CONTROL SYSTEMS

CONTROLS SYSTEMS: LIGHTNING COUNTERS

overview

Lightning counters are control systems designed to detect the electric current that is directed to ground through the down conductor when a lightning strike hits the system.

The installation of the lighting meter on down conductors of external lightning protection systems (LPS) is indicated by the regulations for the control and immediate verification of the status of the protection system after any lightning strike recorded on the structure.

standards

- **UNE 21186:2011:** Protección contra el rayo. Pararrayos con dispositivo de cebado.
- **NF C 17-102:2011:** Protection contre la foudre. Systèmes de protection contre la foudre à dispositif d'amorçage.
- **NP 4426:2013:** Proteção contra descargas atmosféricas - Sistemas com dispositivo de ionização não radioativo.
- **IEC 62.561/6:2011:** Lightning protection system components (LPSC) Part 6. Requeriments for lightning strike counters.
- **IEC 62.561/1:2012:** Lightning protection system components (LPSC) Part 1. Requeriments for connection components.

INGESCO counters range

	 CDR-11	 CDR UNIVERSAL	 CDR-HS
Waveform	8-20µs 10-350µs	8-20µs 10-350µs	8-20µs 10-350µs
Minimum current registration	1 kA	1 kA	0,1 kA
Maximum current	100 kA	100 kA	100 kA
Rise time	from 8 to 10µs	from 8 to 10µs	from 8 to 10µs
Mount	Serial	Parallel, without electrical contact	Serial
Accessories	Adapter plate	-	Adapter plate
Application	SPECR	ELPS (round or flat conductor)	ELPS, mesh reticular, metallic structures
Bootable to zero	NO	YES	NO

• LPS via ESE lightning rods & conventional rods.

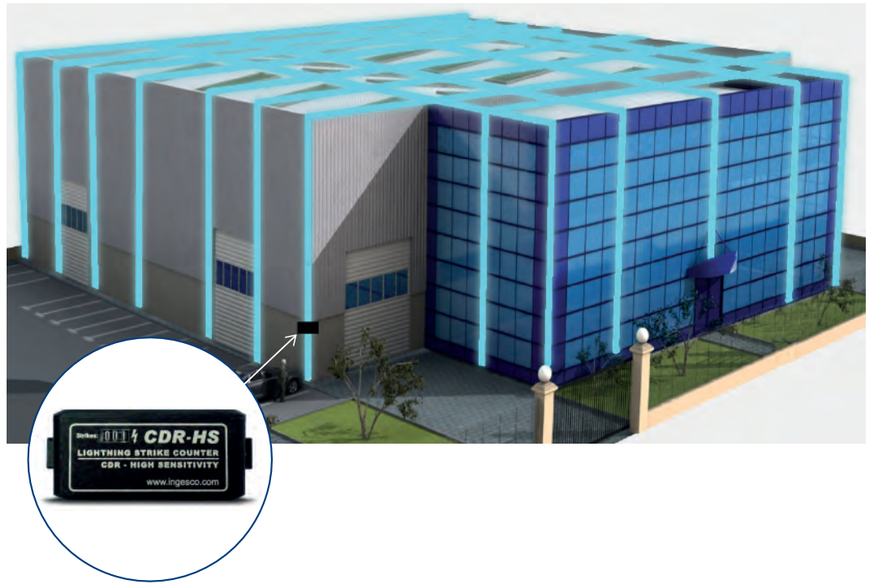
Place a **CDR UNIVERSAL** or **CDR-11** lightning counter on one of the ground down-conductors

The system requires no external power or batteries. Its electromechanical 3 digit dial counter registers whenever a lightning discharge flows through the down conductor (minimum intensity 1kA).

They can be placed on flat or round conductors, including the **CDR UNIVERSAL** has the advantage that it is not necessary to cut the down-conductor as it is placed in parallel and does not require ohmic contact to record discharges.

• LPS with mesh systems or arrestor down-conductors in contact with metal structures.

This type of construction systems are characterized by current drifts that hinder detection of low and medium intensity lightning. The **CDR-HS** is a high sensitivity counter to detect impacts from 100 A, well below the minimum range in the regulations (1 kA). This makes the control system suitable for this type of protective systems, allowing us to track and verify the proper operation of the system.



LIGHTNING COUNTERS

Control and recording equipment of lightning on external lightning protection systems (special active rod or passive rod systems) as well as structures (high rise towers, wind turbines, etc ...).

CDR UNIVERSAL

CDR-11

CDR-HS

IEC 62.561/6:2018

UNE 21.186

NFC 17-102:2011

CDR-11

Lightning counter for external lightning protection installations.

Valid for round conductors (50-70 mm^2 or Ø8-10 mm sections).

Adapter kit available for plate or flat braid down-conductors.

CDR-11

Model		A (mm)	B (mm)	C (mm)	F (mm)	D1 (mm)	Weight (g)
CDR-11	430019	105	52	83	40	14	290
Parameters							
Functioning temp range:	from -20º to 65ºC						
Current range:	from 1kA (8/20µs) to 100kA (10/350µs)						
Counter range:	from 0 to 999 strakes						
Degree of protection:	IP65						
Resettable:	NO						

CDR UNIVERSAL

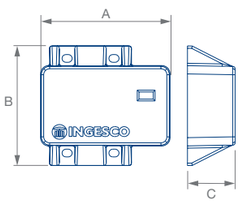
Lightning counter for external lightning protection installations (ESE lightning rod, Franklin, conductor mesh ...).

Valid for round conductors (50-70 mm^2 or Ø8-10 mm sections), or flat conductors (30x2 - 4mm).

Detection without ohmic contact. Resettable model.

CDR Universal

Model		A (mm)	B (mm)	C (mm)	Weight (g)
CDR UNIVERSAL	432028	109	101	42	490
Parameters					
Functioning temp range:	from -20º to 65ºC				
Current range:	from 1kA (8/20µs) to 100kA (10/350µs)				
Counter range:	from 0 to 999 strakes				
Degree of protection:	IP65				
Resettable:	YES				



CDR-HS

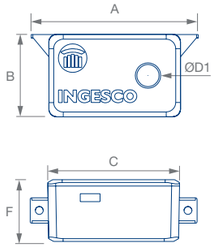
High sensitivity lightning counter for external lightning protection installations with multiple down-conductors (passive systems conductor mesh ...) and / or protection down-conductors in contact metal structures.

Valid for round conductors (50-70mm2 or Ø8-10mm sections).

Adapter kit available for plate or flat braid down-conductors.

CDR-HS

Model	Ref.	A (mm)	B (mm)	C (mm)	F (mm)	D1 (mm)	Weight (g)
CDR-HS	432027	105	52	83	40	14	300
Parameters							
Functioning temp range:	from -20º to 65ºC						
Current range:	from 100A (8/20µs) to 100kA (10/350µs)						
Counter range:	from 0 to 999 strakes						
Degree of protection:	IP65						
Resettable:	NO						



LIGHTNING STRIKE COUNTERS FOR ELEVATED STRUCTURES

The Hight sensitivity of this product allows it to record and report different types of lightning impact in elevated structures that are not detectable by other lightning counters existing in the market.

The use of the **DL EOLOS K15FO** counter in wind turbines helps to considerably reduce the maintenance costs because it informs you exactly which blade has received the lightning impact.

DL EOLOS

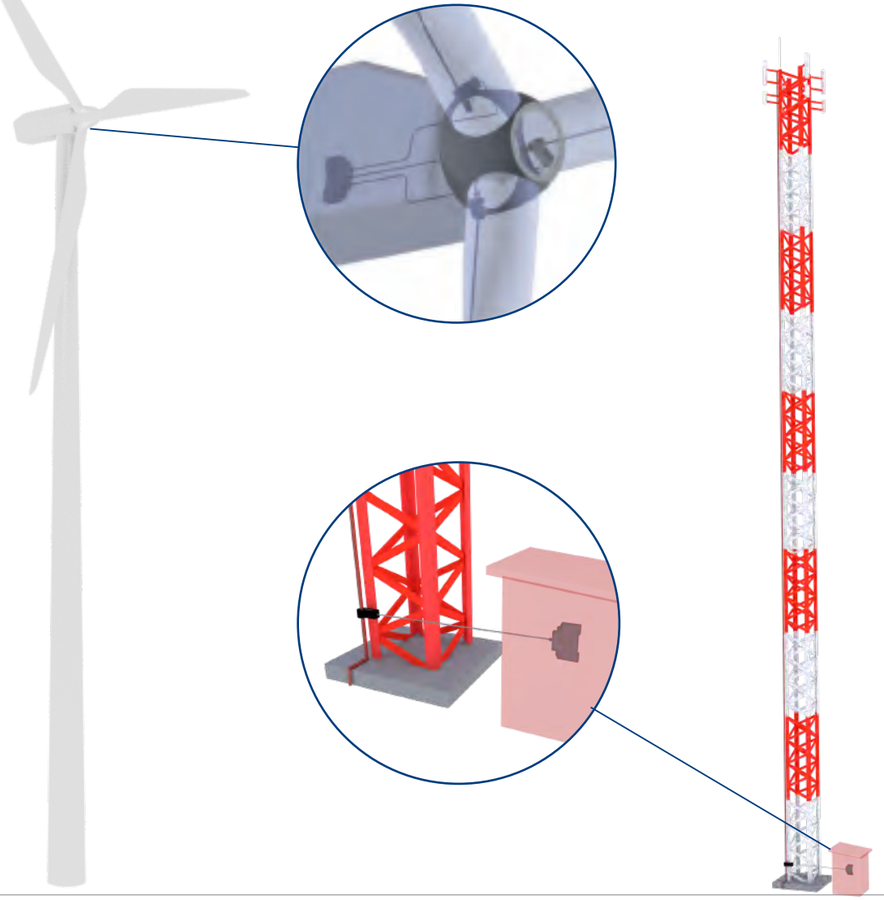
IEC 62.305

IEC 62.561/6:2018

IEC 61.400-24

UNE 21.186

NFC 17-102:2011



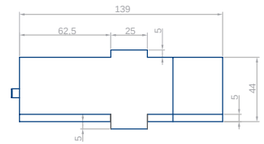
DL EOLOS K15FO

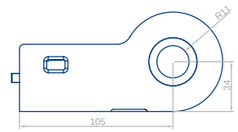
Bandwidth lightning discharge counter with fiber optic output for wind turbines.

The event notification signals generated by the **DL EOLOS K15FO** counter can be received by the fiber optical **DL EOLOS FO-RCVR-3CH** receiver.

DL EOLOS K15FO

Model	Ref.
DL EOLOS K15FO	430022
Parameters	
Temperature range:	-20º to 60ºC
Current range:	±180A a ±200kA
Counting range:	Up to 999 events (rolls down to 000)
Protection grade:	IP65





DL EOLOS FO-RCVR

Fiber optic communications receiver for real-time notification of the lightning strikes occurrence on wind turbine blades.

This device operates with **DL EOLOS K15FO** lightning strike counters.

DL EOLOS FO-RCVR-3CH

Model	Ref	Number of outputs
DL EOLOS FO-RCVR-3CH	432023	3
DL EOLOS FO-RCVR-1CH	432025	1
DL EOLOS FO-650N-1H (10m)	432031	
Parameters		
DC power input:	de 18V a 28V(*),24V recomendados.	
Optical fibre type:	POF, conector SMA	
Terminals protection:	IP20	
Enclosure material:	UL94-V0 (flame retardant)