

KENO 



ELECTRICAL **COMBINER BOXES**

THE SPARK OF INNOVATION



Every story has a beginning. Ours began in Silesia - a southern region of Poland with a strong industrial tradition. Paweł Grzegorzczak's special spark of intuition led him to the then nascent solar energy sector in Poland.

However, the real challenges were yet to come, with many competitors seeking success in a promising industry.

The key to succeeding turned out to be relying on committed people with the energy and ambition to get things done. It was through their dedication that KENO gained momentum and grew from a dream into one of the most respected companies in the industry.



This spark of an idea became the foundation of the company. For us, commitment and relationship care are not only the basis of our business strategy, but also the driving forces behind our day-to-day operations.

KENO IN FIGURES



9

Companies in KENO Group



40000 M²

Total warehouse space



29+

Countries covered



25+

Specialists in
R&D and technical
departments



300+

Employees



1400+

Models of the combiner
boxes on offer

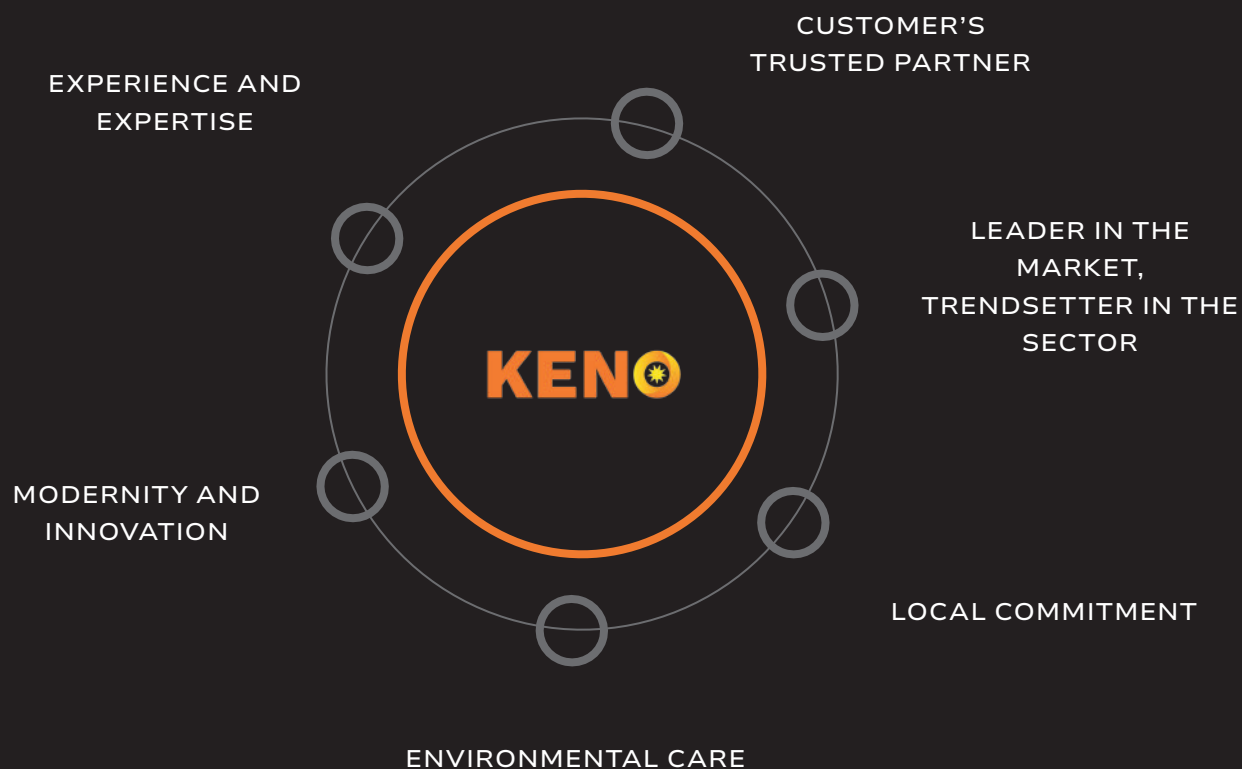


8000+

2023 training and webinar
attendees



OUR FOUNDATIONS



Thanks to these foundations, KENO has been able to grow from a local company to one of the largest companies in Poland in just sixteen years.

At present, our activities extend beyond the borders of Poland to more than 29 countries in Europe and beyond. We have opened a network of branches and launched new brands in order to offer our business partners new opportunities for development. We were awarded the EUPD seal in the "Mounting" and "Wholesale" categories in Poland.

Our leap in development has also been noticed outside the RES sector, which is why we have been listed among the 100 largest Polish companies according to Forbes Polska magazine.





OWN BRANDS



PRACTICAL SOLUTIONS

How much time can you spend on making a switchboard?

By assembling one basic switchboard a day, you are not only spending time on the assembly itself. You are also spending time searching for available components, designing component connections, and calculating shipping costs from different wholesalers.

Furthermore, if your employee selects components incorrectly, you will have to spend time on complaints, subsequent shipping, unpacking and picking. It is a time cost, including yours, your purchasing team, and your warehouse employees.

What can happen when you need different models of switchboards for an installation, or your project requires switchgear with complex diagrams?

With our switchboards, you gain much more than time.

Reach for ready-made solutions and...

JOIN THE FULL OF ENERGY.



FULL OF ENERGY

We offer European series production with a portfolio of over 1,400 prepared models for a wide range of applications, including for photovoltaic systems, heat pumps and battery storage.

Each switchboard is supplied with a nameplate, a complete set of certificates and a product guarantee and undergoes double quality control.

In addition, the B2B platform's automatic selection configurators allow you to choose the components you need for your PV system with just a few clicks.



THE CONVENIENCE OF SELECTION.

With two combiner box configurators on our B2B platform, you choose what you need.

If you need specific solutions for your project, ordering the right combiner box will enable the manual selection configurator.

At any time, wherever you are.



B2B.KENO-ENERGY.COM

FOR INSTALLER AND WHOLESALE

- We manufacture switchgears for PV systems, PCs and energy storage, ranging from residential micro-installations to large farm projects
 - On offer DC, AC combiner boxes as well as DCAC
 - Compliance with IEC 61439-1, 61439-2 standards, certified UV resistance
 - Protection classes IP65 to IP66, certified for 1500V DC and 400V AC
 - Using only original MC4 (Stäubli) connectors reduces the risk of fire due to overheating of the connectors or the occurrence of arcing
 - Each connector is tested for the correctness of manufacture
 - Unique, ultra-flexible tinned cable, tested to 6000V, with an expected service life of at least 25 years
 - 5 year warranty on the entire combiner box with Phoenix or Noark components
 - Error-proof and simpler installation thanks to installation of AC side components on so-called comb strips
 - Door with option to change direction of opening
 - Each combiner box has a nameplate with the most important information and a QR code for full, up-to-date documentation
 - Each combiner box is made under close supervision with a two-step verification process and has an individual serial number
- + Time saving – use of ready-made distributor reduces installation time
 - + Prefabricated combiner box eliminate the problem of incorrect selection and execution of protection on the investment
 - + The high quality of security at each investment ensures security of the installer and the investor in case of random events related to the PV installation
 - + KENO's declaration of conformity certifies the highest quality of workmanship and compliance with the requirements and standards required by the country in question
 - + Stickers included for marking the installation
 - + Components from leading manufacturers such as Phoenix Contact, Noark, Stäubli, Dehn
 - + Expansion of the product range to include an integral part of the installation – the comprehensiveness of the offer
 - + Possibility to label the combiner boxes with your own logo
 - + Easy selection and fast ordering, thanks to advanced configurators on the KENO B2B platform

OWN
PRODUCTION LINE

TWO-STAGE
QUALITY CONTROL

A NAMEPLATE WITH
QR CODE FOR THE
DOCUMENTATION

WARRANTY UP TO
5 YEARS

SERVICE TEAM
AND R&D BASED
IN POLAND

COMPLIANCE
WITH EUROPEAN
STANDARDS

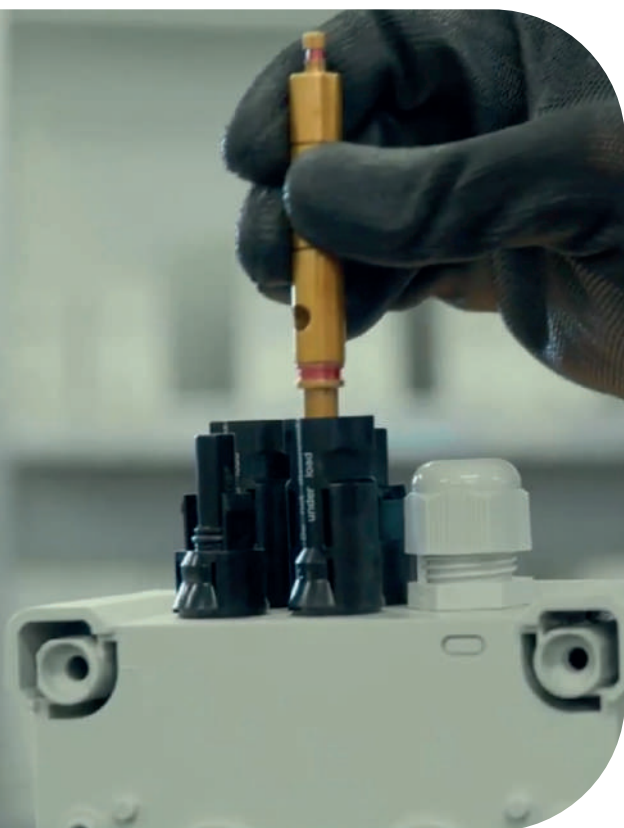


AN OPTION OF
MANUFACTURING
WITH YOUR LOGO

SECURITY LOCK
INSTALLATION
OPTION



CONTROLLED QUALITY



The two-stage quality control and correctness of the combiner box connection process begins when the person performing the prefabrication completes it. Then it is necessary to verify correctness of the process.

The person making the combiner box has a duty to make sure that all components included in a given combiner box comply with the formulation of the given combiner box, none of the components are damaged, the connections are made correctly and in accordance with our internal quality guidelines.

Cable connections are also checked for continuity with a meter, and MC4 panel-type connectors are checked with a tester checking the correctness of terminating cable ends.

When the performer finishes checking, he passes the combiner box to a second worker for rechecking.

Only after the second verification the combiner box can be packed and shipped to the warehouse.

COMPLIANCE WITH STANDARDS

From the point of view of safety, one of the most important elements in the combiner box, in addition to properly selected apparatuses, is properly made connections, which mainly translates into the correctness of prefabrication of the entire combiner box.

Taking care of the safety and security of the combiner boxes, they are manufactured in accordance with standards and comply with the provisions of European Union directives.



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CERTIFIED IP PROTECTION

IP is a system developed by the International Electrotechnical Commission (IEC) to define the levels of foreign body tightness of electrical equipment enclosures. The IP designation indicates how water – and dust-tight an electrical device is.

IP 65 – completely dust-tight, protection against low-pressure water jets from all sides – all KENO combiner boxes meet IP 65

IP 66 – completely dust-tight, protection against high-pressure water jets from all sides – due to its dimensions, the combiner box is equipped with a different casing, intended use – larger installations from 40kW

I

P

6

6

DEGREE OF PROTECTION AGAINST SOLIDS

DEGREE OF PROTECTION AGAINST WATER

The protection measurement system is defined according to the standard EN 60529 (British BS EN 60529:1992, European IEC 60509:1989), describing how foreign bodies can enter electrical equipment.

ELECTRICAL COMBINER BOXES HAVE BEEN MADE IN ACCORDANCE WITH THE STANDARDS DESCRIBED BY THE FOLLOWING STANDARDS:	
IEC 61439-1	Low-voltage combiner box and control gear, Part 1: General provisions
IEC 61439-2	Low-voltage combiner box and control gear, Part 2: Combiner box and control panels for power distribution
LVD Low Voltage Directive 2014/35/UE	On the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits. It is applicable to equipment operating in the voltage range of 50 – 1000V AC and 75 – 1500V DC.
Directive 2014/30/UE – EMC	Applies to each finished device or combination of finished devices, Takng care to limit and maintain the levels of electromagnetic emissions of the devices so that they allow trouble-free cooperation.
RoHS Directive 2011/65/UE	Defines and imposes restrictions on the use of hazardous substances in electrical and electronic equipment (EEE). The directive's provisions aim to improve the protection of human health and the environment at all stages of a product's life, including for the environmentally sound recovery and disposal of waste EEE.
The combiner boxes have a declaration of conformity and are CE marked.	

STANDARD SERIES



STANDARD connection combiner boxes are successfully used in small and medium household and industrial installations. A wide range of applications of the combiner box is ensured by, among others protection class IP65, thanks to which the combiner box can be installed not only in closed rooms, but also in open spaces.

- Standard, proven housing
- The most popular type of combiner box in the KENO portfolio
- Option to install a key lock
- Transparent door



TYPE	4T	8T	12T	24T	36T	48T
Dimensions (without connectors) (WxHxD)	201x128x120	201x202x120	259x319x144	384x319x144	508x319x144	664x319x144
Number of fields in a row	4	8	12	12	12	12
Number of rows	1	1	1	2	3	4
Expandability	No					
Key lock	Optional					
Mounting method	Surface mounting					
Degree of protection	IP 65					
Protection class	II					
Rated insulation voltage Ui	400 V AC, 1500 V DC					
Design in accordance with	EN 60670, EN 62208					
UV resistance	Yes					
Impact resistance	IK 08					
Glow rod test	650°C					
Operating temperature	-25°C – +60°C					
Recyclable plastics	Halogen-free					

SUGGESTED SOLUTIONS

INSTALLATIONS WITH LIGHTNING PROTECTION

DC		DCAC		AC	
3F inverter					
INSTALLATION UP TO 5 KW (INVERTER POWER)					
SINGLE-STRING INSTALLATION			SH-47 AC SHD-47 AC	SH-163 AC SHD-163 AC	
SH-5 DC	SH-78 DCAC	SH-632 DCAC			
SHN-5 DC	SHNN-78 DCAC	SHNN-632 DCAC			
SHD-5 DC	SHDD-78 DCAC	SHDD-632 DCAC			
TWO-STRING INSTALLATION					
SH-6 DC	SH-235 DCAC	SH-386 DCAC			
SHN-6 DC	SHNN-235 DCAC	SHNN-386 DCAC			
SHD-6 DC	SHDD-235 DCAC	SHDD-386 DCAC			
INSTALLATION UP TO 8 KW (INVERTER POWER)					
SINGLE-STRING INSTALLATION			SH-232 AC SHD-232 AC	SH-195 AC SHD-195 AC	
SH-5 DC	SH-90 DCAC	SH-719 DCAC			
SHN-5 DC	SHNN-90 DCAC	SHNN-719 DCAC			
SHD-5 DC	SHDD-90 DCAC	SHDD-719 DCAC			
TWO-STRING INSTALLATION					
SH-6 DC	SH-92 DCAC	SH-283 DCAC			
SHN-6 DC	SHNN-92 DCAC	SHNN-283 DCAC			
SHD-6 DC	SHDD-92 DCAC	SHDD-283 DCAC			

INSTALLATIONS WITH LIGHTNING PROTECTION

DC		DCAC		AC	
INSTALLATION UP TO 10 KW (INVERTER POWER)					
SINGLE-STRING INSTALLATION			SH-353 AC SHD-353 AC	SH-307 AC SHD-307 AC	
SH-5 DC	SH-154 DCAC				
SHN-5 DC	SHNN-154 DCAC				
SHD-5 DC	SHDD-154 DCAC				
TWO-STRING INSTALLATION					
SH-6 DC	SH-214 DCAC	SH-618 DCAC			
SHN-6 DC	SHNN-214 DCAC	SHNN-618 DCAC			
SHD-6 DC	SHDD-214 DCAC	SHDD-618 DCAC			
INSTALLATION UP TO 12 KW (INVERTER POWER)					
SINGLE-STRING INSTALLATION			SH-171 AC SHD-171 AC	SH-308 AC SHD-308 AC	
SH-5 DC					
SHN-5 DC					
SHD-5 DC					
TWO-STRING INSTALLATION					
SH-6 DC	SH-286 DCAC				
SHN-6 DC	SHNN-286 DCAC				
SHD-6 DC	SHDD-286 DCAC				
INSTALLATION UP TO 15 KW (INVERTER POWER)					
SINGLE-STRING INSTALLATION			SH-357 AC SHD-357 AC	SH-49 AC SHD-49 AC	
SH-5 DC					
SHN-5 DC					
SHD-5 DC					
TWO-STRING INSTALLATION					
SH-6 DC	SH-260 DCAC				
SHN-6 DC	SHNN-260 DCAC				
SHD-6 DC	SHDD-260 DCAC				
INSTALLATION WITH FOUR STRINGS					
SH-426 DC					
SHN-426 DC					
SHD-426 DC					

INSTALLATIONS WITHOUT LIGHTNING PROTECTION

DC		DCAC	AC	
3F inverter				
INSTALLATION UP TO 5 KW (INVERTER POWER)				
SINGLE-STRING INSTALLATION			SH-19 AC SHD-19 AC	SH-194 AC SHD-194 AC
SH-1 DC	SH-75 DCAC	SH-714 DCAC		
SHN-1 DC	SHNN-75 DCAC	SHNN-714 DCAC		
SHD-1 DC	SHDD-75 DCAC	SHDD-714 DCAC		
TWO-STRING INSTALLATION				
SH-2 DC	SH-98 DCAC	SH-183 DCAC		
SHN-2 DC	SHNN-98 DCAC	SHNN-183 DCAC		
SHD-2 DC	SHDD-98 DCAC	SHDD-183 DCAC		

INSTALLATIONS WITHOUT LIGHTNING PROTECTION

DC		DCAC	AC	
INSTALLATION UP TO 8 KW (INVERTER POWER)				
SINGLE-STRING INSTALLATION			SH-55 AC SHD-55 AC	SH-268 AC SHD-268 AC
SH-1 DC	SH-40 DCAC	SH-297 DCAC		
SHN-1 DC	SHNN-40 DCAC	SHNN-297 DCAC		
SHD-1 DC	SHDD-40 DCAC	SHDD-297 DCAC		
TWO-STRING INSTALLATION				
SH-2 DC	SH-117 DCAC	SH-175 DCAC		
SHN-2 DC	SHNN-117 DCAC	SHNN-175 DCAC		
SHD-2 DC	SHDD-117 DCAC	SHDD-175 DCAC		
INSTALLATION UP TO 10 KW (INVERTER POWER)				
SINGLE-STRING INSTALLATION			SH-86 AC SHD-86 AC	SH-131 AC SHD-131 AC
SH-1 DC	SH-41 DCAC	SH-899 DCAC		
SHN-1 DC	SHNN-41 DCAC	SHNN-899 DCAC		
SHD-1 DC	SHDD-41 DCAC	SHDD-899 DCAC		
TWO-STRING INSTALLATION				
SH-2 DC	SH-102 DCAC	SH-176 DCAC		
SHN-2 DC	SHNN-102 DCAC	SHNN-176 DCAC		
SHD-2 DC	SHDD-102 DCAC	SHDD-176 DCAC		
INSTALLATION UP TO 12 KW (INVERTER POWER)				
SINGLE-STRING INSTALLATION			SH-99 AC SHD-99 AC	SH-276 AC SHD-276 AC
SH-1 DC	SH-105 DCAC			
SHN-1 DC	SHNN-105 DCAC			
SHD-1 DC	SHDD-105 DCAC			
TWO-STRING INSTALLATION				
SH-2 DC	SH-129 DCAC			
SHN-2 DC	SHNN-129 DCAC			
SHD-2 DC	SHDD-129 DCAC			
INSTALLATION UP TO 15 KW (INVERTER POWER)				
SINGLE-STRING INSTALLATION			SH-111 AC SHD-111 AC	SH-299 AC SHD-299 AC
SH-1 DC				
SHN-1 DC				
SHD-1 DC				
TWO-STRING INSTALLATION				
SH-2 DC	SH-118 DCAC			
SHN-2 DC	SHNN-118 DCAC			
SHD-2 DC	SHDD-118 DCAC			
INSTALLATION WITH FOUR STRINGS				
SH-103 DC	SH-884 DCAC			
SHN-103 DC	SHNN-884 DCAC			
SHD-103 DC	SHDD-884 DCAC			

Please note that the index of the switchboard refers directly to the surge arresters used in it.

The following correspondences apply:
 SH-... DC - Phoenix Contact DC arresters
 SHN-... DC - Noark DC arresters

SHD-... DC - Dehn DC arresters
 SH-... DCAC arresters Phoenix Contact DC arresters/ Noark AC arresters
 SHNN-... DCAC - DC Noark arresters/ AC Noark arresters
 SHDD-... DCAC - DC Dehn arresters/AC Dehn arresters
 SH-... AC - Noark AC arresters
 SHD-... AC - Dehn AC arresters

SH-1 DC

CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 2, 1X PV STRING, 1X MPPT



Number of PV strings	1
Number of surge arresters	1
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

SH-2 DC

CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 2, 2X PV STRING, 2X MPPT



Number of PV strings	2
Number of surge arresters	2
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

SH-81 DC

CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 2, 3X PV STRING, 3X MPPT



Number of PV strings	3
Number of surge arresters	3
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

SH-5 DC

CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 1+2, 1X PV STRING, 1X MPPT



Number of PV strings	1
Number of surge arresters	1
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-6 DC

CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 1+2, 2X PV STRING, 2X MPPT



Number of PV strings	2
Number of surge arresters	2
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-181 DC**CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 1+2, 3X PV STRING, 3X MPPT**

Number of PV strings	3
Number of surge arresters	3
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

AC 5 KW**SH-47 AC****CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 10A 3-F**

Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Standard warranty	5 years on the entire switchboard

SH-446 AC**CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 10A 3-F, RCD TYPE A 40A 300MA**

Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-163 AC**CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 10A 3-F, RCD TYPE A 100MA**

Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-19 AC**CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 10A 3-F**

Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Standard warranty	5 years on the entire switchboard

SH-296 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 10A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-194 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 10A 3-F, RCD TYPE A 40A 100MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 10A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

AC 8KW

SH-232 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 16A 3-F



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-195 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 16A 3-F, RCD TYPE A 40A 100MA



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-269 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 16A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-55 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 16A 3-F



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-812 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 16A 3-F, RCD TYPE 40A 100MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-268 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 16A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 16A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

AC 10KW

SH-353 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 20A 3-F



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 20A 3F
Standard warranty	5 years on the entire switchboard

SH-307 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 20A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 20A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-86 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 20A 3-F



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 20A 3F
Standard warranty	5 years on the entire switchboard

SH-285 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 20A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 20A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-171 AC
CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 25A 3-F


Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 25A 3F
Standard warranty	5 years on the entire switchboard

SH-308 AC
CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 25A 3-F, RCD TYPE A 40A 300MA


Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 25A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	

SH-99 AC
CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 25A 3-F


Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 25A 3F
Standard warranty	5 years on the entire switchboard

SH-276 AC
CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 40A 3-F, RCD TYPE A 25A 300MA


Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 25A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

AC 15KW

SH-49 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 32A 3-F



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 32A 3F
Standard warranty	5 years on the entire switchboard

SH-357 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 1+2, 32A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 32A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-111 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 32A 3-F



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 32A 3F
Standard warranty	5 years on the entire switchboard

SH-299 AC

CONNECTION COMBINER BOX WITH AC SURGE ARRESTER TYPE 2, 32A 3-F, RCD TYPE A 40A 300MA



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 32A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

DCAC 5KW ONE STRING

SH-78 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 1+2, 10A 3-F



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 10A 3F
Standard warranty	5 years on the entire switchboard

SH-632 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 1+2, 10A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 10A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-1101 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 1+2, 10A 3-F, RCD TYPE A 40A 300MA



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 10A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-75 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 10A 3-F



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 10A 3F
Standard warranty	5 years on the entire switchboard

SH-279 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 10A 3-F, RCD TYPE A 100MA



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 10A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-714 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 10A 3-F, RCD TYPE A300MA



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 10A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

DCAC 8KW ONE STRING

SH-90 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1X PV STRING, 1X MPPT // SURGE ARRESTER AC TYPE 1+2, 16A 3-F



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-1016 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 1+2, 16A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-719 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 1+2, 16A 3-F, RCD TYPE A 40A 300MA



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-40 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 16A 3-F



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-297 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 16A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-1100 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 1 X PV STRING, 1 X MPPT // SURGE ARRESTER AC TYPE 2, 16A 3-F, RCD TYPE A 40A 300MA



Number of PV strings	1
Number of surge arresters	1
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

DCAC 8KW TWO STRINGS

SH-92 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 16A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-283 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 16A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-117 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 16A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Standard warranty	5 years on the entire switchboard

SH-175 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 16A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-528 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // ÜB. AC TYP 2, 16A 3-F, FEHL. 300MA 40A



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 16A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

DCAC 10KW TWO STRINGS

SH-214 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 20A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 20A 3F
Standard warranty	5 years on the entire switchboard

SH-618 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 20A 3-F, RCD TYPE A 40A 300MA



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 20A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-102 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 20A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 20A 3F
Standard warranty	5 years on the entire switchboard

SH-176 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 20A 3-F, RCD TYPE A 100MA 40A



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 20A 3F
Residual current circuit breaker	1 x 100mA Typ A
Standard warranty	5 years on the entire switchboard

SH-588 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 20A 3-F, RCD TYPE A 300MA 40A



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 20A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

DCAC 12KW TWO STRINGS

SH-286 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT / SURGE ARRESTER AC TYPE 1+2, 25A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 25A 3F
Standard warranty	5 years on the entire switchboard

SH-129 DCAC

DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT// SURGE ARRESTER AC TYPE 2, 25A 3-F



Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark B 25A 3F
Standard warranty	5 years on the entire switchboard

DCAC 15KW TWO STRINGS

SH-260 DCAC



DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 32A 3-F

Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 32A 3F
Standard warranty	5 years on the entire switchboard

SH-1048 DCAC



DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 1+2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 1+2, 32A 3-F, RCD TYPE A 40A 300MA

Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T1/T2
Surge arrester AC	Noark T1/T2
Overcurrent circuit breaker	Noark B 32A 3F
Residual current circuit breaker	1 x 300mA Typ A
Standard warranty	5 years on the entire switchboard

SH-118 DCAC



DC+AC CONNECTION COMBINER BOX WITH 1000V SURGE ARRESTER TYPE 2, 2 X PV STRING, 2 X MPPT // SURGE ARRESTER AC TYPE 2, 32A 3-F

Number of PV strings	2
Number of surge arresters	2
Surge arrester DC	Phoenix T2
Surge arrester AC	Noark T2
Overcurrent circuit breaker	Noark 32A 3F
Standard warranty	5 years on the entire switchboard

ALLVIEW SERIES



ALLVIEW connection combiner boxes with success can be used in small and medium-sized domestic and industrial installations.

A wide range of applications of the combiner box is ensured by: protection class IP 65, increased resistance to high and low temperatures, increased resistance to fire.

The new series of combiner box is characterized not only by a wide range of applications, but also by a modern design.

- Modern, designer housing
- The mounting holes have been located outside the gasket, so the installation does not affect the leakage class
- Certified for 1500V DC voltage and 1000V AC
- Enhanced housing strength class IK08
- Enhanced fire resistance – UL94 fire resistance class 5VA
- At the bottom of the combiner box there is a pressure equalization gland, which significantly prevents the formation of condensate



TYPE	6T	8T	12T	24T
Dimensions (without connectors) (WxHxD)	187x122x90	201x163x98	240x191x107	344x289x117
Number of fields in a row	6	8	12	12
Number of rows	1	1	1	2
Expandability	No			
Mounting method	Surface mounting			
Degree of protection	IP 65			
Protection class	II			
Rated insulation voltage Ui	1000 V AC, 1500 V DC			
Design in accordance with	EN 62208:2011:2011			
UV resistance	Yes			
Impact resistance	IK 07 / IK 08			
Glow rod test	960°C			
Flammability class	UL 94-5VA / UL 94-V0			
Recyclable plastics	Halogen-free			
Material	Polycarbonate			
Gasket material	Polyurethane			
NEMA standard	NEMA 1, 4, 4X, 12			
Temp °C (continuous operation)	-40 ... 80 °C			
Temp °C (short term)	-40 ... 120 °C			

MODEL EQUIVALENTS

STANDARD	ALLVIEW
SH-1 DC	AV-1 DC
SH-2 DC	AV-2 DC
SH-81 DC	AV-81 DC
SH-103 DC	AV-103 DC
SH-5 DC	AV-5 DC
SH-6 DC	AV-6 DC
SH-181 DC	AV-181 DC
SH-426 DC	AV-426 DC

AV-1 DC

ALLVIEW CONNECTION COMBINER BOX WITH DC 1000V SURGE ARRESTER TYPE 2, 1X PV STRING, 1X MPPT



Number of PV strings	1
Number of surge arresters	1
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

AV-2 DC

ALLVIEW CONNECTION COMBINER BOX WITH DC 1000V SURGE ARRESTER TYPE 2, 2X PV STRING, 2X MPPT



Number of PV strings	2
Number of surge arresters	2
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

AV-81 DC

ALLVIEW CONNECTION COMBINER BOX WITH SURGE ARRESTER DC 1000V TYPE 2, 3X PV STRING, 3X MPPT



Number of PV strings	3
Number of surge arresters	3
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

AV-103 DC

ALLVIEW CONNECTION COMBINER BOX WITH DC 1000V SURGE ARRESTER TYPE 2, 4X PV STRING, 4X MPPT



Number of PV strings	4
Number of surge arresters	4
Surge arrester	Phoenix T2
Standard warranty	5 years on the entire switchboard

AV-5 DC

**ALLVIEW CONNECTION COMBINER BOX WITH DC 12.5KA 1000V SURGE ARREST-
ER 1000V TYPE 1+2, 1X PV STRING, 1X MPPT**



Number of PV strings	1
Number of surge arresters	1
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

AV-6 DC

**ALLVIEW CONNECTION COMBINER BOX WITH DC 12.5KA 1000V SURGE ARREST-
ER 1000V TYPE 1+2, 2X PV STRING, 2X MPPT**



Number of PV strings	2
Number of surge arresters	2
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

AV-181 DC

**ALLVIEW CONNECTION COMBINER BOX WITH DC 12.5KA 1000V SURGE ARREST-
ER 1000V TYPE 1+2, 3X PV STRING, 3X MPPT**



Number of PV strings	3
Number of surge arresters	3
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

AV-426 DC

**ALLVIEW CONNECTION COMBINER BOX WITH DC 12.5KA 1000V SURGE ARREST-
ER 1000V TYPE 1+2, 4X PV STRING, 4X MPPT**



Number of PV strings	4
Number of surge arresters	4
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SECURE SERIES



Polycarbonate cabinets for use in harsh environments. SECURE connection combiner boxes are designed for use in large industrial installations where harsh environmental conditions may occur.

A wide range of applications of the combiner box is ensured by a robust design, a material with high mechanical resistance that does not corrode and is suitable for use in harsh environments – the good protection and preservation of properties over a long period of time.

- Increased fire resistance, mechanical durability and resistance to low and high temperatures
- Good resistance to chemicals
- IP66 rated for dust and water tightness
- Excellent mechanical resistance – IK 10
- Up to 24 arresters can be mounted in a single housing
- Hinge system that allows the door to open wide (120°)
- IP66 combiner box has two pressure equalization regulators – prevents condensation inside the combiner box



TYPE	TPC 48T
Dimensions (WxHxD)	500x400x210
Number of fields in a row	16
Number of rows	3
Expandability	No
Lock	2-point lock
Mounting method	Surface mounting
Degree of protection	IP66
Protection class	II
Rated insulation voltage Ui	1000 V AC, 1500 V DC
Design in accordance with	EN 61439-1:2011, relevant parts IEC 61439-1:2011, relevant parts EN 61439-4:2013, relevant parts IEC 61439-4:2012, relevant parts
UV resistance	UL 508
Impact resistance	IK10 +35°C /IK09 – 25°C
Glow rod test	960°C
Flammability class	UL 94 5VA
Recyclable plastics	Halogen-free
Material	Polycarbonate
Gasket material	Polyurethane
Standard NEMA	NEMA 4, 4X, 12, 13
Temp °C (continuous operation)	-40 ... 80 °C
Temp °C (short term)	-40 ... 120 °C

SH-1014 DC

DC COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 8X PV STRING, 8X MPPT



Number of PV strings	8
Number of surge arresters	8
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-967 DC

DC COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 9 X PV STRING, 9 X MPPT



Number of PV strings	9
Number of surge arresters	9
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-1037 DC

DC COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 10X PV STRING, 10X MPPT



Number of PV strings	10
Number of surge arresters	10
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-1041 DC

DC COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 12X PV STRING, 12X MPPT



Number of PV strings	12
Number of surge arresters	12
Surge arrester	Phoenix T1/T2
Standard warranty	5 years on the entire switchboard

SH-680 AC

AC CONNECTION COMBINER BOX, IP66 WITH AC SURGE ARRESTER TYPE 1+2, 100A 3-F, FR 100A, PHASE SIG. (GOODWE 50KW, CORE-1 50KW, HUAWEI SUN2000 50-60KTL 50-60KW)



Surge arrester	Noark T1/T2
Overcurrent circuit breaker 1	Noark B 100A 3F
FR isolating disconnect	100A
Standard warranty	5 years on the entire switchboard

SH-807 AC

AC CONNECTION COMBINER BOX, IP66 WITH AC SURGE ARRESTER TYPE 2, 100A 3-F, FR 100A, PHASE SIG. (GOODWE 50KW, CORE-1 50KW, HUAWEI SUN2000 50-60KTL 50-60KW)



Surge arrester	Noark T2
Overcurrent circuit breaker 1	Noark B 100A 3F
FR isolating disconnect	100A
Standard warranty	5 years on the entire switchboard

SH-854 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 5 X PV STRING, 5 X MPPT // SURGE ARRESTER AC TYPE 1+2, 100A 3-F, FR 100A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	5
Number of surge arresters	5
Surge arrester	Phoenix T1/T2
Surge arrester	Noark T1/T2
FR isolating disconnect	100A
Overcurrent circuit breaker	Noark B 100A 3F
Socket	Yes, 16A 1F
Standard warranty	5 years on the entire switchboard

SH-855 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 4 X PV STRING, 4 X MPPT // SURGE ARRESTER AC TYPE 1+2, 100A 3-F, FR 100A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	4
Number of surge arresters	4
Surge arrester	Phoenix T1/T2
Surge arrester	Noark T1/T2
FR isolating disconnect	100A
Overcurrent circuit breaker	Noark B 100A 3F
Socket	Yes, 16A 1F
Standard warranty	5 years on the entire switchboard

SH-1007 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 2, 5X PV STRING, 5X MPPT // SURGE ARRESTER AC TYPE 2, 100A 3-F, FR 100A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	5
Number of surge arresters	5
Surge arrester	Phoenix T2
Surge arrester	Noark T2
FR isolating disconnect	100A
Overcurrent circuit breaker	Noark B 100A 3F
Socket	Yes, 16A 1F
Standard warranty	5 years on the entire switchboard

SH-1008 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 2, 4 X PV STRING, 4 X MPPT // SURGE ARRESTER AC TYPE 2, 100A 3-F, FR 80A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	4
Number of surge arresters	4
Surge arrester	Phoenix T2
Surge arrester	Noark T2
FR isolating disconnect	100A
Socket	Yes, 16A 1F
Overcurrent circuit breaker	Noark B 80A 3F
Standard warranty	5 years on the entire switchboard

SH-1009 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 2, 6X PV STRING, 6X MPPT // SURGE ARRESTER AC TYPE 2, 100A 3-F, FR 100A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	6
Number of surge arresters	6
Surge arrester	Phoenix T2
Surge arrester	Noark T2
FR isolating disconnect	100A
Overcurrent circuit breaker	Noark B 100A 3F
Socket	Yes, 16A 1F
Standard warranty	5 years on the entire switchboard

SH-1096 DCAC

DC+AC CONNECTION COMBINER BOX IP66 WITH 1000V SURGE ARRESTER TYPE 1+2, 6X PV STRING, 6X MPPT // SURGE ARRESTER AC TYPE 1+2, 100A 3-F, FR 100A, PHASE SIG. + SOCKET (SE 50KW) + 16A 1F



Number of PV strings	6
Number of surge arresters	6
Surge arrester	Phoenix T1/T2
Surge arrester	Noark T1/T2
FR isolating disconnect	100A
Overcurrent circuit breaker	Noark B 100A 3F
Socket	Yes, 16A 1F
Standard warranty	5 years on the entire switchboard

ATS SERIES



ATS combiner boxes allow automatic reserve switching in hybrid installations.

It is thanks to the use of the ATS combiner box, hybrid inverter and energy storage that the system automatically switches to emergency power supply in case of power failure from the operator (grid failure or planned modernization) giving the possibility of using electricity in the building.

- Each manufactured ATS combiner box is tested by plugging into an inverter
- Separate normal and emergency circuits
- Designed to work with leading hybrid inverters, including **GoodWe, Huawei, Fronius, FoxESS, Sofar, Solplanet, Deye, Selfa, Solax, Afore, Sunways, Solplanet, Sofar, Corab Encor Hybrid, Ecoflow**
- Emergency power source – energy storage or PV generator



TYPE	12T	24T	48T	ECOLOGY
Dimensions (without connectors) (WxHxD)	259x319x144	384x319x144	664x319x144	586x 418x148
Number of fields in a row	12	12	12	18
Number of rows	1	2	4	3
Expandability		No		No
Key lock		Optional		No
Mounting method		Surface mounting		Surface mounting
Degree of protection		IP 65		IP 65
Protection class		II		II
Rated insulation voltage Ui		400 V AC		1000 V AC / 1500 V DC
Design in accordance with		EN 60670, EN 62208		IEC 62208
UV resistance		Yes		Yes
Impact resistance		IK 08		IK 08
Glow rod test		650°C		650 °C
Operating temperature		-20°C / 40°C		- 25°C / 40°C
Recyclable plastics		Halogen-free		Halogen-free

AVAILABLE MODELS

SH-AIO3H-SZR	ATS connection combiner box for FoxESS AIO inverter
SH-GEN24-SZR	ATS connection combiner box for Fronius GEN24 inverter
SH-GEN24-PP	ATS connection combiner box with Smart Meter for Fronius GEN24 inverter
SH-GWET-SZR	ATS connection combiner box for GoodWe ET inverter
SH-GWET1-SZR	ATS connection combiner box for GoodWe ET inverter
SH-GWET2-SZR	ATS connection combiner box for GoodWe ET inverter
SH-HWL1-SZR	ATS connection combiner box for Huawei L1 inverter
SH-HWM1-SZR	ATS connection combiner box for Huawei M1 inverter
SH-GEN24NM-SZR	Combiner box for Fronius GEN24 inverter (without meter)
SH-H3PRO-SZR	ATS switchgear for FoxESS H3-PRO inverter
SH-HYD1-SZR	ATS combiner boxes for Sofar HYD 15-20KTL inverter
SH-HYD2-SZR	ATS combiner boxes for Sofar HYD 15-20KTL inverter
SH-SOLPL-SZR	ATS Combiner box for the Solplanet inverter
SH-UNI10-SZR	ATS connection combiner box for hybrid inverters 10kW*
SH-UNI15-SZR	ATS connection combiner box for hybrid inverters 12/15/17kW*
SH-UNI20-SZR	ATS connection combiner box for hybrid inverters 20kW*
SH-UNI25-SZR	ATS connection combiner box for hybrid inverters 25kW*
SH-UNI30-SZR	ATS connection combiner box for hybrid inverters 30kW*

*hybrid inverters of the following brands: Deye / Solis / Selfa / SolaX / SUNGROW / Afore / Sunways / Solplanet / SOFAR / Corab Encor Hybrid / EcoFlow

SH-GWET-SZR**ATS CONNECTION COMBINER BOX FOR GOODWE ET INVERTER**

Compatibility	GoodWe GW5-10K ET
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage / PV generator
Energy meter	None – space for a meter
Double disconnection of emergency operation	Yes
AC protection	Yes
Switching time (sec.)	0,5 > t
Warranty	2 years

SH-GWET1-SZR**ATS CONNECTION COMBINER BOX FOR GOODWE ET INVERTER**

Compatibility	GoodWe GW15K-ET
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage / PV generator
Energy meter	None – space for a meter
Double disconnection of emergency operation	Yes
AC protection	Yes
Switching time (sec.)	0,5 > t
Warranty	2 years

SH-GWET2-SZR**ATS CONNECTION COMBINER BOX FOR GOODWE ET INVERTER**

Compatibility	GoodWe 20-29,9K-ET
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage / PV generator
Energy meter	None – space for a meter
Double disconnection of emergency operation	Yes
AC protection	Yes
Switching time (sec.)	0,5 > t
Warranty	2 years

SH-GEN24-PP**SINGLE-PHASE COMBINER BOX WITH AUTOMATIC SWITCHING TO PV-POINT POWER SUPPLY FOR GEN24 INVERTER**

Compatibility	Fronius Symo GEN24
Number of phases supplied by emergency power	1F
Emergency power source	Energy storage / PV generator
Double disconnection of emergency operation	Yes
Switching time (sec.)	< 90
Warranty	2 years

SH-GEN24-SZR**ATS CONNECTION COMBINER BOX WITH SMART METER FOR FRONIUS GEN24 INVERTER**

Compatibility	Fronius Symo GEN24 / Symo Hybrid
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage
Energy meter	Yes
Control	Realized by the inverter
Double disconnection of emergency operation	Yes
AC protection	Yes
Switching time (sec.)	≈ 60
Warranty	2 years

SH-HWL1-SZR**ATS CONNECTION COMBINER BOX FOR HUAWEI L1 INVERTER**

Compatibility	SUN2000 2-3,68 KTL L1
Number of phases supplied by emergency power	1F
Emergency power source	Energy storage
Double disconnection of emergency operation	Yes
Switching time (sec.)	≈ 2
Warranty	2 years

SH-AIO3H-SZR**ATS CONNECTION COMBINER BOX FOR FOXESS AIO INVERTER**

Compatibility	FoxEss AIO 3H 5.0-E - 10.0-E
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage
Energy meter	None – space for a meter
Switching time (sec.)	0,2
Warranty	2 years

SH-UNI-SZR**ATS CONNECTION COMBINER BOX FOR HYBRID INVERTERS WITH A POWER BELOW 10KW**

Compatibility	Deye / Solis / Selfa / SolaX / SUNGROW / Afore / Sunways / Solplanet / SOFAR / Corab Encor Hybrid / EcoFlow
Number of phases supplied by emergency power	3F
Emergency power source	Energy storage / PV generator
Energy meter	None – space for a meter
Double disconnection of emergency operation	Yes
AC protection	Yes
Switching time (sec.)	< 0.5
Warranty	2 years

COMPLEMENTARY OFFER

K-50

MC4 CONNECTOR TESTER



Additional information

Verification of correct and safe assembly of MC4 connectors.
MC4 Stäubli and EVO2 compatible.

KPVMC4

WRENCH FOR MC4 CONNECTORS



Additional information

Designed for mounting and dismounting MC4 connectors.
Equipped with grooves for dismounting MC4 connectors.

SM-PV

PV MODULE SIMULATOR - 143-286 VDC; 0,7A



Additional information

PV module simulator constant-current (version without SUNCLIX connectors) is a programmable power supply for photovoltaic applications. It allows you to configure and start inverters after dark or when there are insufficient current and voltage parameters from PV modules.

PRZ-4...6MM

EXTENSION WITH MC4 CONNECTORS – SOLAR KENO CABLE



Nominal conductor cross-section [mm²] 4 / 6

Lenght [m] 0,5 / 1 / 2 / 3,8

Available colours Red / Black

Connector type MC4

Additional information

Used in photovoltaic installations for connections between individual photovoltaic modules and between modules and inverter. It is possible to manufacture a DC extension cable to the customer's specification.

PRZ-EVO2-4...6MM

EXTENSION WITH MC4 EVO2 CONNECTORS – SOLAR KENO CABLE



Nominal conductor cross-section [mm²]	4 / 6
Lenght [m]	0,5 / 1 / 2 / 3,8
Available colours	Red / Black
Connector type	MC4
Additional information	Used in photovoltaic installations for connections between individual photo-voltaic modules and between modules and inverter. It is possible to manufacture a DC extension cable to the customer's specification.

ZPVMC4

CRIMPING PLIERS FOR MC4 CONNECTORS



Additional information	3 work sockets. Designed to make MC4 connectors on wires with a cross-section: 2,5mm², 4mm², 6mm².
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LV DISTRIBUTION
CONNECTION BOXES



- Equipped with short-circuit, overload and overvoltage protection for the inverter's final circuits, or used as a power distribution point
- Suitable for 400V and 800V grids, increasingly common for large inverters.
- Designed for TN-S, TN-C, TNC-S, TT, IT grid types
- Prefabrication on the basis of supplied projects, guidelines, diagrams
- Prefabrication using equipment from renowned manufacturers
- Compliance with PN-EN 61439-1, PN-EN 61439-2 standards
- Type V cable clamps (optional screw connections)
- Short delivery time and efficient pricing

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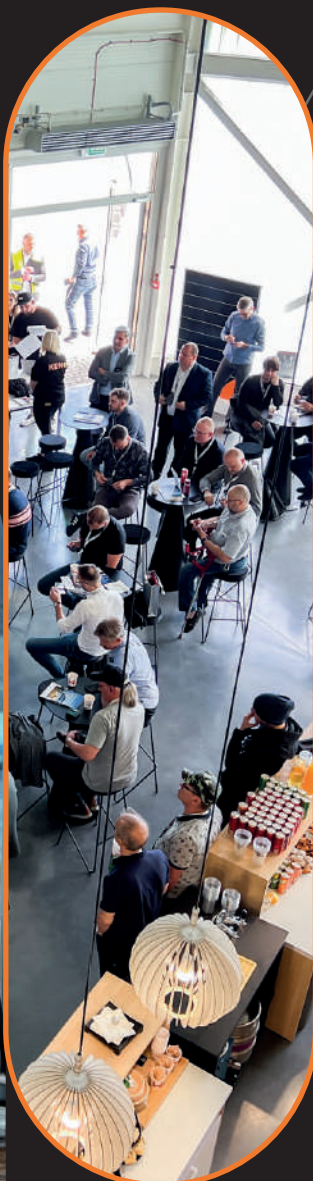
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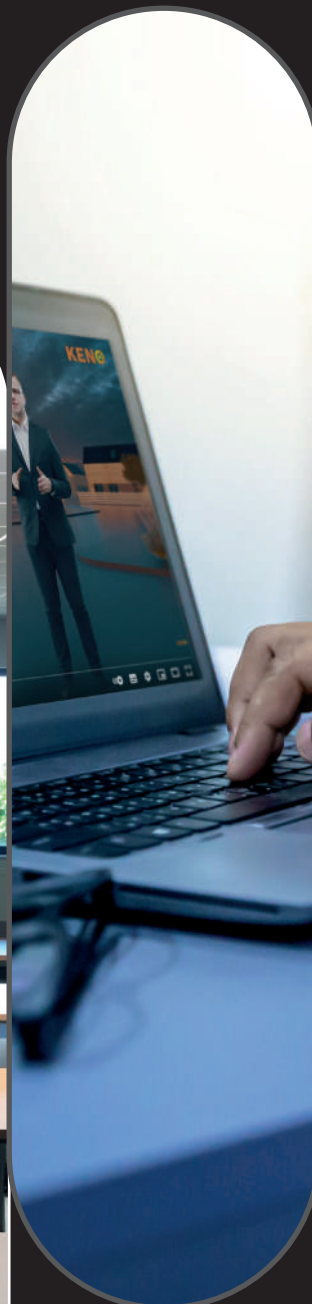


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