REP-LWS

Lightning Warning System

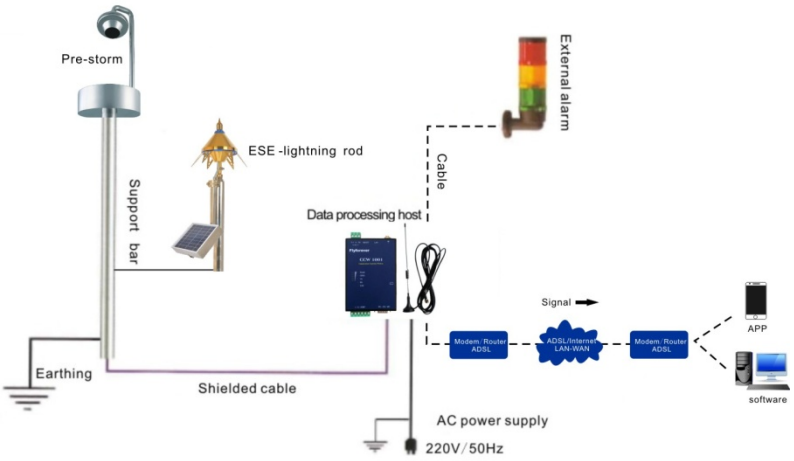
Type **REP-LWS**

Background

Basically, nobody wants to be caught outside in the countryside during a severe lightning storm and an early warning system would be a welcome advantage.

Principle

REP-LWS is the only system that monitors the most fundamental factor of lightning happens,
storm cloud electrical charges (or electric field intensity);
By detecting and analyzing the variation of atmospheric electric field intensity and polarity,
it can predict when a lightning storm is forming and whether it would be dangerous to anyone near it.



Benefits and Features

1：Up to 15-20miles detection radius;
2: Rugged construction, long life service；
3：Visual and audible alarms, both on site
and by communication like PC, cell phone etc.
4：Optional meteorological sensors for expanded weather monitoring and logging;
5：Low power consumption, low maintenance.
6：Strong anti-interference ability;

Main parts

1：Pre-storm(Atmospheric electric field monitor)

I:To real-time monitor the atmospheric electric field intensity;
II: It shall automatically recognize the electric field intensity when thunder clouds approaching, and send out lightning warning signal of different three levels accordingly.

2: Software management system

The software management system consists of comprehensive data transmission and storage function. It is useful for remote monitoring, and retrieval of logged data for analysis, in order to perform accurate warning alarm to user during variation of atmospheric electric field intensity and polarity.

Functions and Applications

Functions: With REPSUN's REP-LWS, there shall be enough time to take action to prevent damage before lightning strike approaches; to reduce the risk of injury to persons; and economic losses;
Applications: Meteorological industry; Mobile communication industry; Mobile base station; Tourism; leisure industry; Oil depot industry etc.

Standard and certification

Standard: IEC62305-2 **Certification: CE; ISO 9001 : 2008**

Technical Specification

Pre-storm

1: Measurement of atmospheric electric field intensity based on electrostatic field principle;
2:The electric field intensity measured by different method and the industrial interference signal is eliminated;
3: Protect the measuring electrode effectively in harsh environments;
4:The mechanical part consists of an electrode and a screw motor, and able to resist acid pollution;
5:Wide detection range;
6: Long service life, especially the rotating part;

Material	Aluminum alloy, watering the resin
Size(mm)	D:240; H:100
Protection index(IP)	53
Power consumption(mA)	110(not include heating wire)
Operating temperature range(℃)	-25~65
Protection radius(km)	20(According to characteristics of the site)
Measuring range(kv/m)	300~+300
MTBF	>10000h
MTTR	<0.5h
Maximum speed of motor(rpm)	3000
Power supply(Vdc)	24(12-48)
Standards compliant	Safety certification standards,CEM

Data Processing Host Panel

1:Real-time monitoring of atmospheric electric field intensity;
2:Connection: serial bus, Ethernet(via converter);
3:Wired LAN transmission;
4:GPRS,CDMA wireless data transmission;
5: Power supply mode, direct power supply, solar panel;
6:Product Category: Wired Data Transmission with AC Power Supply, Wireless Data Transmission with AC Power Supply, Wireless Data Transmission with Solar Power Supply.

Net- storm Manager

System Introduction

1: Atmospheric electric field network system conducts real-time monitoring and data storage, and provides online configuration and management of atmospheric electric field instruments, custom data transmission and storage strategy;
2: To provide electric field data display, curve tracking display and early warning status display on a WEB server-architecture-based GIS platform, and able to synchronize the display of lightning, radar and other information, which directly reflect the lightning warning process.
3: Combined with lightning location and radar data, to achieve a comprehensive grid lightning warning, to provide three levels of lightning warning signal by real-time release management and SMS bulk sending function;
4: To provide lightning warning service platform with multi-level user authorization management, lightning intensive protection area management, power anti-surge automatic switching control and

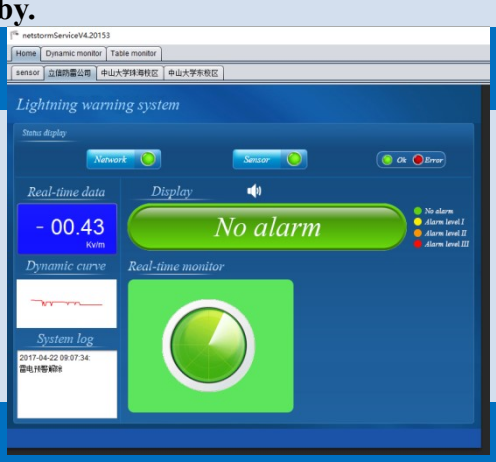
status monitoring management, SMS bulk and early warning file transfer and other online services. All features can be directly monitoring through GIS platform intuitive display and operation;
5: To provide atmospheric electric field data query, the query statistics of lightning warning day/times, lightning warning process playback and other functions, and able to generate the corresponding picture file;
6: To provide comprehensive lightning warning data(atmospheric electric field, radar, lightning location) comprehensive query and analysis functions, and able to generate the corresponding picture file;
7: To provide atmospheric electric field instruments network data real-time forwarding and receiving functions;
8:To provide atmospheric electric field instruments real-time data access interface.

The principle of function realization

When a storm forms and approaches, it is dramatically varying of th atmospheric electric field intensity toward to electrostatic field. Because warnings are based on measurements of electric field, the Pre-storm can monitor a lightning cloud away 15KM, and detect the rise of electric field intensity, In order to measure the dangerous level of lightning strike, we design three adjustable levels of warning triggers:

1、Level (I) means there is a weak electric field.
2、Level (II) means there is an activity lightning storm approaching, and this storm would arrive there in 5 or 20 minutes.
3、Level (III) means there is a lightning strike nearby.

The sign of lightning warning



◆Blue in the circle: No lightning activity;

◆Yellow in the circle, level I lightning warning;

◆Orange in the circle, level II lightning warning;

◆Red in the circle, level III lightning warning;

Installation

Higher than the ground: H>=1.5M
Customizable, allowed to add a lightning strike detector, meteorological sensors, and various communication, power, and mounting options.

The best installation location: For example, if the vertical distance between the nearest building and REP-LWS is D, the horizontal distance between them shall be 2D as the ratio of the vertical distance and horizontal distance is 1:2, as below picture:
And the REP-LWS height: h＞=1.5m