Exclusive representative of Franklin France in Iran

# ACTIVE 1D+

## ESE air terminal with early emission of the upward leader

Franklin France's solution for protecting the building envelope against lightning, with performance assessed to Annex C of NF C 17-102:2011.

| | |
|---|---|
| **12 - 60 µs**<br>Family efficiency range | **100 kA**<br>Impulse current test |
| **≈ 2.2 kg**<br>Approximate net weight | **18 months**<br>Warranty |




**ACTIVE 1D+ SERIES**

ΔT = 12 / 25 / 45 / 60 µs

TECHNICAL PRODUCT CATALOGUE



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# Engineering heritage in lightning protection

## A track record built on engineering and testing

With a history dating back to 1835, Franklin France is recognised as one of the long-established names in the development of early streamer emission (ESE) air terminals, and it played a part in shaping the technical framework of NF C 17-102.

The Active 1D+ generation was launched in 2025. The family is designed, manufactured and assembled in France, and its performance, mechanical, environmental, electrical and electromagnetic compatibility tests are recorded in the product's technical documents.

1835

**FRANKLIN FRANCE**
Engineering and manufacturing in France

**01 Made in France**
Designed and assembled in France

**02 Activated by the natural storm field**
No battery or external power supply

**03 Bureau Veritas**
Independent inspection of the test sequence

**04 Qualifoudre**
Specialist lightning protection certification


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# How Active 1D+ works

The priming system is activated by the natural electric field of the storm and needs no battery, control cable or external power supply to operate.

**1 Polarisation of the internal system**

As the storm's electric field rises, the internal system connected to the tip of the air terminal becomes polarised.

**2 High-voltage pulse generation**

The natural corona effect feeds an oscillating circuit, which produces high-voltage pulses in step with the precursor phenomena of the lightning strike.

**3 Field enhancement at the striking tip**

The voltage produced strengthens the electric field and the ionisation around the tip.

**4 Earlier formation of the upward leader**

The upward leader forms earlier than from a simple air rod, so the strike is captured at the designed point.

**ΔT** The difference in mean upward leader initiation time between the ESE air terminal and a reference simple air rod under standard test conditions.






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# General specifications of the Active 1D+ family

Specifications shared across the product family; the order code and the advance time of each model are given on the models page.

| | |
|---|---|
| **Efficiency range** | ΔT = 12 / 25 / 45 / 60 µs |
| **Protection radius** | To clause 5.2.3.2 of NF C 17-102:2011 |
| **Performance check** | Dedicated tester, available separately |
| **Weather conditions** | Insulation protected by a deflector; water test above 56 L/min/m² |
| **Mast connection** | M20 male thread with lock nut |
| **Down conductor connection** | Connector to EN 62561-1 for flat or round conductors |
| **Net weight** | About 2.2 kg |
| **Main dimensions** | Height 490, body diameter 120 and base diameter 20 mm |
| **Warranty** | 18 months |

## Materials and construction

**Striking tip**
Nickel-plated copper

**Body**
304L stainless steel

**Deflector**
Weather-resistant polycarbonate

**Internal insulation**
PTFE

**Marking**
Permanent laser engraving

Deflector cut-away: insulation path shielded from rain

## Stability in heavy rain

A dedicated deflector protects the insulation path. The test stated in the manufacturer's datasheet was carried out with a water flow rate above 56 L/min/m².


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# Recorded tests and approvals

Product assessment covers performance, environmental durability, impulse current withstand and electromagnetic compatibility.

Laboratory photo
Performance test in a high-voltage laboratory

Performance test in a high-voltage laboratory

Laboratory photo
Electromagnetic compatibility test environment

Electromagnetic compatibility test environment

Laboratory photo
Performance test in heavy rain

Performance test in heavy rain

Laboratory photo
Environmental test in a controlled chamber

Environmental test in a controlled chamber

**The Annex C test sequence was carried out on a single sample.**


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# Test reports and certificates

| Test type | Reference | Report number | Test basis |
|---|---|---|---|
| **Marking and identification** | LIRI France | LiRi-EMA-22112024 | NF C 17-102 Annex C |
| **Mechanical tests** | LIRI France | LiRi-EM-22112024 | NF EN 62561-2 |
| **Environmental tests** | LCIE France | 24449057-806976 | NF EN 60068-2-52 |
| **Lightning impulse current** | CITEL Laboratory | LER-24-102-RE | 100 kA - 10/350 µs |
| **Performance and advance time verification** | LIRI France | LiRi-HT-13022025 | NF C 17-102 Annex C |
| **Test sequence inspection** | Bureau Veritas | 24603101/3/1.x.R | 12 / 25 / 45 / 60 µs |
| **EMC immunity and emission** | Independent Lab | XP30525433 | NF EN 61000-6-2/-3 |



**Made in France**

Designed & assembled in France

ISO 9001:2015 logo

**ISO 9001:2015**

AFNOR 2022:102639.9

Qualifoudre logo

**Qualifoudre**

INERIS 051168352016

Bureau Veritas logo

**Bureau Veritas**

Reports 24603101/3/1.x.R


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# Basis for calculating the protection radius

$$Rp = \sqrt{[(2rh - h^2) + \Delta(2r + \Delta)]} \qquad h \geq 5\ m$$

For heights below 5 m, the rules of clause 5.2.3.2 of the standard apply.

| | |
|---|---|
| Reference radius of the protection level | r |
| Numerical value of the advance time | Δ |
| Effective installation height | h |
| Protection radius | Rp |

The values of r for protection levels I to IV are 20, 30, 45 and 60 m respectively.

**ACTIVE 1D+ 12 µs**

| h | I | II | III | IV |
|---|---|---|---|---|
| 2 | 11 | 13 | 16 | 19 |
| 4 | 23 | 27 | 32 | 37 |
| 5 | 28 | 34 | 41 | 46 |
| 6 | 29 | 34 | 42 | 48 |
| 8 | 30 | 36 | 43 | 50 |
| 10 | 30 | 37 | 45 | 52 |
| 20 | 32 | 41 | 51 | 60 |
| 30 | 32 | 42 | 55 | 65 |

**ACTIVE 1D+ 25 µs**

| h | I | II | III | IV |
|---|---|---|---|---|
| 2 | 17 | 20 | 23 | 26 |
| 4 | 34 | 39 | 46 | 52 |
| 5 | 42 | 49 | 57 | 65 |
| 6 | 43 | 49 | 58 | 66 |
| 8 | 43 | 50 | 59 | 67 |
| 10 | 44 | 51 | 61 | 69 |
| 20 | 45 | 54 | 65 | 73 |
| 30 | 45 | 55 | 68 | 80 |

**ACTIVE 1D+ 45 µs**

| h | I | II | III | IV |
|---|---|---|---|---|
| 2 | 25 | 28 | 32 | 36 |
| 4 | 51 | 57 | 65 | 72 |
| 5 | 63 | 71 | 81 | 89 |
| 6 | 63 | 71 | 81 | 90 |
| 8 | 64 | 72 | 82 | 91 |
| 10 | 64 | 72 | 83 | 92 |
| 20 | 65 | 74 | 86 | 97 |
| 30 | 65 | 75 | 89 | 101 |

**ACTIVE 1D+ 60 µs**

| h | I | II | III | IV |
|---|---|---|---|---|
| 2 | 31 | 34 | 39 | 43 |
| 4 | 63 | 69 | 78 | 85 |
| 5 | 79 | 86 | 97 | 107 |
| 6 | 79 | 87 | 97 | 107 |
| 8 | 79 | 87 | 98 | 108 |
| 10 | 79 | 88 | 99 | 109 |
| 20 | 80 | 89 | 102 | 113 |
| 30 | 80 | 90 | 104 | 116 |

All values in the tables are in metres, as given in the Franklin France technical brochure.


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# The Active 1D+ family

**ACTIVE 1D+**

## 12 µs

Without counter
**AFB20121D**
With counter
**AFB27121D**

**ACTIVE 1D+**

## 25 µs

Without counter
**AFB20251D**
With counter
**AFB27251D**

**ACTIVE 1D+**

## 45 µs

Without counter
**AFB20451D**
With counter
**AFB27451D**

**ACTIVE 1D+**

## 60 µs

Without counter
**AFB20601D**
With counter
**AFB27601D**

### Choosing a model does not replace system design

A longer advance time is not necessarily the better engineering choice for every project. The model must match the risk level, the size and height of the structure, the route of the down conductors and the layout of the earthing system.



1 **Risk assessment and choice of protection level**

An essential step in design and final selection

2 **Modelling the protected volume on the real geometry**

An essential step in design and final selection

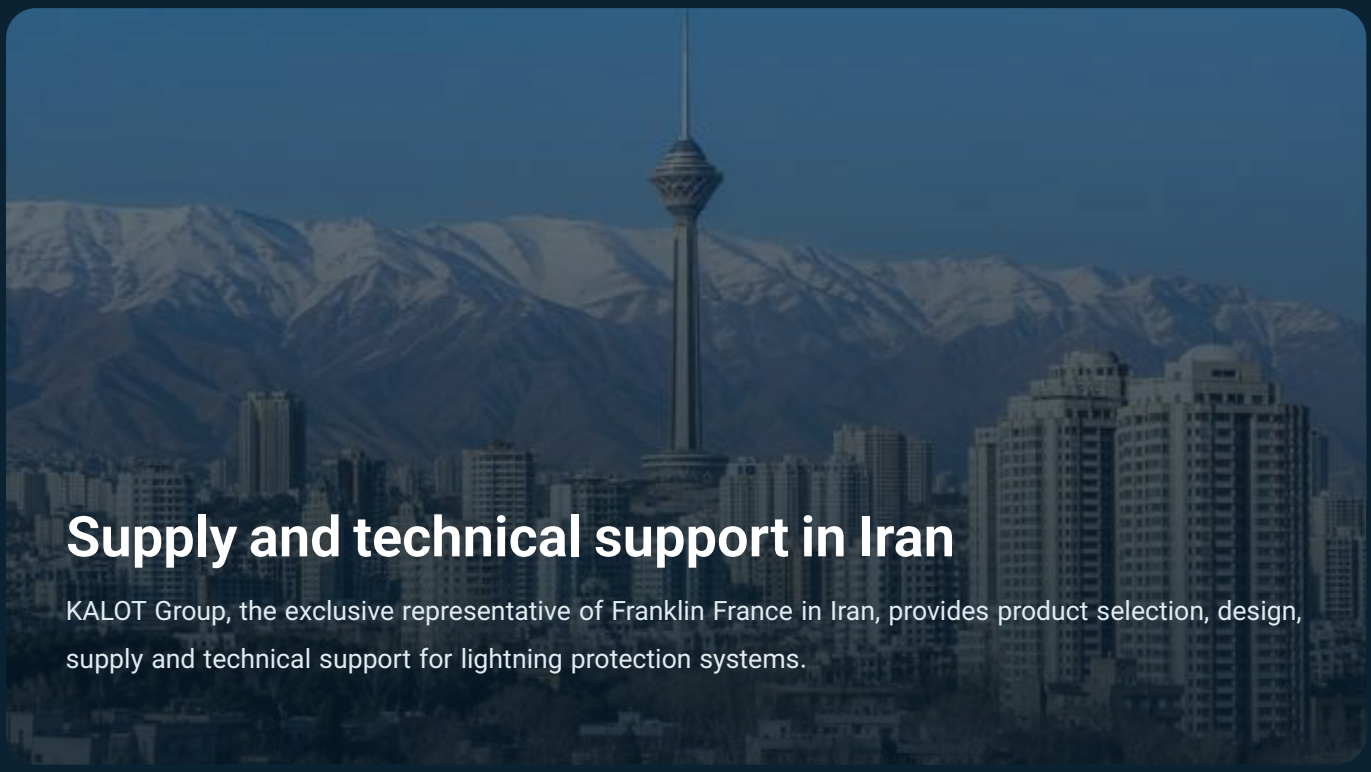
3 **Design of down conductors, bonding and the earthing system**

An essential step in design and final selection

4 **Checking separation distance and internal protection**

An essential step in design and final selection


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# Supply and technical support in Iran

KALOT Group, the exclusive representative of Franklin France in Iran, provides product selection, design, supply and technical support for lightning protection systems.

01 **Risk assessment and choice of protection level**

02 **Design of the lightning protection system (LPS) for the building envelope**

03 **Earthing and bonding design**

04 **Overvoltage protection design**

05 **Supply of ESE air terminals, SPDs and earthing equipment**

06 **Periodic testing, training and specialist consultancy**

**Exclusive representative of Franklin France in Iran**

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Tehran International Tower, Wing C, Unit C2, Tehran

Sources: FT147EN.QLF.00 / BR004EN.QLF.00 - Franklin France



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