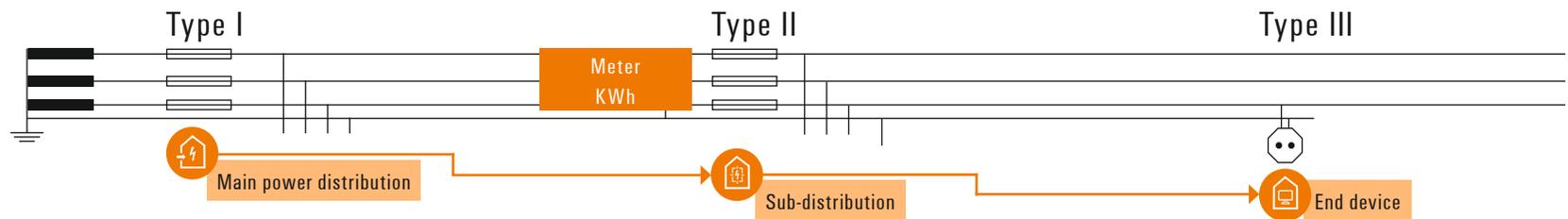
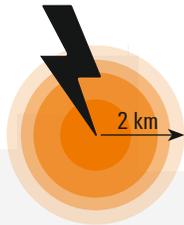


	Grid system	Type I	Type II	Type III			
IT-grid		<b>Without remote contact</b> VPU AC I 3 440/25 LCF <b>2619160000</b>  VPU AC I 3 480/10 <b>2591530000</b>	<b>With remote contact</b> VPU AC I 3 R 440/25 LCF <b>2619170000</b>  VPU AC I 3 R 480/10 <b>2591540000</b>	<b>Without remote contact</b> <b>1P for IT-grid</b> VPU AC II 1 480/50 <b>2591210000</b>  <b>2P for IT-grid</b> VPU AC II 2 480/50 <b>2591230000</b>  <b>Ground cable with distributed PE</b> VPU AC II 3 480/50 <b>2591250000</b>  <b>Over ground cable without distributed PE</b> VPU AC II 3 480/50 <b>2591250000</b>	<b>With remote contact</b> VPU AC II 1 R 480/50 <b>2591220000</b>  VPU AC II 2 R 480/50 <b>2591240000</b>  VPU AC II 3 R 480/50 <b>2591260000</b>  VPU AC II 3 R 480/50 <b>2591260000</b>	<b>Without remote contact</b> VPU AC II+III 2 440/20 S <b>2908440000</b>  - can also be used as type II -  VPU AC II+III 3 440/20 S <b>2908460000</b>  - can also be used as type II -	<b>With remote contact</b> VPU AC II+III 2 R 440/20 S <b>2908450000</b>  VPU AC II+III 3 R 440/20 S <b>2908470000</b>
		TT-grid		VPU AC I 3+1 275/25 LCF S 2PE <b>2726760000</b>  VPU AC I 3+1 300/12.5 LH <b>2983580000</b>	VPU AC I 3+1 R 275/25 LCF S 2PE <b>2726770000</b>  VPU AC I 3+1 R 300/12.5 LH <b>2983590000</b>	<b>1P for TT-grid</b> VPU AC II 1 300/50 <b>2591020000</b>  <b>Ground cable with distributed PE</b> VPU AC II 3 300/50 <b>2591160000</b>  <b>Over ground cable without distributed PE</b> VPU AC II 3 300/50 <b>2591160000</b>  <b>For TT-grid with integrated fuse</b> VPU AC II F 3 300/40 <b>2827600000</b>	VPU AC II 1 R 300/50 <b>2591030000</b>  VPU AC II 3 R 300/50 <b>2591170000</b>  VPU AC II 3 R 300/50 <b>2591170000</b>  VPU AC II F 3 R 300/40 <b>2807410000</b>
TN-C-grid				VPU AC I 3 275/25 LCF S <b>2726740000</b>  VPU AC I 3 300/12.5 LH <b>2983570000</b>	VPU AC I 3 R 275/25 LCF S <b>2726750000</b>  VPU AC I 3 R 300/12.5 LH <b>2983560000</b>	<b>1P for TN-grid</b> VPU AC II 1 300/50 <b>2591020000</b>  <b>Ground cable with distributed PE</b> VPU AC II 3 300/50 <b>2591160000</b>  <b>For TN-C with integrated fuse</b> VPU AC II F 3 300/40 <b>2827600000</b>	VPU AC II 1 R 300/50 <b>2591030000</b>  VPU AC II 3 R 300/50 <b>2591170000</b>  VPU AC II F 3 R 300/40 <b>2807410000</b>
		TN-(C)-S-grid		VPU AC I 3+1 275/25 LCF S 2PE <b>2726760000</b>  VPU AC I 3+1 300/12.5 LH <b>2983580000</b>  VPU AC I 4 275/25 LCF S <b>2726780000</b>	VPU AC I 3+1 R 275/25 LCF S 2PE <b>2726770000</b>  VPU AC I 3+1 R 300/12.5 LH <b>2983590000</b>  VPU AC I 4 R 275/25 LCF S <b>2726790000</b>	<b>1P for TN-grid</b> VPU AC II 1 300/50 <b>2591020000</b>  <b>Supply with both PE- or N-leader</b> VPU AC II 4 300/50 <b>2591140000</b>  <b>For TN-(C)-S with integrated fuse</b> VPU AC II F 3+1 300/40 <b>2827630000</b>	VPU AC II 1 R 300/50 <b>2591030000</b>  VPU AC II 4 R 300/50 <b>2591150000</b>  VPU AC II F 3+1 R 300/40 <b>2807440000</b>

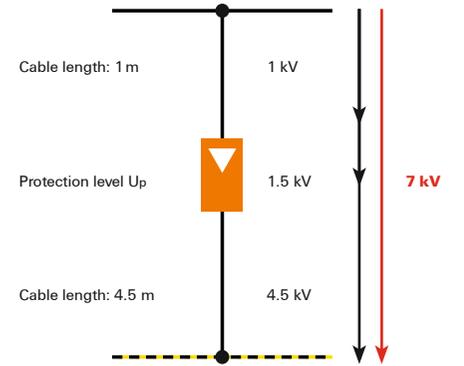


# Installation information and technical basics



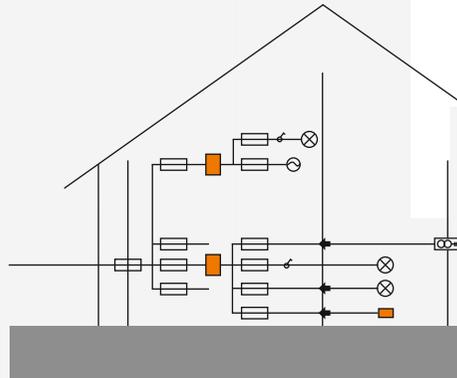
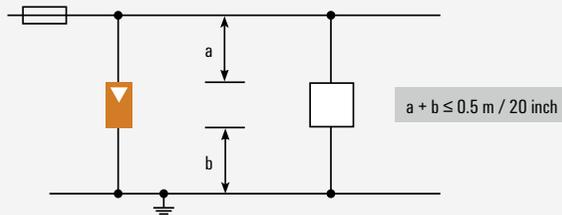
The direct lightning strike has a range of up to 2 km.

**Voltage drop on the cable**  
Long cables reduce the effectiveness of an SPD. Inductivity: 1 m cable will cause 1 kV.



**Specifications for the installation location**  
The standard requires a maximum cable length of the connecting lines of an SPD of  $\leq 0.5$  m.

Single branch wiring b must be as short as possible



**Zonebased surge protection concept**

	400 V	230/400 V	230 V	230 V
	6,000 V	4,000 V	2,500 V	1,500 V
Distribution	Main power distribution	Sub-distribution	Electrical machine	End device
SPD Type	Type I	Type II	Type II	Type III
Protection level	IV	III	II	I

Type	Connection lines between SPD and outer conductors	Connection lines between SPD and main earth bar or protective conductor (PE or PEN)
Type I	6 mm <sup>2</sup>	16 mm <sup>2</sup>
Type II	2.5 mm <sup>2</sup>	6 mm <sup>2</sup>

**Cross sections of the cables**

**Specifications for the protected area**  
The protective area of an SPD is 10 m. If this is exceeded, another SPD is required.

