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Data sheet 5SD7412-1RC

SPD Type 1, 2P 1+1 FM UN 240/415V, UC 350V a.c. 1+1 CIRCUIT

General data	
standard	IEC 61643-11: 2011, EN 61643-11: 2012
product designation	Surge protection device
SPD classification according to EN 61643-11	
● Test Class I, Type 1	Yes
● Test Class II, Type 2	No
● Test Class III, Type 3	No
number of SPD ports	1
design of the product	Lightning arresters
design of pole	1+N/PE
designation of the protective paths	L-N, L-PE, N-PE
fastening method	DIN rail NS 35
material of the enclosure	PBT
size of surge arrester	4 TE
degree of pollution	2
overvoltage category according to IEC 61010-1	III
protection class IP at connection all terminals	IP20
shock acceleration	25 gn
vibrational acceleration at 5 Hz ... 500 Hz limited to 2,5 h per axis	5 gn
relative humidity during operation	5 ... 95 %
installation altitude at height above sea level maximum	2 000 m
width	71.2 mm
height	95 mm
depth	71.2 mm
net weight	730 g
Electrical data	
type of distribution system	TT, TN-S
operating voltage	
● at AC	230 V
value range of the operating frequency	50 / 60 Hz
continuous operating voltage	
● at AC maximum	350 V
● between N and PE at AC maximum	350 V
● between L and (PE)N at AC maximum	350 V
discharge current	
● between L and (PE)N at (8/20) µs	25 kA
● between L and N at (8/20) µs	50 kA
● between L and PE at (8/20) µs	50 kA
● between L and PE at (8/20) µs	25 kA

● between N and PE at (8/20) µs	100 kA
total lightning impulse current at (10/350) µs	50 kA
lightning current peak value at (10/350) µs	
● lightning current peak value between L and PE	25 kA
● lightning current peak value between N and PE	100 kA
● lightning current peak value between L and N	25 kA
charge of the flash at (10/350) µs	
● charge of the flash between L and N	12.5 A·s
● charge of the flash between L and PE	12.5 A·s
● charge of the flash between N and PE	50 A·s
specific energy of the flash at (10/350) µs	
● between L and N	160
● between L and PE	160
● between N and PE	2 500
follow current extinguishing capability	
● between N and PE	100 A
● between L and N	50 kA
short-circuit rating (SCCR) at 264 V	50 kA
protection level	
● between L and N maximum	1.5 kV
● between L and PE maximum	2.5 kV
● between N and L	1.5 kV
● between N and PE maximum	1.5 kV
● between PE and N and/or L	1.5 kV
residual voltage	
● between L and (PE)N	
— at rated value of discharge current maximum	1.5 kV
● between L and PE	
— at rated value of discharge current maximum	2.5 kV
● between N and PE	
— at rated value of discharge current maximum	1.5 kV
response value of the surge voltage at 6 kV at (1.2/50) µs	
● between L and N	1.5 kV
● between L and PE	2.5 kV
● between N and PE	1.5 kV
● response time between L and (PE)N	100 ns
● response time between N and PE	100 ns
adjustable response factor of tripping current	1.6
fuse protection type at V-shaped connection	125 A AC (gG)
fuse protection type for T-connector	315 A AC (gG)
Connections/ Terminals	
type of electrical connection	Screw terminal
stripped length	18 mm
tightening torque	4.5 ... 4.5 N·m
connectable conductor cross-section	
● for finely stranded conductor	2.5 ... 25 mm²
● for rigid conductor	2.5 ... 35 mm²
● finely stranded	2.5 ... 25 mm²
AWG number as coded connectable conductor cross section	13 ... 2
design of the thread of the connection screw	M5
signal design	Optical, remote signaling contact
Indicator/remote signaling	
product component remote signaling contact	Yes
switching function of the remote signaling contacts	PDT contact
operating voltage of the remote signaling contacts at AC	12 ... 250 V
operational current of the remote signaling contacts at AC	10 mA ... 1 A
connection type of remote signaling contact	M2
connectable conductor cross-section for remote signaling contacts for rigid conductor	0.14 ... 1.5 mm²
connectable conductor cross-section for remote signaling	0.14 ... 1.5 mm²

contacts for finely stranded conductor	
AWG number as coded connectable conductor cross section for remote signaling contacts	28 ... 16
tightening torque for remote signaling contacts	0.25 N·m
stripped length of the cable for remote signaling contacts	7 mm

NEMA/UL - Data

type of surge protective device (SPD) according to UL	4CA
type of distribution system according to UL	1S
type of distribution system	TT, TN-S
designation of the protective paths according to UL	L-N, L-G, N-G
TOV behavior	
● at TOV test voltage (L-N)	415 V AC (5 s / withstand mode) / 457 V AC (120 min / safe failure mode)
● at TOV test voltage (N-PE)	1200 V (200 ms / withstand mode)
Measured Limiting Voltage (MLV)	
● between L and Ground (GND)	1.57 kV
● between L and N	1.35 kV
● between N and Ground (GND)	1.08 kV
Maximum Continuous Operating Voltage (MCOV)	
● between L and Ground (GND)	528 V
● between L and N	264 V
● between N and Ground (GND)	264 V
discharge current	
● between N and Ground (GND) according to UL rated value	20 kA
● between L and N according to UL rated value	20 kA
● between L and Ground (GND) according to UL rated value	20 kA
AWG number as coded connectable conductor cross section	
● according to UL	12 ... 2
● for remote signaling contacts according to UL	30 ... 14
operating voltage of the remote signaling contacts according to UL	125 V
operational current of the remote signaling contacts at AC according to UL	1 A
ambient temperature	
● during operation	-40 ... +80 °C
● during storage	-40 ... +80 °C
installation altitude above sea level according to UL	6 562 ft
gross weight [lb] according to UL	1.71 lb(av)
net weight [lb] according to UL	1.64 lb(av)
combustibility class according to UL 94	V0
standards according to UL	UL 1449 edition 4

Approvals Certificates

General Product Approval		other		Environment
CE EG-Konf.	Confirmation	EAC	Confirmation Miscellaneous	Environmental Confirmations

Environment

Environmental Confirmations

Further information

Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/lowvoltage/catalogs

Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=5SD7412-1RC
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/5SD7412-1RC
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=5SD7412-1RC
CAx-Online-Generator
http://www.siemens.com/cax

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Data sheet 5SD7414-1RC

SPD Type 1, 4P 3+1 FM UN 240/415V, UC 350V a.c. 3+1 CIRCUIT

General data	
standard	IEC 61643-11: 2011, EN 61643-11: 2012
product designation	Surge protection device
SPD classification according to EN 61643-11	
● Test Class I, Type 1	Yes
● Test Class II, Type 2	Yes
● Test Class III, Type 3	No
number of SPD ports	1
design of the product	Lightning arresters
design of pole	3+N/PE
designation of the protective paths	L-N, L-PE, N-PE
fastening method	DIN rail NS 35
material of the enclosure	PBT
size of surge arrester	8 TE
degree of pollution	2
overvoltage category according to IEC 61010-1	III
protection class IP at connection all terminals	IP20
shock acceleration	25 gn
vibrational acceleration at 5 Hz ... 500 Hz limited to 2,5 h per axis	5 gn
relative humidity during operation	5 ... 95 %
installation altitude at height above sea level maximum	2 000 m
width	142.4 mm
height	95 mm
depth	71.5 mm
net weight	1 433 g
Electrical data	
type of distribution system	TT, TN-S
operating voltage	
● at AC	230 V
value range of the operating frequency	50 / 60 Hz
continuous operating voltage	
● at AC maximum	350 V
● between N and PE at AC maximum	350 V
● between L and (PE)N at AC maximum	350 V
discharge current	
● between L and (PE)N at (8/20) µs	25 kA
● between L and N at (8/20) µs	50 kA
● between L and PE at (8/20) µs	25 kA
● between N and PE at (8/20) µs	50 kA

● between N and PE at (8/20) µs	100 kA
total lightning impulse current at (10/350) µs	100 kA
lightning current peak value at (10/350) µs	
● lightning current peak value between L and PE	25 kA
● lightning current peak value between N and PE	100 kA
● lightning current peak value between L and N	25 kA
charge of the flash at (10/350) µs	
● charge of the flash between L and N	12.5 A·s
● charge of the flash between L and PE	12.5 A·s
● charge of the flash between N and PE	50 A·s
specific energy of the flash at (10/350) µs	
● between L and N	160
● between L and PE	160
● between N and PE	2 500
follow current extinguishing capability	
● between N and PE	100 A
● between L and N	50 kA
short-circuit rating (SCCR) at 264 V	50 kA
protection level	
● between L and N maximum	1.5 kV
● between L and PE maximum	2.5 kV
● between N and L	1.5 kV
● between N and PE maximum	1.5 kV
● between PE and N and/or L	1.5 kV
residual voltage	
● between L and (PE)N	
— at rated value of discharge current maximum	1.5 kV
● between L and PE	
— at rated value of discharge current maximum	2.5 kV
● between N and PE	
— at rated value of discharge current maximum	1.5 kV
response value of the surge voltage at 6 kV at (1.2/50) µs	
● between L and N	1.5 kV
● between L and PE	2.5 kV
● between N and PE	1.5 kV
● response time between L and (PE)N	100 ns
● response time between N and PE	100 ns
adjustable response factor of tripping current	1.6
fuse protection type at V-shaped connection	125 A AC (gG)
fuse protection type for T-connector	315 A AC (gG)
Connections/ Terminals	
type of electrical connection	Screw terminal
stripped length	18 mm
tightening torque	4.3 ... 4.7 N·m
connectable conductor cross-section	
● for finely stranded conductor	2.5 ... 25 mm²
● for rigid conductor	2.5 ... 35 mm²
● finely stranded	2.5 ... 25 mm²
AWG number as coded connectable conductor cross section	13 ... 2
design of the thread of the connection screw	M5
signal design	Optical, remote signaling contact
Indicator/remote signaling	
product component remote signaling contact	Yes
switching function of the remote signaling contacts	PDT contact
operating voltage of the remote signaling contacts at AC	12 ... 250 V
operational current of the remote signaling contacts at AC	10 mA ... 1 A
connection type of remote signaling contact	M2
connectable conductor cross-section for remote signaling contacts for rigid conductor	0.14 ... 1.5 mm²
connectable conductor cross-section for remote signaling	0.14 ... 1.5 mm²

contacts for finely stranded conductor	
AWG number as coded connectable conductor cross section for remote signaling contacts	28 ... 15
tightening torque for remote signaling contacts	0.25 N·m
stripped length of the cable for remote signaling contacts	7 mm
NEMA/UL - Data	
type of surge protective device (SPD) according to UL	4CA
type of distribution system according to UL	3Y
type of distribution system	TT, TN-S
designation of the protective paths according to UL	L-L, L-N, L-G, N-G
TOV behavior	
● at TOV test voltage (L-N)	415 V AC (5 s / withstand mode) / 457 V AC (120 min / withstand mode)
● at TOV test voltage (N-PE)	1200 V (200 ms / withstand mode)
Measured Limiting Voltage (MLV)	
● between L and L	2.45 kV
● between L and Ground (GND)	1.57 kV
● between L and N	1.35 kV
● between N and Ground (GND)	1.08 kV
Maximum Continuous Operating Voltage (MCOV)	
● between L and L	528 V
● between L and Ground (GND)	528 V
● between L and N	264 V
● between N and Ground (GND)	264 V
discharge current	
● between N and Ground (GND) according to UL rated value	20 kA
● between L and N according to UL rated value	20 kA
● between L and Ground (GND) according to UL rated value	20 kA
● between L and L according to UL rated value	20 kA
AWG number as coded connectable conductor cross section	
● according to UL	12 ... 2
● for remote signaling contacts according to UL	30 ... 14
operating voltage of the remote signaling contacts according to UL	125 V
operational current of the remote signaling contacts at AC according to UL	1 A
ambient temperature	
● during operation	-40 ... +80 °C
● during storage	-40 ... +80 °C
installation altitude above sea level according to UL	6 562 ft
gross weight [lb] according to UL	3.56 lb(av)
net weight [lb] according to UL	3.16 lb(av)
combustibility class according to UL 94	V0

Approvals Certificates

General Product Approval			other		Environment
Confirmation	CE EG-Konf.	EAC	Miscellaneous	Confirmation	Environmental Confirmations

Environment

Environmental Confirmations

Further information

Information on the packaging

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Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=5SD7414-1RC

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/5SD7414-1RC

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=5SD7414-1RC

CAx-Online-Generator
http://www.siemens.com/cax

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