



SAFORA FENCE SHIELD

PRODUCT DATA SHEET

Model: SF-FS-1

Revision: v1.3

Date: July 2026

Contents

1. Product Overview.....	3
2. Reference Conditions.....	3
3. Electrical & Power Specifications.....	4
4. Battery Life / Autonomy.....	5
5. High Voltage / Fence Interface Specifications.....	6
6. Radio / Wireless Specifications.....	7
7. Measured Values / Data Outputs.....	8
8. Mechanical & Environmental Specifications.....	9
9. Manufacturer / Contact Information.....	10

1. Product Overview

The Safora Fence Shield is a rugged, solar-powered IoT sensor designed for continuous monitoring of electric fence infrastructure. The device measures high-voltage pulses directly on the fence line and transmits voltage levels and system health via LoRaWAN.

Designed for autonomous operation in remote environments, Fence Shield provides real-time perimeter visibility, enabling rapid response to fence faults, cuts, and power loss.

Typical applications include livestock, protected areas, and perimeter security.

Key Features:

- Real-time detection of fence cuts, shorts, and voltage drops
 - Configurable alerts
 - Long-range LoRaWAN communication
 - Solar-powered autonomous operation designed for multi-year field deployment
 - Quick installation on existing fence lines and posts
-

2. Reference Conditions

Unless otherwise noted, all values in this datasheet are specified at:

- TA = 25°C
 - VSYS = 3.3V (regulated)
 - EU863–870 frequency plan
 - Normal operating mode (default factory configuration, battery saver mode inactive)
-

3. Electrical & Power Specifications

Parameter	Value	Conditions
Battery chemistry	LiFePO4 (IFR16340)	-
Battery capacity	400 mAh	Rated, manufacturer spec
Battery nominal voltage	3.2 V	Per cell
System voltage (regulated)	3.3 V	-
Solar panel	0.3 W / 5 V monocrystalline	-

4. Battery Life / Autonomy

Mode	Behavior	Duration
Normal operation No charging, from full charge	Continuous fence measurement (1min interval), hourly heartbeat transmission until low-battery threshold	7 days
Battery saver mode No charging	Automatically triggered at low battery voltage; reduces measurement interval to 30min and transmission to 6h	7 days
Total autonomy No charging, from full charge	Normal operation + battery saver mode combined	Up to 14 days

Autonomy figures assume zero solar input (no recharge). Actual field autonomy is of multiple years in normal solar charging conditions.

5. High Voltage / Fence Interface Specifications

Parameter	Value	Conditions / Notes
Measurement input	2x high-voltage connectors (Live / Earth)	-
Measurement range	0 – 12 kV	Impulse
Input impedance	21 M Ω (nominal, $\pm 5\%$)	High-impedance measurement probe
Detectable pulse rate	0.25 – 4 Hz (device capability)	Typical energizer output: 0.9 – 1.3 s pulse period

Note: Devices are designed to be compatible with a wide range of electric fence energizers. Pulse characteristics (duration, rise time, energy) vary by energizer model and are not device-derived specifications.

6. Radio / Wireless Specifications

Parameter	Value	Notes
Connectivity	LoRaWAN	-
LoRaWAN MAC version	1.0.4	Regional parameters: RP002-1.0.2
Device class	Class A	-
Supported frequency plans	EU863-870, US902-928, AU915-928, AS923-925	Frequency plan configured at time of order
Maximum transmit power (ERP)	< 14 dBm (25 mW)	-
Antenna	Internal, omnidirectional, 2 dBi	-
Modulation	LoRa / FSK	-
Downlink support	Supported	Used for remote configuration and device management

Note: Requires coverage from a compatible LoRaWAN gateway/network server for data transmission.

7. Measured Values / Data Outputs

Field	Type	Unit	Description
Fence voltage	12-bit value	V	Real-time high-voltage fence measurement
Battery voltage	12-bit value	mV	Device battery status

8. Mechanical & Environmental Specifications

Parameter	Value	Notes
Enclosure dimensions	115 mm x 65 mm x 55 mm	-
Enclosure material	Polycarbonate	-
Weight - no cables	240 grams	-
Weight - with cables	320 grams	-
Environmental protection	Designed for outdoor deployment	field-validated through multi-year active deployments
Operating temperature (design target)	0°C to +45°C	-
Connectors	Covered banana connectors for fence connection	Cables included
Mounting	Integrated fence wire and post mounting	-

Recommended deployment spacing: one device every 1–2 km, depending on terrain and fence configuration.

9. Manufacturer / Contact Information

Manufacturer: Safora Technologies B.V.

Registration number (KvK): 42075369

Email: info@safora-tech.com

Website: www.safora-tech.com

Registered address: Gouda, Netherlands