



- DESIGN: MODULAR
- DEGREE OF PROTECTION: IP65
- YEARS OF WARRANTY: 5
- UV RESISTANCE: YES
- READY TO CONNECT: YES
- WEIGHT: 4.300 KG



The connection panel from the Polish manufacturer KENO is intended for supplying power to photovoltaic inverters., Protections against short circuits and overloads., It also provides protection against the effects of indirect (AC) and direct (DC) discharges. The distribution board should be used in grounded and isolated photovoltaic installations. 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 DC SIDE

Number of inputs   PV string outputs	2   2
Quantity   Type of DC surge arrester   Type	2   Phoenix   T1/T2
Connection type	Array MC4 Stäubli

#### BASIC PARAMETERS AC SIDE

AC Surge Protector   Type	Noark   T2
Overcurrent circuit breaker	Noark B16A 3F
Residual current circuit breaker	1 x 300mA type A

#### ELECTRICAL AND MECHANICAL PARAMETERS OF THE HOUSING

Model	PHS 24 T
Number of fields	24
Dimensions of housing without chokes and MC4 (Length Width Height)	120.00   128.00   201.00
Design in accordance with	EN 60670-1, EN 62208
Level of security	IP65

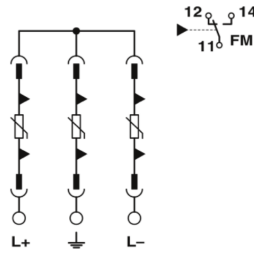
Protection class	II
Rated insulation voltage $U_i$	400 V AC, 1500 V DC
The incandescent rod test	650°C
Impact resistance	IK08
UV resistance	YES
Recyclable plastic	bezhalogenowy
Working temperature	-25°C - +60°C

#### DC surge arrester used (SPD)

Manufacturer / Model	PHOENIX/VAL-MS-T1/T21000DC-PV/2+V
Surge protection	T1 / T2
Idle voltage $U_{OCSTC}$	$\leq 975$ V DC
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Response time $t_A$	$\leq 25$ ns
Testing lightning current (10/350) $\mu$ s, ładunek	2,5 As
Testing lightning current (10/350) $\mu$ s, energia specyficzna	6,25 kJ/ $\Omega$
Test lightning current (10/350) $\mu$ s, wartość szczytowa $I_{imp}$	5 kA
Total current discharged $I_{total}$ (8/20) $\mu$ s	40 kA
Total current discharged $I_{total}$ (10/350) $\mu$ s	5 kA
Insulation resistance $R_{iso}$	$> 5$ G $\Omega$ (by 500 V DC)
Nominal discharge current $I_n$ (8/20) $\mu$ s	15 kA
Rated load current $I_L$	80 A
Long-term operating current $I_{CPV}$	$< 20$ $\mu$ A
Maximum permanent voltage $U_{CPV}$	1170 V DC
Short circuit resistant $I_{SCPV}$	2000 A
Residual voltage $U_{res}$	$\leq 3,5$ kV (by $I_n$ )
-	$\leq 2,9$ kV (by 5 kA)
-	$\leq 3,2$ kV (by 10 kA)
-	$\leq 3,7$ kV (by 20 kA)
-	$\leq 4,1$ kV (by 30 kA)
-	$\leq 4,6$ kV (by 40 kA)
Current of the protective conductor $I_{PE}$	$\leq 20$ $\mu$ A DC
-	$\leq 350$ $\mu$ A AC
Protection level $U_p$	$\leq 3,5$ kV
Power consumption in standby mode $P_C$	$\leq 25$ mVA

Connection configuration

Configuration Y



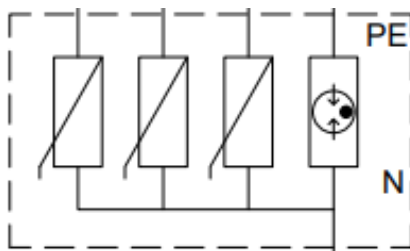
#### Overcurrent circuit breaker used (MCB) (1)

Manufacturer / Model	Noark / Ex9BN 3P B16
Rated current	16A; 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 AC (SPD)

Manufacturer / Model	Noark Ex9UE2 20 3PN 275	
Connection	L-N/PE	N-PE
Made in accordance with	EN 61643-11	

Type of delimiter	Typee 2 (klasa II, C, T2)	
Making the insert	MOV (Warystor)	GDT (Iskiernik)
Rated voltage $U_n$	230 / 400 V AC	
Reference test voltage $U_{REF}$	255 V AC	
Continuous working voltage $U_c$	275 V AC	255 V AC
Frequency $f$	50/60 Hz	
Nominal discharge current $I_n$ (8/20 $\mu$ s)	20 kA to the pole	40 kA to the pole
Maximum impulse current $I_{imp}$ (10/350 $\mu$ s)	-	12 kA to the pole
Maximum discharge current $I_{max}$ (8/20 $\mu$ s)	40 kA to the pole	
Voltage protection level $U_p$ for electricity $I_n$	1.4 kV	1.5 kV
Voltage protection level $U_p$ for electricity $I_{max}$	2 kV	1.5 kV
Voltage protection level $U_p$ dla 5 kA (8/20 $\mu$ s)	1 kV	-
N-PE Follow current extinguishing capability $I_{fi}$	-	100 A
Occasional surges $U_t$ (paused)	335 V	1200 V
Residual current $I_{PE}$ by $U_{REF}$	$\leq 1$ mA	-
Limiter voltage for current 1mA	387 - 473 V	-
Response time	$\leq 25$ ns	$\leq 100$ ns
Maximum fuse protection	125 A gG	-
Ability to withstand short-circuit current	50kA	-
Short-circuit withstand $I_{SCCR}$	10kA	-
Current factor $k$	1kA	
Type of system LV	TN-S, TT (3+1)	



#### Residual current circuit breaker used (RCD)

Manufacturer / Model	Noark / Ex9L-N 300mA
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 $I_{\Delta n}$	300mA
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 $I_m I_m$	
$I_n = 40 A$	500 A
$I_n = 63 A$	630 A
Feed direction	Any (top or bottom)

