



- DESIGN: MODULAR
- DEGREE OF PROTECTION: IP65
- YEARS OF WARRANTY: 5
- UV RESISTANCE: YES
- READY TO CONNECT: YES
- WEIGHT: 4.970 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 ensures protection against the effects and direct on the alternating and direct current sides. 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 | 3 3 |
| Quantity Type of DC surge arrester Type | 3 Phoenix T1/T2 |
| Connection type | Array MC4 Stäubli |

BASIC PARAMETERS AC SIDE

| | |
|----------------------------------|------------------|
| AC Surge Protector Type | Noark T1/T2 |
| Overcurrent circuit breaker | Noark B40A 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 |

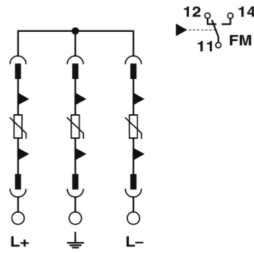
| | |
|--------------------------------|---------------------|
| Protection class | II |
| Rated insulation voltage U_i | 400 V AC, 1500 V DC |
| The incandescent rod test | 650°C |
| Impact resistance | IK08 |
| UV resistance | YES |
| Recyclable plastic | bezhalogenowy |
| Working temperature | -25°C - +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} | ≤ 975 V DC |
| Maximum discharge current I_{max} (8/20) μ s | 40 kA |
| Response time t_A | ≤ 25 ns |
| Testing lightning current (10/350) μ s, ładunek | 2,5 As |
| Testing lightning current (10/350) μ s, energia specyficzna | 6,25 kJ/ Ω |
| Test lightning current (10/350) μ s, wartość szczytowa I_{imp} | 5 kA |
| Total current discharged I_{total} (8/20) μ s | 40 kA |
| Total current discharged I_{total} (10/350) μ s | 5 kA |
| Insulation resistance R_{iso} | > 5 G Ω (by 500 V DC) |
| Nominal discharge current I_n (8/20) μ s | 15 kA |
| Rated load current I_L | 80 A |
| Long-term operating current I_{CPV} | < 20 μ 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} | ≤ 20 μ A DC |
| - | ≤ 350 μ A AC |
| Protection level U_p | $\leq 3,5$ kV |
| Power consumption in standby mode P_C | ≤ 25 mVA |

Connection configuration

Configuration Y



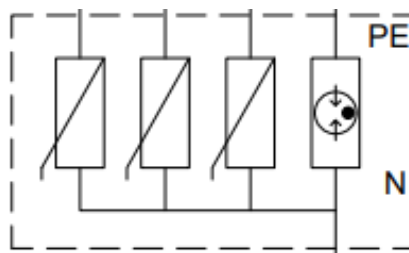
Overcurrent circuit breaker used (MCB) (1)

| | |
|---|--------------------------------|
| Manufacturer / Model | Noark / Ex9BN 3P B40 |
| Rated current | 40A; 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 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 μs) | 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) | |



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) |

