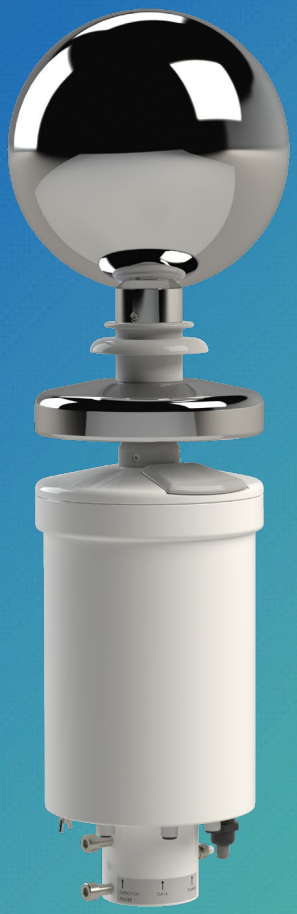
BTD-1 FSG Module

Operation Manual



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General Information

BTD-1 Flash Signal Generator (FSG) Module

The BTD-1 Lightning Warning System detects the presence of lightning flashes within 83km (53 miles) of the sensor and warns of the potential for overhead lightning even before the first lightning flash occurs. The optional FSG module electrically stimulates the antenna within the BTD-1 to replicate lightning conditions. It can therefore be utilised as a hardware self-test, providing advanced self-testing of the sensor remotely.

The FSG option can be selected at the time of purchase, or it may be retrofitted at a later date. This user manual expects the FSG module to be fitted.

Safety



CAUTION – The FSG module should not be utilised during lightning activity.

1 Technical specifications

Description	**BTD-1 FSG Module**
Fitment	Internal
Power Consumption	<1W
Operating conditions	-20…+60 °C / 0…95 %RH / Max. altitude 2000m
Related Standards	IEC61326-1:2021 RoHS/WEEE

2 Operation

The Flash Signal Generator (FSG) is housed within the BTD-1 and is connected to the internal antenna via relays. When commanded to operated, the FSG waits for ten seconds before closing the relays and providing real world lightning signals to the BTD-1. The output of the BTD-1 is monitored for lightning activity and it can be confirmed that the hardware is functioning as expected by checking it matches that of the test sequence. Upon test completion, the relays open back up and the BTD-1 continues functioning as normal.

The sequence of tests are as follows:

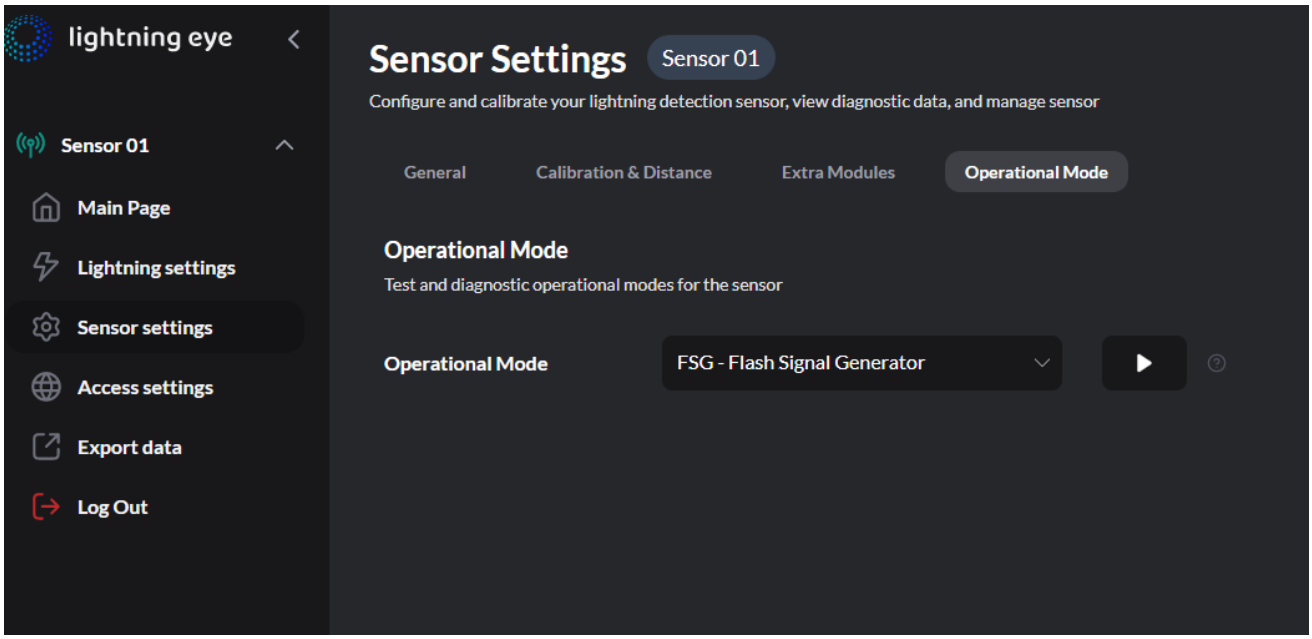
- 25-35km Lightning Flash
- 17-24km Lightning Flash
- 9-16km Lightning Flash
- <8km Lightning Flash
- Strong Electric Field
- Charged Precipitation

The direction with flashes generated by the FSG should be ignored. More than one <8km flash may occur.

During the test sequence the FSG mode active flag will be set within the broadcast message. This allows for the FSG generated flashes to be omitted from any warning systems if only a self-test is required.

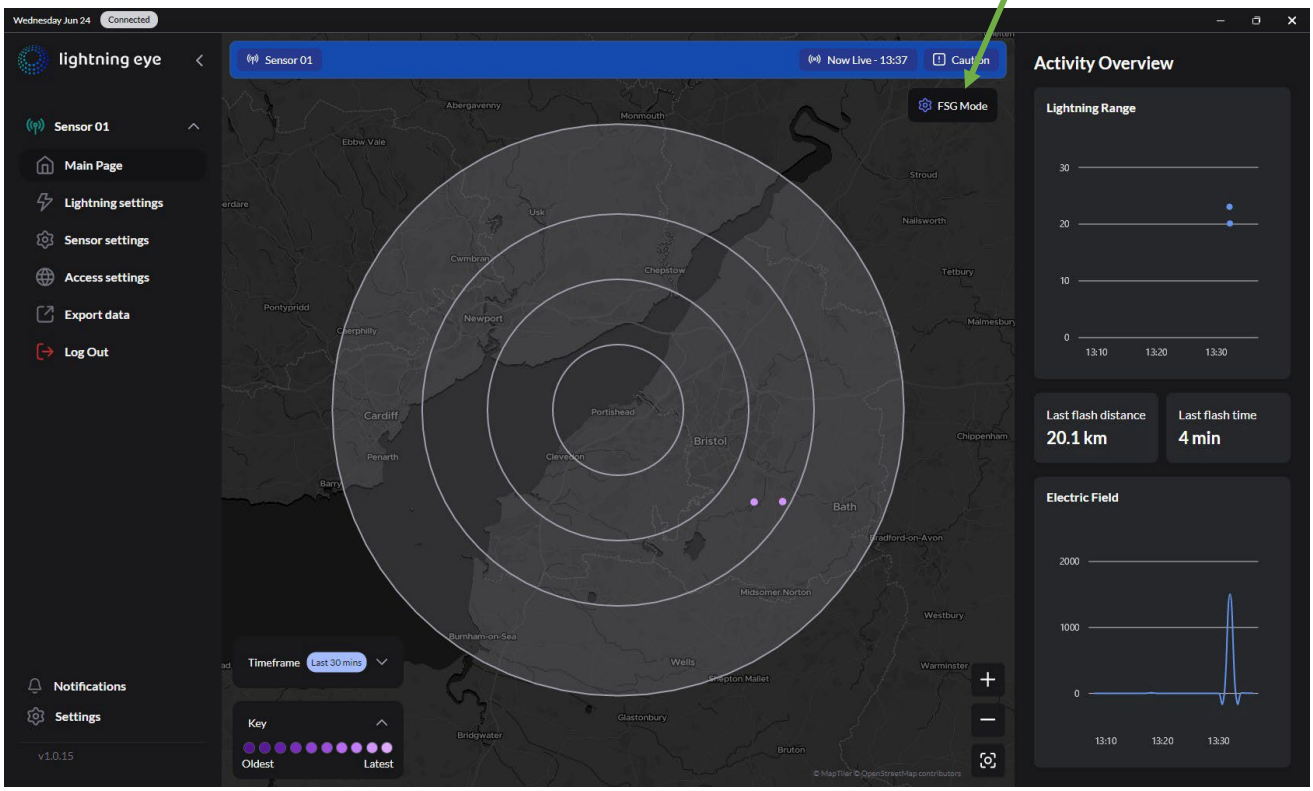
2.1 Lightning Eye

The Flash Signal Generator can be operated through a Lightning Eye Administrator account. Navigate through the options Sensor Settings>Operational Mode. On the dropdown, select FSG-Flash Signal Generator and press the “play” button to trigger the sequence.



Once triggered, the Lightning Eye application shall jump back to the main page and the FSG Mode notification will be live. The lightning activity can be observed, and the Lightning status bar will change. After 15 minutes, the system will resume normal operation.

FSG Mode Active



Note, all connected clients will display the FSG Mode notification.

2.2 Command Line Interface

The Flash Signal Generator (FSG) can be operated through the BTD-1 command line interface. To start the test sequence use the command STARTFSG. The sensor will reply with OK if the FSG is fitted.

Monitor the broadcast messages for FSG related lightning activity. Once the FSG active flag resets, the BTD-1 has resumed normal operation.

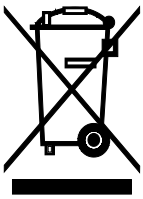
WARRANTY

The manufacturer is required to respond to the "factory warranty" only in those cases provided by the Consumer Rights Act 2015. Each instrument is sold after rigorous inspections; if any manufacturing defect is found, it is necessary to contact the distributor where the instrument was purchased from. During the warranty period (12 months from the date of invoice) any manufacturing defects found will be repaired free of charge. Misuse, wear, neglect, lack or inefficient maintenance as well as theft and damage during transport are excluded. Warranty does not apply if changes, tampering or unauthorized repairs are made on the product.
The manufacturer repairs the products that show defects of construction in accordance with the terms and conditions of warranty included in the manual of the product.

TECHNICAL INFORMATION

The quality level of our instruments is the result of the continuous product development. This may lead to differences between the information reported in the manual and the instrument you have purchased.
We reserve the right to change technical specifications and dimensions to fit the product requirements without prior notice.

DISPOSAL INFORMATION



Electrical and electronic equipment marked with specific symbol in compliance with 2012/19/EU Directive must be disposed of separately from household waste. European users can hand them over to the dealer or to the manufacturer when purchasing a new electrical and electronic equipment, or to a WEEE collection point designated by local authorities. Illegal disposal is punished by law.

Disposing of electrical and electronic equipment separately from normal waste helps to preserve natural resources and allows materials to be recycled in an environmentally friendly way without risks to human health.

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