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6/2 **Introduction**

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For further technical product information:

Configuration Manual

Overvoltage Protection Devices
Article No.: 3ZW1012-5SD74-0AC1

Siemens Industry Online Support:
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Application example
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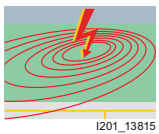
Overview

Devices		Page	Application	Standards
	**5SD7 lightning arresters, type 1**	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
	**5SD7 combination surge arresters, type 1 + type 2**	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
	**5SD7 combination surge arresters, type 1 / type 2**	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
	**5SD7 surge arresters, type 2**	6/9	With plug-in protective modules for TN-C, TN-S and TT systems. Rated voltage 350 V AC, rated discharge current 20 kA and discharge surge current 40 kA. For installation in sub-distribution boards.	EN 61643-11
	**5SD7 surge arresters, type 3**	6/13	With plug-in protective modules for single-phase and three-phase systems. Rated voltage, single-phase 24 V, 120 V, 230 V AC and three-phase 230/400 V AC. For installation as close as possible upstream from the terminal equipment.	EN 61643-11
	**Configuration**	6/14	Everything you need to know about overvoltage protection: function, mounting and technical connections.	
	**5SD7 surge arresters, for measuring and control technology**	6/17	With plug-in protective modules for measuring and control technology for installation in signal circuits.	EN 61643-21

Minimum order quantity (PS) or a multiple thereof can be ordered.

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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. For this reason, the lightning conductors can 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, EN 61643-11			
Approvals			KEMA, UL/cUL		
Rated voltage U_N	V AC	690	240	240/415	
Rated arrester voltage U_C	V AC	800	350	350	350
Lightning impulse current I_{imp} (10/350 µs)					
• L-N or L-(PE)N, 1P/3P	kA	35	25	25/75	25/75
• N-PE	kA	--	100	--	100
Rated discharge surge current I_n (8/20 µs)					
• L-N or L-(PE)N, 1P/3P	kA	35	25	25/75	25/75
• N-PE	kA	--	100	--	100
Protection level U_p					
• L-(PE)N	kV	≤ 4.50	≤ 1.50	≤ 1.50	≤ 1.50
• L-PE	kV	--	≤ 2.50	--	≤ 2.50
• N-PE	kV	--	≤ 1.50	--	≤ 1.50
Follow current discharge capacity I_{fi} (AC)					
• L-N or L-(PE)N 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-(PE)N	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	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

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Selection and ordering data

	Version	Mounting width MW	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Lightning arresters								
	**1-pole** With remote signaling	--[1]		**5SD7411-2**		1	1 unit	1BK
	**2-pole** For TN-S and TT systems With remote signaling	4		**5SD7412-1**		1	1 unit	1BK
	**3-pole** For TN-C systems With remote signaling	6		**5SD7413-1**		1	1 unit	1BK
	**4-pole** For TN-S and TT systems With remote signaling	8		**5SD7414-1**		1	1 unit	1BK
Replacement plugs								
	**N-PE:** • 5SD7412-1 • 5SD7414-1			**5SD7418-0**		1	1 unit	1BK
	**L-N / L-PEN:** • 5SD7412-1 • 5SD7413-1 • 5SD7414-1			**5SD7418-1**		1	1 unit	1BK

[1] No modular installation device.

Minimum order quantity (PS) or a multiple thereof can be ordered.

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Overview

Combination surge arresters, type 1 + type 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 **Approvals**			IEC 61643-11; EN 61643-11 KEMA, UL/cUL		
Rated voltage U_N		V AC	240	240/415	
Rated arrester voltage U_C		V AC	350		
Lightning impulse current I_{imp} (10/350 µs)					
• L-N or L-(PE)N • N-PE		kA kA	25 100	25 --	25 100
Rated discharge surge current I_n (8/20 µs)					
• L-N or L-(PE)N • N-PE		kA kA	25 100	25 --	25 100
Protection level U_p					
• L-(PE)N		kV	≤ 1.50	≤ 1.50	≤ 1.50
• L-PE		kV	≤ 2.20	--	≤ 2.20
• N-PE		kV	≤ 1.50	--	≤ 1.50
Follow current discharge capacity I_{fi} (AC)					
• L-N or L-(PE)N • N-PE		kA kA	25 100	25 --	25 100
Response time t_A					
• L-N or L-(PE)N • L-(N)-PE		ns ns	≤ 25 ≤ 100	≤ 25 --	≤ 25 ≤ 100
Max. back-up fuse	Acc. to IEC 61643-1				
• For stub wiring • For V-wiring		A A	315 gL/gG 125 gL/gG		
Short-circuit withstand current					
With max. back-up fuse		kA	25		
Temperature range		°C	-40 ... +80		
Degree of protection			IP20, with connected conductors		
Conductor cross-section					
• Finely stranded • Solid		mm^2 mm^2	2.5 ... 25 2.5 ... 35		
Mounting width	Acc. to DIN 43880	MW	4	6	8
Visual function/fault indication			Yes		

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5SD7 combination surge arresters, type 1 + type 2

Selection and ordering data

	Version	Mounting width MW	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Combination surge arresters								
	**2-pole** For TN-S and TT systems With remote signaling	4		**5SD7442-1**		1	1 unit	1BK
	**3-pole** For TN-C systems With remote signaling	6		**5SD7443-1**		1	1 unit	1BK
	**4-pole** For TN-S and TT systems With remote signaling	8		**5SD7444-1**		1	1 unit	1BK
Replacement plugs								
	**N-PE:** • 5SD7442-1 • 5SD7444-1			**5SD7418-0**		1	1 unit	1BK
	**L-N / L-PEN (type 2):** • 5SD7442-1 • 5SD7443-1 • 5SD7444-1			**5SD7428-1**		1	1 unit	1BK
	**L-N / L-PEN (type 1):** • 5SD7442-1 • 5SD7443-1 • 5SD7444-1			**5SD7448-1**		1	1 unit	1BK

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Minimum order quantity (PS) or a multiple thereof can be ordered.

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Overview

Combination surge arresters type 1 / type 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	5SD7413-2 5SD7413-3	5SD7414-2 5SD7414-3	5SD7483-6
Standards **Approvals**		IEC 61643-11	KEMA			EN 50539
Rated voltage U_N	V AC	690	240	240/415		--
Rated arrester voltage U_C						
• L-L-N, N-PE, L-(PE)N	V	800 AC	335 AC			1000 DC
Lightning impulse current I_{imp} (10/350 µs)						
• L-N or L-(PE)N	kA	35	12.5	12.5	12.5	≤ 5
• N-PE	kA	--	50	--	50	--
Rated discharge surge current I_n (8/20 µs)						
• L-N or L-(PE)N	kA	35	12.5	12.5	12.5	15
• N-PE	kA	--	50	--		--
Max. discharge surge current I_{max} (8/20 µs)						
• L-N	kA	100	12.5	50	50	40
• N-PE	kA	--	50	--	50	--
Protection level U_p						
• L-(PE)N	kV	≤ 4.50	≤ 1.20	≤ 1.20	≤ 1.20	≤ 3.50
• L-PE	kV	--	--	--	≤ 2.0	--
• N-PE	kV	--	≤ 1.70	--	≤ 1.70	--
Response time t_A						
• L-N or L-(PE)N	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			--
• For V-wiring	A	125 gL/gG	80 gL/gG			--
Short-circuit withstand current With max. back-up fuse	kA	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			

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Minimum order quantity (PS) or a multiple thereof can be ordered.

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5SD7 combination surge arresters, type 1 / type 2

Selection and ordering data

	Version	Mounting width MW	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Combination surge arresters								
	**1-pole** With remote signaling	--[1]		**5SD7411-2**		1	1 unit	1BK
	**2-pole** For TN-S and TT systems • Without remote signaling	2		**5SD7412-2**		1	1 unit	1BK
	**3-pole** For TN-C systems • Without remote signaling • With remote signaling	3 3		**5SD7413-2** **5SD7413-3**		1 1	1 unit 1 unit	1BK 1BK
	**4-pole** For TN-S and TT systems • Without remote signaling • With remote signaling	4 4		**5SD7414-2** **5SD7414-3**		1 1	1 unit 1 unit	1BK 1BK
For photovoltaic systems								
	**3-pole, plug-in** For protecting the DC part of **photovoltaic systems** up to 1000 V DC acc. to EN 50539-11 • Without remote signaling	3		**5SD7483-6**		1	1 unit	1BK
Replacement plugs								
	**N-PE:** • 5SD7412-2, 5SD7412-3 • 5SD7414-2, 5SD7414-3			**5SD7418-2**		1	1 unit	1BK
	**L-N / L-PEN:** • 5SD7412-2, 5SD7412-3 • 5SD7413-2, 5SD7413-3 • 5SD7414-2, 5SD7414-3			**5SD7418-3**		1	1 unit	1BK
	**L-PE (PV):** • 5SD7483-6, 5SD7483-7			**5SD7498-3**		1	1 unit	1BK

[1] No modular installation device.

Minimum order quantity (PS) or a multiple thereof can be ordered.

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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						
		5SD7481-0	5SD7461-0 5SD7461-1	5SD7481-1	5SD7463-0 5SD7463-1	5SD7464-0 5SD7464-1	5SD7473-1	5SD7483-5
Standards **Approvals**		IEC 61643-11; EN 61643-11 KEMA					--	KEMA, UL/cUL
Rated voltage U_N	V AC	240/415	240/415	400/690	240/415	240/415	400/690	554/960
Rated arrester voltage U_C								
• L-N or L-(PE)N	V AC	--	350	800	350	350	580	760
• N-PE	V AC	260	--	--	--	260	--	--
Rated discharge surge current I_n (8/20 µs)								
• L-N or L-(PE)N	kA	--	20	15	20	20	15	15
• N-PE	kA	20	--	--	--	20	--	--
Max. discharge surge current I_{max} (8/20 µs)								
• L-N or L-(PE)N	kA	--	40	30	40	40	30	30
• N-PE	kA	40	--	--	--	40	--	--
Protection level U_p								
• L-(PE)N	kV	--	≤ 1.50	≤ 5	≤ 1.50	≤ 1.60	≤ 2.50	≤ 2.90
• L-PE	kV	--	--	--	--	≤ 1.90	--	--
• N-PE	kV	≤ 1.50	--	--	--	≤ 1.50	--	--
Response time t_A								
• L-N or L-(PE)N	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	100 gL/gG	125 gL/gG			100 gL/gG
• For V-wiring	A	--	--	80 gL/gG	80 gL/gG			80 gL/gG
Short-circuit withstand current With max. back-up fuse	kA	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 acc. to DIN 43880	MW	1	1	2	3	4	3	3
Visual function/fault indication		Yes						

Minimum order quantity (PS) or a multiple thereof can be ordered.

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5SD7 surge arresters, type 2

			Narrow design		
			5SD7422-0 5SD7422-1	5SD7424-0 5SD7424-1	5SD7424-2 5SD7424-3
Standards **Approvals**			IEC 61643-11; EN 61643-11 KEMA/UL/cUL		KEMA
Rated voltage U_N		V AC	240	240/415	240/415
Rated arrester voltage U_C					
• L-N or L-(PE)N		V AC	350	350	350
• N-PE		V AC	264	264	264
Rated discharge surge current I_n (8/20 µs)					
• L-N or L-(PE)N		kA	20	20	20
• N-PE		kA	20	20	40
Max. discharge surge current I_{max} (8/20 µs)					
• L-N or L-(PE)N		kA	40	40	40
• N-PE		kA	40	40	80
Protection level U_p					
• L-(PE)N		kV	≤ 1.50	≤ 1.50	≤ 1.50
• L-PE		kV	≤ 1.90	≤ 1.90	≤ 1.90
• N-PE		kV	≤ 1.50	≤ 1.50	≤ 1.50
Response time t_A					
• L-N		ns	≤ 25	≤ 25	≤ 25
• N-PE		ns	≤ 100	≤ 100	≤ 100
Max. back-up fuse	Acc. to IEC 61643-1				
• For stub wiring		A	315 gL/gG		
• For V-wiring		A	63 gL/gG		
Short-circuit withstand current					
With max. back-up fuse		kA	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	Acc. to DIN 43880	mm	26	50	50
Visual function/fault indication			Yes		

Selection and ordering data

	Version	Mounting width MW	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Surge arresters, standard design								
	**1-pole, N-PE**							
	• Without remote signaling	1		**5SD7481-0**		1	1 unit	1BK
	**1-pole**							
	• Without remote signaling	1		**5SD7461-0**		1	1 unit	1BK
	• With remote signaling	1		**5SD7461-1**		1	1 unit	1BK
	• With remote signaling	2		**5SD7481-1**		1	1 unit	1BK

Minimum order quantity (PS) or a multiple thereof can be ordered.

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	Version	Mounting width MW	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	**3-pole, 3+0 circuit**							
	For TN-C systems							
	• Without remote signaling	3		**5SD7463-0**		1	1 unit	1BK
	• With remote signaling	3		**5SD7463-1**		1	1 unit	1BK
	For IT systems							
	• With remote signaling	3		**5SD7473-1**		1	1 unit	1BK
	• With remote signaling	3		**5SD7483-5**		1	1 unit	1BK
	**4-pole, 3+1 circuit**							
	For TN-S and TT systems							
	• Without remote signaling	4		**5SD7464-0**		1	1 unit	1BK
	• With remote signaling	4		**5SD7464-1**		1	1 unit	1BK
Replacement plugs								
	**N-PE:** • 5SD7481-0 • 5SD7464-0, 5SD7464-1			**5SD7488-0**		1	1 unit	1BK
	L-N / L-PEN: • 5SD7461-0, 5SD7461-1 • 5SD7463-0, 5SD7463-1 • 5SD7464-0, 5SD7464-1			**5SD7468-1**		1	1 unit	1BK
	L-PEN: • 5SD7481-1, • 5SD7483-5			**5SD7488-2**		1	1 unit	1BK
	L-PEN: • 5SD7481-1			**5SD7488-4**		1	1 unit	1BK
	L-PE (IT/PV): • 5SD7473-0, 5SD7473-1 • 5SD7483-0, 5SD7483-1			**5SD7498-1**		1	1 unit	1BK

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Minimum order quantity (PS) or a multiple thereof can be ordered.

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5SD7 surge arresters, type 2

	Version	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	d					
Surge arresters, narrow design								
	**2-pole** For TN-S and TT systems							
	- Without remote signaling	24 (1 1/3)		**5SD7422-0**		1	1 unit	1BK
	- With remote signaling	24 (1 1/3)		**5SD7422-1**		1	1 unit	1BK
	**4-pole** For TN-S and TT systems							
	- Without remote signaling	48 (2 2/3)		**5SD7424-0**		1	1 unit	1BK
	- With remote signaling	48 (2 2/3)		**5SD7424-1**		1	1 unit	1BK
	- Without remote signaling	48 (2 2/3)		**5SD7424-2**		1	1 unit	1BK
	- With remote signaling	48 (2 2/3)		**5SD7424-3**		1	1 unit	1BK
Replacement plugs								
	**N-PE:** • 5SD7422-0, 5SD7422-1 • 5SD7424-0, 5SD7424-1			**5SD7428-0**		1	1 unit	1BK
	**N-PE:** • 5SD7424-2, 5SD7424-3			**5SD7428-2**		1	1 unit	1BK
	**L-N / L-PEN:** • 5SD7422-0, 5SD7422-1 • 5SD7423-0, 5SD7423-1 • 5SD7424-0, 5SD7424-1			**5SD7428-1**		1	1 unit	1BK

Minimum order quantity (PS) or a multiple thereof can be ordered.

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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 signal is output over an opto-coupler with open collector output.

Technical specifications

			2-pole			4-pole
			5SD7432-1	5SD7432-2	5SD7432-4	5SD7434-1
Standards			IEC 61643-11; EN 61643-11			
Approvals			KEMA/UL/cUL			--
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	264	150	34	335
Rated discharge surge current I_n (8/20 µs)		kA	3	3	1	1.5
Combined surge U_{oc}		kV	6	6	2	4
Protection level U_p	L-N / L-PE, N-PE	V	≤ 1350/≤ 1500	≤ 850/≤ 950	≤ 250/≤ 650	≤ 1200/≤ 1500
Response time t_A		ns	≤ 100	≤ 100	≤ 100	≤ 100
Required back-up fuse, max.		A (gG/B/C)	25	25	25	25
Temperature range		°C	-40 ... +80			
Degree of protection			IP20, with connected conductors			
Conductor cross-section						
• Finely stranded		mm^2	0.2 ... 2.5			
• Solid		mm^2	0.2 ... 4			
Mounting width	Acc. to DIN 43880	MW	1	1	1	2
Visual function/fault indication			Yes			

Selection and ordering data

	Version	Rated voltage U_N	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	MW	d					
	Surge arresters, plug-in								
	• 2-pole								
	With remote signaling	24	1		**5SD7432-4**		1	1 unit	1BK
		120	1		**5SD7432-2**		1	1 unit	1BK
		230	1		**5SD7432-1**		1	1 unit	1BK
	• 4-pole								
	With remote signaling	230/400	2		**5SD7434-1**		1	1 unit	1BK

Minimum order quantity (PS) or a multiple thereof can be ordered.

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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 buildings, office buildings, industrial and commercial buildings.	Systems	Basic protection For installation in main distribution boards or in combined main/sub-distribution boards
Low-risk buildings  - No outer lightning protection - Power supply via ground conductor	**TN-S and TT system**	**Surge arresters, type 2** 5SD7424-2, 5SD7424-3 **Combination surge arresters, type 1 / type 2** 5SD7414-2, 5SD7414-3 
	TN-C system	**Surge arresters, type 2** 5SD7463-0, 5SD7463-1 **Combination surge arresters, type 1 / type 2** 5SD7413-2, 5SD7413-3 
High-risk buildings  - Outer lightning protection system  - Power supply via overhead lines  - Grounded antenna structures	**TN-S and TT system**	**Lightning arresters, type 1** 5SD7414-2, 5SD7414-3, 5SD7414-1 
	TN-C system	**Lightning arresters, type 1** 5SD7413-2, 5SD7413-3, 5SD7413-1 
	TN-S and TT system	**Combination surge arresters, type 1 + type 2** 5SD7444-1 
	TN-C system	**Combination surge arresters, type 1 + type 2** 5SD7443-1, 5SD7441-1 
	IT systems without N conductor incorporated in the cable	Typically, IT systems are only installed in special building sections. In the area of the main distribution board, TN-C, TN-S or TT systems are generally still used. In this case, the protective devices shown above must be installed.

Minimum order quantity (PS) or a multiple thereof can be ordered.

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Medium protection For installation upstream of counters in main distribution boards or in combined main/sub-distribution boards	Fine protection For installation directly upstream of the terminal equipment
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 3** For installation in sub-distribution boards or control cabinets 5SD7432-x and 5SD7434-1 With remote signaling
Surge arresters, type 2 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  Only required if the distance between the main and sub-distribution boards is **> 10 m**	
Surge arresters, type 2 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  Only required if the distance between the main and sub-distribution boards is **> 10 m**	
Surge arresters, type 2 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 V AC 	

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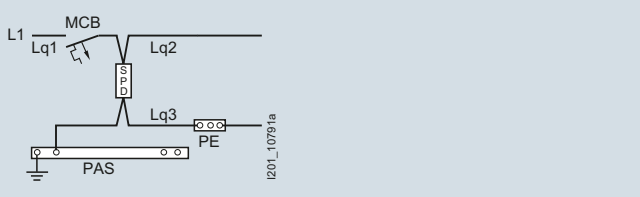
Configuration

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



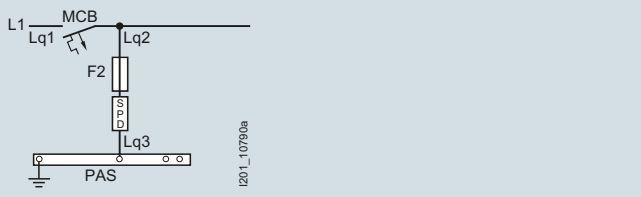
a) Protection of the SPD using miniature circuit breakers



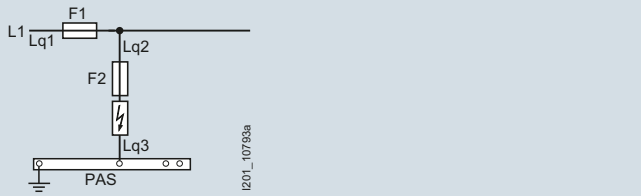
b) Protection of the SPD using fuses

PAS = Equipotential bonding strip

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 + type 2) for V-wiring

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm²]	Lq 3 [mm²]
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 [mm²]	Lq 3 [mm²]
25	6	6
35	6	6
40	6	6
50	10	10
63	10	10

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

MCB/fuse (F1) upstream [A gL/gG]	Lq 2 [mm²]	Lq 3 [mm²]	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 [mm²]	Lq 3 [mm²]	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

Minimum order quantity (PS) or a multiple thereof can be ordered.

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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
Maximum 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} 10/350 µs	Per path	kA	5	2.5	2.5	2.5	2.5	2.5
Rated discharge current I_n	8/20 µs							
• 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 µs	kA	40	20	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		°C	-40 ... +85					
Degree of protection acc. to IEC 60529/EN 60529			IP20					
Flammability class acc. to UL 94			V0					
Test standards			EN 61643-21/ EN 61643-21	EN 61643-21/ EN 61643-21	IEC 61643-21/ EN 61643-21	IEC 61643-21/ EN 61643-21	EN 61643-21/ EN 61643-21	IEC 61643-21

KA: Basic element grounded via gas arrester
KB: Basic element directly grounded

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5SD7 surge arresters, for measuring and control technology

			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
Maximum 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	1000
Rated discharge current I_n	8/20 µs					
• Core – Core		kA	5	0.10	5	0.25
• Core – Ground		kA	5	2	5	0.25
Total surge current I_N	8/20 µs	kA	10	10	10	5
Output voltage limit at 1 kV/µs						
• 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 acc. to IEC 60529/EN 60529			IP20			
Test standards			EN 61643-21	EN 61643-21	EN 61643-21	EN 61643-21

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Minimum order quantity (PS) or a multiple thereof can be ordered.

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Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Surge arresters							
	**Coarse protection for 2 single-sided grounded signal lines**		**5SD7502-0KB**		1	1 unit	1BK
	Protection for 2-wire signal circuits grounded via gas arresters		**5SD7522-7KA**		1	1 unit	1BK
	Protection for 2-wire signal circuits grounded directly		**5SD7522-7KB**		1	1 unit	1BK
	Protection for 2 signal cores with shared reference potential, grounded via gas arresters		**5SD7530-4KA**		1	1 unit	1BK
	Protection for 2 signal cores with shared reference potential, grounded directly		**5SD7530-4KB**		1	1 unit	1BK
	Protection for one 4-wire signal circuit, operated without potential to ground, grounded directly		**5SD7540-6KB**		1	1 unit	1BK
	Protection for 4 signal cores with shared reference potential, grounded directly		**5SD7541-7KB**		1	1 unit	1BK
	Protection for fieldbus systems and signal circuits in 3-wire or 4-wire method, grounded via gas arresters		**5SD7550-4KA**		1	1 unit	1BK
	Protection for fieldbus systems and signal circuits in 3-wire or 4-wire method, grounded directly		**5SD7550-4KB**		1	1 unit	1BK
	**Overvoltage protection for analog and digital telecommunication interfaces, connection: RJ45**		**5SD7581-2**		1	1 unit	1BK
	**Overvoltage protection for Ethernet interfaces up to 10 Gbits**		**5SD7581-3**		1	1 unit	1BK
	**D-SUB-9 intermediate connectors with overvoltage protection for RS 485 interfaces**		**5SD7581-5**		1	1 unit	1BK
	**D-SUB-9 intermediate connectors with overvoltage protection for V.24 interface**		**5SD7581-6**		1	1 unit	1BK

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Minimum order quantity (PS) or a multiple thereof can be ordered.

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Notes