

# star<sup>®</sup>

**Air Terminal - Lightning Rod**  
**Early Streamer Emission (ESE)**



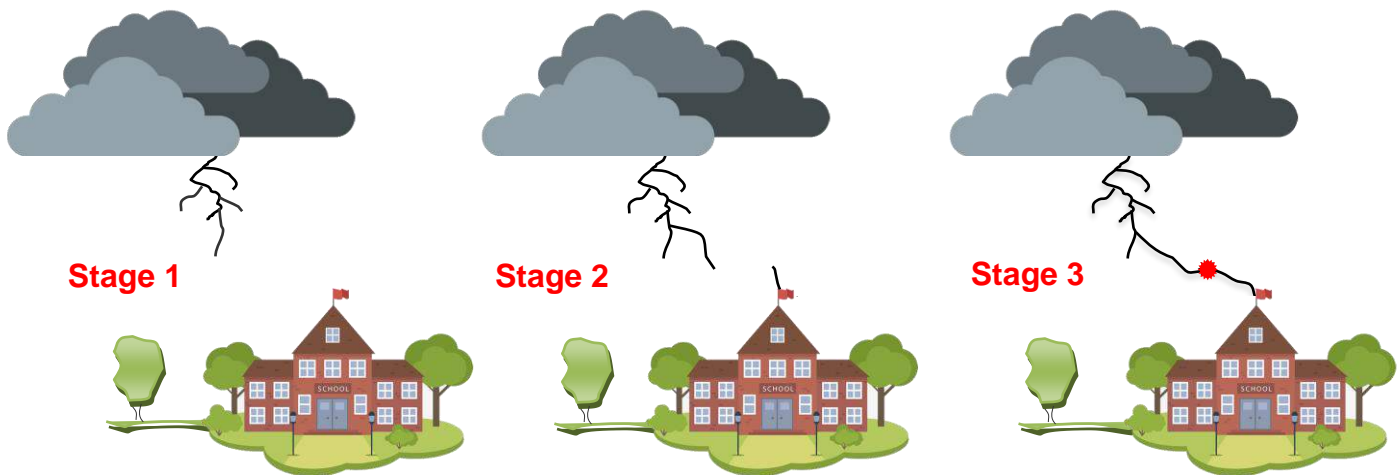
# MANUFACTURER OF LIGHTNING PROTECTION AND EARTH PROTECTION

## Operating principle of STAR<sup>®</sup> lightning rods EARLY STREAMER EMISSION - AIR TERMINAL (ESE)

The Advance to Priming contained by the CDT, allows STAR<sup>®</sup> Starter Early Streamer Emission – Air Terminal (ESE) to manage the lightning process, and ensuring effective protection of his area.

### Description of the protective process :

- ❖ The CDT detects the potential rise of the ambient electric field,
- ❖ Process of engagement of the principle of protection, preceding the atmospheric discharge,
- ❖ Creating the potential difference between the main body of STAR and upper fins,
- ❖ Loading the upper fins of the STAR lightning rod,
- ❖ Control of the ascending tracer released by the STAR, and evacuation in earth.



1. Descent of lightning leaps,
2. Activation of the priming system of the ESE STAR<sup>®</sup>,
3. Supports lightning impact, for earth evacuation.

### Advantages of STAR<sup>®</sup> EARLY STREAMER EMISSION - AIR TERMINAL (ESE) :

- ❖ Electrical continuity of the Air Terminal (ESE), to the earth electrode,
- ❖ Natural dosing advances to boot, for optimal precision,
- ❖ Optimal response, with a margin of safety in stormy period,
- ❖ Proven operation in extreme weather conditions,
- ❖ Low carbon balance - less than 3500 grams CO<sub>2</sub> / piece,
- ❖ Reinforced CDT, with rising sensor acceleration,
- ❖ Autonomy, no power source,
- ❖ 5 years warranty, parts and labor,
- ❖ Packaging enhanced custom,
- ❖ Free technical support.



# MANUFACTURER OF LIGHTNING PROTECTION AND EARTH PROTECTION

PROTECTION **LLAMP**  
**TECH**®

## EARLY STREAMER EMISSION - AIR TERMINAL

**STAR® Strength :**

**Manufacturing in our workshops :**

Our manufacturing workshops, our quality monitoring and our testing procedures are our commitment to manufacture the best lightning protection products.

All the products we manufacture meet extremely stringent quality criteria.

They come from long studies and tests and correspond to needs of your market.



**4 powers of efficiency :**

Complies with the requirements of the standard NF C 17-102.

- ✓ **STAR 210** + 10 microseconds,
- ✓ **STAR 325** + 25 microseconds,
- ✓ **STAR 645** + 45 microseconds,
- ✓ **STAR 660** + 60 microseconds,



STAR 660



STAR 645



STAR 325



STAR 210

**STAR testing & validation :**

- ✓ Validation tests performed in Laboratory,
- ✓ Validation of tests in real protection situation,
- ✓ NF C 17-102 years 1995 – 2009 & 2011,
- ✓ EN 50164-1.



**Llamptech with you.**

- ❖ Studies and recommendations on request,
- ❖ Solutions adapted to your technical configuration,
- ❖ Respect of your budget,
- ❖ Permanent technical support.
- ❖ Presence in more than 50 countries

[www.llamptech.com](http://www.llamptech.com)

[info@llamptech.com](mailto:info@llamptech.com)

**LLAMPTECH**®

BROCHURE STAR®

# MANUFACTURER OF LIGHTNING PROTECTION AND EARTH PROTECTION

## Radius protection - AIR TERMINAL STAR® (ESE)

### STAR® 210 EFFICIENCY (ESE) +10µs PROTECTION RADIUS

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	8	13	15	17
3	12	19	20	24
4	17	26	34	38
<b>5</b>	<b>21</b>	<b>32</b>	<b>41</b>	<b>49</b>
10	23	37	48	53
20	24	41	52	55

Protection distances in meters

### STAR® 325 EFFICIENCY (ESE) +25µs PROTECTION RADIUS

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	17	23	26	28
3	25	34	35	39
4	34	46	49	54
<b>5</b>	<b>42</b>	<b>57</b>	<b>63</b>	<b>67</b>
10	44	61	70	74
20	45	65	72	77

Protection distances in meters

### STAR® 645 EFFICIENCY (ESE) +45µs PROTECTION RADIUS

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	25	32	34	36
3	38	48	51	55
4	51	65	70	73
<b>5</b>	<b>62</b>	<b>80</b>	<b>83</b>	<b>89</b>
10	64	83	91	94
20	65	86	97	99

Protection distances in meters

### STAR® 660 EFFICIENCY (ESE) +60µs PROTECTION RADIUS

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	32	40	42	44
3	48	59	61	65
4	64	78	82	87
<b>5</b>	<b>79</b>	<b>97</b>	<b>99</b>	<b>107</b>
10	80	99	101	109
20	82	101	103	111

Protection distances in meters



Included in the pack STAR®



### STAR® - AIR TERMINAL (ESE) and recycling combine to infinity ...



Protecting and safeguarding our environment is one of the objectives first of Llamptech®.

Recycling the STAR® lightning rod saves natural resources and 95% of the energy needed to produce the primary metal.

Protecting and safeguarding our environment is an essential goal of a recycling process.

► That's why the development of our STAR® is partly in MPM.

