

Overvoltage Protection Devices

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For further technical product information:

Configuration Manual

Overvoltage Protection Devices 2014
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Service & Support Portal:

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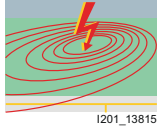
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Overvoltage Protection Devices

Introduction

Overview

Devices	Page	Application	Standards
	6/3	With plug-in protective modules for TN-C, TN-S and TT systems Rated voltage 350 V AC for lightning currents from 25 kA to 100 kA. All versions with remote signaling contact. For installation in main distribution boards, upstream or downstream of the counter.	EN 61643-11
	6/5	With plug-in protective modules for TN-C, TN-S and TT systems Rated voltage 350 V AC for lightning currents from 25 kA to 100 kA. All versions with remote signaling contact. For installation in main distribution boards downstream of the counter.	EN 61643-11
	6/7	With plug-in protective modules for TN-C, TN-S and TT systems. Rated voltage 335 V AC for lightning currents or discharge surge currents up to 50 kA. Versions with or without remote signaling.	EN 61643-11
	6/9	With plug-in protective modules for TN-C, TN-S and TT systems Rated voltage 350 V AC, rated discharge surge current 20 kA and discharge surge current 40 kA. For installation in sub-distribution boards.	EN 61643-11
	6/12	With plug-in protective modules for single-phase and three-phase systems. Rated voltage, single-phase 24 V, 120 V, 230 V AC/DC and three-phase 230/400 V AC. For installation as close as possible upstream from the terminal equipment.	EN 61643-11
	6/13	Plug-in parts for lightning and surge arresters and through-type terminals for installation.	EN 61643-11
 I201_13815	6/14	Everything you need to know about overvoltage protection: Function, mounting and technical connections.	
	6/17	With plug-in protective modules for measuring and control technology for installation in signal circuits.	EN 61643-21

Overview

Type 1 lightning arresters are the most powerful overvoltage protection. They protect low-voltage systems against any overvoltage or high impulse currents that may be triggered by a direct or indirect lightning strike.

All lightning arresters are fitted with a mechanical fault indication, which does not require an extra power supply. The lightning conductors can therefore also be used in the precounter area.

The protective modules are available as connectors. The majority of lightning arresters have a remote signaling contact, which signals if the device fails.

Technical specifications

		5SD7411-2	5SD7412-1	5SD7413-1	5SD7414-1
Standards		IEC 61643-11 (DIN VDE 06754-6)			
Approvals		KEMA, UL/cUL		UL/cUL	
Rated voltage U_N	V AC	690	240	240/415	
Rated arrester voltage U_C					
• L/N, N/PE, L/PEN	V AC	800	350	350	350
Lightning impulse current I_{imp} (10/350µs)					
• L/N or L/PEN, 1P/3P	kA	35	25	25/75	25/75
• N/PE	kA	--	100	--	100
Rated discharge surge current I_n (8/20µs)					
• L/N or L/PEN, 1P/3P	kA	35	25	25/75	25/75
• N/PE	kA	--	100	--	100
Protection level U_p					
• L/N, N/PE, L/PEN	kV	≤ 4.5	≤ 1.5	≤ 1.5	≤ 1.5
Follow current discharge capacity I_{fi} (AC)					
• L/N or L/PEN for 264 V/350 V	kA	--	50/25	50/25	50/25
• N/PE	A	--	100	--	100
Response time t_A					
• L/N or L/PEN	ns	≤ 100	≤ 100	≤ 100	≤ 100
• L-(N)-PE	ns	--	≤ 100	--	≤ 100
Max. back-up fuse acc. to IEC 61643-1					
• For stub wiring	A	400 gL/gG	315 gL/gG	315 gL/gG	315 gL/gG
• For V-wiring	A	125 gL/gG	125 gL/gG	125 gL/gG	125 gL/gG
Short-circuit withstand current with max. back-up fuse	kA _{rms}	50	50	50	50
Temperature range	°C	-40 ... +80			
Degree of protection		IP20, with connected conductors			
Conductor cross-section					
• Finely stranded	mm ²	16 ... 50	2.5 ... 25	2.5 ... 25	2.5 ... 25
• Solid	mm ²	16 ... 50	2.5 ... 35	2.5 ... 35	2.5 ... 35

Overvoltage Protection Devices

5SD7 lightning arresters, type 1

Selection and ordering data

Version	Mount- ing width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	MW							kg
Lightning arresters								
	1-pole NEW With remote signaling	-- ¹⁾	5SD7411-2		1	1 unit	037	3.300
	2-pole For TN-S and TT systems with remote signaling	4	5SD7412-1		1	1 unit	037	0.808
	3-pole For TN-C systems With remote signaling	6	5SD7413-1		1	1 unit	037	1.221
	4-pole For TN-S and TT systems With remote signaling	8	5SD7414-1		1	1 unit	037	1.609

¹⁾ No modular installation device.

5SD7 combination surge arresters, type 1 and type 2

Overview

Combination surge arresters, type 1 + 2 are compact designs comprising lightning arresters (type 1) and surge arresters (type 2). They protect low-voltage systems against overvoltages triggered by lightning strikes or by switching operations in the network.

A thermal isolating arrester for the varistors offers a high degree of protection against overload. The protective modules are available as connectors. All combination surge arresters have a remote signaling contact, which signals if the device fails.

Technical specifications

		5SD7442-1	5SD7443-1	5SD7444-1
Standards		IEC 61643-11; EN 61643-11		
Approvals		KEMA, UL/cUL		
Rated voltage U_N	V AC	240	240/415	
Rated arrester voltage U_C				
• L/N, N/PE, L/PEN	V AC	350		
Lightning impulse current I_{imp} (10/350µs)				
• L/N or L/PEN, 1P/3P	kA	25	25/75	25/75
• N/PE	kA	100	--	100
Rated discharge surge current I_n (8/20µs)				
• L/N or L/PEN, 1P/3P	kA	25	25/75	25/75
• N/PE	kA	100	--	100
Protection level U_p				
• L/N, N/PE, L/PEN	kV	≤ 1.5		
Follow current discharge capacity I_{fi} (AC)				
• L/N or L/PEN	kA	25	25	25
• N/PE	kA	100	--	100
Response time t_A				
• L/N or L/PEN	ns	≤ 100	≤ 100	≤ 100
• L-(N)-PE	ns	≤ 100	--	≤ 100
Max. back-up fuse	Acc. to IEC 61643-1			
• For stub wiring	A	315 gL/gG		
• For V-wiring	A	125 gL/gG		
Short-circuit withstand current with max. back-up fuse	kA _{rms}	25		
Temperature range	°C	-40 ... +80		
Degree of protection		IP20, with connected conductors		
Conductor cross-section				
• Finely stranded	mm ²	2.5 ... 25		
• Solid	mm ²	2.5 ... 35		
Mounting width	Acc. to DIN 43880	4	6	8
Visual function/fault indication		Yes		

Overvoltage Protection Devices

5SD7 combination surge arresters, type 1 and type 2

Selection and ordering data

Version	Mount- ing width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	MW							kg
Combination surge arresters								
	2-pole For TN-S and TT systems With remote signaling	4	5SD7442-1		1	1 unit	037	0.741
	3-pole For TN-C systems With remote signaling	6	5SD7443-1		1	1 unit	037	1.004
	4-pole For TN-S and TT systems With remote signaling	8	5SD7444-1		1	1 unit	037	1.403

5SD7 combination surge arresters, type 1 / type 2

Overview

Combination surge arresters type 1 / 2 are compact designs which can be used as both lightning arresters type 1 and surge arresters type 2.

They protect low-voltage systems against overvoltages triggered by lightning strikes or by switching operations in the network.

A thermal isolating arrester for the varistors offers a high degree of protection against overload. The protective modules are available as connectors. The combination surge arresters can be fitted either with or without a remote signaling contact, which signals if the device fails.

Technical specifications

		5SD7411-2	5SD7412-2 5SD7412-3	5SD7413-2 5SD7413-3	5SD7414-2 5SD7414-3	5SD7483-6 5SD7483-7
Standards		IEC 61643-11				
Approvals		KEMA, UL/cUL				
Rated voltage U_N	V AC	690	240	240/415		--
Rated arrester voltage U_C						
• L/N, N/PE, L/PEN	V	800 AC	335 AC			1000 DC
Lightning impulse current I_{imp} (10/350μs)						
• L/N or L/PEN, 1P/3P	kA	35	12.5	12.5/37.5	12.5	≤ 5
• N/PE	kA	--	50	--	50	--
Rated discharge surge current I_n (8/20μs)						
• L/N or L/PEN, 1P/3P	kA	35	12.5	12.5/37.5	12.5/50	15
• N/PE	kA	--	50	--		--
Max. discharge surge current I_{max} (8/20 μs)						
• L/N	kA	100	12.5	50/150	50	40
• N/PE	kA	--	50	--	50	--
Protection level U_p						
• L/N, N/PE, L/PEN	kV	≤ 4.5	2	≤ 1.2	≤ 1.2/1.7	≤ 3.5
Response time t_A						
• L/N or L/PEN	ns	≤ 100	≤ 25			
• L-(N)-PE	ns	--	≤ 100	--	≤ 100	≤ 25
Max. back-up fuse acc. to IEC 61643-1						
• For stub wiring	A	400 gL/gG	160 gL/gG	100 gL/gG	160 gL/gG	--
• For V-wiring	A	125 gL/gG	80 gL/gG			--
Short-circuit withstand current with max. back-up fuse	kA _{rms}	50	25			
Temperature range	°C	-40 ... +80				
Degree of protection		IP20, with connected conductors				
Conductor cross-section						
• Finely stranded	mm ²	16 ... 50	1.5 ... 25			
• Solid	mm ²	16 ... 50	1.5 ... 35			

Overvoltage Protection Devices

5SD7 combination surge arresters, type 1 / type 2

Selection and ordering data

Version	Mount- ing width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
Combination surge arresters								
    	1-pole NEW With remote signaling	-- ¹⁾	5SD7411-2		1	1 unit	037	3.300
	2-pole For TN-S and TT systems							
	• Without remote signaling	2	5SD7412-2		1	1 unit	037	0.348
	• With remote signaling	2	5SD7412-3		1	1 unit	037	0.330
	3-pole For TN-C systems							
	• Without remote signaling	3	5SD7413-2		1	1 unit	037	0.551
	• With remote signaling	3	5SD7413-3		1	1 unit	037	0.557
	4-pole For TN-S and TT systems							
	• Without remote signaling	4	5SD7414-2		1	1 unit	037	0.671
	• With remote signaling	4	5SD7414-3		1	1 unit	037	0.677
	3-pole, plug-in NEW For protecting the DC part of the photovoltaic systems up to 1000 V DC acc. to IEC 50539-11							
	• Without remote signaling	3	5SD7483-6		1	1 unit	037	0.410
	• With remote signaling	3	5SD7483-7		1	1 unit	037	0.416

¹⁾ No modular installation device.

Overview

Surge arresters type 2 are used downstream of lightning arresters type 1 in main distribution boards or sub-distribution boards. They protect low-voltage systems against transient overvoltages, such as those triggered by switching operations.

A thermal isolating arrester for the varistors offers a high degree of protection against overload. The protective modules are available as connectors. The surge arresters have an optional remote signaling contact, which signals if the device fails.

Technical specifications

		Standard design						
		N/PE		5SD7481-1	5SD7463-0 5SD7463-1	5SD7464-0 5SD7464-1	5SD7473-1	5SD7483-5
Standards Approvals		5SD7481-0	5SD7461-0 5SD7461-1					
		IEC 61643-11; EN 61643-11 KEMA	--	KEMA	--	--	--	KEMA, UL/cUL
Rated voltage U_N	V AC	240	240	690	240/415	240/415	500	554/960
Rated arrester voltage U_C								
• L/N	V AC	--	350	800	--	--	--	750
• L/N or L/PEN	V AC	--	--	--	350	350	580	--
• N/PE	V AC	260	--	--	--	260	--	--
Rated discharge surge current I_n (8/20μs)								
• L/N	kA	--	20	15	--	--	--	45
• L/N or L/PEN, 1P	kA	--	--	--	20	20	15	--
• N/PE	kA	20	--	--	--	20	--	--
Max. discharge surge current I_{max} (8/20 μs)								
• L/N	kA	--	40	30	--	--	--	90
• L/N or L/PEN, 1P	kA	--	--	--	40	40	--	--
• L/N or L/PEN, 1P/multi-pole	kA	--	--	--	--	--	30	--
• N/PE	kA	40	--	--	--	40	--	--
Lightning impulse current I_{imp} (10/350μs)	kA	12	--					
Protection level U_p								
• L/N or L/PEN	kV	--	≤ 1.4	≤ 5	≤ 1.4	≤ 1.4	≤ 2.5	≤ 2.7
• N/PE	kV	≤ 1.5	--	--	--	≤ 1.5	--	--
Response time t_A								
• L/N or L/PEN	ns	--	≤ 25	≤ 100	≤ 25	≤ 25	≤ 25	≤ 25
• N/PE	ns	≤ 100	--	--	--	≤ 100	--	--
Max. back-up fuse acc. to IEC 61643-1								
• For stub wiring	A	125 gL/gG	125 gL/gG	100 gL/gG	125 gL/gG			100 gL/gG
• For V-wiring	A	63 gL/gG	63 gL/gG	--	63 gL/gG			80 gL/gG
Short-circuit withstand current with max. back-up fuse	kA _{rms}	25						
Temperature range	°C	-40 ... +80						
Degree of protection		IP20, with connected conductors						
Conductor cross-section								
• Finely stranded	mm ²	1.5 ... 25						
• Solid	mm ²	1.5 ... 35						
Mounting width according to DIN 43880	MW	1	1	2	3	4	3	3
Visual function/fault indication		Yes						

Overvoltage Protection Devices

5SD7 surge arresters, type 2

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		Narrow design		
		5SD7422-0 5SD7422-1	5SD7423-0 5SD7423-1	5SD7424-0 5SD7424-1
Standards		IEC 61643-11 (DIN VDE 06754-6)		
Approvals		KEMA/UL/ cUL		
Rated voltage U_N	V AC	240	240/415	240/415
Rated arrester voltage U_C				
• L/N or L/PEN	V AC	350	350	350
• N/PE	V AC	264	--	264
Rated discharge surge current I_n (8/20 μs)				
• L/N or L/PEN, 1P/3P	kA	20	20	20
• N/PE	kA	20	--	20
Max. discharge surge current I_{max} (8/20 μs)				
• L/N or L/PEN, 1P/3P	kA	40	40	40
• N/PE	kA	40	--	40
Protection level U_p				
• L/N or L/PEN	kV	≤ 1.4	≤ 1.4	≤ 1.4
• N/PE	kV	≤ 1.5	--	≤ 1.5
Response time t_A				
• L/N	ns	≤ 25	≤ 25	≤ 25
• N/PE	ns	≤ 100	--	≤ 100
Max. back-up fuse		Acc. to IEC 61643-1		
• For stub wiring	A	125 gL/gG		
• For V-wiring	A	63 gL/gG		
Short-circuit withstand current with max. back-up fuse	kA _{rms}	25	25	25
Temperature range	°C	-40 ... +80		
Degree of protection		IP20, with connected conductors		
Conductor cross-section				
• Finely stranded	mm ²	1.5 ... 16		
• Solid	mm ²	1.5 ... 25		
Mounting width	mm	26	38	50
Visual function/fault indication		Yes		

Selection and ordering data

Version	Mounting width mm (MW)	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
Surge arresters, standard design								
	1-pole, N/PE							
	• Without remote signaling	1	5SD7481-0		1	1 unit	037	0.122
	1-pole							
	• Without remote signaling	1	5SD7461-0		1	1 unit	037	0.133
	• With remote signaling	1	5SD7461-1		1	1 unit	037	0.139
	• With remote signaling							
		2	5SD7481-1		1	1 unit	037	0.418

Overvoltage Protection Devices

5SD7 surge arresters, type 2

Version	Mounting width mm (MW)	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
 3-pole, 3+0 circuit For TN-C systems • Without remote signaling • With remote signaling For IT systems • With remote signaling	3		5SD7463-0		1	1 unit	037	0.362
	3		5SD7463-1		1	1 unit	037	0.371
	3		5SD7473-1		1	1 unit	037	0.371
	3		5SD7483-5		1	1 unit	037	0.256
	3							
 4-pole, 3+1 circuit For TN-S and TT systems • Without remote signaling • With remote signaling	4		5SD7464-0		1	1 unit	037	0.415
	4		5SD7464-1		1	1 unit	037	0.432
	4							

Surge arresters, narrow design

 2-pole For TN-S and TT systems - Without remote signaling - With remote signaling	24 (1 1/3)		5SD7422-0		1	1 unit	037	0.220
	24 (1 1/3)		5SD7422-1		1	1 unit	037	0.229
 3-pole For TN-C systems - Without remote signaling - With remote signaling	36 (2)		5SD7423-0		1	1 unit	037	0.320
	36 (2)		5SD7423-1		1	1 unit	037	0.317
 4-pole For TN-S and TT systems - Without remote signaling - With remote signaling	48 (2 2/3)		5SD7424-0		1	1 unit	037	0.407
	48 (2 2/3)		5SD7424-1		1	1 unit	037	0.423

Overvoltage Protection Devices

5SD7 surge arresters, type 3

Overview

Type 3 surge arresters are installed downstream of type 2 surge arresters in sub-distribution boards as close as possible to the load. The protective modules are available as connectors. In the event of a power failure, a remote signaling is output over an optocoupler with open collector output.

		2-pole 5SD7432-1	5SD7432-2	5SD7432-4	4-pole 5SD7434-1
Standards		IEC 61643-11; EN 61643-11			
Approvals		KEMA/UL/ cUL			KEMA
Rated voltage U_N	V AC	230	120	24	230/400
Rated load current I_L (at 30 °C)	A	26	26	26	3 × 26
Rated arrester voltage U_C	V AC	253	150	34	335
Rated discharge surge current I_n (8/20 μs)	kA	3	2.5	1	1.5
Max. discharge surge current I_{max} (8/20 μs)	kA	10	10	2	4.5
Combined surge U_{oc}	kV	6	6	2	4
Protection level U_p	L–N/1	≤ 1500/≤ 600	≤ 850/≤ 350	≤ 550/≤ 100	≤ 1200
Response time t_A	ns	≤ 100	≤ 100	≤ 100	≤ 100
Required back-up fuse, max.	A	25 gL/gG	25 gL/gG	25 gL/gG	25 gL/gG
Temperature range	°C	-40 ... +85			
Degree of protection		IP20, with connected conductors			
Conductor cross-section					
• Finely stranded	mm ²	0.2 ... 4			
• Solid	mm ²	0.2 ... 2.5			
Mounting width	Acc. to DIN 43880	MW	1	1	2
Visual function/fault indication		Yes			

Selection and ordering data

	Version	Rated voltage U_N	Mount- ing width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		V AC	MW							kg
	Surge arresters, plug-in									
	• 2-pole									
	With remote signaling	24	1		5SD7432-4		1	1 unit	037	0.086
		120	1		5SD7432-2		1	1 unit	037	0.089
		230	1		5SD7432-1		1	1 unit	037	0.087
	• 4-pole									
	With remote signaling	230/400	2		5SD7434-1		1	1 unit	037	0.135

Selection and ordering data

Using the plug-in parts in the various overvoltage protection devices

Plug-in parts	5SD7428-1	5SD7428-0	5SD7468-1	5SD7488-0	5SD7488-1	5SD7488-2	5SD7488-4	5SD7498-1	5SD7498-3
Surge arresters, type 2	5SD7424-1 5SD7424-0 5SD7423-1 5SD7423-0 5SD7422-1 5SD7422-0	5SD7424-1 5SD7424-0 5SD7422-1 5SD7422-0	5SD7461-0 5SD7461-1 5SD7463-0 5SD7463-1 5SD7464-0 5SD7464-1	5SD7481-0 5SD7464-0 5SD7464-1	5SD7485-0 5SD7485-1	5SD7481-1 5SD7483-5	5SD7481-1	5SD7473-0 5SD7473-1 5SD7483-0 5SD7483-1	5SD7483-6 5SD7483-7

Plug-in parts	5SD7428-1	5SD7448-1	5SD7418-0	5SD7418-1	5SD7418-2	5SD7418-3
Lightning arresters, type 1 and surge arresters type 1+2	5SD7444-1 5SD7443-1 5SD7442-1 5SD7441-1	5SD7444-1 5SD7443-1 5SD7442-1 5SD7441-1	5SD7414-1 5SD7412-1 5SD7444-1 5SD7442-1	5SD7414-1 5SD7413-1 5SD7412-1 5SD7411-1	5SD7412-2 5SD7412-3 5SD7414-2 5SD7412-2	5SD7412-2 5SD7412-3 5SD7413-2 5SD7413-3 5SD7414-2 5SD7414-3

For arresters	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
							kg

Plug-in parts for lightning arresters, type 1



5SD7418-0	1	1 unit	037	0.254
5SD7418-1	1	1 unit	037	0.270

Plug-in parts for surge arresters, type 1 / type 2



5SD7418-0	1	1 unit	037	0.254
5SD7428-1	1	1 unit	037	0.069
5SD7448-1	1	1 unit	037	0.148

Plug-in parts for surge arresters, type 1 and type 2



5SD7418-2	1	1 unit	037	0.101
5SD7418-3	1	1 unit	037	0.132
5SD7498-3	1	1 unit	037	0.103

Plug-in parts for surge arresters, type 2



5SD7428-0	1	1 unit	037	0.067
5SD7428-1	1	1 unit	037	0.069
5SD7468-1	1	1 unit	037	0.066
5SD7488-0	1	1 unit	037	0.056
5SD7488-1	1	1 unit	037	0.053
5SD7498-1	1	1 unit	037	0.065

Plug-in part for surge arresters, type 3



5SD7432-1
5SD7432-2
5SD7432-3
5SD7432-4

5SD7437-1	1	1 unit	037	0.042
5SD7437-2	1	1 unit	037	0.041
5SD7437-3	1	1 unit	037	0.041
5SD7437-4	1	1 unit	037	0.042



5SD7434-1

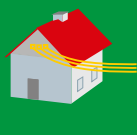
5SD7438-1	1	1 unit	037	0.060
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Overvoltage Protection Devices

Configuration

More information

Selection of overvoltage protection devices

Situation Which type of building do you want to protect? Generally speaking, all our devices are suitable for residential, office, industrial and commercial buildings.	Systems	Basic protection For installation upstream of counters in main distribution boards or in combined main/sub-distribution boards
Low risk buildings  - No outer lightning protect. - Power supply over ground conductor	TN-S and TT systems	Surge arresters, type 2 5SD7424-0, 5SD7424-1, 5SD7464-0, 5SD7464-1 Combination surge arresters, type 1 / type 2 5SD7414-2, 5SD7414-3 
High-risk buildings  - Outer lightning protection system	TN-S and TT systems	Lightning arresters, type 1 5SD7414-2, 5SD7414-3, 5SD7414-1 
 - Power supply over overhead lines	TN-C systems	Lightning arresters, type 1 5SD7413-2, 5SD7413-3, 5SD7413-1 
 - Grounded aerial structures	TN-S and TT systems	Surge arresters, type 1 and type 2 5SD7444-1 
IT systems without N conductor incorporated in the cable	TN-C systems	Surge arresters, type 1 and type 2 5SD7443-1, 5SD7441-1  Typically, IT systems are only installed in special building sections. TN-C, TN-S and TT systems are generally still used in the area of the main distribution board. In this case, the protective devices shown above must be installed.

Medium protection

For installation upstream of counters in main distribution boards or in combined main/sub-distribution boards

Surge arresters, type 2

5SD7424-0, 5SD7424-1,
5SD7464-0, 5SD7464-1



Only required if the distance between the main and sub-distribution boards is **> 10 m**

Surge arresters, type 2

5SD7423-0, 5SD7423-1,
5SD7463-0, 5SD7463-1



Only required if the distance between the main and sub-distribution boards is **> 10 m**

Surge arresters, type 2

5SD7424-0, 5SD7424-1,
5SD7464-0, 5SD7464-1



Surge arresters, type 2

5SD7423-0, 5SD7423-1,
5SD7463-0, 5SD7463-1



Surge arresters, type 2

5SD7424-0, 5SD7424-1,
5SD7464-0, 5SD7464-1



Only required if the distance between the main and sub-distribution boards is **> 10 m**

Surge arresters, type 2

5SD7423-0, 5SD7423-1,
5SD7463-0, 5SD7463-1



Only required if the distance between the main and sub-distribution boards is **> 10 m**

Surge arresters, type 2

5SD7473-1
3-pole (3+0 circuit)
 $U_c = 580 \text{ V AC}$



Fine protection

For installation directly upstream of the terminal equipment

Surge arresters, type 3

For installation in sub-distribution boards or control cabinets
5SD7432-x and 5SD7434-1
With remote signaling



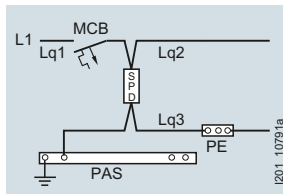
Overvoltage Protection Devices

Configuration

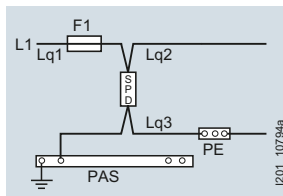
Dimensioning of conductor cross-sections

The different conductor cross-sections (Lq 1 to Lq 3) must be dimensioned according to the rated current of the miniature circuit breaker or of the fuse.

V-wiring



a) Protection of the SPD using miniature circuit breakers



b) Protection of the SPD using fuses

PAS = equipotential bonding strip

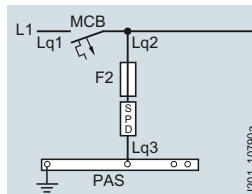
Conductor cross-sections for lightning arresters (type 1) and combination surge arresters (type 1 and type 2) for V-wiring

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm ²]	Lq 3 [mm ²]
25	10	16
35	10	16
40	10	16
50	10	16
63	10	16
80	16	16
100	25	16
125	35	16

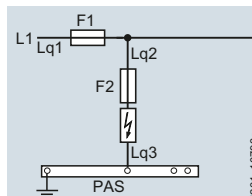
Conductor cross-sections for surge arresters (type 2) for V-wiring

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm ²]	Lq 3 [mm ²]
25	6	6
35	6	6
40	6	6
50	10	10
63	10	10

Stub wiring



a) Protection of the SPD using miniature circuit breakers



b) Protection of the SPD using fuses

Conductor cross-sections for lightning arresters (type 1) and combination surge arresters (type 1 and type 2) for stub wiring

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm ²]	Lq 3 [mm ²]	F2 fuse [A gL/gG]
25	6	16	/
35	10	16	/
40	10	16	/
50	10	16	/
63	10	16	/
80	10	16	/
100	16	16	/
125	16	16	/
160	25	25	/
200	35	35	160 ¹⁾
250	35	35	160 ¹⁾
315	50	50	160 ¹⁾
> 315	50	50	160 ¹⁾

¹⁾ Recommended fuse.

Conductor cross-sections for surge arresters (type 2) for stub wiring

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm ²]	Lq 3 [mm ²]	F2 fuse [A gL/gG]
25	6	6	/
32	6	6	/
40	6	6	/
50	6	6	/
63	10	10	/
80	10	10	/
100	16	16	/
125	16	16	/
> 125	16	16	125

In the case of surge arresters type 3, the following conductor cross-sections are generally used:

- Rigid: up to 4 mm²
- Flexible: up to 2.5 mm²

NEW
**5SD7 surge arresters
for measuring and control technology**

Overview

The surge arresters for measuring and control technology are overvoltage protection modules that comprise two parts, a basic element and a plug-in part. Their application area is the protection of signal circuits.

The cable shields of basic elements can be either directly or indirectly grounded.

The mounting width of the surge arresters is 1 MW.

Through the number of integrated paths, it is possible to protect up to four signal cores or two double cores against overvoltages.

The arresters are made up of two parts (plug-in part and base element).

A mechanical encoding ensures protection against reverse polarity.

Technical specifications

		5SD7502-0KB	5SD7522-7KA 5SD7522-7KB	5SD7530-4KA 5SD7530-4KB	5SD7540-6KB	5SD7541-7KB	5SD7550-4KA 5SD7550-4KB
IEC category/EN type		C1/C2/C3/D1	C1/C2/C3/D1	C1/C2/C3/D1	C1/C2/C3/D1	C1/C2/C3/D1	C1/C2/C3/D1
Max. continuous voltage U_C							
• Direct voltage	V DC	68	40	14	27	40	14
• AC voltage	V AC	48	28	8.3	18.6	28	9.8
Rated current I_N	mA	2000	450	450	2000	300	450
Lightning test current I_{imp}	Per path kA	5	2.5	2.5	2.5	2.5	2.5
Lightning test current I_{imp}	10/350 μ s						
Rated discharge current I_n	8/20 μ s						
• Core - Core	kA	--	10	10	0.365	--	10
• Core - Ground	kA	20	10	10	0.365	10	10
Total surge current I_N	8/20 μ s	kA	40	20	20	20	20
Output voltage limit at 1 kV/μs							
• Core - Core	V	--	≤ 55	25	25	--	≤ 25
• Core - Ground	V	≤ 600	≤ 450	40	40	≤ 55	≤ 25
Residual voltage at I_n							
• Core - Core	V	--	≤ 55	--	--	--	≤ 25
• Core - Ground	V	--	--	--	--	≤ 55	≤ 40
Response time t_A							
• Core - Core	ns	--	≤ 1	≤ 500	≤ 1	--	≤ 500
• Core - Ground	ns	≤ 100	≤ 100	≤ 500	≤ 100	≤ 1	≤ 500
Insertion loss a_E							
• Symmetrical in the 50 Ω system	dB	--	Typ. 0.5 (1.5 MHz)	--	0.1 dB to 1 MHz	--	--
• Asymmetrical in the 50 Ω system	dB	0.1 (1 MHz)	--	--	--	0.5 (1.5 MHz)	--
• Symmetrical in the 100 Ω system	dB	--	--	0.2 (5 MHz)	--	--	0.2 (5 MHz)
Limit frequency f_G (3 dB)							
• Symmetrical in the 50 Ω system	MHz	--	Typ. 8	--	6 MHz (typ.)	--	--
• Asymmetrical in the 50 Ω system	MHz	--	--	--	--	Typ. 8	--
• Symmetrical in the 100 Ω system	MHz	--	--	Typ. 70	--	--	Typ. 70
Resistance per path	Ω	--	2.2	--	--	4.7	2.2
Temperature range	$^{\circ}$ C	-40 ... +85					
Degree of protection according to IEC 60529/EN 60529		IP20					
Flammability class acc. to UL 94		V0					
Test standards		EN 61643-21	EN 61643-21	IEC 61643-21/ EN 61643-21	IEC 61643-21/ EN 61643-21	EN 61643-21	IEC 61643-21

Overvoltage Protection Devices

5SD7 surge arresters for measuring and control technology

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			5SD7581-2	5SD7581-3	5SD7581-5	5SD7581-6
IEC category/EN type			B2/C1/C2/C3/D1	B2/C1/C2/C3/D1	B2/C1/C2/C3/D1	B2/C1/C2/C3/D1
Max. continuous voltage U_C						
• Direct voltage	V DC		185	3.3	12	15
• AC voltage	V AC		128	2.3	8.3	10.4
Rated current I_N			mA	380	1500	380
Rated discharge current I_n			8/20 μ s			
• Core - Core	kA		5	0.10	5	0.25
• Core - Ground	kA		5	2	5	0.25
Total surge current I_N			8/20 μ s	kA	10	10
Output voltage limit at 1 kV/ μ s						
• Core - Core	V		≤ 250	≤ 9	≤ 25	≤ 25
• Core - Ground	V		≤ 250	≤ 700	≤ 700	≤ 650
Residual voltage at I_n						
• Core - Core	V		≤ 120	≤ 15	≤ 25	≤ 55
• Core - Ground	V		≤ 120	≤ 700	≤ 55	≤ 700
Response time t_A						
• Core - Core	ns		≤ 100	≤ 1	≤ 100	≤ 1
• Core - Ground	ns		≤ 100	≤ 100	≤ 100	≤ 100
Insertion loss a_E						
• Symmetrical in the 50 Ω system	dB		--	--	--	--
• Asymmetrical in the 50 Ω system	dB		--	--	--	--
• Symmetrical in the 100 Ω system	dB		--	≤ 1	0.3	--
Temperature range			°C	-40 ... +85		
Degree of protection according to IEC 60529/EN 60529				IP20		
Test standards				EN 61643-21	EN 61643-21	EN 61643-21

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Overvoltage Protection Devices

NEW
**5SD7 surge arresters
for measuring and control technology**
Selection and ordering data

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
Surge arresters							
	Coarse protection for 2 single-sided grounded signal leads	5SD7502-0KB		1	1 unit	037	0.090
	Protection for 2-wire signal circuits grounded via gas arresters	5SD7522-7KA		1	1 unit	037	0.101
	Protection for 2-wire signal circuits grounded directly	5SD7522-7KB		1	1 unit	037	0.100
	Protection for 2 signal cores with shared reference potential, grounded via gas arresters	5SD7530-4KA		1	1 unit	037	0.091
	Protection for 2 signal cores with shared reference potential, grounded directly	5SD7530-4KB		1	1 unit	037	0.090
	Protection for one 4-wire signal circuit, operated without potential to ground, grounded directly	5SD7540-6KB		1	1 unit	037	0.100
	Protection for 4 signal cores with shared reference potential, grounded directly	5SD7541-7KB		1	1 unit	037	0.100
	Protection for field bus systems and signal circuits in 3-wire or 4-wire method, grounded via gas arresters	5SD7550-4KA		1	1 unit	037	0.102
	Protection for field bus systems and signal circuits in 3-wire or 4-wire method, grounded directly	5SD7550-4KB		1	1 unit	037	0.101
	Overvoltage protection for analog and digital telecommunication interfaces, connection: RJ45	5SD7581-2		1	1 unit	037	0.326
	Overvoltage protection for Ethernet interfaces up to 10 Gbits	5SD7581-3		1	1 unit	037	0.315
	D-SUB-9 intermediate connectors with overvoltage protection for RS 485 interfaces	5SD7581-5		1	1 unit	037	0.321
	D-SUB-9 intermediate connectors with overvoltage protection for V.24 interface	5SD7581-6		1	1 unit	037	0.322

* You can order this quantity or a multiple thereof.

Overvoltage Protection Devices

5SD7 surge arresters for measuring and control technology

Plug-in parts	5SD7502-0	5SD7522-7	5SD7530-4	5SD7540-6	5SD7550-4	5SD7541-7
Surge arresters	5SD7502-0KB	5SD7522-7KA 5SD7522-7KB	5SD7530-4KA 5SD7530-4KB	5SD7540-6KB	5SD7550-4KA 5SD7550-4KB	5SD75SD7541-7KB

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
							kg

Accessories for surge arresters



5SD7522-7	1	1 unit	037	0.024
5SD7530-4	1	1 unit	037	0.042
5SD7540-6	1	1 unit	037	0.047
5SD7550-4	1	1 unit	037	0.026
5SD7541-7	1	1 unit	037	0.026
5SD7502-0	1	1 unit	037	0.020