



pronutec
gorlan

CUMA 21 

**LV panel system for
Transformer Substations**

CUMA 21 





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01 What is CUMA 21 ?

Modular and Insulated Low Voltage distribution panels for Transformer Substations

It is a versatile, customisable and configurable panel system adapted to the smart grids new demands.

Functions:

- Incoming connection and disconnection of the power transformer.
- Independently distribute and protect LV lines of the Transformer Substation
- Measurement, protection and control of the substation.
- Monitoring of incomings and/or outgoings by means of our smart supervision system.

Modular panel range

Different combinations available depending on the selected components. Option to choose different incoming and outgoing options, ratings, mounting arrangements/ enclosures, etc.

Insulated panel range

System with an encapsulated frame that assures the internal partition of conductive parts, improves the insulation and safety of both equipment and operating personel.

Smart Grids

This panel system can be equipped with monitoring elements for the supervision of LV lines.

Configurable

A versatile panel system that can be customised by means of an online configurator. Fixed and selectable components configuration allows for creating an electrical panel adapted to our clients' needs.

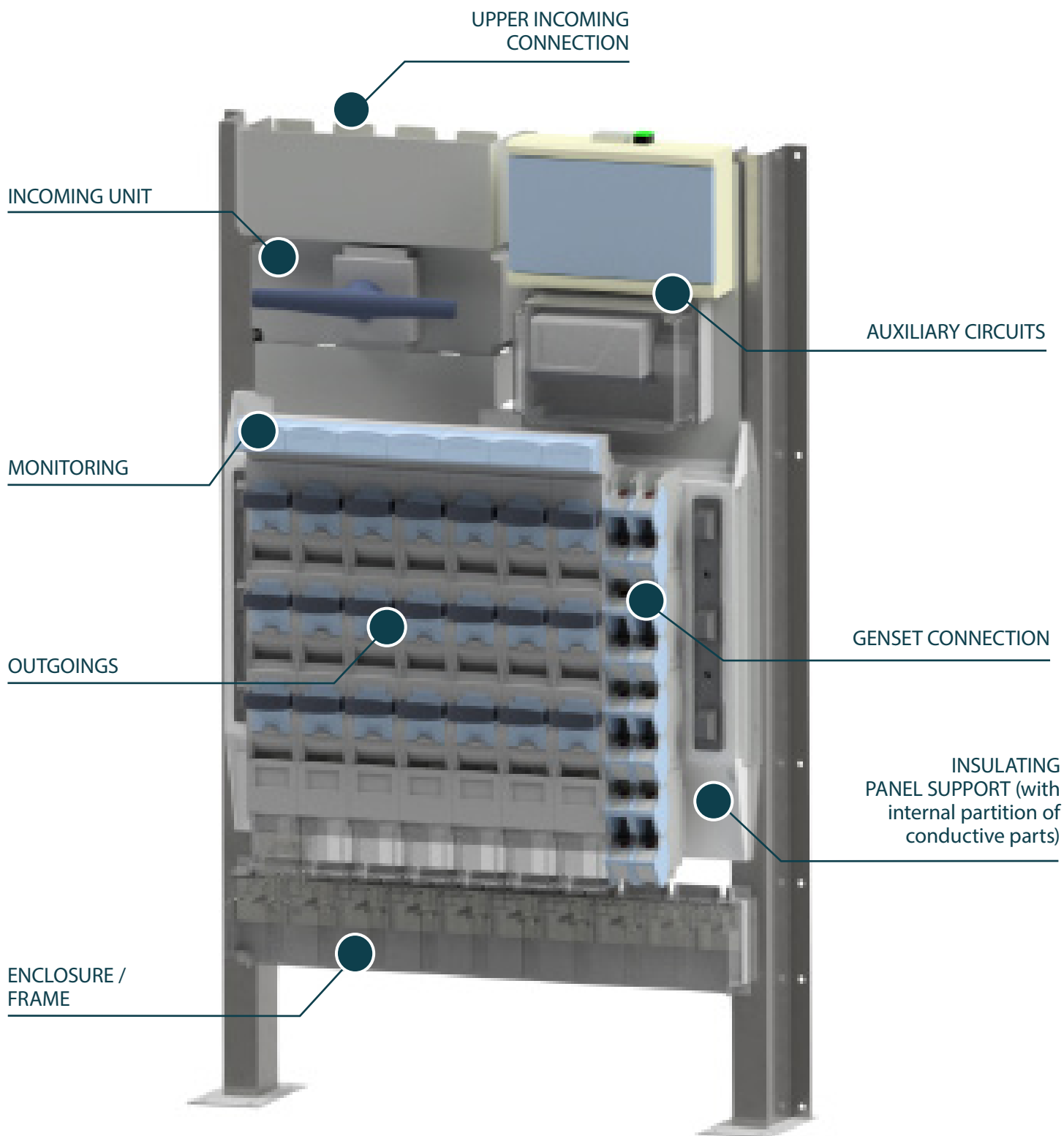
Maximum safety

All panels are tested according to IEC EN 61439 Standard.
In addition, we surpass minimum safety requirements by means of internal partition and greater insulation.

Agile system

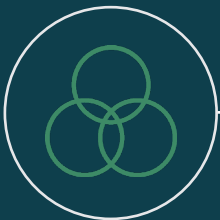
Thanks to this new panel system, we provide clients with a quick response by streamlining all processes: design, quotation, manufacturing, deadlines, technical documentation.

CUMA 21



02 System advantages

A CONFIGURABLE AND MODULAR PANEL SYSTEM



UNIFORMITY

All panels in this system have a similar design regardless of the variable configuration.



COMBINATION

Equipped with interchangeable components that can be fitted into different panel types.



CONFIGURATION

Modular panel. Both, fixed and variable features, can be selected by means of the new configurator.

Versatile

Configurable

Simple

Safe



VERSATILITY

Customisable according to the client's needs.
It can be used for different applications.



SAFETY

Protection against direct contact, offering a high safety level.



VERIFICATION

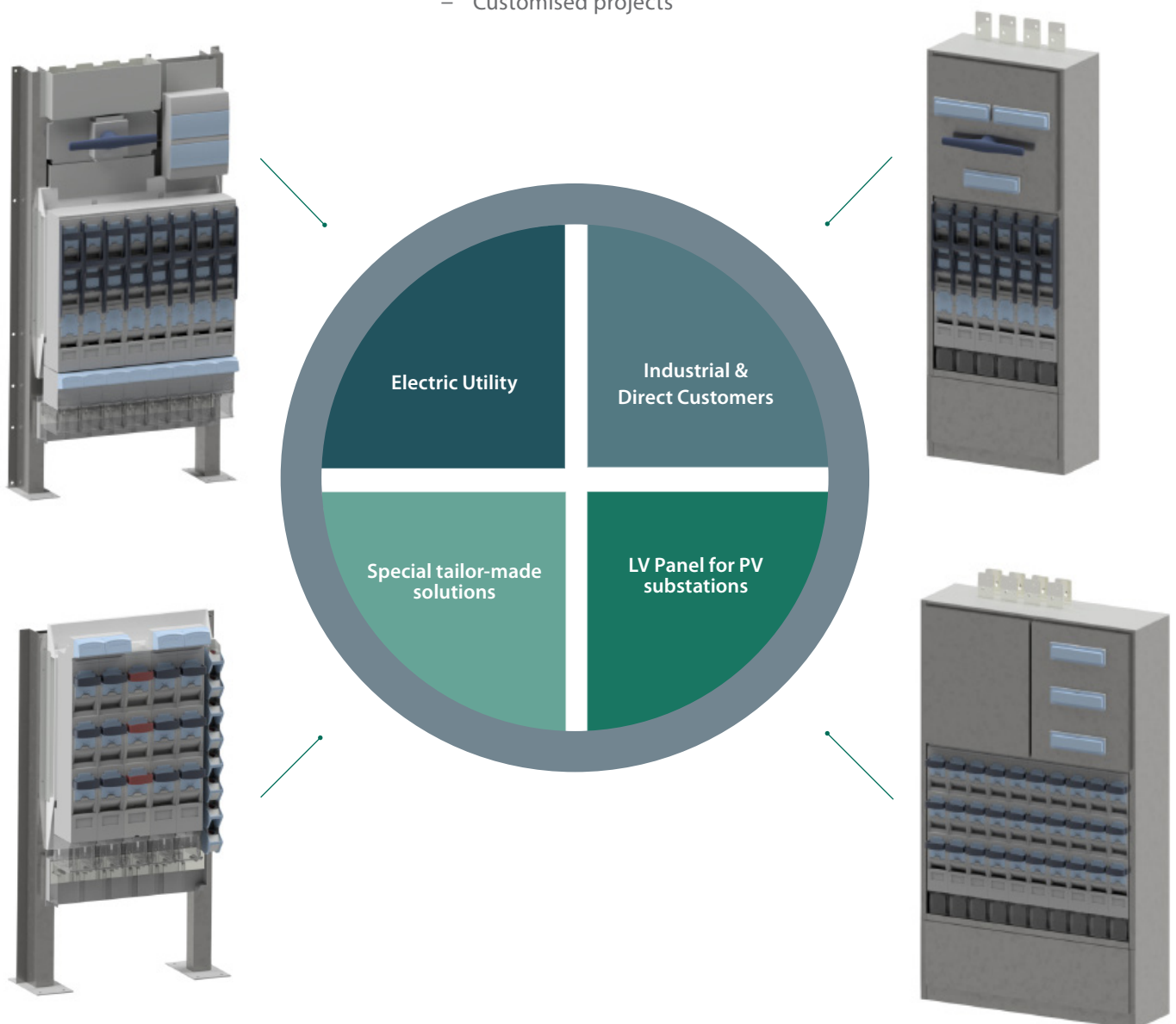
Tested according to EN IEC 61439 Standard.

03 Applications

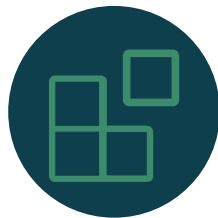
Modular and Insulated Low Voltage distribution panels for Transformer Substations

This system comprises all LV Panels for Transformer Substations by Pronutec:

- For Electric Utility
- For Industrial & Direct Customers
- For LV Panel for PV substations
- Customised projects



04 Main features



MODULARITY

Both fixed and variable features can be configured

CONSTANT FEATURES

Insulated and partitioned panel

Busbar distance 185 mm

VARIABLE FEATURES AND COMPONENTS

Rating

From 400 A up to 2000 A

Voltage

440-500-690 V
800 V (PV)

Enclosures and mounting system

Frame, closed frame and metallic enclosure.
Floor or wall-mounted

Incoming connection types

Three-pole vertical fuse switch (BTVC),
Disconnecter, Load break switch or circuit breaker

Outgoings

From 4 up to 12 three-pole vertical fuse switches (BTVC) NH 1/2/3 size or up to 24 outgoing NH 00 size (185 mm busbars)

Phase - Neutral Distance

Adjustable distance between Phase T and Neutral

Protection of auxiliary services

Protection elements of substation auxiliary services can be customised

Monitoring

It may be equipped with incoming and outgoing monitoring systems

No. of poles

Option for 3 or 4 pole

Neutral and protection system

Depending on the system, the plates may vary

Extension possibility

Some panels may be extended

05 Product range

The CUMA 21 panel range is characterised by the following variables:

- Incoming connection types
- Rating
- No. of outgoing
- Enclosure type

Possible combinations:

INCOMING CONNECTION TYPES		CURRENT (A)	No. OF OUTGOINGS		ENCLOSURE					
					OPEN FRAME		CLOSED FRAME		METALLIC ENCLOSURE	
			BTVC NH 1/2/3	BTVC NH 00	top incoming connection	bottom incoming connection	top incoming connection	top incoming connection	bottom incoming connection	
LBS	3/4 POLES	630-800-1000-1600-2000 A	up to 12	up to 24	✓	-	-	✓		
BTVC	BTVC	400-630-910-1000 A	up to 11	up to 22	✓	✓	-	-	✓	
	BTVC-D	800-1260-1600 A	up to 10	up to 20	✓	✓	-	-	✓	
MCCB	3/4 POLES	800-1000-1250-1600-2000 A	up to 12	up to 24	✓	-	-	✓	-	
ICD		1250-1600 A	up to 10	up to 20	✓	-	✓	✓	-	
MONITORING (Outgoings with BTVC NH 1/2/3 fuse switches)					SAL top	SAL bottom	SAL top	SAL bottom	SAL top	SAL bottom
					✓	✓	✓	✓	-	✓

LBS | Load break switch

BTVC | Three-pole vertical fuse switch

MCCB | Circuit breaker

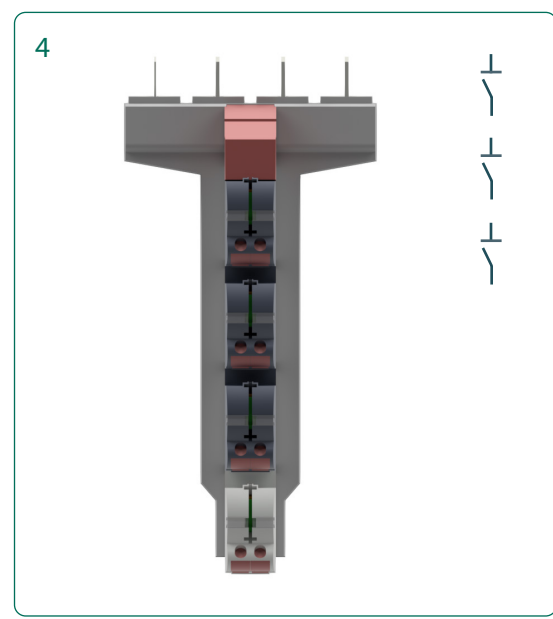
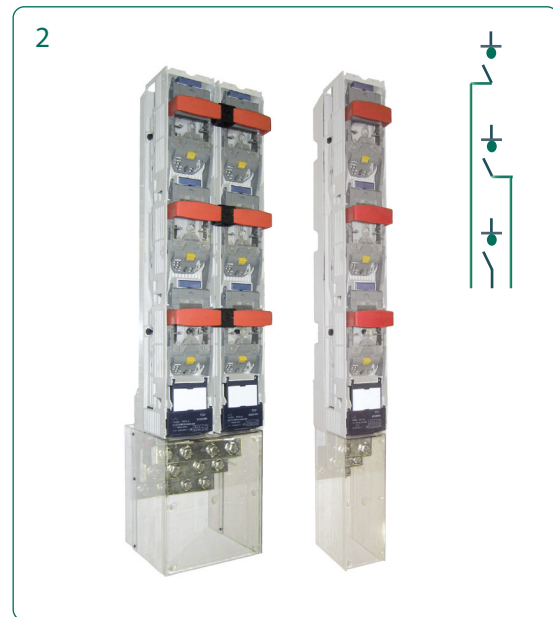
ICD | Integrated compact disconnect

* For other options, please contact our sales department.

► 05.1. INCOMING CONNECTIONS

Main incoming connection options:

1. LBS | Load break switch
2. BTVC (TRIVER+) 910/1000 A | Three-pole vertical fuse switch
BTVC-D 800/1260 A | Three-pole vertical double fuse switch
3. MCCB | Circuit breaker
4. ICD | Integrated compact disconnector



1. LBS | LOAD BREAK SWITCH



Incoming connection types	Top with Load Break Switch
No. of poles	3/4
Rated Operational Voltage	440 V (optional 500 / 690 V)
Rated Current	From 630 A to 2000 A
Number of outgoings	From 4 to 12 outgoings*
Enclosure type	Open frame Metallic enclosure
Panel support	Insulated and partitioned busbar
Supervision accessories	Top arrangement** Bottom arrangement
Auxiliary control	Optional according to client's preferences
Options	Left / Right Neutral Adjustable distance between phase T and neutral Genset incoming connection 2 and 4-cable Extension Optional

* Up to 12 outgoings with fuse switch NH 1/2/3 and up to 24 outgoings with fuse switch NH 00.
 ** Top arrangement for frame only.

Examples

Open frame, floor-mounting, top incoming connection with load break switch, 9 fuse switches NH-2 outgoings and top supervision.

Enclosure, top incoming connection with load break switch, 10 fuse switches NH-2 outgoings and bottom supervision.

2. BTVC | THREE-POLE FUSE SWITCH



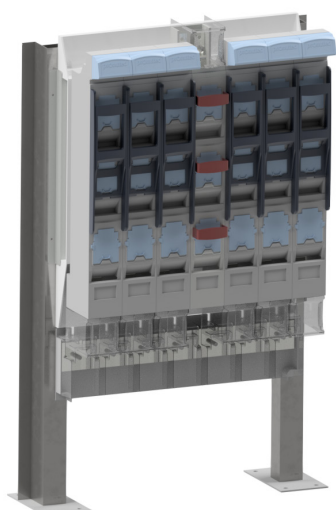
Incoming connection types	Top / Bottom with BTVC
Rated Operational Voltage	440 V (optional 500 / 690 V)
Rated Current	From 400 A to 1600 A
Number of outgoing	From 4 to 10 or 11 outgoing*
Enclosure type	Open frame Metallic enclosure
Panel support	Insulated and partitioned busbar
Supervision accessories	Top arrangement** Bottom arrangement
Auxiliary control	Optional according to client's preferences
Options	Adjustable distance between phase T and neutral Incoming connection 2 and 4-cable genset Extension Optional

* See table:

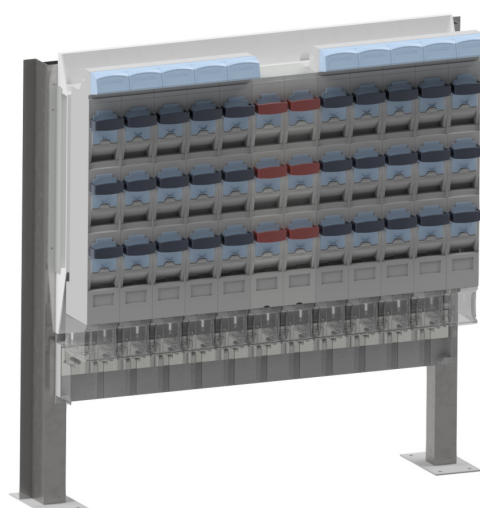
INCOMING CONNECTION		No. OF OUTGOINGS	
Type	Current	BTVC NH 1/2/3	BTVC NH 00
BTVC	400-630-910-1000 A	up to 11	up to 22
BTVC-D	800-1260-1600 A	up to 10	up to 20

** Top arrangement for frame only.

Examples



Open frame, top incoming connection
with 1 fuse switch NH-2, 6 outgoing
and top advanced supervision for
monitoring.



Open frame, bottom incoming connection
with 2 fuse switches NH-2, 10 outgoing
and top advanced supervision for monitoring.

3. MCCB | CIRCUIT BREAKER



Incoming connection types	Top with Circuit Breaker
No. of poles	3/4
Rated operational voltage	440 V (optional 500 / 690 V)
Rated Current	From 800 A to 2000 A
Number of outgoings	From 4 to 12 outgoings*
Enclosure type	Open frame Metallic enclosure
Panel support	Insulated and partitioned busbar
Supervision accessories	Top arrangement** Bottom arrangement
Auxiliary control	Optional according to client's preferences
Options	Left / Right Neutral Adjustable distance between phase T and neutral Incoming connection 2 and 4-cable genset Extension Optional

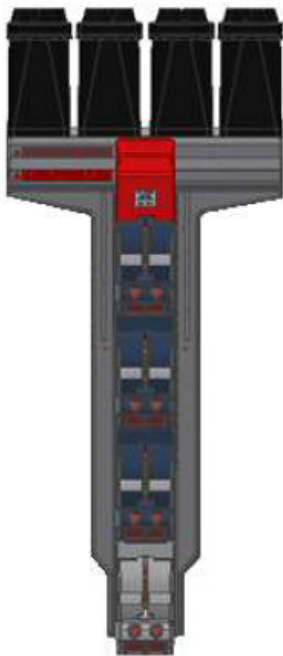
* Up to 12 outgoings with fuse switch NH 1/2/3 and up to 24 outgoings with fuse switch NH 00.
 ** Top arrangement for frame only.

Examples

Open frame, floor-mounting, top incoming connection with circuit breaker, 7 outgoings, double genset connection, 2 holes and top advanced supervision for monitoring.

Enclosure, top incoming connection with circuit breaker, 4 outgoings with BTVC NH-2, 8 outgoings with fuse switch NH-00 and bottom advanced supervision for monitoring in the fuse switch NH-2.

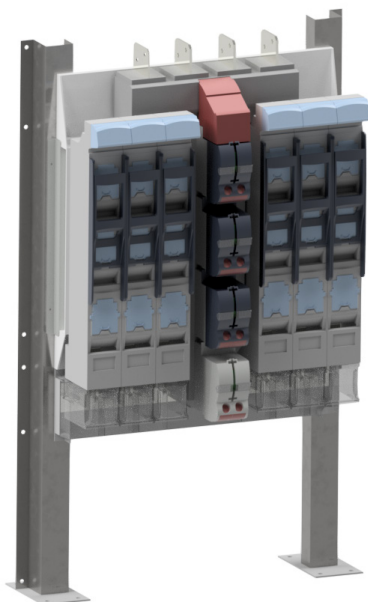
4. ICD | INTEGRATED COMPACT DISCONNECTION



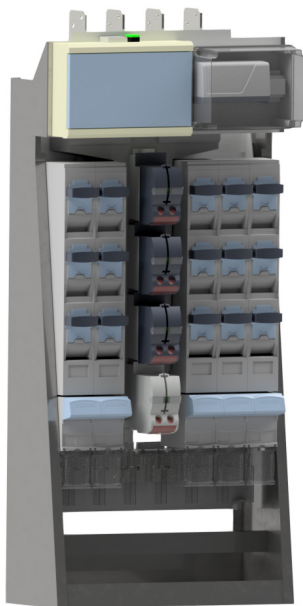
Incoming connection types	Top with ICD
No. of poles	4
Rated Operational Voltage	440 V (optional 500 / 690 V)
Rated Current	1250-1600 A
Number of outgoing	From 4 to 10 outgoing*
Enclosure type	Open Frame Closed Frame Metallic Enclosure
Panel support	Insulated and partitioned busbar
Supervision accessories	Top arrangement** Bottom arrangement
Auxiliary control	Optional according to client's preferences
Options	Left / Right Neutral Adjustable distance between phase T and neutral Genset incoming connection 2 and 4-cable Bottom door: Yes / No

* Up to 10 outgoing with fuse switch NH 1/2/3 and up to 20 outgoing with fuse switch NH 00.
** Top arrangement for frame only.

Examples



Open frame, top incoming connection with ICD, 6 outgoing and top advanced supervision for monitoring.



Closed frame, top incoming connection with ICD, 5 outgoing and bottom advanced supervision for monitoring.

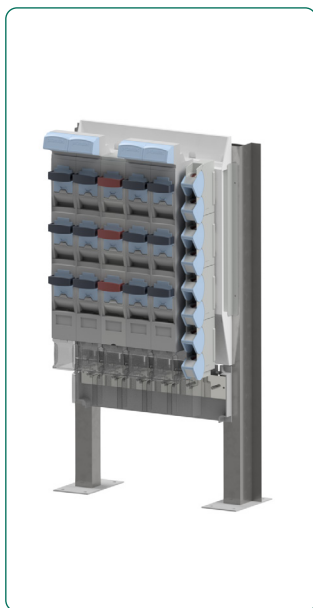


Enclosure, top incoming connection with ICD, 8 outgoing and bottom advanced supervision for monitoring.

► 05.2. OUTGOINGS

INCOMING CONNECTION			OUTGOINGS (MAX. NO.)	
			BTVC NH 00 FUSE SWITCHES	BTVC NH 1/2/3 FUSE SWITCHES
Incoming connection with Load break switch or circuit breaker			up to 24 outgoings	up to 12 outgoings
incoming connection to Disconnecter - Integrated Incoming Connection			up to 20 outgoings	up to 10 outgoings
Incoming connection to Fuse Switch	BTVC	400-690-910-1000 A	up to 22 outgoings	up to 11 outgoings
	BTVC-D	800-1260-1600 A	up to 20 outgoings	up to 10 outgoings

Examples with different numbers of outgoings



4 Outgoings



5 Outgoings



6 Outgoings



10 Outgoings

OUTGOING OPTIONS

NH 1/2/3 fuse switches from 250 A to 2000 A



NH 00 160 A fuse switches



POSSIBILITY OF EXTENSION

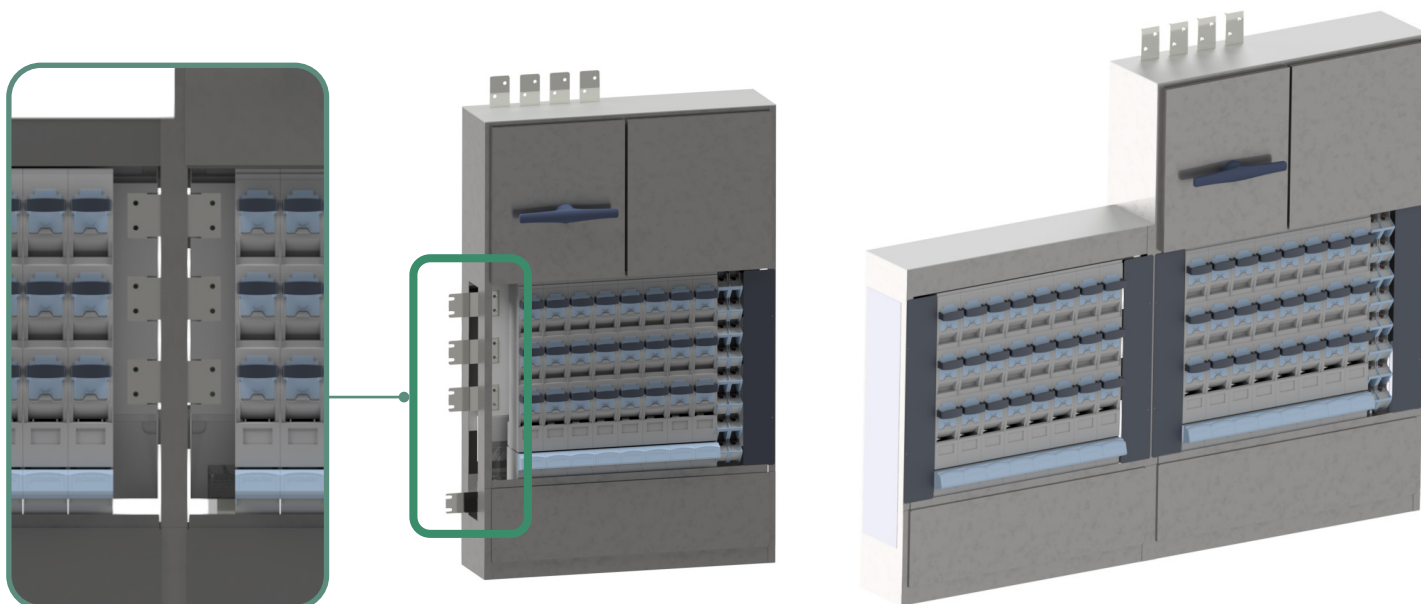
An extension module can be connected to the main panel if more outgoing connections are required on the right or on the left according to the client's preference.

This option is available for the Load Break Switch and Circuit Breaker incoming connection models for both frame and enclosure.

The maximum number of outgoing connections that can be added by means of these extension modules is 12.

Extension examples - Optional

For both, metallic enclosure and frame.



► 05.3. ENCLOSURES

Depending on the incoming connection type, 3 different enclosures can be used: open frame, closed frame or metallic enclosure.

			Incoming connection types			
			LBS	Fuse switch	MCCB	ICD
Enclosure Types	Frame	top incoming connection	✓	✓	✓	✓
		bottom incoming connection	-	✓	-	-
	Closed Frame	top incoming connection	-	-	-	✓
		bottom incoming connection	-	-	-	-
	Metallic Enclosure	top incoming connection	✓	-	✓	✓
		bottom incoming connection	-	✓	-	-

Frame

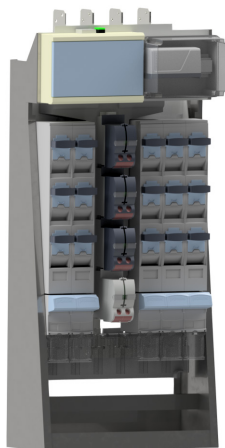
Possibility of mounting with all incoming connection type.



Example with incoming connection Circuit breaker

Closed frame

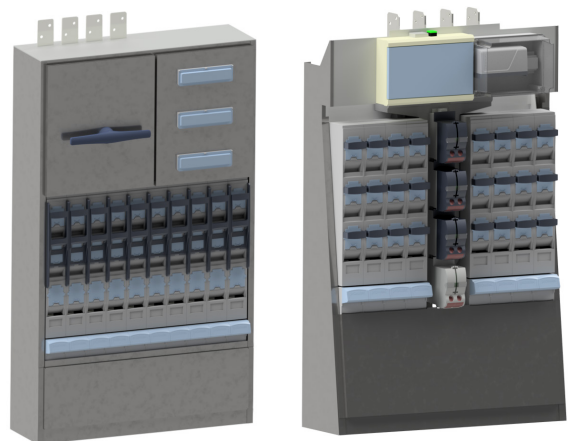
Possibility of mounting with incoming connection to ICD.



Disconnecter incoming connection example

Metallic enclosure

Possibility of mounting with any incoming connection type.



Example with incoming connection Load break switch

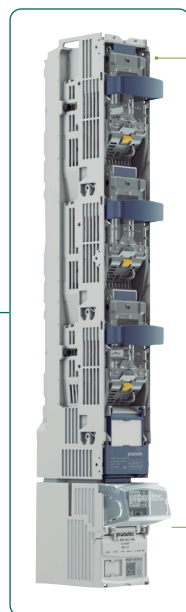
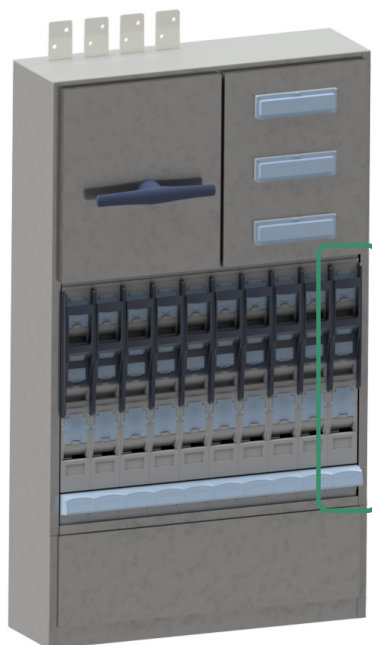
Disconnecter incoming connection example

► 05.4. MONITORING OPTIONS

Our supervision systems provides the possibility to measure and monitor the different electrical parameters at each outgoing line.

All models are designed to incorporate monitoring equipment in panels with fuse switches NH 1/2/3 size. There are two types available:

BOTTOM ARRANGEMENT SOLUTION



LV Fuse Switch size NH 1/2/3

These fuse switches can incorporate the entire range of Pronutec accessories and terminals.



TSA (Advanced Supervision Card)

The feeder meter is assembled inside the Supervisor (SAL). It's a three phase meter which reads all the electrical parameters and send them to the LV Remote unit through RS485 serial bus ports.



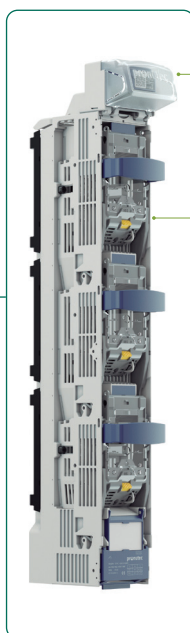
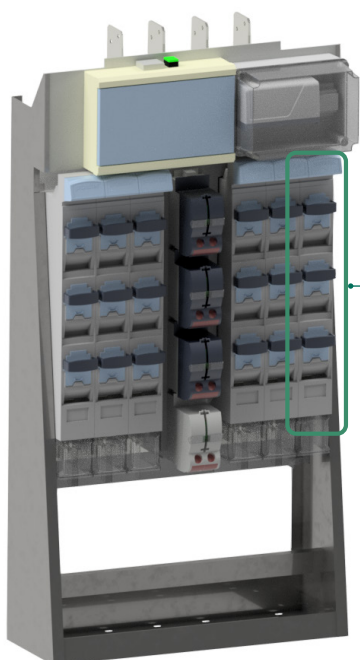
SAL (Advanced Supervision)

It includes built-in current transformers and a voltage taps per phase.

Available current transformers with different current ratios, based on fuse switches ratings.



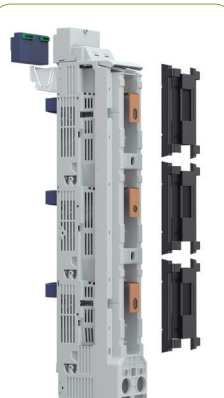
TOP ARRANGEMENT SOLUTION



The feeder meter (TSA) is assembled in an upper case on top of the fuse switch. This case includes three protection fuses.

LV Fuse Switch size NH 1/2/3

These fuse switches can incorporate the entire range of Pronutec accessories and terminals.



CTs and voltage taps are wired to the protection case in which the feeder meter (TSA) is assembled.

Available current transformers with different current ratios, based on fuse switches ratings.

► 05.5 GENSET CONNECTION OPTIONS

IDC

The Compact Integrated Disconnecter that we use as incoming connection to a panel allows connecting a Genset. This disconnector may include 2 or 4 240 mm2 cables.

GPC

The Genset Power Connector (GPC) has been specifically designed to provide a compact and safe method of connecting gensets to LV distribution panels in the event of a short circuit. This new product allows for quick and safe operation. Connections are compatible with 185 mm busbar systems, making the GPC an ideal solution for on-site installations and supplying up to 2000 A.

	GENSET CONNECTION TO BUSBAR	
Rating	From 160 A to 2000 A	
No. of cables with SIC (ACI)	Up to 1600 A	
	2 or 4 cables	
No. of cables with GPC	Up to 1000 A	Up to 2000 A
	2 cables	4 cables

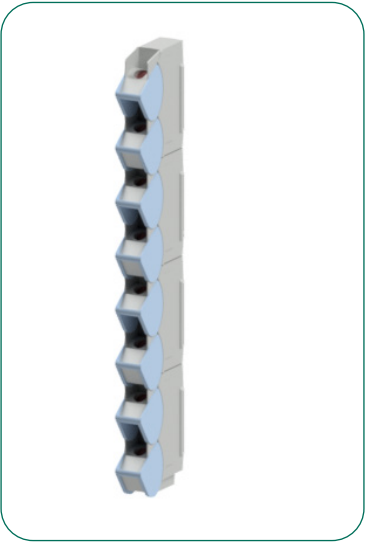
Examples

IDC

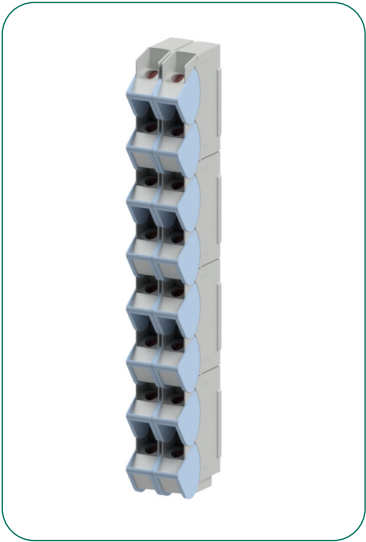


Up to 1600 A
(2 or 4 cables of 240 mm2)

GPC

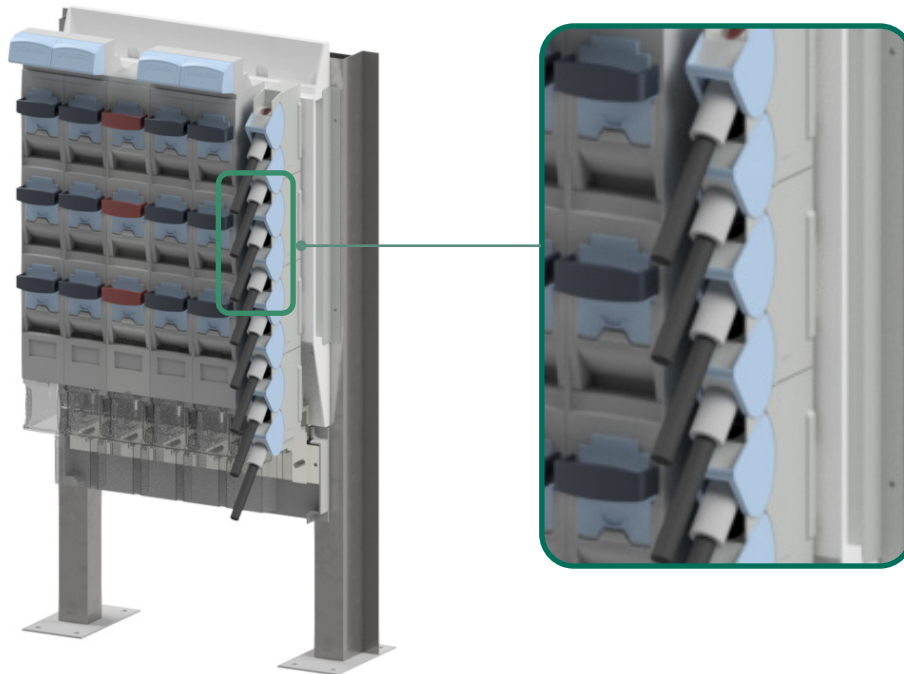


Up to 1000 A
(2 cables of 300 mm2)

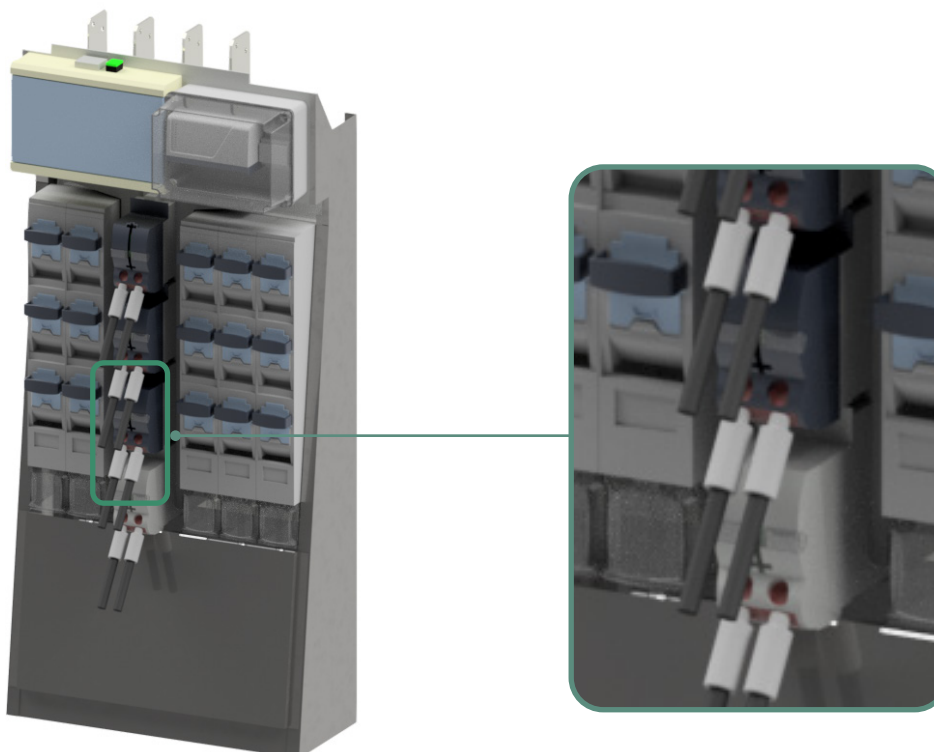


Up to 2000 A
(4 cables of 300 mm2)

GPC - GENSET CONNECTION



ICD - INTEGRATED COMPACT DISCONNECTOR WITH GENSET CONNECTION



06 Product configurator



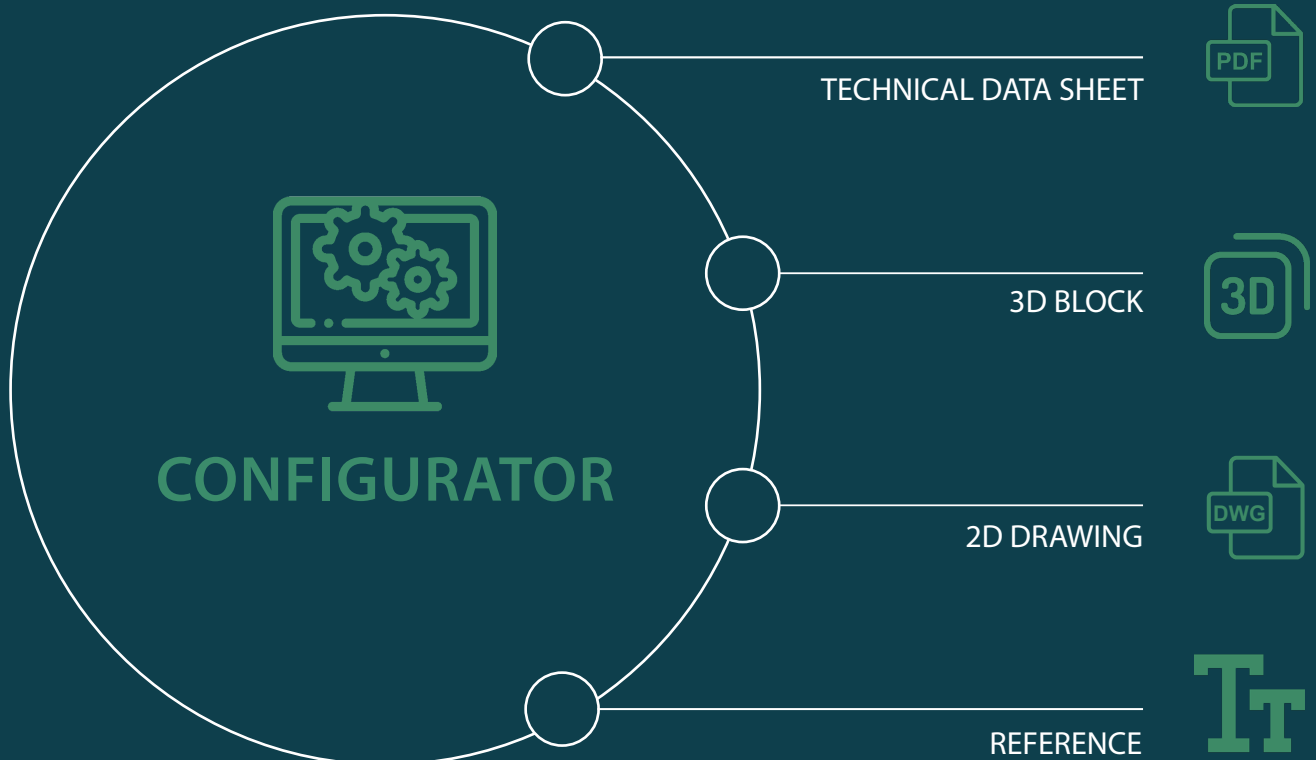
Automation in the configuration of panels



Customisation according to the client's needs



Quick acquisition of information, technical data and quotations



CONFIGURATOR DEMO

CONFIGURADOR CUMA21

Info Cliente CONFIGURADOR

FAMILIA DE PRODUCTO CBT Embarrado aislado

CORRIENTE NOMINAL

SECCIONAMIENTO GENERAL

POSICION CABLES DE ACOMETIDA

SOPORTE MECÁNICO

AMPLIABLE

LINEAS DE SALIDA

TIPO DE MANIOBRA DE LAS BTVC

GESTIÓN DE ENERGÍA

CIRCUITO AUXILIAR

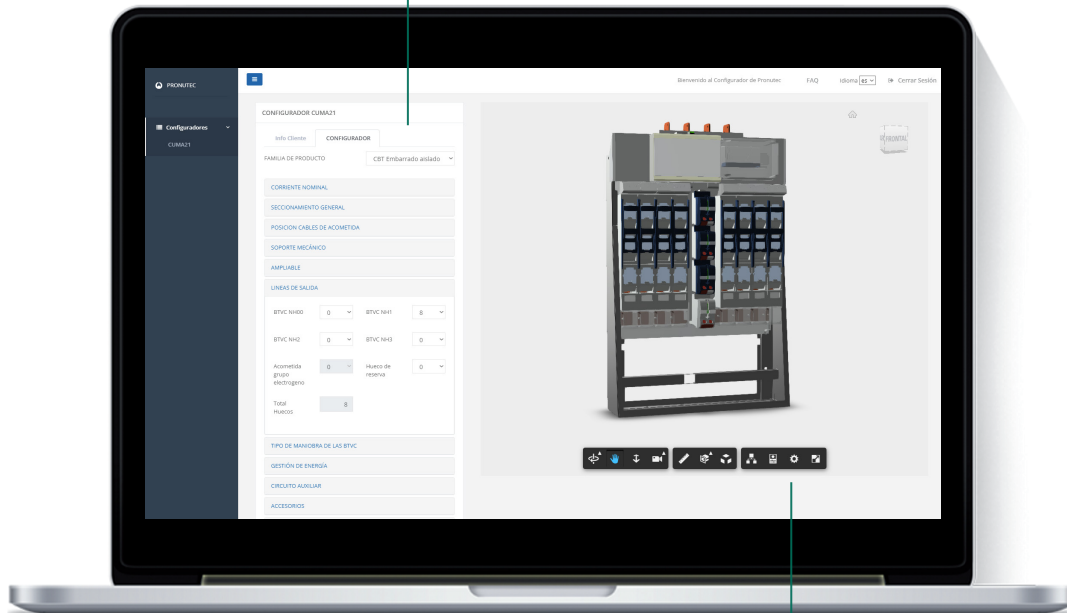
ACCESORIOS

REFERENCIA

Generar 3d

Side configuration panel

The configurator offers different options for the product technical features. By selecting this configuration, a downloadable file and a technical data sheet are created.



Bottom tool panel

Allows for configuring perspectives and moving a figure completely.

