New surge protective devices

SUITABLE SOLUTIONS
FOR ALL TYPES
OF INSTALLATION
AND ALL RISK LEVELS

CATALOGUE
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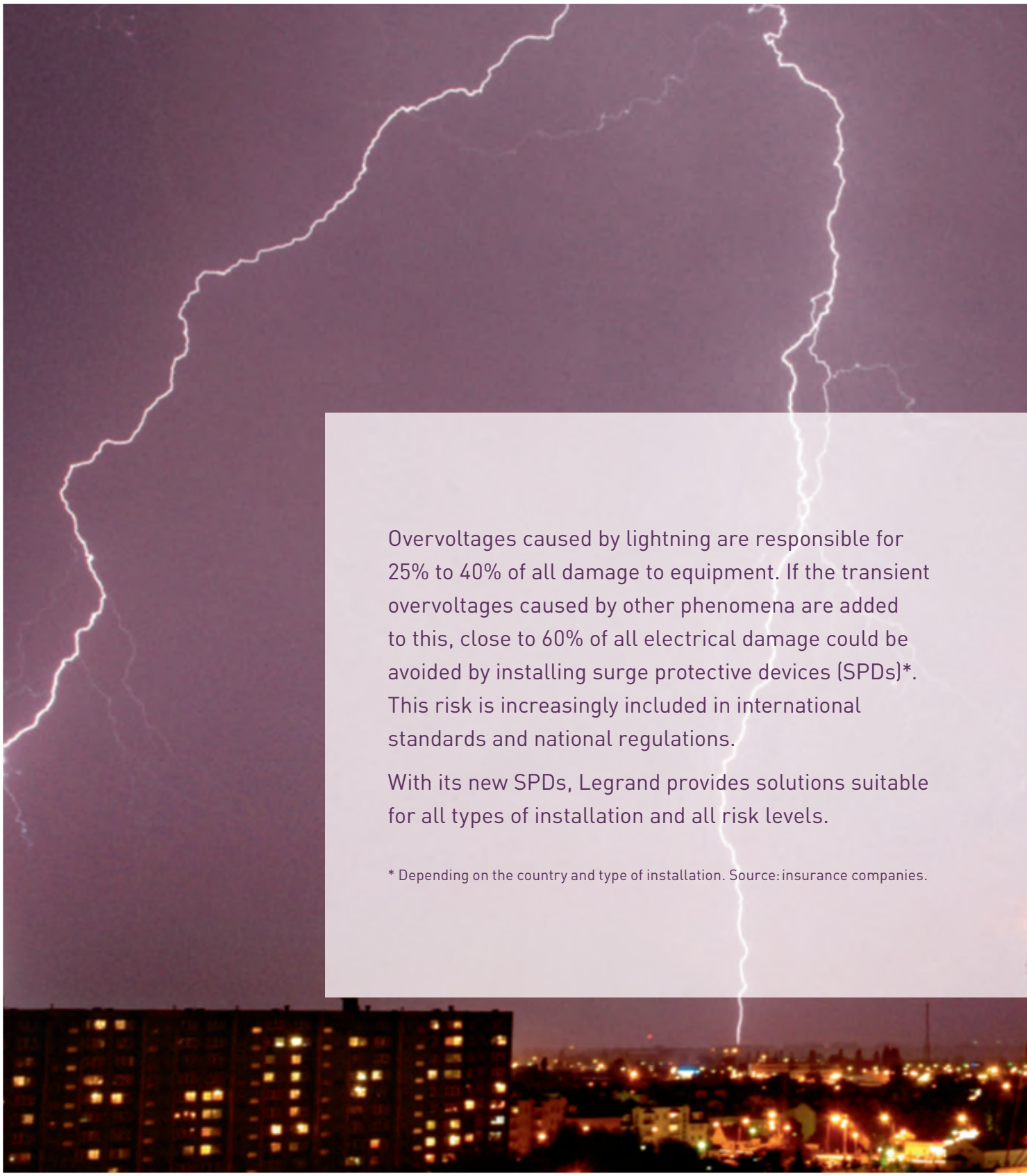
THE GLOBAL SPECIALIST
IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

legrand®



Overvoltages caused by lightning are responsible for 25% to 40% of all damage to equipment. If the transient overvoltages caused by other phenomena are added to this, close to 60% of all electrical damage could be avoided by installing surge protective devices (SPDs)*. This risk is increasingly included in international standards and national regulations.

With its new SPDs, Legrand provides solutions suitable for all types of installation and all risk levels.

* Depending on the country and type of installation. Source: insurance companies.

New Surge Protective Devices (SPDs)

New SPDs, a complete range for all risk levels

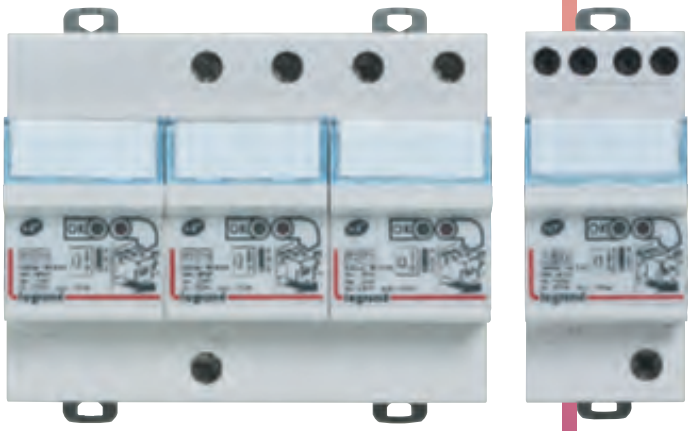
For protection against transient overvoltages to be effective, the position of the SPD in the installation and the type of SPD must be appropriate for the level of risk. Conforming fully to international standards, Legrand's range of type 1 (T1+T2) and 2 (T2) SPDs meet all the requirements of low voltage installations.

SPDs WITHOUT INTEGRATED SHORT CIRCUIT PROTECTION (T1+T2 AND T2)

These SPDs require associated protection by means of a circuit breaker or fuse. They are designed to protect commercial and industrial installations.

SPDS WITH INTEGRATED SHORT CIRCUIT PROTECTION (T2) - PROTECTION WITH MCBS

These SPDs incorporate all the necessary protection against different end-of-life scenarios, including internal short-circuits. With the ability to withstand short-circuit currents up to 25 kA at the point of installation, this SPD makes it easy to choose the safe option and is simplicity itself to install.



SPDS WITH INTEGRATED SHORT CIRCUIT PROTECTION (T2+T3) - PROTECTION WITH FUSES

Protection against overloads and short-circuits is achieved by fuses.
It also provides the guarantee of having the ideal match between the SPD and its associated protection, for maximum safety.

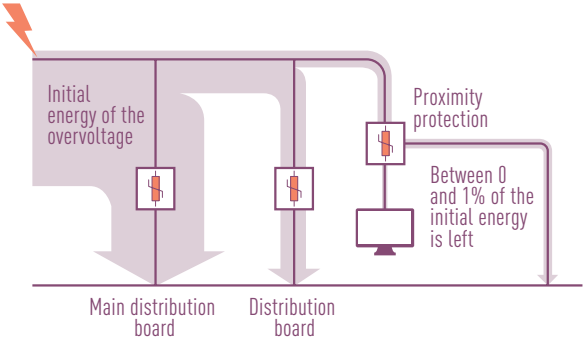
STANDARDS EN 61643-11 AND IEC 61643-11

The entire range of Legrand SPDs conforms to standards EN and IEC 61643-11.
The standards distinguish three types of SPD: T1, T2 and T3.

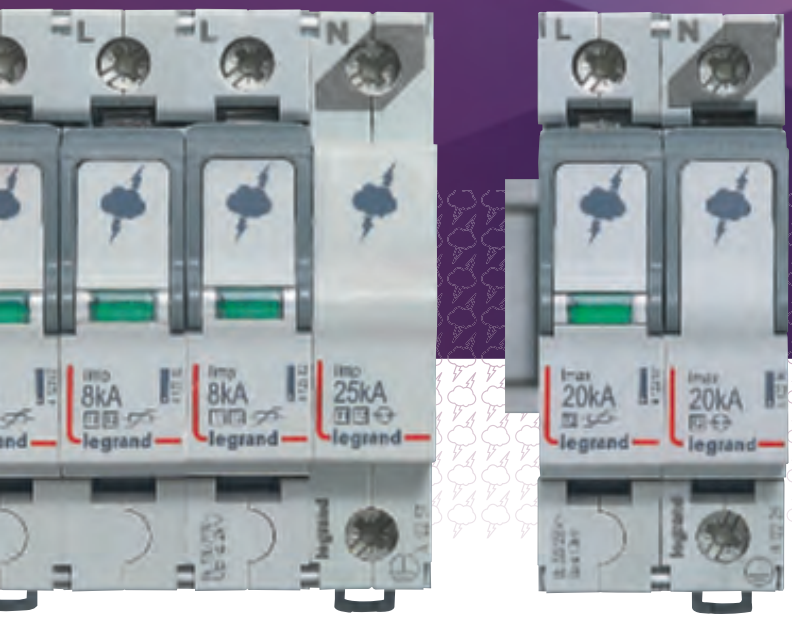
T1 SPDs are designed to provide protection in the main distribution boards and T2 SPDs mostly provide protection in secondary distribution boards or consumer units.
T3 SPDs provide specific protection, usually of socket outlets or multi-outlets, but can also be found in distribution boards. T1+T2 SPDs, which are increasingly used at the supply end of installations, comply with the specifications of both T1 and T2 SPDs.

CASCADED PROTECTION

The only way to discharge all the initial energy is to install SPDs at every level of the installation.



Optimum protection and adaptability to suit local habits



The new Legrand 1P+N and 3P+N SPDs ensure optimum protection for electronic equipment, while providing a universal solution suited to the installation practices of all markets. Available with all three types of SPD.

OPTIMUM PROTECTION

1P+N and 3P+N SPDs combine two technologies to optimum effect (encapsulated spark gap on the neutral spur and voltage-dependent resistors on the phase spurs). They therefore offer superior benefits to 2P and 4P SPDs (voltage-dependent resistors on all the spurs):

- common mode protection (between P/N and Earth) and earth leakage protection (between P and Neutral)
- no earth leakage currents, so no unwanted tripping of the earth leakage modules located upstream in the installation

In addition, Legrand 1P+N and 3P+N SPDs, T1+T2 and T2, can be installed upstream of the earth leakage protection devices, including in a TT system, so as to be as close as possible to where the power line enters the building.

1 Dedicated protection of the neutral

SPDS... NOT JUST PROTECTION AGAINST THE EFFECTS OF LIGHTNING

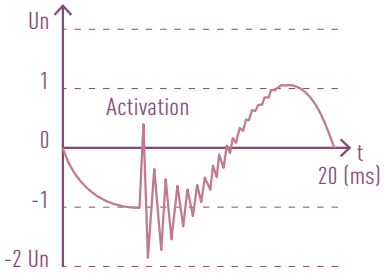
The operation of distribution networks, installations and equipment can cause very harmful transient overvoltages. As well as providing protection against the effects of lightning, installing SPDs also protects sensitive equipment against this type of disturbance.

ADAPTABILITY

To adapt to the installation practices of different countries, the 1P+N and 3P+N SPDs are available with the neutral on the right or on the left side.

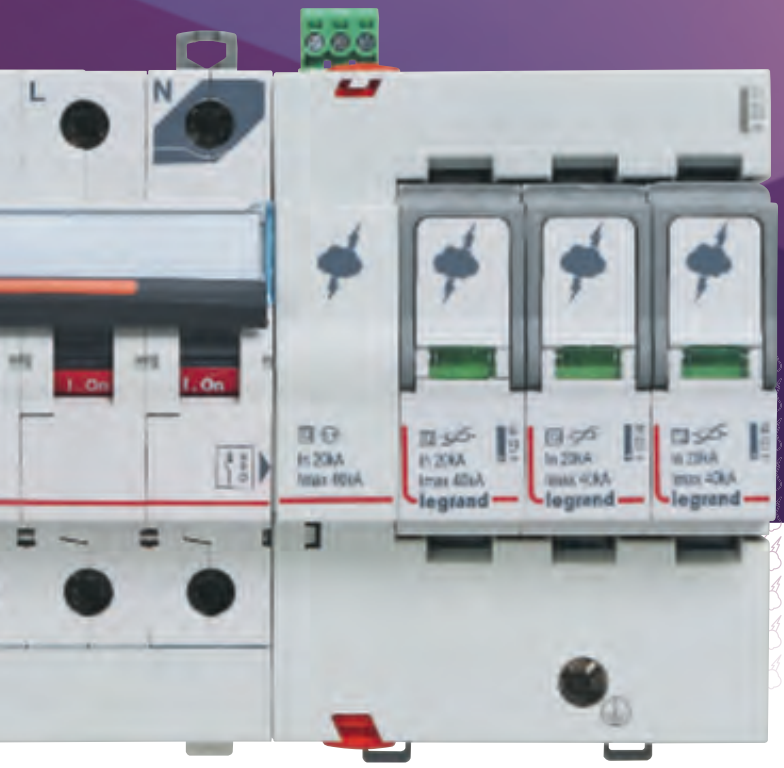
Neutral on the right

Neutral on the left



Typical switching overvoltage

SPDs with integrated **short-circuit protection,** increased continuity of service, reliability and safety



SPDs with integrated short-circuit protection make installation and maintenance both safe and easy.

SAVE INSTALLATION TIME

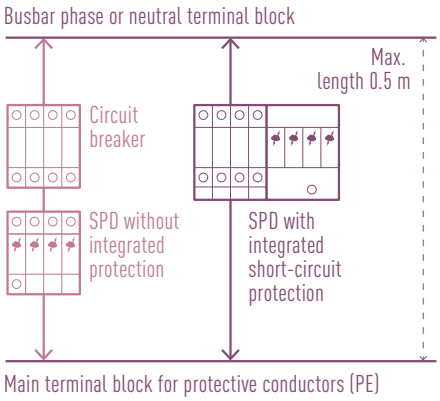
The SPD + circuit breaker assembly, with no extra wiring between the two devices, guarantees speed and reliability.

SIMPLER MAINTENANCE AND INCREASED SAFETY

- The circuit breaker + SPD assembly is joined together in the factory by a locking system.
- A single auxiliary to ascertain the status of the SPD (operational or plug-in modules out of service) and its associated circuit breaker.
- It is not possible to reset the circuit breaker if a plug-in module is missing or out of service.
- If a plug-in module is out of service, the circuit breaker remains ON and the SPD can still protect the other poles.

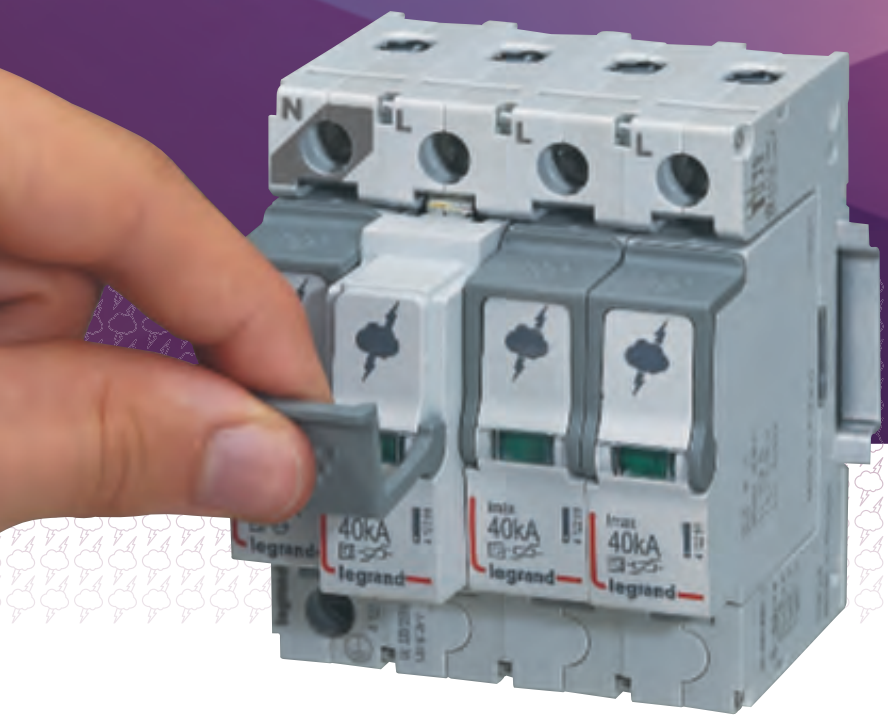
INCREASED RELIABILITY AND MORE EFFECTIVE PROTECTION

With no intermediate wiring between the SPD and the short circuit protection device (MCB or fuse), it is easier to create the shortest possible connection between the supply terminal block and the main terminal block for protective conductors, which provides more effective protection of the equipment



Design and functionality, perfect integration in distribution boards

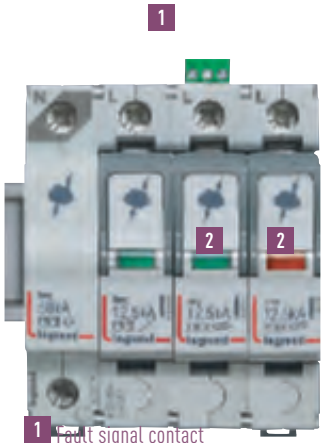
Clear, easily identifiable marking for easier maintenance, design in line with other Legrand modular equipment, well-thought out features: the new SPDs integrate perfectly in the modular rows of Legrand distribution boards.



Easier to handle: the plug-in modules are easy to replace thanks to the extraction handles.

STATUS INDICATOR AND REMOTE MONITORING OF INFORMATION

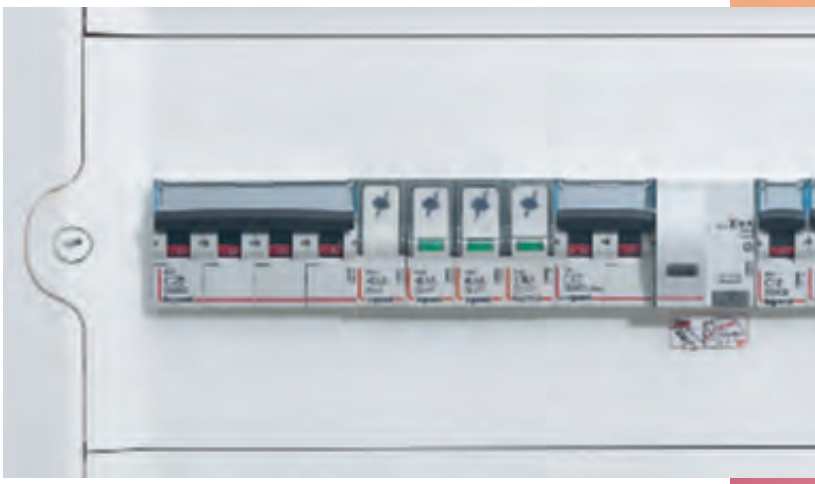
A plug-in module status indicator indicates whether the SPD is operational (green) or out of service (orange). The fault signal contact integrated in all T2 SPD with integrated short-circuit protection and available for all protection levels of conventional SPDs provides remote monitoring of this information.
The fault signal contact on the add-on SPDs with integrated short-circuit protection also indicates the status of the circuit breaker (ON/OFF).



1 Fault signal contact
2 Status indicator

DESIGN AND MARKING

New design in line with the DX³ range of circuit breakers, but with dedicated marking for easy identification of the product once installed in the distribution board.

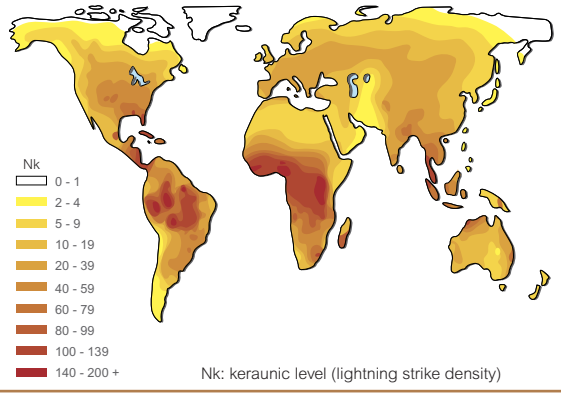


3 Dedicated marking for easier identification and maintenance of the SPDs.

Choose your SPD and its associated protection

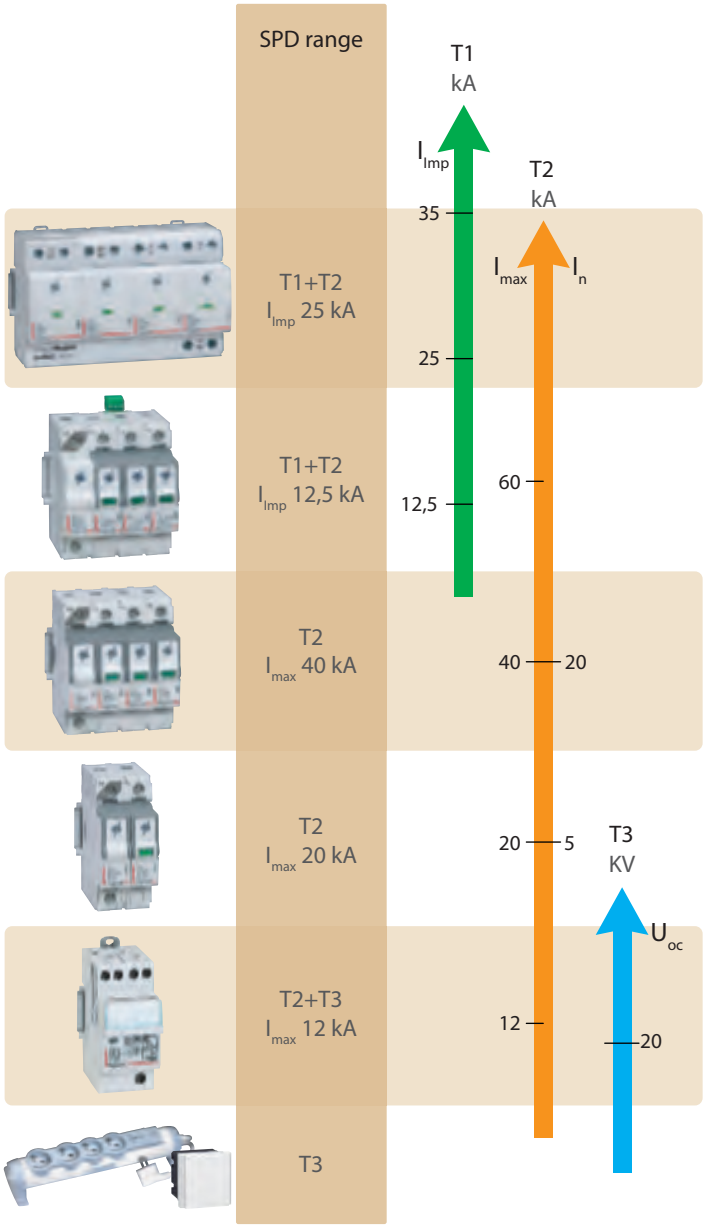
SPDs with neutral on left

STEP 1 SELECT YOUR AREA



Nk: keraunic level (lightning strike density)

The Legrand offer is suitable for all 3 types of SPD



Non linear indicative representation of the 3 typical SPD levels

STEP 2 ANSWER THE QUESTIONS

- **Is there a lightning protection system on the building (lightning conductor, etc) or less than 50 m away?**
  4 possible levels (Protection Level), determined by the Design office
  → ✓ **Yes**

✗ **NO**

- **Is the power line partly or fully overhead (final 2 km)?**
  → ✓ **YES or "I don't know"**

✗ **NO**

- **Does the building open to the public or provide medical care (museums, town halls, retirement homes, hotels, banks, shops, etc)?**
- **Is the building isolated or in a mountainous area?**
- **Is it an industrial building?**
  → ✓ **YES or "I don't know"**

✗ **NO**

- **Does the building contain expensive equipment?**
- **Is maximum continuity of service required?**
- **Is it a farm building?**
  → ✓ **YES or "I don't know"**

✗ **NO**

I DON'T HAVE ANY INFORMATION

Catalogue numbers with "(Iscxx kA)" incorporate short-circuit protection (they do not need external protection to be added)
1: If Isc > 25 kA, use the SPD with the recommended catalogue number without built-in Isc protection, and choose an external associated protection device with a suitable Isc capacity
2: If Isc > 10 kA, select a T2 Imax 20 kA SPD
3: If Isc > 6 kA, select a similar SPD, but with Isc 10 kA (0 039 5x to 0 039 7x)

PROXIMITY PROTECTION OF SENSITIVE EQUIPMENT (TV, HI-FI, COMPUTER, ROUTER, ETC) T3 SPD	
Céliane 0 671 93 Mosaic 0 775 40	Multi-outlet **0 502 95/97** 0 503 95/98

IT SYSTEM (ALL RISKS)	
TG	T1+T2/35 kA/440 V 4 122 80 (x 3 or 4) + DPX³ 160 (80 A)
TD	T2/40 kA/440 V 4 122 30/32/33 + DX³ 40 A - C curve

What Protection Level is the external lightning protection system (all keraunic levels)?

Protection Level III and IV

Number of poles	Private homes	Commercial - Industrial - Apartment bldgs	
		Main LV distrib. board	Secondary distribution board or flat
	T1+T2 Iimp 12.5 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	4 122 70	4 122 70	4 122 20
2P	4 122 71	4 122 71	4 122 21
1P+N	4 122 74	4 122 74	4 122 10(1) (Isc ≤ 25 kA) 4 122 24
3P	4 122 72	4 122 72	-
4P	4 122 73	4 122 73	4 122 23
3P+N	4 122 75	4 122 75	4 122 11(1) (Isc ≤ 25 kA) 4 122 25

Protection Level I and II

Number of poles	Private homes	Commercial - Industrial - Apartment bldgs	
		Main LV distrib. board	Secondary distribution board or flat
	T1+T2 Iimp 12.5 kA	T1+T2 Iimp 25 kA	T2 Imax 40 kA
1P	4 122 70	4 122 80 (limp 35 kA)	4 122 40
2P	4 122 71	-	4 122 41
1P+N	4 122 74	-	4 122 14(1) (Isc ≤ 25 kA) 4 122 44
3P	4 122 72	4 122 82	4 122 42
4P	4 122 73	-	4 122 43
3P+N	4 122 75	-	4 122 15(1) (Isc ≤ 25 kA) 4 122 45

Keraunic level Nk ≤ 25 days a year or Ng (Measured) ≤ 1

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	0 039 51(3) (Isc 6 kA)	4 122 74	4 122 10(1) (Isc ≤ 25 kA) 4 122 24
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	0 039 53(3) (Isc 6 kA)	4 122 75	4 122 11(1) (Isc ≤ 25 kA) 4 122 25

Keraunic level Nk ≤ 25 days a year or Ng (Measured) > 1

	T2+T3 Imax 12 kA	T1+T2 Iimp 25 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	0 039 51(3) (Isc 6 kA)	4 122 74	4 122 10(1) (Isc ≤ 25 kA) 4 122 24
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	0 039 53(3) (Isc 6 kA)	4 122 75	4 122 11(1) (Isc ≤ 25 kA) 4 122 25

	T2+T3 Imax 12 kA	T2 Imax 40 kA	T2+T3 Imax 12 kA
1P	-	4 122 40	-
2P	-	4 122 41	-
1P+N	0 039 51(3) (Isc 6 kA)	4 122 14(1) (Isc ≤ 25 kA) 4 122 44	0 039 71(2) (Isc 10 kA)
3P	-	4 122 42	-
4P	-	4 122 43	-
3P+N	0 039 53(3) (Isc 6 kA)	4 122 15(1) (Isc ≤ 25 kA) 4 122 45	0 039 73(2) (Isc 10 kA)

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	0 039 51(3) (Isc 6 kA)	4 122 74	4 122 10(1) (Isc ≤ 25 kA) 4 122 24
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	0 039 53(3) (Isc 6 kA)	4 122 75	4 122 11(1) (Isc ≤ 25 kA) 4 122 25

	T2+T3 Imax 12 kA	T2 Imax 20 kA	T2+T3 Imax 12 kA
1P	-	4 122 20	-
2P	-	4 122 21	-
1P+N	0 039 51(3) (Isc 6 kA)	4 122 10(1) (Isc ≤ 25 kA) 4 122 24	0 039 71(2) (Isc 10 kA)
3P	-	-	-
4P	-	4 122 23	-
3P+N	0 039 53(3) (Isc 6 kA)	4 122 11(1) (Isc ≤ 25 kA) 4 122 25	0 039 73(2) (Isc 10 kA)

	T2+T3 Imax 12 kA	T2 Imax 40 kA	T2+T3 Imax 12 kA
1P	-	4 122 40	-
2P	-	4 122 41	-
1P+N	0 039 51(3) (Isc 6 kA)	4 122 14(1) (Isc ≤ 25 kA) 4 122 44	0 039 71(2) (Isc 10 kA)
3P	-	4 122 42	-
4P	-	4 122 43	-
3P+N	0 039 53(3) (Isc 6 kA)	4 122 15(1) (Isc ≤ 25 kA) 4 122 45	0 039 73(2) (Isc 10 kA)

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
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	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
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3P+N	0 039 53(3) (Isc 6 kA)	4 122 75	4 122 11(1) (Isc ≤ 25 kA) 4 122 25

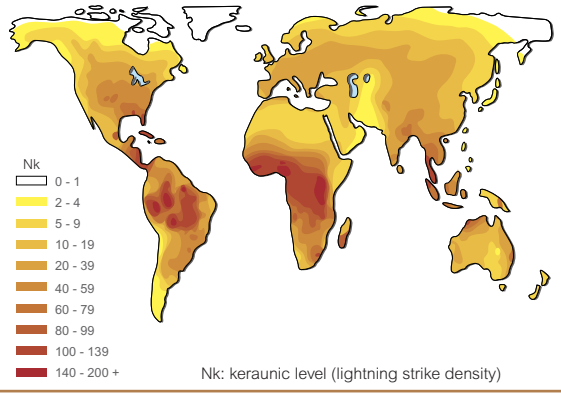
CHOOSE AN ASSOCIATED PROTECTION DEVICE

SPDs Cat.No	T1+T2 Iimp 25 kA or 35 kA 4 122 80/81/82/83		T1+T2 Iimp 12.5 kA 4 122 70/72/74/75			T2 Imax 40 kA 4 122 30/32/33/40/42/44/45/64/65			T2 Imax 20 kA 4 122 20/24/25/60/61		
Circuit breaker Cat.No	DPX³ 160 (80 A)		DX³ 63 A - C curve			DX³ 25 A - C curve			DX³ 20 A - C curve		
	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
Isc ≤ 10 kA	-	-	4 077 90	4 078 35	4 079 04	4 077 86	4 078 31	4 079 00	4 077 85	4 078 30	4 078 99
Isc ≤ 16 kA	4 200 04	4 200 14	4 092 27	4 092 79	4 093 61	4 092 23	4 092 75	4 093 57	4 092 22	4 092 74	4 093 56
Isc ≤ 25 kA	4 200 44	4 200 54	4 097 74	4 097 87	4 098 00	4 097 70	4 097 83	4 097 96	4 097 69	4 097 82	4 097 95
Isc ≤ 36 kA	4 200 84	4 200 94	4 100 14	4 100 27	4 100 40	4 100 10	4 100 23	4 100 36	-	-	-
Isc ≤ 50 kA	4 201 24	4 201 34	4 101 54	4 101 67	4 101 80	4 101 50	4 101 63	4 101 76	-	-	-

Choose your SPD and its associated protection

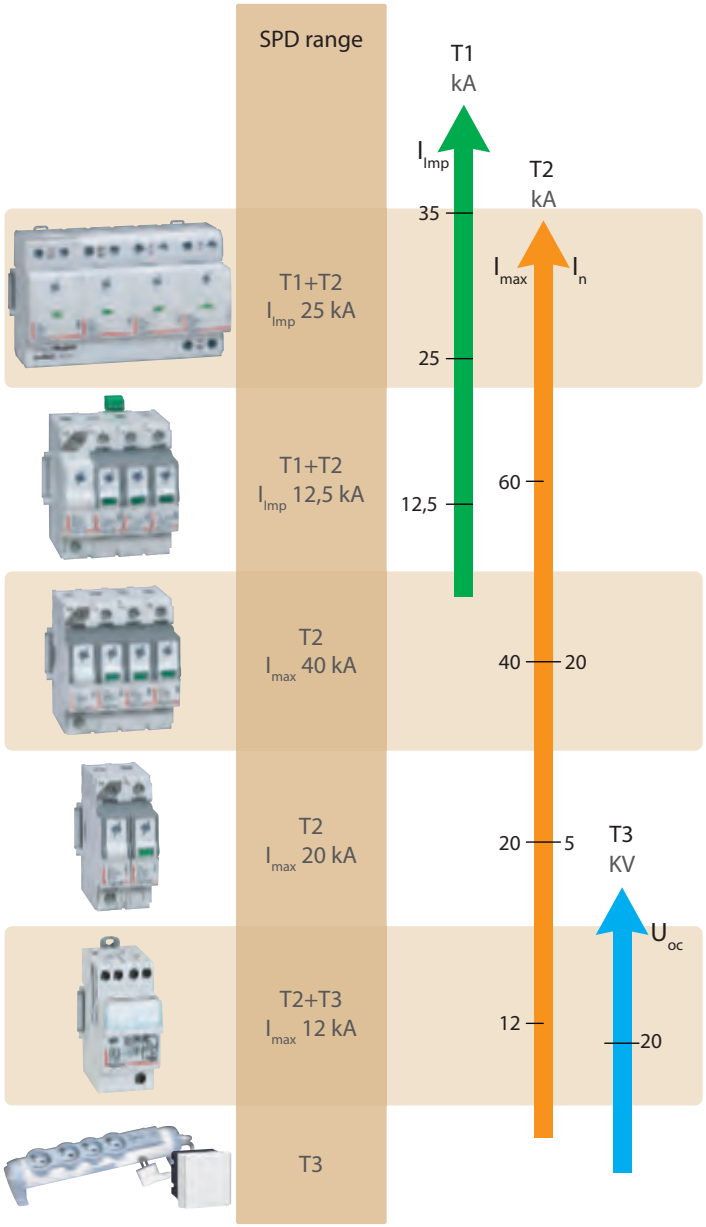
SPDs with neutral on right

STEP 1 SELECT YOUR AREA



Nk: keraunic level (lightning strike density)

The Legrand offer is suitable for all 3 types of SPD



Non linear indicative representation of the 3 typical SPD levels

STEP 2 ANSWER THE QUESTIONS

• **Is there a lightning protection system on the building (lightning conductor, etc) or less than 50 m away?** 4 possible levels (Protection Level), determined by the Design office	✓ → **Yes**
✗ **NO** →	
• **Is the power line partly or fully overhead (final 2 km)?**	✓ → **YES or "I don't know"**
✗ **NO** →	
• **Does the building open to the public or provide medical care (museums, town halls, retirement homes, hotels, banks, shops, etc)?** • **Is the building isolated or in a mountainous area?** • **Is it an industrial building?**	✓ → **YES or "I don't know"**
✗ **NO** →	
• **Does the building contain expensive equipment?** • **Is maximum continuity of service required?** • **Is it a farm building?**	✓ → **YES or "I don't know"**
✗ **NO** →	
I DON'T HAVE ANY INFORMATION	

Catalogue numbers with "(Iscxx kA)" incorporate short-circuit protection (they do not need external protection to be added)
1: If Isc > 25 kA, use the SPD with the recommended catalogue number without built-in Isc protection, and choose an external associated protection device with a suitable Isc capacity
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3: If Isc > 6 kA, select a similar SPD, but with Isc 10 kA (0 039 5x to 0 039 7x)

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Céliane 0 671 93 Mosaic 0 775 40	Multi-outlet **0 502 95/97** 0 503 95/98

IT SYSTEM (ALL RISKS)	
TG	T1+T2/35 kA/440 V 4 122 80 (x 3 or 4) + DPX³ 160 (80 A)
TD	T2/40 kA/440 V 4 122 30/32/33 + DX³ 40 A - C curve

What Protection Level is the external lightning protection system (all keraunic levels)?

Protection Level III and IV

Number of poles	Private homes	Commercial - Industrial - Apartment bldgs	
		Main LV distrib. board	Secondary distribution board or flat
	T1+T2 Iimp 12.5 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	4 122 70	4 122 70	4 122 20
2P	4 122 71	4 122 71	4 122 21
1P+N	4 122 76	4 122 76	4 122 12(1) (Isc ≤ 25 kA) 4 122 26
3P	4 122 72	4 122 72	-
4P	4 122 73	4 122 73	4 122 23
3P+N	4 122 77	4 122 77	4 122 13(1) (Isc ≤ 25 kA) 4 122 27

Protection Level I and II

Number of poles	Private homes	Commercial - Industrial - Apartment bldgs	
		Main LV distrib. board	Secondary distribution board or flat
	T1+T2 Iimp 12.5 kA	T1+T2 Iimp 25 kA	T2 Imax 40 kA
1P	4 122 70	4 122 80 (limp 35 kA)	4 122 40
2P	4 122 71	-	4 122 41
1P+N	4 122 76	4 122 81	4 122 16(1) (Isc ≤ 25 kA) 4 122 46
3P	4 122 72	4 122 82	4 122 42
4P	4 122 73	-	4 122 43
3P+N	4 122 77	4 122 83	4 122 17(1) (Isc ≤ 25 kA) 4 122 47

Keraunic level Nk ≤ 25 days a year or Ng (Measured) ≤ 1

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	-	4 122 76	4 122 12(1) (Isc ≤ 25 kA) 4 122 26
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
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Keraunic level Nk ≤ 25 days a year or Ng (Measured) > 1

	T2+T3 Imax 12 kA	T1+T2 Iimp 25 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	-	4 122 76	4 122 12(1) (Isc ≤ 25 kA) 4 122 26
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	-	4 122 77	4 122 13(1) (Isc ≤ 25 kA) 4 122 27

	T2+T3 Imax 12 kA	T2 Imax 40 kA	T2+T3 Imax 12 kA
1P	-	4 122 40	-
2P	-	4 122 41	-
1P+N	-	4 122 16(1) (Isc ≤ 25 kA) 4 122 46	-
3P	-	4 122 42	-
4P	-	4 122 43	-
3P+N	-	4 122 17(1) (Isc ≤ 25 kA) 4 122 47	-

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
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4P	-	4 122 73	4 122 23
3P+N	-	4 122 77	4 122 13(1) (Isc ≤ 25 kA) 4 122 27

	T2+T3 Imax 12 kA	T2 Imax 20 kA	T2+T3 Imax 12 kA
1P	-	4 122 20	-
2P	-	4 122 21	-
1P+N	-	4 122 12(1) (Isc ≤ 25 kA) 4 122 26	-
3P	-	-	-
4P	-	4 122 23	-
3P+N	-	4 122 13(1) (Isc ≤ 25 kA) 4 122 27	-

	T2+T3 Imax 12 kA	T2 Imax 40 kA	T2+T3 Imax 12 kA
1P	-	4 122 40	-
2P	-	4 122 41	-
1P+N	-	4 122 16(1) (Isc ≤ 25 kA) 4 122 46	-
3P	-	4 122 42	-
4P	-	4 122 43	-
3P+N	-	4 122 17(1) (Isc ≤ 25 kA) 4 122 47	-

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	-	4 122 76	4 122 12(1) (Isc ≤ 25 kA) 4 122 26
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	-	4 122 77	4 122 13(1) (Isc ≤ 25 kA) 4 122 27

	T2+T3 Imax 12 kA	T1+T2 Iimp 12.5 kA	T2 Imax 20 kA
1P	-	4 122 70	4 122 20
2P	-	4 122 71	4 122 21
1P+N	-	4 122 76	4 122 12(1) (Isc ≤ 25 kA) 4 122 26
3P	-	4 122 72	-
4P	-	4 122 73	4 122 23
3P+N	-	4 122 77	4 122 13(1) (Isc ≤ 25 kA) 4 122 27

CHOOSE AN ASSOCIATED PROTECTION DEVICE

SPDs Cat.No	T1+T2 Iimp 25 kA or 35 kA 4 122 80/81/82/83		T1+T2 Iimp 12.5 kA 4 122 70/72/74/75			T2 Imax 40 kA 4 122 30/32/33/40/42/44/45/64/65			T2 Imax 20 kA 4 122 20/24/25/60/61		
Circuit breaker Cat.No	DPX³ 160 (80 A)		DX³ 63 A - C curve			DX³ 25 A - C curve			DX³ 20 A - C curve		
	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
Isc ≤ 10 kA	-	-	4 078 06	4 078 65	4 079 34	4 078 02	4 078 61	4 079 30	4 078 01	4 078 60	4 079 29
Isc ≤ 16 kA	4 200 04	4 200 14	4 092 08	4 092 60	4 093 42	4 092 04	4 092 56	4 093 38	4 092 03	4 092 55	4 093 37
Isc ≤ 25 kA	4 200 44	4 200 54	4 097 74	4 097 87	4 098 00	4 097 70	4 097 83	4 097 96	4 097 69	4 097 82	4 097 95
Isc ≤ 36 kA	4 200 84	4 200 94	4 100 14	4 100 27	4 100 40	4 100 10	4 100 23	4 100 36	-	-	-
Isc ≤ 50 kA	4 201 24	4 201 34	4 101 54	4 101 67	4 101 80	4 101 50	4 101 63	4 101 76	-	-	-

Type 1 + Type 2 (T1+T2) SPDs


4 122 57


4 122 75


4 122 83


4 122 84


4 123 03

Technical characteristics **p. 17-19**

1P+N and 3P+N SPDs have encapsulated spark gap technology on the neutral-earth spur, which prevents earth leakage currents: no unwanted tripping of the residual current protection devices
These SPDs can be installed upstream the main earth leakage module
SPDs with plug-in modules and status indicators (except neutral-earth spur of Cat.Nos 4 122 54/55/56/57/74/75/76/77):
- Green: SPD working
- Red: plug-in modules need to be replaced
Conforming to standards EN/IEC 61643-11

SPD without short-circuit protection

T1+T2 - Iimp 8 kA

Up 1.5 kV, Uc 320 V~
Type 1 characteristics: Iimp 8 kA
Type 2 characteristics: In 20 kA and Imax 50 kA
Neutral earthing system: TT, TNC, TNS
Protection against short-circuited end of life to be added: DX³ 40 A - C curve

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 50	1P	-	No	1
4 122 54	1P+N	NG	No	2
4 122 56	1P+N	ND	No	2
4 122 51	2P	-	No	2
4 122 52	3P	-	No	3
4 122 55	3P+N	NG	No	4
4 122 57	3P+N	ND	No	4
4 122 53	4P	-	No	4

T1+T2 - Iimp 12.5 kA

Up 1.5 kV, Uc 320 V~
Type 1 characteristics: Iimp 12.5 kA
Type 2 characteristics: In 25 kA and Imax 60 kA
Neutral earthing systems: TT, TNC, TNS
Protection against short-circuited end of life to be added: DX³ 63 A - C curve

4 122 70	1P	-	Yes	1
4 122 74	1P+N	NG	Yes	2
4 122 76	1P+N	ND	No	2
4 122 71	2P	-	No	2
4 122 72	3P	-	Yes	3
4 122 75	3P+N	NG	Yes	4
4 122 77	3P+N	ND	Yes	4
4 122 73	4P	-	No	4

T1+T2 - Iimp 25 kA

Up 1.5 kV, Uc 350 V~
Type 1 characteristics: Iimp 25 kA
Type 2 characteristics: In 25 kA and Imax 50 kA
Neutral earthing systems: TT, TNC, TNS
Protection against short-circuited end of life to be added: DPX³ 160-80 A

4 122 81	1P+N	ND	Yes	4
4 122 82	3P	-	Yes	6
4 122 83	3P+N	ND	Yes	8

T1+T2 - Iimp 35 kA - Uc 440 V~ (IT)

Up 2.5 kV, Uc 440 V~
Type 1 characteristics: Iimp 35 kA
Type 2 characteristics: In 35 kA and Imax 50 kA
Neutral earthing systems: TT, TNC, TNS, IT
Protection against short-circuited end of life to be added: DPX³ 160-80 A

4 122 80	1P	-	Yes	2

Plug-in replacement modules

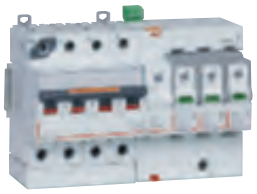
Cat.Nos	
4 122 86	For T1+T2/35 kA SPDs Cat.No 4 122 80
4 122 84	For T1+T2/25 kA SPDs Cat.Nos 4 122 81/82/83 and former Cat.Nos 0 030 20/22/23
4 122 85	For T1+T2/25 kA SPDs (N-PE module) Cat.Nos 4 122 81/82/83 and former Cat.No 0 030 23
4 123 02	For T1+T2/8 kA SPDs Cat.Nos 4 122 50/51/52/53/54/55/56/57
4 123 03	For T1+T2/12.5 kA SPDs Cat.Nos 4 122 70/72/74/75

SPD wiring kit

4 123 10	Set of 5 ready-to-use conductors (16 mm²/40 cm including an earthing conductor) for connecting SPDs in industrial enclosures. Ideal for conformity with EN/IEC 61439

Type 2 (T2) SPDs

Protected


4 122 15


4 122 45


4 122 99

Technical characteristics **p. 17-19**

1P+N and 3P+N SPDs have encapsulated spark gap technology on the neutral-earth spur, which prevents earth leakage currents: no unwanted tripping of the residual current protection devices
These SPDs can be installed upstream the main earth leakage module
SPDs with plug-in modules and status indicators for neutral-earth spurs of xP+Ns and for all neutral-earth spurs of xPs:
- Green: SPD working
- Orange: plug-in modules need to be replaced
Conforming to standards EN/IEC 61643-11

SPDs with integrated short-circuit protection Isc ≤ 25 kA

T2 - Imax 20 kA

Up 2.5 kV, Uc 320 V~
Type 2 characteristic: In 5 kA, Imax 20 kA
Neutral earthing systems: TT, TNS

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 10	1P+N	NG	Yes	4
4 122 12	1P+N	ND	Yes	4
4 122 11	3P+N	NG	Yes	8
4 122 13	3P+N	ND	Yes	8

T2 - Imax 40 kA

Up 2.5 kV, Uc 320 V~
Type 2 characteristic: In 20 kA, Imax 40 kA
Neutral earthing systems: TT, TNS

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 14	1P+N	NG	Yes	4
4 122 16	1P+N	ND	Yes	4
4 122 15	3P+N	NG	Yes	8
4 122 17	3P+N	ND	Yes	8

SPDs without short-circuit protection

T2 - Imax 20 kA

Up 1.2 kV, Uc 320 V~
Type 2 characteristic: In 5 kA, Imax 20 kA
Neutral earthing systems: TT, TNC, TNS
Protection against short-circuited end of life to be added:
DX³ 20 A - C curve

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 20	1P	-	No	1
4 122 24	1P+N	NG	No	2
4 122 26	1P+N	ND	No	2
4 122 21	2P	-	No	2
4 122 25	3P+N	NG	No	4
4 122 27	3P+N	ND	No	4
4 122 23	4P	-	No	4

T2 - Imax 40 kA

Up 1.7 kV, Uc 320 V~
Type 2 characteristic: In 20 kA, Imax 40 kA
Neutral earthing systems: TT, TNC, TNS
Protection against short-circuited end of life to be added:
DX³ 40 A - C curve

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 40	1P	-	No	1
4 122 44	1P+N	NG	No	2
4 122 46	1P+N	ND	No	2
4 122 41	2P	-	No	2
4 122 42	3P	-	Yes	3
4 122 45	3P+N	NG	No	4
4 122 47	3P+N	ND	No	4
4 122 43	4P	-	No	4

SPDs without short-circuit protection (continued)

T2 - Imax 40 kA - Uc 440 V~ (IT)

SPDs suitable for the high voltages which appear between the poles if a second fault occurs in IT systems
Up 2.1 kV, Uc 440 V~
Type 2 characteristic: In 20 kA, Imax 40 kA
Neutral earthing systems: TT, TNC, TNS, IT
Protection against short-circuited end of life to be added:
DX³ 40 A - C curve

Cat.Nos	Number of poles	Neutral position	Status feedback (SD auxiliary)	Number of modules
4 122 30	1P	-	No	1
4 122 32	3P	-	Yes	3
4 122 33	4P	-	Yes	4

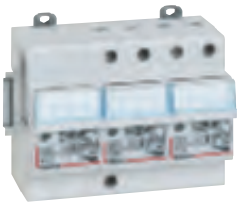
Plug-in replacement modules

4 122 99	For T2/40 kA SPDs Cat.Nos 4 122 14/15/40/42/44/45 and former Cat.Nos 4 122 04/05/64/65
4 123 00	For T2/40 kA SPDs (N-PE module) Cat.Nos 4 122 44/45
4 123 01	For T2/40 kA (440 V) SPDs Cat.Nos 4 122 30/32/33
4 122 98	For T2/20 kA SPDs (N-PE module) Cat.Nos 4 122 24/25
4 122 97	For T2/20 kA SPDs Cat.Nos 4 122 10/11/20/24/25 and former Cat.Nos 4 122 60/61

Type 2 + Type 3 (T2 + T3) SPDs

Protected


0 039 51


0 039 53


0 039 54

Technical characteristics **p. 17-19**

1P+N and 3P+N SPDs have encapsulated spark gap technology on the neutral-earth spur, which prevents earth leakage currents: no unwanted tripping of the residual current protection devices located upstream
SPDs with integrated short-circuit protection thanks to a special built-in fuse
In TT systems, these SPDs must be used with residual current protection upstream
Cat.Nos 0 039 51/71 are easily installed in the distribution board, since they are compatible with the vertical busbar and also the power supply at the top/outgoing line at the top
SPDs with plug-in modules:
- Green: SPD working
- Red: plug-in modules need to be replaced
Conforming to standards EN/IEC 61643-11

Cat.Nos

SPDs with integrated short-circuit protection Isc 4.5 kA

T2+T3 - Imax 12 kA

Up 1.2 kV, Uc 275V~
Type 2 characteristic: In 10 kA, Imax 12 kA
Type 3 characteristic: Uoc 20 kV
Systems: TT, TNS

Cat.Nos	Number of poles	Number of modules
0 039 51	1P+N	2
0 039 53	3P+N	6

SPDs with integrated short-circuit protection Isc 10 kA

T2+T3 - Imax 12 kA

Up 1.2 kV, Uc 275V~
Type 2 characteristic: In 10 kA, Imax 12 kA
Type 3 characteristic: Uoc 20 kV
Systems: TT, TNS

Cat.Nos	Number of poles	Number of modules
0 039 71	1P+N	2
0 039 73	3P+N	6

Plug-in replacement modules

0 039 54	For T2/12 kA SPDs Cat.Nos 0 039 51/53
0 039 74	For T2/12 kA SPDs Cat.Nos 0 039 71/73

SPDs for communication networks (telephone, X-DSL)


4 122 00


4 123 19

Technical characteristics **online catalogue**

Cat.Nos

SPD for telephone lines and communication lines

Protection of analogue and digital equipment such as telephones, modems, axiophones, door entry systems, etc to create full protection for the equipment in addition to low-voltage SPDs
Compatible with X-DSL (partial or full unbundling)
End-of-life status: loss of the line
Conforming to standards EN/IEC 61643-21

SPD for telephone/ADSL - RJ45 or terminal blocks

Types D1 and C2[1] for installations with/without lightning conductor
Connectors: RJ45 (compatible with RJ11) and screw terminal block
Mounting on DIN rail

Cat.Nos	In/Imax	Max. voltage (Uc)	Protection level (Up)	No. of modules
4 122 00	10/20[2] kA	180 V	< 350 V	1

SPD for telephone/ADSL - terminal blocks

Type C2[1] for installations without lightning conductor
Connectors: screw terminal block
Wall mounting (screws not supplied) or on DIN rail with adaptor Cat.No 0 364 69 or 0 739 79 (to be ordered separately)
Dimensions: 63 x 27 x 31 mm (Height x Width x Depth)

Cat.Nos	In/Imax	Max. voltage (Uc)	Protection level (Up)	No. of modules
4 123 19	5/10 kA	180 V	280 V	-

1: D1 (similar to T1/class I) and C2 (similar to T2/class II) test categories in accordance with EN/IEC 61643-21

2: The In value is indicated for connection on a terminal block - (In = 2.5 kA with RJ45 connectors)

Lightning and overvoltage protection

Protection against the effects of lightning essentially relies on:
- Protecting buildings by installing a lightning protection system (LPS or lightning conductor) that can capture the lightning and discharge the lightning current to earth
- Use of SPDs to protect equipment
- The earth network design (passive installation protection)

The external lightning protection system (LPS): lightning conductor

An external lightning protection system (LPS) protects buildings against lightning strikes. It is usually based on the use of lightning conductors (single rod, with sparkover device, meshed cage, etc) and/or the metal structure of the building
Standard EN/IEC 62305 defines 4 protection levels for these systems outside the building, depending on the site configurations, the activity and the geographical area
These levels involve the use of SPDs with minimum discharge performance
Lightning protection level I/II: Type 1 Iimp 25 kA (IT: Iimp 35 kA)
Lightning protection level III/IV: Type 1 Iimp 12.5 kA

The surge protective device (SPD)

Is used to:
- Protect sensitive devices against overvoltages due to lightning by limiting overvoltages to values the equipment can withstand
- Minimise any potentially harmful consequences for people's safety (home-based medical equipment, security or environmental systems, etc)
- Maximise equipment continuity of operation and minimise production losses

SPDs and standards

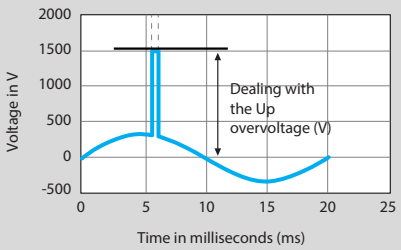
1 - Product standards EN 61643-11 and IEC 61643-11

There are 3 types of SPD, which are characterised according to 3 test types:
- Types 1 (T1), tested with a "long" current wave (10/350 µs, high energy) whose maximum peak is Iimp
- Types 2 (T2), tested with a "short" current wave (8/350 µs) whose maximum peak is Imax or In
- Types 3 (T3), tested with a short voltage wave (1.2/50µs), whose maximum peak is Uoc (similar wave to the 8/20 current wave of T2s)

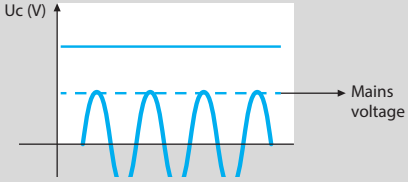
SPDs can be characterised as one of several types: Type 1 + Type 2 or Type 2 + Type 3

Other characteristics

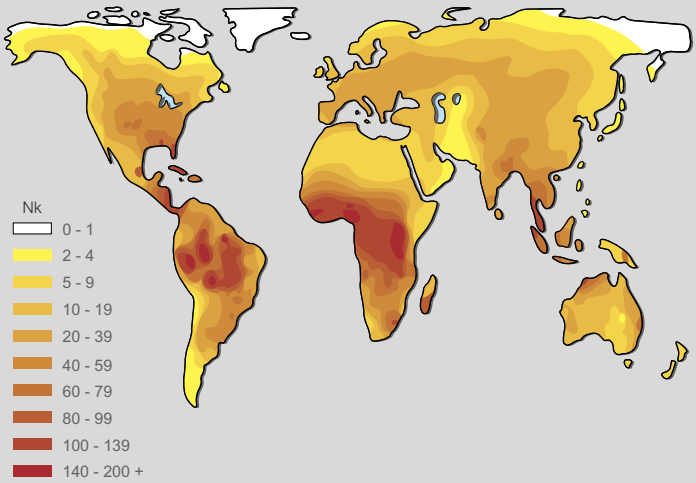
- Up protection voltage: maximum voltage at the SPD terminals while dealing with overvoltages



- Uc critical voltage: SPD ignition voltage. The mains voltage must always be less than this value (watch out for the double IT system fault: Uc must be > 400 V).



2 - Keraunic level (Nk)



Nk = Keraunic level (Number of days a year when thunder is heard at a given point)
The standards and risk analyses now rely on new data: Ng
Ng = lightning strike density expressed in Number of lightning strikes/km²/year
If there are no Ng measurements, it is possible to calculate Ng from the Nk with the following equation: Ng = Nk/10

3 - Installation standards

SPDs are dealt with by standards HD/IEC 60364-4-443 (selection of SPDs and mandatory aspects) and HD/IEC 60364-5-534 (installation)
The most recent versions (2015) insist on the use of SPDs in installations:
- where people are at risk (installations providing a security service, medical services, hospitals, etc)
- offering a public or cultural service (public service, communication exchanges, museums, religious buildings, etc)
- in the service sector and industry (hotels, banks, industries, shops, farms, etc)
- equipped with a Lightning Protection System (LPS, lightning conductor) or designed in accordance with EN/IEC 62305
- likely to hold a large number of people (apartment buildings, office buildings, schools, etc in Europe)

In the case of smaller installations (small shops, private houses, etc), a risk analysis should be conducted (article 443.5)
Failing this, SPDs must be installed.
However, SPDs are not mandatory in private homes if the cost of installing it is more than a fifth of the cost of the installation
Installing SPDs as per the recommendations in the selection charts on p. 10-11 will ensure conformity with the installation standard.

Overall installation protection

In large installations, several SPDs are required for maximum overvoltage protection efficiency, especially if the SPD at the supply end has a Up protection level higher than 1.5 kV (EN 62305 and TS 61643-12)

As a general rule, it is advisable to install additional SPDs as well as the SPD installed at the supply end of the installation, when the equipment to be protected is more than 10 m away from the SPD at the supply end
In Commercial-Industrial buildings: this involves installing an SPD in secondary distribution boards if they are more than 10 m away from the main LV distribution board, and also protection devices close to the equipment if these are more than 10 m away from the secondary distribution board
In the home: Installation of a proximity SPD (T3 wall socket or multi-outlet type) if sensitive equipment is more than 10 m away from the protection board

Finally, as recommended in the installation standard, if there is a low-voltage SPD on the power circuit, we strongly recommend that an SPD is installed on the communication line (Cat.No 4 122 00)

SPDs
technical characteristics

Distribution board SPDs

Mains 230/400 V~ (50/60 Hz) - Degree of protection IP 20
1P+N (3P+N) SPDs: L-N and N-PE protection, also called mode 1+1 (3+1 resp.) or protection type CT2 as per the installation standards.

Cat.No	Type	Poles	Neutral earthing system	Max. voltage (Uc)	Protection mode	Nominal current In/pole (8/20)	Max. discharge current			Protection Level		Max. short-circuit Isc (Isccr)	Protection to be added [1]	SD auxiliary (status feedback)
							Imax/ pole (8/20)	Iimp/pole (10/350)	I total (10/350)	Up (L-N/L-PE/N-PE)	Up at 5 kA			
4 122 80	T1+T2/35 kA	1P	TT, TNC, TNS, IT	440 V~	-	35 kA	50 kA	35 kA	35 kA	2.5 kV		50 kA	DPX³160 80 A	yes
4 122 81	T1+T2/25 kA	1P+N	TT, TNS	350 V~	CT2	25 kA	50 kA	25/50 kA	50 kA	1.5/2.5/1.5 kV				yes
4 122 82	T1+T2/25 kA	3P	TNC	350 V~	CT1	25 kA	50 kA	25 kA	75 kA	1.5 kV				yes
4 122 83	T1+T2/25 kA	3P+N	TT, TNS	350 V~	CT2	25 kA	50 kA	25/100 kA	100 kA	1.5/2.5/1.5 kV				yes
4 122 70	T1+T2/12.5 kA	1P	TT, TNC, TNS	320 V~	-	25 kA	60 kA	12.5 kA	12.5 kA	1.5 kV to 12.5 kA 1.9 kV to 25 kA	1 kV	50 kA	DX³ 63 A curve C	no
4 122 71	T1+T2/12.5 kA	2P	TT, TNS	320 V~	CT1	25 kA	60 kA	12.5 kA	25 kA					no
4 122 72	T1+T2/12.5 kA	3P	TNC	320 V~	CT1	25 kA	60 kA	12.5 kA	37.5 kA					yes
4 122 73	T1+T2/12.5 kA	4P	TT, TNS	320 V~	CT1	25 kA	60 kA	12.5 kA	50 kA					no
4 122 74/76	T1+T2/12.5 kA	1P+N	TT, TNS	320 V~	CT2	25 kA	60 kA	12.5/25 kA	25 kA	1.5/1.6/1.5 kV to 12.5 kA 1.9/2.1/1.5 kV to 25 kA	1 kV			yes
4 122 75/77	T1+T2/12.5 kA	3P+N	TT, TNS	320 V~	CT2	25 kA	60 kA	12.5/50 kA	50 kA					yes
4 122 50	T1+T2/8 kA	1P	TT, TNS	320 V~	-	20 kA	50 kA	8 kA	8 kA	1.2 kV to 8 kA 1.7 kV to 20 kA	1 kV	50 kA	DX³ 40 A curve C	no
4 122 51	T1+T2/8 kA	2P	TT, TNS	320 V~	CT1	20 kA	50 kA	8 kA	16 kA					no
4 122 52	T1+T2/8 kA	3P	TNC	320 V~	CT1	20 kA	50 kA	8 kA	25 kA					no
4 122 53	T1+T2/8 kA	4P	TT, TNS	320 V~	CT1	20 kA	50 kA	8 kA	32 kA					no
4 122 54/56	T1+T2/8 kA	1P+N	TT, TNS	320 V~	CT2	20 kA	50 kA	8 kA	16 kA	1.2/1.5/1.5 kV to 8 kA 1.7/2/1.5 kV to 20 kA	1 kV			no
4 122 55/57	T1+T2/8 kA	3P+N	TT, TNS	320 V~	CT2	20 kA	50 kA	8 kA	25 kA					no
4 122 40	T2/40 kA	1P	TT, TNS	320 V~	-	20 kA	40 kA			1.5 kV to 15 kA 1.7 kV to 20 kA	1 kV	50 kA	DX³ 40 A curve C	no
4 122 41	T2/40 kA	2P	TT, TNS	320 V~	CT1	20 kA	40 kA					50 kA		no
4 122 42	T2/40 kA	3P	TNC	320 V~	CT1	20 kA	40 kA					50 kA		yes
4 122 43	T2/40 kA	4P	TT, TNS	320 V~	CT1	20 kA	40 kA					50 kA		no
4 122 44/46 4 122 64/66	T2/40 kA	1P+N	TT, TNS	320 V~	CT2	20 kA	40 kA			1.5/1.6/1.4 kV to 15 kA 1.7/2/1.4 kV to 20 kA	1 kV	50 kA 25 kA		no yes
4 122 45/47 4 122 65/67	T2/40 kA	3P+N	TT, TNS	320 V~	CT2	20 kA	40 kA					50 kA 25 kA		no yes
4 122 14/16	T2/40 kA	1P+N	TT, TNS	320 V~	CT2	20 kA	40 kA			2.5 kV		25 kA	Integrated Isc protection	yes
4 122 15/17	T2/40 kA	3P+N	TT, TNS	320 V~	CT2	20 kA	40 kA							yes
4 122 30	T2/40 kA	1P	TT, TNC, TNS, IT	440 V~	-	20 kA	40 kA			1.8 kV to 15 kA 2.1 kV to 20 kA	1.3 kV	50 kA	DX³ 40 A curve C	no
4 122 32	T2/40 kA	3P	TNC, IT	440 V~	CT1	20 kA	40 kA							yes
4 122 33	T2/40 kA	4P	TT, TNS, IT	440 V~	CT1	20 kA	40 kA							yes
4 122 20	T2/20 kA	1P	TT, TNS	320 V~	-	5 kA	20 kA			1.2 kV to 5 kA 1.4 kV to 10 kA	1.2 kV	25 kA	DX³ 20 A curve C	no
4 122 21	T2/20 kA	2P	TT, TNS	320 V~	CT1	5 kA	20 kA							no
4 122 23	T2/20 kA	4P	TT, TNS	320 V~	CT1	5 kA	20 kA							no
4 122 24/26 4 122 60/62	T2/20 kA	1P+N	TT, TNS	320 V~	CT2	5 kA	20 kA			1.2/1.4/1.4 kV to 5 kA 1.4/1.4/1.4 kV to 10 kA	1.2 kV			no yes
4 122 25/27 4 122 61/63	T2/20 kA	3P+N	TT, TNS	320 V~	CT2	5 kA	20 kA							no yes
4 122 10/12	T2/20 kA	1P+N	TT, TNS	320 V~	CT2	5 kA	20 kA			2.5 kV			Integrated Isc protection	yes
4 122 11/13	T2/20 kA	3P+N	TT, TNS		CT2	5 kA								yes
0 039 51 0 039 71	T2+T3/12 kA	1P+N	TT, TNS	275 V~	CT2	10 kA	12 kA			1.1/1.2/1.2 kV to 10 kA	1 kV	6 kA 10 kA		no
0 039 53 0 039 73	T2+T3/12 kA	3P+N	TT, TNS	275 V~	CT2	10 kA	20 kA					6 kA 10 kA		

CT1: L(N)-PE protection modes
CT2: L-N and N-PE protection modes
1: DPX³ type circuit breakers (only with SPDs Cat.Nos 4 122 80/81/82/83)
Protected with fuses or other values than those indicated in the chart: please consult us or see product technical data sheet

Characteristics of proximity SPDs

230 V~ protection: Type 3 (T3) SPDs

Cat.No	0 775 40	0 500 34/36 0 506 70 6 946 30/14/19/25/11/12/51/56	0 500 14/87/95/97 0 506 71
Up	1/1.2 kV	1 kV	1 kV
Uoc	3 kV	4 kV	4 kV

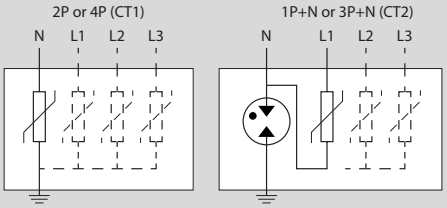
TT system: Installation downstream of an earth leakage module

Low-voltage SPDs

characteristics and installation (continued)

1P+N+ 3P+N SPDs

1P+N+ 3P+N SPDs, also called 1+1 or 3+1 in accordance with IEC and EN 60364-5-534 standards, or even CT2 configuration, cleverly combine two technologies:
An encapsulated spark gap on the Neutral-Earth spur, and voltage-dependet restitors (varistors) between Phase and Neutral



In this diagram (above right), the voltage-dependet restitors (varistors) dealing with overvoltages on the phases are connected on the "IN" side of the Neutral-Earth spur with encapsulated spark gap
Hence any current leaks inherent in the voltage-dependet restitors (varistors) (from a few µA when new to a few mA at end of life) will be discharged to the neutral (whereas to Earth for CT1s), because the encapsulated spark gap is a totally insulated component, without any current leaks when supplied with mains voltage. It only switches to "conductor" mode when dealing with overvoltages (a few microseconds)

These SPDs do not therefore result in any leaks to Earth apart from when dealing with overvoltages, and have proved much more suitable for TT neutral earthing systems which use residual current protective devices

Indeed, this new type of SPD does not cause unwanted tripping of upstream earth leakage modules, and does not need an earth leakage module dedicated to SPDs

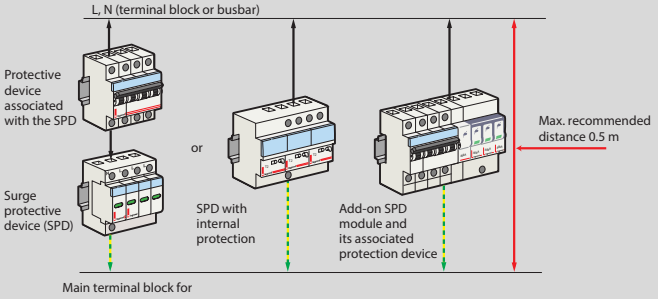
Alternatively, Type 1+Type 2 SPDs, or type 2 SPDs using this type of assembly can be installed upstream of the earth leakage modules
Conversely, Type2+Type3 SPDs (Cat.Nos 0 039 51/53/71/73) use this CT2 type of assembly, but should be installed downstream of an earth leakage module

The installation

1 - SPD protection

SPDs must be protected by a circuit breaker (or fuses), to deal with cases of short-circuited end-of-life which can occur internally: see table p. 11-13
SPDs which have this protection built-in (4 122 10/11/12/13/14/15/16/17 and 0 039 51/53/71/73) simplify installation, and optimise performance of the whole assembly ("50 cm" rule is easier to implement)
However, the most common cause of end of life is still overheating of its components, which is dealt with by an internal thermal disconnect, mechanically connected to the status indicator, which is found in all SPDs

2 - Connection principle



Keep connection lengths short, < 50 cm if possible.
EMC (ElectroMagnetic Compatibility) rules: avoid loops, fix the cables firmly against the exposed metal conductive parts

3 - Coordinating upstream/downstream SPDs

Consists of ensuring that any downstream SPD (in distribution enclosures or proximity SPDs) is correctly coordinated in energy terms with any SPD located upstream (TS 61643-12)
Minimum distances between SPDs in m:

Upstream SPD	Downstream SPD	With LPS(1)	Without LPS(1)
T1+T2/35 and T1+T2/25	T2/40 (Uc 440 V)	0	0
	T2/40 (Uc 320 V)	1	0
T1+T2/12.5	T2/40	5	0
	T2/20 or T2+T3/12	8	0
T2/40	T2/20 or T2+T3/12	-	1
T2/20	T2+T3/12	-	0.5
T2/20 and T2+T3/12	Proximity SPD	-	2

1: Lightning Protection System

Notes

Notes

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