



**APLICACIONES  
TECNOLOGICAS**

S.A.

AENOR



Empresa  
Registrada  
ER-1055/1998



UNE-EN ISO 9001:2000



WEB: [www.at3w.com](http://www.at3w.com)



**LIGHTNING AIR TERMINAL (E.S.E.)**

**DAT CONTROLER<sup>®</sup> PLUS**

AENOR



Producto  
Certificado  
058-000003

## WORKING PRINCIPLE

Immediately preceding the formation of a lightning discharge the ambient electrical field increases rapidly to levels in excess of 10 kV/m. The natural energy produced is utilised to prime the triggering device of the DAT CONTROLLER® PLUS ready for **full activation**.

Lightning discharge approach provokes an intense and sudden increase of the electric field, thus originating a lightning strike risk area. If this risk area takes place in the zone protected by the DAT CONTROLLER® PLUS, the sudden variation of the electric field simultaneously actions the **control system** of the DAT CONTROLLER® PLUS which, in synchronization with lightning approach, provides the safest controlled discharge path to earth.

In this way the DAT CONTROLLER® PLUS device uses only energy produced naturally in the event of a lightning storm, requiring no other energy source in its operation.

DAT CONTROLLER® PLUS devices are designed to be effectively maintenance free although their functioning can be tested at any moment.

**PROVEN PERFORMANCE  
THAT DOES NOT DETERIORATE  
AFTER REPEATED LIGHTNING STRIKES.**

**DOUBLE SECURITY FACTOR  
FOR PROTECTION  
RADIUS CALCULATION.**

**STABLE PERFORMANCE IN ALL  
TYPES OF WEATHER CONDITIONS.**

95 cm



LIGHTNING AIR TERMINAL (E.S.E.)  
DAT CONTROLER® PLUS provided with:

**1 AENOR PRODUCT REGISTRATION**  
no. 058.000003. ACCORDING TO STANDARD UNE  
21186\*\*, comprising:

**1.1 CERTIFIED WITHSTOOD CURRENT: 100kA.**

Direct application of 10 discharges with wave current 10/350 $\mu$ s, peak current higher than 100kA and specific energy higher than 2,5MJ/ $\Omega$ , according to Standards IEC-60-1 and IEC-1083-1.

Tests of withstood current performed prior to tests for determining the gain in triggering time in order to confirm the operation of the lightning conductor after having received several discharges simulating the lightning strike.

**1.2 CERTIFIED GAIN IN TRIGGERING TIME**, after applying a security factor equal to the double of the uncertainty registered during the test.

Tests held by the Central Official Electrotechnics Laboratory, Ministry of Science and Technology, according to Standards UNE 21186 and NFC 17102 (Annex C "ESE lightning conductor test procedure").

	Gain in triggering time during the test	Uncertainty of the test (I)	Security Factor	Certified gain in triggering time
DAT CONTROLER PLUS 15	39 $\mu$ s	$\pm 11 \mu$ s	2 x i	15 $\mu$ s
DAT CONTROLER PLUS 30	52 $\mu$ s	$\pm 11 \mu$ s	2 x i	30 $\mu$ s
DAT CONTROLER PLUS 45	68 $\mu$ s	$\pm 12 \mu$ s	2 x i	45 $\mu$ s
DAT CONTROLER PLUS 60	86 $\mu$ s	$\pm 12 \mu$ s	2 x i	60 $\mu$ s

**2 CERTIFIED EFFECTIVE PERFORMANCE UNDER ALL WEATHER CONDITIONS. INSULATION IN EXCESS OF 95%.**

- 2.1** Comparative tests dry/rain under continuous voltage (simulating the electric field during the storm).
- 2.2** Comparative tests dry/rain with switching impulses (simulating the approach of the downward leader).

Tests according to Standard UNE 21 308. Protocol nr. 95093311. LCOE – Central Official Electrotechnics Laboratory, Ministry of Science and Technology.

**3 CERTIFICATE OF PROTECTION RADIUS AND FULFILMENT OF STANDARDS UNE 21186 AND NFC 17102.**

Certificate for each model and level according to Standards UNE 21186 and NFC 17102\*\*\*

- \* Asociación Española de Normalización.
- \*\* Protección de estructuras, edificaciones y zonas abiertas mediante pararrayos con dispositivo de cebado.
- \*\*\* Protection des structures et des zones ouvertes contre la foudre par paratonnerre à dispositif d'amorçage.



## WORKING AND EFFECTIVITY TESTS

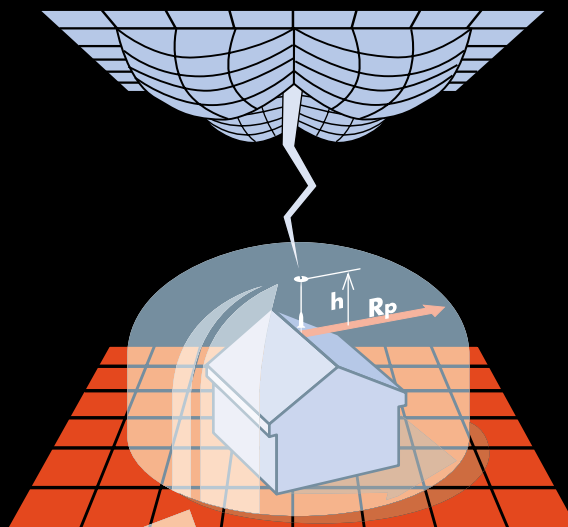
- LCOE-Central Official Electrotechnics Laboratory. Ministry of Science and Technology (Spain)
- SEDIVER-Bazet High Voltage Laboratory (France)
- Faculty of Physics of the University of Valencia (Spain)
- AIMME-Metal-Mechanic Technological Institute (Spain)
- EDF-Electricité de France, Laboratory of Les Renardières (France)
- CESI-Centro Elettrotecnico Sperimentale Italiano. S.p.A. (Italy)
- BET-High Voltage Laboratory of Blitzschutz & EMV Technologiezentrum (Germany)



# LIGHTNING AIR TERMINAL (E.S.E.) DAT CONTROLER® PLUS



PROTECTION RADII IN METRES					
DAT CONTROLER® PLUS					
	h(m)	DC+15	DC+30	DC+45	DC+60
LEVEL III	6	52	72	90	107
	8	54	73	91	108
	10	56	75	92	109
	12	58	76	93	110
	15	60	78	95	111
LEVEL II	6	46	64	81	97
	8	47	65	82	98
	10	49	66	83	99
	12	50	67	84	100
	15	52	69	85	101
LEVEL I	6	32	48	63	79
	8	33	49	64	79
	10	34	49	64	79
	12	34	49	65	80
	15	35	50	65	80



REGISTERED COMPANY FOR THE DESIGN, PRODUCTION, INSTALLATION AND MAINTENANCE OF LIGHTNING RODS AND SURGE PROTECTIVE DEVICES, WITH THE REQUIREMENTS OF THE STANDARD UNE-EN ISO 9001:2000.

Protection radii according to Standards UNE 21 186 and NF C 17 102.

h: height of the mast and/or height of the tip of the ESE over the surface to be protected.

The annex B of the standards UNE 21186 and NF C 17102 is the GUIDE FOR EVALUATION OF THE RISK OF IMPACT OF A LIGHTNING DISCHARGE AND THE SELECTION OF THE LEVEL OF PROTECTION.



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