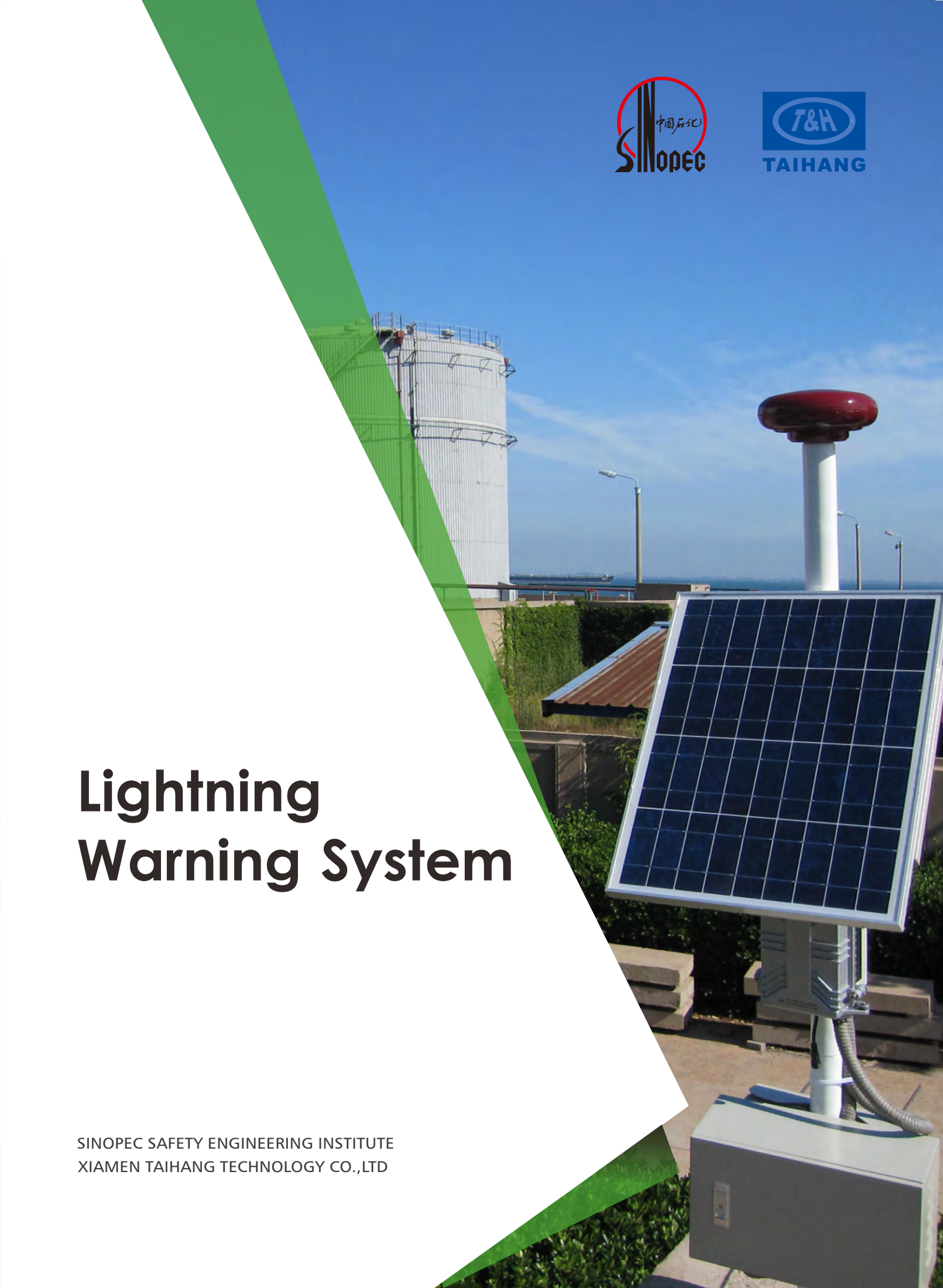


Lightning Warning System

SINOPEC SAFETY ENGINEERING INSTITUTE
XIAMEN TAIHANG TECHNOLOGY CO.,LTD

TAIHANG GUARANTEES SAFETY

Founded in 2004, XIAMEN TAIHANG TECHNOLOGY CO.,LTD possess more than 1100 square meter national accrediated laboratory. It is engaged in the manufacturing, R&D on lightning protection and EMP protection product, providing lightning protection system and lightning warning system according to customer's practical demand. SPD special external disconnector invented by XIAMEN TAIHANG has solved worldwide SPD fire problem and attracted IEC attention. Cooperating with SINOPEC to set up "Joint Lightning Warning R&D center" guarantees TAIHANG's strong R&D capability. Lightning protection system and lightning warning system invented by TAIHANG provides high level and high quality lightning protection on electrical, transportation, infrastructure.etc.

OUR CORE TECHNOLOGY

Sensing technology, as our core technology is composed of sensor module, smart calculation. We achieve product independent R&D, system sense, management and cloud service.

OWNS CHINA NATIONAL CNAS LABORATORY

Possessing more than 1000 square meter China CNAS laboratory with sophisticated testing equipments, XIAMEN TAIHANG pays attention to product quality to meet international standards, which makes its R&D capability, manufacturing capability and testing capability in the leading position in China.

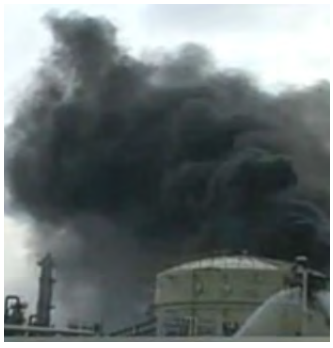
ilac-MRA CNAS TESTING CNAS L5414

JOINT R&D CENTER WAS FOUNDED BY SINOPEC SAFETY ENGINEERING INSTITUTE AND XIAMEN TAIHANG TECHNOLOGY CO.,LTD

NETWORKED LIGHTNING EARLY WARNING SYSTEM

A lot of indusrties, such as electricity, national defnese, schools, finance, transportation, petrochemicals, medical care etc will be effected by lightning harzard, which will cause electrical equipment damage, fire accidents and people injury or even death. Such kinds of accidents often occur worldwide, so it is important to predict and take some action before lightning occurrence.

Weather forecasting from metrorological system which is composed of satellite and rader can only provides large area and big cloud weather situation forecasting, but could not forecast more hazardous partial thundercloud . Partial thunderstorm occurs quickly, suddenly and has severe damage. This partical lightning occurrence will cause severe damage to industries. As far, large scare lightning and thundercloud warning is provided by Doppler radar and satellite, but partial lightning and thundercloud warning could not be provided by Doppler radar and satellite.

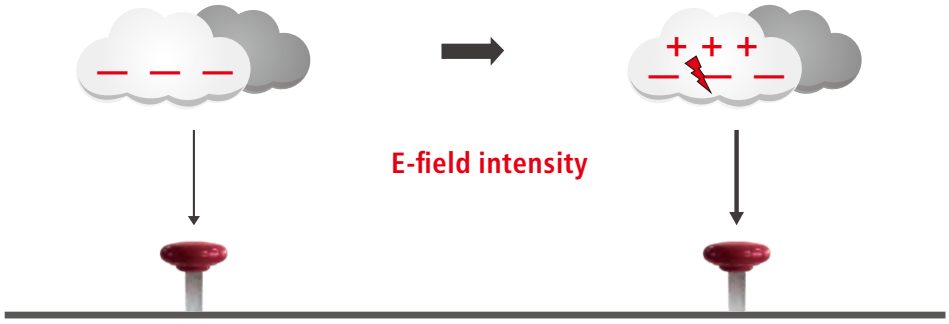


It is very important to have partial lightning warning system set up in important industries to give out alarm correctly and on time before lightning occurrence so that people will have enough time to take some protective methods to avoid accidents.

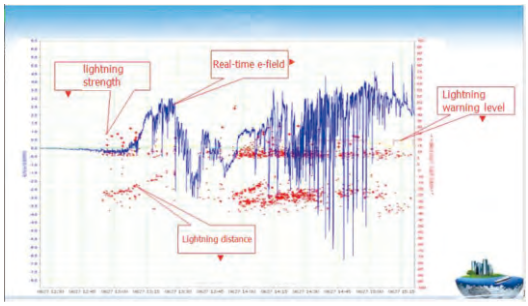
THE APPLICATION OF LIGHTNING WARNING SYSTEM

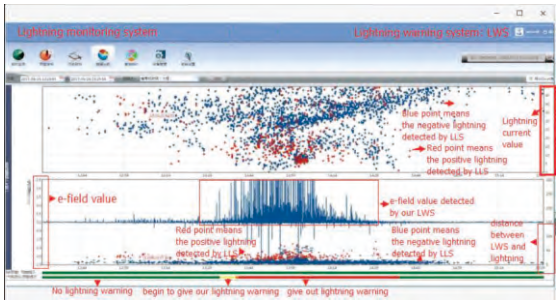
The final purpose of lightning warning system is to provide precise lightning warning in small area before lightning occurrence. Different industries have their own special lightning protection requirements. Combining lightning warning system and industry specified lightning protection system can greatly improve the safety of lightning protection for people and equipment.

T30A, lightning protection warning system developed by XIAMEN TAIHANG TECHNOLOGY CO.,LTD is the highly-integrated system composed of hardware and software, which is able to detect e-field situation on the real time and give out alarm before lightning is likely to occur. This system adopts two-dimensional map, Internet and cloud sever management It is able to record lightning data, enquire data, make a statistics etc. E-field detector is used for detecting e-field value on the real-time. Whe e-field exceeds default value, it will give out alarm. Sophisticated mathematical model is used to analyzed lightning data to decrease false lightning warning.



The data from atmospheric electric field, ligtning location system, radar can also be added in our system to make customers have a more clear understanding of lightning movement path, lightning occurrence area, atmospheric e-field change and lightning intensity etc.



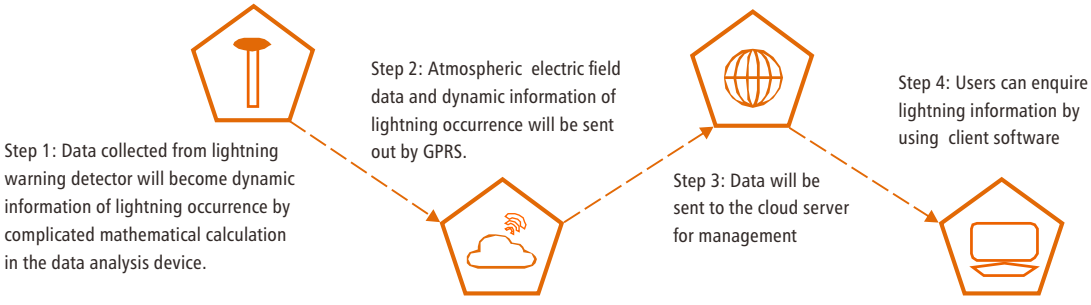


When this system become cellular, it can predict lightning movement path, arrange accounts and set different authority to different customers. As far, we have two application types of lightning warning system, one is single lightning warning system and the other is cellular lightning warning system.

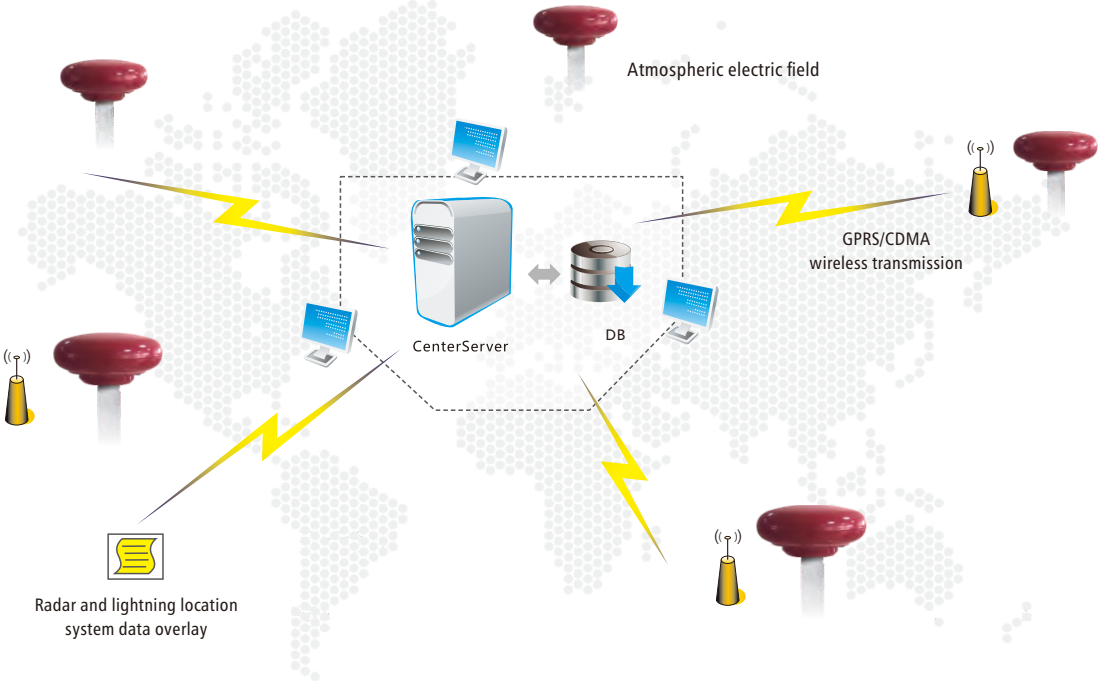
THUNDER CLOUD MOVEMENT

In order to achieve this function, following requirements shall be met: more than 4 units of lightning warning system and the total lightning prediction range shall be more than 60km. Every lightning warning detector will detect the e-field on the real time. Thundercloud movement path will be predicted according to the real time e-field situation and the sequence of lightning warning issued by lightning warning system units. At the same time, thundercloud movement path will be amended by wind direction sensor and wind speed sensor.

SYSTEM WORKING PROCESS

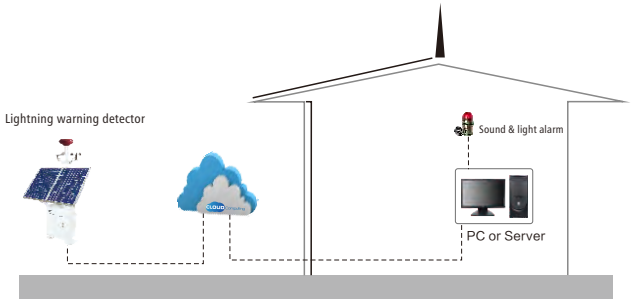


SYSTEM COMPOSITION



SINGLE LIGHTNING WARNING SYSTEM

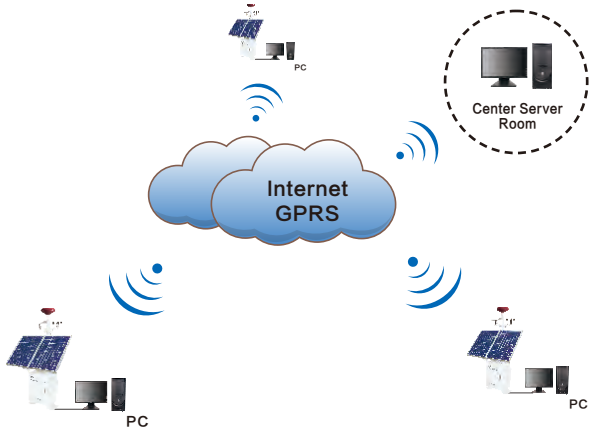
Single lightning warning system is composed of lightning warning detector (atmospheric electric field), data processor, PC or sever and software. The data collected by atmospheric is sent to the PC or sever via data processor. And data will be processed further in the software to gain judgment for e-field of thundercloud and polarity changes. At the same time, sound and light warning device can be connected to lightning warning system.



CELLULAR LIGHTNING WARNING SYSTEM

For some industries which needs to monitor lightning activities in large scale, such as meteorology, telecommunication, school, petrochemicals, aviation etc, cellular lightning warning system is very helpful to collect data from many lightning warning system units, make a statics, gain the changes of charged cloud and then get the precise lightning warning signal.

Lightning warning system software helps users to manage the lightning warning system units. The whole cellular lightning warning system can be monitored or managed by one PC. This software has clear screen and aid decision making function, which can easily save labor and equipment cost.

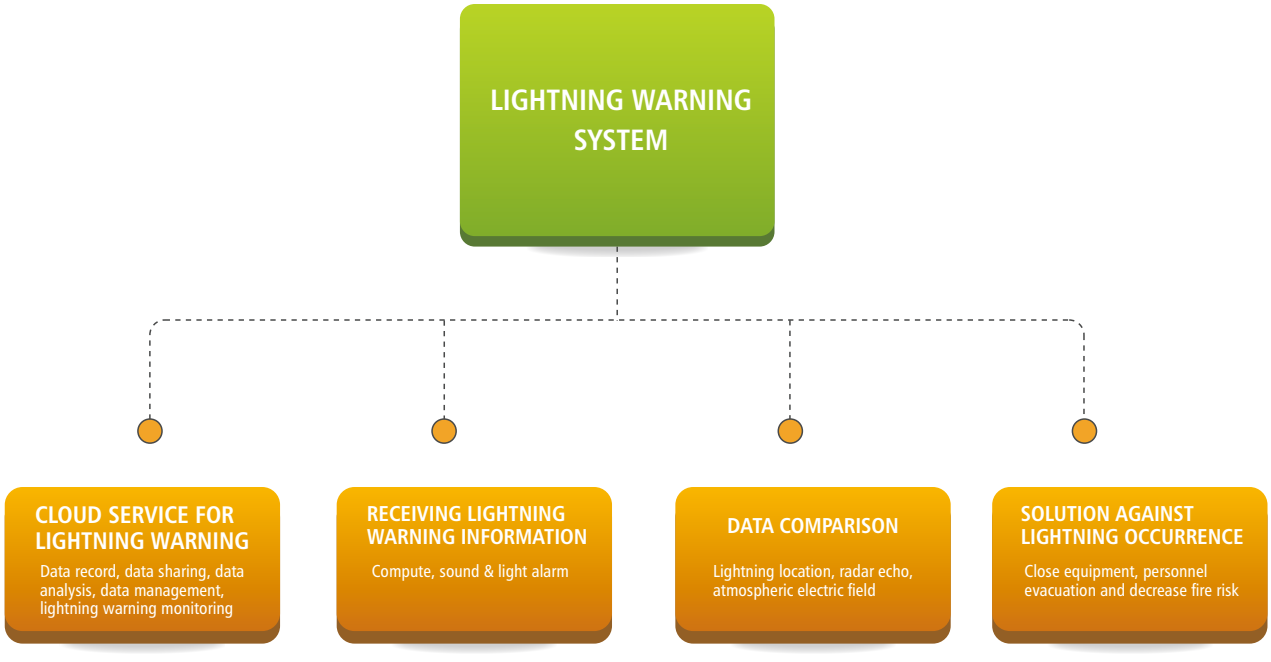


- Read the real-time data from many lightning warning system units
- Trace the e-field intensity in the large scale

DIFFERENCE BETWEEN SINGLE AND CELLULAR LIGHTNING WARNING SYSTEM

NO.	ITEM	SINGLE	CELLULAR
1	Real time detecting e-field	Yes	Yes
2	Real time detecting temperature & humidity	Yes	Yes
3	History data enquiry	Yes	Yes
4	Predicting lightning movement path	Not	Yes
5	Lightning prediction accuracy	Cellular type has wider range than single one	
6	Using one account to manage many lightning warning system units	Not	Yes
7	Lightning protection range area	Cellular type is better than single one	
8	Data comparison of different lightning warning system units	Not	Yes

SYSTEM SUNCTIONS



APPLICATION EFFECT

TAKING THE SHORT TIME AND PRECISE LIGHTNING WARNING AS THE CORE ADVANTAGE

MANAGEMENT	Cellular lightning warning system management Data management of lightning warning system installation site Lightning warning record data management Status management of lightning warning system installation site
APPLICATION	Different lightning warning level Lightning movement path prediction Methods about different lightning warning levels

System Software

As far, we have two types of lightning warning system software, one is for the normal use and the other is one which can add Lightning location system and radar data.

Common type

special type(includes lightning location system and radar data)

SYSTEM SPECIFICATIONS

MODEL	T30A
Operating voltage	12VDC/220VAC
Power consumption	＜2W(under no warning)
Detecting E-field strength	−50kV/m~+50kV/m
Operating temperature range	Data analysis device：−20℃~60℃ Detector：−40℃~85℃
Storage temperature range	Data analysis device：−40℃~75℃ Detector：−40℃~85℃
Operating humidity range	Data analysis device：20%~90% Detector：20%~95%
Lighting warning range	0~15km
Lightning warning types	Three lighting warning levels; audible and visual output; customer-end alarm
Communication interface	Ethernet/GSM(RS232, RS485 is optional)
Detector diameter	218mm
Outdoor box dimension	530mm×310mm×610mm（L×W×H）
Supporting pole height	15.8kg
Outdoor box weight (including processing data analysis device)	1.5m(customization is optional)
Total weight of supporting poles and flange	10.5kg
Protection level	Waterproof &dustproof: IP65 (detector & data analysis device) Corrosion resistance: (metal bracket): Sa2.5

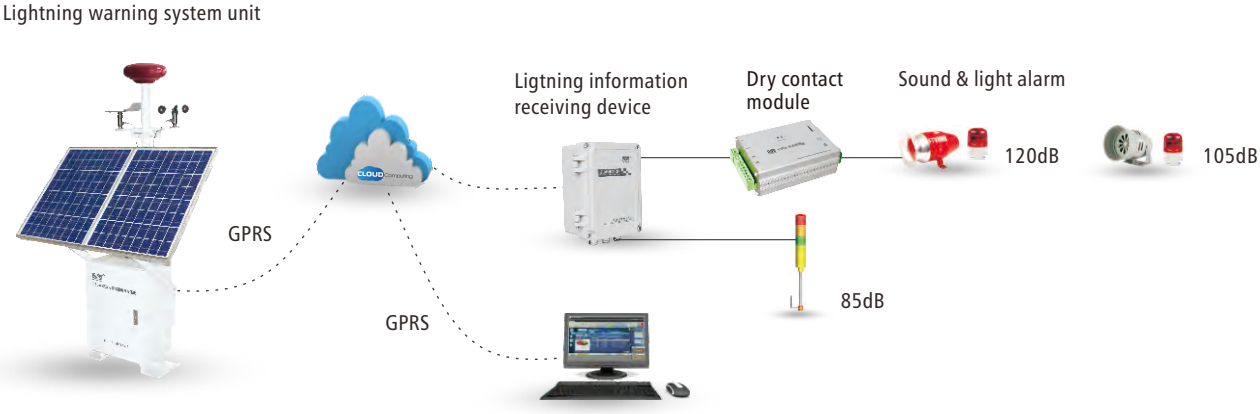
SYSTEM COMPONENT OPTIONS

OPTION	CODE	NAME	SPECIFICATIONS
Power supply	D	Solar battery	Solar：17.3V/50W ；Quantity：2 pcs; Dimension: 670mm（L）*510mm(W)*25(H)mm Battery ：12V/50Ah; Weight：19kg Dimension: 228mm（L）*138mm(W)*218(H)mm
Commun -ication	G	GSM	3G/4G GPRS and data traffic: 150M/month
Fixing type	S	Cement base	Dimension：600mm（L）*600mm(W)*40(H)mm ； Quantity：2 pcs ；Weight：40kg*2; Anti-wind level： 0-7 level
	P	Flange	Dimension： 300mm M12*120 expansion bolt ； Quantity：8 ； Anti-wind level：7-12 level; Cement base provided by customer： 600mm(L)*600mm(W)*40(H)mm
Accessory	F	Wind speed sensor	Testing range： 0~30m/s;Operating environment requirement： Temperature -20℃~+50℃ ；Relative Humidity:35-85%Non-Condensing
		Wind direction sensor	Triggering condition ≥0.8m/s;Operating environment requirement： Temperature -20℃~+50℃;Relative Humidity:35-85%Non-Condensing
		Temperature sensor	Testing Range：-40℃~80℃
		Humidity sensor	0~99.9%RH±2%

LIGHTNING WARNING SYSTEM & ACCESSORIES APPLICATION

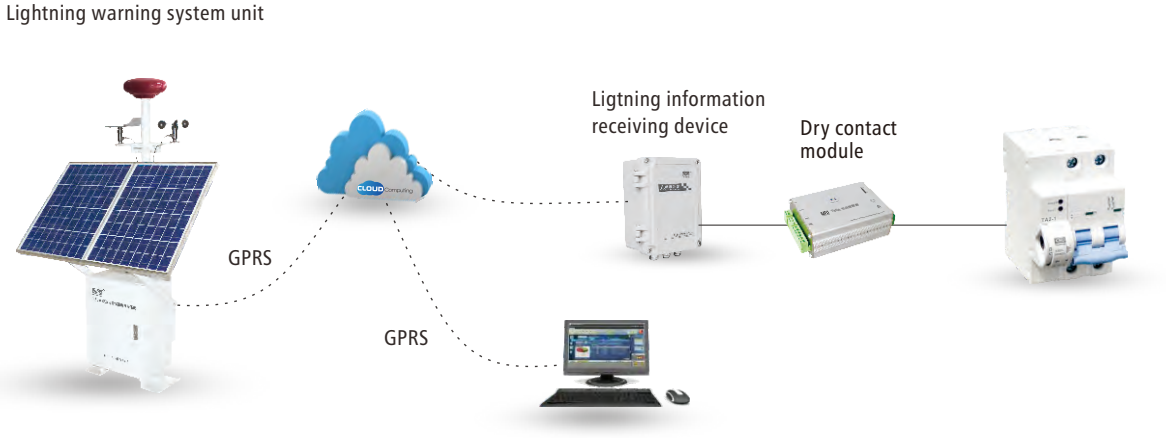
METHOD I:

According to customer's practical demand, Lightning warning system can be connected with external sound & light alarm. When lightning is going to occur, Signal will be sent to external alarm to trigger them .



METHOD II:

When lightning is going to occur, on the one hand, lightning warning system will give out alarm and on the other hand, signal will be sent to lightning information receiving device to control MCB to switch to the UPS power suppply; When lightning warning is clear, signal will be sent to lightning information receiving device to control automatic recloser to connect normal power supply.



Applications

School

Meteorology

Scenic area

Oil deposit & Petrochemicals

Super high building

Amusement parks

Historical sites

National defense

Airport

FOR MORE INFORMATION, PLEASE VISIT:

www.taihang.cc
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