

# Surge Protection Devices Ex9UE1+2, 25 kA



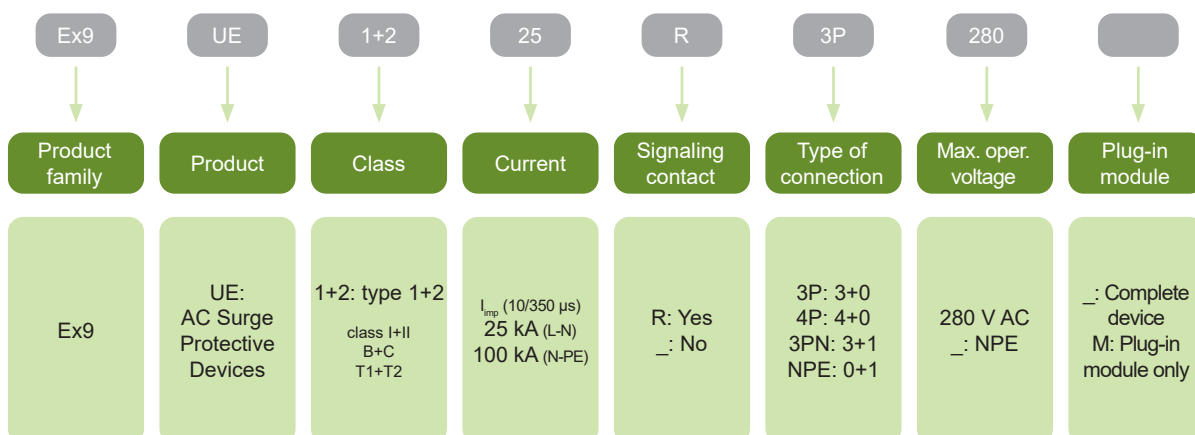
- Surge Protection Devices
- Type 1+2 (Class I+II, T1+T2, B+C)
- Tested according to EN 61643-11
- Max. impulse current  $I_{imp}$  25 kA (10/350  $\mu$ s) per module and 100 kA for NPE module
- Maximum continuous operational voltage  $U_c$  280 V AC
- Versions with 3+0, 3+1 and 4+0 connection
- Plug-in module design
- With and without remote indication contact
- Device status indicator

The Ex9UE1+2 25 line is a group of Class I+II Surge Protective Devices. They are intended as a protection against direct hit of lightning strokes of medium intensities. In standard three phase TN-C grid, they provides protection up to LPL I, II requirements given in EN 62305 with total lightning current introduced into electrical installation of 75 kA and total lightning stroke current 150 or 200 kA based on physical configuration and mutual position of grounding point of lightning rod, grounding point of the electrical installation and place of SPD installation.

The design of Ex9UE1+2 25 is hybrid based on combination of high energy Metal Oxide Varistors and isolation Spark Gap. This combination brings lower response time thanks to fast MOV and low voltage SG in comparison to a pure SG solution. The serial connection of MOV provides limitation of follow current characteristics for SG, but also full isolation due to serial connection of SG to MOV.

The main characteristics are defined by MOV part dominantly. Resulting protection level and response characteristics not only fulfill requirements of class I SPDs but also for class II ones. Ex9UE1+2 25 provides protection for both classes I and II. The modular design with plug in inserts allows simple and quick replacement of function modules in case of MOV is beyond if its lifespan due to high intensity or often occurrence of overvoltage peaks.

## Type Key



## Certification marks



# Surge Protection Devices Ex9UE1+2

## Type 1+2 SPDs (Class I+II, T1+T2, B+C) complete devices, $I_{imp} = 25 \text{ kA (10/350 } \mu\text{s)}$

- Maximum impulse current  $I_{imp}$  25 kA (10/350  $\mu\text{s}$ ) per module and 100 kA (10/350  $\mu\text{s}$ ) for NPE (+1) module
- Nominal discharge current  $I_n$  25 kA (8/20  $\mu\text{s}$ ) per module and 100 kA (8/20  $\mu\text{s}$ ) for NPE (+1) module
- Maximum discharge current  $I_{max}$  60 kA (8/20  $\mu\text{s}$ ) per module and 100 kA (8/20  $\mu\text{s}$ ) for NPE (+1) module
- Maximum continuous operational voltage  $U_c$  280 V AC per module and 255 V AC for NPE (+1) module
- Due to  $I_{imp}$  25 kA per module suitable for LPL I - IV according to EN 62305 in standard 3-phase TN-C and TN-S installations



Operating voltage	Connection	Signaling contact	Article No.	Type	Packing
280 V AC	3+0	no	105503	Ex9UE1+2 25 3P 280	1/27
280 V AC	3+0	yes	105504	Ex9UE1+2 25R 3P 280	1/27
280 V AC	3+1	no	105505	Ex9UE1+2 25 3PN 280	1/18
280 V AC	3+1	yes	105506	Ex9UE1+2 25R 3PN 280	1/18
280 V AC	4+0	no	105507	Ex9UE1+2 25 4P 280	1/18
280 V AC	4+0	yes	105508	Ex9UE1+2 25R 4P 280	1/18

## Type 1+2 spare modules, $I_{imp} = 25 \text{ kA (10/350 } \mu\text{s)}$



Max. oper. voltage $U_c$	Max. imp. current $I_{imp}$	Article No.	Type	
280 V AC	25 kA	105495	Ex9UE1+2 25 1P 280 M	1/81
255 V AC	100 kA	105496	Ex9UE1+2 100 NPE M	1/81

# Technical Data Ex9UE1+2

## Surge Protection Devices Type 1+2, $I_{imp} = 25 \text{ kA}$ (10/350 $\mu\text{s}$ )

### General parameters

Suitable for protection of electrical installations against transient overvoltage caused by direct and indirect lightning strokes or switching processes

Plug-in module design

Indication window and optional remote-signaling contact help users to know the status of device

Due to  $I_{imp}$  25 kA per module suitable for LPL I - IV according to EN 62305 in standard 3-phase TN-C and TN-S installations

### Electrical parameters

	<b>3+0, 4+0, 3+1 (L-N/PE/PEN connection)</b>	<b>3+1 (+1 N-PE connection)</b>
Tested according to	EN 61643-11	
Classified type (test class)	Type 1+2 (Class I+II, B+C, T1+T2)	
Technology	MOV+GTD (Varistor+Spark-gap)	GDT (Spark-gap)
Rated operational voltage $U_n$	230 / 400 V AC	
Reference test voltage $U_{REF}$	255 V AC	
Rated load current $I_L$	125 A	
Max. continuous operational voltage $U_c$	280 V AC	255 V AC
Nominal frequency $f$	50/60 Hz	
Nominal discharge current $I_n$ (8/20 $\mu\text{s}$ )	25 kA per pole	100 kA per pole
Max. impulse current $I_{imp}$ (10/350 $\mu\text{s}$ )	25 kA per pole	100 kA per pole
Impulse current specific energy W/R	156 kJ/ $\Omega$	2500 kJ/ $\Omega$
Max discharge current $I_{max}$ (8/20 $\mu\text{s}$ )	60 kA per pole	60 kA per pole, 100 kA NPE
Protection voltage $U_p$ at $I_n$	1.5 kV	1.5 kV
Protection voltage $U_p$ at $I_{max}$	2.0 kV	-
Protection voltage $U_p$ at 5 kA (8/20 $\mu\text{s}$ )	< 1.3 kV	-
Follow current interrupting rating $I_n$	-	100 A
Temporary overvoltage $U_T$ (withstand)		
5 s	335 V	1200 V
200 ms	335 V	-
Residual current $I_{PE}$ at $U_{REF}$	$\leq 1 \text{ mA}$	-
Response time	$\leq 100 \text{ ns}$	$\leq 100 \text{ ns}$
Max. back-up fuse	315 A gG	-
Short-circuit current rating $I_{SCCR}$	10 kA	-
Short-circuit withstand capability	25 kA	-
Current factor k	1.6	-
Number of ports	1	
Type of LV system	TN-C, TN-S, TN-C-S, TT (3+1)	
Remote contact (optional)	1 changeover (CO)	
Remote contact op. voltage / current		
AC $U_{max} / I_{max}$	250 V AC / 1 A	
DC $U_{max} / I_{max}$	30 V DC / 1 A	

# Technical Data Ex9UE1+2

Surge Protection Devices Type 1+2,  $I_{imp} = 25 \text{ kA} (10/350 \mu\text{s})$

Table of tolerance zones at 1 mA

	Max. continuous operational voltage $U_c$	Voltage tolerance zone at 1mA
Ex9UE1+2 12.5	275 V	387 - 473 V
Ex9UE2 20	275 V	387 - 473 V
	320 V	459 - 561 V
	385 V	558 - 682 V
	440 V	639 - 781 V
	350 V	504 - 616 V
Ex9UE2 30	440 V	639 - 781 V
Ex9UEP 20	500/1000 V	643.5 - 786.5 V
	600/1200 V	738 - 902 V
	750/1500 V	950 - 1100 V

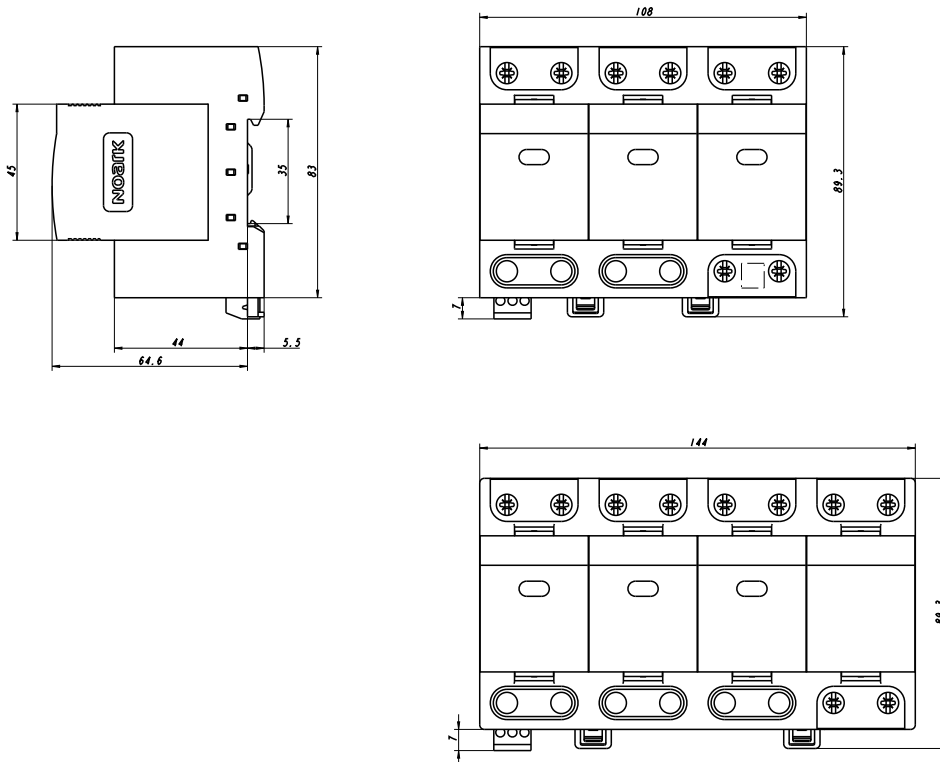
## Mechanical parameters

Device width	36 mm (per pole/module)
Device height	83 mm (89 mm including rail clip)
Frame size	45 mm
Method of mounting	fixed
Mounting	easy fastening onto 35 mm device rail (DIN)
Mounting position	arbitrary
Degree of protection	IP40, terminals IP20
Terminals	lift, M5 screws
Terminal capacity	10 — 50 mm <sup>2</sup>
Fastening torque of terminals	2.5 — 3.5 Nm
Remote contact terminal capacity	0.14 — 1.5 mm <sup>2</sup>
Location	indoor
Ambient temperature	-40 — +80 °C
Altitude	≤ 2000 m
Relative humidity	30 — 90 %
Weight (3P / 3P+N / 4P)	0.78 / 1.00 / 1.08 kg

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## Dimensions



## Connection diagrams, protection mode

