SeT Series

PrismaSeT Active

Installation and maintenance guide

se.com

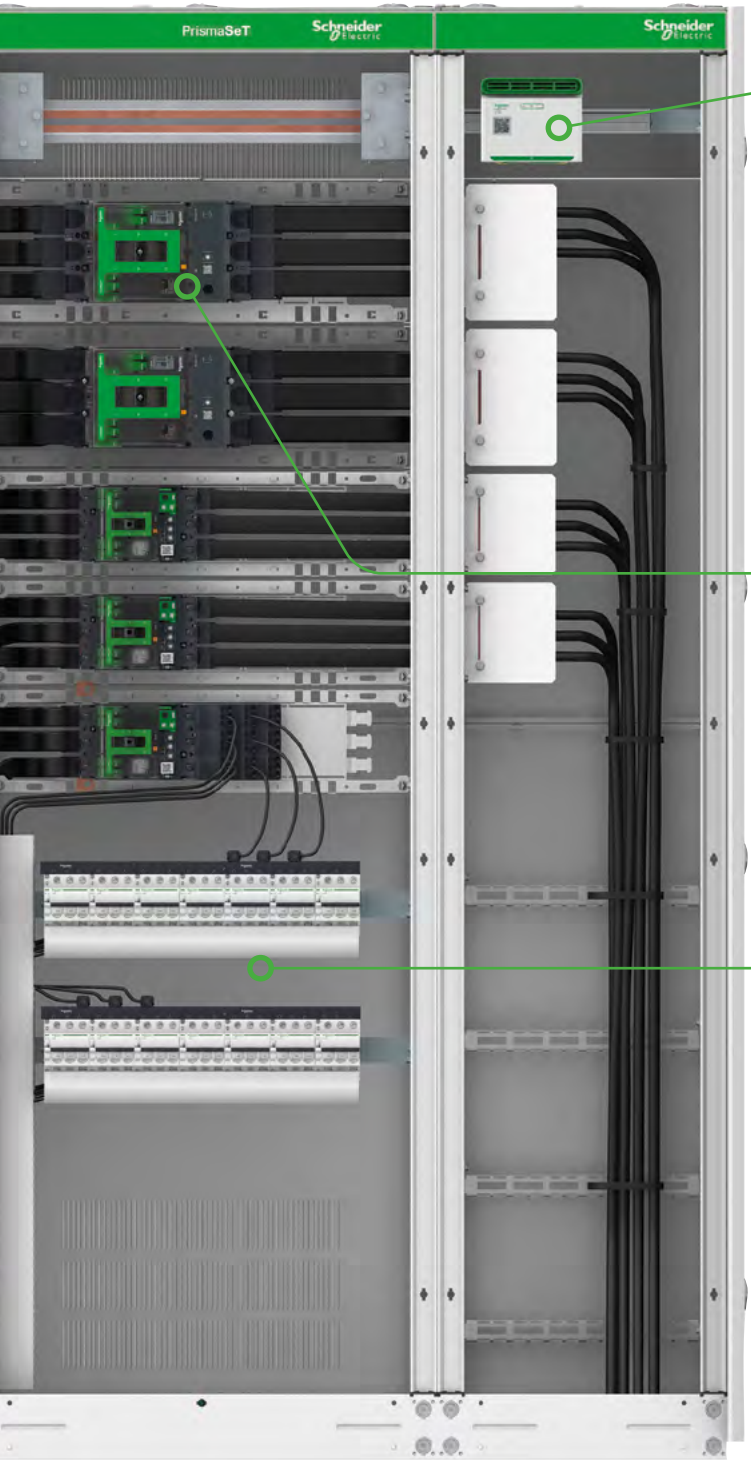
Life Is On Schneider Electric

Propose maintenance contracts

You can now offer your customers more services, such as conditional maintenance and fire prevention.

Make your switchboards live

At any time and in less than 30 minutes you can add extra sensors to:
- *provide fire prevention services,*
- *supervise the availability of the loads,*
- *measure the energy consumptions*



PowerLogic HeatTag

Fire prevention has been taken to a higher level with a new revolutionary sensor which allows the building operators to anticipate and help prevent electrical fires.

ComPacT circuit breakers

The new generation of ComPacT circuit breakers maximizes the availability of the power supply and transmits information concerning its status via a wireless link.
Its installation and maintenance are therefore simplified.

PowerLogic PowerTag

Our compact high-performance PowerTag Energy sensors accurately monitor the energy consumption and communicates this data by wireless transmission to your mobile phone in real time.

Important Information

Notice

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it.
The following special messages may appear throughout this document or on the device to warn of potential hazards or to draw attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety message indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates an imminently hazardous situation which, if not avoided, can result in death or serious injury.

⚠ CAUTION

CAUTION indicates an imminently hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Important note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. Schneider Electric declines any responsibility for the consequences arising out of the use of this equipment.
A qualified person is one who has skills and knowledge related to the construction, operation and installation of electrical equipment, and has received safety training to recognize and avoid the hazards involved.

Safety Precautions

⚠ ⚠ DANGER

RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Wear suitable personal protective equipment (PPE) and follow the currently applicable electrical safety instructions. Refer to standards NFPA 70E, CSA Z462, NOM-029-STPS or to local applicable codes.
- This equipment should be installed and maintained only by qualified personnel.
- Disconnect all power sources before performing any internal or external operation on this equipment.
- Always use a voltage detection device of suitable nominal value to make sure that the poser supply is switched off.
- Put back all the devices, doors and covers before powering up the equipment.
- Pay attention to the potential hazards and inspect the work area carefully to make sure that no tools or objects remain inside the equipment.

Failure to follow these instructions will result in death or serious injury.

About this guide

Set Series main range

Equipped with medium voltage (MV) and low voltage (LV) distribution switchboards, motor control centers and exceptional power distribution solutions adapted to high performance power supply applications, the Schneider Electric Set range is an advanced solution guaranteeing a high level of safety and compact size. Based on a modular architecture and featuring intelligent connected devices for maximum safety, reliability, high performance and energy efficiency, the Set series is supplied to customers directly by our Schneider Electric plants or via a global network of approved panelbuilder partners, trained and checked to provide equipment and high quality service.

Document purpose

Thank you for purchasing a Schneider Electric Prisma**SeT** Active LV switchboard (Prisma**SeT** G Active enclosure or panel or Prisma**SeT** P Active panel).
To maintain the equipment's operating and safety characteristics throughout its service life, this guide provides instructions and recommendations to be followed at each phase:
- reception,
- installation, connection,
- commissioning,
- operation,
- maintenance.

We recommend you read this guide carefully and keep it nearby the equipment.
Schneider Electric remains at your disposal for any further information you may require.
To find your nearest correspondent, go to the website: www.se.com
In all cases, your first line of contact is the installation contractor/panelbuilder who supplied the equipment.

Scope

This guide is based on the Prisma**SeT** P Active offer and provides the specific features of the Prisma**SeT** G Active, on a case by case basis.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.
The technical characteristics of the devices described in this guide also appear online. To access the information on line, go to the Schneider Electric home page at www.se.com.

Associated documents

Document title	Part number	QR code
Assembly guide	DOCA0204EN	
Commissioning Guide PrismaSeT Active	ESXP1G005EN	
PrismaSeT Active Wireless Panel Server User Guide	DOCA0197EN	
EcoStruxure Panel Server User Guide	DOCA0172EN	

You can download these documents and other technical information from our website www.se.com/en/download.

Schneider Electric accompanies you

Communication commissioning support

Expert telephone assistance

• This assistance may consist of:
- customized technical support with technical data exchange
- or coaching type training.
• Our experts are provided with advanced remote access tools to solve your problems more easily and more quickly.

www.se.com/support

Commissioning coaching

Description

• “Commissioning” coaching is the ideal solution if you want Schneider Electric to help you commission the communication of a Prisma**SeT** Active switchboard.
• This service is now available by video assistance, so there is no longer any need for an expert to visit the site.
• During the first installation of a Prisma**SeT** Active panel by your company, commissioning assistance will be provided **free of charge**. The next commissioning services will be billed at the applicable rates.

Procedure

• After ordering the service, our teams will contact you to set up an appointment.
• You will receive a summary email, with a reminder 24 h before the appointment, to prepare the items required for commissioning (software, tools, etc.).
• During the coaching, our expert will apply a methodology with a checklist of the actions required for commissioning (lasting from 15 min to maximum 1 h).

Coaching for the commissioning of a PrismaSeT Active switchboard

• Technical support service for the commissioning of a Prisma**SeT** Active switchboard including startup of the EcoStruxure Power Commission (configuration application) and EcoStruxure Facility Expert (operation application) software
• reference FSB COACH BAS

“With the free communication commissioning assistance during my first PrismaSeT Active project, I know I will be able to make connections quickly!”

Monitoring the switchboard using the EcoStruxure Facility Expert

Description

EcoStruxure™ Facility Expert is a powerful online service designed to make your maintenance operations simpler and more efficient and to make your processes and equipment more reliable. Choose the EcoStruxure Facility Expert offer which meets your requirements.

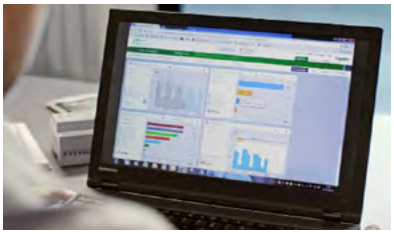
No subscription

EcoStruxure Facility Expert with no subscription allows you to:
• keep up to date your equipment preventive maintenance log with easy access via a QR code,
• register your PrismaSeT Active switchboard to obtain the following free-of-charge offers for 2 years:
- alert in case of voltage loss,
- consultation of the energy indexes of the PowerTag meters installed.
You can benefit from this service in less than 5 minutes by flashing the switchboard QR code and following the instructions on your smartphone screen.

"Operations" subscription

EcoStruxure Facility Expert Operation allows you to keep up to date the preventive, predictive and curative log of your connected equipment fitted with various sensors:
• electrical energy measurement: PowerTag Energy,
• fire prevention alert:
- PowerLogic HeatTag to detect heating of the cables, measure the switchboard temperature and hygrometry,
- Acti9 Connect to detect electric arcs on the low voltage feeder cables,
• alert when changing status:
- OF/SD wireless auxiliary contacts for the circuit breakers,
- PowerTag C 2DI wireless dry contacts.

"Energy" subscription



EcoStruxure Facility Expert Energy allows you to manage the energy of one or more sites with preconfigured interfaces of your connected equipment fitted with various PowerTag Energy sensors.

Range of services

Services available for the PrismaSeT Active offer	EcoStruxure Facility Expert		
	no subscription	Operations subscription	Energy subscription
• Location of the equipment on a map	■	■	
• Alert in case of voltage loss • Consultation of the energy indexes of the PowerTag meters installed	free for 2 years	■	
• History of maintenance operations • Standard maintenance plan • Alert for tasks to be performed • Intervention reports • Collaborative maintenance management (chat, sharing of information between employees)	■	■	
• Alarms for loss of voltage, change of status or heating of cables		■	
• basic information on: - energy consumed, - temperature - and hygrometry		■	
• Energy consumption (comparison by use, by zone, by building) • Possibility of grouping several sites			■
• Alert on exceeding the consumption threshold			■
• Energy consumption dashboard (kW or €)			■

Network of expert partners

EcoXpert™

A network of partners

• Schneider Electric has created a network of expert partners specialized in EcoStruxure solutions for the connected, smart and sustainable building.
• The purpose of this network is to connect skills, provide innovating solutions and contribute to the success of our partner companies.
• Although a global network it can offer local support, no matter where you are.

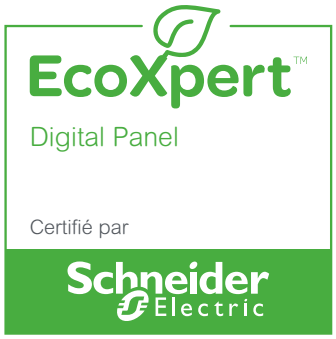
A truly certifying experience

• Through dedicated training plans, your employees will acquire the skills required to create smarter buildings, more reliable infrastructures and implement energy efficiency solutions.

Become a Digital Panel EcoXpert

To make full use of the alerts and feedback from a PrimaSeT Active and optimize your skills for the services you provide to your operator-customers, become a Digital Panel EcoXpert.

• Join a highly regarded network of suppliers of technological solutions offering the best skills in the sector.
• Fostering a spirit of collaboration and innovation, the EcoXpert program opens the way to new opportunities for our partners.



Your benefits

Enhance your solutions.

• Benefit from the best of our systems and from exclusive access to some Schneider Electric offers.

Optimize your productivity.

• Minimize the engineering and commissioning time thanks to contenttjrough and dedicated technical support.

Develop your activity.

• Broaden your fields of application to address every technology of the smart building.

Be different.

• Stand out from the competition by benefiting from marketing tools and the promotional power of an internationally renowned manufacturer.

Emphasize your expertise.

• Be recognized as one of the best experts in your field and as a privileged partner of Schneider Electric.

Benefit from a network.

• Cooperate with the entire EcoXpert network to capitalize on each member's skills and optimize your solutions.

Reception of the equipment

Checking the packaging

General

Precautions upon reception

• Various precautions must be taken upon reception of the switchboard:
- Upon reception of the equipment and before handling it, check that the cases and packing materials used for transportation have not been damaged and that all items on the packing list have been effectively delivered.
Note: even if the packing appears to be in good condition, do not hesitate to unpack the equipment in the presence of an authorized transport agent.
- Check consignment contents and weight. Thoroughly check the equipment to make sure that no damage or shocks have occurred which may impair insulation or operation.
Note: if necessary, check that the information given on the switchboard nameplate, located on the incoming section, conforms to that given on the delivery slip.
• After this inspection, put back the plastic protection cover.

In case of damage or missing parts

• Inform the transport agent by registered mail.

Sorting of waste

• In order to sort the different types of packing material, specific waste recovery bins must be provided.

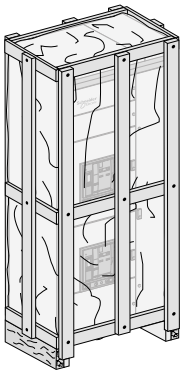
Checking the packaging (cont.)

Packing

• PrismaSeT P Active switchboards are generally shipped one cubicle at a time, or in transport units comprising 2 cubicles side by side.
• Exceptionally, the transport units may include 3 cubicles (see precautions given in chapter ""Handling on site", page 15).
• Each parcel is identified by marking giving:
- the project number,
- the weight,
- the packing list (parcel number and number of parcels),
- the position of the center of gravity,
- the storage and handling instructions.

Standard packing

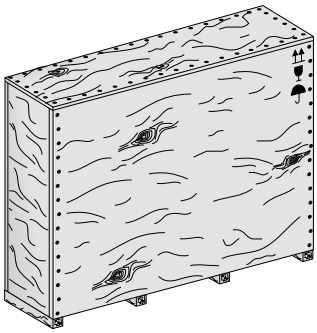
• The cubicle(s) are generally protected by a plastic cover in a crate.



• The following accessories are included inside the switchboard:
- installation accessories (lifting / fixing cross members, external fixing lugs),
- preliminary installation accessories: plinth height extension,
- communication antenna and its 5 m extension
- horizontal busbar fishplates (if required)
(for PrismaSeT P Active),
- additional nuts and bolts,
- panels to be fitted after on-site connection: canopies, roof plates, gland plates,
- a set of drawings,
- device technical manuals,
- a tube of Swiss white varnish for marking and identifying screws, bolts and nuts, etc.
• Large withdrawable circuit breakers
(MasterPacT and ComPacT NS) installed at the top of the panel are generally delivered separately.

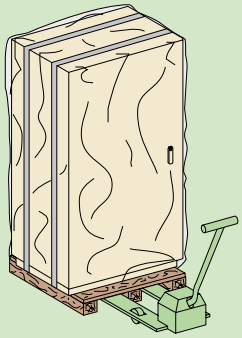
Sea packing

• The cubicle(s) are protected by a heat-welded cover containing desiccant bags and are installed in a ventilated wooden or plywood crate.
• As a rule, the sea crates do not weigh more than 5 tons.



PrismaSeT G Active

• PrismaSeT G Active switchboards are generally shipped in their final configuration:
- one enclosure or panel at a time,
- or in groups of combined enclosures or panels with or without cableway.
• Transport units may contain up to 3 combined assemblies (enclosures or cableways) See precautions given in ""Handling on site (cont.)", page 16.



• Each parcel is identified by marking giving:
- the project number,
- the weight,
- the packing list (parcel number and number of parcels),
- the position of the center of gravity,
- the storage and handling instructions.

Handling on site

General

• Final unpacking of the equipment will preferably take place just before the switchboard is installed, as close as possible to its final installation site.
• As a guideline, the mass of an average cubicle ⩽ 3200 A is 400 kg.

Handling by the bottom

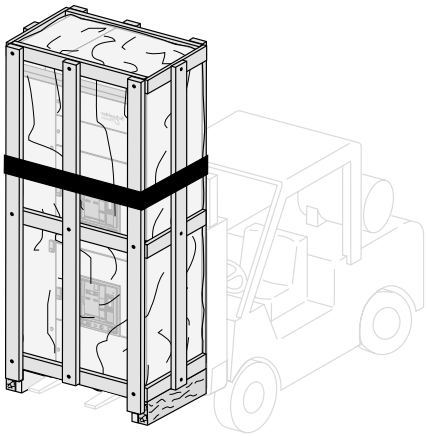
• For a PrismaSeT P Active switchboard with a busbar sheath, the lift truck forks must be offset towards the busbar.

⚠ WARNING

RISK OF TIPPING

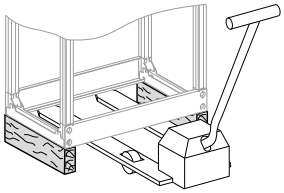
• The cubicles, enclosures and panels must always be handled in the upright position with extreme care by 2 persons.
• If moved with a lift truck over a long or rough path, the cubicles must be raised carefully and lashed to the truck with straps.
• Avoid any movement of the cubicles by making them swivel jerkily.

Failure to follow these instructions can result in death, serious injury or equipment damage.



Cubicles with wooden beams

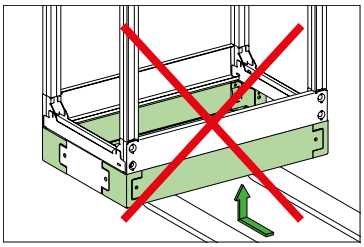
• Wooden beams are generally attached to the base of the cubicle framework. The cubicles can therefore be moved using a pallet mover or forklift truck.

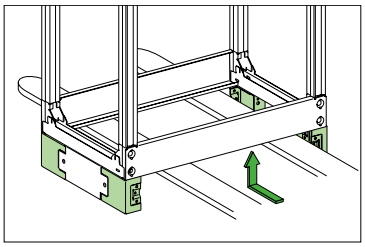


! The forks must be placed symmetrically with respect to the cubicle axis so as not to distort the base of the framework

Cubicles fitted with a plinth

• For cubicles fitted with a plinth, the front and rear strips must be removed to make place for the pallet mover.





Handling on site (cont.)

Lifting by the top

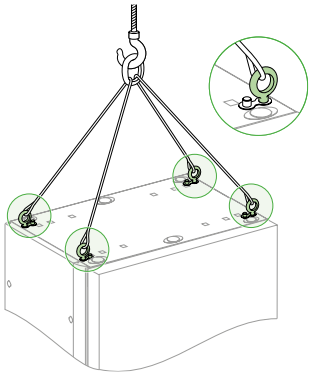
Use of slings

⚠ WARNING

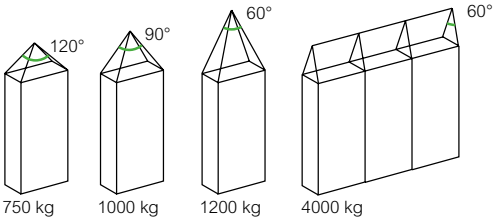
RISK OF DROPPING

• When lifting with cranes or traveling cranes, always use slings that are sufficiently strong with a valid use-by date.
• The slings must be attached to the 4 lifting rings of the cubicles.

Failure to follow these instructions can result in death, serious injury or equipment damage.



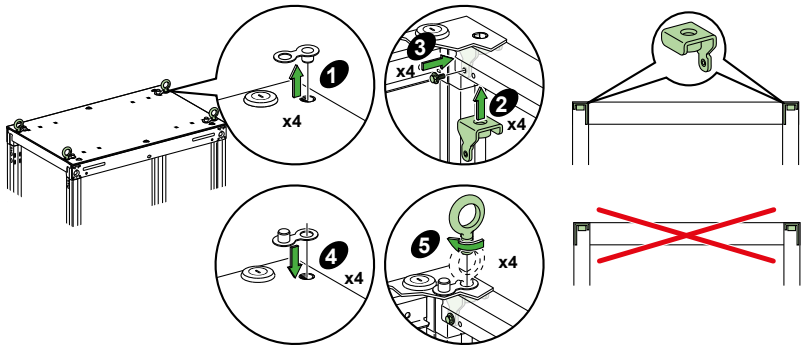
• Adjust the length of the slings according to the switchboard dimensions so that the angle formed does not exceed the angle given according to the switchboard weight. When 2 cubicles including switchgear are combined, a lifting beam must be used.



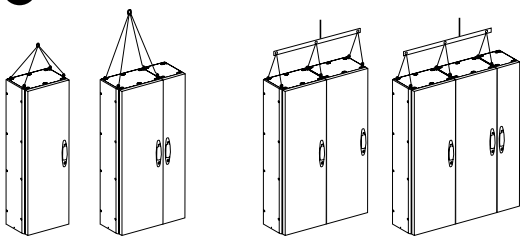
• Do not incline the column during handling.
• Take care to distribute the load equally on the 4 rings.

Position of the lifting rings

• The lifting rings can be installed and removed without dismantling the roof.
• Even with the lifting rings permanently installed, the switchboard retains its original protection index.

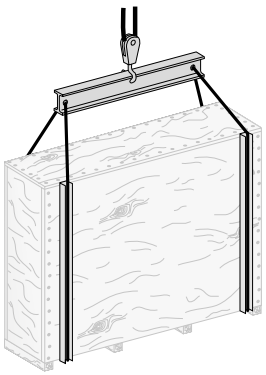


! For combined cubicles, only install the lifting rings on cubicles with switchgear.



Lifting a packaged group of cubicles

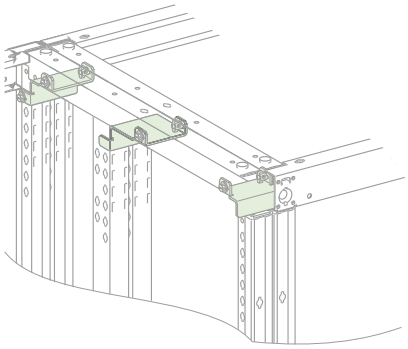
! In the special case of an assembly with more than 2 cubicles, you must:
• place the switchboard in its original packaging as close as possible to where it is to be installed,
• use a lifting beam and slings supporting the switchboard by the bottom.



Handling on site (cont.)

Lifting reinforcement kit

Kit LVS08722 is recommended for lifting combined cubicles and can be used together with handling base end-pieces LVS08714 or LVS08716 for severe transport or handling conditions.
Catalogue number LVS08722 includes 3 reinforcement brackets for 400 or 600 mm deep cubicles and the corresponding mounting hardware..



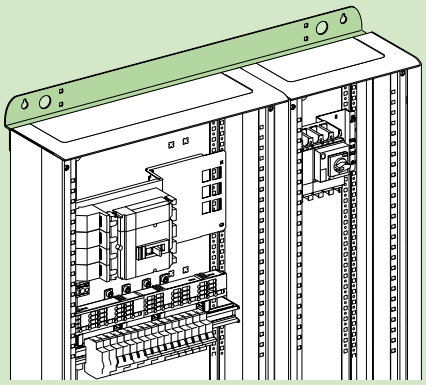
PrismaSeT G Active

⚠ WARNING

RISK OF DROPPING

When lifting with cranes or traveling cranes, always use slings that are sufficiently strong with a valid use-by date:
• for a single enclosure or panel, the slings must be attached to the lifting rings or to the lifting beam
• for combined units, the lifting beams must be used. They are attached to the rear of the switchboard to stiffen the assembly, especially during transport, and to attach the slings.

Failure to follow these instructions can result in death, serious injury or equipment damage.



Storage

Precautions

Storage conditions

• The cubicles must be stored in the upright position in a dry and ventilated place, sheltered from rain, bad weather, running water, dust and chemical agents.

! Apart from IP 55 cubicles, never store the cubicles outdoors, even under a tarpaulin.

• The cubicles must preferably remain packed until they are installed. This will protect them against all harmful effects (projections, shocks).
• The acceptable storage temperature is from -25 to +55 °C (up to +70 °C for short periods not exceeding 24 h)
• To ensure easy, risk-free handling, the cubicles, in view of their high weight, must be stored on a stable, rigid and flat floor.

Unpacking

Precautions

Damage during unpacking

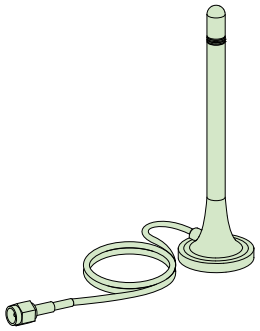
• Remove the packaging carefully to avoid scratching the sides of the switchboard.

Sorting of waste

• In order to sort the different types of packing material, specific waste recovery bins must be provided.

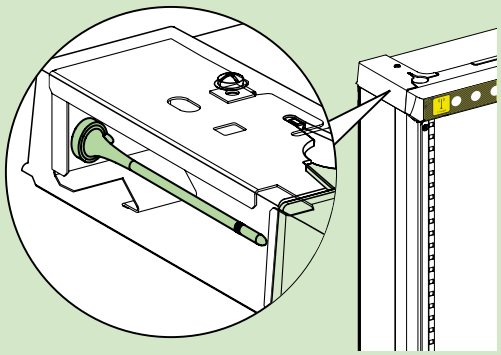
Accessories delivered separately

• As standard feature, PrismaSeT Active switchboards are equipped with a wireless communication gateway for which an antenna must be installed.
• The antenna is not installed but delivered separately in the parcel so that it is not damaged during transport.
• Make sure that the antenna is delivered with the switchboard.



PrismaSeT G Active

The antenna of PrismaSeT G Active switchboards is stored inside the roof.



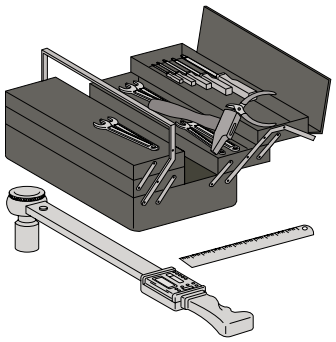
Installation

Tools required to install the switchboard

Tools required to install the switchboard

List of tools

• Torque wrench with sockets and ring bits to tighten the electrical connections to the correct torque (max. torque 50 N.m).
• Ratchet wrench with sockets.
• 5 mm 6 point ring spanner.
• Extension.
• 7, 8, 10, 13, 16, 17 and 19 mm sockets.
• Bit holder socket.
• Bit holder for screwdriver.
• 4, 5, 6, 8 and 10 mm hexagonal-head bits.
• Pozidriv No. 1, 2 and 3 bits
• No. 20 Torx bit.
• 3, 4, 5, 5.5 and 8 mm flat screwdrivers.
• 15 and 27 mm open-ended spanners.
• Adjustable clamp to align cubicles.
• Spirit level.
• Rubber mallet.
• Hydraulic jacks:
- able to operate in the horizontal position,
- to lift the cubicles and move them sideways if necessary.
• Screwdriver.
• Drill.
• Electric saw.
• Jigsaw.
• Punch
• Vacuum cleaner to clean the switchboards.
• Tube of Swiss varnish for marking and identifying screws, bolts and nuts.
• Electrician's knife.
• Flat-nosed pliers.
• Wire strippers.
• Wire cutters
• Crimping pliers.
• Diagonal cutters
• Needle nose pliers.
• Tester.
• Measurement and inspection tools and instruments.



Special tools

Torque wrench

• Torque wrench characteristics:
- torque: 75 N.m
- thin profile for certain tightening operations on busbars.
• Torque wrench (FACOM type) with the power and characteristics required for tightening under difficult access conditions (fishplates, etc.).
- wrench handle, essential
- extra-flat ratchet adapter, essential
- ratchet for ordinary sockets, optional.
• extra-flat sockets for extra-flat ratchet + handle:
- extra-flat 13, 16, 17 and 19 mm short sockets,
- extra-flat 13, 16 and 19 mm long sockets.

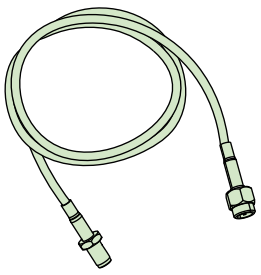
Application of tools

• Removable cross-member: 5 mm Allen key.
• Splicing the busbars: 13 mm socket for M8 shear nut.
• Cubicle assembly: 10 mm socket for M6 screw.
• Floor attachment:
- 16 and 17 mm sockets for the attachment screws,
- 15 and 27 mm open-ended spanners for the leveling kit.
• Fitting of roof, side panels and base: 8 mm flat screwdriver.
• Gland plate: Pozidriv No. 2 screwdriver.

Tools required for the communication equipment

List of tools

• LoRa tester ref. SMT10013
• Antenna cable extension (5 m) ref. SMT10011



Application of tools

• The LoRa tester is used to check the reception quality of the LoRa wireless network at the switchboard location.
• It must be sufficiently charged to operate correctly. Make sure to charge it before going on site.
• The antenna cable extension allows the antenna to be moved up to 10 m away if the LoRa network reception is poor at the switchboard location.

Switchboard location

For cybersecurity reasons, it is recommended to install the PrismaSeT Active switchboards in a room that can be locked.

Antenna location

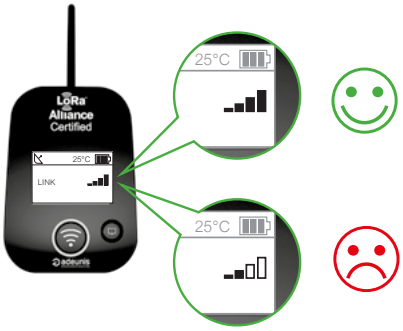
As standard feature, PrismaSeT Active switchboards are equipped with a wireless communication gateway (Wireless Panel Server) for which an antenna must be installed.

Searching for the LoRa signal

The LoRa tester is used to find a location where the antenna can be installed to receive a signal of sufficient quality for data transfer.

Using the tester

• Place the tester vertically.
• Start the measurement and wait for the result after 3 minutes. The tester will perform a series of measurements and display the average value for greater reliability.
• The reception level is considered to be sufficient when the tester displays at least 3 bars out of the maximum 4.



Search method

• The reception quality must first be checked:
- at the actual location of the switchboard,
- then if the reception is not sufficient, extend the search in a 10 m radius, at a position closer to the outside and with as few metal objects as possible (reinforced concrete, treated glass, metal partitions, etc.)
• Do not forget that you can install the antenna on the upper floors. The antenna cable can in fact be routed in the service ducts.
Note: laying the power cable near the antenna cable route does not affect the signal quality, since the cable is shielded. Good insulation is nevertheless required between the power cables and the antenna cable.

⚠ DANGER

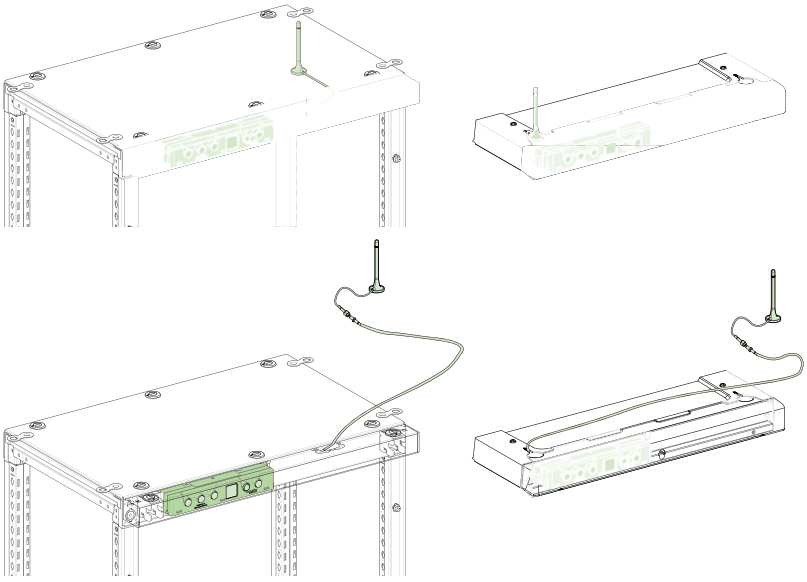
RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The installer must make sure there is sufficient dielectric insulation of the cable (antenna and/or extension) regarding voltage in the installation and cable path.

Failure to follow these instructions will result in death or serious injury.

Choice of location

• After finding a location with sufficiently good reception, the antenna must be installed at this precise position.
• Depending on the search result, the antenna can be installed:
- either directly on the switchboard roof,
- or using a bracket within a radius of 2 m,
- or using the bracket provided and one or two 5 m extensions (including one supplied as standard accessory).



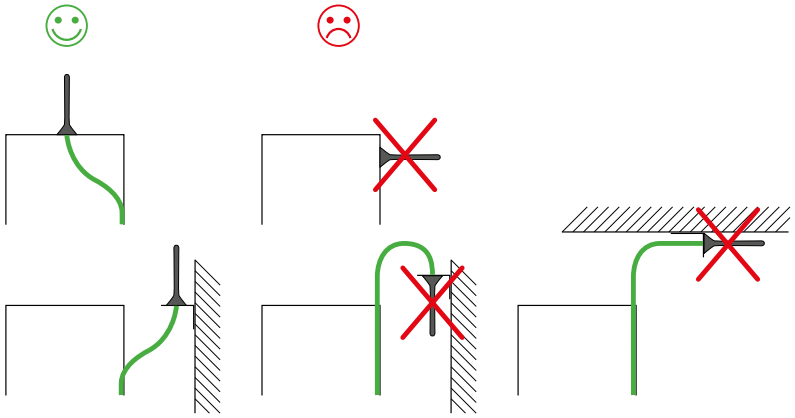
Case of insufficient reception

• If no position offers satisfactory reception within a radius of 10 m, you must:
- either install a LoRa/4G gateway ref. SMT10014 to take advantage of the LoRa signal via a 4G link,
- or connect the switchboard to the building IP network using an EcoStruxure Panel Server gateway with an Ethernet communication port,
• For more information, call Schneider Electric support, which will also be able to propose solution to amplify the LoRa signal.

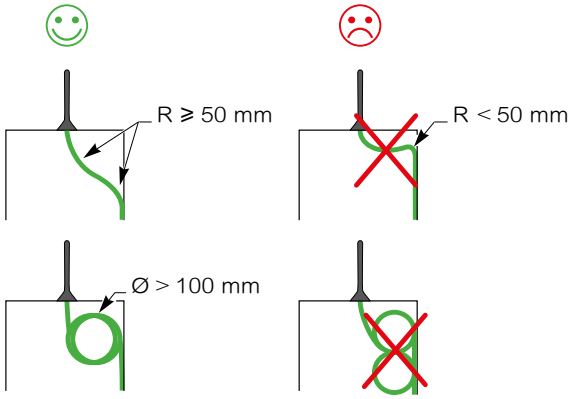
Preparing the site (cont.)

Antenna installation

• The antenna is delivered separately with the switchboard accessories.
• If the quality of the LoRa signal is sufficient at the switchboard location, the antenna will be installed on the roof of the cubicle when it is installed.
• If the antenna needs to be moved to a different position, it can be installed in advance. In this case, you must:
- route its cable, respecting the recommended bend radii (see diagram below),
- install its bracket (supplied as standard accessory).
• The antenna must always be installed vertically.



• Make sure to respect the antenna cable bend radius.



NOTICE

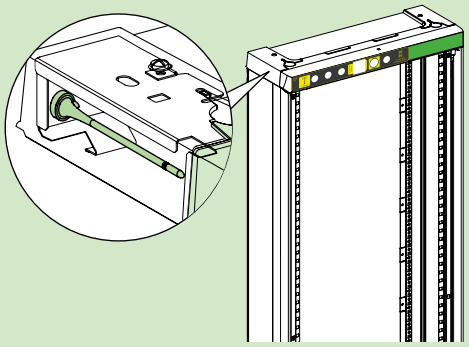
RISKS OF EQUIPMENT DAMAGE

• All bends in the antenna cable must have a bend radius greater than 50 mm.
• It is prohibited to wind the cable in a figure of 8.
• Remove the antenna from the roof to transport the equipment.

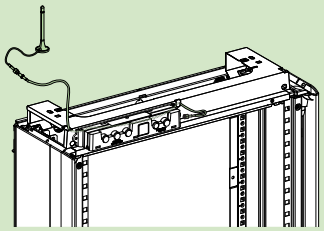
Failure to follow these instructions may result in equipment damage.

PrismaSeT G Active

• The antenna is stored inside the roof where the voltage presence indicator light is installed.



• If the antenna needs to be moved away, see manual No. NNZ50846:
- remove the green strip to access the antenna cable connector,
- unscrew the antenna cable,
- install the antenna on its bracket,
- route the extension(s) up to the switchboard location, screw the new antenna extension.



PrismaSeT P Active attachment

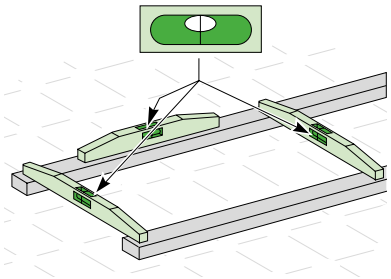
General

• The place of installation of the switchboard must be clean.
• If possible, apply a dust-proof paint on the floor to limit pollution inside the switchboard.
• Also leave extra space if future extensions are planned.

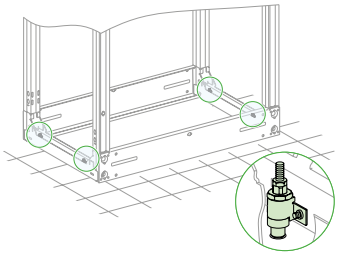
Systematic use of sectioned supports is recommended to simplify mechanical assembly between cubicles and splicing of the busbars.

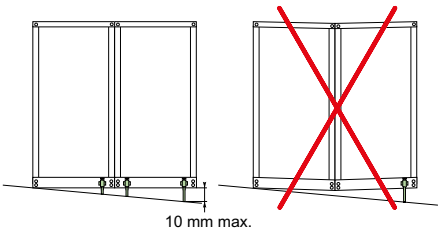
Checking the floor horizontality

! It is essential to check that the floor is horizontal.

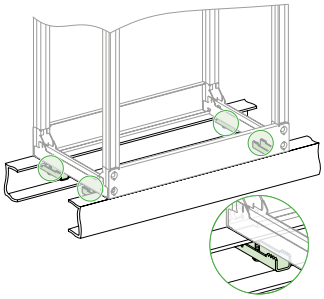


• For floors of slope greater than 2 mm/m, you must:
- either install the leveling kit (ref. LVS08702),

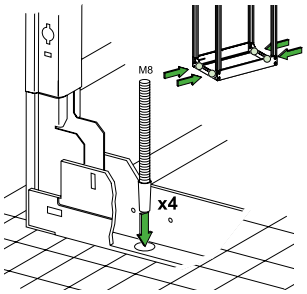




- or plan U or I sectioned supports, whose straightness and level must be checked in both directions. The switchboards are attached to these sectioned supports using clamps for raised flooring (ref. LVS08703).



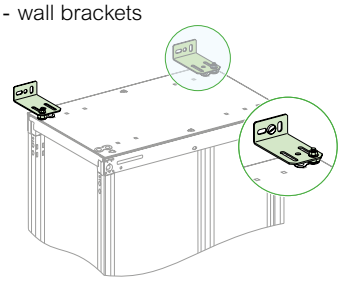
• If the slope is less than 2 mm/m, the cubicles can be attached using screws + expansion rawlplug or studs.



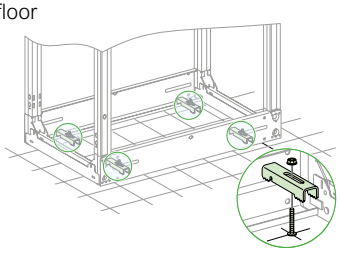
Attaching the switchboard

The various solutions

Several switchboard attachment possibilities exist, depending on the type of connection:
• kit ref. LVS08704 includes:
- wall brackets



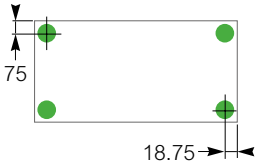
- and offset floor clamps for offset attachment to the floor



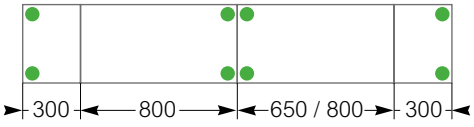
• The switchboard can also be attached to the floor:
- with studs or screws + rawlplugs,
- or with clamps for raised flooring (ref. LVS08703). See description

The attachment points

• The drawing below shows the positions of the cubicle floor attachment points for a standard attachment (studs or screws + rawlplugs) or leveling kit (+ rawlplugs).



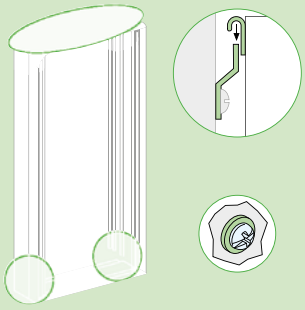
• The positions recommended for the adjustment devices when combining cubicles is as follows:



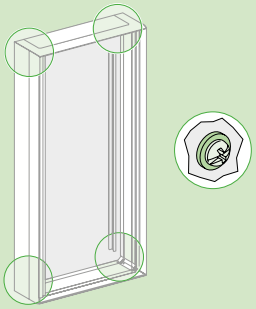
Preparing the site (cont.)

PrismaSeT G Active

• There are 2 types of assembly:
- wall attachment (enclosure),
- placed on the ground and attached to the wall (panel).
• There are 3 ways to attach the switchboard to the wall:
- with a hook (delivered with each enclosure),



- with screws from the inside,

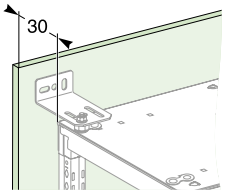


- with external lugs (ref. LVS08804).

Front connection

Wall attachment

• Plan a space of 30 mm to allow good ventilation.



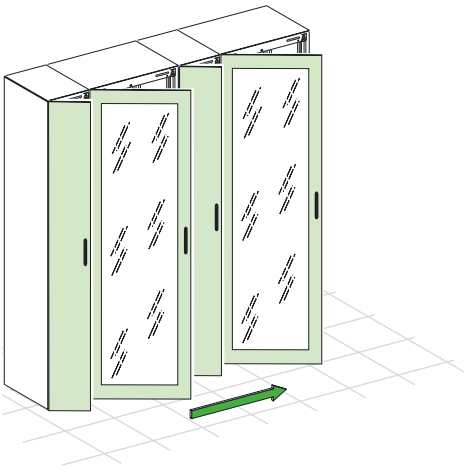
Note: when the switchboard is not attached to the wall and contains a lot of switchgear, it is recommended to plan a minimum space of 100 mm behind the switchboard to allow good ventilation.

Floor and wall attachment

• The switchboard can be attached both to the wall and the floor using the floor/wall attachment kit (ref. LVS08704):
- the brackets are used to attach the cubicles to the wall with a space of 30 mm from the wall to allow good ventilation,
- the clamps are used to offset the switchboard floor attachment points for better accessibility.

Exit direction

Plan a minimum space of 1200 mm at the front of the switchboard to allow complete opening of doors and handling of a device using a fork-lift truck.
Fit the doors according to the room exit direction.



Rear connection

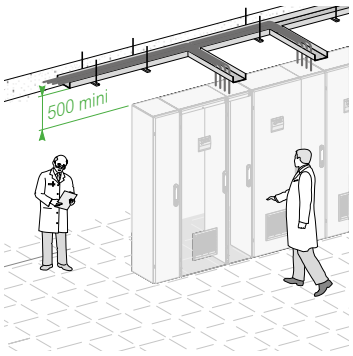
• Plan a minimum gap behind the switchboards of:
- 900 mm for switchboards equipped with rear doors to allow complete opening of the doors,
- 600 mm for switchboards equipped with rear panels to allow operator access.
• Plan a minimum gap of 1200 mm at the front of the switchboard to allow complete opening of doors and handling of a device using a fork-lift truck.

Preparing the site (cont.)

Top connection

By cables

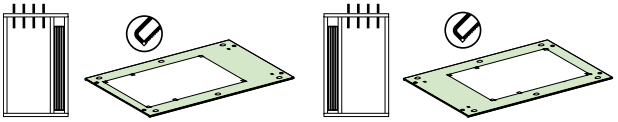
• Plan a minimum space of 500 mm (600 mm recommended) above the switchboard when connecting using cables (respect the bend radius of the cables) and/or to join the horizontal busbars.



• Remove the cubicle upper cross-member to install the cables more easily.
• Markings on the roof indicate where to route the cables.

By busbar trunking

• For busbar trunking connections, plan a minimum space according to the size of the busbar trunking to be connected and the exit type (elbow, vertical, etc.).
• When using busbar trunking, the size of the roof cut-out depends on the device and the cubicle type.

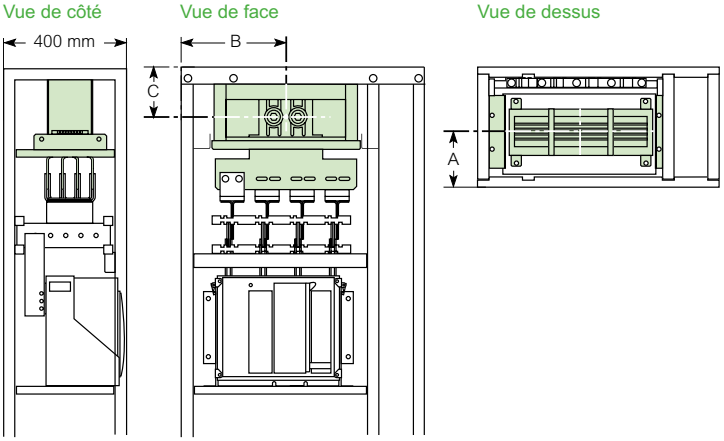


Switchboards of depth 400 or 800 mm

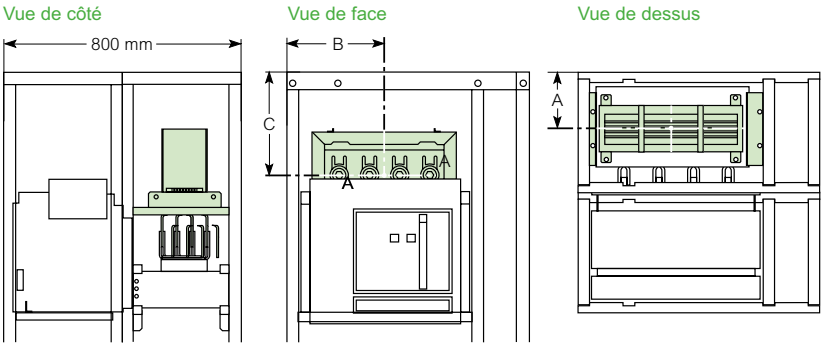
Circuit breaker NS/MTZ1 3P-4P (fixed and withdrawable)	Depth 400 mm or depth 800 mm		
Nominal current rating	A (mm)	B (mm)	C (mm)
1600 A withdrawable, front connection	260	325	170
1600 A withdrawable, rear connection	162	325	160
1600 A NT fixed, front connection	260	325	160
1600 A NT fixed, rear connection	162	325	160
1600 A NS fixed, front connection	236	325	160
1600 A NS fixed, rear connection	162	325	160

Note: dimension C is the center line of the busbar trunking connection with respect to the roof; it is used to determine the length of the straight or elbow section.

Circuit breaker NS/MTZ1 3P-4P (fixed and withdrawable) - Depth: 400 mm



Circuit breaker NS/ MTZ1 3P-4P (fixed and withdrawable) - Depth: 800 mm



Preparing the site (cont.)

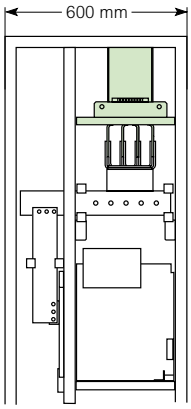
Switchboards of depth 600 or 1000 mm

Circuit breaker MTZ2 3P-4P (fixed and withdrawable)	Depth 600 mm or depth 1000 mm		
Nominal current rating	A (mm)	B (mm)	C (mm)
1600 A withdrawable, front connection	185	393	164
1600 A withdrawable, rear connection	185	310	414
1600 A fixed, front connection	185	375	264
1600 A fixed, rear connection	185	375	264
2500 A withdrawable, front connection	185	342	214
2500 A withdrawable, rear connection	185	307	414
2500 A fixed, front connection	185	325	387
2500 A fixed, rear connection	243	325	414
3200 A withdrawable, front connection	185	342	214
3200 A withdrawable, rear connection	185	307	339
3200 A fixed, front connection	185	404	264
3200 A fixed, rear connection	226	326	414
4000 A withdrawable, rear connection	210	325	700
4000 A fixed, rear connection	210	325	750

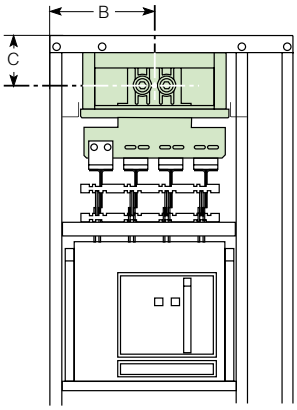
Note: dimension C is the center line of the busbar trunking connection with respect to the roof; it is used to determine the length of the straight or elbow section.

Circuit breaker MTZ2 3P-4P (fixed and withdrawable) - Depth: 600 mm

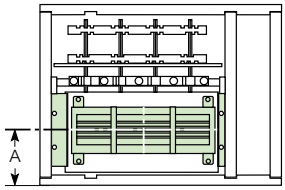
Vue de côté



Vue de face

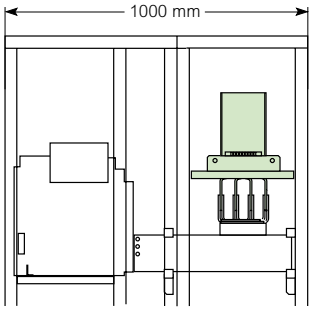


Vue de dessus

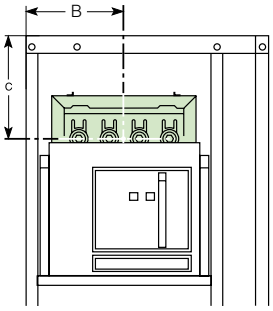


Circuit breaker MTZ2 3P-4P (fixed and withdrawable) - Depth: 1000 mm

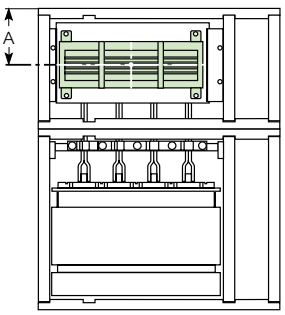
Vue de côté



Vue de face



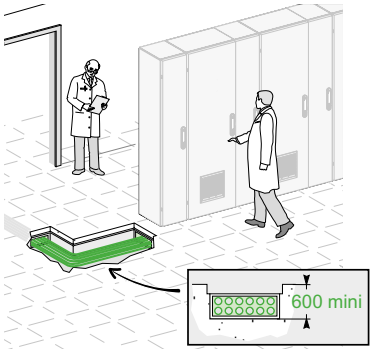
Vue de dessus



Preparing the site (cont.)

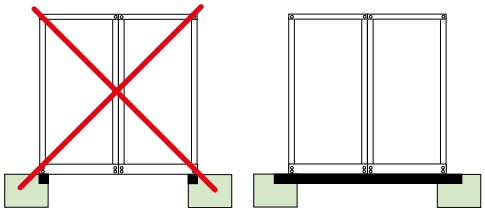
Bottom connection

• The cables will be routed:
- either in a duct fitted under the cubicles,
- or under a false floor.
• In both cases, plan a minimum depth of 500 mm (600 mm recommended) to respect the bend radius of the cables.



• If a duct is used, its width will be less than the depth of the cubicle, or it will be equipped with cross rails or profile sections.

! Cross profile sections must be used when combining cubicles back-to-back.



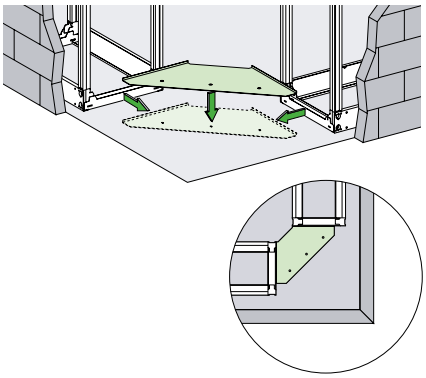
• In the case of a false floor, the switchboard must be installed on a metal chassis designed to support the weight of the cubicles.
• The slabs of the false floors will be adjusted so as to respect the switchboard protection index (IP).

! 1-piece gland plates should be cut at least 30 mm from the edge of the plates.

Note: for a 1-piece or 2-piece gland plate fitted in 150 or 300 mm width, 400 or 600 mm depth, the gland plate must be fitted before the supports of the flat vertical busbar.

Angle kit

• The angle kit allows 2 cubicles to be combined at a 90° angle.
• Place the corner element on the ground to position the 2 cubicles to be combined. These 2 cubicles will only be attached once this corner element has been positioned on the floor.



Installing the cubicles

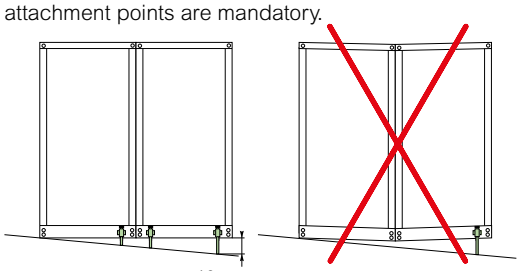
Positioning the cubicles

• The switchboard is made up by placing the cubicles side by side in a logical order. The first cubicle to be positioned can be either the right-end cubicle, the left-end cubicle or the central cubicle.

• Bring the cubicles to the site in the chosen assembly order.
• Remove the packagings and the protective boards if applicable.
• Remove the paneling parts to allow access to the cubicle assembly points and connection points.
• Dismantle the roof if it needs to be prepared (cutting or drilling) for cable connection from the top.

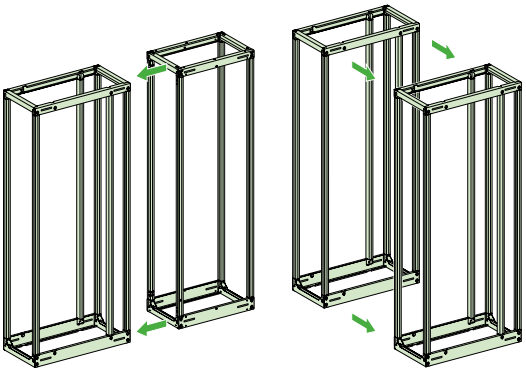
Location of the attachment points

• The attachment points must always be on the outside of the switchboard with a maximum distance of 1 m between each attachment point.
• If a leveling kit is used for attachment, all the attachment points are mandatory.



Frameworks

Attachment and assembly principle



• Position the first cubicle.
• Check that its support is vertical or adjust the level if a leveling kit is installed (ref. LVS08702).
• Attach the cubicle to the floor and/or to the wall according the chosen attachment principle.
Final tightening will be carried out once all the cubicles have been joined together.
• Bring the next cubicle into position beside the first one.
• Adjust its position (setting the correct height, aligning the front faces).
Use the level adjustment kit, if installed, to adjust the height.
• Precautions:
- identify the paths of inter-cubicle cable bundles or auxiliary wiring
- take all necessary measures to avoid pinching or damaging cabling when installing the cubicles
- protect auxiliary wiring passing near sharp edges,
using flexible cable trunking or cable grommets.

• Join the other cubicles in the same way.

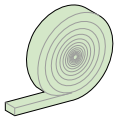
Installing the cubicles (cont.)

Frameworks (cont.)

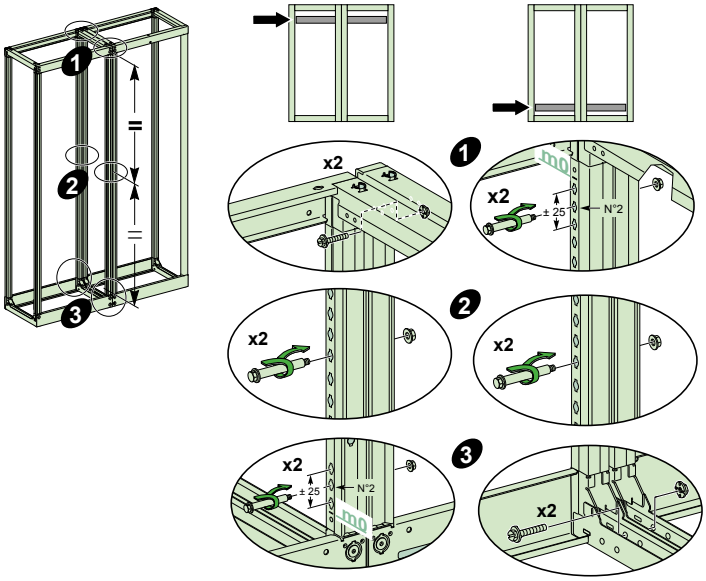
Side-by-side combination

• The cubicles are supplied with a side-by-side combination kit including:
- 2 standard bolts
- 4 bolts with spacers.

• For protection index IP 55, a seal must be installed (if not factory-fitted) between the cubicles combined together. The seal is supplied in the IP55 sealing kit for side-by-side combination (ref. LVS08717).

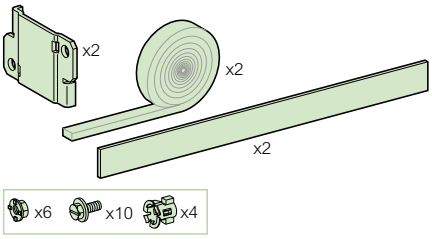


• The side-by-side combination kit contains a set of nuts and bolts to make three mechanical connections:
- two for the side bars
- and one for the uprights.
• Switch the top and bottom mechanical connections of the side-by-side combination kit depending on the position of the busbar (top or bottom).

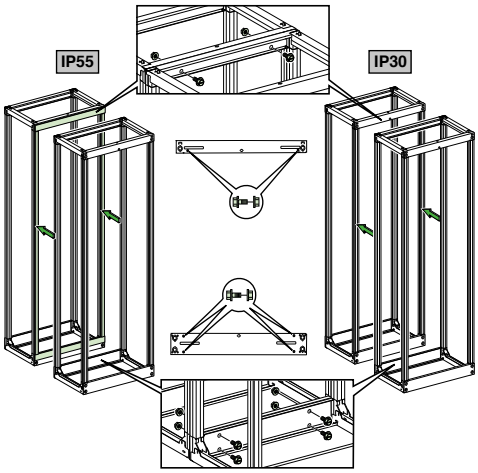


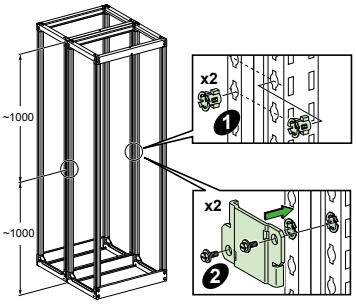
Back-to-back combination

• Use the double-depth combination kit (ref. LVS08719).



• For protection index IP 55, the seal supplied with each kit must be installed (if not factory-fitted), between the cubicles combined together.





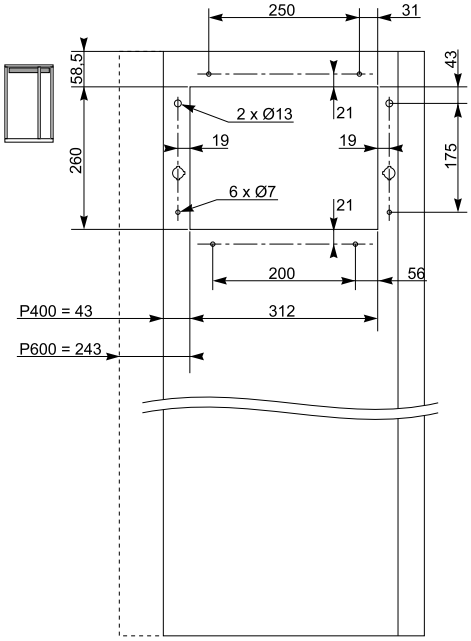
Installing the cubicles (cont.)

Angle combination

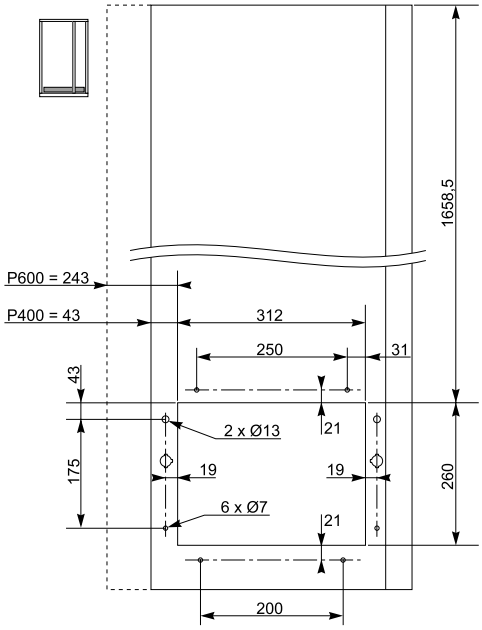
Cutout of the side panels

• Before installing the angle kit between the 3 cubicles, make the cutouts in the 2 side panels to be connected at the top or bottom depending on the position of the busbar.

• Cutout if the busbar is at the top:

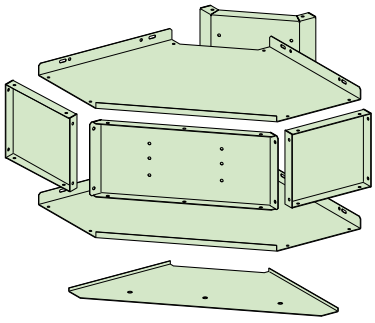


• Cutout if the busbar is at the bottom:

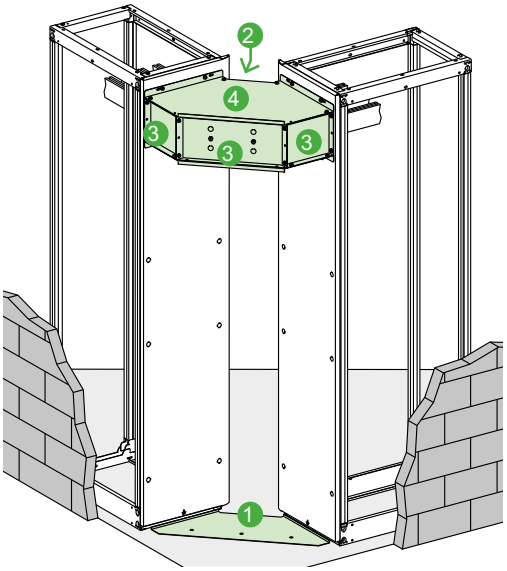


Paneling the busbar

• Use the angle kit (ref. LVS08713) to combine two columns.



• The kit contains a set of nuts and bolts and covers to make a mechanical connection between the 2 cubicles.



• Assembly:

- position and attach the corner element to the floor 1
- attach the first side cover of the kit 2 to the 2 side panels of the cubicles to be connected (see "Angle kit", page 28)
- attach the 3 remaining side covers 3 after having screwed them together
- position the bottom busbar supports, then the connection busbar
- position the 2 upper intermediate busbar supports with their threaded rods
- connect the busbars on each side, then install the 2 last top busbar supports (at the fishplates)
- close the angle kit by screwing the two top and bottom covers 4.

Bottom angle kit

Paneling the cubicles

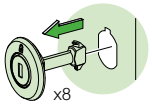
Side panels

The side panels and the front and rear cubicles are different.

IP 30

Dismantling

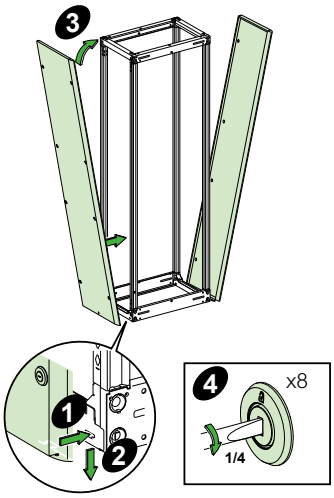
• For each side panel:
- unscrew the 8 ¼ turn screws,
- remove the panel and store it in a safe place where it will not be damaged.



• Identify the type of panel for front assembly and rear assembly.

Assembly

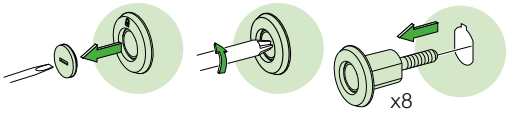
• For each side panel:
- identify the front and rear side panels,
- insert the 8 ¼ turn screws,
- position the 2 tabs at the bottom of the panel in the two slots located at the bottom of the cubicle,
- give a quarter turn to the 8 screws.



IP 55

Dismantling

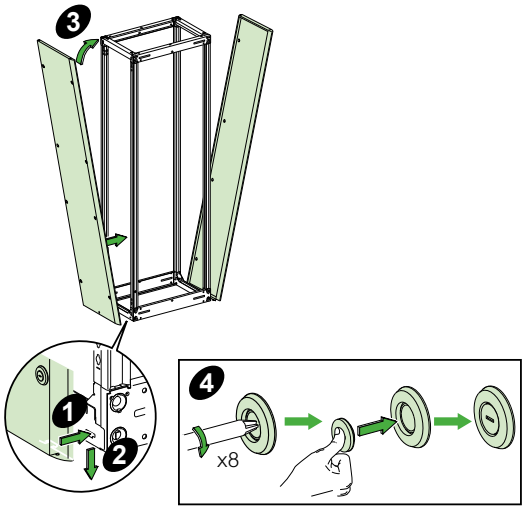
• Dismantle the panel by unscrewing the 8 screws of the spacers
• Remove the panel and store it in a safe place where it will not be damaged.



• Identify the type of panel for front assembly and rear assembly.

Assembly

• Identify the front and rear side panels,
• Position the 2 tabs at the bottom of the panel in the two slots located at the bottom of the cubicle
• Insert and screw the 8 sub-assemblies: spacer + screw



Note: panels equipped with a factory-fitted polyurethane (PUR) seal.

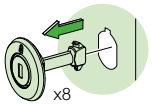
Paneling the cubicles (cont.)

Rear panels

IP 30

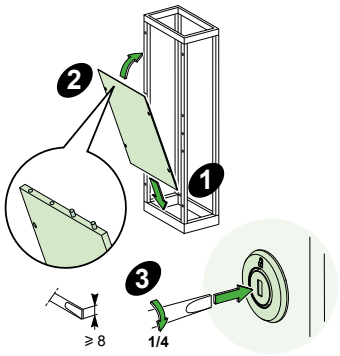
Dismantling

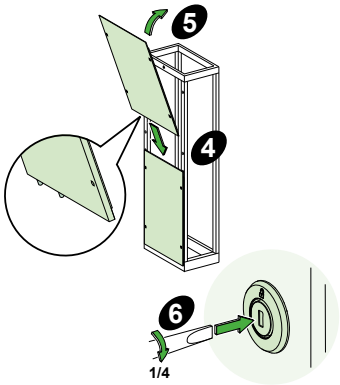
• dismantle the upper ½ panel by unscrewing the ¼ turn screws:
- 4 screws for cubicles of width 300 and 400,
- 5 screws for cubicles of width 650 and 800
• same for the lower ½ panel.
• store them in a safe place where they will not be damaged.



Assembly

• position the lower ½ panel
• insert and screw the ¼ turn screws
• fit the upper ½ panel onto the lower ½ panel using the tabs
• give a quarter turn to the 4 or 5 screws of the upper ½ panel.

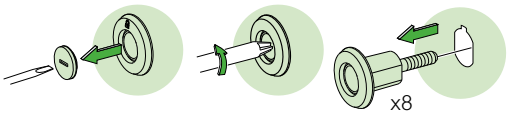




IP 55

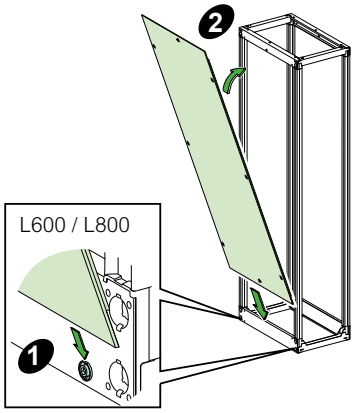
Dismantling

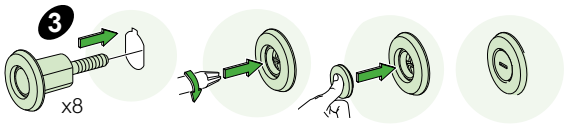
• remove the plugs protecting the attachment screws
• dismantle the panel by unscrewing the screws:
- 6 screws for cubicles of width 300 and 400,
- 8 screws for cubicles of width 650 and 800.
• store the panel in a safe place where it will not be damaged.



Assembly

• position the rear panel: for the cubicles of width 650 and 800, there are 2 assembly guides to be screwed at the bottom of the framework
• position and screw the 8 sub-assemblies: spacer + screw
• clip the plugs protecting the attachment screws





Note: panels equipped with a factory-fitted polyurethane (PUR) seal.

Paneling the cubicles (cont.)

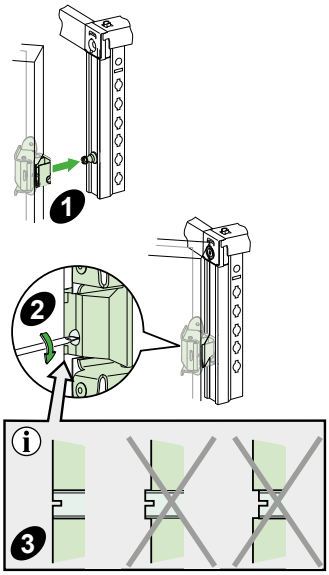
Doors

Dismantling

• Remove any earthing braids from the doors.
• if necessary, disconnect the devices installed on the door.
• Unscrew the ¼ turn locking key on each of the 3 hinges.
• Remove the door and store it in a safe place where it will not be damaged.

Assembly

• Position the door by fitting the hinges in the ¼ turn studs.
• Secure the door by tightening the screw on the ¼ turn locking key of each hinge.
• if applicable, reconnect the earthing braids.
• Connect the devices installed on the door.
• Check that the handle works correctly and that it can be locked.



Note: the doors of switchboards protected to IP 55 are equipped with a factory-fitted polyurethane (PUR) seal.

Roof

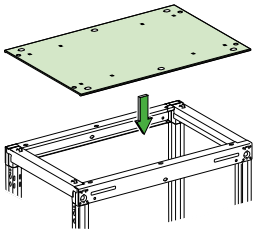
IP 30

Dismantling

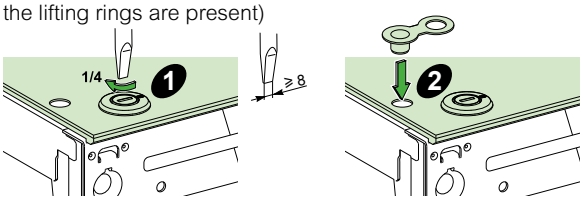
• if installed, unscrew and remove the lifting rings as well as the lifting ring plugs
• unscrew the ¼ turn screws:
- 4 screws for cubicles of width 300 or 400 mm
- 6 screws for cubicles of width 650 or 800 mm
• remove the roof and store it in a safe place where it will not be damaged.

Assembly

• position the roof



• insert the screws and give them a quarter turn
• fit the lifting ring plugs (they are installed differently depending on whether or not the lifting rings are present)



• if necessary, screw in the lifting rings.

Paneling the cubicles (cont.)

IP 55

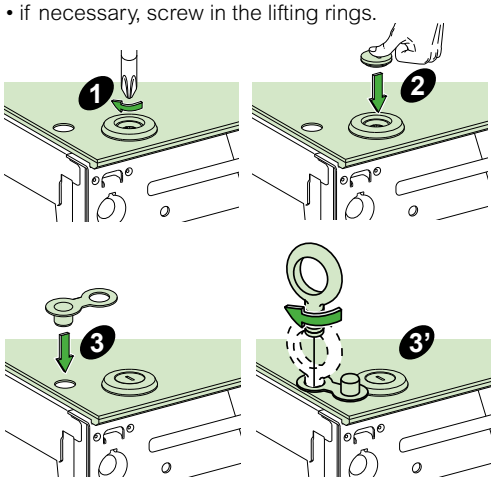
Note: roof equipped with a factory-fitted polyurethane (PUR) seal.

Dismantling

• if installed, unscrew and remove the lifting rings as well as the lifting ring plugs
• remove the plugs protecting the attachment screws
• unscrew the screws and remove the spacers:
- 4 for cubicles of width 300 or 400 mm,
- 6 for cubicles of width 650 or 800 mm
• remove the roof and store it in a safe place where it will not be damaged.

Assembly

• position the roof
• insert the spacers and tighten the screws
• fit the lifting ring plugs (they are installed differently depending on whether or not the lifting rings are present)
• if necessary, screw in the lifting rings.



Gland plates

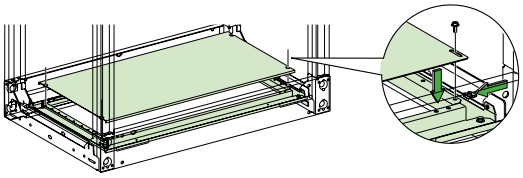
Gland plates are either in 2 parts (IP 30) or 1 part (IP 55).

Dismantling

• unscrew the gland plate attachment screws
• remove the gland plate.

Assembly

• position the gland plate
• tighten the gland plate attachment screws.



Preparation before connection

Connection on site

PrismaSeT G Active

To facilitate the installation and cabling of the supply cables, part of the paneling must be removed to allow easy access to the switchgear and terminals

For IP 30 enclosures:

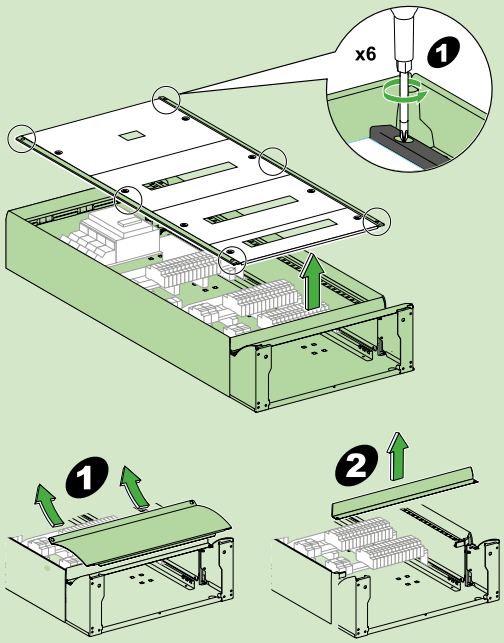
Remove:
• the front plate support frame,
• to route cables at the top or the bottom:
- either the gland plate only,
- or the support plate and the gland plate for the enclosures.

For IP 30 panels:

Remove:
• the front plate support frame,
• to route cables at the top:
- either the gland plate only,
- or the communicating roof.
• to route cables at the bottom:
- the plinth front face with its reinforcement bar.

For IP 55 enclosures:

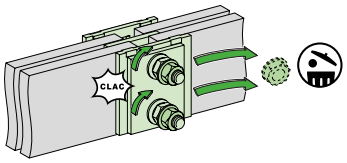
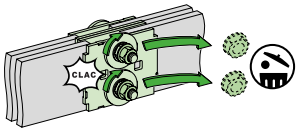
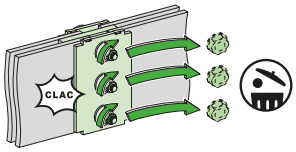
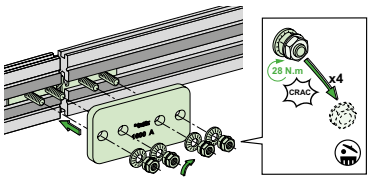
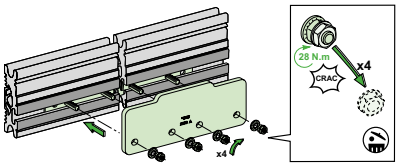
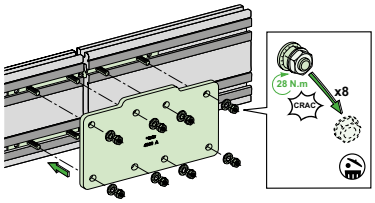
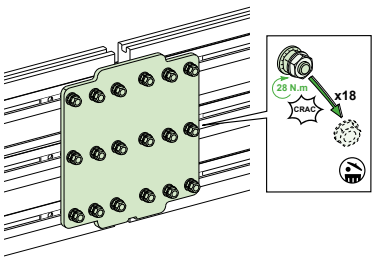
Remove:
• the door,
• the front plate support frame,
• to route cables at the bottom:
- either the gland plate only,
- or the support plate and the gland plate for the enclosures.
• to route cables at the top:
- the upper partition to fit it with cable glands.



Electrical junctions

Splicing the busbar

• Various types of fishplate are used to join the horizontal busbars:

fishplate reference	bar height		for the assembly, refer to
for the Linergy BS flat busbars			
LVS04640	50 and 60 mm		manual No. 04696074
LVS04641	80 and 100 mm		manual No. 04696075
LVS04643	120 mm		manual No. 04696290AD
for the Linergy LGYE aluminium profile section busbars			
LVS04620	60 mm		manual No. S1B59579B
LVS04621	100 mm		manual No. S1B59579B
LVS04623	150 mm		manual No. S1B59579B
LVS04625	270 mm		manual No. NNZ3137000

• The fishplates are supplied with shear nuts, to tighten and block the fishplate on the busbar at a torque of 28 Nm, without a torque wrench.
• Make sure that tightening is carried out in a balanced way, progressively increasing tightening to each nut.

! If it is necessary to unscrew a nut that has been tightened in this way, it MUST be immediately replaced by a new shear nut.

Assembling a Linergy BS flat copper busbar

• Remove the necessary number of fishplate spacers depending on the thickness and number of busbars
• Position the fishplate along the length or the height depending on the busbar: see assembly manual indicated in the table opposite.
• tighten the nuts until they shear.

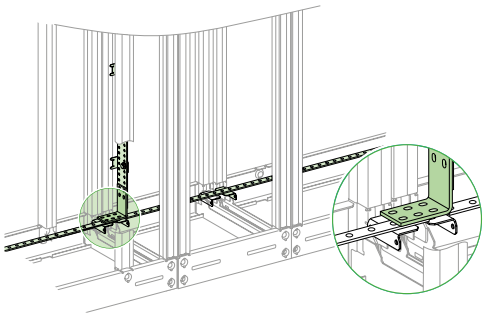
Assembling a Linergy LGYE aluminium section profile busbar

• Insert the Linergy screws or the flat plates with several studs.
• Tighten the shear nuts. Make sure that tightening is carried out in a balanced way, progressively increasing tightening to each nut.

Electrical junctions

Junction of protection conductors

The protection conductors are connected using an angle bracket (ref. LVS04672):
• position the angle bracket in the axis of the ground conductor,
• install the fasteners,
• tighten to the recommended torque with a torque wrench (see ""Tightening torque", page 43),
• mark the nut and the angle bracket with a drop of varnish.



Procedures before connection

Protecting the equipment

• If the cubicles are not connected immediately after being installed, the following precautions must be taken to prevent the ingress of dust or foreign bodies:
- put back and close all the doors,
- put back the side and rear panels,
- put back the roofs,
- plug in the circuit breakers,
- block up the temporary openings (cable entries),

• in case of work causing projections (cement, welding, etc.), protect the cubicles with a cover.

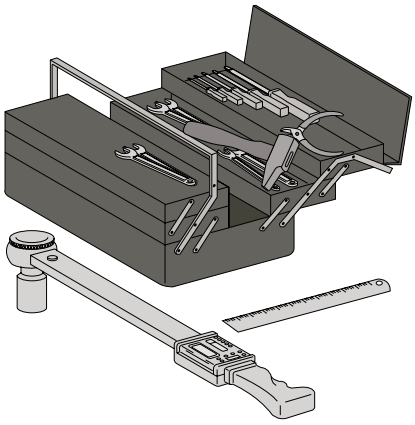
Connection

Tools required to connect the switchboard

List of tools

• Torque wrench.
• Ratchet wrench.
• 10, 13, 16, 17, 19 mm sockets.
• Crimping pliers.
• Clamp pliers.
• Flat and Pozidriv type screwdrivers.
• Colored, indelible and temperature-resistant acrylic varnish.

Note: for the other operations, use the installer's standard tools.



Special tools

• Torque wrench characteristics:
- torque: 75 N.m
- thin profile for certain tightening operations on busbars.
• Torque wrench (FACOM type) with the power and characteristics required for tightening under difficult access conditions (fishplates, etc.).
- wrench handle, essential
- extra-flat ratchet adapter, essential
- ratchet for ordinary sockets, optional.
• extra-flat sockets for extra-flat ratchet + handle:
- extra-flat 13, 16, 17 and 19 mm short sockets,
- extra-flat 13, 16 and 19 mm long sockets.

Connection types

• Power connection:
- connection of the busbar trunking to the splicing block,
- connection of cables with lugs to the bar tails,
- direct connection to devices.
• Connecting the auxiliaries:
- plug-in terminal blocks,
- connection terminals.

Connecting by busbar trunking

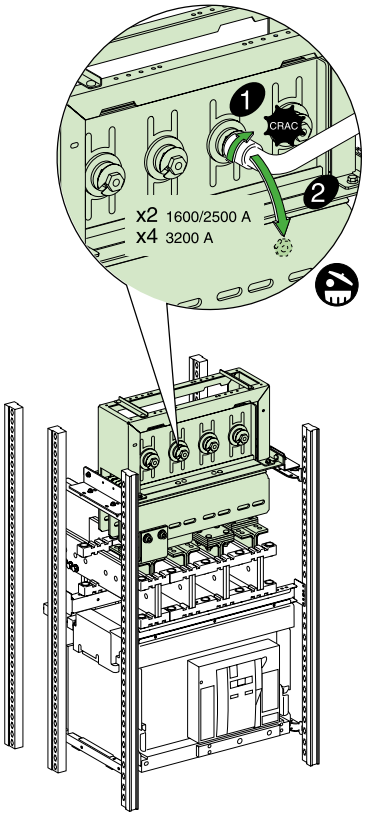
General

• The Prisma**SeT** P Active switchboard comes equipped with a special interface that allows it to be directly connected to the Canalis KT trunking.
• The electrical connection between the Canalis KT and the Prisma**SeT** P Active switchboard is just as easy as splicing two busbar trunking sections.
• The Canalis KT interface is totally integrated in the Prisma**SeT** P Active switchboard volume. It comprises a Canalis KT junction block and interface/circuit breaker connection terminals.

Busbar trunking connection through the top

• Remove the roof.
• Cut out a passage for the busbar trunking.
• Adjust the guides according to the Canalis KT width to be connected.
• Unscrew the junction block nuts.
• Ensure that the busbar trunking section to be connected to the switchboard is correctly supported and that it is not resting on the interface.
• Lower the section until it is in contact with the interface frame, without bearing on it.
• Tighten the shear nuts of the junction. When the head breaks, the torque of 60 N.m. has been reached.

! In certain cases, it is recommended to only tighten the 2 middle nuts to 60 N.m and the 2 outer nuts to 10 N.m.



• A red plastic washer, which is ejected when the head breaks, provides visual evidence that the junction tightening operation has been carried out correctly.
• For dismantling or maintenance operations, a second head is available on the nut. The recommended tightening torque is then 60 N.m.
• Put back the roof.

Sealing kit

• To retain the original IP index, use the roof sealing kit ordered with the busbar trunking. This kit guarantees IP 52 at the trunking passage.
• To install the kit, a cutout must be made in the roof of the Prisma**SeT** P Active switchboard. This cutout, which is the same size for all Canalis KT busbar trunking ratings, will be made using the template delivered with the sealing kit.

Power cable connection

General

⚠ DANGER

HAZARD OF ELECTRIC SHOCK

To ensure the protection of persons, first connect the switchboard protection cable to the earthing terminal.

Failure to follow these instructions will result in death or serious injury.

• Clamp the cables as close as possible to the connections so as not to create any mechanical stresses on the device terminals. When not using cable glands, also clamp the cables as close as possible to the cubicle entry point.
• The cables must never be in contact or routed between uninsulated live conductors (e.g. busbar).
• The sharp edges of the framework where cables are routed must be protected to avoid damaging the conductors.
• Respect with a minimum bend radius of 6 to 8 times the outer diameter of the cable.
• All power connections must be made with class 8.8 fasteners and spring contact washers, and tightened to the torque given in the table below.
• When connecting aluminum cables to copper terminals, use bimetal lugs or interfaces.
• Group the different types of circuit into separate cable bundles (power, control, 48 V, 24 V, direct, alternating, etc.).

Making the bundles

Cable cross-section (mm^2)	Number of cables per bundle
$S \leq 10$	8
$16 < S \leq 50$	4
$S \geq 50$	Individual tying

Clamping the bundles

Type of tie	Maximum Icw (kA rms/1 s)	Distance between ties (mm)
Width: 4.5 mm Load: 22 kg	10 15 20	200 100 50
Width: 9 mm Load: 80 kg	20 25 35 45	350 200 100 70

For cables of cross-section ≥ 50 mm^2, use 9 mm wide ties.

Tightening torque

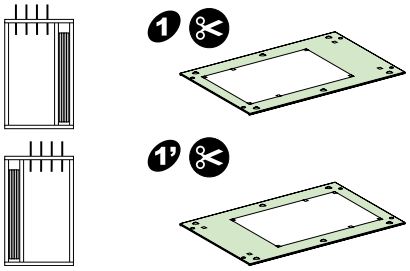
Recommended tightening torque for mechanical and electrical connections with class 8.8 hardware

Screw diameter	Tightening torque (N.m.) (with nut + contact washer)
M3	1.5
M4	3.5
M5	7
M6	13
M8	28
M10	50
M12	75

Connecting the power cables (cont.)

Connecting cables through the top

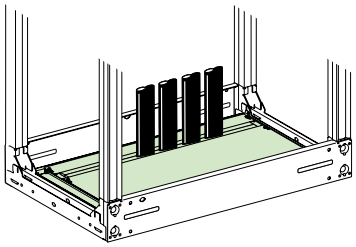
• Remove the roof.
• Drill the holes to fit the cable glands or grommets.
• Fit the cable glands or grommets. They must respect the switchboard protection index (IP).
• Put back the roof.
• Feed the cables through the glands or grommets.
• Feed the cables in the compartments provided and attach them to cable tie bars every 400 mm.
• Crimp and connect the lugs.
• When tightness does not require cable glands or when it is obtained using foam, the cables can be routed in a rectangular cutout in the roof. The framework cross-member can be removed so that it is easier to feed the cables into the cubicle.



Connecting cables through the bottom

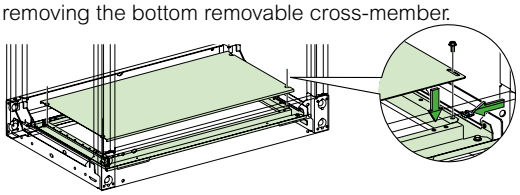
Using a 2-piece gland plate (IP 30)

• Drilling is not necessary with this type of gland plate.
• The gland plate prevents the creation of induced current.
• The cables are protected by a polyurethane foam seal for sealing purposes.



Using a 1-piece gland plate (IP 55)

• Remove the bottom plate.
• Drill the holes to fit the cable glands or grommets (1-piece gland plates should be cut at least 30 mm from the edge of the plates).
• Fit the cable glands or grommets. They must respect the protection indexes (IP).
• Put back the bottom plate.
• Feed the cables through the glands or grommets.
• Feed the cables in the compartments provided and attach them to cable tie bars every 400 mm.
• If cable glands are not used, it may be easier to prepare the cable heads outside the switchboard (e.g. lug crimping) and then move them into the cubicle after removing the bottom removable cross-member.



Covering a MasterPacT and ComPacT incomer

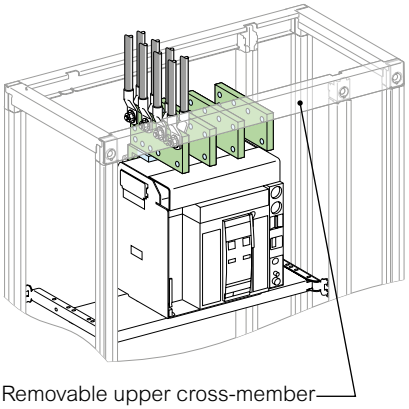
For MasterPacT MTZ2, MTZ1, ComPacT NS1600b-3200, NS630b-1600

• Remove the part of the cover to access the device connection terminals.
• Connect the cables, respecting the insulation distances.
• Make a cutout for the cables in the cover in such a way as to preserve the required protection index.

Connecting the power cables (cont.)

Connecting to bar tails

• Check the consistency between circuit and device identifications.
• When connections are made to bar tails comprising several bars per phase, position the lugs opposite one another and insert copper spacers.
• Respect the insulation distances between phases. Comply with standard IEC 60439-1.
• Mark all nuts and bar tails with a spot of varnish after tightening to the recommended torque.
• Remove the cubicle upper cross-member to connect the cables to the terminals more easily.
• Tie the cables together by phase. (see ""Power cable connection", page 43)



Connecting directly to device terminals

• When connections are made directly to the device terminals, respect the tightening torque given by the device manufacturer.
• Check that the length of the screws delivered with the device is compatible with the thickness of the lugs to be connected.
• Respect the safety perimeter around the devices, defined by the manufacturer and guaranteeing their correct operation.
• If necessary, put back the phase separators and the terminal covers after making the connections.
• In the special case of connection with shielded wires, please consult us.

Connecting the auxiliary circuits

Routing the cables

Cable straps

• Cables routed through straps must comply with the following rules:
- cables routed through the straps must not be tied in bundles,
- a sufficient number of straps must be used: generally 1 strap every 100 mm.

Cable ducts

• The following rules apply to cable ducts:

- cable ducts must be secured at least every 600 mm,
- cable ducts must not be filled to more than 70 % capacity,
- cables must not be tied into bundles inside cable ducts
- cable ducts must be secured using plastic screws to avoid any risk of damaging the cables,
- do not route auxiliary cables directly in contact with power cables,

Connection

Connecting to terminals

• Terminals are either installed on the device mounting plate or on rails
• All conductor strands must be placed in the terminal hole.
• Tighten properly making sure the strands are not cut. It is recommended to use cable ferrules.
• It is recommended to use cable ferrules with the cables for set screw terminals.
• Some Schneider Electric switchgear and junction blocks use spring terminals. This type of connection is very reliable since it is insensitive to vibrations and thermal variations. With this type of spring terminal, it is recommended to insert only insert one wire in each terminal.
• Identify the cables using markers that are consistent with those in the switchboard to make future work easier.

Routing auxiliary wiring between cubicles

• Connect the plug-in junction terminals for auxiliary wiring.

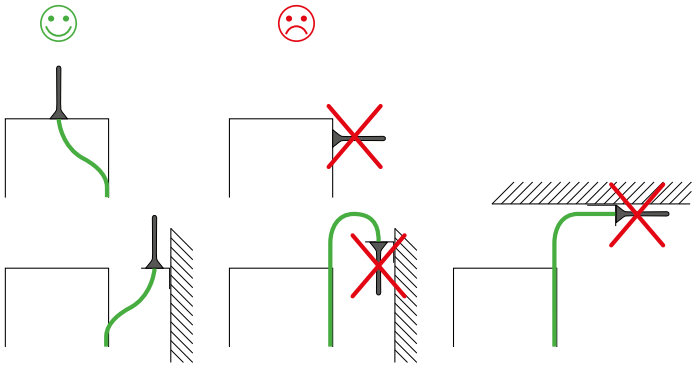
Routing towards auxiliary door-mounted switchgear

• Route the cables through self-adhesive door ducts and/or flexible trunking to the door.

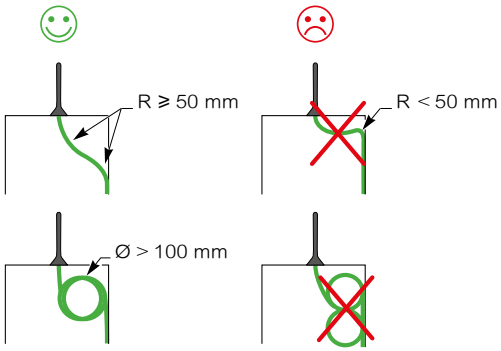
Connecting the antenna

Antenna on the roof

- Place the magnetic antenna on the roof at the most suitable position.
- Respect the bend radius if you need to wind the cable (see diagram below).
- The antenna must always be installed vertically.



- Make sure to respect the antenna cable bend radius.



NOTICE

RISKS OF EQUIPMENT DAMAGE

- All bends in the antenna cable must have a bend radius greater than 50 mm.
- It is prohibited to wind the cable in a figure of 8.
- Remove the antenna from the roof to transport the equipment.

Failure to follow these instructions may result in equipment damage.

- Connect the cable to its connector on the top of the green strip: tightening torque 0.8 N.m.

Remote antenna

- In this case, the antenna must have already been installed: see “"Antenna installation", page 23
- Simply connect the antenna cable extension (5 m) ref. SMT10011 on the connector at the top of the green strip: tightening torque 0,8 N.m

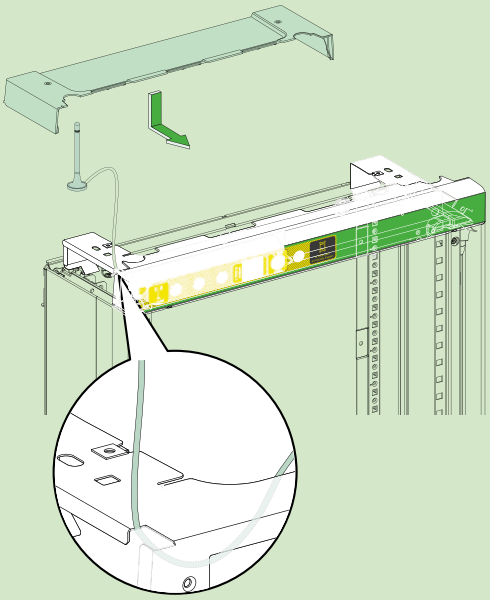
Note: to avoid damaging the connector, it is recommended to tighten by hand “up to contact”.

PrismaSeT G Active

- The antenna is stored inside the roof.
- Open the gland plate to access it.

Antenna on the roof

- Feed the antenna and its cable through the opening provided.



- Put back the gland plate.
- Position the magnetic antenna vertically on a metal part of the roof.

Remote antenna

- Remove the green strip to access the antenna cable connector.
- Unscrew the antenna cable.
- Route the extension along the same path as the antenna cable.
- Screw the extension instead.
- Put back the green strip and the cable gland-plate.

Finishing

General

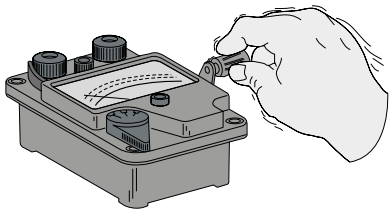
• Work carried out on the cubicles to allow or simplify cable routing must not affect the original protection index.

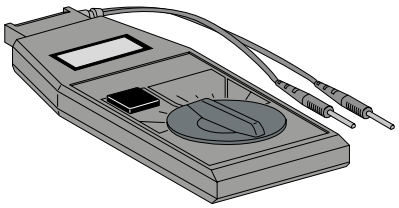
Note: if a panel has been cut to route cables for example, the edge should be repainted to avoid corrosion and fitted with a protective sleeve (U-section seal, grommet) to avoid damaging the insulation of the conductors.

Paneling

• Put back the shields and partitions protecting the connections and busbars.
• Put back the roof (check that the self-adhesive seal is present on the roof for protection index IP 31).
• Put back the gland plates.
• Put back the rear panels.
• Put back the side panels.
• Put back the door. If necessary, do not forget to connect the earth braid when devices are installed on the door.
• Touch up the paintwork as required.

Commissioning





List of measuring and checking instruments

The following measuring and checking instruments are required to power up switchboards:
- magnetoelectric generator,
- dielectric strength measuring instrument,
- phase tester,
- phase sequence tester: rotophase,
- multimeter,
- vibrotest for locating poor auxiliary circuit connections,
- variable current source (AC, DC, recommended power 20 A),
- simulator (optional) with push-button, bulbs, measuring instruments.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK

PrismaSeT P Active switchboards must be commissioned by qualified personnel, authorized to work near voltage and having received training on safety instructions.

Failure to follow these instructions will result in death or serious injury.

General

Positioning of high power devices

• Unpack the devices, if they are packed separately.
• Check that they have not suffered any damage which could affect correct operation.
• Before installing the device, check that the chassis corresponds.
• Pull the rail extraction handles.
• Position the device on the rails.
• Make sure it rests on all four supports.
• Push the device into the chassis.

Installation and operation

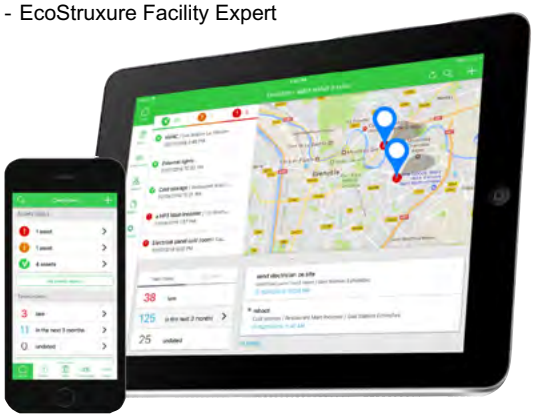
• See the device manuals.

Communication equipment

List of digital tools

• LoRa tester ref. SMT10013.

• Smartphone or tablet with suitable apps
(can be downloaded from PlayStore or AppStore):
- EcoStruxure Facility Expert



- EcoStruxure Power Commission App (for smartphone only)

Application of tools

• To check the reception quality of the LoRa wireless network at the switchboard location: LoRa tester
• to configure the energy, fire protection and auxiliary contact status sensors: EcoStruXure Power Commission App.
• To connect the switchboard to the Schneider Electric cloud for supervision purposes: EcoStruXure Facility Expert.

Configuration

Configuring the sensors

• If this step was not carried out in the workshop, or if addition configuration is required, open the EcoStruxure Power Commission app.

Connecting to the cloud

• Flash the QR code located beside the power on indicator light. The wizard will help you to:
- Download the EcoStruXure Facility Expert app.
- From the 3 options proposed, select “EcoStruxure Facility Expert”.
- Follow the instructions.
Note: during the procedure, press the button beside the QR code: keep it pressed for 5 seconds.

For more information

Refer to the PrismaSeT Active commissioning guide, ref. ESXP1G005EN

Commissioning coaching

Online service

• Refer to ""Commissioning coaching", page 9

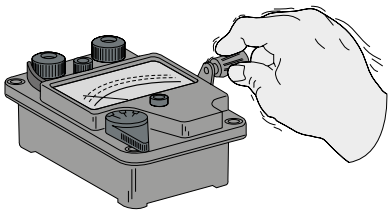
Precautions before tests

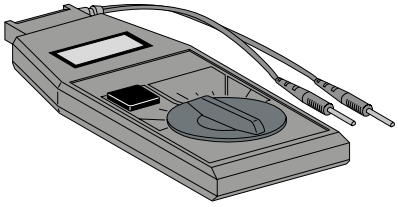
Measures and precautions to be taken before powering up the auxiliaries and the power circuits.

• Respect the safety rules.
• Vacuum the dust from all the switchboards.
• Remove any foreign bodies that could affect correct operation of the switchboard (pieces of cable or wire, fasteners, other parts, tools).
• Check the insulation of the auxiliary circuits (use a magnetoelectric generator).
• Check the auxiliary circuits of the switchboards: power up and carry out operating tests of the various sequences.
• The dielectric tests have already been carried out in the workshop (see workshop inspection report). During the tests, the equipment is subjected to various stresses (aging, etc.). These tests should not be performed too many times.
If the customer expressly requests a new test, apply a coefficient of 0.8 to the factory test value.

Checking mechanical junctions

• Check that the switchboards are correctly attached to the floor.
• Check the inter-cubicle mechanical junctions.





Checking electrical junctions

Busbars and fishplates

• Checking the insulation and creepage distances.

Cables

• Number and cross-section.
• Correspondence between the cable routing holes made in the metal panels and the diameter of the grommets and cable glands (respect of the protection index), to avoid damaging the cables.
• Compatibility of the cable cross-sections or lug with:
- the cage
- or the device terminal.
• Quality of cable clamping: it must support the weight of the cables and withstand any electrodynamic forces caused by short circuits.

Tightening

• Check the screw diameters and make sure that all electrical connections made on site have been correctly tightened:
- either visually, if the fasteners were marked,
- or using a calibrated torque wrench for the last connections made on site.

Checking the insulation

• Before powering up the equipment, carry out a global insulation measurement.
• For a TNC-type earthing arrangement, disconnect the earthing connections and carry out insulation measurements only on the phases.
• The check must be made using an insulation measurement device working at a voltage of at least 500 V DC.

Minimum insulation resistance value

• The minimum insulation resistance value must be equal to 1000 ohms/V.
• If the global insulation value is low:
- warm the switchboard for at least 24 h (using an electrical element, bulb, heat source) to eliminate dampness,
- repeat the global insulation measurement.

The dielectric tests have already been carried out in the factory (see workshop inspection report). During the tests, the equipment is subjected to various stresses (aging, etc.). These tests should not be performed too many times.
If the customer expressly requests a new test, apply a coefficient of 0.8 to the factory test value.

Checks and tests (cont.)

Protection of persons

Electrical continuity

• Use of spiked washers to guarantee electrical continuity of the assembled components (inter-cubicle, finishing panels, partitions).
• Junctions between the protection conductor and the inter-cubicle connection.
• Presence of earth braids on doors fitted with switchgear.
• Connection of the switchboard earth to ground.

Protection against direct contacts

• Presence of the covers requested by the customer and in compliance with standard IEC 63439-14, § 7.7.
• Presence of barriers to keep people from approaching live equipment.

Protection against indirect contacts

• Check that the installation power is automatically switched off on first or second fault depending on the earthing arrangement.

Switchboard protection index

• Check that the protections corresponding to the requested resistance to external influences have been fitted:
- for IP 31: check that the self-adhesive seal has been affixed on the roof and that the deflectors have been fitted on the bottom ventilation openings
- for IP 55: check that the seals have been fitted between cubicles installed side-by-side and back-to-back.
• Check that the openings for conductors (inter-cubicle copper busbars, incomer and feeder cables) do not affect the switchboard protection index.

Miscellaneous checks

Mechanical locking of the switchgear:

• Operation.
• Conformity with requirements.

Markings

• Of the switchboard: identification plate.
• Of the power and control conductors.
• Of the incoming and outgoing cables if applicable.

Description

• Visual inspection of the outer appearance (paint, scratches, etc.).
• Carry out touch-up work if necessary.

Cleaning

Cleaning the inside

• Remove any dust from inside the switchboard using a vacuum cleaner.
• Check there are no foreign bodies inside the switchboard (tools, fasteners) which could affect its correct operation.

⚠ WARNING

RISK OF SHORT CIRCUITS

Do not clean the inside of the switchboard with an air jet which could cause swarf or other debris to accumulate on live parts.

Failure to follow these instructions can result in death, serious injury or equipment damage.

Cleaning the outside

• Remove the dust on the outside. If necessary, use a neutral solvent which does not damage the paint.
• Touch up the paintwork as required.

Checks and tests (cont.)

First power-up

For the power distribution

• If necessary, plug in the withdrawable circuit breakers: Master**PacT**, Com**PacT** NS and Com**PacT** NSX (see corresponding manuals).
• Check that all the protective circuit breakers are “open”.
• Set the Master**PacT** and Com**PacT** NS control units (see manuals).
• Set the thermal-magnetic or electronic trip units of the protective circuit breakers.

To manage the electric motors

• After reading the maker’s plate of the motor to be protected, set:
- the thermal trip units of the circuit breakers,
- the thermal relays,
- the “motor” circuit breakers,
- the motor protection relays.
• Check that the phase rotation or index is consistent with that of the switchboard power supply network circuits.

To power up the electrical circuits

• Progressively power up the switchboard power circuits, making sure that the loads of each device are supplied and operate correctly.
• Perform the operating tests:
- operating sequence,
- controls, indications, measurements, protection,
- remote control mechanisms,
- electrical interlocks.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK

• Powering up the switchboard for the first time is potentially dangerous, due to faults undetected during the preliminary checks.
• Powering up must be carried out by a qualified technician.
• Before any intervention switch off the equipment.

Failure to follow these instructions can result in death, serious injury or equipment damage.

When a switchboard is switched off for a long period

• Check that no foreign bodies (tools, fasteners, animals, etc.) have been left inside the switchboard, especially if it has been modified.
• Clean all components (see “"Cleaning", page 55).
• Check the insulation:
- if the value is below 1000 ohms/V, warm the switchboard (using an electrical element, bulb, etc.) to eliminate any dampness and condensation
- repeat the insulation test to check that the insulation value is conform
- if necessary, investigate to determine the source of the problem.
• Before powering up, make sure that all outgoing circuits are “open” to avoid an excessive current surge when closing the main circuit breaker.
• After powering up, progressively close the circuit breakers.

Maintenance

Preventive maintenance

Frequency

• The frequency of the preventive maintenance operations depends mainly on the conditions of use of the switchboard.
• For a normal environment, the frequency should be as indicated in the recommended calendar.
• It may be extended if the switchboard is used in a particularly clean environment at low load.
• It must be reduced if the switchboard is used in a particularly aggressive environment (dust, humidity, corrosive vapors, heat) or in case of intensive use.

Recommended calendar

Type	Action	Frequency
General inspection	• Visual checks and cleaning of the cubicles. • Inspection of the busbars. • Operating tests	Once a year
Maintenance of the functional units	• Check of the connections	Every 5 years
Maintenance of the ventilation system	• Cleaning of the filters	Every 6 months
Maintenance of the devices	According to the manufacturers' operating manuals	

General recommendations

Before any intervention on the connections, switch off the cubicle, remove the protective screens and the partitioning sheets and boxes:
• For interventions on the connections, refer to chapter “"Connection", page 41.
• When reassembling the connections:
- use new fasteners (screws, washers, nuts) of the same type (class 8.8)
- tighten to the recommended torque (see “"Tightening torque", page 43)
- apply varnish.

Method used to inspect the electrical connections

Connections by lugs or screwed bars:

• Check that the varnish is present.
• Detect visually the color change of a copper bar.

Connections by tunnel terminals:

• If necessary, retighten to the torque recommended by the manufacturer to compensate for possible creep.

Make sure to refer to chapter “"Important Information", page 6.

Preventive maintenance (cont.)

General inspection

Visual checks and cleaning of the cubicles

• Check that there are no foreign bodies or dampness inside and outside the switchboard.
• Examine the outer finish. If necessary, touch up any paint scratches and replace any damaged or corroded parts.
• Clean the switchboard, preferably with a vacuum cleaner. If necessary, clean the ventilation devices and change the filters.

Inspecting the busbars

General

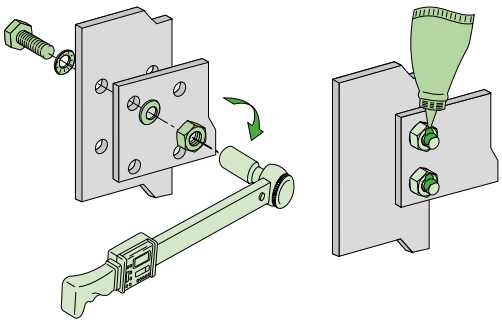
• The connections do not have to be retightened since they were tightened to torque and the use of a spring washer compensates for any creeps due to heating. The presence of varnish guarantees correct tightening to torque, carried out in the factory.

Checking the busbars and their supports

• The connections on the busbars and the customer connections can be checked removing the protections (with the power switched off) or if a hot spot is detected (infrared control or thermal sensors). A hot spot is indicated by a color change.
• In case of hot spot, see ""Hot spot", page 61.
• Check the condition of the busbar supports (insulating)

Loose nut

• If the varnish no longer provides a visual guarantee of correct torque tightening:
- either retighten the nut to the correct torque using a torque wrench,
- or replace the nut by a shear nut of the correct torque and discard the part which has sheared off,
• Apply a spot of varnish.



Cleaning the panel fan filters

Standard or thin filters

• Wash them with water.
• It is also possible to remove the dust by tapping, vacuuming or blowing with compressed air.
• If there is any oil or grease, replace the filter.

Communication gateway

Checking the communication quality

A poor quality LoRa signal may lead to service interruptions or data losses on the Facility Expert supervision system.

Method

• Check remotely on the EcoStruxure Facility Expert mobile app at the switchboard whether the connection to the LoRa network is good (green), medium (orange) or interrupted (red). This check can also be carried out in front of the switchboard using the LoRa tester, ref. SMT10011.
• If the signal is poor, try to reposition the antenna. It must be positioned vertically, as close as possible to the outside of the building (window, door, etc.).
• If the signal has not improved after moving the antenna, it is possible that the building environment has changed and now disturbs the signal. In this case, call Schneider Electric support, which will be able to propose solutions to amplify the LoRa signal.

Replacing the gateway

• It is recommended to replace the Wireless Panel Server gateway after 10 years to guarantee optimum communication.

Corrective maintenance

General

General recommendations

Before any intervention on the connections,

- Switch off the cubicle.
- Remove the protective screens and the partitioning sheets and boxes.

When reassembling the connections

- use new fasteners (screws, washers, nuts) of the same type (class 8.8).
- Tighten to the recommended torque (see “"Tightening torque", page 43)
- Apply a spot of varnish.

Hot spot

Identify the hot spots using an infrared camera or by looking for color changes on the busbars.
- Hot spots are generally due to a loose connection.

On a screwed connection

- Remove the assembly.
- Clean and polish the contact surfaces with 400 grit abrasive paper for example.
- Reassemble the connections.
- Tighten to torque.
- Apply a spot of varnish if necessary.

On a tunnel terminal of a device

- Replace the device since it may have suffered internal damage.
- Cut off the end of the damaged cable or replace the cable.

Maintenance after an incident

- Excessive currents produced during a fault, such as a short circuit, damage the structures, components, busbars and cables.
- After an incident, it is important to determine the cause to repair the switchboard.
- Schneider Electric can help you with troubleshooting:
contact your local agency.

Troubleshooting and interventions

- For any interventions other than the regular servicing operations described in this guide, contact your local Schneider Electric agency.

Wireless connection problem

- Changes to the environment built around the installation may impair the connection to the LoRa network.
- Check with the LoRa tester that the reception level is sufficient (at least 3 bars).
- Otherwise, look for a new reception area, see “"Antenna location", page 22.

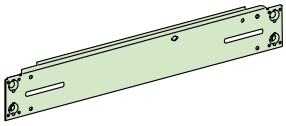
Recommendations in case of alert message

- A team of experts can help you to analyze the alerts received via “EcoStruxure Facility Expert”.
- Description of the service: see “"Expert telephone assistance", page 9
- Contact your EcoXpert Digital Panel.

Spare parts

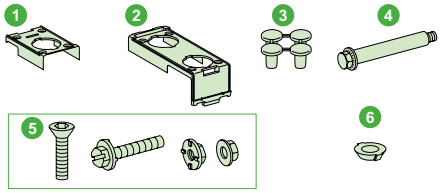
Mechanical equipment

Framework accessories



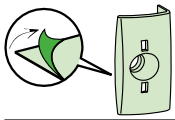
framework bottom strip delivered with fasteners

L400 to be used with 08564	LVS01119
L650 to be used with 08566	LVS01120
L150+650 to be used with 08566	LVS01121
L650+150 to be used with 08566	LVS01122



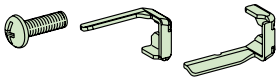
1 4 top sealing parts 2 4 bottom sealing parts 3 4 bottom cross-member blanks 4 2 lateral spacer tubes 5 2 sets of fasteners 6 12 conical washers	LVS01104

Front plate accessories



20 self-adhesive front plate grippers	LVS01093
10 sets of 2 x 1/4 turn grippers	LVS01094

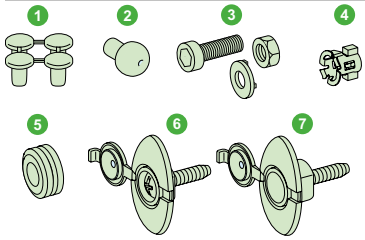
Front plate support frame



front plate support frame stop kit for 08564 - 08566	LVS01123

Back accessories

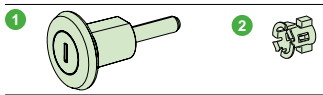
accessories for back panels IP 30 1 8 long 1/4 turn attachment systems for the back 2 2 short 1/4 turn attachment systems for the roof and the back	LVS01106



accessories for back panels IP 55 1 4 framework plugs 2 4 door stops 3 2 assembly guides (base + screw + washer + nut) 4 8 cage nuts 5 3 white grommet blanks 6 2 short screw attachment systems for the roof and the back 7 6 long screw attachment systems for the roof and the back	LVS01101

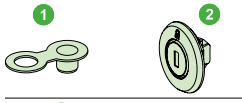
Side panel accessories

side panel accessories IP 30 1 16 long 1/4 turn attachment systems	LVS01100

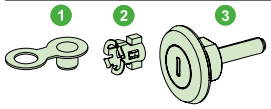


side panel accessories IP 55 1 16 long screw attachment systems 2 16 framework nuts	LVS01102

Roof accessories

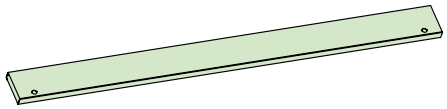


roof accessories IP 30 1 4 lifting ring plugs 2 6 short 1/4 turn attachment systems for the roof	LVS01112



roof accessories IP 55 1 4 lifting ring plugs 2 6 cage nuts 3 6 short screw attachment systems for the roof	LVS01103

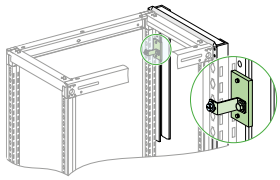
Accessory



solid gate L = 150 mm	LVS01110

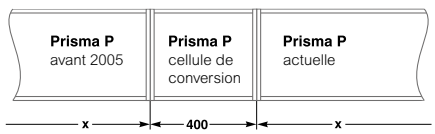
Side-by-side combination with old beige cubicles

Prisma P - IP 30

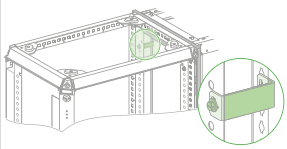


LVS01199

• used to extend an old beige Prisma P switchboard (pre- 2005) with one or more current PrismaSeT Active cubicles using a combination kit and a conversion framework L = 400 mm

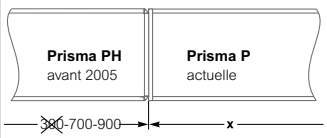


Prisma PH - IP 55



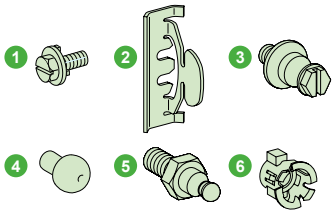
LVS01198 (2)

• used to extend an old beige Prisma PH switchboard (pre- 2005) with one or more current PrismaSeT Active IP 55 cubicles using a combination kit
• to be completed with the sealing kit, ref. 08717

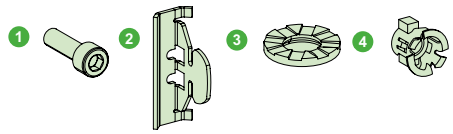


Spare parts (cont.)

Door accessories



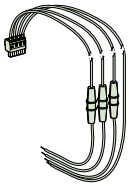
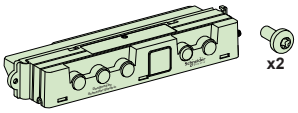
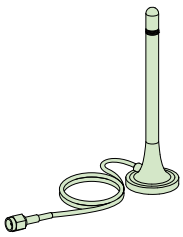
closure accessories 1 4 screws THF M6 x 16 2 4 linkage stops 3 3 x 1/4 turn studs 4 2 door stops 5 3 hinge pins 6 7 framework cage nuts	LVS01105



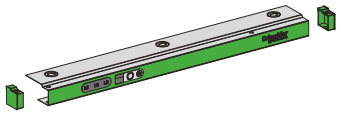
Increases the strength of the lock with the door closed. 1 4 screw MSC HXG SK M6 x 20 2 4 strike stops 3 4 washers 4 4 cage nuts	LVS01124

Communication accessories

Connectivity accessories

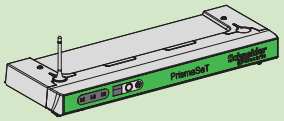
	LoRa antenna cable extension - 5 m	SMT10011
	Cables for wireless gateway - 2 m - 3P + N	SMT10016
	Electronic part of the wireless gateway (without cables)	SMT10019
	LoRa antenna for wireless gateway	SMT10015

Green strips

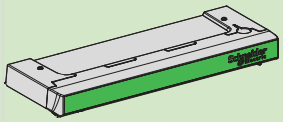
	L400	LVS01126
	L650	LVS01127
	L800	LVS01128

PrismaSeT G Active

Roofs with green strip IP 30



enclosure / panel L600 (1)(3)	cableway L300 (1)	panel L850 (3)
LVS08880D	LVS08884D	LVS08883D
roof with wireless communication gateway		



enclosure / panel L600 (2)(3)	cableway L300 (2)(3)
LVS08893	LVS08886
roof for extension	

Notes

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