



LIGHTNING ALERT SYSTEM

Atmospheric Monitoring and Lightning Warning Device
Highest Quality, Low Maintenance Robust Design

Having a system to monitor the atmosphere to provide early warning when lightning may be present is not just a luxury for many operations, but a necessity. For those whose operations are critical the system must be as reliable, robust, and maintenance free as possible.

The **1000 Series Electric Field Mill** is the result of more than 15 years of investigations to produce the highest quality, most robust system design possible.

A custom brushless motor with heavy-duty bearings, stainless steel shaft, and electronic commutation is specially designed into the **EFS 1000 Series** to withstand the harsh rigors of the outdoor environment where it must operate 24 hours/day, 7 days/week. Carefully specified front-end components and precision molded high impedance Teflon insulators are combined with hardware consisting of stainless steel and an exterior housing of aluminum with rugged fused epoxy powder-coating. Use of these materials ensure durability and the best corrosion resistance possible.

In addition to the use of high quality manufacturing and material standards, consideration has been given to field maintenance and a service profile which allows for complete servicing without disturbing the unit's calibration. The need for maintenance is further reduced through use of a downward looking design which drastically reduces the effects of precipitation and atmospheric contaminants. Such attention allows to have the best MTBF (mean-time-between-failure) in the industry and the longest initial warranty policy offered for a field mill (3 Years).

Field Mills have been in use for over 70 years and have been praised for their usefulness in providing lightning warning information. Field Mills are not Lightning Detectors but rather, are designed to determine when conditions exist where lightning is likely to occur in the local area. The simple fact is that without elevated electric fields and a separation of charge lightning will not and cannot occur. Monitoring the threat against pre-defined thresholds makes it possible to implement timely decisions and to take action such as triggering alarms and notification devices, engaging auxiliary power sources, or isolating sensitive equipment and data, and more.

This sensor is directly compatible with the Data Logger and Transmission Unit Model **METEODATA-2000C/3000C Series** from GEONICA, as a fundamental component of the **LIGHTNING ALERT SYSTEM**.

Electric Field Mill Sensor



Applications:

- DOD / DOE Facilities
- Blasting Operations
- AeroSpace
- Hazardous Materials Management
- Atmospheric Research
- Oil & Gas Storage and Handling Facilities
- Military/Commercial Ordnance & Munitions
- Airport FBO and Ground Operations
- Golf Courses and Swimming Pools
- Crane/Heavy Equipment Operations
- Construction Sites
- Public Events and Outdoor Recreation



Electric Field Mill Sensor Model EFS-1000 Series as a part of the LIGHTNING ALERT SYSTEM

Technical Specifications

Operational

Accuracy of field measurement..... $\pm 1\% + 6V/m$
(when $20V/m < E\text{-field} < 20kV/m$)
Range..... storm dependent, minimum 7 mile radius
Reliability..... 100% notification of field changes
False Alarms 0% chance of providing false
i indication of field change in the area
Response Time..... 0.1 second
Signal Interface..... Analog
Optional: 15-bit resolution digital interface
Measuring Range..... 0 to $\pm 20 kV/m$

Electrical

Power Requirements..... 100-240 V AC, 50/60Hz
or 20-30VDC, user option

Power Consumption..... 8 Watts

Power Protection

(Sensor; AC Input)..... User-replaceable fuses
(Sensor; DC Input)..... Self-Resetting Protection
(Motor)..... Automatic overload protection, self-resetting

All Interfaces feature Multi-Stage Transient Protection

Mechanical

Motor

Type..... Custom, Brushless
MTBF..... 300,000 hours
Speed..... 1650 RPM

Sensor

Weight..... 2.3 kg
Dimensions..... height 19.0 cm, diameter 15.3 cm
Cable Type..... 8-Cond. Shielded, Chrome PVC jacket

Sensor Mounting Stand

Weight..... 360 g
Height (Installed)..... 24 cm
Junction Box..... 1/2" EMT outlet , screw terminal
Exterior Construction: Aluminum with powder coating
for corrosion protection.

Remote Receiver

Height..... 15.3cm
Width..... 15.3cm
Depth..... 15.3cm

Supplied 100 ft cable connects field mill to "indoor", remote receiver

Environmental

Operating Range..... -30 to +60 Degrees (C)

Communications

Analog Output..... 0 - ± 10 Volt swing
Digital Output (Optional)..... RS-232 Polled,
User-selectable Baud rate, Full Duplex, ASCII format

Mounting Hardware

Stand with junction box mounts on flat horizontal surface 2.5 x 2.5 cm (minimum), concrete pad or roof mount.

Customer Furnished

Concrete Pad and anchor bolts
Power to Site

Data Storage & Transmission

The **EFS-1000 Sensor** is directly connectable with the Data Acquisition and Transmission Unit Model **METEODATA-2000/3000C** Series as a fundamental component of our LIGHTNING ALERT SYSTEM.



METEODATA-2008C, Data Acquisition and Monitor / Alarm Unit