Lightning protection

Pulsar lightning conductor range

Kim chống sét ESE Pulsar 18, Pulsar 30, Pulsar 45, Pulsar 60

HELITA

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Pulsar,
the high pulse voltage, initiation advance lightning conductor

In ongoing collaboration with the CNRS (French National Research Organisation), Hélita continues to innovate, and has developed a new generation of lightning devices.

The new Pulsar range with increased initiation advance performances, represents further progress in terms of protection, operating autonomy and ease of maintenance. These advancements reinforce Hélita's position as International leader in direct lightning protection with over 200 000 installations throughout the world.

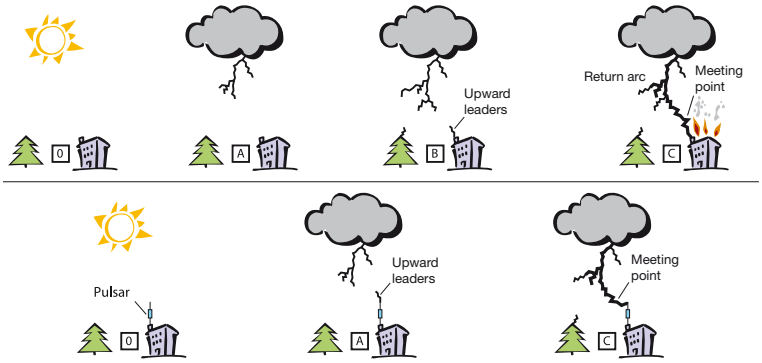
PulsAr

Hélita manufacturing quality

The enviable reputation of the Pulsar has been earned through maintaining a consistently high quality in manufacture. Before leaving the factory, each pulsar has been tested for insulation breakdown at high voltage, and subjected to a current test that ensures its performance when conducting lightning discharges. The high voltage output pulses at the Pulsar are also examined to verify correct amplitude and frequency. The Pulsar is built to withstand the arduous conditions encountered in service, and its ongoing performance can be monitored simply and quickly using the pulsar test set.

The advantage of initiation advance

The unique efficiency of the Pulsar lightning conductor is based on a specific initiation advance; well before the natural formation of an upward leader, the Pulsar generates a leader that rapidly propagates to capture the lightning and direct it to earth. Validated in the laboratory, this gain in time relative to the simple rod provides additional essential protection.

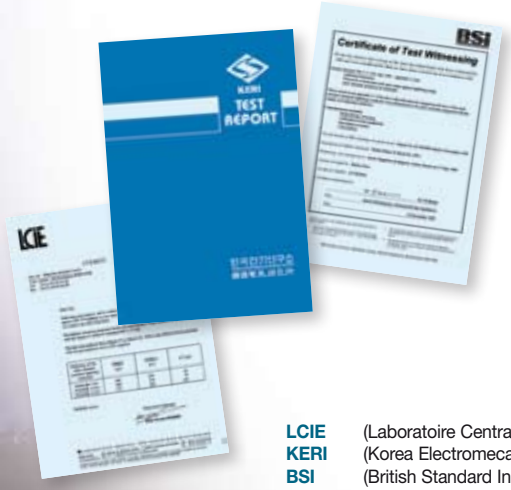


Complete autonomy

During a storm the ambient electric field may rise to between 10 to 20 kV/m. As soon as the field exceeds a threshold representing the minimum risk of a lightning strike, the Pulsar lightning terminal is activated. It draw its energy from the ambient electric field the energy required to generate high voltage pulses, creating and propagating an upward leader. No other power sources are required, and no radioactive components are used.

Scientifically proven efficiency

Hélita has proven commitment to research and development and continuously sets new benchmarks for the efficiency of lightning conductors. Hélita's co-operation with the CNRS led to a better understanding of the test process in high voltage laboratories and of the lightning phenomena itself. The Pulsar have undergone testing in the IREQ laboratory in Canada and in Hélita's own LEHTM centre. International certification organisations including BSI, LCIE and KERI have validated the results obtained.



AFAQ ISO 9001

Qualifoudre INERIS

LCIE	(Laboratoire Central des Industries Électriques) · France
KERI	(Korea Electromecanical Research Institute) · Korea
BSI	(British Standard Institute) · Great Britain
WHVRI	(Wuhan High Voltage Research Institute) · China
CEB	(Centre d'Essais de Bazet) · France

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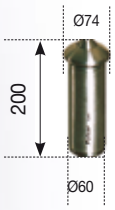
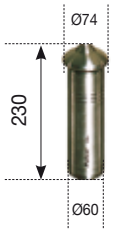
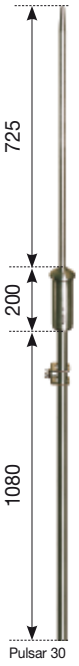
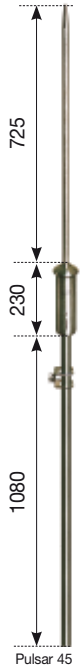
Pulsar references

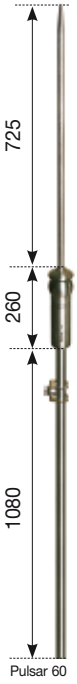
ΔT (µs)	Description	Reference	L(m)	Weight (kg)
30	Pulsar 30 stainless steel 2 m Lightning conductor	**HO IMH 3012**	2.0	5.0
45	Pulsar 45 stainless steel 2 m Lightning conductor	**HO IMH 4512**	2.03	5.3
60	Pulsar 60 stainless steel 2 m Lightning conductor	**HO IMH 6012**	2.06	5.7











Calculating protected areas

The radius of protection Rp of a Pulsar is given by French standard NF C 17-102 dated July 1995. It depends on the initiation advance ΔT of the Pulsar measured in the high voltage laboratory, on the levels of protection I, II, III or IV calculated according to the lightning risk assessment guides or standards (IEC 62305-2) and on the height h of the lightning conductor over the area to be protected (minimum height = 2m).

The protection radius is calculated according to Annex A in French standard NF C 17-102. For Pulsar 60, limiting the value of ΔT used in the protection radius calculations to 60 µs has been validated by the experiments conducted by the members of Gimelec (Groupement des industries de l'équipement éléctrique, du contrôle-commande et des services associés, Group of Industries for Materials for Electrical Equipment and associated Industrial Electronics).

Rp : Radius of protection in a horizontal plane located at a vertical distance h from the Pulsar tip

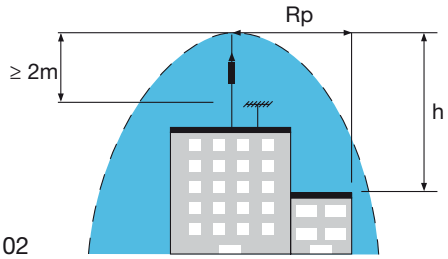
h : Height of the Pulsar tip above the surface(s) to be protected

D : Standardized striking distance

ΔL = 10^6 .ΔT (initiation advance)

Rp : $\sqrt{h\,(2D - h) + \Delta L\,(2D + \Delta L)}$ (for h ≥ 5 m)
For h < 5 m, refer to the table below

ΔT = Initiation advance measured during efficiency tests according to Annex C of French standard NF C 17-102



Test on Pulsar during a series of tests at IREQ (Canada).

Pulsar radius of protection

Level of protection	I (D = 20 m)			II (D = 30 m)			III (D = 45 m)			IV (D = 60 m)		
Pulsar	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60
h (m)	Radius of protection RP (m)											
2	19	25	32	22	28	35	25	32	40	28	36	44
3	28	38	48	33	42	52	38	48	59	42	57	65
4	38	51	64	44	57	69	50	65	78	57	72	87
5	**48**	**63**	**79**	**55**	**71**	**86**	**63**	**81**	**97**	**71**	**89**	**107**
6	48	63	79	55	71	87	64	81	97	72	90	108
8	49	64	79	56	72	87	66	83	99	75	92	109
10	49	64	79	57	72	88	66	83	99	75	92	109
15	50	65	80	58	73	89	69	85	101	78	95	111
20	50	65	80	59	74	89	71	86	102	81	97	113
45	50	65	80	60	75	90	75	90	105	89	104	119
60	50	65	80	60	75	90	75	90	105	90	105	120

Hướng dẫn lắp đặt kim chống sét ESE Pulsar 18, Pulsar 30, Pulsar 45, Pulsar 60

Installing / testing

The installation and verification of lightning protection systems using one or more Pulsar units must be performed in accordance with the manufacturer's recommendations and those given in standard NFC 17 102.

Pulsar Lightning conductor

Early Streamer Emission lightning terminal.

Lightning conductor test poles

A unique system for testing lightning conductors on-site without the need to dismantle them, thanks to an eight meter long telescopic pole and a test case.

Analogic Lightning strike counter

Recommended at facilities that are classified as presenting a hazard to the environment

Electronic Lightning strike counter

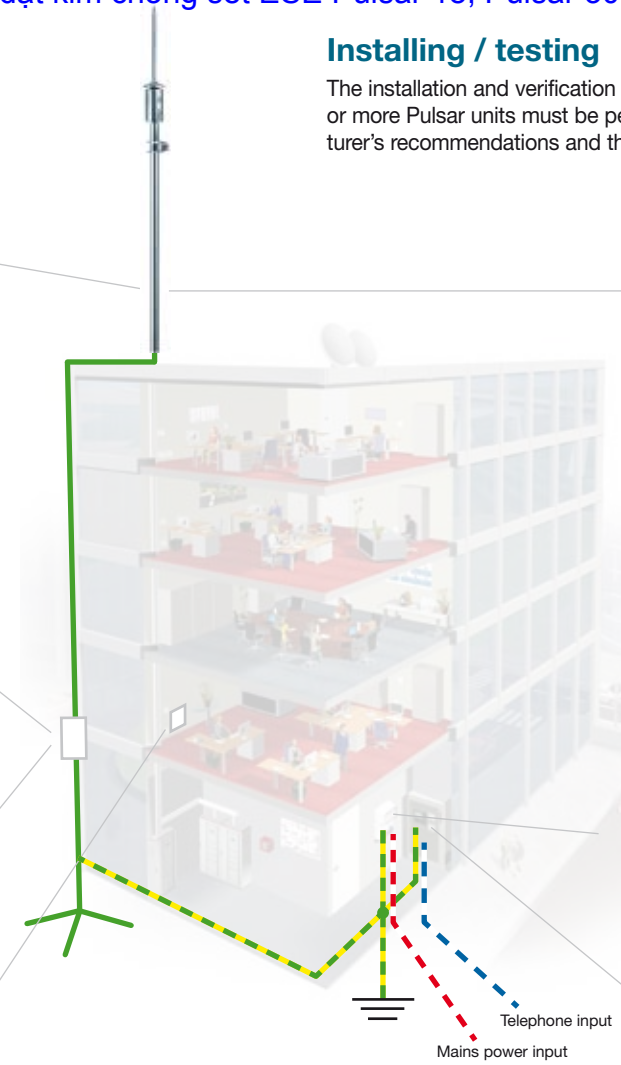
With data record

Type 1 Soulé Surge protector

The essential complement in compliance with standard IEC 62305, for overall protection.

Type 2 Soulé Surge protector

Recommended to coordinate with Type 1 surge protector or for location with no exposure to direct lightning impulses.



Soulé pluggable telephone and data line surge protector

The Soulé-Hélita Lightning Protection Group is also a full range of products

Standard rods, grid cages, accessories
Down conductors, ground connectors and accessories
Low voltage surge protection devices - Telecoms and coax
Lighting for aerial navigation - Pylons
High and low frequency ground measurements

2CTC 432 009 L0201

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