

SMART GRIDS

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## FAULT INDICATOR



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## Description

HVEX Fault Indicator a current sensor designed with communication capabilities and specific functions for fault detection. The sensor provides a local indication of fault occurrence through a high-intensity lighting system, and is equipped with a LoRa or NB-IoT communication module for remote indication via the HVEX system.

### Features:

- Detects faults and sends instant alerts through operational logic.
- With measured RMS current data and operational status, it recognizes normal operation.
- Detects both permanent and temporary faults.

The device is easy to install because it is non-intrusive. It uses a semi-open current transformer for current loading and another for current transduction, or it can be powered via a photovoltaic panel. Installation can be performed using a hot-stick on energized networks.

All equipment configuration is done through bluetooth using an exclusive mobile app, available for download on App Store.

## Operation

First, the HVEX Fault Indicator should be turned on with the help of a magnet provided along with the equipment. It will be turned on if the LED flashes twice. If it flashes three times, it indicates that the device is off.

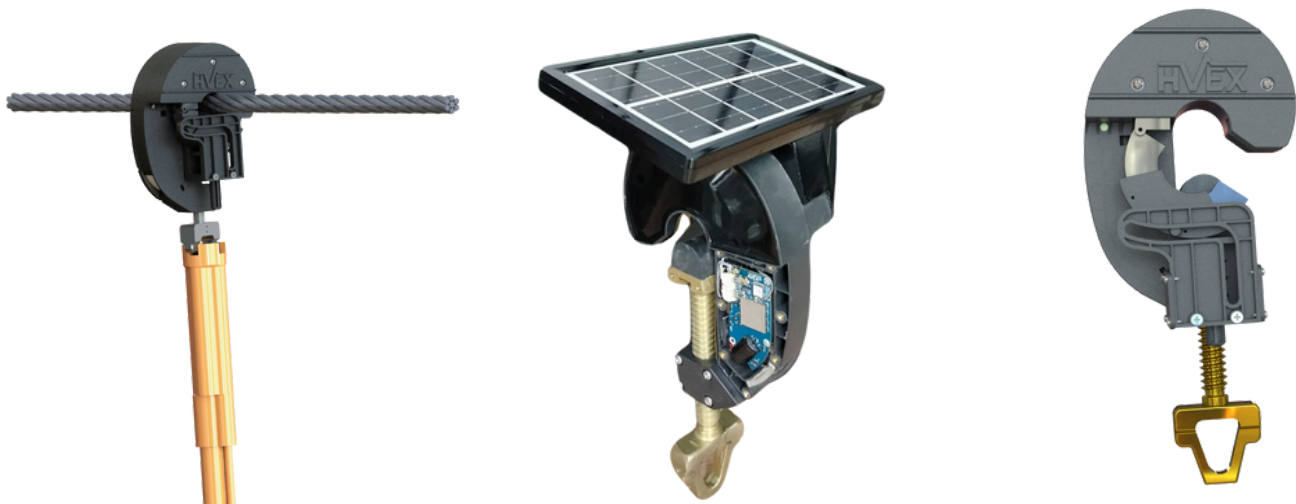
Once the device is on, configuration must be performed via the app.

After completing the previous step, the installation of the device on the network can begin. It is recommended that the installation be done at a distance of 0.9 m to 1.8 m from the crossarm of the pole.

The Fault Indicator should be inserted into the hot-stick through the anchor, securing it with the clamp. The device should have the conductor engagement channel open enough so that the indicator can be hoisted onto the phase conductor of the network.

**ATTENTION!** For current transformer charging, the transformer must be fully closed during the operation of the device to prevent a gap that could lead to the burning of the CT and, consequently, the failure to charge the equipment.

The operator should close the channel as much as possible by rotating the hot-stick until the cable is fully embraced.



## Technical Specifications

Standards	IEC 60529, IEEE Std. 495, IEC 60255-21, IEC 60068-2, IEC 60060-1, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8	
IP Protection degree	IPx5, IP6x	
Operation temperature	-40°C to 85 °C (-40°F to 185 °F)	
Cable gauge	Up to 38 mm	
Dimensions without photovoltaic panel	151 mm x 220 mm x 83 mm (5,44" x 8,66" x 3,25")	
Weight	1,7 kg (3,7 lb)	
Battery	3,7 VDC (self-recharging by induction CT or by photovoltaic panel)	
Brazil certifications	ANATEL	
Communication	• NB-IoT	GPRS/EDGE 850/900/1800/1900 MHz
	• LoRa	902 - 928 MHz
Parametrization	Bluetooth	2,402 – 2,480 GHz
Voltage	Voltage presence indicator	
Rated voltage	Up to 138 kV (line)	
Current measurement	5 A – 10 kA; accuracy 5%	
Required current for correct charging	depending on the choice of transformation ratio	
Fault detection	Current level or maximum di/dt variation	
Trip current range	50 A – 10 kA	
di/dt variation range	80 A/ms – 10 kA/ms	

## Technical Specifications

Signalable events	Permanent fault and Transient fault
Non-signalable events	Inrush, current surge and load increase
Protection test IPx5 and IP6x	IEC 60529
Load supportability test	IEEE Std. 495
Vibration and impact resistance test	IEC 60255-21
Thermal cycle test	IEC 60068-2
Applied voltage and energization test	IEC 60060-1
Atmospheric impulse test	IEC 60060-1
Electrostatic discharge immunity test	IEC 61000-4-2
Radiated radio frequency immunity test	IEC 61000-4-3
Surge immunity test	IEC 61000-4-5
Conducted radio frequency immunity test	IEC 61000-4-6
Magnetic field immunity test	IEC 61000-4-8

## Battery charging circuit

CT 3000:1	120 A to 400 A
CT 200:1	30 A to 300 A
Photovoltaic panel	Detached from the line

We provide solutions for improvement of electrical energy generation, transmission and distribution efficiency, quality and reliability. With a highly specialized and experienced team in research, development and innovation, HVEX develops tailor-made solutions for Brazilian and foreign markets. Wide range of products with solutions focused on signal transduction, measurement, monitoring and protection.



Driving Innovation



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