from outside
- dropper bar selectable from 800-1600 A

Plug-in module technology - outgoing sections in Form 2
- widths of 800/1000/1200 mm
- module width 600 mm
- Form 2
- 3 or 4 poles
- IP31/55
- consistently equal mounting height of the switchgear
- single-wing section door with 800/1000 mm, double-wing door with 1200 mm
- suitable for switchgear with remote operation
- to be operated behind the door
- empty plug-in module for the incorporation of RCD, FAZ ...
- dropper bar selectable from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area

Plug-in module technology - outgoing sections in Form 4
- widths of 800/1000/1200 mm
- module width 600 mm
- Form 4
- 3 or 4 poles
- IP31/55
- each module comes with its own front panel
- separate doors to switchgear area and connection area
- transparent doors (glass doors) are possible
- empty plug-in module for the incorporation of RCD, FAZ ...
- to be operated behind the door
- dropper bar to be selected from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area

XW - Outgoing sections - Withdrawable desing

Outgoing sections - withdrawable design
- widths of 1000/1200 mm
- section depths of 600/800/1000 mm
- 3 or 4 poles
- rated current of dropper bars In=1000 or 2000 A / 3 or 4 poles
- max. short-circuit current ICW=80 kA
- IP31/55
- shelf-boards can be mounted at individual heights, depending on the size of the modules
- max. height of dropper bar available to accommodate equipment = 1875 mm
- cable connection area, fully sealed off from the switchgear area, main busbar area and dropper bar area
- dropper bar at the front fully sealed off thanks to self-closing shutters
- drawers available:
  - power outgoers up to 630 A
  - direct starters from 0.06-132 kW
  - reverse starters from 0.06-132 kW
  - star-triangle starters from 5.5-110 kW
- outgoers from 132 to 250 kW are executed as fixed design solutions
XG - Empty sections for General equipment

Empty sections for individual mounting units

- fitting systems for modular installation devices (IVS, EP, Profi+ ...)
- individual mounting units fixed on mounting plates
- control technology - suitable for installation of mounting plates as high as the section, or of split ones
- section height 2000 mm
- section depths of 400/600/800 mm
- section widths of 425/600/800/850/1000/1100/1200/1350 mm
- IP31/55

Technical Data

| Standards/regulations | Rear busbars up to 5000 A  
|                       | Top busbars up to 3200 A  
| Ambient temperature   | IEC/EN 60439-1, IEC/EN 61439-2  
| °C                    | -5 up to +40, +35 (24h average value)  
| Relative humidity     | 50 at 40°C  
| Protective measure    | Protection class I, protective conductor connection  
| Degree of protection  | IK10  
|                        | IP31, IP55 according to IEC/EN 60529  
| Rated insulation voltage $U_i$ | V 1000  
| Rated voltage $U_e$ | V 690  
| Insulation coordination | III/3  
| Insulation voltage $U_{imp}$ | kV 8  
| Overvoltage category | IV  
| Degree of pollution | 3  
| Rated frequency | Hz 40-60  
| Busbar rated current $I_e$ | A up to 5000  
| Busbar rated short-time withstand current $I_{DW}$ | kA up to 100 (1s)  
| Busbar rated peak withstand current $I_{pk}$ | kA up to 220  
| Sheet thickness | mm Door and frame = 2, rear, side and top panels = 1.5  
| Metal surfaces | Electro-galvanized, powder-coated  
| Color | RAL 7035 light-grey  
| Lock mechanism | Espagnolette lock with 2 or 4 point locking and turn-lock  
|                  | 3 mm two-way key bit  
| On-site installation conditions | Indoor installation according to IEC/EN 60439  
| Dimensions | Width: 425 – 1350  
|            | Height: 2000 (optional 100 or 200 mm with plinth)  
|            | Depth: 400, 600, 800, 1000  

1) The degree of protection of the fitted components - depending on the specifications given in the components catalogue - must be taken into account.
## Tender text

- Ready to connect, steel-encapsulated low-voltage switchgear system in multiple control panel design with type-tested installation systems to ICE/EN 61439-1 (VDE 0660 part 500), IEC/EN 61439-2 (VDE 0660 part 600-2).

- The following descriptions are calculation-related and contractual elements. They are to be considered with the descriptions of the individual systems and the equipment, even when they are not mentioned in detail.

- Cabinet systems consisting of individual add-on sections of the same type in torsion-resistant steel profile design, made of electro-typically galvanized 2 mm thick steel sections, with internal pre-drilled holes at 25 mm intervals to DIN 43660, structured powder spray paint RAL 7035 light grey.

- Removable external panelling, made of 1.5 mm electrolytically galvanized sheet steel, structured powder spray paint RAL 7035 light grey.

- All construction parts for internal setup are hot-galvanized and feature pre-drilled holes at 25 mm intervals to DIN 43660.

- Plinth 100/200 mm high, electrolytically galvanized, powder-coated in RAL 7035 light grey, with removable front, side and rear panels. The plinth must be suitable for direct transport with the respective tools.

- Switchboard cabinets accessible from the front through inlying doors with external hinges. 180° door opening angle. Door lock with escutcheon lock, 4 point locking and two-way key bit lock. To be actuated with a clip-down handle for half cylinder safety lock.

- Degree of protection: IP31 to DIN EN 60529  
  IP55 with sealed door  

- Protective measures: with protective conductor, protection class I

- Rated insulation voltage: 690 V

- Overvoltage category: III

- Degree of pollution: 3

- Rated operational voltage: ..................... V

- Frequency: ............................. Hz

- Control voltage AC/DC: ............................. V

- Busbar rated current: ............................. A

- Rated short-time withstand current $I_{cw}$: ............................. kA/s

- Network system configuration

- Busbars (number), conductor labelling .............................  

- Max. dimensions allowed  
  Width .............................  
  Height .............................  
  Depth .............................

- All transport units feature removable lifting eyebolts.

- Equipment of the switchgear system with the following components, fixed installation method:

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<thead>
<tr>
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Fully assembled switchgear system described above, ready to connect and prewired, subject to 100% ex-factory test to IEC/EN 61439 part 1. The test protocol is part of the documentation.

- Manufactured by Eaton  
- Type xEnergy
# System description - main busbars and section depths

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<th>Switchgear Area</th>
<th>Additional Busbar Area</th>
<th>5000 A</th>
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<tr>
<td>1600 A (2 x 40 x 10 mm²)</td>
<td>2000 A (2 x 60 x 10 mm²)</td>
<td>2500 A (2 x 80 x 10 mm²)</td>
<td>4000 A (3 x 80 x 10 mm²)</td>
</tr>
<tr>
<td>1250 A (1 x 60 x 10 mm²)</td>
<td>3200 A (3 x 80 x 10 mm²)</td>
<td>3200 A (3 x 80 x 10 mm²)</td>
<td>5000 A (3 x 80 x 10 mm²)</td>
</tr>
</tbody>
</table>

**Rear-mounted (side view)**

- Busbar: 800 A (1 x 40 x 10 mm²)
- Rated current (Cu cross-sections): 1250 A (1 x 60 x 10 mm²)

**Top-mounted (side view)**

- Busbar: 800 A (2 x 20 x 10 mm²)
- Rated current (Cu cross-sections): 1250 A (2 x 40 x 10 mm²)
- 1600 A (2 x 60 x 10 mm²)
- 2000 A (2 x 80 x 10 mm²)
- 2500 A (2 x 100 x 10 mm²)
- 3200 A (2 x 120 x 10 mm²)

**Busbar area**

**Switchgear area**

**additional busbar area for 5000 A**
### XP Power sections for circuit breakers up to 5000 A

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<th>Busbar systems</th>
<th>Switchgear area 2</th>
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<tr>
<td><strong>Busbar at the rear</strong></td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Busbar at the top</strong></td>
<td><img src="image4" alt="Diagram" /></td>
<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Central incoming supply up to 4000 A:**
  - Cable connection system: drill-free connection across the entire section width, contacting from the front by means of connection terminals (brace terminals).
- **Mounting plates**
- **Switchgear area 1**
- **Connection area**
- **Switchgear area 2**
- **Busbars**
- **Additional busbar area where 5000A are used**
For compact circuit breakers NZM3/4:
- in withdrawable or fixed design
- in 3-pole or 4-pole version
- as incoming, outgoing or coupling switchgear or - with the busbar at the top - as an outgoing or incoming switchgear only
- for measuring purposes you can mount current transformers between the connection and the switchgear
- 2 devices possible in 1 section in Form 4
- connection directly to cable connection flags, tunnel-type terminals, drill-free cable connection system

Dimensions
- Section widths of 425, 600 or 800 mm
- Section height 2000 mm, optional with plinth of 100 or 200 mm
- Section depth 600 or 800 mm; section depth 800 mm only with rear-mounted busbar

Connection area
- to cover up the connection copper you will need the connection area cover XKSA
- connection directly to a flag connector or to tunnel-type terminals

With internal separation of Form 1 up to Form 2:
- with a front door as high as the cabinet
- doors ventilated, closed or transparent
- with doors right or left-hinged
- operation of the switch behind the door or with an extension shaft and the rotary door coupling handle from outside

With internal separation up to Form 4:
- 2 switchgear area doors, one above and one below the device, as well as a cover strip with quick-acting closures in the centre in front of the device
- switchgear to be operated from outside
- doors ventilated or closed
- with doors right or left-hinged
- areas not used for cable connection may be used for accommodating additional equipment, e.g. controlgear or surge protection devices
**XP Power sections** for circuit breakers up to 5000 A

**For air circuit breakers IZM:**
- in withdrawable or fixed design
- in 3-pole or 4-pole version
- as an incoming, outgoing or coupling switchgear or - with a top-mounted busbar
- as an outgoing or incoming switchgear only
- for measuring purposes you can mount current transformers between the connection and the switchgear

**For 5000 A**
- for 5000 A, you need to use 2x(3x 80/10 Cu)
- as a general rule, for a 5000 A main busbar, you need to add an extra section of 200 mm depth to a section of 800 mm depth in order to create sufficient space for the second main busbar
- to be able to establish a section/section connection, it is compulsory to use an add-on frame of 175 mm width

**Dimensions**
- section widths of 425, 600, 800, 1000, 1100, 1200 or 1350 mm
- section height of 2000 mm, optionally with a plinth of 100 or 200 mm
- section depths of 600 or 800 mm; section depth of 800 mm only with rear-mounted busbar
- rated current $I_e$ 5000 A = section depths is 1000 (800 + 200) mm

**Connection area**
- incoming supply lines from the top or from below; with top-mounted busbars incoming supply lines only possible from below
- connection directly to cable connector flags or drill-free connection to cable connection system over the total width accessible from the front

**Internal separation from Form 1 up to Form 4:**
- partition panels ready-to-fit for section equipment up to Form 4
- 2 switchgear area doors one on top and one below the device, as well as a cover with quick-acting locks (or with hinges at the center in front of the device) with IZM2X16 and IZM26
- switchgear to be operated from outside
- doors ventilated or closed
- doors right or left-hinged
- areas not used for cable connection can be used to accommodate additional equipment, e.g., controlgear or surge protection devices

**Central connection system up to 4000 A:**
Cable connection system: drill-free connection over the total width of the section accessible from the front via feeder clip

**Direct cable connection**
Cable connection system: drill-free connection over the total width of the section accessible from the front (typ: KCSIY)
Compact circuit breaker
Type NZM3, fixed

Compact circuit breaker
Type NZM3, withdrawable

Compact circuit breaker
Type NZM4, fixed

XP Power sections - type of switchgear installation and section width for NZM
**XP Power sections - type of switchgear installation** and section width for NZM

<table>
<thead>
<tr>
<th>Compact circuit breaker</th>
<th>Type NZM4, fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact circuit breaker</td>
<td>Type NZM4, withdrawable</td>
</tr>
</tbody>
</table>

Section width

<table>
<thead>
<tr>
<th>3 poles</th>
<th>4 poles</th>
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<tbody>
<tr>
<td>425</td>
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<tr>
<td>600</td>
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<tr>
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</tr>
<tr>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>1350</td>
<td>1350</td>
</tr>
</tbody>
</table>

13
XP Power sections - type of switchgear installation and section width for IZMX16/IZM20/32/40/63

Air circuit breaker
Type IZM16, fixed and withdrawable, up to 1600 A

Air circuit breaker
Type IZM20, fixed and withdrawable, up to 2000 A

Air circuit breaker
Type IZM32, fixed and withdrawable, up to 3200 A

Air circuit breaker
Type IZM40, fixed and withdrawable, up to 4000 A

Air circuit breaker
Type IZM63, fixed and withdrawable, up to 6300 A
**XF Outgoing sections** for fixed modules up to 630 A, Form 2

- for circuit breakers, motor starters, miniature circuit breakers and fuse switch disconnectors
- in horizontal and vertical position
- Installation of the switchgear on one mounting level on mounting plates in the widths of 425 or 600 mm
- internal separation up to Form 2
- connection on the incoming side is provided for through a vertically arranged dropper bar system, covered to be touch-proof (through mounting plates).
- cable connection is provided for on the side, in the right or left part of the distributor section
- with a front door as high as the cabinet, ventilated, closed or transparent, door right or left-hinged
- switchgear to be operated behind the door or with an extension shaft and a rotary door coupling handle from outside

**Horizontally fixed circuit breaker**

<table>
<thead>
<tr>
<th>Module height (U/mm)</th>
<th>3 poles</th>
<th>4 poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 A</td>
<td>2/50</td>
<td>-</td>
</tr>
<tr>
<td>40 A</td>
<td>4/100</td>
<td>4/100</td>
</tr>
<tr>
<td>63 A</td>
<td>4/100</td>
<td>-</td>
</tr>
<tr>
<td>160 A</td>
<td>4/100</td>
<td>6/150</td>
</tr>
<tr>
<td>300 A</td>
<td>6/150(1)</td>
<td>8/200</td>
</tr>
<tr>
<td>630 A</td>
<td>8/200</td>
<td>10/250(1)</td>
</tr>
</tbody>
</table>

(1) Horizontal installation of NZM3 (up to 630 A) only on modules of 800 mm width

**Vertically fixed circuit breaker**

<table>
<thead>
<tr>
<th>Module height(1)</th>
<th>Number of circuit breakers per module</th>
</tr>
</thead>
<tbody>
<tr>
<td>160 A</td>
<td>12/200</td>
</tr>
<tr>
<td>300 A</td>
<td>16/400</td>
</tr>
<tr>
<td>630 A</td>
<td>24/600</td>
</tr>
</tbody>
</table>

(1) Vertical installation of the switchgear preferably at the top/bottom of the section, depending on the cable insertion. In case of vertical installation it may be necessary to provide more height units for cable insertion.

(2) 4 poles

Section widths of 800, 800 or 1000 mm, with door either closed or transparent

Cable connection area in different installation positions for widths of 200 and 400 mm.

Installation of switchgear on pre-drilled mounting plates, with all fixing and connection openings prepared for installation.
** XF Outgoing sections for fixed modules up to 630 A, Form 4 **

- for circuit breakers, motor starters, miniature circuit breakers and fuse switch dis-connectors
- in horizontal and vertical position
- the switchgear will be installed behind module covers and are positioned on one operating level
- the module covers are provided with hinges; they can be turned which provides individual access to each module
- Mounting plates in the widths of 425 or 600 mm
- installation of internal separations up to Form 4¹
- connection on the incoming side is provided for on a vertically arranged dropper bar system, covered to be touch-proof
- cable connection is provided for on the side, in the right or left part of the distributor section
- the connection area can be accessed via a separate door to the cable connection area and can be separated from busbars and switchgear area
- switchgear to be operated from outside, via cut-outs in the module covers
- can optionally be equipped with a front door as high as the cabinet, ventilated, closed or transparent, with right or left door hinges

¹¹) It may be necessary to provide for more terminals.

Section widths of 800, 800 or 1000 mm, with closed or transparent door

Cable connection area in different installation positions in the widths of 200 and 400 mm.

Installation of switchgear on pre-drilled mounting plates, with all fixing and connection openings prepared for installation. Swivel-mounted front cover comes with cut-out for operating the lever from outside.
**XF Outgoing sections for fixed modules up to 630 A, Form 4**

For cable connection at the rear

- for circuit breakers, motor starters and miniature circuit breakers
- in horizontal and vertical position
- the switchgear will be installed behind module covers and positioned on one operating level
- the module covers come with hinges; they can be turned which provides individual access to each module
- mounting plates in the widths of 425 or 600 mm
- connection on the incoming side is provided on a vertically arranged dropper bar system, covered so as to be touch-proof
- the cable connection area is at the left rear side; cable connection is done from the rear
- installation of internal separations up to Form 4
- switchgear to be operated from outside, via cut-outs in the module covers
- can optionally be equipped with a front door as high as the cabinet, ventilated, closed or transparent, with right or left door hinges
- only suitable for top-mounted busbars

Section widths of 425 or 600 mm, with closed or transparent door

Cable connection from the rear reduces the section width. Distributor must be accessible from the rear.
**XF Outgoing sections without dropper bar for fixed modules** up to 630 A

- for circuit breakers and miniature circuit breakers
- in vertical position
- the switchgear are vertically mounted on mounting plates and can be mounted with an offset at any depth
- mounting plates available in widths of 425, 600, 800 or 1000 mm
- connection on the incoming side is directly on the main busbar
- main busbars can be covered so as to be touch-proof
- cable connection is done from below, either directly with the switchgear or to terminals mounted in the lower part of the section
- with a front door as high as the cabinet, ventilated, closed or transparent, with door hinged at the right or left side
- switchgear operation behind the door or from outside with an extension shaft and a rotary door coupling handle
- fitting frames can be used for front panels
- can be completely closed with front panels

Section widths of 425, 600 mm, 800 and 1000 mm
| Module width | Motor-protective circuit breakers up to 32 A  
Type PKZM0, 2 U = 50 mm  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>425</td>
<td></td>
</tr>
</tbody>
</table>
|  | Motor-protective circuit breakers up to 40 A  
Type PKZ2, 4U = 100 mm  
|  | Motor-protective circuit breakers up to 63 A  
Type PKZM4, 4 U = 100 mm  
| 600 | Circuit breakers up to 160 A, 3 poles  
Type NZM1, 4 U = 100 mm  
|  | Circuit breakers up to 160 A, 4 poles  
Type NZM1, 6 U = 150 mm  
|  | Circuit breakers up to 300 A, 3 poles  
Type NZM2, 6 U = 150 mm  
|  | Circuit breakers up to 300 A, 4 poles  
Type NZM2, 8 U = 200 mm  
|  | Circuit breakers up to 630 A, 3 poles  
Type NZM3, 8 U = 200 mm  
|  | Circuit breakers up to 630 A, 4 poles  
Type NZM3, 10 U = 250 mm  
|  |  

**XF Outgoing sections (fixed installation), module heights and components: Horizontal installation of switchgear**
Circuit breakers up to **160 A, 3 poles**
Type NZM1, 12 U = 300 mm

Circuit breakers up to **160 A, 4 poles**
Type NZM1 with plug-in module, 12 U = 300 mm

Circuit breakers up to **300 A, 3 poles**
Type NZM2, 16 U = 400 mm

Circuit breakers up to **300 A, 4 poles**
Type NZM2, 16 U = 400 mm

Circuit breakers up to **300 A, with plug base, 3 poles**
Type NZM2, 24 U = 600 mm

Circuit breakers up to **300 A, with plug base, 4 poles**
Type NZM2, 24 U = 600 mm
Circuit breakers up to 630 A, fixed, 3 poles
Type NZM3, 24 U = 600 mm

Circuit breakers up to 630 A, with withdrawable unit, 3 poles
Type NZM3, 24 U = 600 mm

Circuit breakers up to 630 A, fixed or with withdrawable unit, 4 poles
Type NZM3, 24 U = 600 mm

Fuse base or fuse switch disconnectors up to 160 A, 3 poles
Type GS1/GSTA1, 16 U = 400 mm

Fuse base or fuse switch disconnectors up to 250 A, 3 poles
Type GS1/GSTA1, 16 U = 400 mm

Fuse base or fuse switch disconnectors up to 400 A, 3 poles
Type GS1/GSTA1, 16 U = 400 mm
Modular installation devices /PKZ…
1 x 12 PE/1 x 24 PE, 6 U = 150 mm

1 x 12 PE/1 x 24 PE, 8 U = 200

2 x 12 PE/2 x 24 PE, 12 U = 300 mm

2 x 12 PE/2 x 24 PE, 16 U = 400 mm

Modules for terminals
6 U = 150 mm

12 U = 300 mm

Front covers
for command and signalling devices
9 x RMQ-Titan/12 x RMQ-Titan, 4 U = 100 mm

for installation of measuring devices
4 x 72 x 72 mm + 1 changeover contact
8 HE = 200 mm/6 U = 150 mm

2 x 72 x 72 mm + 2 changeover contacts
6 U = 150 mm

4 x 96 x 96 mm + 1 changeover contact
8 U = 200 mm

2 x 96 x 96 mm + 2 changeover contacts
8 U = 200 mm
**Module width 425 mm**

**Module width 600 mm**

---

**Box solution 4 - Heights and equipment**

**Circuit breakers NZM1**
3/4 poles up to 160 A, H = 200 mm, 8U
Mounting position: horizontal, Installation type: fixed/withdrawable

**Circuit breakers NZM2**
3 poles up to 300 A, H = 200 mm, 8U
Mounting position: horizontal, Installation type: fixed/withdrawable

**Circuit breakers NZM2**
4 poles up to 300 A, H = 300 mm, 12U
Mounting position: horizontal, Installation type: fixed/withdrawable

**Circuit breakers NZM3**
3/4 poles up to 630 A, H = 300 mm, 12U
Mounting position: horizontal, Installation type: fixed

**Circuit breakers NZM3**
3/4 poles up to 630 A, H = 500 mm, 20U
Mounting position: horizontal, Installation type: withdrawable

**Circuit breakers NZM3**
3/4 poles up to 630 A, H = 600 mm, 24U
Mounting position: horizontal, Installation type: fixed/withdrawable

---

- in the widths of 800, 1000 and 1200 mm
- module widths of 425/600 mm
- each module comes with its own door to the switchgear area
- 3 or 4 poles
- fixed or withdrawable
- suitable for switchgear with remote operation
- to be operated behind the door or with rotary door coupling handle
- dropper bars to be selected from 800-1600 A
- empty module plates for the setup of outgoing

**Switchgear area:**
- operation of switchgear **behind the door** or with **rotary door coupling handle**
- each module comes with its own door to the switchgear area
- mounting of the switchgear on pre-drilled mounting plates

**Dropper bars:**
- Center-to-center distance between phases 60 mm
- Rated current up to 1600 A
- Rated short-time withstand current $I_{CW}$ up to 80 kA

**Cable connection area:**
- cable connection is implemented either from the top or from the bottom behind a separate door to the connection area
- connection of the individual modules is implemented directly on the switchgear
- side-mounted cable strain relief rails ensure a safe and neat guidance of cables
- vertical PE-, N or PEN rails are mounted in the cable connection area and can be equipped with connections for any outgoing cable
**XF Outgoing sections - fixed design - Dimensions**

**XF section box solution**
Motor Control Center - fixed design

<table>
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<tbody>
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**XF Outgoing sections fixed installation - Dimensions**

**XF section, mounting plates box solution**

**Version I**

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<thead>
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<th>B2</th>
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<tr>
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<tr>
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**Version II**

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<td>597</td>
<td>489</td>
<td>550</td>
<td>475</td>
<td>590</td>
</tr>
</tbody>
</table>
**xf Outgoing sections - fixed design - for fuse switch disconnectors**

- for fuse switch disconnectors SL, Jean Müller/Wöhner/M.Schneider/Pronotec
- with single break feature
- in vertical mounting position

**Switchgear area:**
- Operation of the fuse strips from outside or behind the door
- Connection of fuse strips on the incoming side on a horizontally arranged dropper bar system
- Dropper bars are accessible from the front over the entire section width
- Thanks to a cover frame variable in depth, it is possible to use fuse strips from different manufacturers without having to change the dropper bar in depth, which ensures a neat closing between the cover frame and the fuse strips. The cover frame (xsmlv-1-ch..) is not part of the fitting kit and needs to be ordered separately according to the section width.

**Dropper bars:**
- Center-to-center distance between phases 185 mm
- Rated current \(I_{\text{r}}\) up to 1600 A
- Rated short-time withstand current \(I_{\text{CW}}\) up to 65 kA

**Cable connection area:**
- Cable connection is implemented from the top or bottom
- Connections of fuse strips can be covered for protection against accidental contact
- Cable strain relief rails assure safe guidance of outgoing cables
- The connection area is accessible via a separate door to the cable connection area and can be sealed off from the busbar and switchgear area.
- Areas not used for cable insertion can be used to accommodate additional equipment, e.g. controlgear

<table>
<thead>
<tr>
<th>Type</th>
<th>(I_{\text{r}}) up to A</th>
<th>Size mm</th>
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<tbody>
<tr>
<td>SL0</td>
<td>160</td>
<td>50</td>
</tr>
<tr>
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<td>SL2</td>
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<td>100</td>
</tr>
<tr>
<td>SL3</td>
<td>630</td>
<td>100</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Section width mm</th>
<th>Max. installation space mm</th>
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</thead>
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<tr>
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</tbody>
</table>
**XF Outgoing sections fixed installation** for fuse switch disconnectors - **Dimensions**

**XF Outgoing sections fixed installation for fuse switch disconnectors SL, vertical XSMLV**

<table>
<thead>
<tr>
<th></th>
<th>b1</th>
<th>b2</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>600</td>
<td>575</td>
</tr>
<tr>
<td>800</td>
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<td>775</td>
</tr>
</tbody>
</table>

**Diagram:**

- The diagram shows the dimensions of the XF outgoing sections fixed installation for fuse switch disconnectors SL, vertical XSMLV.
- The dimensions include:
  - Width: 2000 mm
  - Height: 801.5 mm
  - Depth: 662.5 mm
  - Other dimensions are marked on the diagram for reference.

**Notes:**

- The figure includes a table with dimensions for different configurations.
- The table provides clear measurements for easy understanding.
- The diagram is a visual representation of the installation setup.
XF Outgoing sections - fixed design - for fuse switch disconnectors with section dropper bar across two sections

- for fuse switch disconnectors (SL) - Manufacturer: EATON
- with single break feature
- in vertical mounting position

Switchgear area:
- Operation of the fuse strips from outside or behind the door
- connection of fuse strips to a horizontally positioned double busbar system with 12.5 mm distance between the busbar pairs
- dropper bars are accessible from the front, over the entire section width
- Thanks to a cover frame variable in depth, it is possible to use fuse strips from different manufacturers without having to change the dropper bar in depth, which ensures a neat closing between the cover frame and the fuse strips. As the front cover frame is level with the fuse strip, you can always use the same empty-space cover, even with different types of fuse strips. The cover frame (XSMLV-I-CH..) is not part of the fitting kit and needs to be ordered separately according to the section width.

Cable connection area:
- Cable connection is implemented from the top or bottom
- Connections of fuse strips can be covered for protection against accidental contact
- Cable strain relief rails assure safe guidance of outgoing cables
- The connection area is accessible via a separate door to the cable connection area and can be sealed off from the busbar and switchgear area.
- Areas not used for cable insertion can be used to accommodate additional equipment, e.g. controlgear

<table>
<thead>
<tr>
<th>Type</th>
<th>( I_{\text{up to}} ) ( A )</th>
<th>Size</th>
<th>( \text{mm} )</th>
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<tbody>
<tr>
<td>SL00</td>
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<td>SL3</td>
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<td>Section width</td>
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</tr>
<tr>
<td>1000</td>
<td>900</td>
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</tr>
</tbody>
</table>

Dropper bar:
- Easy connecting of the dropper bars from section to section thanks to flat copper flaps in the respective dropper bar thickness used in each case. Following the mechanical connection of the switchboard cabinets, the flaps are pushed over the dropper bars of the busbars you wish to connect, and then tightened to the respective torque using a torque wrench. To make it easier to bring the flaps into the right position, you will need to remove two fuse strips from one of the two switchboard cabinets. Once the job on the electrical connections has been finished, the fuse strips can be fixed and secured again.
- up to 40% of the copper can be saved by not using a main busbar in SL-I cabinets.
- Center-to-center distance of 185 mm between the phases
- Rated current 1600–3200 A
- Rated short-time withstand current \( I_{\text{CW}} = 80kA \)

Fuse strips can only be used with rear-mounted busbars. Please respect the max. current carrying capacity of the fuse strips depending on the ambient temperature, the degree of protection and the number of fuse strips per section in accordance with the xEnergy technical data.
XF section with dropper bar across two sections and vertically installed SL fuse switch disconnectors

<table>
<thead>
<tr>
<th>b1</th>
<th>b2</th>
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<tbody>
<tr>
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<tr>
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<td>800</td>
<td>700</td>
</tr>
<tr>
<td>1000</td>
<td>900</td>
</tr>
</tbody>
</table>
**XR Outgoing sections for removable design** and switch fuse units

### Functional areas

#### Busbar rear-mounted

- **1** Switchgear area
- **2** Cable connection area
- **3** Dropper bars
- **4** Main busbars
- **5** Additional main bus section for 5000 A
XR Outgoing sections for removable plug-in module technology up to 630 A, Form 2

- in the widths of 800, 1000 and 1200 mm
- 3 or 4 poles
- IP31/55
- consistent mounting height of switchgear
- single-wing section door with 800/1000 mm, double-wing with 1200 mm
- suitable for switchgear with remote operation
- operation behind the door
- dropper bar to be selected from 800-1600 A
- separate setup in 2 separate sections possible, e.g. 600/600 mm switchgear area/cable connection area
- plug-in module - empty module for RCD, FAZ, ...
- switchgear area and cable connection area can be used vice-versa
- max. height available (for placing equipment) 1900 mm

Switchgear area:
- operation of the switchgear behind the door
- Contacting of modules on the incoming side to a vertically arranged bar system
- dropper bars are accessible from the front over the entire height of the section

Dropper bars:
- Center-to-center distance of phases 185 mm
- Rated current up to 1600 A
- Rated short-time withstand current \( I_{\text{Cu}} \) up to 80 kA

**Busbar Busbar Max. center-to-center distance between busbar carrier in mm für \( I_{\text{Cu}} (1s) \)**

<table>
<thead>
<tr>
<th>( I_{\text{Cu}} )</th>
<th>L1, L2, L3, full N</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 kA</td>
<td>45 kA</td>
</tr>
<tr>
<td>50 kA</td>
<td>65 kA</td>
</tr>
<tr>
<td>80 kA</td>
<td>100 kA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( A )</th>
<th>1 x 40 x 10</th>
<th>1 x 60 x 10</th>
<th>1 x 80 x 10</th>
<th>1 x 100 x 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>600</td>
<td>600</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>1000</td>
<td>600</td>
<td>600</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>1250</td>
<td>600</td>
<td>600</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>1600</td>
<td>600</td>
<td>600</td>
<td>450</td>
<td>450</td>
</tr>
</tbody>
</table>

Cable connection area:
- cable connection is implemented from the top or from the bottom
- plug-in modules are either directly connected to the switchgear or to terminals separately coming out of the module
- side-mounted cable strain relief rails assure a safe and neat cable guidance
- vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with terminals for any outgoing cable

**Plug-in technology 2 - Heights and equipment**

- **Motor-protective circuit breakers**
  - PKZM0 up to 32 A, PKZM2 up to 40 A, PKZM4 up to 63 A
  - \( H = 100 \) mm

- **Circuit breakers**
  - NZM1/3 poles up to 160 A
  - \( H = 100 \) mm

- **Circuit breakers**
  - NZM1/4 poles up to 160 A
  - \( H = 150 \) mm

- **Circuit breakers**
  - NZM2/4 poles up to 300 A
  - \( H = 150 \) mm

- **Circuit breakers**
  - NZM2/4 poles up to 300 A
  - \( H = 200 \) mm

- **Circuit breakers**
  - NZM3/3 poles up to 630 A
  - \( H = 250 \) mm

**Circuit breakers**
- NZM3/4 poles up to 630 A
  - \( H = 300 \) mm

**Drawer-unit module**
- with device carrying rail
  - \( H = 150 \) mm

**Drawer-unit module**
- with two device carrying rails
  - \( H = 250 \) mm
XR Outgoing sections for plug-in module technology up to 630 A, Form 2 - Dimensions

XR section using plug-in module technology, Form 2
**XR Outgoing sections** for plug-in module technology up to 630 A, Form 2 - **Dimensions**

Main dimensions of plug-in modules in Form 2

<table>
<thead>
<tr>
<th>Type</th>
<th>B</th>
<th>H</th>
<th>T</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZM1 3p H100</td>
<td>507</td>
<td>100</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM2 3p H150</td>
<td>507</td>
<td>150</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM3 3p H200</td>
<td>507</td>
<td>200</td>
<td>202</td>
<td>8,5</td>
<td>125</td>
</tr>
<tr>
<td>Empty module H150</td>
<td>507</td>
<td>150</td>
<td>206</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>PKZ H100</td>
<td>507</td>
<td>100</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM1 4p H150</td>
<td>507</td>
<td>150</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM2 4p H200</td>
<td>507</td>
<td>200</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM3 4p H250</td>
<td>507</td>
<td>250</td>
<td>206</td>
<td>8,5</td>
<td>125</td>
</tr>
<tr>
<td>Empty module H250</td>
<td>507</td>
<td>250</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
</tbody>
</table>

![Diagram of plug-in module Form 2](image.png)
XR Outgoing sections for plug-in module technology up to 630 A, Form 4

- in the widths of 800, 1000 and 1200 mm
- 3 or 4 poles
- IP31/55
- each module comes with its own front panel
- separate door to switchgear area and connection area
- transparent doors are available (glass door)
- empty plug-in module for mounting RCD, FAZ, ...
- to be operated behind the door
- dropper bar to be selected from 800-1600 A
- separate setup in 2 separate sections is possible, e.g. 600/600 mm switchgear area/cable connection area
- max. height available (for placing equipment) = 1900 mm

Switchgear area:
- operation of the switchgear behind the separate door to switchg. area
- each module is equipped with its own front panel
- contacting of modules on the incoming side to a vertically arranged bar system
- dropper bars are accessible from the front over the entire height of the section

Dropper bars:
- Center-to-center distance of phases: 185 mm
- Rated current: up to 1600 A
- Rated short-time withstand current: up to 80 kA

<table>
<thead>
<tr>
<th>Busbar cross-section</th>
<th>Max. center-to-center distance between busbars</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1, L2, L3, full N</td>
<td>35 kA</td>
</tr>
<tr>
<td></td>
<td>45 kA</td>
</tr>
<tr>
<td></td>
<td>50 kA</td>
</tr>
<tr>
<td></td>
<td>65 kA</td>
</tr>
<tr>
<td></td>
<td>80 kA</td>
</tr>
<tr>
<td></td>
<td>100 kA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>800</th>
<th>1000</th>
<th>1250</th>
<th>1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>1 x 40 x 10</td>
<td>1 x 60 x 10</td>
<td>1 x 80 x 10</td>
<td>1 x 100 x 10</td>
</tr>
<tr>
<td>L1, L2, L3, full N</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>lCW(1s)</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cable connection area:
- cable connection is implemented from the top or from the bottom behind a separate door to the connection area
- plug-in modules are either directly connected to the switchgear or to terminals separately coming out of the module
- side-mounted cable strain relief rails assure a safe and neat cable guidance
- vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with terminals for any outgoing cable

Motor-protective circuit breakers
PKZM0 up to 32 A, PKZM2 up to 40 A, PKZM4 up to 63 A
H = 100 mm

Circuit breakers
NZM1/3 poles up to 160 A
H = 100 mm

Circuit breakers
NZM1/4 poles up to 160 A
H = 150 mm

Circuit breakers
NZM2/4 poles up to 300 A
H = 150 mm

Circuit breakers
NZM2/4 poles up to 300 A
H = 200 mm

Circuit breakers
NZM3/3 poles up to 630 A
H = 200 mm

Circuit breakers
NZM3/4 poles up to 630 A
H = 250 mm

Drawer-unit module
with device carrying rail
H = 150 mm

Drawer-unit module
with two device carrying rails
H = 250 mm
XR Outgoing sections for plug-in module technology up to 630 A, Form 4 - Dimensions

XR section using plug-in module technology, Form 4

<table>
<thead>
<tr>
<th>b1</th>
<th>b2</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>575</td>
</tr>
<tr>
<td>800</td>
<td>775</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a</th>
<th>a1</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>225</td>
</tr>
<tr>
<td>1000</td>
<td>425</td>
</tr>
<tr>
<td>1200</td>
<td>625</td>
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</tbody>
</table>
Main dimensions of plug-in modules in Form 2

<table>
<thead>
<tr>
<th>Type</th>
<th>B</th>
<th>H</th>
<th>T</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZM1 3p H100</td>
<td>507</td>
<td>100</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM2 3p H150</td>
<td>507</td>
<td>150</td>
<td>202</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM3 3p H200</td>
<td>507</td>
<td>200</td>
<td>206</td>
<td>8,5</td>
<td>125</td>
</tr>
<tr>
<td>Empty module H150</td>
<td>507</td>
<td>150</td>
<td>206</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>PKZ H100</td>
<td>507</td>
<td>100</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM1 4p H150</td>
<td>507</td>
<td>150</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
<tr>
<td>NZM2 4p H200</td>
<td>507</td>
<td>200</td>
<td>206</td>
<td>8,5</td>
<td>125</td>
</tr>
<tr>
<td>NZM3 4p H250</td>
<td>507</td>
<td>250</td>
<td>206</td>
<td>8,5</td>
<td>125</td>
</tr>
<tr>
<td>Empty module H250</td>
<td>507</td>
<td>250</td>
<td>203</td>
<td>81,5</td>
<td>55</td>
</tr>
</tbody>
</table>

Main dimensions of plug-in modules in Form 4

<table>
<thead>
<tr>
<th>Type</th>
<th>B</th>
<th>H</th>
<th>T</th>
<th>T1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZM1 3p H100</td>
<td>500</td>
<td>99</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>NZM2 3p H150</td>
<td>500</td>
<td>149</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>NZM3 3p H200</td>
<td>500</td>
<td>199</td>
<td>213</td>
<td>140</td>
</tr>
<tr>
<td>Empty module H150</td>
<td>500</td>
<td>149</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>PKZ H150</td>
<td>500</td>
<td>149</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>NZM1 4p H150</td>
<td>500</td>
<td>149</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>NZM2 4p H200</td>
<td>500</td>
<td>199</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>NZM3 4p H250</td>
<td>500</td>
<td>199</td>
<td>210</td>
<td>143</td>
</tr>
<tr>
<td>Empty module H250</td>
<td>500</td>
<td>199</td>
<td>213</td>
<td>140</td>
</tr>
</tbody>
</table>
**Important rules for SASIL plus project planning**

- Place switch fuse units evenly over the entire height of the cabinet
- Place large sizes at the bottom, small ones at the top. Thermal effect!
- Arrange sizes NH00-2 in blocks of 300mm, then leave at least 1 section of 75 mm for ventilation purposes!
- With size NH3 leave 1 section for ventilation purposes both above and below!
- No cross-partitioning in the switchgear area!
- Leave spare areas evenly placed over the entire cabinet height!
- Applying the full rated current is possible for a short while (15-30min).

Please respect the rated diversity factors when under permanent load.

- If possible provide for ventilation of the top (max. IP31)!
- Arrangement of busbar supports
  - For size 00 above or below the fuse strips
  - For size 1 between the units
  - For sizes 2, 3 between the units or at the center behind the unit
- Center-to-center distance between busbar supports should be able to be divided by 150 mm (where necessary use another busbar support)!

Most important for smooth mounting of busbar covers!

**Fuse strips can only be used with rear-mounted busbars. Please respect the max. current carrying capacity of the fuse strips depending on the ambient temperature, the degree of protection and the number of fuse strips per section in accordance with the xEnergy technical data.**
XR Outgoing sections for switch fuse units - Dimensions

XF section with incorporation of SASIL switch fuse units, horizontal
XSMUSH...

XF section with incorporation of dropper bars for SASIL switch fuse units, vertical
XDSSV...

---

**Dimensions**

**XF section with incorporation of SASIL switch fuse units, horizontal**

- **b1:**
  - 600
  - 800
  - 1000
  - 1200

- **b2:**
  - 775
  - 775

- **a:**
  - 590
  - 590
  - 369
  - 569

**XF section with incorporation of dropper bars for SASIL switch fuse units, vertical**

- **a:**
  - 1000
  - 590
  - 369

---

**Notes:**

- The dimensions provided are for design and reference purposes only.
- Specific sections and dimensions are detailed in the technical guide.
- Please consult the guide for complete and accurate specifications.

---

**Eaton**

Powering Business Worldwide

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**Page 38**
XR Outgoing sections for switch fuse units - Dimensions

XF section with incorporation of SASIL switch fuse units, vertical

XSMVS..08

<table>
<thead>
<tr>
<th>b1</th>
<th>b2</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>575</td>
</tr>
<tr>
<td>800</td>
<td>775</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>800</td>
<td>700</td>
</tr>
<tr>
<td>1000</td>
<td>900</td>
</tr>
</tbody>
</table>
## XW Outgoing sections in fully withdrawable design

### Functional areas

<table>
<thead>
<tr>
<th>Busbar rear-mounted</th>
<th>1 Switchgear area</th>
<th>2 Cable connection area</th>
<th>3 Dropper bars</th>
<th>4 Main busbars</th>
<th>5 additional main busbar section for 5000 A</th>
</tr>
</thead>
</table>

![Diagram of functional areas]

---

### Notes

- **1 Switchgear area**
- **2 Cable connection area**
- **3 Dropper bars**
- **4 Main busbars**
- **5 Additional main busbar section for 5000 A**
Outgoing sections for Motor Control Centers in withdrawable design

- in the widths of 1000 and 1200 mm
- in section depths of 600, 800 and 1000 mm
- 3 or 4 poles
- rated current of dropper bars \(I_{n}=1000 \) or 2000 A / 3 or 4 poles
- max. short-circuit current \(I_{CW}=80\) kA
- IP31/55
- shelf-boards can be individually mounted in height, depending on the size of the modules
- max. height of the dropper bar available for equipment = 1875 mm
- cable connection area is fully sealed off from the switchgear area, main busbar area and dropper bar area
- dropper bar is fully sealed off at the front thanks to self-closing shutters
- drawers available:
  - power outgoers up to 1630 A
  - direct starters from 0.06-132 kW
  - reverse starters from 0.06-132 kW
  - star-triangle starters from 5.5-110 kW
- outgoers from 132 to 250 kW are executed as fixed design solutions

Switchgear area:
- max. height of switchgear area available for equipment = 1875 mm
- connection of modules (main/control circuit) both on the incoming and outgoing side is done on plug-type contact blocks. The outgoing plug-type contact block is mounted in the correct current rating on the shelf-board, which is then inserted into the switchgear area and fixed at the correct height.

Dropper bars:
- center-to-center distance between phases 60 mm
- rated current \(I_{n}\) up to 1000 and 2000 A
- rated short-time withstand current \(I_{CW}\) up to 80 kA

Cable connection area:
- cable connection has to be done on the right side of the distribution section, outgoing cables can be inserted either from the bottom or from the top
- cable strain relief rails on the right side of the cabinet ensure a neat and safe guidance of outgoing cables
- access to the cable connection area is provided through a separate door to the cable connection area which is fully sealed off from busbar areas and the switchgear area
- vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with connections for any outgoing cable

Modules:
- Each module can be individually equipped, depending on whether you need a direct starter module or a reverse starter combination. Setup and dimensioning have to be done according to the enclosed instructions (AWA and BA).
- A detailed circuit / wiring plan provides information on the correct way of wiring the switchgear in the module
- The front covers of each module come with numerous punch holes and cut-outs so as to allow the individual integration options for all the required control units to be accommodated in each module
- Main-current contacting of the modules is done through plug-type contact terminals in line with the corresponding rating; these terminals are directly mounted on the shelf-board.
- Contacting the control lines is done via a plug-type terminal block which sticks out into the cable connection area. From there it is easy to do the control wiring in an extremely convenient way.
## Outgoing sections for Motor Control Centers in withdrawable design

<table>
<thead>
<tr>
<th>Module heights (mm)</th>
<th>Drawers</th>
<th>Performance or amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>FE3P</td>
<td>16A – 32A</td>
</tr>
<tr>
<td></td>
<td>DOL</td>
<td>0.06kW – 15kW</td>
</tr>
<tr>
<td></td>
<td>FR</td>
<td>0.06kW – 15kW</td>
</tr>
<tr>
<td>150</td>
<td>FE3P</td>
<td>200A – 200A</td>
</tr>
<tr>
<td></td>
<td>FC3P</td>
<td>200A – 160A</td>
</tr>
<tr>
<td></td>
<td>DOL</td>
<td>18.5kW – 55kW</td>
</tr>
<tr>
<td></td>
<td>FR</td>
<td>18.5kW – 30kW</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>5.5kW – 15kW</td>
</tr>
<tr>
<td>225</td>
<td>FE4P</td>
<td>200A – 200A</td>
</tr>
<tr>
<td></td>
<td>FC4P</td>
<td>200A – 160A</td>
</tr>
<tr>
<td></td>
<td>DOL</td>
<td>55kW – 75kW</td>
</tr>
<tr>
<td></td>
<td>FR</td>
<td>37.5kW – 75kW</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>18.5kW – 30kW</td>
</tr>
<tr>
<td>300</td>
<td>FE3P</td>
<td>200A – 300A</td>
</tr>
<tr>
<td></td>
<td>FC3P</td>
<td>160A – 250A</td>
</tr>
<tr>
<td></td>
<td>DOL</td>
<td>90kW – 110kW</td>
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<tr>
<td></td>
<td>FR</td>
<td>90kW – 110kW</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>37.5kW – 75kW</td>
</tr>
<tr>
<td>450</td>
<td>FE3P</td>
<td>300A – 400A</td>
</tr>
<tr>
<td></td>
<td>FE4P</td>
<td>200A – 400A</td>
</tr>
<tr>
<td></td>
<td>FC4P</td>
<td>160A – 400A</td>
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<tr>
<td></td>
<td>DOL</td>
<td>132kW – 200kW</td>
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<td></td>
<td>FR</td>
<td>132kW – 200kW</td>
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<tr>
<td></td>
<td>SD</td>
<td>- 250kW</td>
</tr>
</tbody>
</table>

As of a height of 600 mm, it is only possible to create a set-up with fixed modules:

<table>
<thead>
<tr>
<th>Module heights (mm)</th>
<th>Drawers</th>
<th>Performance or amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>FE3P</td>
<td>400A – 630A</td>
</tr>
<tr>
<td></td>
<td>FE4P</td>
<td>400A – 630A</td>
</tr>
<tr>
<td></td>
<td>FC3P</td>
<td>400A – 630A</td>
</tr>
<tr>
<td></td>
<td>FC4P</td>
<td>400A – 630A</td>
</tr>
<tr>
<td></td>
<td>DOL</td>
<td>- 250kW</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>90kW – 200kW</td>
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<tr>
<td>750</td>
<td>FR</td>
<td>- 250kW</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>- 250kW</td>
</tr>
</tbody>
</table>
Outgoing sections for Motor Control Centers in withdrawable design - Dimensions
General Sections

- in the widths of 425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm
- IP31/55
- with the main busbar at the top or rear, or without any main busbar as a control distribution unit
- with mounting plate(s) in one piece or split
- as a compensation distribution unit
- suitable for integrating xBoard Profi Plus, IVS, Profi Plus EP, SASY60i

Switchgear area:
- the switchgear area can be set up individually, according to customer specifications
- whether you use a control distribution board with a mounting plate or a mounting plate in combination with SASY60i as a power or motor-distribution board, or one of the different fitting systems such as xBoard Profi Plus, IVS, Profi Plus EP - we have the right solution for every application
### Universal empty sections for the following installation possibilities:

<table>
<thead>
<tr>
<th>Installation distribution systems</th>
<th>e.g. with Eaton IVS</th>
<th>Product range catalogue IVS SK0207-1185</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switchgear adapter</td>
<td>e.g. with Eaton xStart</td>
<td>Main catalogue HPL0211, Industrial switchgear or Electronic Catalogue</td>
</tr>
<tr>
<td>Frequency converter</td>
<td>e.g. with Eaton DF51, DF6, DV51, DV6 and DV5/6</td>
<td>Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue</td>
</tr>
<tr>
<td>Soft starters</td>
<td>e.g. Eaton DS4, DM4 and DS6</td>
<td>Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue</td>
</tr>
<tr>
<td>Automation systems</td>
<td>e.g. with EatonPS4, PS416, XC100, XC200 ...</td>
<td>Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue</td>
</tr>
<tr>
<td>Large motor starters</td>
<td>e.g. with Eaton contactors up to 900 kW/400 V</td>
<td>Main catalogue HPL0211, Industrial switchgear or Electronic Catalogue</td>
</tr>
<tr>
<td>Power factor correction</td>
<td>e.g. with FRako, KBR</td>
<td>Chapter Power factor correction</td>
</tr>
</tbody>
</table>

With a front door as high as the cabinet, ventilated, closed or transparent, right or left-hinged
Planning tools

The right tool for every stage of your project

Eaton Engineering Tools support you in
· Network planning and calculation
· Preparing your offers
· Designing distribution systems
· Generating parts lists and ordering

Eaton xSpider

Proven functions for network planning and calculation
· Load flow and short-circuit calculation
· Dimensioning of the devices
· Selectivity calculation and graphic comparison
· Conformity to IEC 909 and IEC 60364 standards
· Automatic verification of data completeness

Expertise and experience
· xSpider simplifies and speeds up your job by relieving you from time-consuming routing tasks
· xSpider protects against planning errors in low-voltage networks

Functional and flexible
· easy generation of network drawings
· clearly structured database
· xSpider is the right tool for every stage of a project and for testing the existing networks

Eaton Configurator

User-friendly for the selection of xEnergy
· Windows-based dialogue guidance
· functional, self-explanatory design structure
· short familiarization time thanks to Look and Feel

Wide range of applications
· project administration and system structure
· a functions-guided system selection will automatically generate the suitable distributor
· generation of a parts list for devices, fitting kits and distributors
· generation of a front view for offers, individual adjustments through Drag and Drop

CurveSelect

Characteristics program for short-circuit and overload protective devices
· CurveSelect makes it easy to display, compare and document characteristics
· CurveSelect is free of charge and allows the setting-specific and simultaneous display of tripping characteristics of several protective devices based on the same time and current standards. An analysis of the interaction of NZM and IZM circuit breakers, PKZ motor protectors, ZB motor-protective relays and MCBs as well as NH fuses gets significantly easier this way.

Use the following link to find the right Internet site:
www.moeller.net/de/products_solutions/power_distribution/power_communication/curve_program/index.jsp

With xSpider you can plan low-voltage networks (meshed systems and radial networks) safely and without problems.
Further information - Setup instructions for xEnergy

**Operation and maintenance alleyways between switchgear assemblies**

The minimum width for operation and maintenance gangways of switchgear assemblies is 700 mm, the minimum headroom under the panelling is 2000 mm. If a lift truck is used for exchanging circuit breakers, gangway dimensions must be taken into account during the design stage.

![Diagram of gangway dimensions](image)

1. Drawer unit in disconnected position

For systems with a rated current of 5000 A at the main busbar (depth = 1000 mm), access from the rear is compulsory. There must be a minimum clearance of 700 mm to the next wall or to the next cabinet in order to be able to ensure an uncomplicated setup of the system and to allow for service jobs to be done in line with the regulations.

![Diagram of gangway clearance](image)

Doors of a switchgear assembly should be arranged in a way that they close in the direction of the emergency exit route. With a different arrangement, a free minimum clearance of 500 mm must be provided for. If switchgear combinations are set up opposite each other, it is not necessary to anticipate that the doors on both sides are open at the same time.

![Diagram of door arrangement](image)

1. Direction of the emergency exit route
For 5000 A, the red-coloured parts are required in addition.

\[a = \text{section width}\]

**Section width**
- 425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm

**Section depth with section door**
- 400, 600, 800 and 1000 (800 + 200) mm

**Section depth without section door**
- 375, 575, 775 and 975 mm

**Top view of setup** (stand-alone)

For 5000 A, the red-coloured parts are required in addition.
Further information - Passive Arc Fault Protection

In order to achieve passive arc fault protection, the following requirements must be respected:

- **Fix an arc fault damper**
  Use a cover plate equipped with a damper that is fixed at the front through hinges and secured at the rear through PVC screws. The high pressure caused by an arc fault will destroy the PVC screws and release the damper so as to allow the hot gases to escape. Therefore, the hinges of the arc fault damper always need to be mounted at the front of the cabinet in order to ensure a maximum of protection against escaping gases for the people working there.

  It is also necessary to pay attention to sufficient room height or other building-related superstructures on top of the switchboard cabinet to make sure the damper can fully open.

- **Replace the standard catch-hooks of the doors**
  (Exception = doors to the cable connection area in the XF/XG/XW section, where a different type of catch-hooks is installed that you can continue to use without replacing them).

- **Do not use any doors, rear panels or front plates with ventilation slots**
  in order to make sure that all of the gases that may develop will escape at the top.

---

### Fix an arc fault damper

![Fix an arc fault damper](image)

### Replace the catch-hooks

![Replace the catch-hooks](image)

### Table: Rated voltage and conditional short-circuit current

<table>
<thead>
<tr>
<th>Rated voltage $U_r$ (V)</th>
<th>Conditional short-circuit current $I_{CC}$ (kAeff)</th>
<th>Time $t$ (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>440</td>
<td>65</td>
<td>0,3</td>
</tr>
</tbody>
</table>
**Dimensions**

**xEnergy Dimensions**

<table>
<thead>
<tr>
<th>Width</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>425</td>
<td>263</td>
<td>345</td>
<td>300</td>
<td>284</td>
</tr>
<tr>
<td>600</td>
<td>438</td>
<td>520</td>
<td>475</td>
<td>459</td>
</tr>
<tr>
<td>800</td>
<td>638</td>
<td>720</td>
<td>675</td>
<td>659</td>
</tr>
<tr>
<td>850</td>
<td>688</td>
<td>770</td>
<td>725</td>
<td>709</td>
</tr>
<tr>
<td>1000</td>
<td>838</td>
<td>920</td>
<td>875</td>
<td>859</td>
</tr>
<tr>
<td>1100</td>
<td>938</td>
<td>1020</td>
<td>975</td>
<td>969</td>
</tr>
<tr>
<td>1200</td>
<td>1038</td>
<td>1120</td>
<td>1075</td>
<td>1059</td>
</tr>
<tr>
<td>1350</td>
<td>1188</td>
<td>1270</td>
<td>1225</td>
<td>1209</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Height</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1910</td>
<td>1875</td>
<td>1859</td>
<td>1907</td>
</tr>
</tbody>
</table>

**Distance between the holes**

<table>
<thead>
<tr>
<th>Height</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>500</td>
<td>850</td>
<td>500</td>
</tr>
</tbody>
</table>

1) Depth according Ordering Part
2) Real Depth

Double-wing doors are used as of width 1000.
## xEnergy Technical Guide

### Dimensions

#### Corner Frame

![Corner Frame Diagram]

<table>
<thead>
<tr>
<th>For Depth Side A</th>
<th>For Depth Side B</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>600</td>
<td>450</td>
<td>156</td>
<td>81</td>
<td>485</td>
<td>650</td>
</tr>
<tr>
<td>800</td>
<td>800</td>
<td>650</td>
<td>156</td>
<td>81</td>
<td>685</td>
<td>850</td>
</tr>
</tbody>
</table>
Dimensions

Doors as high as the section

Door to switchgear area - height 640 mm (1 third of the door)

<table>
<thead>
<tr>
<th>Width</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>C1</th>
<th>C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>425</td>
<td>417</td>
<td>-</td>
<td>-</td>
<td>264,5</td>
<td>210,5</td>
</tr>
<tr>
<td>600</td>
<td>692</td>
<td>-</td>
<td>-</td>
<td>439,5</td>
<td>385,5</td>
</tr>
<tr>
<td>800</td>
<td>792</td>
<td>-</td>
<td>-</td>
<td>639,5</td>
<td>585,5</td>
</tr>
<tr>
<td>850</td>
<td>842</td>
<td>-</td>
<td>-</td>
<td>689,5</td>
<td>635,5</td>
</tr>
<tr>
<td>1000</td>
<td>992</td>
<td>-</td>
<td>-</td>
<td>839,5</td>
<td>785,5</td>
</tr>
<tr>
<td>1000</td>
<td>492</td>
<td>495</td>
<td>992</td>
<td>339,5</td>
<td>285,5</td>
</tr>
<tr>
<td>1100</td>
<td>542</td>
<td>545</td>
<td>1092</td>
<td>389,5</td>
<td>335,5</td>
</tr>
<tr>
<td>1200</td>
<td>592</td>
<td>595</td>
<td>1192</td>
<td>439,5</td>
<td>385,5</td>
</tr>
<tr>
<td>1350</td>
<td>667</td>
<td>670</td>
<td>1342</td>
<td>514,5</td>
<td>460,5</td>
</tr>
</tbody>
</table>

Height

2000  | A   | 1940 |
Dimensions

Door to switchgear area - split in the middle, for section width 1350 mm

Door to switchgear area for main busbar area at the top
Only available in section width 800 mm

Possible solutions:
Two doors in one part, in section width
Door H-290mm = Main busbar area
Door H-340mm = Switchgear area

One door in one part, in section width
One pair of doors, both together in section width
Door H-290mm = Main busbar area
Door H-340mm = Switchgear area

Detail drawings of doors to the switchgear area
Template for holes to accommodate the hinges at the frame post
**Dimensions**

**XP section with incorporation of IZM circuit breakers XSMIB20**

For 5000 A, the red-coloured parts are required in addition.

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**XSFD Green/Blue Design Strip**

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Eaton
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The key to your success with xEnergy switchboard systems is the Eaton Partner program. Joining the program is well worth it: Not only will you receive a wealth of insider information, you will also be the first to get informed about facts and innovations regarding xEnergy.

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Benefits

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- Continuously up-dated product information
- Software downloads
- Installation instructions
- Information material for your customers, such as catalogues and flyers
- Certificates of conformity and guidelines regarding IEC standards

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