REPSUN Smart ESE

Introduction



REPSUN Lightning Protection Co., Ltd

Add: Lixin Industrial Park Shiji Dongyong, Nansha, Guangzhou, China.

Tel: 86-20-34923866#836 Phone: 86-13923097393

E-mail: info@xierli.com Web: www.repsun.com

REPSUN®

Smart lightning surge protection, make safe online.

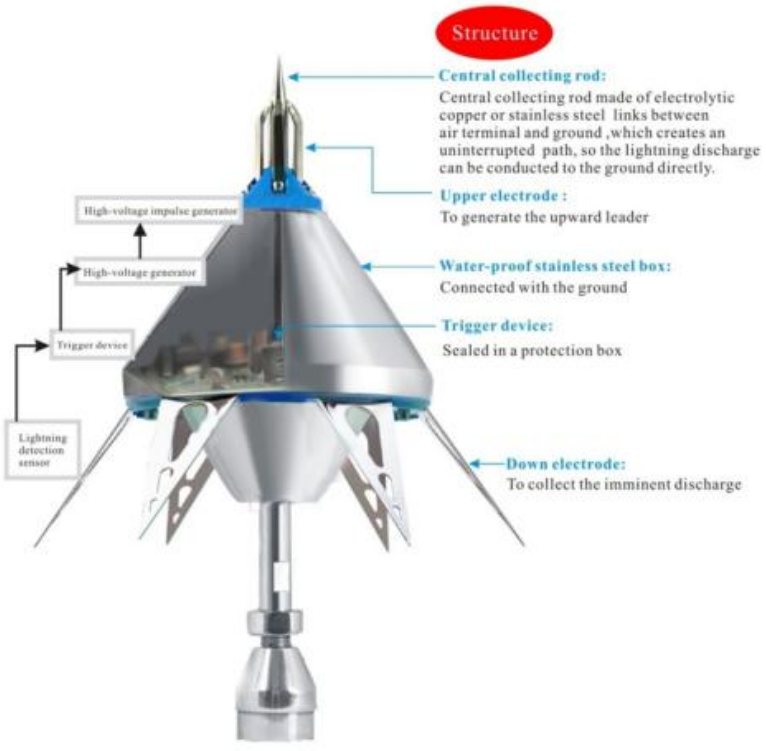
1.REPSUN Smart ESE Introduction

Smart ESE was launched as the first generation products in 2005 after years of research and test, which is widely used in various industries around the world.The products have been praised by experts and users for the lightning protection effect after over 10 years of test and validation. The second generation of Smart ESE was launched in 2015. The advanced technology made the Smart ESE as a new development direction of the lightning protection products.

Smart ESE series comprises 5 different product categories. It is different in the appearance of each category with the own characteristics,but the basic structure and the principle are the same.

It mainly includes the following parts:

- Central collecting rod: Made of electrolytic copper or stainless steel links between air terminal and ground ,which creates an uninterrupted path, so the lightning discharge can be conducted to the ground directly.
- Upper electrode : To generate the upward leader.
- Water-proof stainless steel box: Connected with the ground.
- Trigger device: Sealed in a protection box.
- Down electrode: To collect the imminent discharge.



2.REPSUN Smart ESE Family

2.1 Smart ESE Products:


SMART-ESE88


SMART-ESE88


SMART-ESE68


SMART-ESE28


SMART-ESE10


SMART-ESE25

2.2 Smart ESE Key Features:

- Web platform and phone APP remote monitoring;
- Equipped with a smart tester;
- CNAS laboratory test report;
- 10 years warranty.

2.3 Smart ESE Functions

Lightning Protection
ESE status
Lightning counter
Lightning intensity
Lightning time
Temperaure and humidity
Grounding wire connectivity
Grounding resistance

4.REPSUN Smart ESE air terminal VS traditional air terminal

4.1: The technology of REPSUN lightning rod:
The latest technology based on early streamer emission.

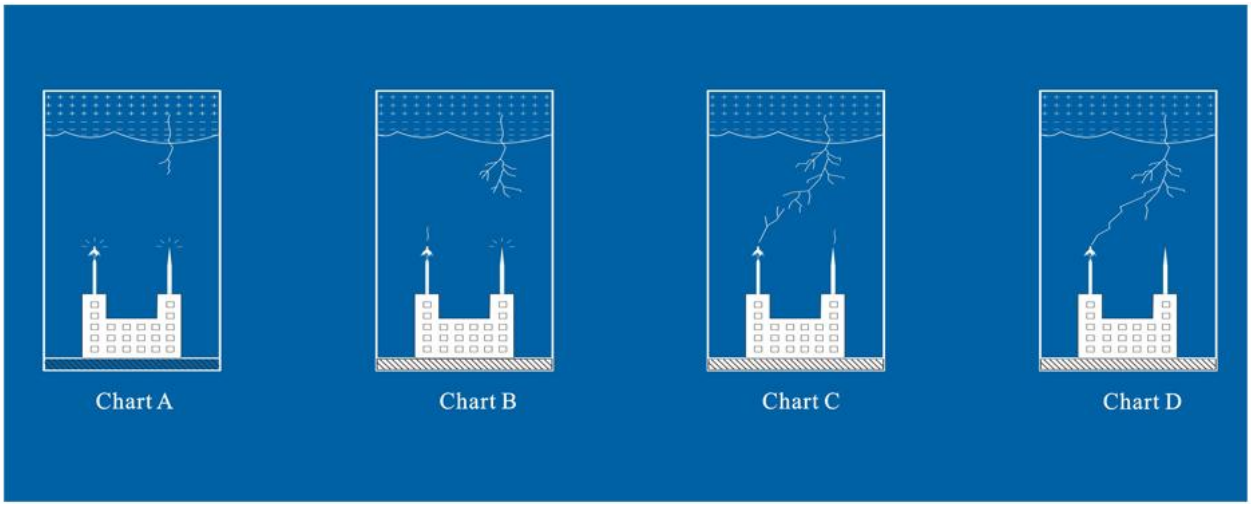
4.2: The technology of conventional lightning rod:
Around 260 years' old design based on Franklin technology;

4.3: Work principle of REPSUN Smart ESE air terminal (in three stages):

A.The ionization device is charged via the lower electrodes using the ambient electrical filed (several million volts/meter when storms are prevalent). This means REPSUN Smart ESE air terminal system is a fully autonomous system requiring no external power supply.

B.The ionization phenomenon is controlled by a device which detects the appearance of a downward leader, the local electrical field increases rapidly when a discharge is imminent. REPSUN Smart ESE air terminal detects charges in the field, making it the first E.S.E. air terminal to react at the precise moment when the downward leader develops from the cloud to the ground.

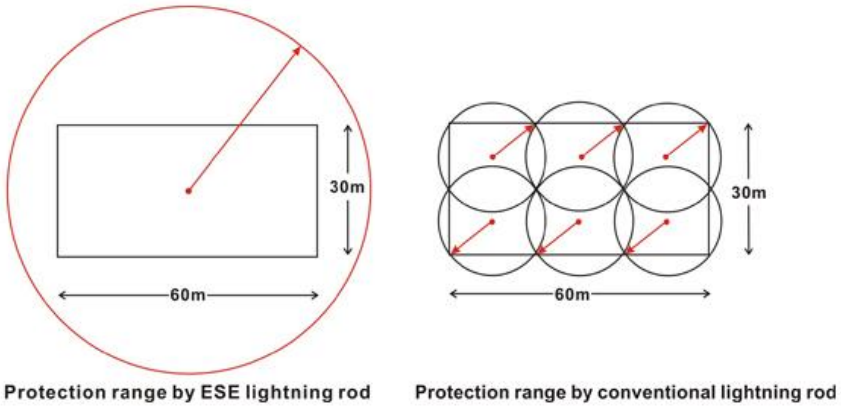
C.Early triggering of the upward leader using a system of spark ionization between the upper electrodes and the central tip. REPSUN Smart ESE air terminal 's ability is to trigger an upward leader ahead of any other protruding point of the protected area ensures it will be the preferential point of impact for the lightning discharge.



5.Protection radius of REPSUN Smart ESE air terminal VS traditional air terminal

5.1: REPSUN Smart ESE air terminal: wider protection radius according to the standard NFC17-102:2011;

5.2: Traditional air terminal: Limit protection radius.



Protection range by ESE lightning rod Protection range by conventional lightning rod

6.Key benefits of REPSUN Smart ESE

6.1: 5-model range offering customized solutions for each project.

6.2: Fully active system with early discharge function; Equipped with a smart ESE tester (REP-ESE TESTER) which can on site test the early discharge function of each electrode and the working status of the ESE air terminal.

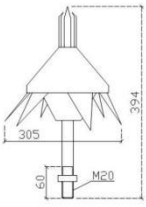
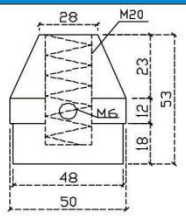
6.3: Certificate and CNAS laboratory test report (In accordance with NFC14-102:2011).

6.4: ESE air terminal only becomes active when electrical field intensity rises(lightning discharge likely),which has no threat to the surrounding environment.

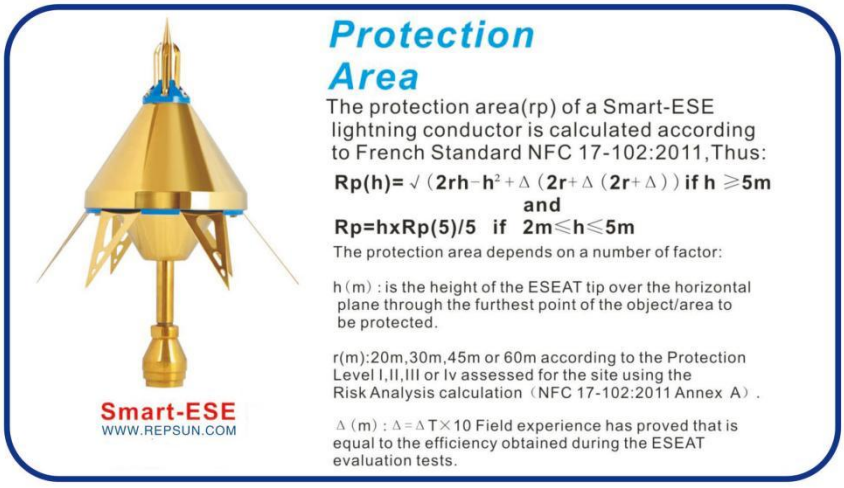
6.5: Total reliability,even in extreme climatic conditions.

6.6: 10 years warranty.

7.Technical specifications of REPSUN Smart ESE

Model	Smart ESE88
Characteristics	
Efficiency ΔT	60μs
Standard deviation ESE / Single rod σ	$^{\sigma}$PDA <0.4$^{\sigma}$pts
Lightning current withstanding test (10/350μs) Iimp	100kA (normative test)
Maximum current withstanding test (8/20μs) Imax	200kA (Unicamp)
Upward pole	6
Down pole	6
Net Weight	4.0kg
Operating principle	
Detection of download leader	Continuous measuring of electric field gradient
Upward streamer emission	Sparking by High Voltage Impulse
Internal circuits	6 independent circuits
Central rod	Stainless Steel 304,Φ20mm
Metal housing	Stainless Steel 304
On-site testing capabilities	REP-ESE TESTER
Maintenance	No need to connect the power source
Warranty	10 years
Mechanical specifications	
Fixing on pole	M20 Thread
Down conductor connection	Adapter (optional) Clamp
Packaging	
Dimensions (mm)	394 x 305 x 305
Gross Weight	5KG
Environmental sustainability	100% recyclable
Certifications	
NF C 17 102:2011, Annexe C	Beijing CNAS SPD test center
ISO 9001 : 2008	No.:04920Q01540R1M-2
Part No.	621120
Dimensions(mm)	**Diagram**
	

8.Protection Radius of REPSUN Smart ESE



Type		Smart-ESE10	Smart-ESE25	Smart-ESE28	Smart-ESE68	Smart-ESE88
Advanced Triggering △T		10μs	25μs	40μs	50μs	60μs
Dimension	Height	402mm	394mm	394mm	394mm	394mm
	Diameter(body)	220mm	305mm	305mm	305mm	305mm
Weight(kg)		3.0	3.8	3.5	3.5	4.0
Connection		M20				

Protection Level Ⅰ： r=20m

H(m)	2	3	4	5	10
ESE88	31	47	63	79	79
ESE68	27	41	55	68	69
ESE28	23	35	46	58	59
ESE25	17	24	34	42	44
ESE10	10	15	21	26	28

Protection Level Ⅱ： r=30m

H(m)	2	3	4	5	10
ESE88	34	52	68	86	88
ESE68	30	45	60	76	77
ESE28	26	39	52	65	67
ESE25	19	29	39	49	51
ESE10	12	19	25	31	34

Protection Level Ⅲ： r=45m

H(m)	2	3	4	5	10
ESE88	39	58	78	97	99
ESE68	34	52	69	86	88
ESE28	30	45	60	75	77
ESE25	23	34	46	57	61
ESE10	15	22	30	38	42

Protection Level Ⅳ： r=60m

H(m)	2	3	4	5	10
ESE88	43	64	85	107	109
ESE68	38	57	76	95	98
ESE28	33	50	67	84	87
ESE25	26	39	52	65	69
ESE10	17	26	34	43	49

9.Related Products of REPSUN Smart ESE

➢ ESE Tester (REP-ET26A)

- The tester is specially designed for a perfect portability for both installation and mounting.
- It has isolated cables and transport bag. Each circuit of ESE lightning rods can be tested by this ESE tester.
- Easy maintenance.
- It is designed exclusively for the evaluation of the current modules of REPSUN ESE lightning rods.





➢ Lightning Counter (REP-LC1)

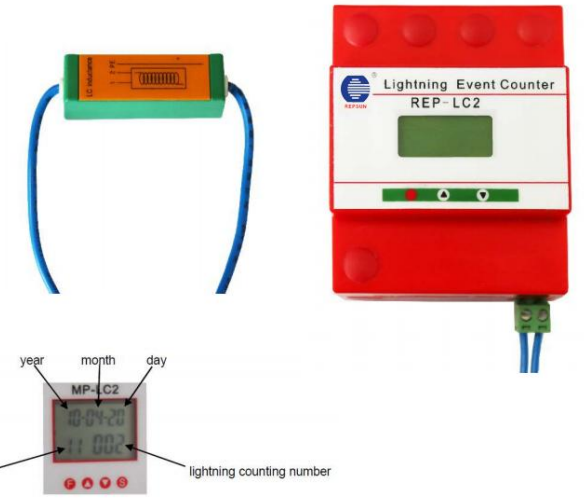
- Energy Saving Design, 160mA battery will be working at least 2 years without charging.
- FLASH memory chip, result is saved permanently after power fails
- Wave filtering technology makes it counts one lightning strike time for one continuous lightning strike.
- Press TEST, display counter result.





➢ Lightning Counter (REP-LC2)

- Energy Saving Design, 160mA battery will be working at least 2 years without charging.
- FLASH memory chip, result is saved permanently after power fails.
- Wave filtering technology makes it counts one lightning strike time for one continuous lightning strike.
- It's able to count to the exact date (Year,Month,Day,Hour,Minute,Second).
- Press TEST, display counter result.



➢ Lightning Counter (REP-LC3)

- Electromechanical lightning counter.
- 4 digits display (0~9999)
- With reset function by press a button to clear the number to "0".
- No need battery / power supply.
- Metal plate. Easy installation and use.
- Installation window--30mm.
- Sensitive response and wide lightning current measuring range.
- Can be used with all kinds of lightning and surge protectors and equipment.



10.Installation

10.1 For Building:

1.Active Capture Head



2.Elevation Pole



3.Lightning current monitor

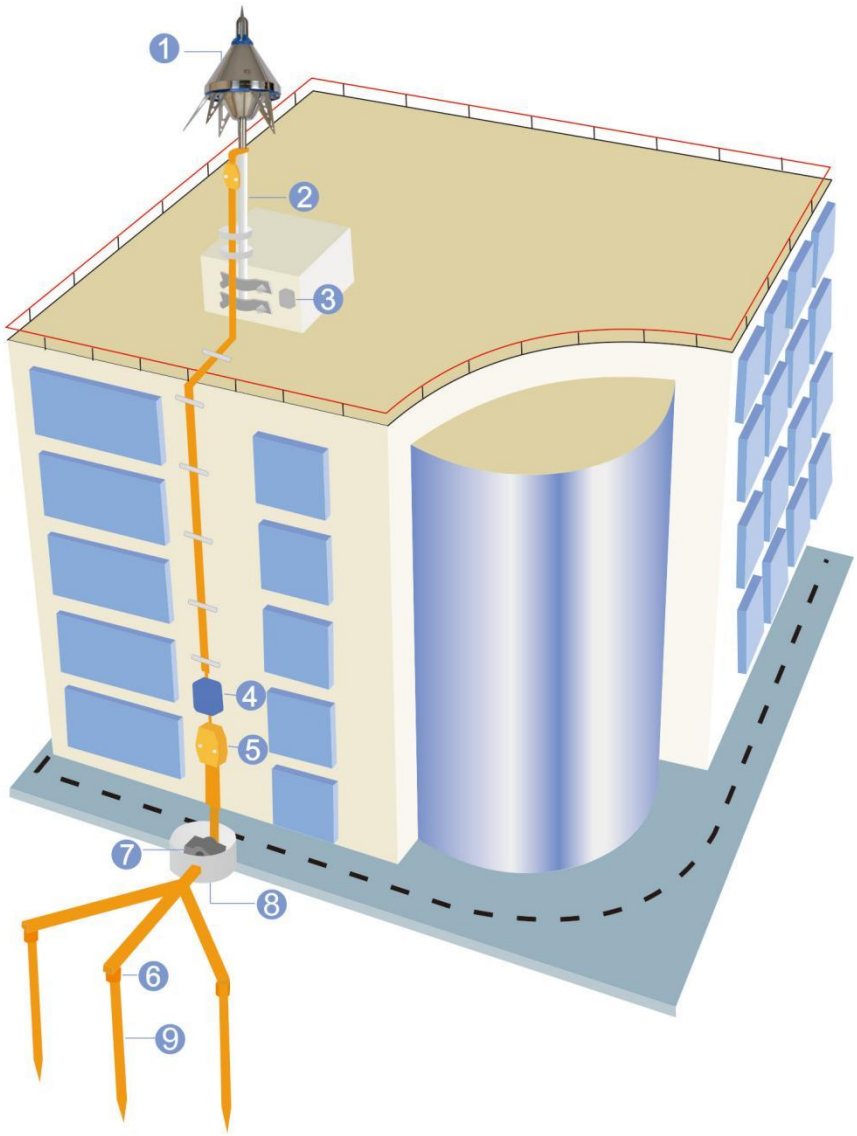


4.Lightning Event Counter



5. Test clamp





6.Rod-to Conductor Clamp



7.Earth Clamp



8.Inspection Housing



9. Earth Rod



10.2 For Open Area:

1、REPSUN ESE air terminal(ESE88)



2、Elevation pole



3、Fixing clamp



4、Down cable

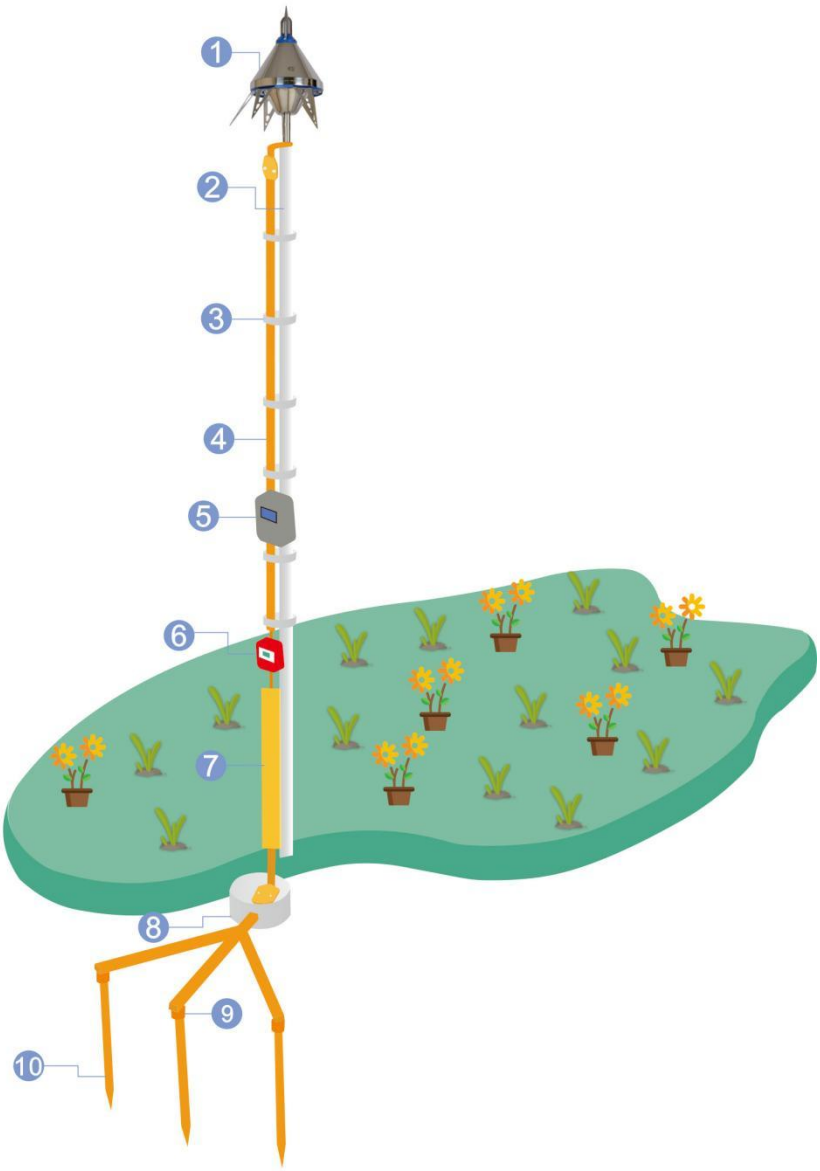


5、Lightning current monitor



6、Lightning counter





7、Protection sleeve



8、Inspection Housing



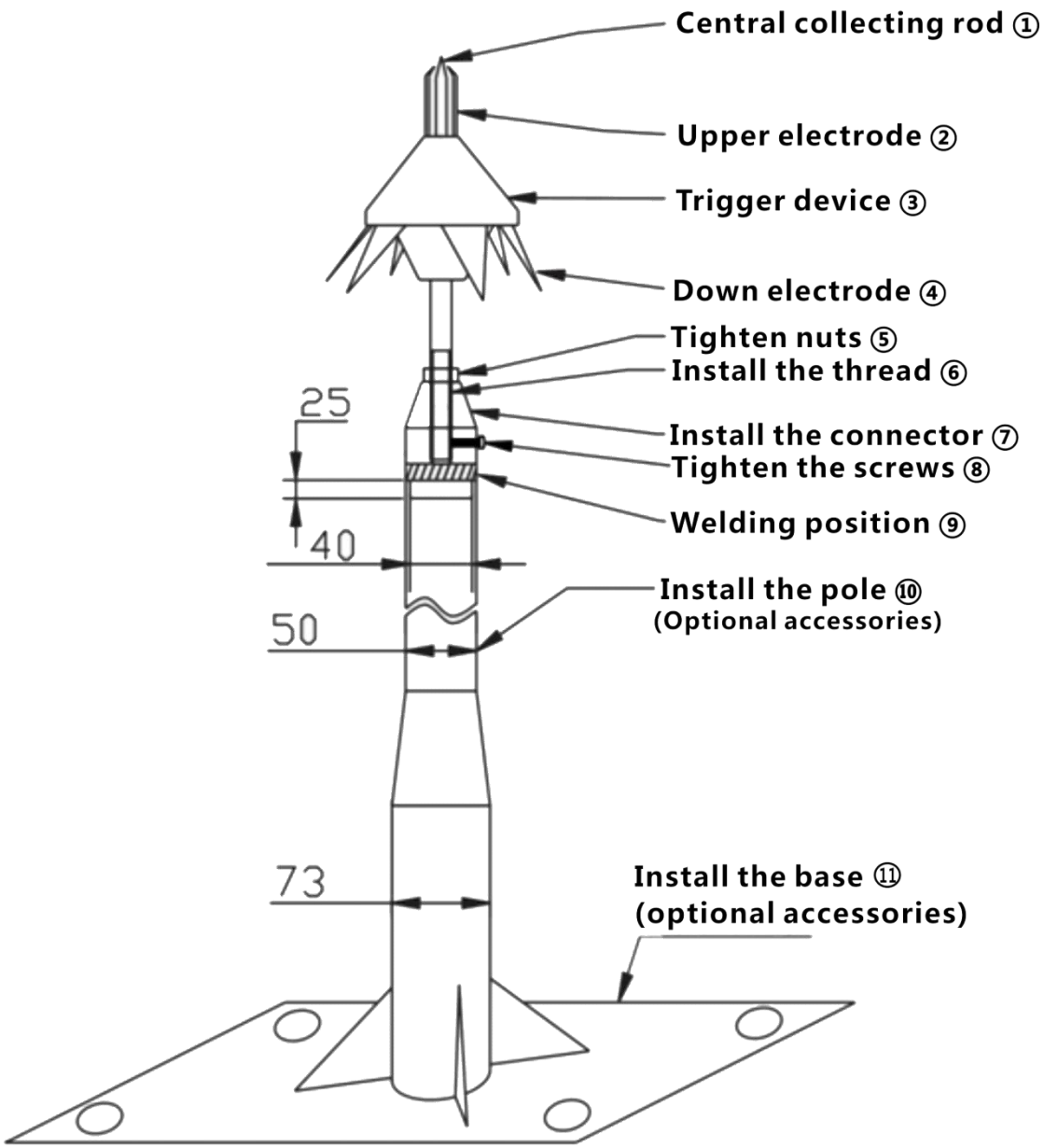
9、Earth clamp



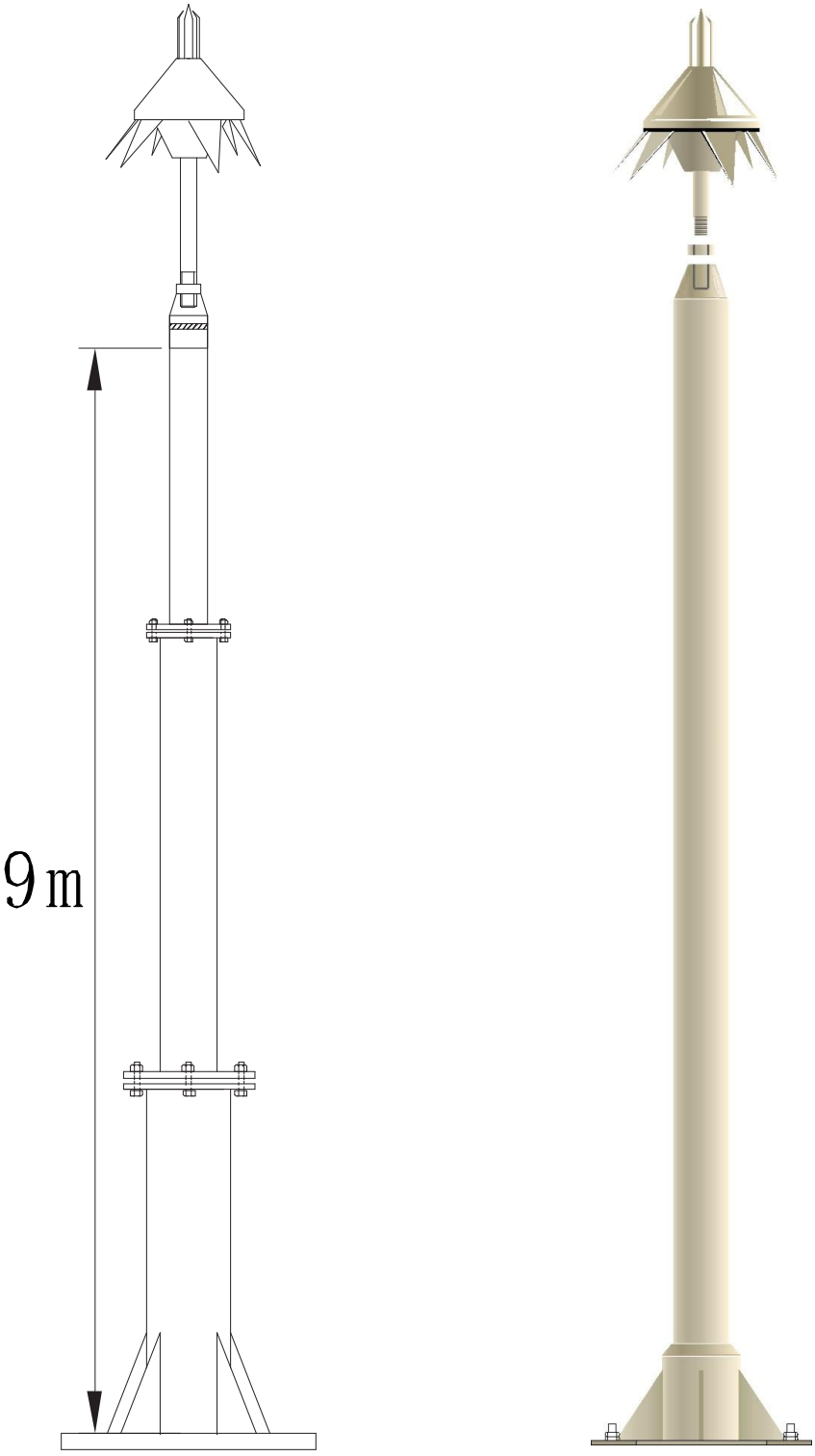
10、Earth Rod



10.3 Installation Diagram:



10.4 Size & Installation Diagram of Elevation Pole:



11.Application

Typical industry areas of REPSUN Smart ESE lightning rods are applicable include as following:

●Large-scale public facilities(such as:colleges、hospitals、amusement parks、sports fields、golf courses、petrol stations、highways、government agencies、business buildings,etc.)

●Civil buildings (such as residential buildings、villas、farms、grain depots, etc.)

●Military facilities(such as:radar stations、military camps、positions、battalion warehouse,etc.)

●Historical buildings

●Industrial facilities(such as:large factories And mines、dangerous cargo warehouse、transformer substation,etc.)

●Communication facilities(such as:telecommunication base stations、broadcasting and television towers、microwave station,etc.)

11.1 REPSUN Smart ESE Application in Communication Tower



11.2 REPSUN Smart ESE Application in Guangzhou Chimelong Amusement Park



11.3 REPSUN Smart ESE Application in Guangzhou 19th Route Army Cemetery



11.4 REPSUN Smart ESE Application in Nanhai Sports Park



11.5 REPSUN Smart ESE Application in Cloud Valley Telecom Data Center Building



11.6 REPSUN Smart ESE Application in Sun Yat-Sen University Sports Field



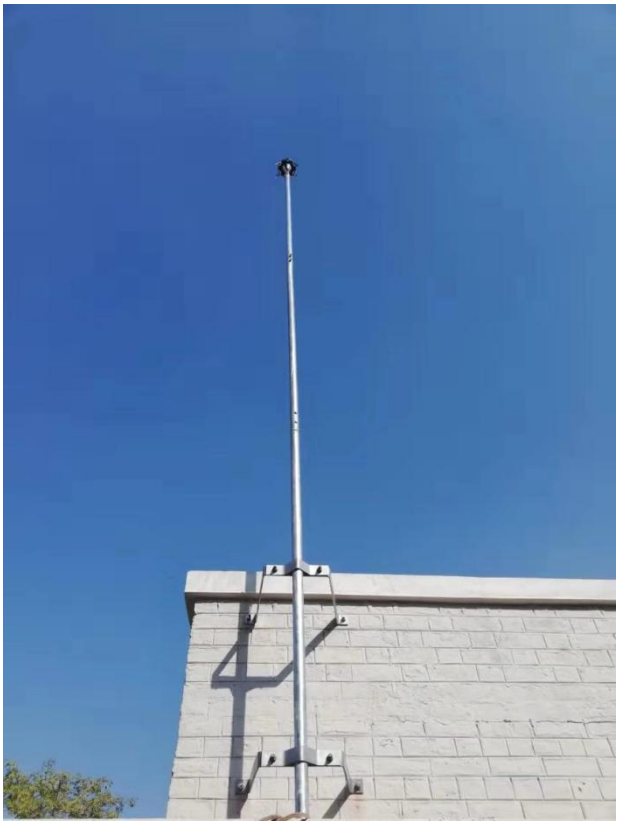
11.7 REPSUN Smart ESE Application in Sun Yat-Sen University Office Building



11.8 REPSUN Smart ESE Application in toll station



11.9 REPSUN Smart ESE Application in Pakistan



12.Certificate and Test Report (in accordance with NFC17-102:2011)

12.1 ISO9001-2015 (The Certificate of Quality Management System)



ISO 9001

The Certificate Of Quality Management System

Certificate No. : 04923Q00681R2M-2

Repsun Lightning Protection Technology Co., Ltd.

Address: Building 2, No.149, West Street, Ernichong, Shiji Village, Dongchong Town, Nansha District, Guangzhou City, Guangdong Province, P.R. China / Unified Social Credit Code: 91440115231303332N

According to your organization's application, our company carried out audit and certification in accordance with the requirements for *Quality Management System* (GB/T19001-2016/ISO9001:2015), it accords with the requirements through assessment. The scope of the certified QMS is:

Development, manufacture, and sales services for lightning protection products (SPD), grounding resistance online monitors, lightning online monitors, and surge protection device online monitors

Initial date: 2017-08-07

Term of validity of this certificate: 2023-05-22 to 2026-05-21

The scope of the certified should limits within the administrative licensing or China Compulsory Certification. The certified organization shall be subject to annual supervision of CTC during the validity period.The Certificate is only valid with the annual surveillance labels. The certificate related information can be obtained through the national certification and accreditation Information public service platform (http://cx.cnca.cn) or customer service hotline 400-888-2538.

The first surveillance	The second surveillance

中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C049-M

Chairman

Guangdong Quality Testing CTC Certification Co., Ltd.

Address: No. 10, Science Avenue, Huangpu District, Guangzhou, Guangdong, China

Tel.: 86-020-89232333 Fax: 86- 020-89232078 Web: www. qtctc. org

12.2 The Certificate of Patent for Invention



证书号第2805058号

发明专利证书

发明名称：一种互联网避雷针及其测试方法

发明人：刘苗苗;熊晓洪

专利号：ZL 2016 1 0485038.1

专利申请日：2016年06月28日

专利权人：广东立信防雷科技有限公司

授权公告日：2018年02月06日

本发明经过本局依照中华人民共和国专利法进行审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为二十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年06月28日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

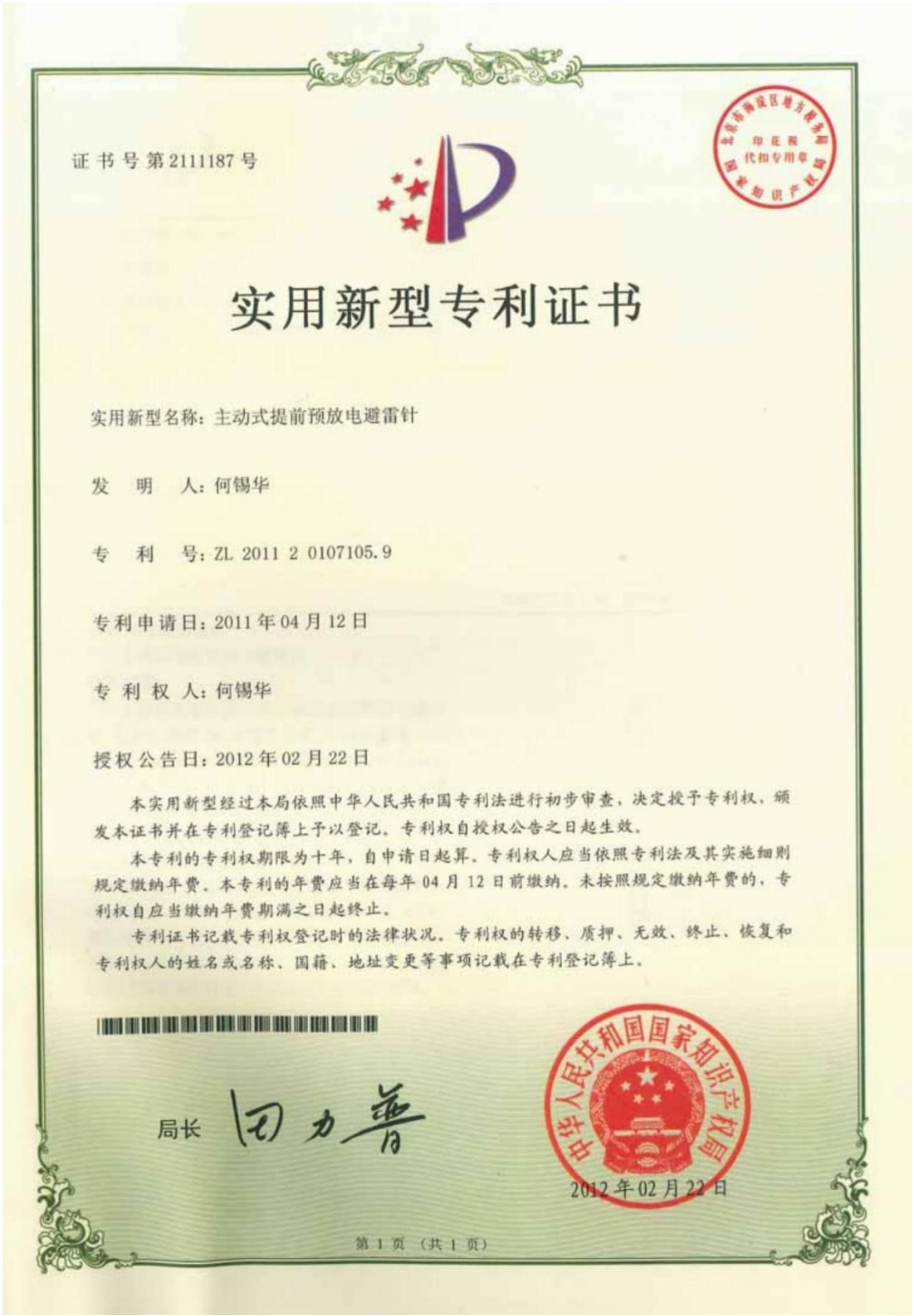
专利证书记载专利权登记时的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

局长
申长雨

中华人民共和国国家知识产权局
2018年02月06日

第1页(共1页)

12.3 The Certificate of Patent for Utility Models



证书号第2111187号

实用新型专利证书

实用新型名称：主动式提前预放电避雷针

发　明　人：何锡华

专　利　号：ZL 2011 2 0107105.9

专利申请日：2011年04月12日

专利权人：何锡华

授权公告日：2012年02月22日

本实用新型经过本局依照中华人民共和国专利法进行初步审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年04月12日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

专利证书记载专利权登记时的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

局长 田力普

中华人民共和国国家知识产权局

2012年02月22日

第1页（共1页）

12.4 The Certificate of Design Patent



证书号第645782号

外观设计专利证书

外观设计名称：避雷针(主动式提前预放电)

设　计　人：何锡华

专　利　号：ZL 2006 3 0068416.3

专利申请日：2006 年 8 月 11 日

专 利 权 人：何锡华

授权公告日：2007 年 5 月 9 日

本外观设计经过本局依照中华人民共和国专利法进行初步审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。缴纳本专利年费的期限是每年8月11日前一个月内。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

专利证书记载专利权登记时的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

局长

中华人民共和国国家知识产权局

2007 年 5 月 9 日

第 1 页(共 1 页)

Web: www.repsun.com　Tel: 86-20-34923866#836　E-mail: info@xierli.com

12.5 Test Report



S/N:2022-ESE-L0346

测 试 报 告

Test Report

样品名称： Sample name:	提前放电避雷针 Early Streamer Emission Air Terminal
型号规格： Model:	REP-ESE88
受检单位： Applicant:	广东立信防雷科技有限公司 REPSUN Lightning Protection Co.,Ltd
检测类别： Type of test:	委托试验 Consignment Test
报告签发日期： Date of issue:	2022 年 04 月 22 日 April 22, 2022

北京市雷闪防雷设施检测服务中心

Beijing Leishan Testing Service Center of Lightning Protection Facilities