

# ALFVEN | 100

## RF Event Detector

Detect Arcs & Events | Pulse Monitoring | Pulse Profiling



### Measures

- RF voltage amplitude
- RF current amplitude
- Pulse Monitoring

### Functionality

- Captures RF events with micro-second resolution
- RF strike event capture
- RF event classification
- Capturing of events can be user-defined
- Averaged values reported up to 10 times a second
- Up to 5,000 events and 500,000 averaged values can be stored on-board the sensor later.

### Features

- 50  $\Omega$  characteristic impedance
- Designed for pre-match installation
- RF voltage and current event detection with 1  $\mu$ s time resolution
- Interchangeable connectors
- Compact probe design
- Network API for software integration

The Alfven | 100 RF Event Detector is designed to monitor short-lived, unexpected events in radio frequency and plasma processes, that can cause product scrappage and significant cost to the manufacturer.

The Alfven | 100 RF Event Detector application runs on our best-in-class VI probe technology platform. It monitors events such as arcs, ignition phenomena and instabilities, in plasma and other RF processes, with 1  $\mu$ s resolution. It detects events in both the voltage and current signals.

Our intelligent sensing platform is fully web enabled. Use one of the Ethernet ports to connect to a PC to run our proprietary application software. For a fully connected solution, interface with the process tool or the factory host through the Ethernet connection. Industrial protocols such as Ethernet/IP and EtherCAT are supported.

Plasma processes, in semiconductor (and related industries), such as plasma etching, PVD and PECVD are susceptible to events such as arcs, instabilities and ignition phenomena. The Alfven | 100 will detect these events and send real time information to the operator to enable corrective action.

### Measured Parameters (Range)

Voltage	10 V - 1,500 V <sub>rms</sub>
Current	0.1 - 15 A <sub>rms</sub>

### Sensor Specifications

RF Power	Maximum 11.25 kW (Higher possible with custom connectors)
Operating Temperature	0° to +40° C (32° to 104° F)
Storage Temperature	-20° to +80° C (-4° to +176° F)
Connectors	N, HN, 7/16's, LC, (Custom available on request)
Sensor Impedance	50 Ω
Certification	CE mark
Recommended Install	Pre-match 50 Ω side

### Input Signal

Voltage	Maximum Voltage 1,500 V <sub>rms</sub>
Current	Maximum 15 A <sub>rms</sub>
Frequency	13.56 MHz
Voltage Accuracy	10%
Current Accuracy	10%

### Acquisition Speed

Time Resolution	1 μs
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### Transient Sensitivity

Voltage	1% or 1 V (use highest) @ 1 μs
Current	1% or 15 mA (use highest) @ 1 μs

### Event Capture

Parameters	V, I
Points	Up to 5,000 pts (5 ms)

### Onboard Storage

Number of hours average V and I data	14 to 276 hours
Number of Events	5,000

### Application Software

Operating System	Windows 2000 / XP / Vista / Windows 7 / Windows 8 / Windows 10
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Connectivity	Ethernet Web Service Protocol*
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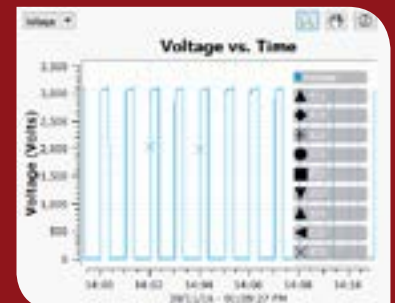
\*EtherNet/IP and EtherCAT available on request



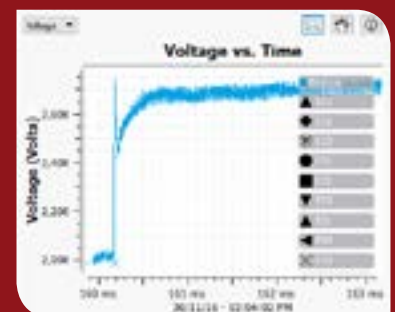
Schematic of the install location of the Alfvén | RF 100 Event Detector.



Example of Event Count display over a monthly period.



Voltage amplitude at 100 ms intervals for hourly session.



Voltage at 1 μs intervals for duration of an event.