



> INTERCEPTION SYSTEMS AND ACCESSORIES

> ESE LIGHTNING AIR TERMINALS





> DAT CONTROLER® PLUS

> GENERAL DESCRIPTION

DAT CONTROLER® PLUS is an Early Streamer Emission (ESE) air terminal based on the electrical characteristics of lightning formation. The air terminal triggers the continuous upward leader before any other object within its radius of protection. This feature is referred to in the regulations as the **advance time of an ESE air terminal** (ΔT). The earlier the upward leader is triggered, the larger is the distance where the downward leader is intercepted, thus protecting a greater area against lightning (standards limit it to $\Delta T \leq 60 \mu s$).

DAT CONTROLER® PLUS terminals offer the highest performance guarantees:

1 REGULATION REQUIREMENTS*	
In accordance with the standard NF C 17-102:2011 "Early Streamer Emission air terminals"	Salt mist test ✓ Humid sulphurous atmosphere test ✓ Withstand current test: 100 kA (10/350 μs) ✓ Advance time ΔT test ✓
2 BEYOND THE STANDARDS: ADDITIONAL FEATURES	
AENOR MARK 	In accordance with the AENOR RP 058 specific regulation for ESE air terminals ✓ Monitoring samples taken by AENOR technicians ✓ Tests in official and independent laboratories ✓
Certified withstand current 100 kA, 20 impulses (10/350 μs)	Direct application of 20 impulses of current (10/350 μs) with a peak current higher than 100 kA and specific energy greater than 2.5 MJ/ Ω ✓
Performance under rain (insulation above 95%)	 Test according to IEC-EN 60060-1:2012 ✓ The patented design of the DAT CONTROLER® PLUS prevents rain creating contact between the metal housing at atmospheric electric potential (in blue) and the grounded metal axis (in red) ✓ The source feeding the triggering device of an ESE air terminal is the high difference in the potential between its insulated metal frames during a thunderstorm. It is necessary to guarantee such a difference in potential in the event of rain.
Checking the state of the air terminal	In situ (DAT CONTROLER® PLUS) ✓ Remote checking (DAT CONTROLER® PLUS + AT-REMOTE TESTER) ✓

*The last edition of the standard UNE 21186, NF C 17-102 and NP 4426 requires, **consecutively and on the same sample**, the following tests:

1. Environmental tests, in atmospheres with a high salt and sulphur concentration, in order to ensure the correct operation of the air terminal in highly corrosive atmospheres.
2. Current test, applying 3 impulses of 100 kA with a 10/350 μs wave to the air terminal in order to ensure it works after repeated lightning strikes.
3. Advance time test for calculating the ΔT factor which will determine its protection radius.

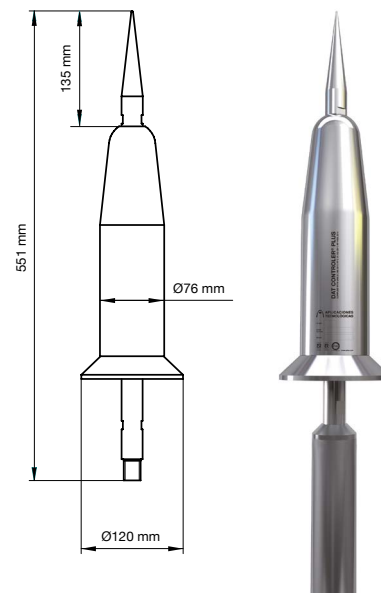


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> TECHNICAL CHARACTERISTICS

Material:	AISI 316L stainless steel
Weight:	3.8 kg
IP Code:	IP67
Working temperature:	-25 °C to 88 °C
Type of air terminal:	Electropulsator (emits impulses)
Internal insulation:	Polyurethane resin
Fixing:	M20 male thread
Regulation:	UNE 21186:2011; NF C 17-102:2011; NP 4426:2013

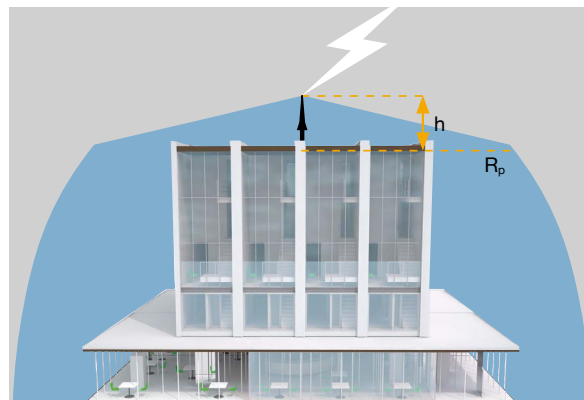


The installation of **DAT CONTROLLER® PLUS** air terminals shall follow UNE 21186:2011, NF C 17-102:2011 and NP 4426:2013. "Lightning protection: ESE lightning air terminals".

> DAT CONTROLLER® PLUS ADVANCE TIMES (ΔT)

DAT CONTROLLER® PLUS air terminals have passed all the tests according to the standards. For safety and ease of calculation, the results have been rounded down thus certifying the following advance times (ΔT) in microseconds:

Ref.	Model	ΔT certified
AT-1515	DAT CONTROLLER® PLUS 15	15 μs
AT-1530	DAT CONTROLLER® PLUS 30	30 μs
AT-1545	DAT CONTROLLER® PLUS 45	45 μs
AT-1560	DAT CONTROLLER® PLUS 60	60 μs



> DAT CONTROLLER® PLUS AND DAT CONTROLLER® PLUS + AT-REMOTE TESTER PROTECTION RADIUS IN METRES (R_p)

Ref. →	PROTECTION LEVEL I (D=20 m)				PROTECTION LEVEL II (D=30 m)				PROTECTION LEVEL III (D=45 m)				PROTECTION LEVEL IV (D=60 m)				
	AT-1515 AT-2515	AT-1530 AT-2530	AT-1545 AT-2545	AT-1560 AT-2560	AT-1515 AT-2515	AT-1530 AT-2530	AT-1545 AT-2545	AT-1560 AT-2560	AT-1515 AT-2515	AT-1530 AT-2530	AT-1545 AT-2545	AT-1560 AT-2560	AT-1515 AT-2515	AT-1530 AT-2530	AT-1545 AT-2545	AT-1560 AT-2560	
h (m)	2	13	19	25	31	15	22	28	35	18	25	32	39	20	28	36	43
	4	25	38	51	63	30	44	57	69	36	51	64	78	41	57	72	85
	6	32	48	63	79	38	55	71	87	46	64	81	97	52	72	90	107
	8	33	49	64	79	39	56	72	87	47	65	82	98	54	73	91	108
	10	34	49	64	79	40	57	72	88	49	66	83	99	56	75	92	109
	20	35	50	65	80	44	59	74	89	55	71	86	102	63	81	97	113
60	35	50	65	80	45	60	75	90	60	75	90	105	75	90	105	120	

h (m): Height of the air terminal over the element to be protected (in metres).
D (m): Rolling sphere radius (in metres).



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> DAT CONTROLER® PLUS CERTIFICATIONS



RADIUS PROTECTION CERTIFICATE AND REGULATION COMPLIANCE

Radius protection certificate for each model and level calculated according to standards UNE 21186:2011, NF C 17-102:2011 and NP 4426:2013.



AENOR PRODUCT CERTIFICATION NO. 058/000005

- Certified resistance to extreme environmental conditions (salt mist test and humid sulphurous atmosphere treatment).
- Certified withstand current: 100 kA (10/350 μ s).
- Certified advance time ΔT (Annex C, NF C 17-102:2011).



WITHSTAND CURRENT CERTIFICATE FOR 20 IMPACTS OF 100 KA (10/350 S)

Direct application of 20 current impulses (10/350 μ s) with a peak current higher than 100 kA and specific energy greater than 2.5 MJ Ω (with positive and negative polarity), according to UNE-EN 60060-1 and IEC 61083-1.



CERTIFICATE OF PERFORMANCE UNDER RAIN

Insulation above 95%

These tests have been performed according to standard UNE-EN 60060-1:2012 in the Electrical Technology Institute (ITE).

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