

06 SPECIFICATIONS

Model	TP250	TP450	TP650
Advance the pre-discharge time	≥ 25μs	≥ 45μs	≥ 65μs
Lightning current capacity	100kA (10/350μs)		
Impulse resistance	< 2Ω		
Static resistance	< 0.3Ω		
Wind strength	62m/s (level XVII)		
Needle diameter	166mm		
Needle height	790mm		

07 RELATED PRODUCTS



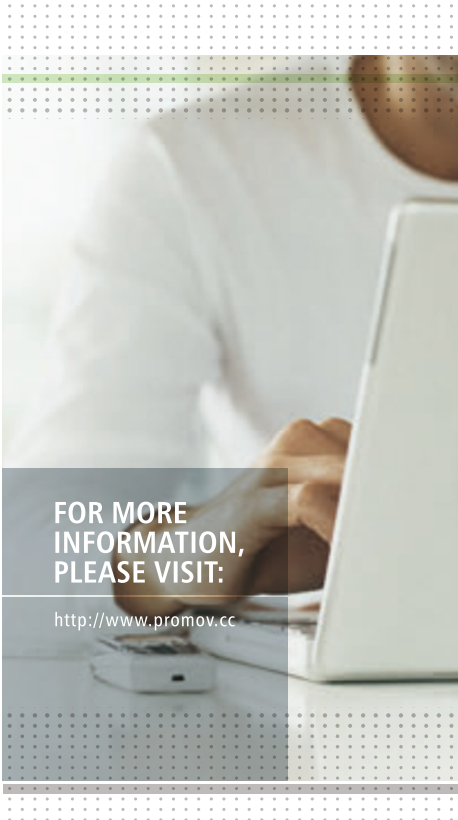
LIGHTNING DATA LOGGER

T03-A2-1 lightning data logger is mainly used to detect the peak value of lightning pulse current in real time.

Character:

- Can measure the peak value of lightning pulse current, the number of times and the occurrence time of lightning strike
- High lightning response sensitivity, small threshold and large measuring range
- Winding process design with high collection accuracy
- Built-in solar power supply device and suitable for installation in places without power support
- Convenient installation and no need for any wiring

Model	T03-A2-1
Operating voltage	4.5VDC ± 10%
Power consumption	Measure: < 200mA; Sleep: ≤ 20uA
Threshold record	3kA
Record maximum peak	100kA
Measurement error	3-50kA (≤ 20% ± 2d); 50-100kA (≤ 30% ± 3d)
Measuring channel	1
Battery specification	3pcs 1.5V battery
Sending mode	Local read



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Pre-discharge Lightning Rod



XIAMEN TAIHANG TECHNOLOGY CO.,LTD



02 FIVE CHARACTERS

- 01** Under the Same Conditions (height), the Protection Range is Larger Than That of the Ordinary Lightning Rod
- 02** Pre-discharge Time Up to 65us
- 03** No Radioactive Elements, Stainless Steel Material, Corrosion Resistance, Strong Wind Resistance
- 04** No Power Supply, No Energy Consumption Components
- 05** Light Weight, Easy to Install

PRE-DISCHARGE LIGHTNING ROD

Pre-discharge lightning rod was produced to provide a safe and effective protection of lightning in different industries, eliminate the danger to personnel and equipment and win the user's trust. In order to provide more high-quality and efficient products, as a professional manufacturer, Taihang has organized R&D team to continuously improve the function and synchronously launch of a new generation of pre-discharge lightning rod!

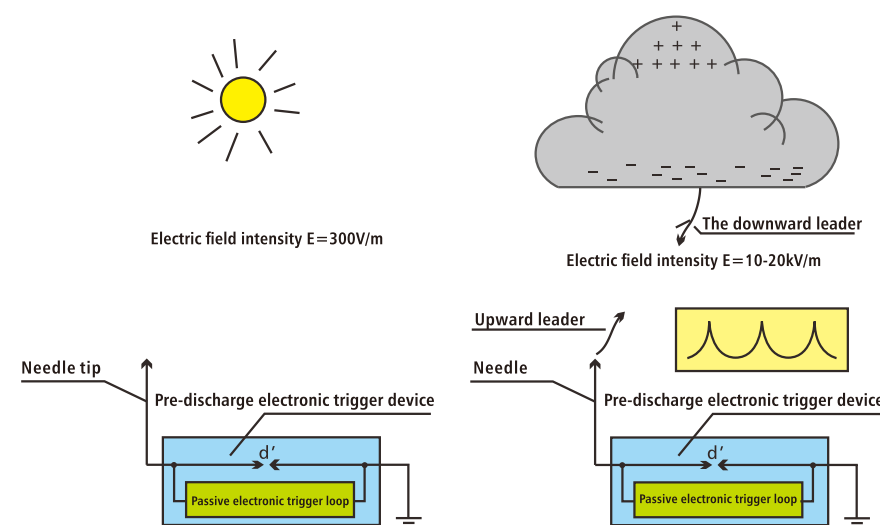
01 TP PRE-DISCHARGE LIGHTNING ROD WORKING PRINCIPLE

1, When the lightning cloud is formed, an electric field will be generated between the cloud and the ground, and the electric field strength can reach 14 kV/m, so that the convex part of the ground or the tip of the metal part begins to appear corona discharge.

2. When a downward leader is formed inside the lightning cloud, the lightning shock begins. The downward leader charge develops towards the ground in the form of steps, and the charge carried by the downward leader strengthens the electric field established between the ground and the downward leader.

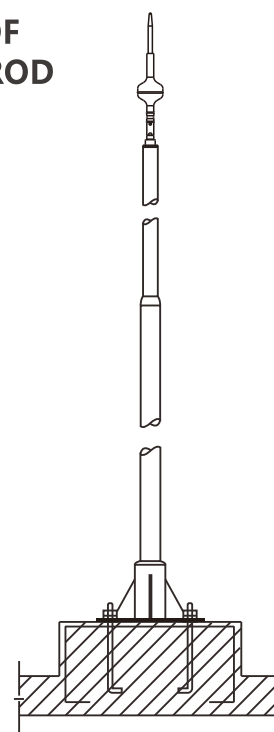
3. An upward leader is generated from a building or object on the ground. This upward leader propagates upward until it meets the downward leader, at which point the lightning current flows through the formed channel. A single building on the ground may produce several upward leaders, and the first upward leader that meets the downward leader determines the location of the lightning shock.

4, The working principle of the pre-discharge lightning rod is to produce a faster uplink leader than the ordinary lightning rod.



03 DESIGN AND INSTALLATION OF PRE-DISCHARGE LIGHTNING ROD

- ◆ According to the area of the protected building, height, the number of lightning days and geographical environment correction factor, and the use of the building, the type of lightning protection will be determined.
- ◆ According to the type of lightning protection and the area of the building, the choice of one or several TP pre-discharge lightning rod will be determined will be determined.
- ◆ The down conductor should be electrically connected with the main building steel bar, or according to the regulations, two or more down conductors need to be made.
- ◆ The down conductor should be made breaking of contact and insulation protection on the nearby ground.
- ◆ The grounding body must meet relevant standards.



04 SELECTION

Model	Pre-discharge time ΔT
TP250	25 μ s
TP450	45 μ s
TP650	65 μ s

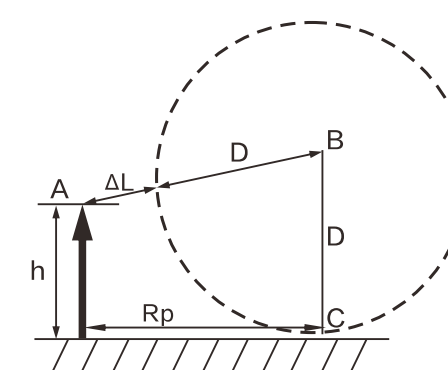
05 CALCULATION OF PROTECTION AREA

The protection radius R_p is determined by three factors: the actual measured ΔT , the protection level of the protected object or the protection level calculated by the lightning hazard assessment, and the vertical distance h from the tip of the pre-discharge lightning rod to the protected object.

The French national lightning protection standard NFC17-102 standard stipulates that the effective height h is the vertical distance from the tip of the pre-discharge lightning rod to the protected object, and R_p is the protection radius on the horizontal plane.

When $h \geq 5$,

$$R_p = \sqrt{h(2D-h) + \Delta L(2D + \Delta L)}$$



In the formula:

R_p is the protection radius of the horizontal plane under consideration;
 h is the horizontal height difference between the tip of the needle and the top of the protected object;
 D is the radius of the rolling ball (striking distance);
 ΔL is the up-swing distance of the pre-discharge;
 $\Delta L = V$ (m/microsecond) $\times \Delta T$ (microsecond);
 V is the average leader propagation speed ($V = 1$ m/microsecond).

Rolling ball radius:

The first class building: 30m
The second class building: 45m
The third class building: 60m

When $h < 5$, see the protection radius table

Pre-discharge lightning rod for different types and installation heights protection radius (Rp) for various types of lightning protection buildings														
Pre-discharge Lightning Rod	h= Horizontal height above protected object (m)													
	2	3	4	5	6	7	8	9	10	15	20	30	45	60
Class I lightning protection building														
TP250	20	29	39	49	49	50	50	51	51	53	54	55		
TP450	28	42	57	71	71	71	72	72	72	73	74	75		
TP650	35	52	69	86	87	87	87	88	88	89	89	90		
Class II lightning-proof building														
TP250	23	34	46	57	58	59	59	60	61	63	65	68	70	
TP450	32	48	65	81	82	82	82	82	83	85	86	89	90	
TP650	39	58	78	97	97	98	98	99	99	101	102	104	105	
Class III lightning-proof building														
TP250	26	39	52	65	66	66	67	68	69	72	75	80	84	85
TP450	36	54	72	89	91	91	91	92	92	95	97	101	104	105
TP650	43	64	85	107	107	108	108	109	109	111	113	116	119	120