



Switchgear with one incoming switch and two outgoing contactors

# CEP19 SWITCHGEAR

Networks 950V - 3200V - 5500V - 6600V

Product leaflet

- Intuitive touchscreen interface
- Laser-readable fuse blowing
- Cell monitoring via Ethernet (Modbus/TCP)
- Vacuum or SF6 contactor
- Removable carriage mounted on slides
- Facilitated customer cable connections



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## Lexique

<b>LV</b>	Low voltage
<b>BTM</b>	Maximum low voltage - 950 V
<b>MV</b>	Intermediate high voltage - 3200 V, 5500 V, 6600 V
<b>HV</b>	High voltage
<b>TMAI</b>	Single-phase dry-type transformer

## The experience of a French manufacturer

The CEP range of switchgear has been manufactured since 1973. AUGIER designs and manufactures the switchgears at its Carros plant in France.

## Worldwide references

Present on all five continents, CEP switchgears provide power and protection for networks. Detailed reference list on request.

## Quality assurance



AUGIER has been ISO 9001 certified since 1995. The implementation of quality controls around the switchgears imposes :

- ◆ Rigorous controls throughout the manufacturing process
- ◆ Tests in compliance with current standards

## Services to support you

AUGIER supports you at every stage in the life of a switchgear :

- ◆ Assistance with installation
- ◆ Training in switchgear use
- ◆ Take charge of equipment maintenance

## A range of connected switchgears

Combined with AUGIER monitoring, you'll be kept informed of the status of each switchgear component. The metering function allows you to monitor the consumption of each network outlet.

## Safety in use

Your safety is our priority.

The withdrawable carriage concept, combined with lockable locks, ensures simple, safe intervention.

## Quick installation

- ◆ Large compartment for high-voltage cables
- ◆ Auxiliary connections on snap-in terminals in the base plate

## Reduced footprint

One switchgear, with a footprint of 800 x 950 mm, enables up to three distinct functions.

## Examples of applications

Please visit our website [www.augier.com](http://www.augier.com), where you'll find application examples.

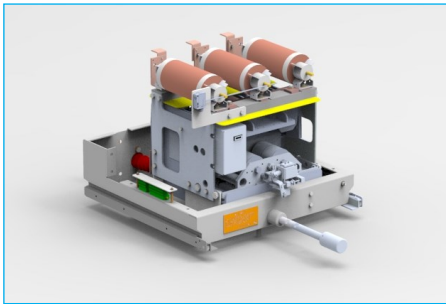
## Field of application:

AUGIER switchgears are specifically designed to power extensive 950V, 3200V, 5500V, 6600V networks.

The switchgear compartments can be equipped with a cut out switch or appropriate contactor depending on the operating voltage.

The control and protection devices used may be required to operate 2,000 times a year or more. The equipment offered by AUGIER delivers many functions, including the following:

- Protection at maximum intensity, even when faults occur far away from the transformer substation
- Selection of sophisticated triggers between the network's protection elements
- Heavy duty operation capability
- Protection against earth faults



## Introduction:

A switchgear can include two or three cubicles. You choose the function of a cubicle to suit requirements. The full cabinet is in the 'protected' category, IP 3XC, grey-coloured, RAL 7035 and 7016, and is for indoor use.

The frames are made of folded and welded steel sheets and the separations are made of welded or screwed steel sheets. Each cell is equipped with a bottom.

The switchgears have a compact design.

Example of a switchgear including 3 compartments (three distinct functions):

Width 800 x Depth 950 x Height 2140 mm.

The compartments with pluggable carriage perform the visible cut-out essential for safety.

Due to their design, the switchgears do not require rear access. To open the doors and to remove the mobile carriages completely, a gap at the front measuring roughly 1200 mm is sufficient (minimum: 1000 mm).

The complete isolation of an outgoing feeder is achieved by unplugging the contactor carriage and by closing the earthing switch and the cut out circuit switch on the outgoing feeder cable.

A switchboard panel is made up of several switchgears placed side by side, joined together electrically by a busbar located in the busbar compartment.



To increase the reliability of your installations, AUGIER's solution was to create a switchgear using :

- ♦ A 7.2kV contactor with high isolating capability. The simplicity of the electrical control unit and the robust mechanical and electrical structure of its contactors give these devices, designed for intensive operation, long-term reliability under normal operating conditions. The isolation device can be in sulphur hexafluoride (SF 6), or in vacuum or in the air.
- ♦ Indirect TI protection (overload fault) and earth fault are controlled by microprocessor
- ♦ Direct protection is provided by fuses with high rupturing capacity.

These high rupturing capacity fuses (HRC), backed by indirect maximum current protection, give you :

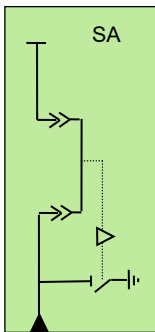
- ♦ The option of having a selection of protection devices across an installation
- ♦ The insurance of high-level fault detection and a quick fault cancellation.

## Standards:

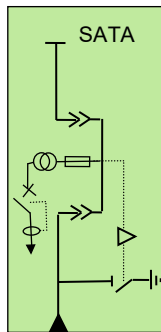
AUGIER CEP19 switchgears comply with the recommendations of the following standards:

- ♦ CEI - NF EN 62271-1: High-voltage equipment - Section 1: shared specifications
- ♦ CEI - NF EN 62271-200: Equipment in a metal enclosure for AC voltages greater than 1kV and less than 52 kV
- ♦ CEI - NF EN 62271-102: isolating switches and earthing switches for high-voltage AC power
- ♦ NFC 13-200: High-voltage electrical installations
- ♦ NFC 64-160: AC isolating switches and earthing switches

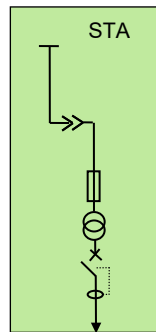
## Isolating switches



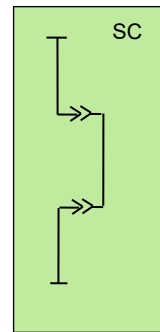
Incoming isolating switch



Incoming isolating switch and Auxiliary transformer

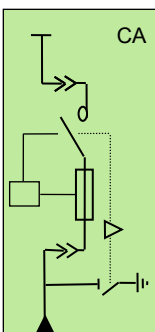


Auxiliary transformer Isolating switch

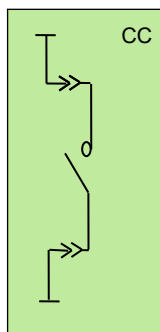


Coupling isolating switch

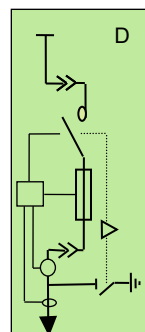
## The contactors



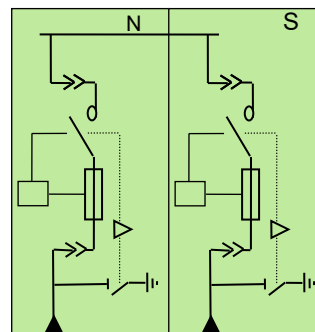
Incoming contactor



Coupling contactor



Outgoing feeder contactor

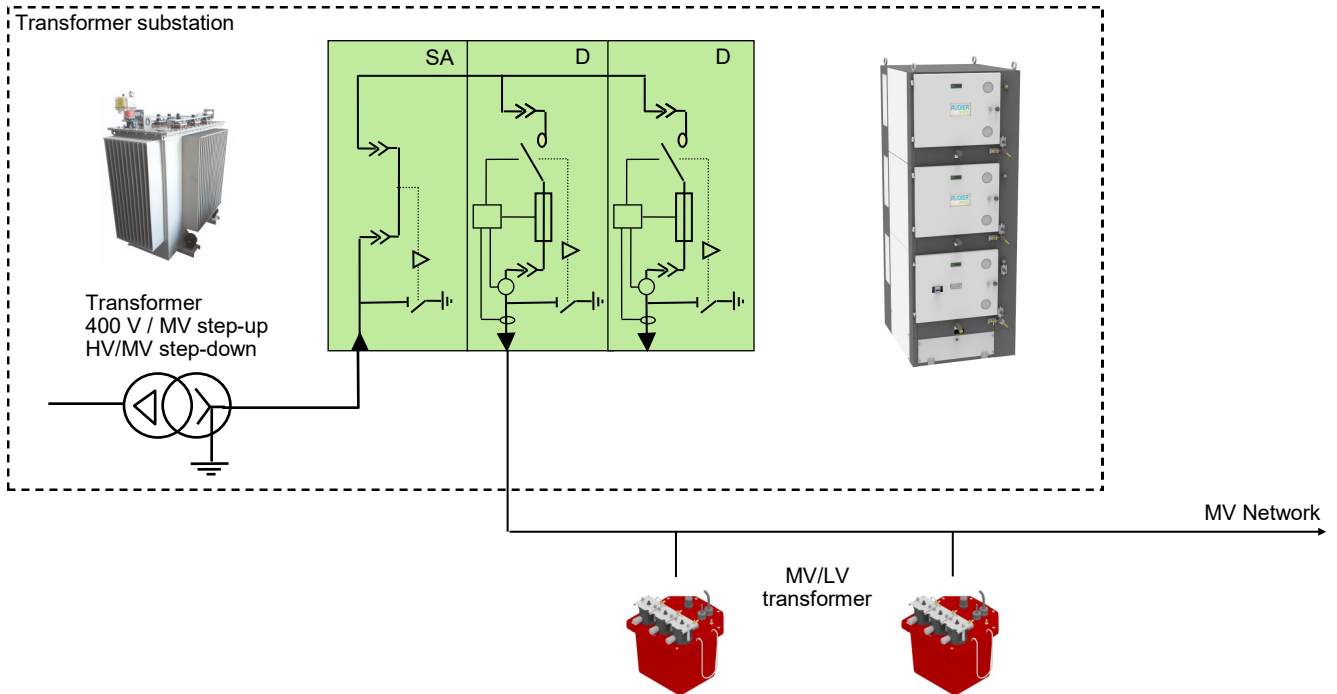


Normal / Emergency contactor

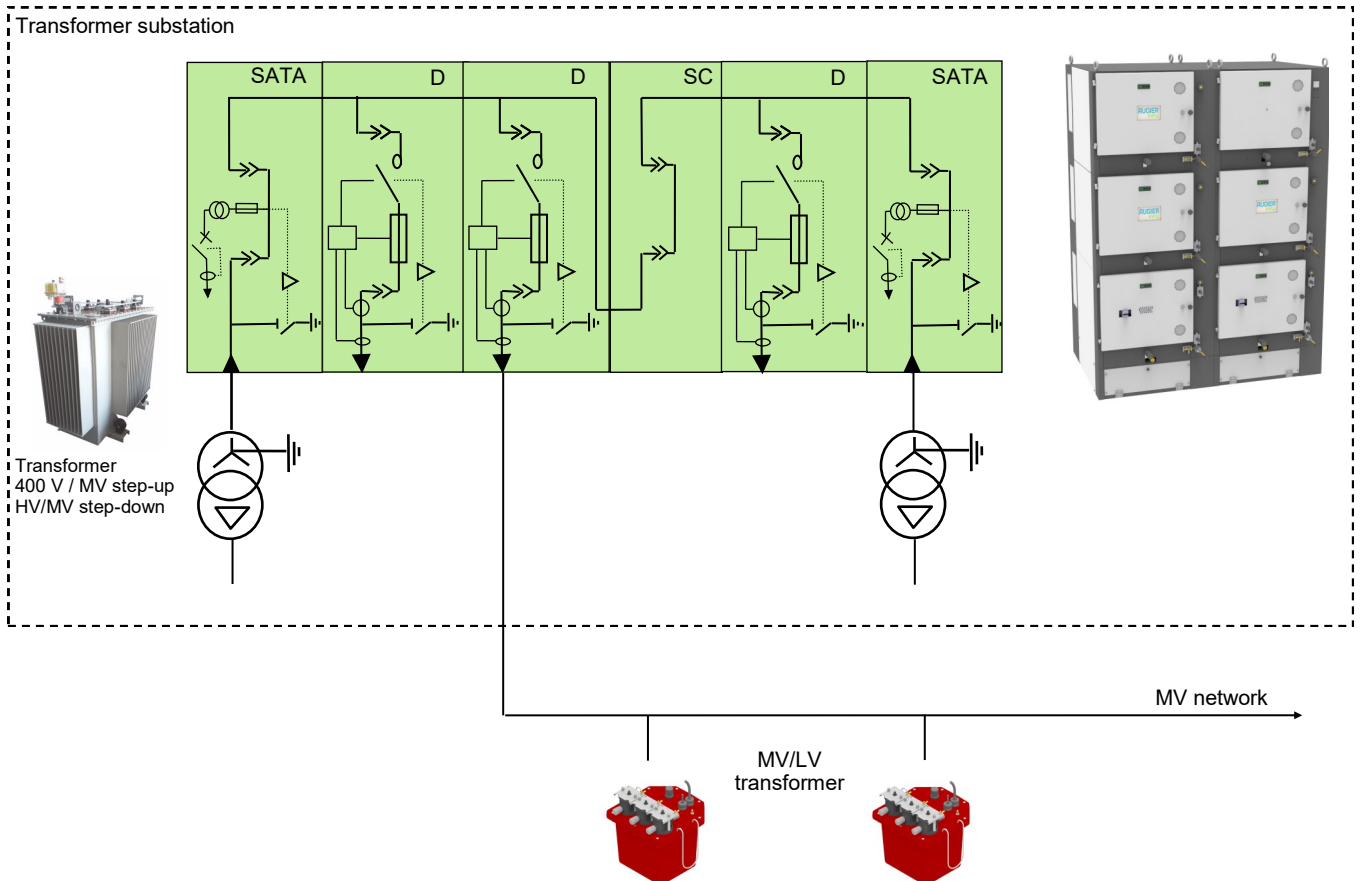


FUNCTION	NAME	USE	Page
Incoming isolating switch	SA	Connection to power transformer, power off	8
Incoming isolating switch and Auxiliary transformer	SATA	Function of incoming isolating switch plus power supply to auxiliaries on the substation. 5 kVA power, single-phase 230 V	8
Coupling isolating switch	SC	In combination with the incoming isolating switch, the coupling isolating switch makes it possible to install two transformers to secure the substation	9
Auxiliary transformer Isolating switch	STA	Power supply to auxiliaries at the substation. 5 kVA power, single-phase 230 V	10
Spare outgoing feeder	RD	Connects to power transformer, load cut-out, remote control possible	10
Incoming contactor	CA	Connects to power transformer, load cut-out, remote control possible	11
Coupling contactor	CC	In combination with the incoming contactors, the coupling contactor makes it possible to install two transformers to protect the substation	11
Departure contactor	D	Power supply to a network. Load cut-out, fuse protection associated with maximum current protection and protection against earth faults	12-13
Normal / emergency contactor	NS	Automatic switching to emergency power supply if there is no power from the normal source	14

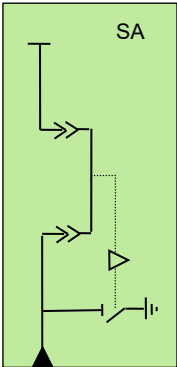
## Power supply to network outgoing feeders from a single transformer



## Power supply to network outgoing feeders from two transformers



## Incoming isolation switch: SA



### Function

Used to achieve general isolation downstream the main transformer.

### Basic equipment

#### Fixed part comprising:

- ◆ The set of vertical busbars, 300 A-calibre, twin-phase or 3-phase
- ◆ The earthing switch
- ◆ The lateral bush routing the incoming cable
- ◆ The connection panels for the incoming cable, attached by sleeves
- ◆ The 300 A-calibre connection points
- ◆ The manually controlled metal shutter preventing access to the busbar connection points when the door is open

#### Movable part:

Comprising an isolating switch carriage

#### Additional equipment:

- ◆ LED voltage indicators
- ◆ Monitoring package with information available via Ethernet link (MODBUS/TCP), RS485-compatible monitoring (MODBUS/RTU) :
  - MV voltage presence
  - « Plug-in carriage » position and position of earthing switch

#### Locking:

Locks by padlock on the downstream device to prevent the operation of isolating switch carriage and moving of door until downstream device is not earthed.

#### Optional accessories

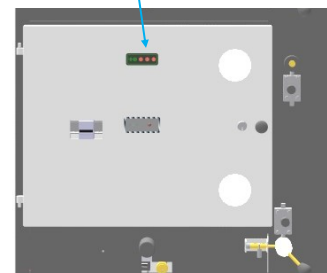
- ◆ Striker fuses of an appropriate calibre for the power of the transformer. Fuses installed on the isolating switch carriage. With signalling device on melting fuse on terminal output. Size of fuse available from 2 to 160 A.
- ◆ Heating resistance



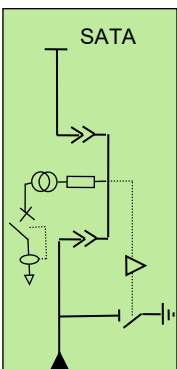
Lower compartment incoming isolating switch



LED voltage indicators



## Incoming isolating switch and auxiliary transformer: SATA



### Function

The SATA performs all the functions of the incoming isolating switch as well as delivering power to the auxiliary transformer substations.

### Basic equipment

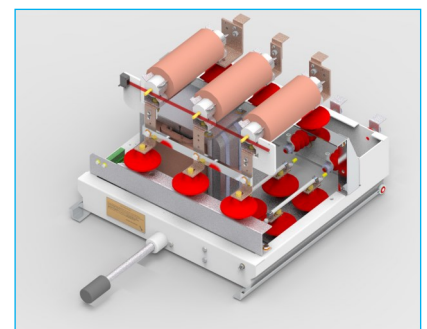
Identical to the incoming isolating switch

#### Additional equipment

- ◆ A single-phase transformer, dry isolation, power 5kVA, ratio 3200 V, 5500 V or 6600 V / 230 V
- ◆ One or two HRC fuses to protect the primary fuse on the auxiliary transformer from short circuits
- ◆ LV equipment: a 25A - 300 mA differential circuit breaker installed on the door

#### Optional accessories

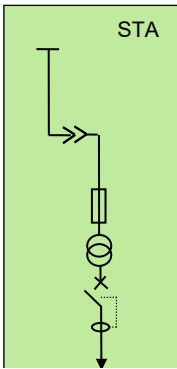
Identical to the incoming isolating switch.



Incoming isolating switch equipped with HRC fuses and an auxiliary transformer.



## Isolating switch auxiliary transformer: STA



### Function

Used to deliver power to auxiliaries on the substation. The transformer is mounted on a pluggable carriage.

### Basic equipment

#### Fixed part comprising

- ◆ The vertical busbars, 300 A-calibre, twin-phase or 3-phase
- ◆ The right-hand lateral bush routing the incoming cable
- ◆ The 300 A-calibre connection points.
- ◆ The manually controlled metal shutter preventing access to the busbar connection points when the door is open

#### Locking

Padlock on the downstream device prevents the carriage from moving and the door being opened until the downstream device is not earthed.

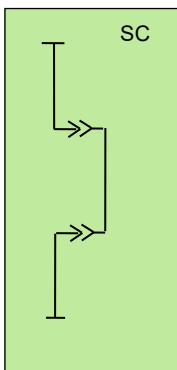
#### Movable part

- ◆ A single-phase transformer, dry isolation, power 5kVA, ratio 3200 V, 5500 V or 6600 V / 230 V
- ◆ One or two HRC fuses to protect the primary fuse on the auxiliary transformer from short circuits
- ◆ Low-voltage equipment with a differential circuit breaker, 25A - 300, installed on the door



Lower compartment equipped with an isolating switch for the auxiliary transformer.

## Coupling isolating switch: SC



### Function

This compartment is used to connect two powered semi-busbars, each one via an incoming transformer. A coupling isolating switch is used with two incoming isolating switches.

### Basic equipment

#### Fixed part comprising

- ◆ The vertical busbars, 300 A-calibre, twin-phase or 3-phase
- ◆ The right-hand lateral bush routing the incoming cable
- ◆ The 300 A-calibre connection points
- ◆ The two manually controlled 'upstream/downstream' metal shutters that prevent access to the busbar connection points when the door is open

#### Movable part

Comprising a isolating switch carriage

#### Locking

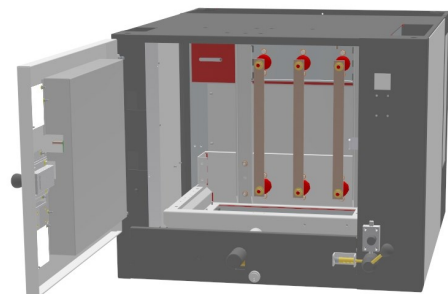
Padlock on the incoming isolating switches prevents the carriage from moving, the transformers from becoming parallel-aligned and the door from opening.

### Optional accessories

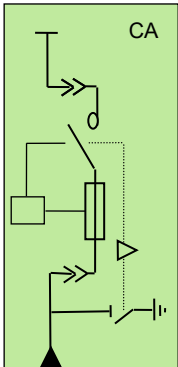
- ◆ Monitoring package with data provision via Ethernet link (MODBUS/TCP), RS485-compatible supervision (MODBUS/RTU) :
  - « Plug-in carriage» position



Top compartment  
Coupling isolating switch



## Incoming contactor: CA



### Function

Connected downstream of the main transformer, the incoming contactor allows:

- ◆ The load cut-out from all the network's outgoing feeders
- ◆ Fuse protection of the transformer
- ◆ Remote control of engagement of the contactor
- ◆ The short-circuiting and earthing of connecting cables to the main transformer

### Basic equipment

#### Fixed part comprising

- ◆ The vertical busbars, 300 A-calibre, twin-phase or 3-phase, interlinking the compartments
- ◆ The connection panels for the incoming cables, attached by sleeves
- ◆ An earthing switch
- ◆ The connection points and the metal shutter prevent access to the live busbars when the door is open

#### Movable part

- ◆ Comprising a pluggable carriage with 400A-calibre, 230 V power supply contactor, as well as high rupturing capacity striker fuses, sizes available range from 2 to 160A.

#### Locking

Mechanical: preventing access to interior of compartment while the contactor is not open, and with the earthing switch closed.

With padlock on the upstream feeder device, preventing the earthing switch from closing.

#### Inspection control part

Using PCBs and microprocessor, allowing:

- ◆ Control of the contactor
- ◆ Management of the melting fuse (Leakage of gas to SF6)

Visualisation and configuration by screen

#### Additional equipment

- ◆ LED voltage indicators
- ◆ Signalling and triggering device on melting fuse, laser monitoring
- ◆ Information on management of incoming contactor, outputs via Ethernet link (MODBUS/TCP), RS485-compatible supervision (MODBUS/RTU)

Measure of active power and reactive power by phase of voltage, total and partial power consumed, the power factor, the time in operation, the number of cycles and information about the presence of Medium Voltage. Measure with a precision of class 1 (+-1%).

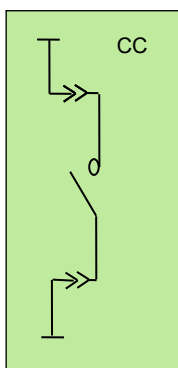
#### Optional accessories

- ◆ SF6 Contactor
- ◆ Mechanical latching of the contactor
- ◆ 48Vdc power supply
- ◆ Heating resistance



Lower compartments:  
Incoming contactor

## Coupling contractor: CC



### Function

This compartment is used to connect two semi-busbars, each powered by a main transformer. A coupling contactor is used with two incoming contactors.

### Basic equipment

#### Fixed part comprising

- ◆ The vertical busbars, 300 A-calibre, twin-phase or 3-phase, interlinking the compartments
- ◆ The connection points and the metal shutter prevent access to the live busbars when the door is open

#### Movable part

- ◆ Comprising a pluggable carriage with 400A-calibre, 230 V power supply contactor

#### Locking

- ◆ Mechanical: preventing access to the interior of compartment while the contactor is not open
- ◆ Electrical with the incoming contactors

#### Inspection control part

Using PCBs and microprocessor, allowing:

- ◆ Control of the contactor
  - ◆ Management of the leakage of gas to SF6
- Visualisation and configuration by screen

#### Additional equipment

- ◆ Information on management of incoming contactor, outputs via Ethernet link (MODBUS/TCP), RS485-compatible supervision (MODBUS/RTU)
- ◆ « Plug-in cart » position plugged back onto terminals

#### Optional accessories

- ◆ SF6 Contactor
- ◆ Mechanical latching of the contactor
- ◆ 48Vdc power supply
- ◆ Heating resistance

### Function

Compartment pre-equipped to install an outgoing feeder contactor in future.

### Basic equipment

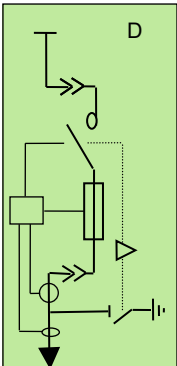
This compartment comprises the framework of an 'outgoing' compartment, without either a carriage or low-voltage equipment, and without current transformers.

When required, it can be equipped with a carriage, the current transformers and the compartment door can be replaced by a complete door comprising LV devices.

### Fixed part comprising

- ◆ The vertical busbars, 300 A-calibre, twin-phase or 3-phase
- ◆ The right-hand lateral bush routing the incoming cable
- ◆ The 300 A-calibre connection points
- ◆ The manually controlled metal shutter preventing access to the busbar connection points when the door is open
- ◆ The earthing switch

## Outgoing feeder contractor: D



### Function

Connected downstream of the network's outgoing feeder, the outgoing feeder contactor allows various functions, these include:

- ◆ The powering up of the outgoing feeder thanks to its electrical durability, capable of 100,000 movement cycles
- ◆ Fuse protection of the outgoing feeder associated with a unipolar protection device and maximum intensity
- ◆ The cut-out, short-circuiting and earthing of the outgoing feeder cables

### Basic equipment

#### Fixed part comprising

- ◆ A busbar compartment, size 300A, interlinking the compartments
- ◆ The connection panels for the outgoing cables, attached by sleeves
- ◆ An earthing switch
- ◆ The connection points and the metal shutter prevent access to the live busbars when the door is opened
- ◆ A phase-based current transformer and a unipolar earth fault

#### Movable part

- ◆ Comprising a pluggable carriage with 400A-calibre, 230 V power supply contactor, as well as high rupturing capacity striker fuses, sizes available range from 2 to 160A

#### Locking

Mechanical: prevents access to the interior of compartment while the contactor is not opened and with the earthing switch closed.

#### Protection and inspection control of networks

Digital enabling:

- ◆ Control of the contactor
- ◆ Excess intensity protection of phases and unipolarity, of extensive networks

- ◆ Measure of active power and reactive power by phase of voltage, total and partial power consumed, the power factor, the time in operation, the number of cycles and information about the presence of MV voltage  
Measure with a precision of class 1 (+-1%)

Visualisation and configuration by touch screen  
The protection programme was specifically devised for networks that provide external power to lighting systems.

#### Additional equipment

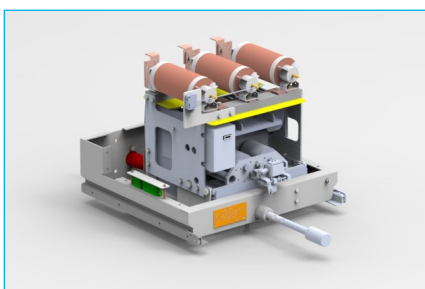
- ◆ LED voltage indicators
- ◆ Signalling and triggering device on melting fuse
- ◆ Information on management of outgoing feeder contactor, outputs via Ethernet link (MODBUS/TCP), RS485-compatible supervision (MODBUS/RTU)
- ◆ Additional locking action, releases a special key that can be used to unlock the viewing grid, or the locking device on the network transformer terminals
- ◆ Astronomical clock to control lighting



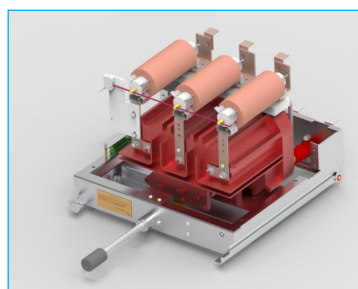
Switchgear with two compartments  
Outgoing feeder contractor

### Optional accessories

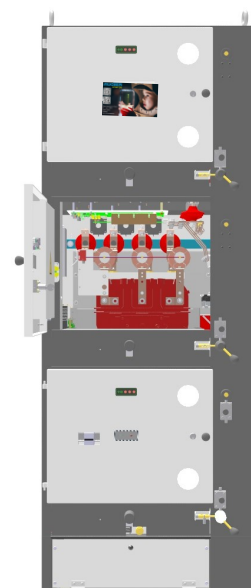
- ◆ DFTEP: Diurnal network monitoring. The DFTEP option enables the insulation of network cables to be monitored when they are not in use. It prevents the outgoing feeder contactor from closing whenever there is an insulation fault on the network. The DFTEP requires a TNRS type neutral regime
- ◆ SF6 Contactor
- ◆ Mechanical latching contactor
- ◆ 48Vdc power supply
- ◆ Heating resistance



Vacuum contactor carriage



SF6 contactor carriage



## Control and protection

**Every outgoing feeder contactor is factory pre-configured according to the network data provided.**

All the data and settings are displayed on a 7-inch TFT screen with a touch panel enabling all parameters to be read in 'clear' format.

Refer to the installation and maintenance documentation N°6012382 which details the functions indicated below.

### Operating mode

#### Access to the setting menus:

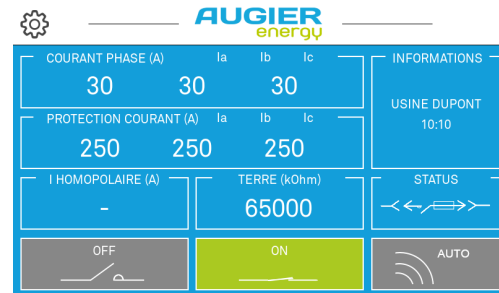
The intuitive touchscreen interface allows quick set-up of all parameters.



#### Common actions performed by the operator:

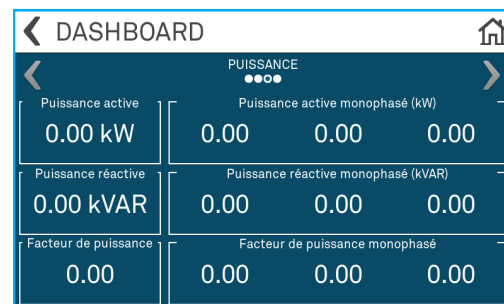
- ◆ Set the protection threshold for line current from 0 to 200A in increments of 1 A, for each phase.
- ◆ Set the protection threshold for unipolar current from 0 to 20 A. Adjusted in increments of:
  - 10 mA from 0 to 1A
  - 100 mA from 1 to 1A
  - 1 A from 10 to 20 A
- ◆ Set engagement timing from 0 to 20 minutes in increments of 1 second
- ◆ Set engagement prevention timing from 0 to 1 second in increments of 0.1 second
- ◆ Back up and update outgoing feeder setting parameters, straight onto a memory stick
- ◆ After a fault that has triggered the trip, switch to the STOP position, clear the fault and press the acknowledge button in

the Alarms & Faults menu to reset the protections. Power up in manual mode before switching to automatic mode. If the automatic switch-on command is present, the contactor will remain switched on.



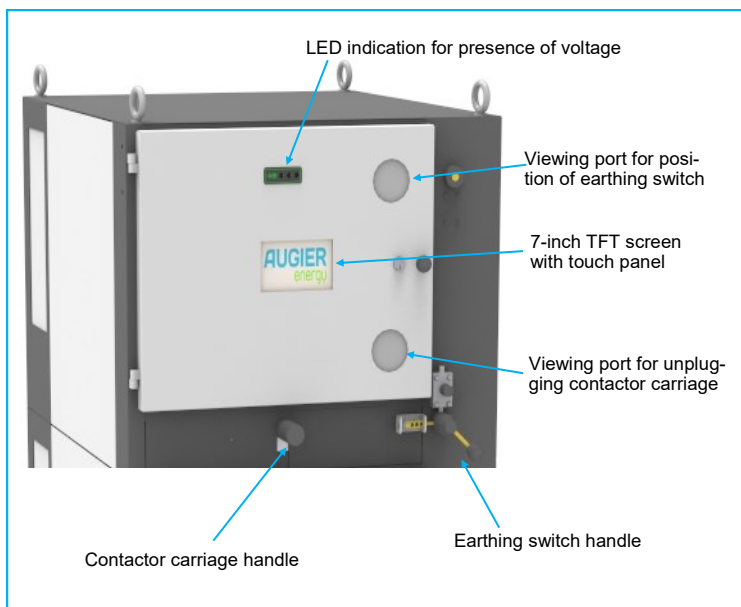
#### The advantages of the management system for an outgoing feeder contactor

- ◆ Online display of current levels.
- ◆ If the zero sequence current or the line current is greater than the controlled protection threshold, the contactor opens, an error message is displayed and engagement is disabled
- ◆ Following engagement, the current protection thresholds rise by a coefficient of 1.6 for a 2 minute period (in the case of lighting). Coefficient and duration can be configured
- ◆ A fault in a melting fuse, or a leakage of SF6 gas causes disengagement to occur and disables the engagement process

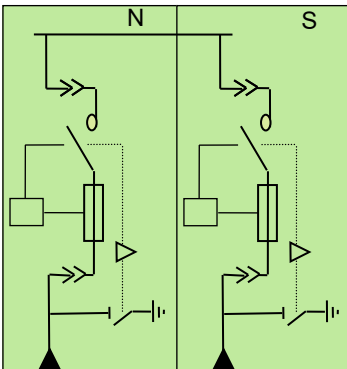


#### Measuring function: Measurement of the three phase

- ◆ Display active power
- ◆ Display reactive power
- ◆ Display power factor (cos phi)



## Normal / Emergency contactors: N/S



### Function

Connected downstream of two electrical power sources, the normal/emergency contactor permits various options, including:

- ◆ Automatic switching to emergency power supply if there is no power from the normal source
- ◆ The load cut-out from all the network's outgoing feeders
- ◆ Fuse protection of the source
- ◆ Short-circuiting and earthing of cables and connection to electrical power sources

### Design

Switchgear with three compartments comprising two incoming contactors and one compartment receiving operational automation.



Normal / Emergency cell

### Basic equipment for each incoming contactor

#### Fixed part comprising

- ◆ A busbar compartment, 300 A-calibre
- ◆ The connection panels for the incoming cables, attached by sleeves
- ◆ An earthing switch and a short-circuiting switch
- ◆ The connection points and the metal shutter prevent access to the live busbars when the door is open

#### Movable part

- ◆ Comprising a pluggable carriage with a vacuum 400A-calibre, 230 V-power supply contactor, as well as high rupturing capacity striker fuses, sizes to fit the source power, maximum 160A

#### Locking

- ◆ Mechanical: prevents access to interior of compartment while the contactor is not opened, and with the earthing switch closed
- ◆ Padlock on the upstream feeder device, prevents the earthing switch from closing
- ◆ Electrical, prevents the two contactors from closing simultaneously

### Inspection control part

Digital enabling:

- ◆ Control of the contactor
- ◆ Management of the melting fuse or leakage of SF6 gas
- ◆ Measurement of voltage.

Visualisation and configuration by touchscreen.

### Additional equipment

- ◆ LED voltage indicators
- ◆ Signalling and disengagement on melting fuse, laser monitoring
- ◆ Information on management of outgoing feeder contactor, outputs via Ethernet link (MODBUS/TCP), RS485-compatible supervision (MODBUS/RTU)

### Optional accessories

- ◆ SF6 Contactor
- ◆ 48Vdc power supply
- ◆ Heating resistance

### Automation function

Installed in a dedicated compartment, the automation function allows the system to switch into emergency mode if there is a lack of voltage on one of the three phases (or a leakage of SF6) on the normal contactor.

Whenever an absence of voltage is detected on the 'normal' circuit, the automation function allows the system to switch to the 'emergency' circuit. If voltage is restored to the 'normal' circuit, the normal/emergency switchgear returns to its initial position, with priority given to the normal contactor.

On a melting fuse, the automation function will inhibit the change from normal to emergency.

A test button enables you to test the normal/emergency function.

## STEP III compartment: MCEP

### Function

The MCEP coupling module can be installed in the incoming switchgear cubicle or in a dedicated cubicle. MCEP coupling module for powerline data injection when using the STEP III remote control system.



## Electrical characteristics

These characteristics apply in operating temperatures of between 0°C and +55°C and at altitudes of less than 1000 metres.

- Operating voltage : Class 7.2 kV
- Nominal frequency : 50 Hz
- Dielectric behaviour : 20 kV - 50 Hz - 1 minute
- Nominal intensity : 300 A
- Thermal behaviour : 3200 A - 1 second
- Electrodynamic behaviour : 8300 A peak

## Current transformer

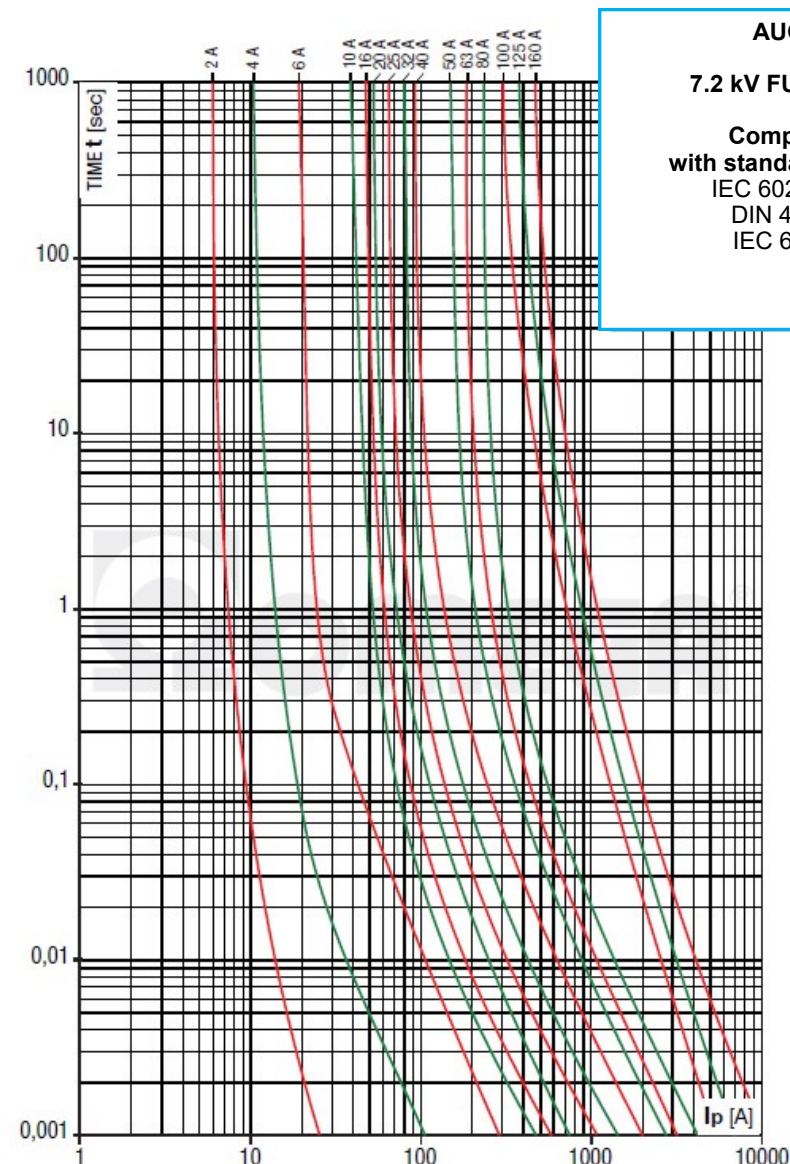
Transformer with dry insulation

- ◆ Ratio : 100/0.1
- ◆ Power : 0,05 VA
- ◆ Class : 10P10
- ◆ DC thermal current : 80 I<sub>pn</sub>, 1s i.e. 8000A eff

## Earth fault detection device

- ◆ Ratio : 20/0.2
- ◆ Power : 0,1 VA
- ◆ Class : 10P10
- ◆ DC thermal current : 80 I<sub>pn</sub>, 1s

7.2-kV contactor	Vacuum con- tactor	SF6 contactor
Calibre	400 A	400 A
Cut-out capacity	10 kA eff	10 kA eff
Electrical control	230 V-50 Hz	230 V-50 Hz
On-call consumption	800 VA	900 VA
Holding consumption	50 VA	40 VA
Mechanical endurance	1 000 000	300 000
48 Vcc option	no	yes
Mechanical hooking option	no	yes



## HRC fuses

High rupturing capacity fuses of an appropriate calibre for the outgoing power level



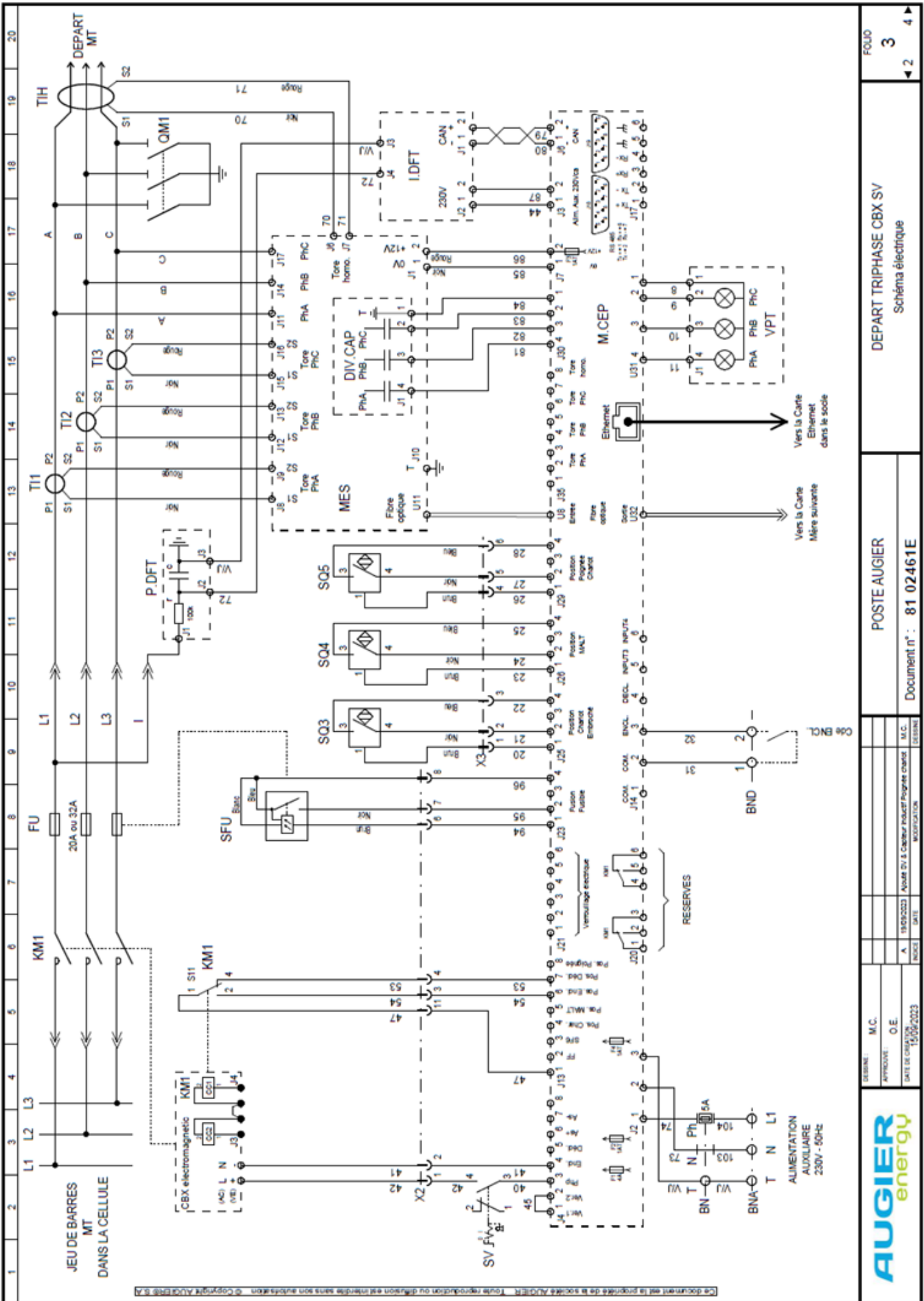
- ◆ Fuse : 7,2 kV
- ◆ Striker fuse : yes
- ◆ Calibre : from 2 to 160 A
- ◆ Cut-out capacity : 50 kA

Calibre	Size	Reference
2	53 x 258	Contact us
4		Contact us
6		10 23516
10		10 23517
16		10 22975
20		10 23518
25		10 23519
32		10 23520
40	10 23521	
50	68 x 258	10 23522
63		10 23523
80		10 23524
100	85 x 258	10 23525
125		10 23526
160		10 23527



# Electrical circuit diagram for CEP19 outgoing feeder contactor

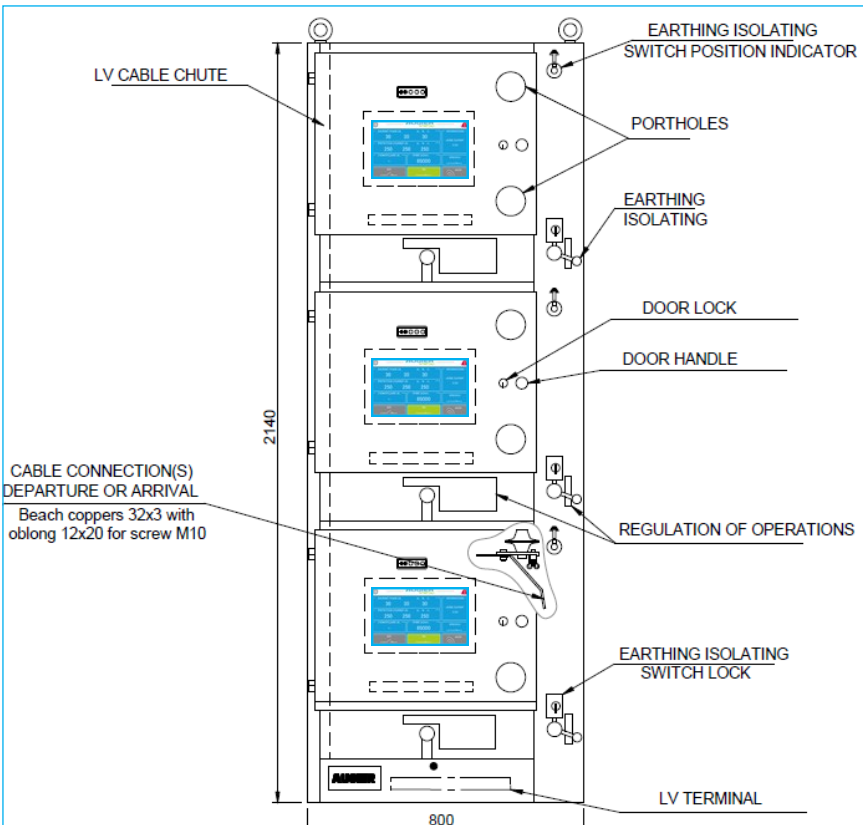
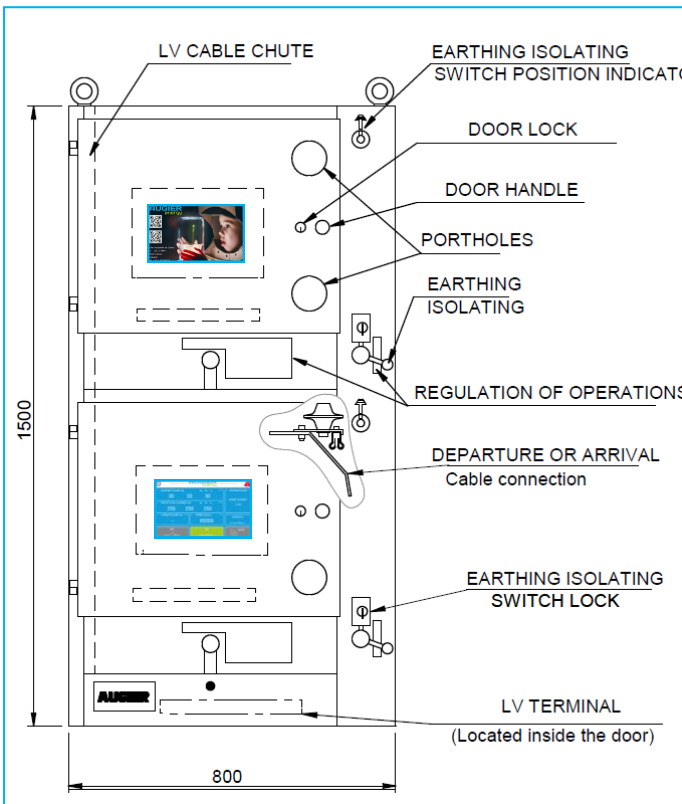
Refer to the drawings supplied with your equipment to see the specific characteristics of the switchgears you are using.



## Switchgear with two compartments

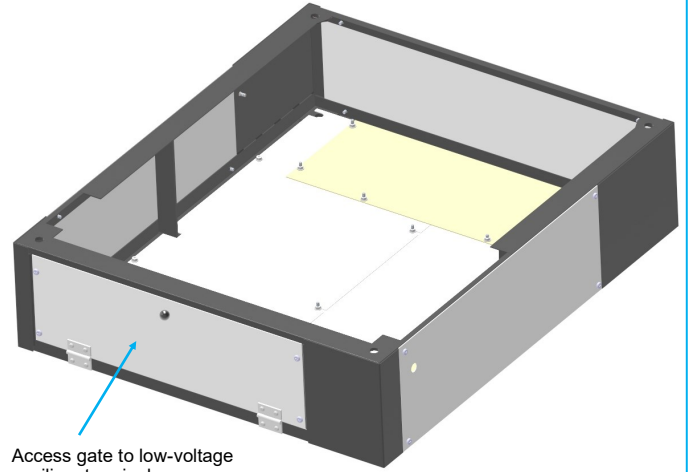
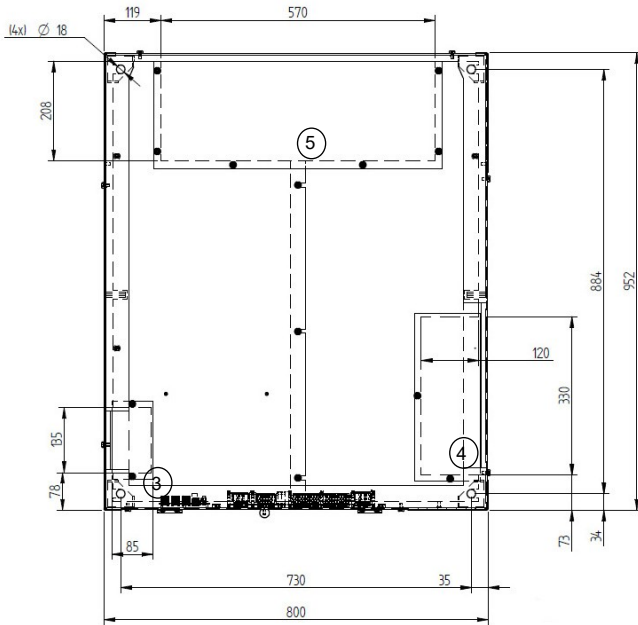
### Dimensions and weight

	Switchgear with one compartment	Switchgear with two compartments	Switchgear with three compartments
Width (mm)	800	800	800
Depth (mm)	950	950	950
Height (mm)	860	1500	2140
Weight (kg)	180	350	520



## Switchgear with three compartments

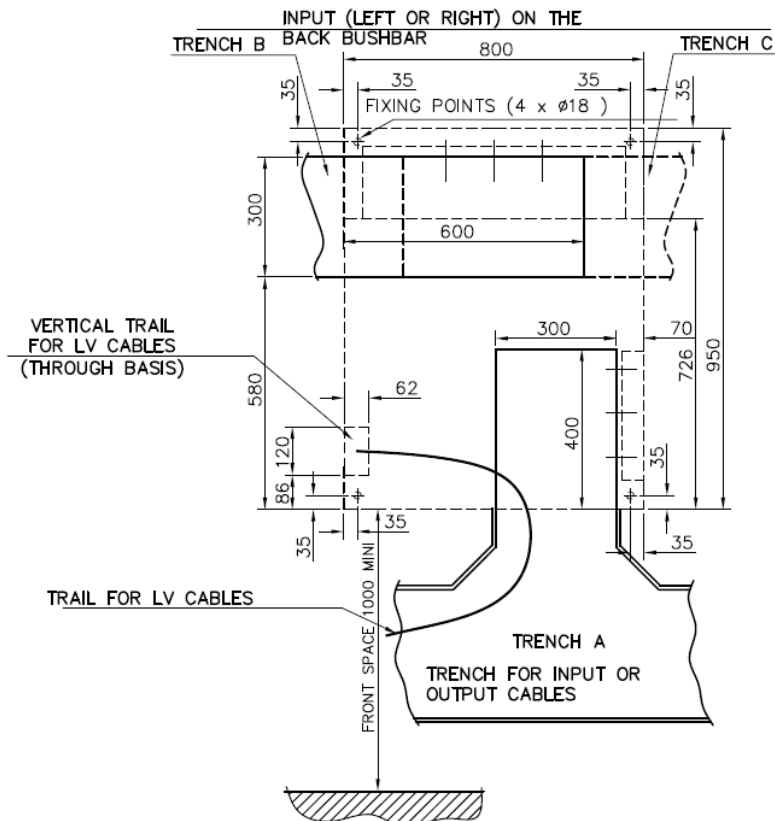
## Switchgear base - Cable routing to ground, mounting



Access gate to low-voltage auxiliary terminals

- 3- Passage of LV cables for auxiliary connections
- 4- MV cable routing, panel connection
- 5- MV busbar cable routing

## Civil engineering installation



The locking devices are mechanical, operational and appropriate to the configuration of the panel. These prevent, most importantly:

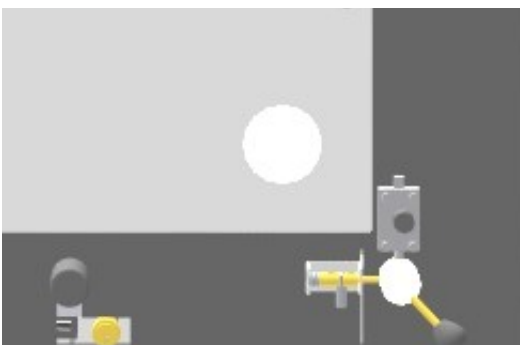
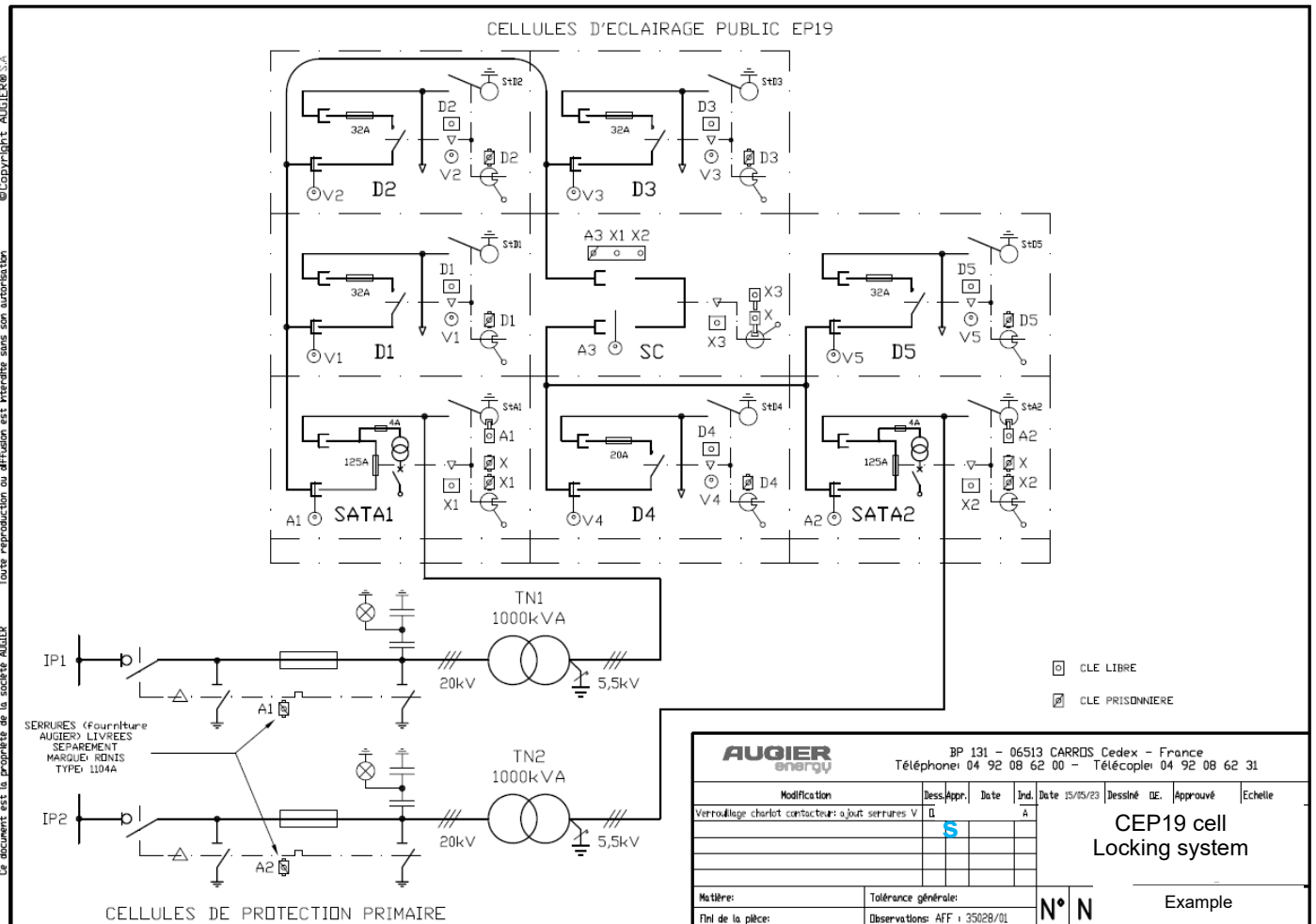
- ◆ The carriage being unplugged or plugged with the contactor closed
- ◆ The earthing switch being closed with the carriage contactor plugged in
- ◆ The access door to the equipment being opened when the earthing switch is open

The earthing switch handle can be locked. This prevents the carriage from being plugged back in when the earthing switch is closed. Moreover, a 'Ronis' type of lock enables the compartment to be locked in 'closed' position, preventing access to the interior of the compartment.

**Optional :** An additional 'Ronis' lock can be associated with a watch locking key, permitting access to the network transformers if the earthing switch is closed.

### Example of locking function: Panel powered by two transformers

- ◆ Two incoming switchgears
- ◆ One switchgear coupling
- ◆ Five network outgoing feeder contactors

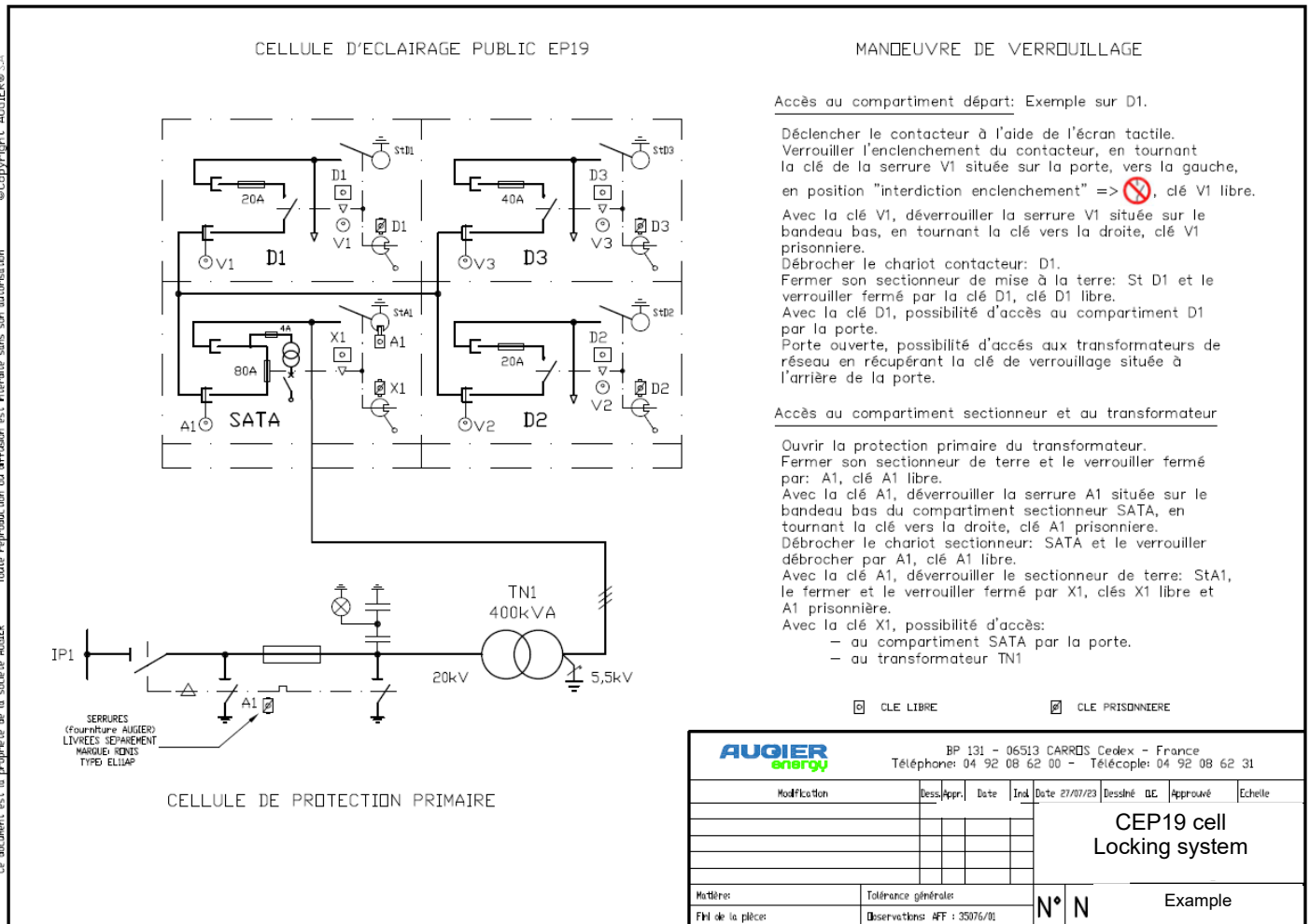


Locking with padlock on earthing switch

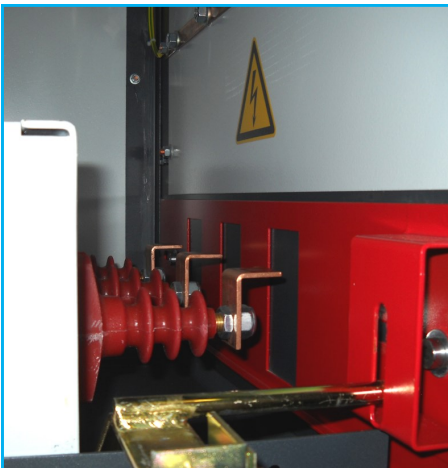
## Locking devices

### Example of locking function: Panel powered by a main transformer

- ◆ One incoming isolating switch
- ◆ Three outgoing network contactors



## CEP19 SWITCHGEARS - Safety



### Your safety is our priority

#### Double safety

Access to the interior of a compartment is only possible after having:

- ◆ Moved the unipluggable contactor
- ◆ Performed the locking sequence

The isolating switches and contactors are mounted on an unipluggable carriage. A mechanical fixture linked to movement of the unipluggable carriage enables the busbar to be isolated by a closed protective shutter.



## Function

Powered by one or more of the auxiliary transformers on the substation, the low voltage cabinet provides:

- ◆ The power supply to electrical auxiliaries at the substation
- ◆ Upstream disengagement in response to a transformer fault
- ◆ Control of the lighting

## Design

Switch cabinet made of 20/10 mm steel sheet, designed for an indoor installation.

- ◆ Topcoat of light grey RAL 7035
- ◆ Closed by a door equipped with a lock
- ◆ 4 wall-mounted fittings
- ◆ Dimensions 600 x 600 x 200 mm or 1000 x 800 x 300 mm depending on the equipment

## Basic equipment

### Door features:

- ◆ A general multi-function switch for 'auto-stop-manual'
- ◆ A programmable logic controller serving the automation functions
- ◆ An alarm and transformer fault indicator
- ◆ A voltage indicator on the 230 V auxiliary power source
- ◆ A fall-back position voltage indicator on the 24 V auxiliary power source



### Internal features:

- ◆ A 300 mA differential circuit breaker for general protection
- ◆ Circuit breakers intended to supply power to:
  - Normal lighting of the substation and emergency lighting
  - The standalone 24 V DC block
  - The C13-100 20kV block
  - The switch cabinet itself
  - The Bardin or Flair relay
- ◆ A 30 mA differential circuit breaker for supplying power to one or more power sockets
- ◆ Control of downstream disengagement in response to a transformer fault
- ◆ Wiring and terminal connector strips

### Programmable logical controller:

- ◆ Power supply 230 V AC or 24 V DC,
- ◆ Number of inputs and outputs suitable for the configuration of the substation.
- ◆ Programmed controller supplied to assure control of lighting, enabling alarms and faults to be viewed on the controller screen, specifically:
  - Temperature alarm
  - Pressure fault
  - Temperature fault
  - Gas disengagement fault

### Optional equipment :

- ◆ An astronomical clock
- ◆ A choice of 230 V automatic inversion unit
- ◆ Monitoring equipment for the substation.

### Comment :

The equipment in the cabinet can change according to the equipment configuration of the substation.

**Advice and documentation :**

Specialists are here to listen to you and to propose the best possible options from the list of equipment.

The switchgears are delivered in factory-configured condition according to the replaced technical elements.

Each switchgear is supplied with:

- ◆ Notification of commissioning of the 'mechanical section', enabling the switchgear to be installed
- ◆ Notification of commissioning of the 'control parts' explaining the configuration and use of the graphic user interface
- ◆ Connection diagram
- ◆ Locking diagram
- ◆ Electrical circuit diagram

**On-site commissioning support for switchgears :**

Augier technical staff are there to support you when you start up the equipment line-up. This commissioning process also involves:

- ◆ Checking the locking functions
- ◆ Checking the wiring options
- ◆ Checking protection devices and testing their function

**Servicing and maintenance:**

We recommend arranging for servicing and maintenance of the switchgears once a year.

An AUGIER technician can do this for you.

Length of time involved in this work: One day per series of three compartments.

**Training :**

AUGIER is a certified training organisation. Certification N° 93060176606

Training provided on-site, on the hardware and equipment used on a daily basis.

AUGIER HAS BEEN ISO 9001 CERTIFIED SINCE 1995



Dealer contact information



60 12392 With constant improvements, the manufacturer may alter information without prior warning