



**M A N A V E N E R G Y**

DELIVERING RELIABLE TOMORROW



**L . M . A . S**

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**L I G H T N I N G M A N A G E M E N T A N D A L E R T S Y S T E M**

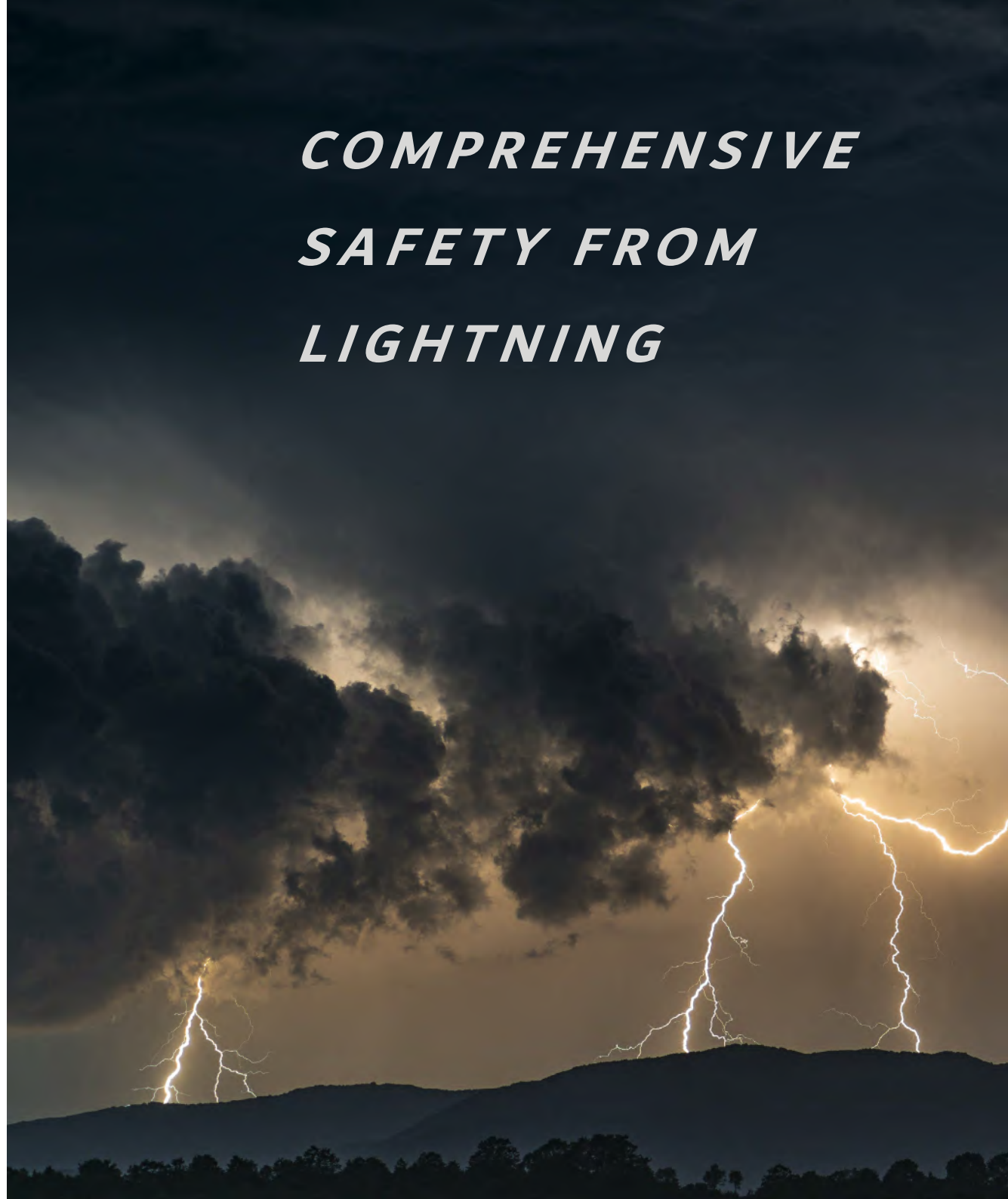
Manav Energy has been protecting various industry segments from lighting surges for almost 20 years. We are known for our world-class service of system integration as per requirement through our design, supply and commissioning expertise .

Lightning is an unpredictable phenomenon and discharges high voltage surges, that can flow into sensitive electronic instruments and communications systems which results in electrical and electronic equipment failures, unplanned shutdowns, fatal accidents and incidents.

By using lightning protection concept safety and reliability is provided during the time of surge or strike without understanding the prevailing conditions in the environment. Where as Lightning Management concept provides a comprehensive protection from lightning surge by understanding the prevailing environmental conditions.

Direct and indirect lightning surges and its Electromagnetic (EM) interference can be managed through Lightning Management Systems (LMS) . This product from Manav Energy is a combination of LMS and a Electronic Alert System that intends to provide complete protection during prevailing unsafe conditions in the environment and also during lightning strikes.

# *COMPREHENSIVE SAFETY FROM LIGHTNING*





## A STEP FORWARD FROM JUST PROTECTION !

### LIGHTNING MANAGEMENT AND ALERT SYSTEM

A one of a kind system which provides the capability to manage lightning hazards by intelligently mitigating a lightning strike and providing a full scale alert which ensures every person is in the safe zone.

The LMS (Lightning Management System) predicts the occurrence of storms and manages the high energy dissipation. The LAS (Lightning Alert System) alerts the authorities on the prevailing unsafe condition during lightning. The LAS is integrated with LMS electronically to form LMAS that detects, predicts, measures, and annunciates the storm & lightning conditions in a given environment thus providing safety and reliability to lives, livestock, and assets.



### INTELLIGENT LIGHTNING MITIGATION

LMAS detects, predicts, measures, and annunciates the storm & lightning conditions in a given environment.



### AUDIO & VISUAL ALERT SYSTEM

During lightning and storm conditions the LAS sends visual and siren alerts to all personnels in the vicinity.



### DATA COLLECTION & ANALYSIS

The Lightning or storm conditions can be observed through a port of transceiver which is placed in LAS. To visualize the data it can be connected to a computer having StormSat® (a product manufactured by Duval Messien) software via Ethernet connection.



### SOLAR BASED BATTERY OPERATION

The LAS is powered by a 12 V (18 Ah) Lithium Ferro phosphate battery which gets charged using the installed solar panel.



# L.M.S

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## LIGHTNING MANAGEMENT SYSTEM



StormSat® is a product manufactured by Duval Messien

The LMS is an active bipolar lightning protection system that predicts the occurrence of storms or lightning, based on the surrounding environment. It pre-empts the environment and pushes all sensitive and high-value electrical assets on auxiliary power till unsafe condition exists. In return for safe condition, the safety system returns to main power, thus predicting & providing complete protection to the surrounding environment. It dissipates the high energy through a dedicated path thus ensuring safe operations of LV and ULV components during storm or lightning conditions.

StormSat® is a product manufactured by Duval Messien France used for the lightning management system and is integrated as per specific design by Manav Energy. It is the latest revolution in the lightning protection industry. This product detects storm activities within a 20 km radius and offers real-time protection. It provides a sense of security against lightning and its damaging effects.

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### Specifications

Material: SS and Polycarbonate

Colour: Metal and dark grey

Power Supply: Battery Ni-MH 4.8V /800mAh

Dimension - 200\*900

Weight: – 5.5Kgs

## SPECIFICATIONS

Operating Temperature	0 to 55°C
Power Supply	12V DC
Warning lighting Colour	Revolving Red Light
Warning Light Power Supply	12V DC (Can be customized for 230V AC)   3W LED
Hooter with Amplifier Power Supply	12 V   DC
Hooter with Amplifier Input Power	25 W
Battery Capacity	12.8 V   18 Ah
Battery Dimension	132 mm x 100 mm x 75 mm
Battery Weight	1.92 kg
Solar Panel Power	12 W to 20 W
Solar Cell	Polycrystalline

# L.A.S

## LIGHTNING ALERT SYSTEM

Lightning Alert System (LAS) is an electronic device that triggers warning with help of a hooter and alert lights, thus alerting the people around the vicinity to disperse to a safe zone and helps in achieving zero accidents or incidents during this unsafe period.



## EMAIL

You can drop an e-mail to resolve any hardware or software queries at [techsupport@manavenergy.com](mailto:techsupport@manavenergy.com)

## ON-SITE MAINTENANCE

Circumstances where technical help desk cannot resolve the issue, Manav Energy offers On-Site repair service.

## PICK-UP SERVICE

Circumstances where hardware component/s may needs replacement or off-site repair, we provide door-to-door service.

# SUPPORT

We have a dedicated support team to guide and help with any correction or repair. Our post installation support staff can be contacted using any one of the method as mentioned.



### Comparison Chart: Lightning Protection System

Properties	25mm COPPER ROD Generation-1	Manav Vajra™ Generation-2	SATELIT 3 Generation-3	LMAS Generation-4
<b>Stainless Steel Casing</b>	No	Yes	Yes	Yes
<b>Triggering Advance</b>	No	60 μs	60 μs	60 μs
<b>Auto Triggering Voltage</b>	NA	NA	45 kV	45 kV
<b>Protection from Multiple Strikes</b>	No	Yes	Yes	Yes
<b>Polarity of Strike</b>	Unipolar	Unipolar	Bipolar	Bipolar
<b>Designed for Optimal Triggering</b>	No	No	Yes	Yes
<b>In built Static generator</b>	No	No	Yes	Yes
<b>Current Withstand Capacity</b>	22 KA	45 KA	180 KA	180 KA
<b>Repeated lightning strike</b>	No	Yes	Yes-Behaves Uniformly for Each Stroke Due to Forced Excitation.	Yes-Behaves Uniformly for Each Stroke Due to Forced Excitation
<b>Solar Charged Battery System</b>	No	No	Yes	Yes
<b>ETFE coated Panel</b>	No	No	Yes Indestructible & Flexible, Adhesion Resistant	Yes Indestructible & Flexible, Adhesion Resistant
<b>Crack Resistant Panel</b>	No	No	Yes	Yes
<b>Radius of Protection (Level-1)</b>	NA	79 m	79 m	79 m
<b>Lightning Management System</b>	No	No	No	Yes
<b>Annunciation/Alarm System</b>	No	No	No	Yes
<b>Storm Prediction</b>	No	No	No	Yes
<b>Live Monitoring using PC</b>	No	No	No	Yes

## Defence Partners



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