

# EM-90N DCAC

## STANDARD SERIES

- DESIGN: MODULAR
- DEGREE OF PROTECTION: IP65
- UV RESISTANCE: YES
- READY TO CONNECT: YES
- WEIGHT: 4.12 KG



The connection panel 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	1   1
Quantity   Type of DC surge arrester   Type	1   Noark   T1/T2
Connection type	Array MC4 Stäubli

### BASIC PARAMETERS AC SIDE

AC Surge Protector   Type	Noark   T1/T2
Overcurrent circuit breaker	Noark B16A 3F

### 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)	144.00   259.00   325.00
Design in accordance with	EN 60670-1, EN 62208
Level of security	IP65
Protection class	II

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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	Noark Ex9UEP1+2 6.25(R) 3P 1000
Made in accordance with	EN 61643-31
Surge protection	PV T1+T2 (Klasa I+II, B+C, Typ 1+2)
Making the insert	MOV (Warystor)
Protection function	thermal
Protection mode	+ → PE
-	- → PE
-	+ ↔ -
Maximum continuous operating voltage $U_{CPV}$	
+ → PE, - → PE	1000 V
+ ↔ -	1000 V
Frequency	DC
Nominal discharge current $I_n$ (8/20 $\mu$ s)	20 kA
Maximum discharge current $I_{max}$ (8/20 $\mu$ s)	40 kA
Surge current $I_{imp}$ (10/350 $\mu$ s)	
+ → PE, - → PE	6.25 kA
+ ↔ -	6.25 kA
Voltage protection level $U_p$ by $I_n$	
+ → PE, - → PE	3.8 kV
+ ↔ -	3.8 kV
Leakage current $I_{PE}$ by $U_{REF}$ DC	< 50 $\mu$ A
Leakage current $I_{PE}$ by $U_{REF}$ AC	< 1 mA
Maximum short-circuit current $I_{SCPV}$	1000 As
Number of ports	1
LV system type	DC, nieziemiony system PV
Auxiliary contact (optional)	1 przemienny (CO)
Auxiliary contact, voltage / current	

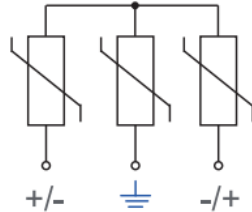
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AC  $U_{\max} / I_{\max}$  250 V AC / 1 A

DC  $U_{\max} / I_{\max}$  250 V DC / 0.1 A; 75 V DC / 0.5 A

Connection 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  $U_{\text{imp}}$  in accordance with IEC 60898-1 6 kV

Rated impulse withstand voltage  $U_{\text{imp}}$  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

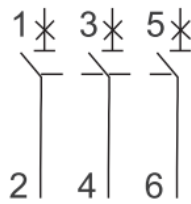
Energy limitation class 3

Category of use A

Feed direction Any (top or bottom)

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### 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/ $\Omega$	
Maximum impulse current $I_{imp}$ (10/350 $\mu$ s)	12.5 kA to the pole	50 kA to the pole
Maximum discharge current $I_{max}$ (8/20 $\mu$ s)	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 $\mu$ 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 $U_{REF}$	$\leq 1$ mA	-
Limiter voltage for current 1mA	387 - 473 V	
Response time	$\leq 25$ ns	$\leq 100$ 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)	

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