

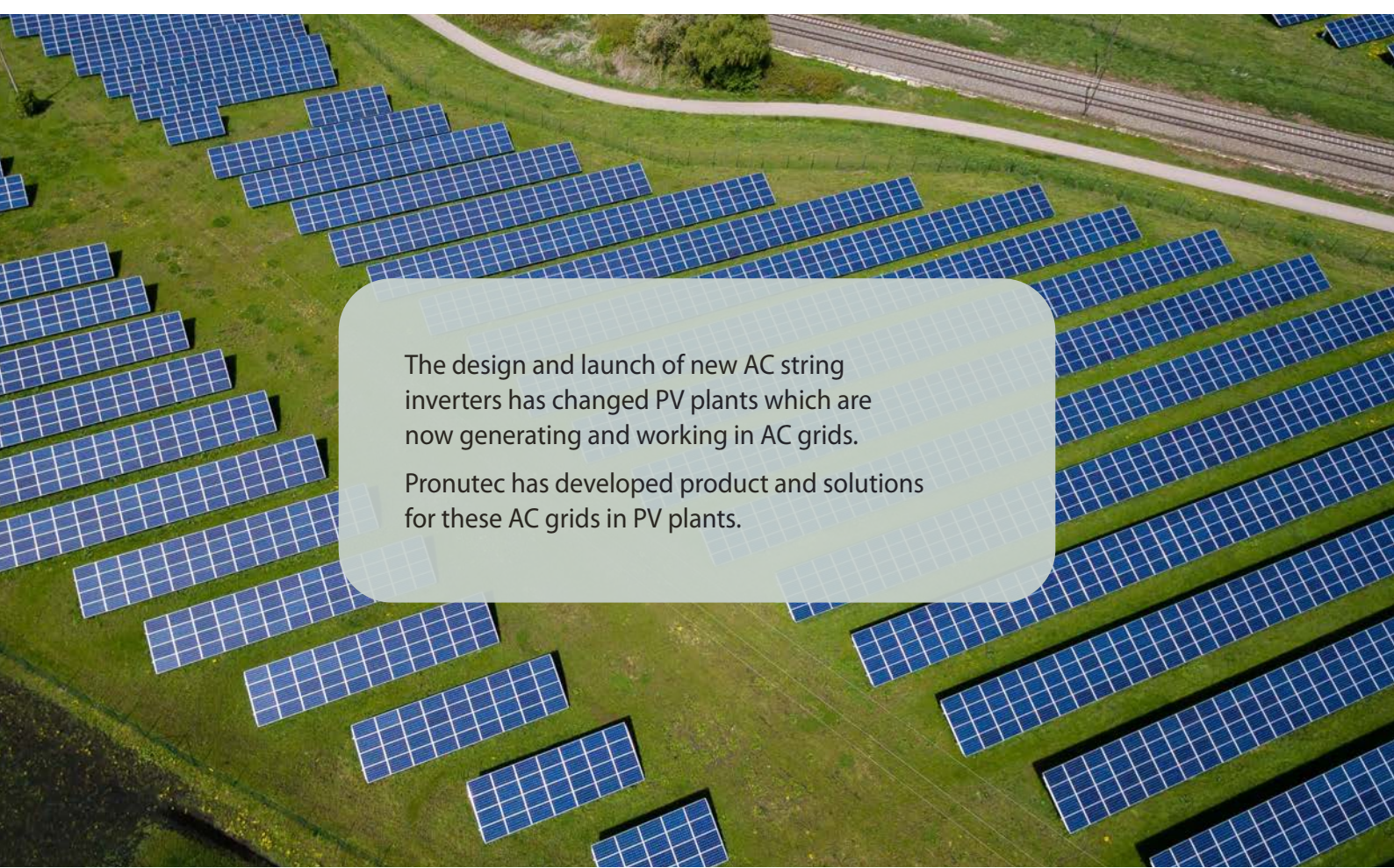


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## Photovoltaic plants in AC grids

Switchgear and  
AC Combiner Panels

# Photovoltaic plants in AC grids

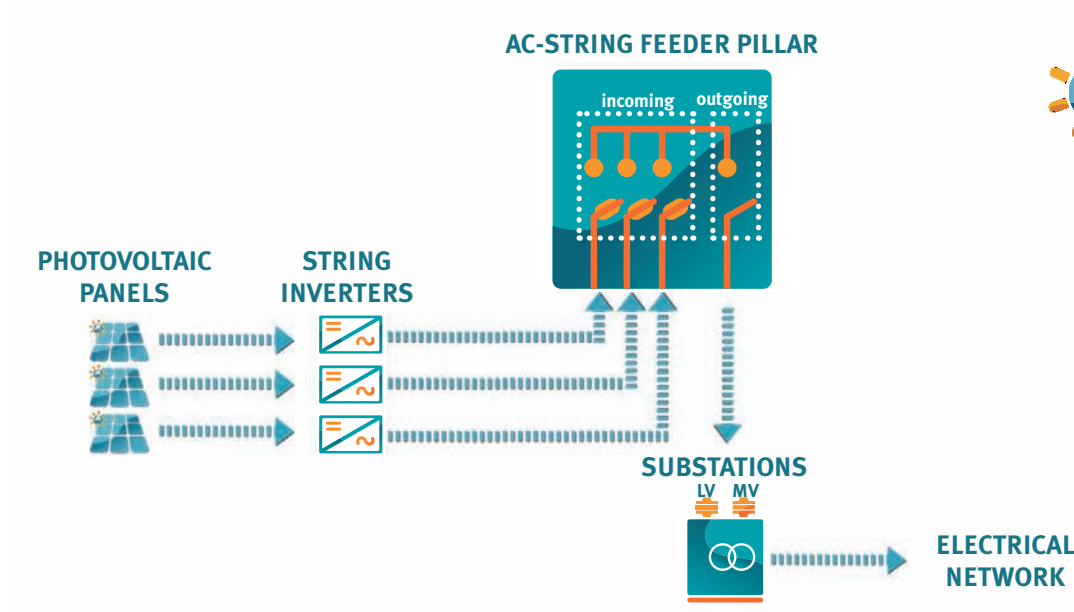


The design and launch of new AC string inverters has changed PV plants which are now generating and working in AC grids. Pronutec has developed product and solutions for these AC grids in PV plants.

<b>1</b>	<b>800 V AC switchgear for photovoltaic</b>	<b>4</b>
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# 1 800 V AC Switchgear for Photovoltaic

New trend of photovoltaic installations and where our products are needed



Tested switching capacity at 800 V AC as per IEC60947-3

Design of more competitive photovoltaic plants

Less power losses

PV energy shouldn't be considered any more an alternative source of energy. As it is becoming more cost-competitive, it is now an increasing reality.

One of the main reason for this, is the reduction of installations and maintenance cost. New trend consist in designing photovoltaic distribution network in **800 V AC** instead of DC voltages with smaller string inverters close to the photovoltaic panels.

At the same time, the transmission of energy at higher voltages make possible to reduce power losses and the cost of the installation.

**By using upper section cables, up to 300 mm<sup>2</sup> for NH 1 and NH 3, the voltage drop is reduced.** In this way, the tendency in last inverters generation is to transmit at 800 V AC.

► GORLAN SWITCHGEAR RANGE | Pronutec and Telergon

- Pronutec | Incoming
- Telergon | Outgoing

INCOMING

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TRIVER+ 800 LV Vertical Fuse Switches of Pronutec for 800 V AC



OUTGOING

**telergon**  
gorlan

Switch disconnectors high performances range of Telergon for 800 V AC



**pronutec**  
gorlan



► LV VERTICAL FUSE SWITCHES OF PRONUTEC FOR 800 V AC



**TRIVER+ 800**

Pronutec has developed the new range TRIVER+ 800. A range of vertical fuse switches for photovoltaic application specifically designed for the protection and distribution of electric networks from the new string inverters with rated operational voltage levels of 800 V AC.

The AC distribution and the higher voltage, allow a more cost-competitive design of power networks in photovoltaic applications and less power losses. Another features are the safety of the range TRIVER+ 800 and the breaking capacity at these voltage levels.

Maintaining the well known advantages and features in Pronutec TRIVER+ family, this new range offers additional advantages:

**Less power losses**

- Tested switching capacity up to 800 V.
- Tested short circuit protection up to 120 kA.
- Reliable protection by a consolidated technology based in DIN standard.
- All operations can be made in comfortable and safe way by using both conventional or insulated tools.
- Compatible with 185 mm and 100 mm distance busbars.
- Available in sizes NH00/1/3, allows any combination for a flexible configuration and adaptable to any project.
- Complete range of connections for copper and aluminum terminals for different cable sections.

▶ RANGE OF FUSE SWITCHES



### NH 00 | 100 mm busbar distance

Reference	Type	Current	Fuse-link	Switching	Connections	Busbar spacing
453.61.10.XX.YY.E8	BTVC-DT	125 A	NH 00	Three pole	Top / Bottom reversible	100 mm

\* For one pole switching options, please, consult.

#### Terminal options



XX Code	Type of terminal	Torque (Nm)	Cross section (mm <sup>2</sup> )			
22	Prism terminal - 95	2,5	10-95	10-95	35-95	50-95
01	M8 screw Stainless Steel	12	Cable lugs DIN 46235 Max. 95 mm <sup>2</sup>			
02	M8 screw Zn	12				
03*	M8-M5 screw Stainless Steel (15 mm)	12				
04**	M8-M5 screw Stainless Steel (18 mm)	12				

\* Compatible with Prism terminal-70 and Bridge clamp.  
\*\* Compatible with Prism terminal-95.



### NH 00 | 185 mm busbar distance

Reference	Type	Current	Fuse-link	Switching	Connections	Busbar spacing
443.72.10.XX.YY.E8	BTVC-DT / Depth 00	125 A	NH 00	Three pole	Top / Bottom reversible	185 mm
443.72.12.XX.YY.E8	BTVC-DT / Depth 2	125 A	NH 00	Three pole	Top / Bottom reversible	185 mm

\* For one pole switching options, please, consult.

#### Terminal options



Reference	XX Code	Type of terminal	Torque (Nm)	Cross section (mm <sup>2</sup> )			
101.01.122	28	Aluminum "V" Terminal	15	10-95	10-95	25-120	25-150
101.01.114	05	Steel "V" Terminal	15	10-70	10-70	25-95	20-120
-	01	M8 screw A2/M8	12	Cable lugs DIN 46235 Max. 120 mm <sup>2</sup>			
-	02	M8 screw Zn / M8	12				
-	03*	M8 screw A2+M5 (15 mm)	12				
-	04**	M8 screw A2+M5/M8 (18 mm)	12				

\* Compatible with Prism terminal-70 and Bridge clamp.  
\*\* Compatible with Prism terminal-95.

#### Adaptor plates

YY Code	Adaptor plates
16	Set of 3 adaptor plates to connect 185 mm <sup>2</sup> cross section cables



Micro-switch available for all sizes







### NH 1/3 | 185 mm busbar distance

Reference	Type	Current	Fuse-link	Switching	Connections	Busbar spacing
438.71.10.XX.YY.E8	BTVC-DT	315 A	NH 1	Three pole	Top / Bottom reversible	185 mm
438.73.10.XX.YY.E8	BTVC-DT	400 A	NH 3	Three pole	Top / Bottom reversible	185 mm

\* For one pole switching options, please, consult.

### Terminal options

Reference	XX Code	Type of terminal	Torque (Nm)	Cross section (mm <sup>2</sup> )			
							
101.01.130	46	Aluminum Double "V" Terminal	25-30	50-240	70-300	70-240	95-300
101.01.129	42	Aluminum Double "V" Terminal	30	35-120	35-150	50-185	35-240
101.01.103	05	Aluminum "V" Terminal with reversible pressure pad	25	16-185	16-240	35-240	35-300
-	00	M10 Bolt	32	Cable lugs DIN 46235 2x25 - 300 mm <sup>2</sup> (Max. width 43 mm)			
-	01	M10 Bolt Stainless Steel	32				
-	02	M12 Bolt	40				
-	03	M12 Bolt Stainless Steel	40				



46



42



05



00  
01



02  
03

**Cross section up to 300 mm<sup>2</sup>, the voltage drop is reduced**

Micro-switch available for all sizes



### Vertical Switch Disconnectors

Size	Current
NH 3	1000 A

Please, consult.

▶ OTHER PRODUCTS



**One pole Fuse Bases - 800 V AC**

Size	Current
NH 00	Contact our commercial department
NH 1	
NH 3	



**1 pole LV Fuse Switches - 800 V AC**

Size	Current
NH 00	Contact our commercial department
NH 1	

**Horizontal design fuse switch disconnectors**



**NH 00**



**NH 1**



**NH 3**

**NH 00**

Reference	Type	Current	Type of terminal	Connections	Fuse link	Power Losses (W)*
432.12.01.01.00.E8	Panel mounting	125 A	Bridge terminal	Bottom/Top connection	NH 00	12
432.12.01.02.00.E8	Panel mounting	125 A	Connection screw M8	Bottom/Top connection	NH 00	12
432.42.01.01.00.E8	Panel mounting	125 A	Bridge terminal	Long Contact Cover	NH 00	12
432.42.01.02.00.E8	Panel mounting	125 A	Connection screw M8	Long Contact Cover	NH 00	12

\* Maximum power losses (W) of a fuse for these fuse switch disconnectors.

**NH 1**

Referencia	Type	Current	Type of terminal	Connections	Fuse link	Power Losses (W)*
432.13.39.31.E8	Panel mounting	250 A	Box Terminal	Bottom/Top connection	NH 1	23
432.13.20.13.E8	Panel mounting	250 A	Connection screw M10	Bottom/Top connection	NH 1	23

\* Maximum power losses (W) of a fuse for these fuse switch disconnectors.

**NH 3**

Referencia	Type	Current	Type of terminal	Connections	Fuse link	Power Losses (W)*
432.15.20.34.E8	Panel mounting	400 A	Connection screw M12	Bottom/Top connection	NH 3	48

\* Maximum power losses (W) of a fuse for these fuse switch disconnectors.



IEC/EN 60947-3		Type	BTVC   BTVC-DT			
			NH 00 (453)	NH 00 (443)	NH 1 (438)	NH 3 (438)
Electrical characteristics	Rated operational voltage	$U_e$ (V)	AC 800			
	Rated operational current	$I_e$ (A)	125	125	315	400
	Conventional free air thermal current with fuses	$I_{th}$ (A)	160		250	
	Conventional free air thermal current with solid links	$I_{th}$ (A)	160		250	
	Rated frequency	(Hz)	50/60			
	Rated insulation voltage	$U_i$ (V)	1000			
	Rated impulse withstand voltage	$U_{imp}$ (kV)	8		20	
	Rated conditional short-circuit current	( $kA_{eff}$ )	120	120	120	80
	Utilization category	-	AC-22B			
	Rated making capacity	(A)	189	189	480	600
Rated breaking capacity	(A)	189	189	480	600	
Mechanical characteristics	Weight	(kg)	1,520	2,260	4,250	5,600
	Busbar distance	(mm)	100		185	
	Panel front opening	(mm)	600/650			
Fuse links	Size to IEC/EN 60269	-	00	00	1	3
	Max. permis. power loss per fuse-link	$P_v$ (W)	12	12	23	48

IEC/EN 60947			Type	BTVC   BTVC-DT			
				NH 00 (453)	NH 00 (443)	NH 1 (438)	NH 3 (438)
Terminals	Bolt terminal	Diameter	-	M8		M10/M12	
		Cable lug (S/DIN 46235)	(mm <sup>2</sup> )	10-95	10-120	2x 25-300	2x 25-300
		Torque	(Nm)	12		32	
	Prism terminal	Terminal cross section	(mm <sup>2</sup> )	16-70		-	
		Torque	(Nm)	2.5		-	
	"V" Terminal	Terminal cross section	(mm <sup>2</sup> )	-	10-95	35-300	35-300
		Torque	(Nm)	-	15	25	25
	Protection degree	Front operated switchgear fitted		-	IP30		
Operating conditions	Ambient temperature		(°C)	-25 to +55 <sup>*(1)</sup>			
	Rated operating mode		-	Continuous operation			
	Actuation		-	Dependant manual operation			
	Altitude		(m)	Up to 2000			
	Pollution degree		-	3			
	Overvoltage category		-	III		IV	

\*<sup>(1)</sup> 35°C normal temperature, at 55 °C with reduced operating current.



► SIBA NH FUSES

Pronutec recommends SIBA NH fuses for optimal protection of the new generation of PV String Inverters



Fuse links - 800 V AC   gG	
Size	Current
NH 00	from 20 to 63 A
NH 1	from 50 to 160 A
NH 3	from 160 to 250 A

Fuse links - 800 V AC   gRL (gS)	
Size	Current
NH 00	from 32 to 125 A
NH 1	from 80 to 200 A
NH 3	from 200 to 400 A

The new series of SIBA NH fuses with operating class: gRL (gS) has been developed for the line protection of the new String Inverters. Due to the use of special geometries of melting elements, in comparison to the conventional line protection fuses of operating class gG, a considerably faster operation at short circuits and thus optimum protection of the inverters has been realized. In the space-saving NH standard designs, the fuse links achieve a maximum breaking capacity of 120 kA with a test voltage of 800 V.

The power losses of series NH 00, NH 1 and NH 3 have been designed for the respective maximum power acceptance of the corresponding NH fuse bases and fuse switches.

Operation class gG		
Size Reference	Rated Current (A)	Power loss (W)
NH 00 2030913	20	2,5
	25	3,0
	32	4,0
	40	4,5
	50	5,0
	63	6,5
NH 1 2031113	50	5,0
	63	6,5
	80	7,5
	100	9,0
	125	10
NH 3 2031313	160	13
	200	18
	250	20

Operation class gRL (gS)		
Size Reference	Rated Current (A)	Power loss (W)
NH 00 2030934	32	5
	35	6
	40	7
	50	8
	63	10
	80	11
	100	12
	125	13
NH 1 2031134	80	13
	100	15
	125	18
	160	19
	180	20
	200	21
NH 3 2031334	200	-
	250	26
	315	31
	350	35
	400	41



More info at:  
[www.pronutec.com](http://www.pronutec.com)  
[www.telergon.es](http://www.telergon.es)



► RANGE OF HIGH PERFORMANCE SWITCH DISCONNECTORS OF TELERGON FOR 800 V AC



**Functional and ergonomic handle**

- Good grip and excellent torque/resistance.
- Padlockable handle in **OFF 0** position (up to three locks Ø 5-8 mm) .
- Door interlock in **ON I** position.
- When lock  in **OFF 0** position, door is interlocked.
- Defeatable feature in **ON I** position (with the use of a tool for maintenance operations). Handle interlock is restored when closing.
- Self-centering shaft for door handle.



The switch-disconnectors **S5 & S6** for high performances range, are manufactured with high safety selfextinguishing materials, providing an excellent level of electrical insulation, low smoke emission and high resistance to electromechanical stress.

They comply with environmental requirements and undergo strict quality controls for a reliable product that meets the most demanding requirements.

They consist of a sandwich-type body containing self-cleaning blade type contacts, with pre-arc zones to ensure long term, fault-free energy transmission and coated with silver alloy for long electromechanical life. The detent mechanism provides quick and independent switching due to the accumulation of elastic potential energy, which is transmitted at high speed to the contacts for arc extinction.

**Motorized unit kit**

- Equipped with a selector for automatic manual-lock operating modes.
- The kit concept simplifies both logistics and maintenance.
- Easy and simple assembly.



► RANGE

According to:  
IEC 60947-3  
RoHS



Manual switch disconnectors S6 / S5 3 poles (O - I) 800 V AC <sup>*(1)</sup>			Manual handle	
Current	Size	Code	External <sup>*(2)</sup>	Direct
			Code	Code
250 A	1	S6-04003PDO	DS-SA11	DS-SI11
630 A	2	S6-08003PDO	DS-LA21	DS-LI21
1250 A	4	S5-18003PS0	DS-LA41	DS-LI41
1600 A		S5N16003PS0P86		
2500 A <sup>*(3)</sup>		S5N18006PS0PB7		

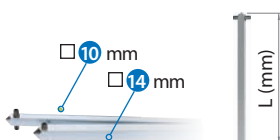
<sup>\*(1)</sup> AC21B, for other electrical ranges or 3P+N switches, please consult.

<sup>\*(2)</sup> Padlockable handle in OFF position. Possibility of unlocking the door in ON 1 position (with the use of a tool). Door interlock by a padlock in OFF 0 position.

<sup>\*(3)</sup> 6P switch disconnector with grouped outgoing up to 2500 A.



Motorized switch disconnectors S6 / S5 3 poles (O - I) 800 V AC <sup>*(1)</sup>			UM-S Motorized unit kit
Current	Size	Code	230 V AC
			Code
250 A	1	S6-04003PDC	UM-S1A230Z
630 A	2	S6-08003PDC	UM-S2A230Z
1250 A	4	S5-18003PSC	UM-S41230M
1600 A		S5N16003PSCP86	UM-S56230M
2500 A <sup>*(3)</sup>		S5N18006PSCP86	



Extended shafts				Auxiliary contacts		Spacers	Phase barriers	Terminal shrouds
Size	Size	Tipo 1 & 2		1NO+1NC	2NO+2NC	(4 uds.)	(2 uds.)	Code
		L	Code	Code	Code	Code	Code	
1	10	375	DS-EP14	D5LAU01	D5LAU02	DR-EL11	DR-SF12	DR-CU12
		536	DS-EP15					
2	14	345	DS-EP23	D5LAU01	D5LAU02	DR-EL21	DR-SF22	DR-CU22
		535	DS-EP24					
4	14	485	DS-EP44	D5LAU01	D5LAU02	-	-	DS-CU41*
		635	DS-EP45					

\* This terminal shroud is only available for switch disconnectors with size 4, 1250 A.



► AUTOMATIC SWITCH DISCONNECTORS

ACB 220S 4P-65 kA



ACB 332S 4P-85 kA



MCCB XV250NE 3P  
FC 800 V AC



Code	Description	Type	Rated operational voltage $U_e$	Current
1012786	MCCB E630NE 4P FC	IA 3P+N Tipo TB2 Moulded case	400/500/690V	630 A
1012791	MCCB S800CJ 4P FC	IA 3P+N Tipo TB2 Moulded case		800 A
10127100	MCCB S1000SE 4P FC	IA 3P+N Tipo TB2 CMoulded case		1000 A
1012775	MCCB S1250SE 4P FC	IA 3P+N Tipo TB2 Moulded case		1250 A
1012782	MCCB S1600SE 4P FC	IA 3P+N Tipo TB2 Moulded case		1600 A
Confirm	ACB 220S 4P - 65 kA	IA ACB 4P Fixed type		2000 A
Confirm	ACB 325S 4P - 85 kA	IA ACB 4P Fixed type	2500 A	
Confirm	ACB 332S 4P - 85 kA	IA ACB 4P Fixed type	3200 A	
Confirm	MCCB XV250NE 3P FC 800Vac	IA 3P Tipo XV Moulded case	800 V	250 A
Confirm	MCCB XV400NE 3P FC 800Vac	IA 3P Tipo XV Moulded case		400 A
Confirm	MCCB XV630PE 3P FC 800Vac	IA 3P Tipo XV Moulded case		630 A
Confirm	MCCB XV800PE 3P FC 800Vac	IA 3P Tipo XV Moulded case		800 A
Confirm	MCCB XV1250NE 3P FC 800Vac	IA 3P Tipo XV Moulded case		1250 A
Confirm	ACB 320H-V8 3P 800Vac - 30 kA	IA ACB 3P AR V8 Ejectable types		2000 A
Confirm	ACB 325H-V8 3P 800Vac - 30 kA	IA ACB 3P AR V8 Ejectable types		2500 A
Confirm	ACB 332H-V8 3P 800Vac - 30 kA	IA ACB 3P AR V8 Ejectable types		3200 A

▶ ALTERNATIVE PRODUCTS | Accessories

**Measuring instruments - Panel meters**

Description	Rated operational voltage $U_e$
Current transformer + Panel meter PNT MASTER 3840	400/500/690 V
Current transformer + Panel meter for 800 V AC	800 V



+



**Arresters**

Description	Rated operational voltage $U_e$
Arrester set 400/500/690 V (BTHC+arrester+fuses)	400/500/690 V
Arrester set 800 V AC (BTHC+arrester+fuses)	800 V



+

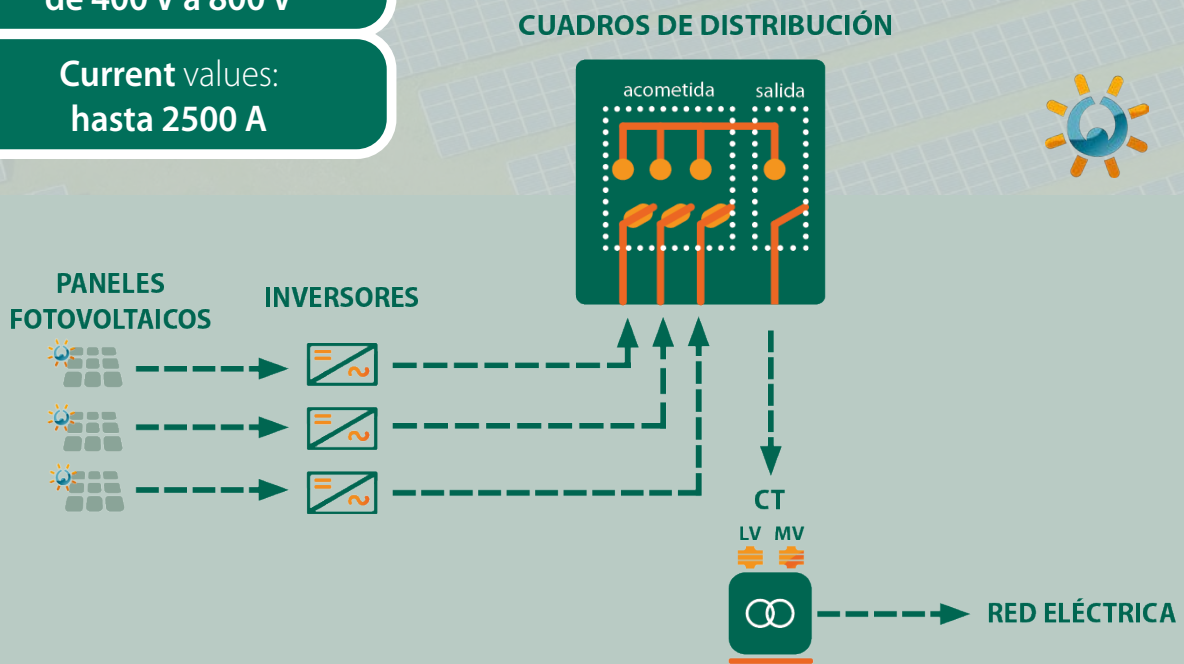


## 2 AC Combiner Panels

*Indoor and outdoor applications*

**Voltage** values:  
de 400 V a 800 V

**Current** values:  
hasta 2500 A



Pronutec presents its new Inverter AC Combiner Panels range. Working voltages from 400 V to 800 V in AC grids, both in indoor and outdoor installations. Wide range of: currents, number of inputs, different switching devices, surge protection and auxiliary services.

These panels are the ones that are different connected to the transformer in the Transformer Station. The panel collects the cables from the inverter, through the bottom from by means of fuse switch NH 00/1/3. These fuse switches have been tested and are capable for working at voltages up to 800 Vac.



▶ RANGE OF PANELS (different options)

- Voltage 400/500/690/800 V AC
- Number of poles (3) – (3 + N)
- Application: indoor / outdoor
- N° of inputs / current

### METALLIC INDOOR PANELS

- Model 1.** Bottom incoming - Top outgoing.  
Maximum 6 incomings BTVC-DT NH 1/3 or 12 incomings BTVC-DT NH 00.
- Model 2.** Bottom incoming - Top outgoing.  
Maximum 10 incomings BTVC-DT NH 1/3 or 20 incomings BTVC-DT NH 00.
- 2.1. Expandable 10 gaps. Load break switch or automatic circuit breaker.
  - 2.2. Expandable 8 gaps. Load break switch.
  - 2.3. Expandable 8 gaps. Automatic circuit breaker.
- Extensions for models 2.2.1, 2.2.2 and 2.2.3.
- 2.4. Not expandable.

### INDOOR PANEL - FRAME VERSION

- Frame Version** Bottom incoming to the fuse switches - Lateral outgoing to the transformer through wiring. Maximum 36 incomings BTVC-DT NH 1.

### POLYESTER OUTDOOR PANEL

- Model 3.** Bottom incoming - Top and rear outgoing.  
Maximum 6 incomings BTVC-DT NH 1/3 or 12 incomings BTVC-DT NH 00.
- Model 4.** Bottom incoming - Bottom outgoing.  
Maximum 5 incomings BTVC-DT NH 1/3 or 10 incomings BTVC-DT NH 00.

### METALLIC OUTDOOR PANEL

- Model 5.** Bottom incoming - Top and rear outgoing.  
Maximum 6 incomings BTVC-DT NH 1/3 or 12 incomings BTVC-DT NH 00.

#### OUTGOING CURRENTS

Model 1.	1600 A for 400/500/690 V   1250 A for 800 V
Model 2.	3200 A for 400/500/690 V   2500 A for 800 V
Model 3.	1250 A for 400/500/690 V   1000 A for 800 V
Model 4.	1250 A for 400/500/690 V   1000 A for 800 V
Model 5.	1600 A for 400/500/690 V   1250 A for 800 V

#### OUTGOING DEVICES

Load break switch or automatic circuit breaker

#### PROTECTIONS

Auxiliary circuits, metering devices, surge arresters, etc.

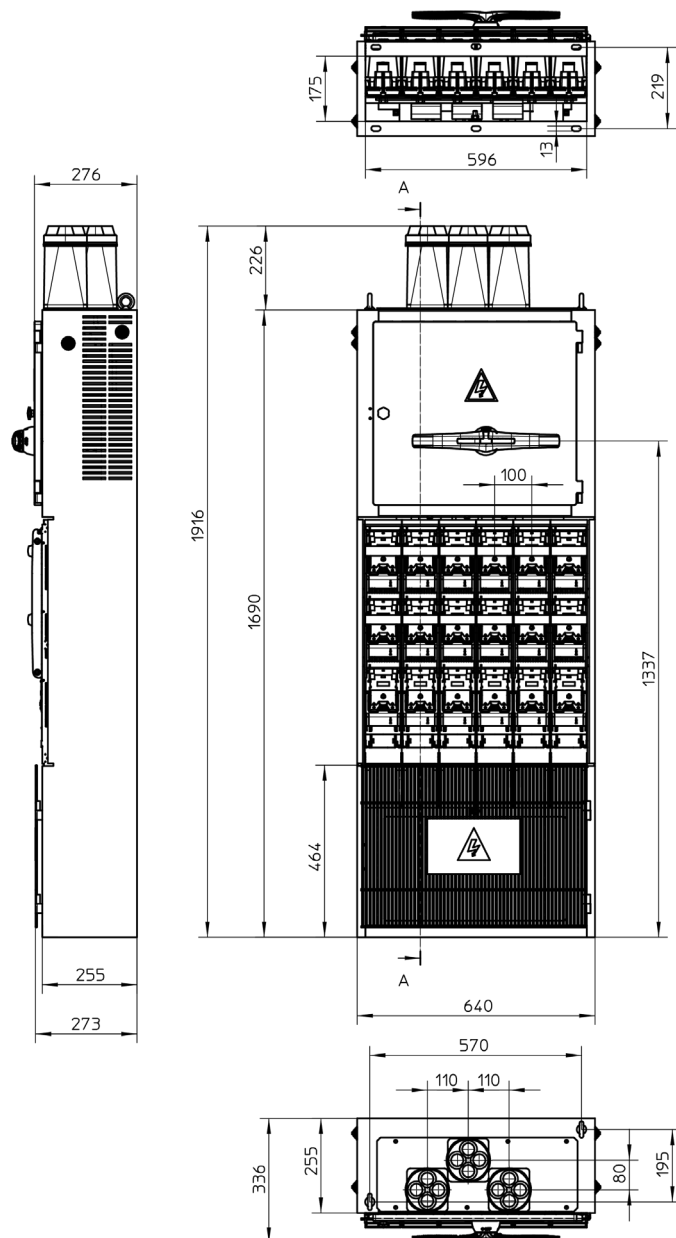
Bottom Incoming - Top Outgoing | Unesa type 6 gaps

DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 6 with BTVC NH 1/3.  
| 12 with BTVC NH 00.
- Top outgoing through Telergon Load Break switch:  
Up to 1250 A for 800 V en AC.  
Up to 1600 A for 400/500/690 V.
- IP20.
- According to standard IEC-61439.



DIMENSIONAL DRAWING



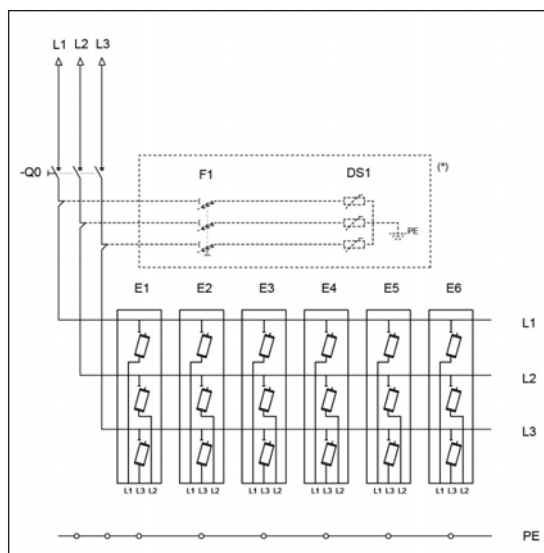
Bottom Incoming - Top Outgoing | Unesa type 6 gaps

RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum nº of incomings	Size
ICTLG* 3P+N. Serie S6000	Confirm	LVCP U 6H 800 A IC 4P 12E00 SC	400/500/690 V	800 A	12	NH 00
	Confirm	LVCP U 6H 800 A IC 4P 6E01 SC			6	NH 1
	Confirm	LVCP U 6H 800 A IC 4P 6E03 SC			6	NH 3
ICTLG* 3P+N	Confirm	LVCP U 6H 1600 A IC 4P 12E00 SC		1600 A	12	NH 00
	Confirm	LVCP U 6H 1600 A IC 4P 6E01 SC			6	NH 1
	Confirm	LVCP U 6H 1600 A IC 4P 6E03 SC			6	NH 3
ICTLG* 3P 800Vac. Serie S6000	Confirm	LVCP U 6H 400 A IC 3P 12E00 SC	800 V	400 A	12	NH 00
	Confirm	LVCP U 6H 400 A IC 3P 6E01 SC			6	NH 1
	Confirm	LVCP U 6H 400 A IC 3P 6E03 SC			6	NH 3
ICTLG* 3P 800 Vac	Confirm	LVCP U 6H 1250 A IC 3P 12E00 SC		1250 A	12	NH 00
	Confirm	LVCP U 6H 1250 A IC 3P 6E01 SC			6	NH 1
	Confirm	LVCP U 6H 1250 A IC 3P 6E03 SC			6	NH 3

ICTLG\* - Telergon Load Break switch

WIRING DIAGRAM



\* Optional

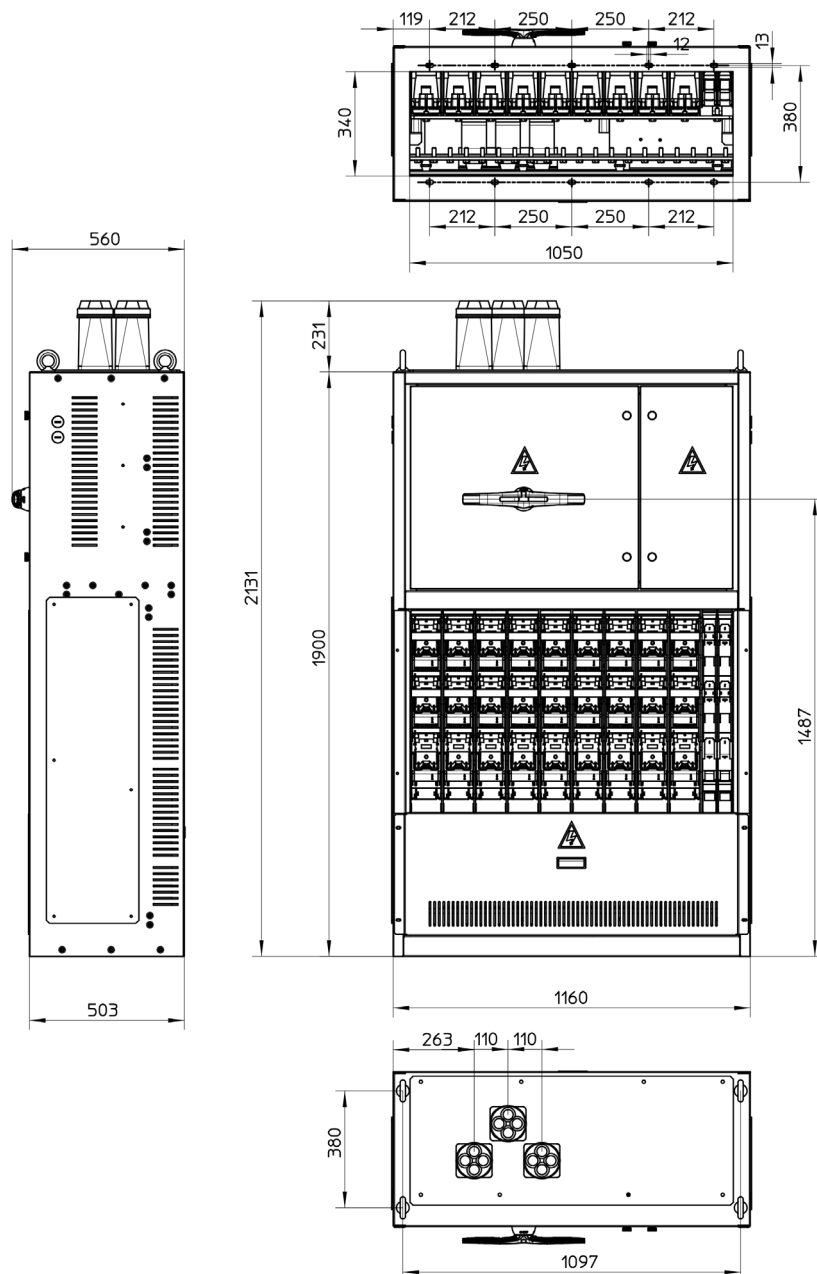
**Note:** This model is not designed to incorporate a frame type circuit breaker. It is only possible to incorporate an automatic molded case circuit breaker, up to 1250 A. For accessories and switch combinations, please, contact our commercial department.

Bottom Incoming - Top Outgoing | Expandable 10 gaps

DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 20 with BTVC NH 00.  
| 10 with BTVC NH 1/3.
- Top outgoing through Load Break switch:  
Up to 2500 A for 800 V en AC  
Up to 3200 A for 400/500/690 V
- IP20.
- According to standard IEC-61439.

DIMENSIONAL DRAWING



## ▶ RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
ICTLG* 3P+N	Confirm	LVCP 10H 2000 IC 4P 20E00 SC	400/500/690 V	2000 A	20	NH 00
	Confirm	LVCP 10H 2000 IC 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2000 IC 4P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 2500 IC 4P 20E00 SC		2500 A	20	NH 00
	Confirm	LVCP 10H 2500 IC 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2500 IC 4P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 3150 IC 4P 20E00 SC		3200 A	20	NH 00
	Confirm	LVCP 10H 3150 IC 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 3150 IC 4P 10E03 SC			10	NH 3
ICTLG* 3P 800 Vac	Confirm	LVCP 10H 2500 IC 3P 20E00 SC	800 V	2500 A	20	NH 00
	Confirm	LVCP 10H 2500 IC 3P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2500 IC 3P 10E03 SC			10	NH 3

ICTLG\* - Telergon Load Break switch

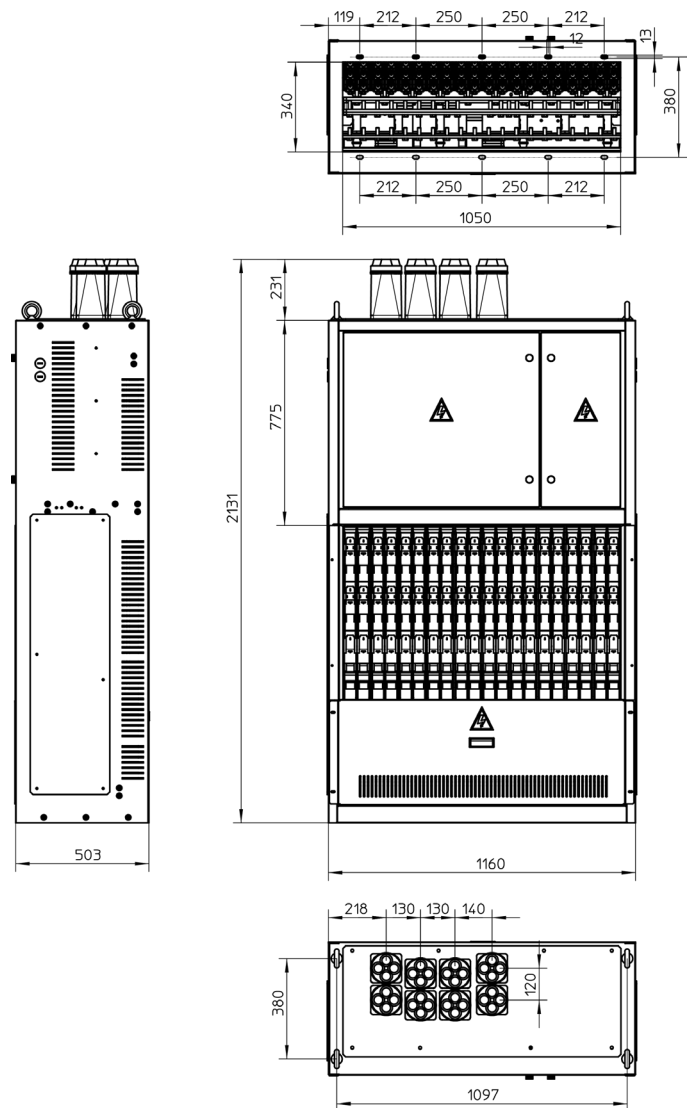
Bottom Incoming - Top Outgoing | Expandable 10 gaps

DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 20 with BTVC NH 00.  
| 10 with BTVC NH 1/3.
- Top outgoing through Automatic Circuit Breaker:  
Up to 3200 A for 800 V en AC  
Up to 3200 A for 400/500/690 V
- IP20.
- According to standard IEC-61439.



DIMENSIONAL DRAWING



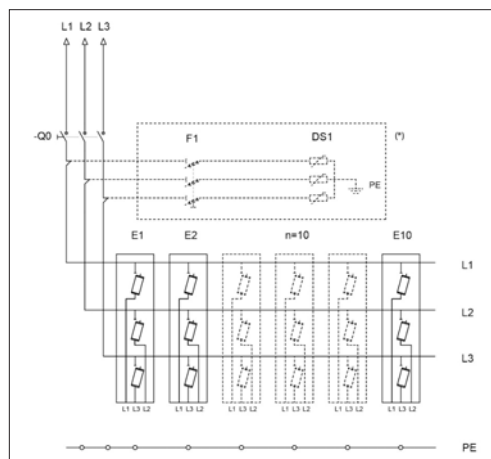
Bottom Incoming - Top Outgoing | Expandable 10 gaps

RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
IA** ACB 4P Fixed type	Confirm	LVCP 10H 2000 IA 4P 20E00 SC	400/500/690 V	2000 A	20	NH 00
	Confirm	LVCP 10H 2000 IA 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2000 IA 4P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 2500 IA 4P 20E00 SC		2500 A	20	NH 00
	Confirm	LVCP 10H 2500 IA 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2500 IA 4P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 3200 IA 4P 20E00 SC		3200 A	20	NH 00
	Confirm	LVCP 10H 3200 IA 4P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 3200 IA 4P 10E03 SC			10	NH 3
IA** ACB 3P AR V8 Ejectable type	Confirm	LVCP 10H 2000 IA 3P 20E00 SC	800 V	2000 A	20	NH 00
	Confirm	LVCP 10H 2000 IA 3P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2000 IA 3P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 2500 IA 3P 20E00 SC -		2500 A	20	NH 00
	Confirm	LVCP 10H 2500 IA 3P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 2500 IA 3P 10E03 SC			10	NH 3
	Confirm	LVCP 10H 3200 IA 3P 20E00 SC		3200 A	20	NH 00
	Confirm	LVCP 10H 3200 IA 3P 10E01 SC			10	NH 1
	Confirm	LVCP 10H 3200 IA 3P 10E03 SC			10	NH 3

IA\*\* - Automatic Circuit Breaker

WIRING DIAGRAM



\* Optional

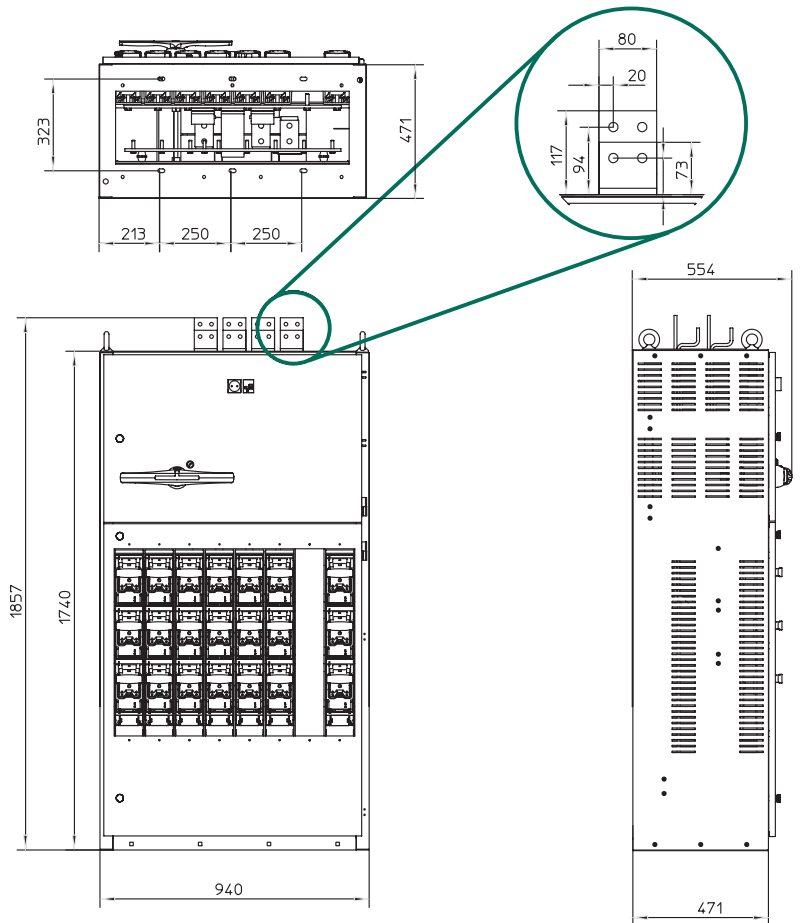
Bottom Incoming - Top Outgoing | Expandable 8 gaps

DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 16 with BTVC NH 00.  
| 8 with BTVC NH 1/3.
- Top outgoing through Load Break switch:  
Up to 3200 A for 400/500/690 V.  
Up to 2500 A for 800 V.
- IP20.
- According to standard IEC-61439.



DIMENSIONAL DRAWING





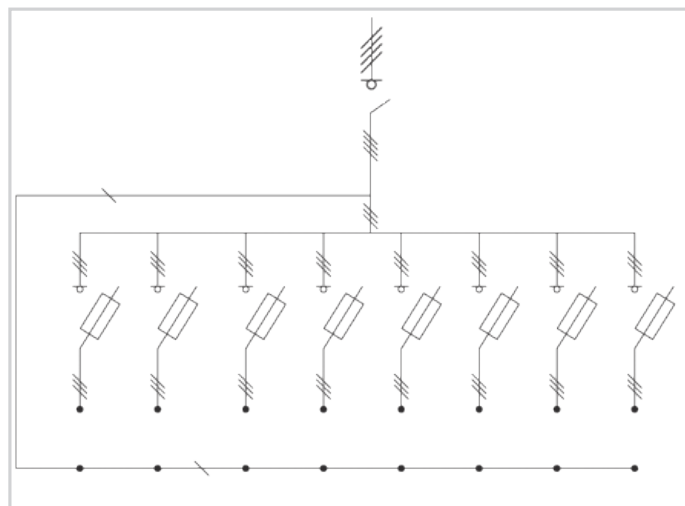
Bottom Incoming - Top Outgoing | Expandable 8 gaps

▶ RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
ICTLG* 3P+N	Confirm	LVCP 8H 2500 IC 4P 16E00 SC	400/500/690 V	2500 A	16	NH 00
	Confirm	LVCP 8H 2500 IC 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2500 IC 4P 8E03 SC			8	NH 3
	Confirm	LVCP 8H 3150 IC 4P 16E00 SC		3200 A	16	NH 00
	Confirm	LVCP 8H 3150 IC 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 3150 IC 4P 8E03 SC			8	NH 3
ICTLG* 3P 800 V AC	Confirm	LVCP 8H 2500 IC 3P 16E00 SC	800 V	2500 A	16	NH 00
	Confirm	LVCP 8H 2500 IC 3P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2500 IC 3P 8E03 SC			8	NH 3

ICTLG\* - Load Break switch of Telergon

▶ WIRING DIAGRAM

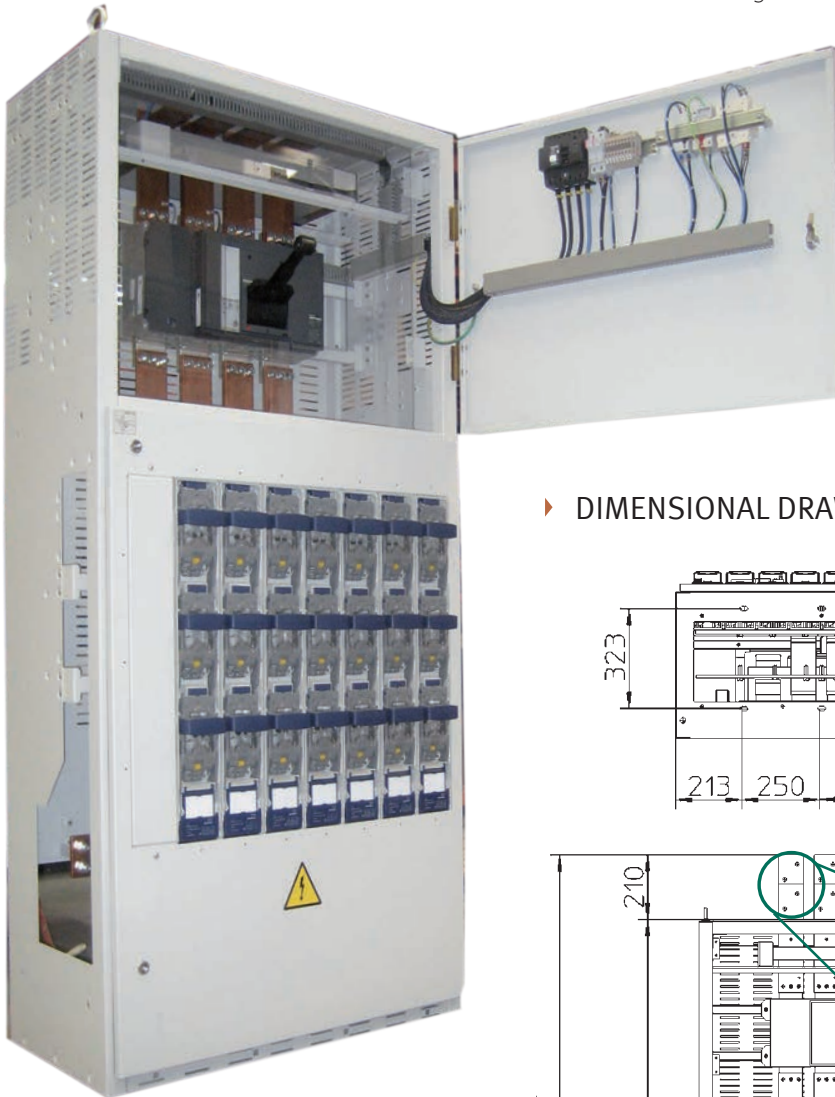


Wiring diagram for 8 outgoing

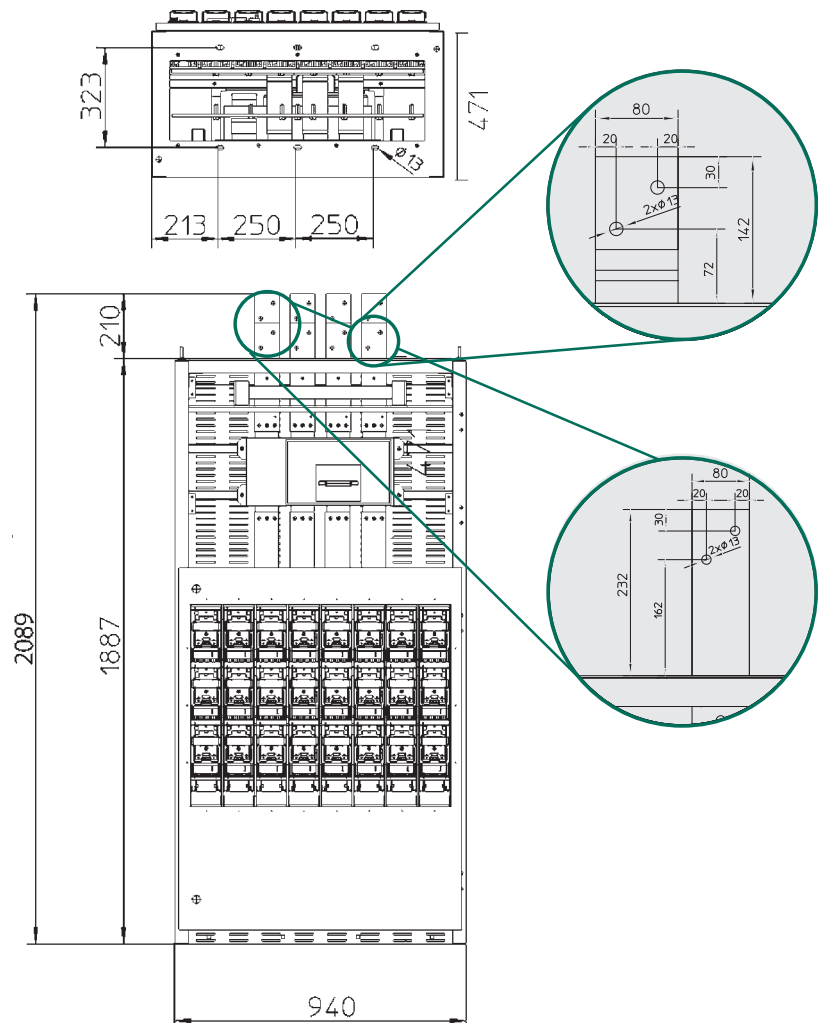
Bottom Incoming - Top Outgoing | Expandable 8 gaps

DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 16 with BTVC NH 00.  
| 8 with BTVC NH 1/3.
- Top outgoing through Automatic Circuit Breaker:  
Up to 3200 A for 400/500/690 V.  
Up to 3200 A for 800 V.
- IP20.
- According to standard IEC-61439.



DIMENSIONAL DRAWING



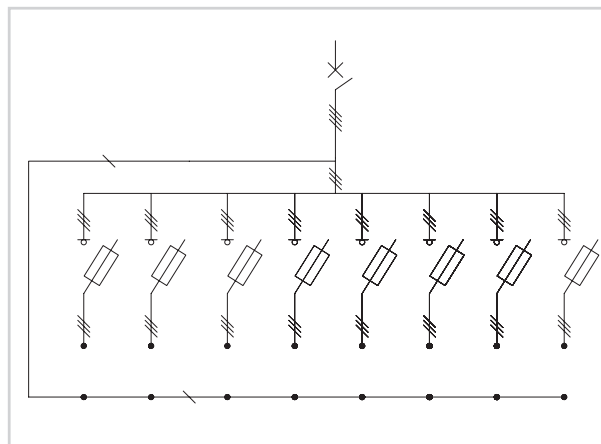
Bottom Incoming - Top Outgoing | Expandable 8 gaps

▶ RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
IA** ACB 4P Fixed type	Confirm	LVCP 8H 2000 IA 4P 16E00 SC	400/500/690V	2000 A	16	NH 00
	Confirm	LVCP 8H 2000 IA 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2000 IA 4P 8E03 SC			8	NH 3
	Confirm	LVCP 8H 2500 IA 4P 16E00 SC		2500 A	16	NH 00
	Confirm	LVCP 8H 2500 IA 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2500 IA 4P 8E03 SC			8	NH 3
	Confirm	LVCP 8H 3200 IA 4P 16E00 SC		3200 A	16	NH 00
	Confirm	LVCP 8H 3200 IA 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 3200 IA 4P 8E03 SC			8	NH 3
IA** ACB 3P AR V8 Ejectable type	Confirm	LVCP 8H 2000 IA 3P 16E00 SC	800 V	2000 A	16	NH 00
	Confirm	LVCP 8H 2000 IA 3P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2000 IA 3P 8E03 SC			8	NH 3
	Confirm	LVCP 8H 2500 IA 3P 16E00 SC		2500 A	16	NH 00
	Confirm	LVCP 8H 2500 IA 3P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2500 IA 3P 8E03 SC			8	NH 3
	Confirm	LVCP 8H 3200 IA 3P 16E00 SC		3200 A	16	NH 00
	Confirm	LVCP 8H 3200 IA 3P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 3200 IA 3P 8E03 SC			8	NH 3

IA\*\* - Automatic Circuit Breaker

▶ WIRING DIAGRAM

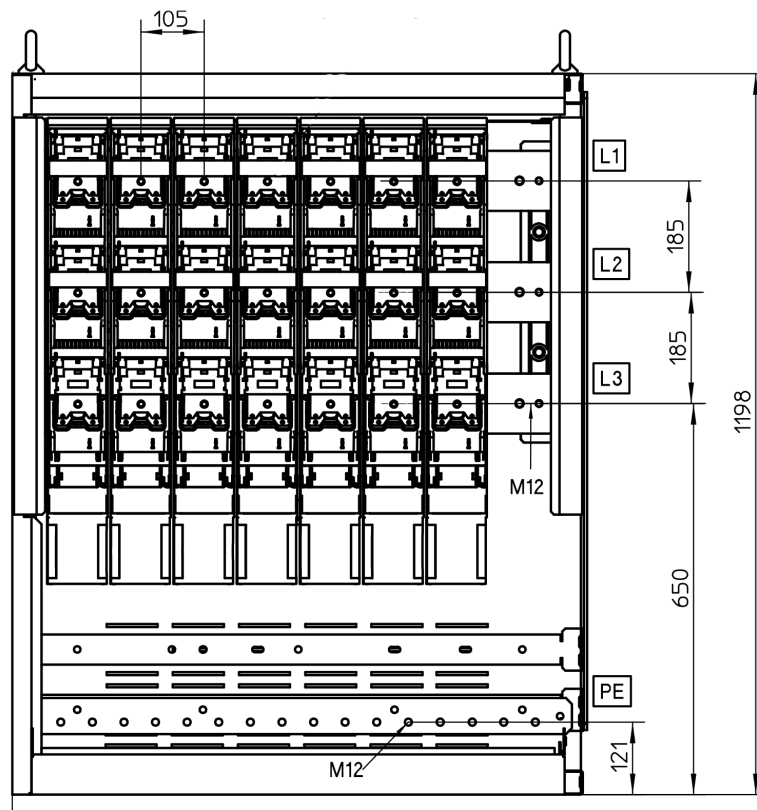


Connection with models 2.1. , 2.2. and 2.3.

DESCRIPTION

- CBT extension 8 gaps
- Metallic enclosure.
- Bottom incoming | 16 with BTVC NH 00.  
| 8 with BTVC NH 1/3.
- Outgoing through busbar with neutral:  
Up to 2500 A for 400/500/690 V.  
Up to 2500 A for 800 V.
- Alternatives: different sizes of fuse switches.

DIMENSIONAL DRAWING



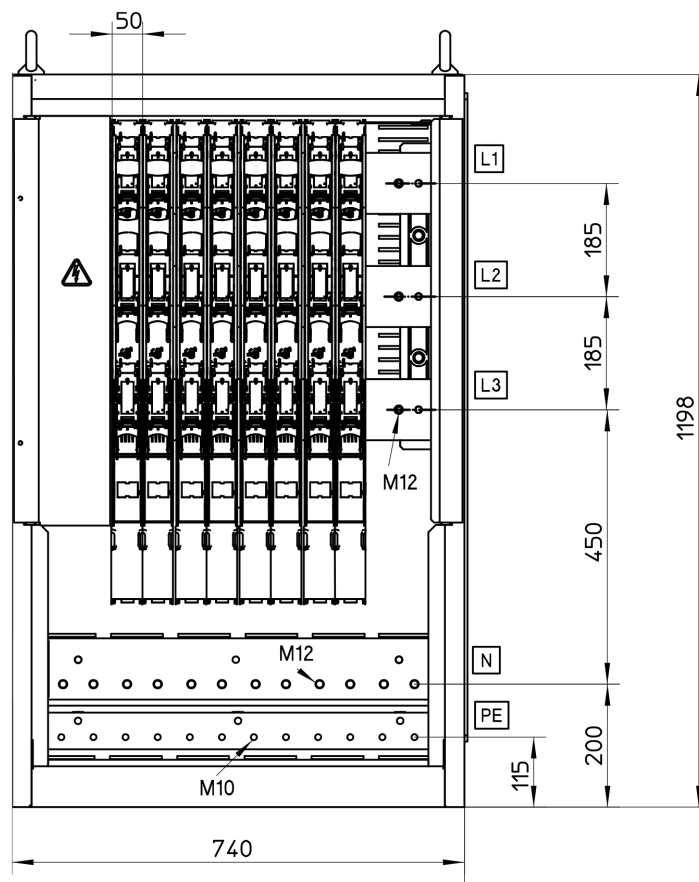
RANGE

Outgoing	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum nº of incomings	Size
Busbar with neutral	Confirm	LVCP 8H AMP 4P 16E00 SC	400/500/690 V	2500 A	16	NH 00
	Confirm	LVCP 8H AMP 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H AMP 4P 8E03 SC			8	NH 3
	Confirm	LVCP 8H AMP 3P 16E00 SC	800 V	2500 A	16	NH 00
	Confirm	LVCP 8H AMP 3P 8E01 SC			8	NH 1
	Confirm	LVCP 8H AMP 3P 8E03 SC			8	NH 3

DESCRIPTION

- CBT extension 6 gaps
- Metallic enclosure.
- Bottom incoming | 12 with BTVC NH 00.  
| 6 with BTVC NH 1/3.
- Outgoing through busbar with neutral:  
Up to 2500 A for 400/500/690 V.  
Up to 2500 A for 800 V.
- Alternatives: different sizes of fuse switches.

DIMENSIONAL DRAWING



RANGE

Outgoing	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
Busbar with neutral	Confirm	LVCP 6H AMP 4P 12E00 SC	400/500/690 V	2500 A	12	NH 00
	Confirm	LVCP 6H AMP 4P 6E01 SC			6	NH 1
	Confirm	LVCP 6H AMP 4P 6E03 SC			6	NH 3
	Confirm	LVCP 6H AMP 3P 12E00 SC	800 V	2500 A	12	NH 00
	Confirm	LVCP 6H AMP 3P 6E01 SC			6	NH 1
	Confirm	LVCP 6H AMP 3P 6E03 SC			6	NH 3

**Bottom Incoming - Top Outgoing | Not expandable**

## ▶ DESCRIPTION

- Inverter grouping AC panel for indoor.
- Metallic enclosure.
- Bottom incoming | 16 with BTVC NH 00.  
| 8 with BTVC NH 1/3.
- Top outgoing through Load Break switch:  
Up to 2000 A for 400/500/690 V.
- IP20.
- According to standard IEC-61439.



Model 2.4.

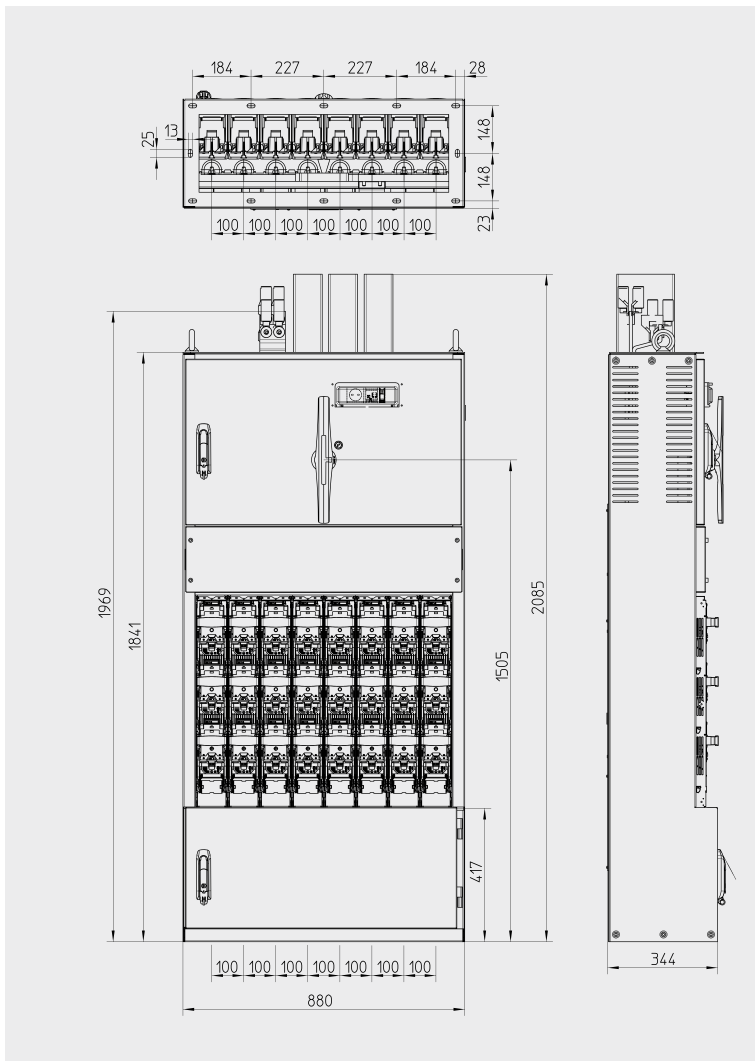
Bottom Incoming - Top Outgoing | Not expandable

▶ RANGE

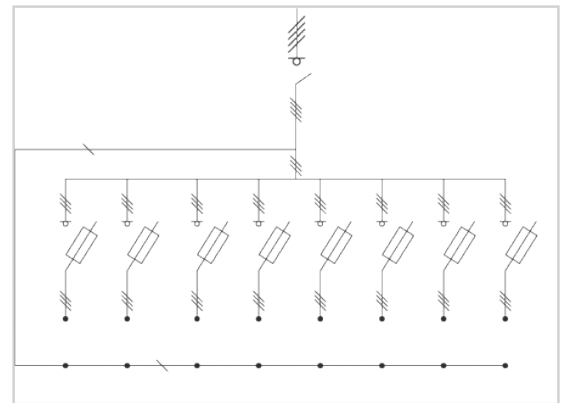
Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
IC TLG* 3P+N	Confirm	LVCP 8H 2000 IC 4P 16E00 SC	400/500/690 V	2000 A	16	NH 00
	Confirm	LVCP 8H 2000 IC 4P 8E01 SC			8	NH 1
	Confirm	LVCP 8H 2000 IC 4P 8E03 SC			8	NH 3

IC TLG\* - Load Break switch of Telergon

▶ DIMENSIONAL DRAWING



▶ WIRING DIAGRAM

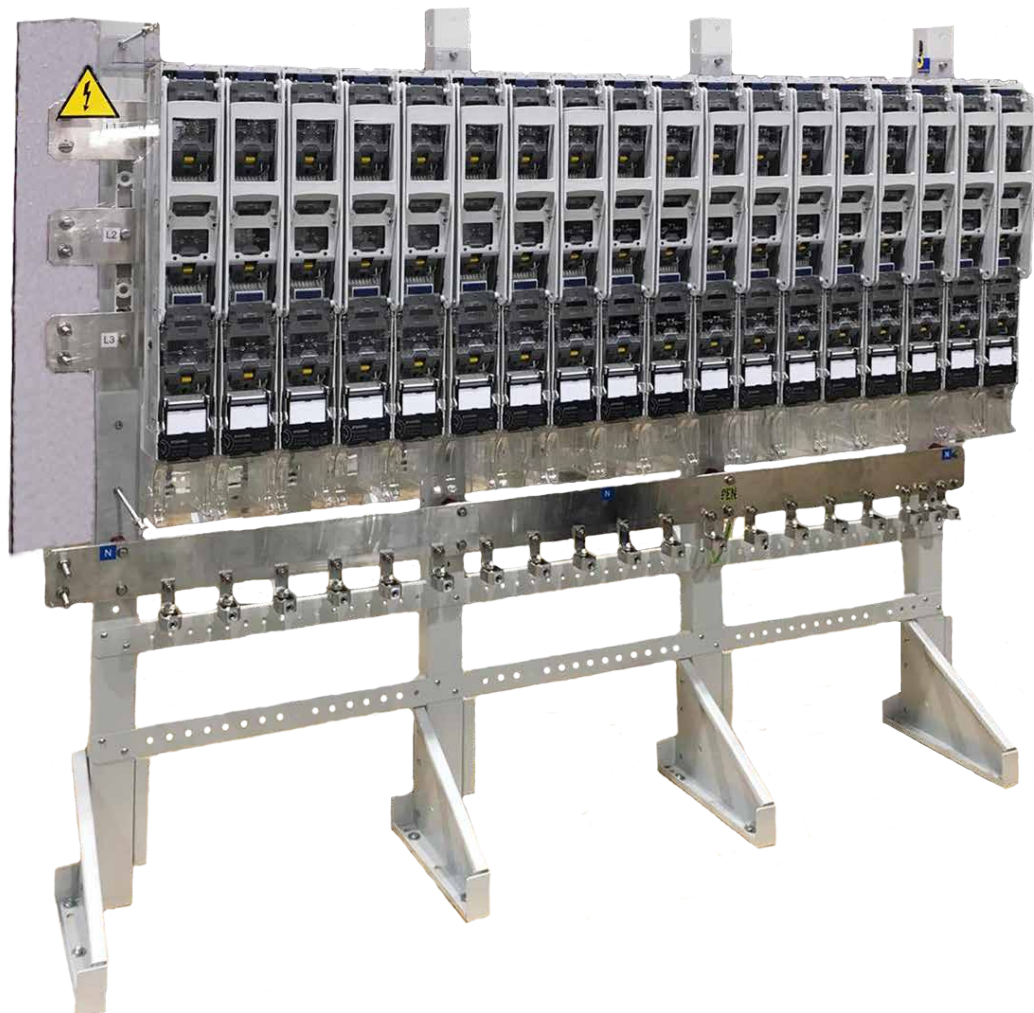


Wiring diagram for 8 outgoing

**Bottom incoming to the fuse switches**

## ▶ DESCRIPTION

- Inverter grouping AC panel for indoor.
- Frame
- Bottom incoming | Maximum 36 fuse switches NH 1.
- Lateral outgoing to the transformer through wiring.

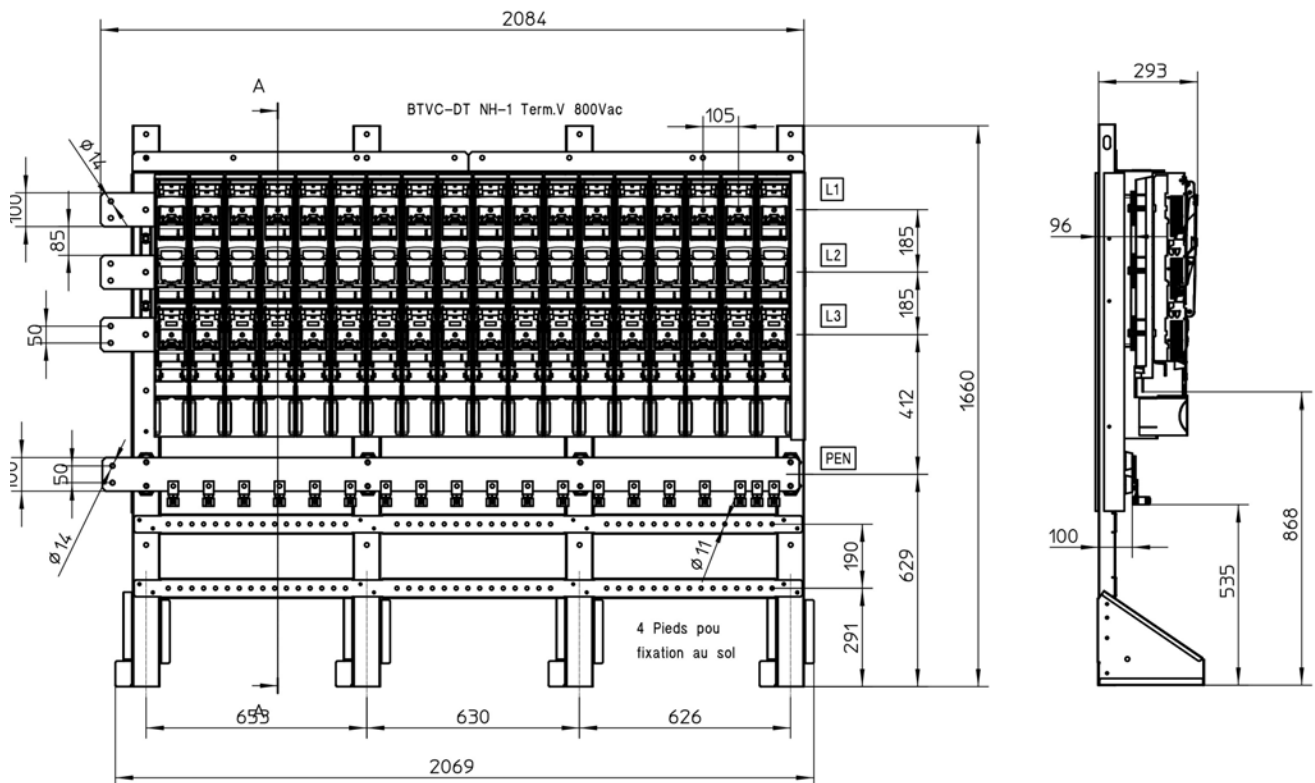




► RANGE

Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
418P871722_C	CBTM 36 M COMPLETE	800 V	3000 A	36	NH 1
	CBTM 18 M LEFT SIDE		1500 A	18	NH 1
	CBTM 18 M RIGHT SIDE		1500 A	18	NH 1
418P871722_D	CBTM 31 M COMPLETE	800 V	3000 A	31	NH 1
	CBTM 15 M LEFT SIDE		1500 A	16	NH 1
	CBTM 16 M RIGHT SIDE		1500 A	16	NH 1
418P872593_A	CBTM 36 M COMPLETE	800 V	3000 A	36	NH 1
	CBTM 18 M LEFT SIDE		1500 A	17+2	NH 1 + NH 00
	CBTM 18 M RIGHT SIDE		1500 A	17+2	NH 1 + NH 00
418P872593_B	CBTM 9 M	800 V	722 A	8+2	NH 1 + NH 00
418P872593_C	CBTM 11 M	800 V	1500 A	10+2	NH 1 + NH 00
418P872593_D	CBTM 12 M	800 V	1500 A	12	NH 1

► DIMENSIONAL DRAWING



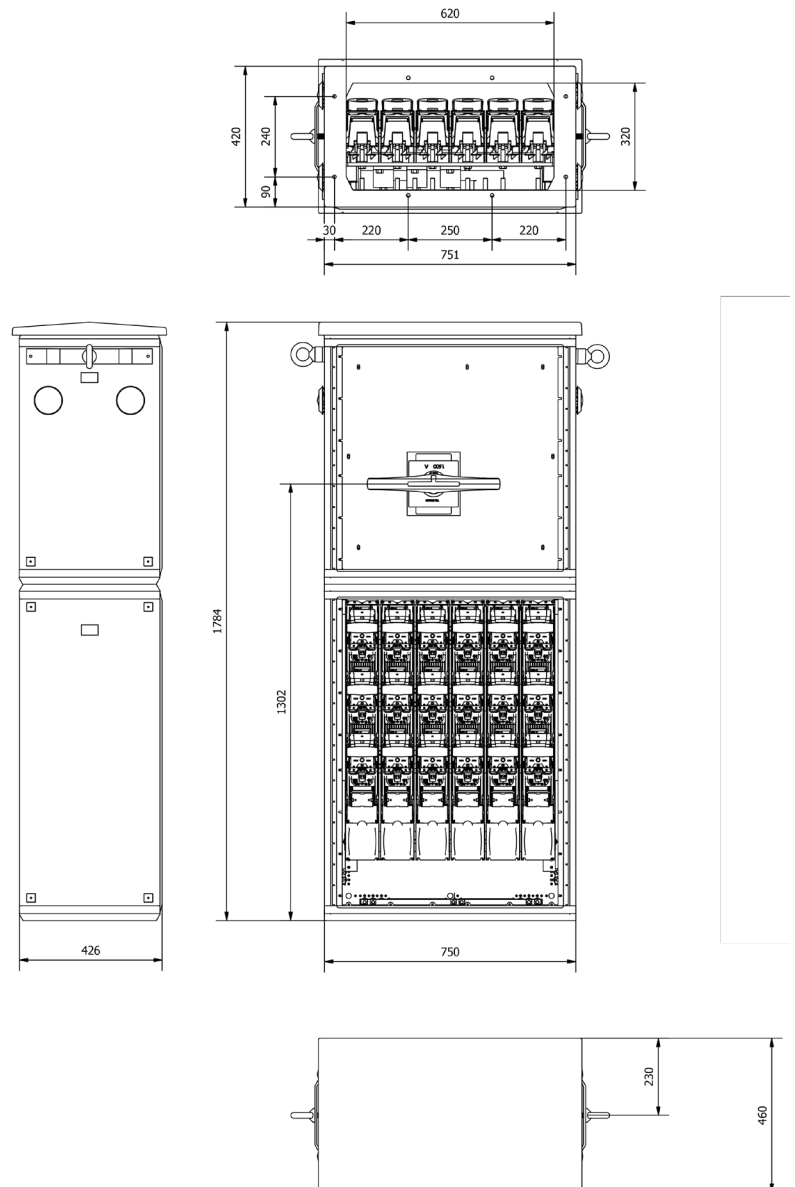
Bottom incoming - Rear outgoing | Insulating 6 gaps

DESCRIPTION

- Inverter grouping AC panel for outdoor.
- Polyester enclosure.
- Bottom incoming | 6 with BTVC NH 1/3.  
| 12 with BTVC NH 00.
- Rear/Top outgoing through Telergon Load Break switch / Automatic Circuit Breaker:  
Up to 1250 A for 800 V en AC.  
Up to 1600 A for 400/500/690 V.
- IP55.
- According to standard IEC-61439-5.



DIMENSIONAL DRAWING



Bottom incoming - Rear outgoing | Insulating 6 gaps

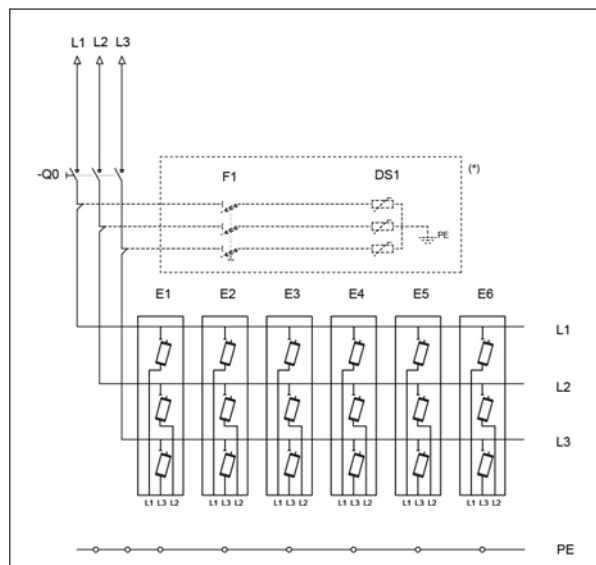
RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum nº of incomings	Size
ICTLG* 3P+N. Serie S6000	Confirm	LVCP EXT POL 6H IC 4P 12E00 SC	400/500/690 V	800 A	12	NH 00
	Confirm	LVCP EXT POL 6H 800 A IC 4P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H 800 A IC 4P 6E03 SC			6	NH 3
ICTLG* 3P+N	Confirm	LVCP EXT POL 6H IC 4P 12E00 SC		1600 A	12	NH 00
	Confirm	LVCP EXT POL 6H IC 4P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H IC 4P 6E03 SC			6	NH 3
ICTLG* 3P 800Vac. Serie S6000	Confirm	LVCP EXT POL 6H IC 3P 12E00 SC	800 V	400 A	12	NH 00
	Confirm	LVCP EXT POL 6H IC 3P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H IC 3P 6E03 SC			6	NH 3
ICTLG* 3P 800Vac	Confirm	LVCP EXT POL 6H IC 3P 12E00 SC		1250 A	12	NH 00
	Confirm	LVCP EXT POL 6H IC 3P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H IC 3P 6E03 SC			6	NH 3
IA** 3P+N Tipo TB2 Moulded case	Confirm	LVCP EXT POL 6H IA 4P 12E00 SC	400/500/690 V	1600 A	12	NH 00
	Confirm	LVCP EXT POL 6H IA 4P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H IA 4P 6E01 SC			6	NH 3
IA** 3P Tipo XV Moulded case	Confirm	LVCP EXT POL 6H IA 3P 12E00 SC	800 V	1250 A	12	NH 00
	Confirm	LVCP EXT POL 6H IA 3P 6E01 SC			6	NH 1
	Confirm	LVCP EXT POL 6H IA 3P 6E03 SC			6	NH 3

ICTLG\* - Telergon Load Break switch

IA\*\* - Automatic Circuit Breaker

WIRING DIAGRAM



**Bottom incoming - Top outgoing | Insulating DIN 5 gaps**

## ▶ DESCRIPTION

- Inverter grouping AC panel for outdoor.
- Polyester enclosure.
- Bottom incoming | 5 with BTVC NH 1/3.  
| 10 with BTVC NH 00.
- Top outgoing through Telergon Load Break switch:  
Up to 1250 A for 800 V en AC.  
Up to 1600 A for 400/500/690 V.
- IP54.
- According to standard IEC-61439-5.



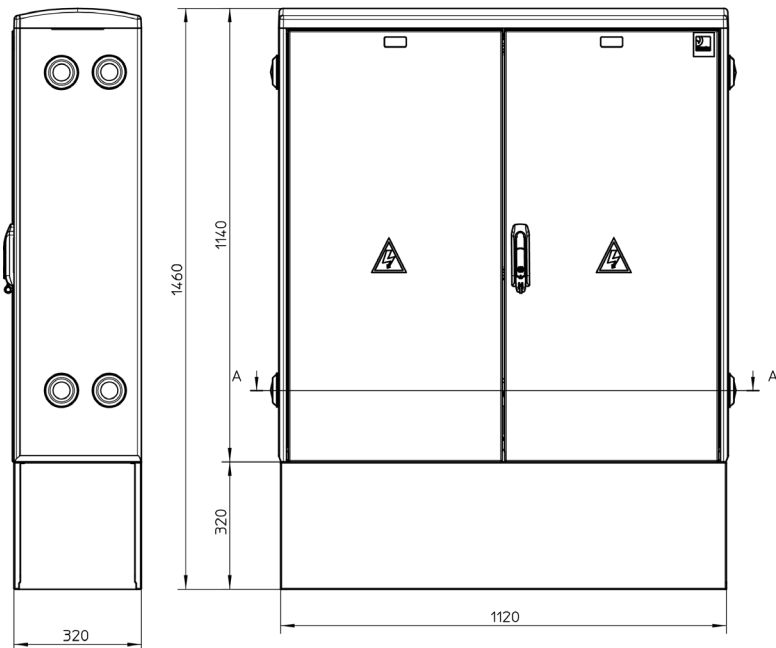
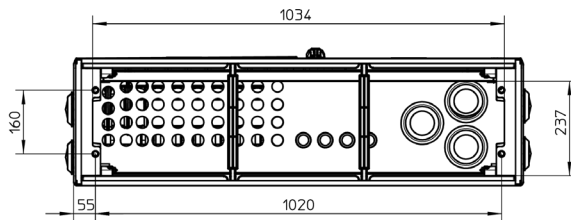
Bottom incoming - Top outgoing | Insulating DIN 5 gaps

▶ RANGE

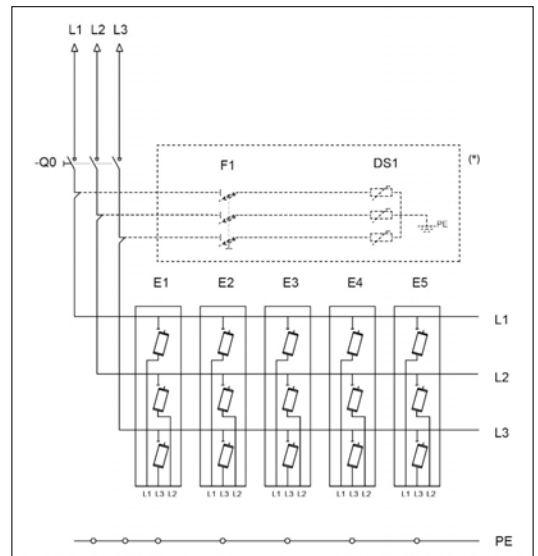
Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum nº of incomings	Size
ICTLG* 3P	Confirm	LVCP EXT DIN 1600 IC 3P 10E00 SC	400/500/690 V	1600 A	10	NH 00
	Confirm	LVCP EXT DIN 1600 IC 3P 5E01 SC			5	NH 1
	Confirm	LVCP EXT DIN 1600 IC 3P 5E03 SC			5	NH 3
ICTLG* 3P 800Vac	Confirm	LVCP EXT DIN 1250 IC 3P 10E00 SC	800 V	1250 A	10	NH 00
	Confirm	LVCP EXT DIN 1250 IC 3P 5E01 SC			5	NH 1
	Confirm	LVCP EXT DIN 1250 IC 3P 5E03 SC			5	NH 3

ICTLG\* - Telergon Load Break switch

▶ DIMENSIONAL DRAWING



▶ WIRING DIAGRAM



\* Optional

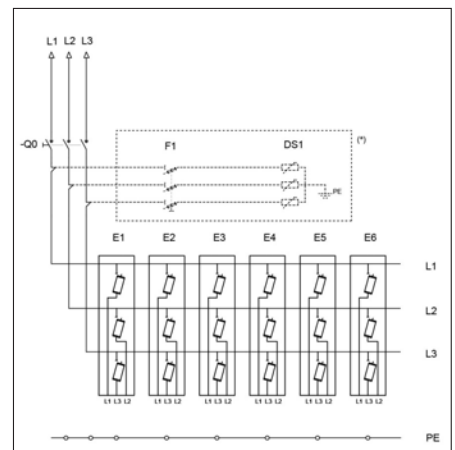
Bottom incoming - Rear outgoing | Outdoor metallic 6 gaps

DESCRIPTION

- Inverter grouping AC panel for outdoor.
- Metallic enclosure.
- Bottom incoming | 6 with BTVC NH 1/3.  
| 12 with BTVC NH 00.
- Top/Rear outgoing through Telergon Load Break switch / Automatic Circuit Breaker:  
Up to 1250 A for 800 V en AC.  
Up to 1600 A for 400/500/690 V.
- IP55.
- According to standard UNE-EN-61439-5.



WIRING DIAGRAM



\* Optional

Bottom incoming - Rear outgoing | Outdoor metallic 6 gaps

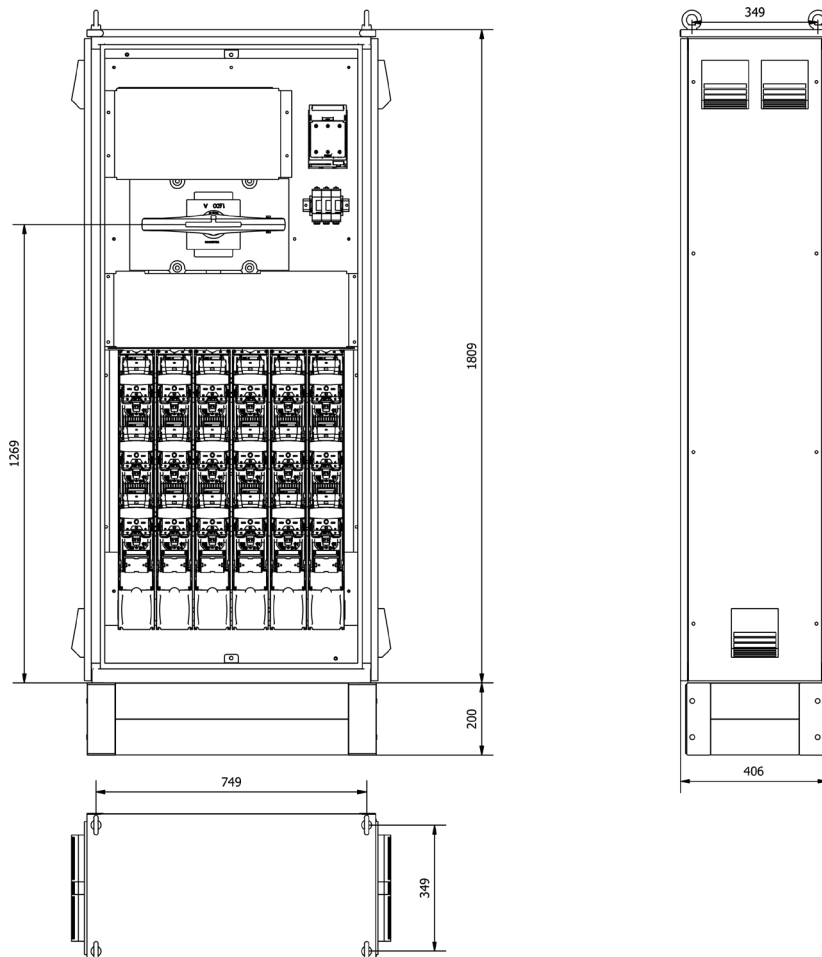
▶ RANGE

Protected outgoing with	Code	Description	Rated operational voltage $U_e$	Maximum current	Maximum n° of incomings	Size
IC TLG* 3P+N	Confirm	LVCP EXT M 6H IC 4P 12E00 SC	400/500/690 V	1600 A	12	NH 00
	Confirm	LVCP EXT M 6H IC 4P 6E01 SC			6	NH 1
	Confirm	LVCP EXT M 6H IC 4P 6E03 SC			6	NH 3
IC TLG* 3P 800Vac	Confirm	LVCP EXT M 6H IC 3P 12E00 SC	800 V	1250 A	12	NH 00
	Confirm	LVCP EXT M 6H IC 3P 6E01 SC			6	NH 1
	Confirm	LVCP EXT M 6H IC 3P 6E03 SC			6	NH 3
IA** 3P+N Tipo TB2 Moulded case	Confirm	LVCP EXT M 6H IA 4P 12E00 SC	400/500/690 V	1600 A	12	NH 00
	Confirm	LVCP EXT M 6H IA 4P 6E01 SC			6	NH 1
	Confirm	LVCP EXT M 6H IA 4P 6E01 SC			6	NH 3
	Confirm	LVCP EXT M 6H IA 3P 12E00 SC	800 V	1250 A	12	NH 00
	Confirm	LVCP EXT M 6H IA 3P 6E01 SC			6	NH 1
	Confirm	LVCP EXT M 6H IA 3P 6E03 SC			6	NH 3

IC TLG\* - Telergon Load Break switch

IA\*\* - Automatic Circuit Breaker

▶ DIMENSIONAL DRAWING



► TECHNICAL DATA

			INDOOR		OUTDOOR			
			Model 1. 6 incomings Top outgoing	Model 2. 20 incomings Top outgoing	Model 3. Cabinet Rear outgoing	Model 4. Cabinet Bottom outgoing	Model 5. Metallic CBT Rear outgoing	
Electrical characteristics	Rated operational voltage	$U_e$ (V)	400/500/ 690/800 Vac	400/500/ 690/800 Vac	400/500/ 690/800 Vac	400/500/ 690/800 Vac	400/500/ 690/800 Vac	
	Rated operational current	$I_e$ (A)	1600/1600/ 1600/1250 A	3150/3150/ 3150/2500 A	1250/1250/ 1250/1000 A	1250/1250/ 1250/1000 A	1600/1600/ 1600/1250 A	
	Rated permissible 1 second short circuit duration	(kA)	20	80	20	20	20	
	Incomers from inverters	NH 1/3 ancho 100 mm	6	8 y 10 Expandable <sup>(*)</sup>	6	5	6	
		NH 00 ancho 50 mm	12	16 y 20 Expandable <sup>(*)</sup>	12	10	12	
	Incoming cable section (incomers from inverters)	NH 00	Max. 185 m <sup>2</sup>	Max. 185 m <sup>2</sup>	Max. 185 m <sup>2</sup>	Max. 185 m <sup>2</sup>	Max. 185 m <sup>2</sup>	
		NH 1/3	Max. 300 m <sup>2</sup>	Max. 300 m <sup>2</sup>	Max. 300 m <sup>2</sup>	Max. 300 m <sup>2</sup>	Max. 300 m <sup>2</sup>	
	Nº and section of outgoing cables to transformer	mm <sup>2</sup>	Maximum 4x240 mm <sup>2</sup>	Maximum 8x240 mm <sup>2</sup>	Maximum 4x240 mm <sup>2</sup>	Maximum 4x240 mm <sup>2</sup>	Maximum 4x240 mm <sup>2</sup>	
	Rated insulation voltage	Phase-Phase	kV	2,5 kV	2,5 kV	2,5 kV	2,5 kV	2,5 kV
		Phase-Ground		10 kV	10 kV	10 kV	10 kV	10 kV
Rated impulse withstand voltage	Phase-Ground	kV	8 kV	8 kV	8 kV	8 kV	8 kV	
Protection degree	IP		IP2X	IP2X	IP55	IP54	IP55	
	IK		IK08	IK08	IK10	IK10	IK10	

\* Extension with 6/8 BTVC NH 1/3 or 12/16 BTVC NH 00 panel..



▶ ALTERNATIVE PRODUCTS | Accessories

**Measuring instruments - Panel meters**

Description	Rated operational voltage $U_e$
Current transformer + Panel meter PNT MASTER 3840	400/500/690 V
Current transformer + Panel meter for 800 V AC	800 V



**Arresters**

Description	Rated operational voltage $U_e$
Arrester set 400/500/690 V (BTHC+arrester+fuses)	400/500/690 V
Arrester set 800 V AC (BTHC+arrester+fuses)	800 V



**Step-down voltage transformers**

Description	Rated operational voltage $U_e$
Single-phase Isolation transformer IP00	230 V
Three-phase Isolation transformer IP23	230/400 V AC



