



- DESIGN: MODULAR
- DEGREE OF PROTECTION: IP65
- YEARS OF WARRANTY: 5
- UV RESISTANCE: YES
- READY TO CONNECT: YES
- WEIGHT: 4.340 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 direct and 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	Noark T1/T2
Overcurrent circuit breaker (1)	Noark B25A 3F
Overcurrent circuit breaker (2)	Noark B6A 1F
Overcurrent circuit breaker (3)	Noark B10A 1F
Residual current circuit breaker	1 x 300mA type A
FR switch disconnecter	100A
Shunt trip	Wzrostowy

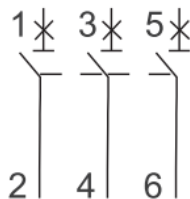
ELECTRICAL AND MECHANICAL PARAMETERS OF THE HOUSING

Model	PHS 48 T
Number of fields	48
Dimensions of housing without chokes and MC4 (Length Width Height)	144.00 319.00 535.00
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 B25
Rated current	25A; 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)



Overcurrent circuit breaker used (MCB) (2)

Manufacturer / Model	Noark / Ex9BN 1P B6
Rated current	6A; 1-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	1
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)



Overcurrent circuit breaker used (MCB) (3)

Manufacturer / Model	Noark / Ex9BN 1P B10
Rated current	10A; 1-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)

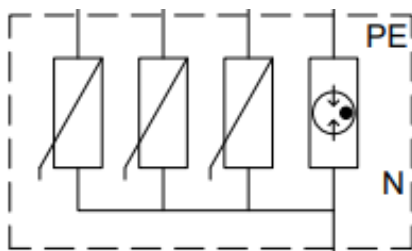
Minimum voltage	12 V AC/DC
Rated impulse withstand voltage U_{imp} in accordance with IEC 60898-1	6 kV
Rated impulse withstand voltage U_{imp} in accordance with IEC 60947-2	6 kV
Rated short-circuit breaking capacity I_{cn} in accordance with IEC 60898-1	6 kA
Rated short-circuit breaking capacity I_{cn} in accordance with IEC 60947-2	10 kA
Rated voltage of the insulation U_i	690 V AC
Number of poles	1
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)

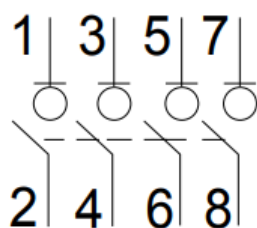
Manufacturer / Model	Noark Ex9UE1+2 12.5 3PN 275	
Connection	L-N/PE	N-PE
Made in accordance with	EN 61643-11	
Type of delimiter	Typee 1+2 (klasa I+II, B+C, T1+T2)	
Making the insert	MOV (Warystor)GDT (Iskiernik)	
Rated voltage U_n	230 V AC	
Reference test voltage U_{REF}	255 V AC	
Continuous working voltage U_c	275 V AC	255 V AC
Frequency f	25 kA to the pole	50 kA to the pole
Specific energy W/R	156.25 kJ/Ω	
Maximum impulse current I_{imp} (10/350 μs)	12.5 kA to the pole	50 kA to the pole
Maximum discharge current I_{max} (8/20 μs)	50 kA to the pole	

Voltage protection level U_p for electricity I_n	1.5 kV	1.5 kV
Voltage protection level U_p for electricity I_{max}	1.8 kV	1.5 kV
Voltage protection level U_p dla 5 kA (8/20 μ s)	1 kV	-
N-PE Follow current extinguishing capability I_{fi}	-	100 A
5 s	335 V	335 V
200 ms	335 V	1200 V
Residual current I_{PE} by U_{REF}	≤ 1 mA	-
Limiter voltage for current 1mA	387 - 473 V	
Response time	≤ 25 ns	≤ 100 ns
Maximum fuse protection	160 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)	



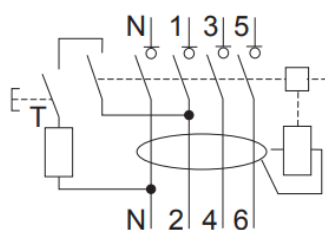
Switch disconnector used

Model	Ex9I125 4P 100A
Design in accordance with	IEC/EN 60947-3
Rated operational voltage U_e	230/400 V AC
Frequency	50/60 Hz
Rated current I_e AC-22A 230/400 V AC	100
Number of poles	4
Category of use	AC-22A
Rated voltage of the insulation U_i	500 V
Rated impulse withstand voltage U_{imp}	6 kV
Rated short-time withstand current I_{cw} , 1s	12 x I_e
Rated short-circuit making current I_{cm} (wartość szczytowa)	2500 A
Maximum fuse protection	160 A gG
Mechanical durability	20 000 connections
Electrical durability	4 000 connections



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)



Shunt release applied

Type of trigger	Increasing SHT31/ 100544
Maximum current of main contacts	125A
Control voltage	110-130V DC; 110-415V AC
Rated voltage	230V
Type of control voltage	AC/DC

