ZYGGOT® Arc

Arc Flash Protection System

varixx

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Smart protection against Arc Flashes

Zyggot Arc protects electrical systems and components through an intelligent network of sensors that detect arcing through UV radiation.

This radiation exists in any electric arc in its initial moments, from ionization of the surrounding air, even before visible light (a phase already associated with air expansion and overheating).

It can be applied in low, medium and high voltage electrical panels and external aplications.

Features

- Ultra fast action, less than 0.3 milliseconds
- Does not detect visible light, avoiding false tripping
- No current reading required
- Wide detection area (90°)
- Solution that results in the lowest incident energy on the market
- Detection in the early phases of the arc

Arc Phases

1. Compression

The arc discharge increases the internal pressure.

In this phase, the air ionization produces ultraviolet waves that are detected by the sensors.

2. Expansion

The high pressure causes the relief ducts to open.

3. Expulsion

The internal pressure drops.

The exhaust effect continues at constant pressure until the internal temperature of the panel and the arc equalize.

4. Thermal

The arc completely damages insulating materials, conductive and structuring materials.

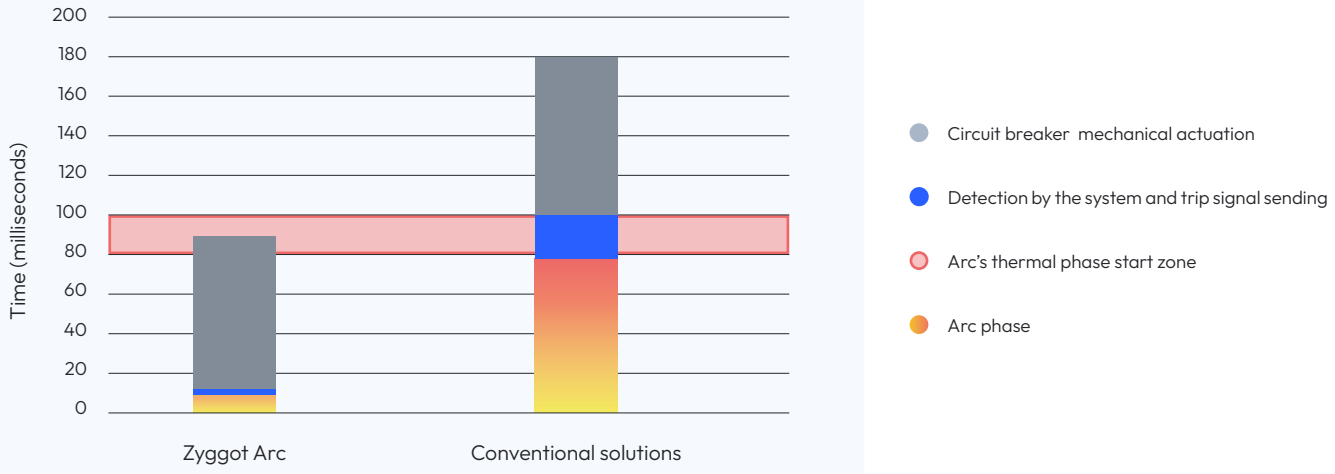
The temperature rises to several thousand degrees centigrade. This phase is due to the dissipation of thermal energy.

Detection period of Zyggot Arc sensors

Detection period of conventional sensors

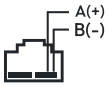
Study Case:

Comparison between ZYGGOT Arc and conventional solutions



Source: Kumpulainen, L.; Dahl, S. Minimizing hazard to personnel, damage to equipment, and process outages by optical arc-flash protection. In: "IEEE Petroleum and Chemical Industry Conference", Europe, 2010.

COMMUNICATION

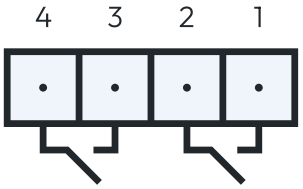


RS-485 Modbus-RTU
(slave)

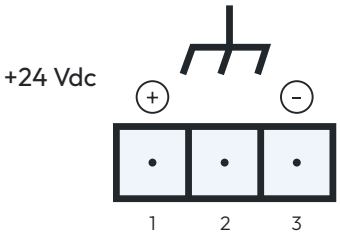
SENSORS INPUT

Mini USB conector for sensors
communication

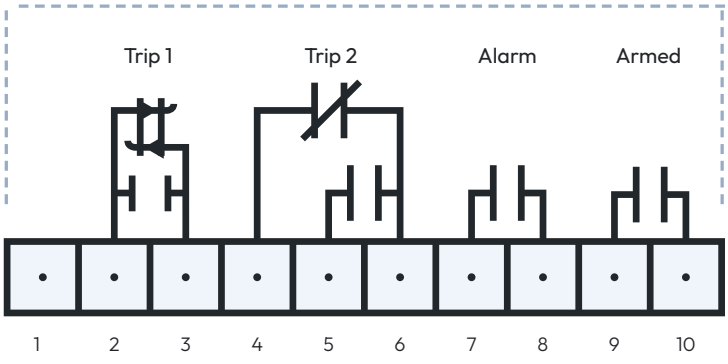
2 DIGITAL INPUTS



EXTERNAL (POWER SUPPLY)



INTERNAL (CIRCUIT)



Relay Characteristics

Dedicated to act when the Zyggot Arc sensor performs detection. It´s operation is ultra-fast, with a total trip signal sending time of up to 0.3 miliseconds (300 microseconds). To guarantee this time, the system uses a static contact at the output in parallel with the dry contact and an ultra-fast digital communication network (CAN). The cables are supplied in sizes from 0.3 to 8 meters. All accessories are provided, such as fastening brackets, allowing quick installation, error-free and without the use of tools.

POWER SUPPLY

24 Vdc

HUMIDITY

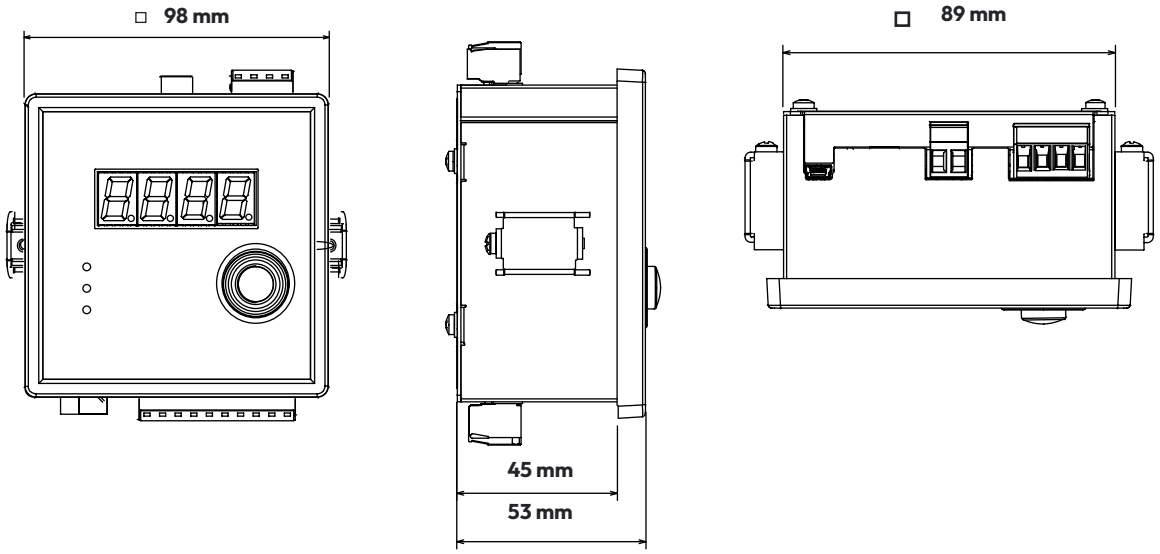
5 % to 95%

NUMBER OF SENSORS

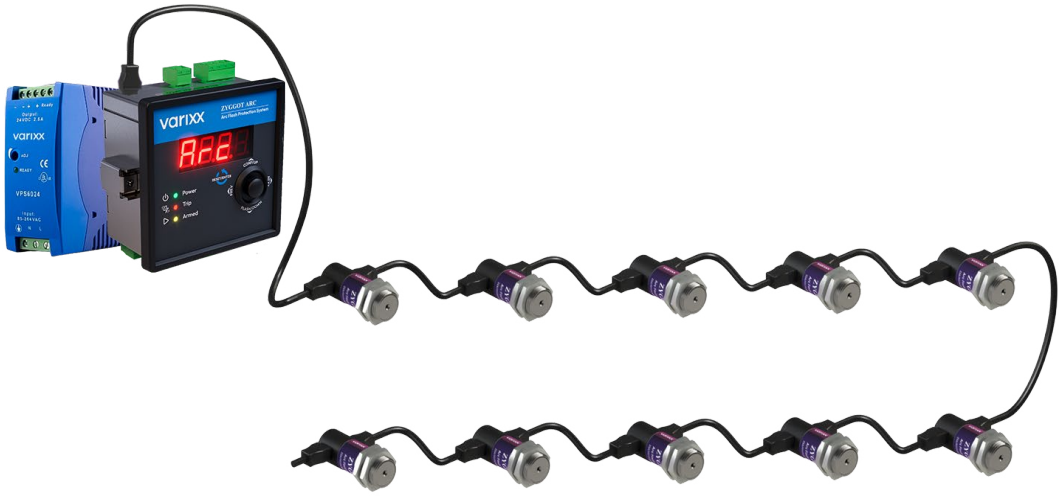
Up to 50 sensors

OUTPUTS

2 trip contacts (one static and one dry).



Topography and Sensors



The cables are supplied in sizes from 0.3 to 8 meters.

Two options for different applications

UVA Sensor

For applications in sheltered enviroments untill 3kV.

UVB Sensor

For applications in non-sheltered enviroments or applications above 3kV.

Sensors Characteristics

Zyggot Arc sensors do not need to read current and provide protection by detecting ultraviolet radiation, which is produced in any arc before visible light (which is already associated with the air expansion and overheating phase).

POWER SUPPLY

24 Vdc

MEASUREMENT ANGLE

90°

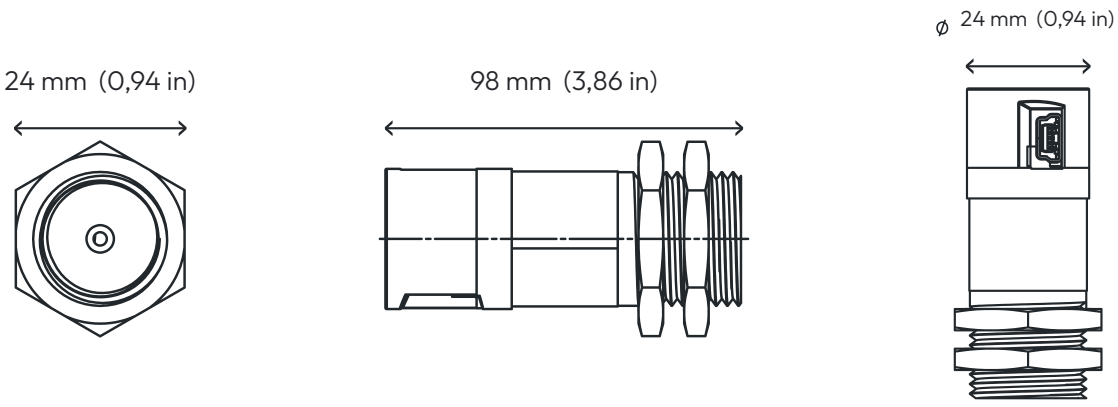
COMMUNICATION

Up to 50 sensors

MATERIAL

Stainless Steel

LNP Faradex Compound



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Varixx has been developing high-tech products since 1976. Its know-how in power electronics has always enabled it to offer a wide range of products that have become known for their innovation, long service life and quality. As the holder of numerous technological patents, Varixx strives to introduce functional and intelligent concepts to the domestic market and worldwide.

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