INSTALLATION INSTRUCTIONS

IN COMPLIANCE
WITH STANDARDS:
NFC 17-102:2011
UNE 21186:2011
NP 4426:2013

CAPTURE SYSTEM

· Fix the central axis of the air terminal to the lightning head-mast adaptor piece.

· Pass the down conductor cable through the interior of the mast and connect it to the base of the adaptor, fixing it using two Allen screws.

· Couple the adaptor inside the mast. Secure it with its screw.

· Connect all the metallic structures that are within the safety distance using spark gaps.

DOWN CONDUCTOR

· Anchor the mast to the structure using the most appropriate support and, if necessary, fix the mast to the cover using anchor braces.

· Fix the down conductor with clamping brackets, ensuring that they are firmly tightened and, as a reference, using three fasteners per metre.

· Install the **CDR UNIVERSAL** lightning counter on the lower part of the conductor, two or three metres above the ground.

· Protect the lower part of the down conductor with a protection tube that is at least 2 m long.

· Each PDC will be connected to earth using two down conductors, while four down conductors will be required for buildings that are taller than 60 m. These down conductors will be located, wherever possible, at the four corners of the building and interconnected using a perimeter ring.

GROUNDING SYSTEM

There are two types of grounding systems, Type A and Type B:

· Type A1: “crow’s foot” horizontal electrodes.

· Type A2: straight or triangular vertical electrodes.

· Type B: ring-shaped electrodes outside the structure.

Another possible configuration, particularly recommended for rocky ground that does not permit excavation to a great depth, consists of placing an electrode-grounding plate vertically in a hole with a minimum volume of 1m^3

· It is recommended to add Quibacsol composite to improve the ground’s conductivity.

· Connect the lightning grounding system to the building’s general grounding system using a spark gap.

- LEADERS IN LIGHTNING PROTECTION SINCE 1973
- PRESENT IN MORE THAN 40 COUNTRIES
- PRODUCTS MANUFACTURED IN SPAIN
- DESIGN OF PREVENTIVE PROTECTION PROJECTS
- PRODUCTS NATURAL FIELD TESTED AND CERTIFIED
- ON-LINE RISK CALCULATION SOFTWARE

INGESCO®
LIGHTNING SOLUTIONS

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ISO 9001
BUREAU VERITAS
Certification

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ISO 9001:2008 OHSAS 18001:2007

INGESCO PDC
LIGHTNING ROD

Lightning rod with non-electronic early streamer emission system

NFC 17-102:2011
UNE 21.186:2011
NP 4426:2013
Non fungible
Maximun current 200 kA
Maintenance free
Tested in natural field
316L Stainless steel

The lightning rod **INGESCO PDC** is the first non-electronic early streamer emission model on the market. Its robustness and reliability make it the leading product in lightning protection. Suitable for the external protection of all types of structures and open areas, either as a stand-alone capture system or as part of conductive networks and Faraday's cage systems.

The **INGESCO PDC** lightning rod is guaranteed to function in any atmospheric and environmental conditions.

model **PDC 6.4**

MODEL *Reference*	PDC 3.1 *101000*	PDC 3.3 *101001*	PDC 4.3 *101003*	PDC 5.3 *101005*	PDC 6.3 *101008*	PDC 6.4 *101009*
Δt	15 µs	25 µs	34 µs	43 µs	54 µs	60 µs
LEVEL I	35 m	45 m	54 m	63 m	74 m	80 m
LEVEL II	43 m	54 m	63 m	72 m	83 m	89 m
LEVEL III	54 m	65 m	74 m	84 m	95 m	102 m
LEVEL IV	63 m	75 m	85 m	95 m	106 m	113 m

Protection radii calculated according to: UNE 21.186:2011, NFC 17.102:2011 and NP 4426: 2013. (Calculated according to an altitude difference of 20m between the end of the lightning rod and the considered horizontal plane)

Product certified by BUREAU VERITAS Certification

INGESCO PDC.E
LIGHTNING ROD

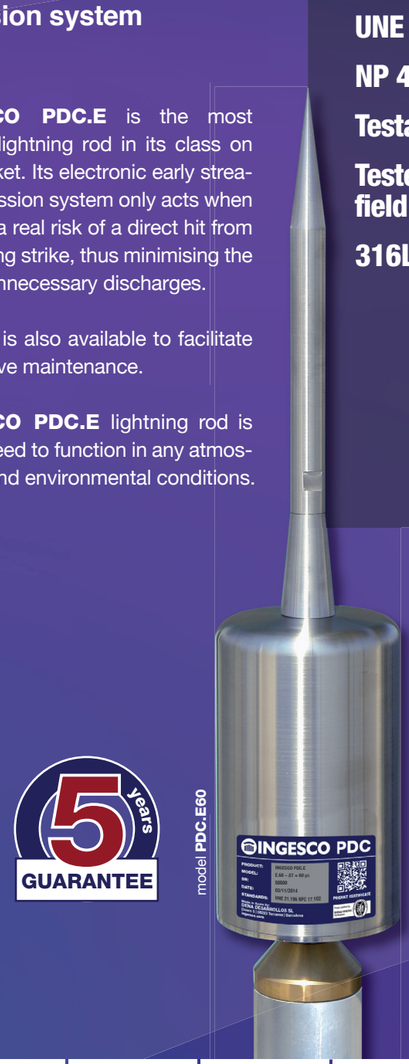
Lightning rod with electronic early streamer emission system

NFC 17-102:2011
UNE 21.186:2011
NP 4426:2013
Testable
Tested in natural field
316L Stainless steel

INGESCO PDC.E is the most reliable lightning rod in its class on the market. Its electronic early streamer emission system only acts when there is a real risk of a direct hit from a lightning strike, thus minimising the risk of unnecessary discharges.

A tester is also available to facilitate preventive maintenance.

INGESCO PDC.E lightning rod is guaranteed to function in any atmospheric and environmental conditions.



model **PDC.E60**

MODEL *Reference*	PDC.E15 *102004*	PDC.E30 *102005*	PDC.E45 *102006*	PDC.E60 *102007*
Δt	15 µs	30 µs	45 µs	60 µs
LEVEL I	35 m	50 m	65 m	80 m
LEVEL II	43 m	59 m	74 m	89 m
LEVEL III	54 m	70 m	86 m	102 m
LEVEL IV	63 m	81 m	97 m	113 m

Protection radii calculated according to: UNE 21.186:2011, NFC 17.102:2011 and NP 4426: 2013. (Calculated according to an altitude difference of 20m between the end of the lightning rod and the considered horizontal plane)

Product certified by BUREAU VERITAS Certification

INGESCO
LIGHTNING COUNTERS

Standards NFC17102, UNE21186, and IEC62305 require that lightning protection installations be checked periodically as well as after any lightning strikes on a structure.

CDR UNIVERSAL

Lightning counter with a reset system designed for external lightning protection systems (lightning rod, Faraday cages, etc.).

- Current range 1 kA – 100 kA.
- **Resettable model.**
- **Detection non-ohmic contact:** does not affect the status of the down conductor.

CDR – 11

Electro-mechanical lightning discharge counter designed for external lightning protection systems (lightning rod, Faraday cages, etc.)

- **Current range 1 kA – 100 kA.**

CDR – HS

High sensitivity counter. Recommended for counting lightning strikes on Faraday mesh and the following cases:

- Down conductors in contact with metal parts as long as the metallic structures are grounded.
- Down conductors with a number of ancho ring points on a metal wall where the counter is mounted between them.
- **Current range 100 A – 100 kA.**

The **INGESCO** lightning rod and counters are tested in LABELEC, a high-voltage laboratory accredited by ENAC IAF as well as natural field-testing in a test facility (located in the Pyrenees at an altitude of 2,537m) thereby guaranteeing their functioning under real storm conditions.