



- DESIGN: MODULAR
- DEGREE OF PROTECTION: IP65
- YEARS OF WARRANTY: 5
- UV RESISTANCE: YES
- READY TO CONNECT: YES
- WEIGHT: 2.600 KG



The connection switchgear from Polish producer KENO is designed to power photovoltaic inverters in grounded and isolated photovoltaic installations. It realizes protection against the effects of short circuits and overloads, as well as protection against the effects of indirect discharges on the AC side. Due to the high degree of IP protection, outdoor installation is possible. The design of the switchgear is intended for surface mounting. Depending on the equipment, switchboards can perform various functions.

BASIC PARAMETERS AC SIDE

AC Surge Protector Type	Phoenix T2
Overcurrent circuit breaker	Noark B20A 3F
Residual current circuit breaker	1 x 30mA type A

ELECTRICAL AND MECHANICAL PARAMETERS OF THE HOUSING

Model	PHS 12 T
Number of fields	12
Dimensions of housing without chokes and MC4 (Length Width Height)	120.00 201.00 202.00
Design in accordance with	EN 60670-1, EN 62208
Level of security	IP65
Protection class	II
Rated insulation voltage U_i	400 V AC, 1500 V DC
The incandescent rod test	650°C
Impact resistance	IK08
UV resistance	YES
Recyclable plastic	bezhalogenowy

Working temperature

-25°C - +60°C

Overcurrent circuit breaker used (MCB) (1)

Manufacturer / Model Noark / Ex9BN 3P B20

Rated current 20A; 3-F

Rated operational voltage U_e 230/415 V AC

- 72 V DC to the pole (1P, 2P)

- 48 V DC to the pole (3P, 4P)

Minimum voltage 12 V AC/DC

Rated impulse withstand voltage U_{imp} in accordance with IEC 60898-1 6 kV

Rated impulse withstand voltage U_{imp} in accordance with IEC 60947-2 6 kV

Rated short-circuit breaking capacity I_{cn} in accordance with IEC 60898-1 6 kA

Rated short-circuit breaking capacity I_{cn} in accordance with IEC 60947-2 10 kA

Rated voltage of the insulation U_i 690 V AC

Number of poles 3

Frequency 50/60 Hz

Characteristic B

Design in accordance with IEC/EN 60898-1, IEC/EN 60947-2

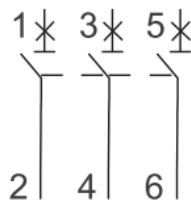
Mechanical durability 20 000 connections

Electrical durability 10 000 connections

Energy limitation class 3

Category of use A

Feed direction Any (top or bottom)



Overvoltage limiter used (SPD) AC

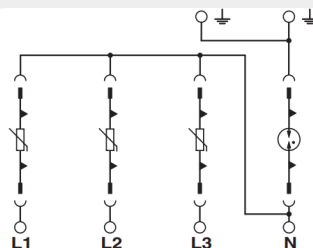
Manufacturer / Model Phoenix VAL-MS 230/3+1

Made in accordance with EN 61643-11

Power system IEC TN-S, TT

Surge protection	T2
Protective tracks	L-N, L-PE, N-PE
Direction of action	3L-N & N-PE
Rated voltage U_n	240/415 V AC (TN-S)
-	240/415 V AC (TT)
Rated frequency f_N	50 Hz (60 Hz)
The highest working voltage U_c (L-N)	275 V AC
Maximum permanent voltage U_c (L-PE)	275 V AC
The highest working voltage U_c (N-PE)	260 V AC
Rated load current I_L	80 A
Current of the protective conductor I_{PE}	$\leq 5 \mu A$
Power consumption in standby mode P_C	$\leq 360 \text{ mVA}$
Nominal discharge current I_n (8/20) μs	20 kA
Maximum discharge current I_{max} (8/20) μs	40 kA
Follow current extinguishing capability I_{fi} (N-PE)	100 A
Short circuit resistant I_{SCCR}	25 kA
Protection level U_p (L-N)	$\leq 1,35 \text{ kV}$
Protection level U_p (L-PE)	$\leq 1,6 \text{ kV}$
Protection level U_p (N-PE)	$\leq 1,5 \text{ kV}$
Residual voltage U_{res} (L-N)	$\leq 1,35 \text{ kV}$ (by I_n)
-	$\leq 1,1 \text{ kV}$ (by 10 kA)
-	$\leq 1 \text{ kV}$ (by 5 kA)
-	$\leq 0,9 \text{ kV}$ (by 3 kA)
Residual voltage U_{res} (L-PE)	$\leq 1,6 \text{ kV}$ (by I_n)
-	$\leq 1,2 \text{ kV}$ (by 10 kA)
-	$\leq 1 \text{ kV}$ (by 5 kA)
-	$\leq 0,9 \text{ kV}$ (by 3 kA)
Residual voltage U_{res} (N-PE)	$\leq 0,4 \text{ kV}$ (by I_n)
-	$\leq 0,25 \text{ kV}$ (by 10 kA)
-	$\leq 0,15 \text{ kV}$ (by 5 kA)
-	$\leq 0,1 \text{ kV}$ (by 3 kA)
TOV behavior for U_t (L-N)	335 V AC (5 s / withstand mode)
-	440 V AC (120 min / safe failure mode)
TOV behavior for U_t (N-PE)	1200 V AC (200 ms / withstand mode)
Response time t_A (L-N)	$\leq 25 \text{ ns}$
Response time t_A (L-PE)	$\leq 100 \text{ ns}$

Response time t_A (N-PE)	≤ 100 ns
Maximum pre-fuse in through-flow installations V	80 A (gG)
Maximum fuse value for radial installations	125 A (gG)



Residual current circuit breaker used (RCD)

Manufacturer / Model	Noark / Ex9L-N 30mA
Made in accordance with	EN 61008
Number of fields	2 / 4
Characteristic	A
Rated operational voltage U_e	240/415 V AC
Rated current	40 / 63 A
Minimum voltage for the RCD function	Independence from tension
Voltage range for test button	150 — 440 V
Frequency f	50 Hz
Rated voltage of the insulation U_i	500 V
Conditional rated short-circuit current I_{nc}	6 kA
Rated residual current $I_{\Delta n}$	30mA
Tenderness	sensitive to residual sinusoidal current, rectified pulsed and smooth, high frequency (1 kHz)
Response time	immediate
Rated impulse withstand voltage U_{imp}	6 kV
Shock resistance	3000 A
Mechanical durability	20 000 connections
Electrical durability	4 000 connections
Maximum fuse protection against overload	
$I_n = 40$ A	32 A gG
$I_n = 63$ A	50 A gG
Maximum fuse protection against short-circuit effects	
$I_n = 40$ A	63 A gG
$I_n = 63$ A	63 A gG
Rated making and breaking capacity $I_m I_m$	

$I_n = 40 \text{ A}$

500 A

$I_n = 63 \text{ A}$

630 A

Feed direction

Any (top or bottom)

