ZYGGOT

Intelligent Monitoring
and Protection Systems

varixx
create to bond

varixx

Consolidating innovations for almost half a century

Founded in 1976, Varixx is a Brazilian company known for developing technological solutions in the field of power electronics and sensitive electronics, with products developed and manufactured entirely in Brazil and, more recently, in the United States, to quickly serve various regions. It has built a solid reputation as an innovative company based on its know-how in constant development, backed by numerous technological patents and pioneering products. It is also recognized for the robustness and exceptional durability of its products, as it serves critical sectors such as petrochemical, hydroelectric, steel, mining, data centers, chemical, among others, where safety and reliability are essential. Varixx stands out for its after-sales service, reflecting a serious commitment to its customers. Production is 100% verticalized, ensuring lead time and excellence in quality.

Pioneering Online Thermography and UV Arc Detection

In 2004, Varixx pioneered the development of the world's first Online Network Thermography System for Continuous Temperature Monitoring for electrical panels. Since then, it has maintained its position at the forefront of technology, being also the first and, to date, the only company to manufacture an Arc flash Protection system based exclusively on ultraviolet (UV) radiation detection, eliminating the need for light and electrical current measurement. This ultra-fast response technology reduces incident energy by up to 150 times when compared to conventional systems. With a consolidated presence on all continents, Varixx stands out as a global benchmark in innovation, offering solutions aligned with standards that establish modern maintenance and safety practices in electrical installations.

50 years creating technology that connects the past, present, and future.

1976
Merger of Engetécnica

Start of manufacturing Electrical Automation Panels.

1980
VC50 Launch

VC50 was launched as a personal computer, equipped with specialized software.

1994
Market Expansion

Beginning of Engetécnica's international expansion.

2003
Brand Repositioning

Engetécnica is renamed VARIXX.

2015
ONNO LED

Launch of ONNO LED on the Brazilian market.

2018
New Releases

Launch of the new Service Line.

2024
International Expansion

Varixx continues to perform above market expectations and strengthens its growth strategy with the founding of Varixx US, expanding its international operations.

2025
Innovation and Technology

Launch of new continuous thermographic monitoring and arc mitigation solutions, expanding applications for data centers and critical infrastructure.

2026
Future, Innovation, and New Markets

Varixx plans to develop new products and innovations, expanding its presence in different areas of application.

Continuous innovation, engineering excellence

From the beginning, Varixx has built its history on solid pillars: continuous innovation, engineering excellence, and an absolute commitment to reliability. Over nearly five decades, it has developed its own technologies, accumulated patents, built a robust portfolio, and established a reputation based on exceptional durability, total quality control, and vertical production. Operating in critical sectors such as energy, petrochemicals, steel, mining, data centers, and the chemical industry, the company has always operated where safety, availability, and precision are essential.

Summary

ZYGGOT®

Advanced Technologies for Industrial Monitoring and Protection

TEMPERATURE

ZYGGOT® TEMPERATURE (Continuous Thermographic Monitoring for Low, Medium, and High Voltage)

ZYGGOT® TEMPERATURE LV (Continuous Thermographic Monitoring for Low Voltage)

ZYGGOT® SG (Continuous Thermographic Monitoring for Low Voltage up to 800 VAC)

ZYGGOT® SG TF (Continuous Thermographic Monitoring for Low Voltage Transformers up to 800 VAC)

ZYGGOT® RADDIA TS (Continuous Radio Thermographic Monitoring for Low, Medium, and High Voltage)

ZYGGOT® RADDIA TF (Continuous Radio Thermographic Monitoring for Transformers up to 35 KV)

ARC

ZYGGOT® SPL (UV Arc Mitigation for High Selectivity and Cost Effective)

ZYGGOT® ARC (Ultraviolet Arc Flash Mitigation System with VZA/B1 relay)

ZYGGOT® ARC (UV Arc Mitigation for High Selectivity and Cost Effective with V5F/A relay)

ZYGGOT® OCTO (UV sensor for Arc Flash Mitigation in Electromagnetically Harsh Environments)

INTEGRATED SYSTEMS

ZYGGOT® THM+ARC Multi -Gateway (Online Thermography + Ultra-Selective UV Arc Protection System)

ZYGGOT® TOH (Continuous Thermographic Monitoring + Ozone + Humidity)

UPCOMING RELEASES: Networked image sensors, smart ultrasonic sensors for detecting partial discharges and gas leaks, vibration sensors for Industry 4.0, as well as sensors for monitoring hydrogen and other gases.

01 Arc Flash Mitigation System

ZYGGOT® ARC family includes systems that protect electrical systems and their components through a smart network of sensors that detect arc flash from UV radiation (present in any arc in the initial moments), even before the emission of visible light, a phase already associated with air expansion and overheating. It can be applied to low, medium, and high voltage electrical panels and other electrical installations. It is a predictive system that mitigates arcing, and is the fastest and most modern on the market.

ARC	ZYGGOT® ARC
OCTO	ZYGGOT® OCTO
SPL	ZYGGOT® SPL

02 Continuous Temperature Monitoring - Online Thermography

ZYGGOT®TEMPERATURE family covers solutions for electrical installations and low, medium, and high voltage panels, ensuring constant, standardized, secure, and scalable 24/7 thermal monitoring. Measurements can be taken without contact, using infrared radiation, or through direct contact. In addition to measuring regions, the analysis of the environmental thermal gradient makes it possible to detect anomalies even in unmonitored points, anticipating failures and strengthening predictive maintenance strategies.

TEMP	ZYGGOT® TEMPERATURE ZYGGOT® TEMPERATURE LV
RADDIA	ZYGGOT® RADDIA TF ZYGGOT® RADDIA TS
SG	ZYGGOT® SG ZYGGOT® SG | TF

03 Integrated Systems

The integrated systems of the ZYGGOT® line represent several technologies in a single solution, meeting the highest technical and safety standards. They integrate technologies such as online infrared thermography, ultra-fast arc detection and mitigation using ultraviolet light, and detection of partial discharges, ozone, and humidity into a single relay. Versions with multiple gateways, high selectivity, and individual protection for each compartment allow for scalability and savings.

THM	ZYGGOT® THM+ARC MULTI-GATEWAY
TOH	ZYGGOT® TOH

ZYGGOT® ARC

Ultraviolet Arc Flash Mitigation System

The arc flash begins with a low-energy pilot path, accompanied by the emission of ultraviolet radiation from the ionization of the air. In this initial phase, the ZYGGOT® Arc system quickly detects the pre-arc (in formation), with a total response time of approximately 300 microseconds until the signal is sent to the shutdown device. This ultra-fast response time prevents the arc from developing completely, protecting equipment and increasing operational safety.

Arc Phases

Compression

At this stage, the ionization of the air produces ultraviolet radiation. The discharge begins to increase the internal pressure.

Expansion

High pressure causes the relief ducts to open.

Expulsion

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

Thermal

The arc completely damages insulation, conductive, and structural materials. The temperature rises to several thousand degrees. Thermal energy dissipation phase.

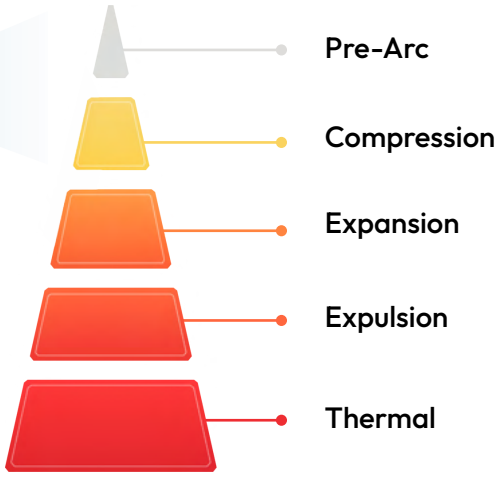
ZYGGOT® Arc sensor detection phase

Detection phase of conventional sensors using light and current

Detection in the Pre-Arc Phase

UV Detection sensor

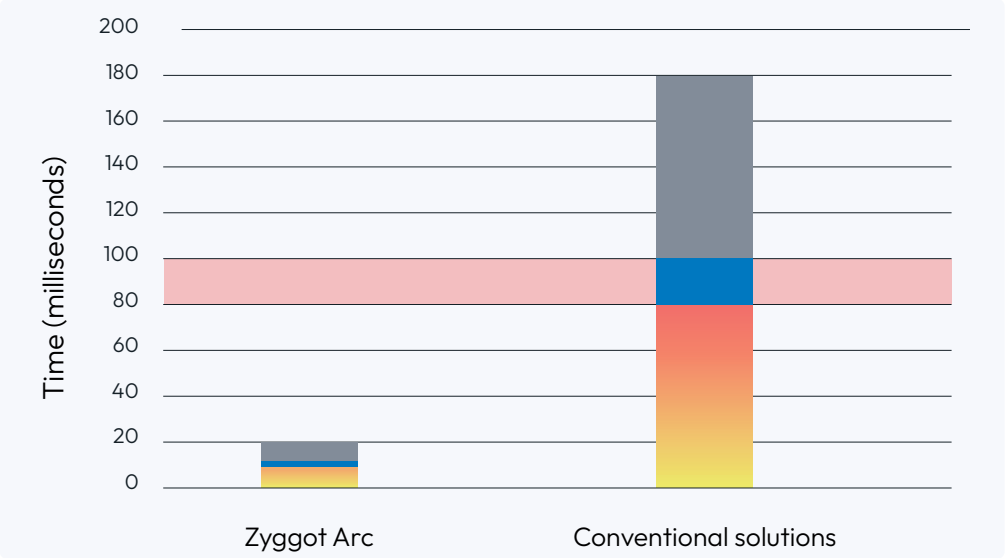
For high, medium and low voltage.



ZYGGOT® ARC

Ultraviolet Arc Flash Mitigation System

Case study: Comparison of the Zyggot® Arc system with other conventional solutions



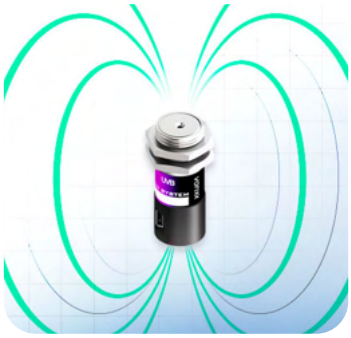
Source: Kumpulainen, L.; Dahl, S. Minimizing hazard to personnel, damage to equipment, and process outages by optical arc-flash protection. In: "IEEE Petroleum and Chemical Industry Conference", Europe, 2010.

A comparison of the response time of the ZYGGOT® Arc system sensors shows that the microsecond response time in this system is a factor that guarantees real arc mitigation. This is due to the response occurring before visible light and current increase. This instantaneous response ensures a much faster response time than traditional technologies, which depend on heating and current increase to act. While conventional solutions only reduce damage, ZYGGOT® Arc effectively interrupts and mitigates the progression of the arc, preserving the integrity of the electrical system.

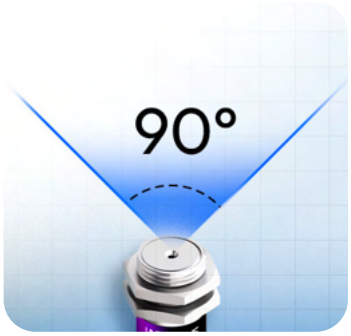
Why ZYGGOT® Arc saves lives?

Because it is an **arc flash mitigation system**, offering the fastest response on the market: it sends the trip signal in just 0.3 milliseconds (300 microseconds). It uses a static contact and a dry contact, as well as an ultra-fast digital communication network (**CAN**), ensuring exceptional efficiency and response times.

Ultraviolet radiation detection (UV)



Accuracy and reliability under electromagnetic interference



Wide detection area (90°)

ZYGGOT® SPL

Ultraviolet Arc Flash Mitigation with multiple gateways for High Selectivity and Cost Effective

ZYGGOT® SPL is a revolutionary solution from Varixx for arc flash protection and mitigation. It combines advanced technology and affordability. It uses ultraviolet detection, a patented technology that reduces incident energy by up to 150 times compared to traditional methods.

It ensures high reliability with rapid operational recovery.

Allows connection of up to 50 sensors per trigger gateway, ensuring agile, scalable implementation and simplified commissioning

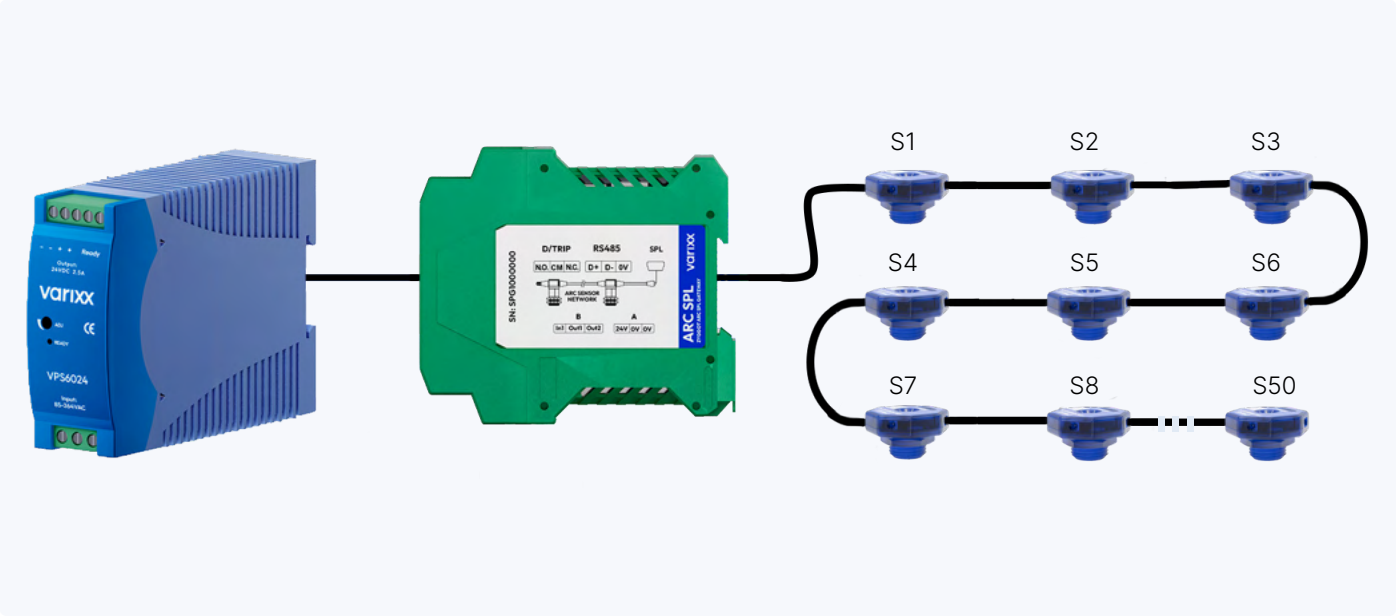
With high-sensitivity sensors, Arco SPL identifies arcs in less than 250 µs (0,00025 seconds), protecting the entire cubicle (wide viewing angle of 90°) due to its high sensitivity, which even detects the reflection of UV radiation on internal surfaces, enabling detection even of points not directly targeted. Installation is simplified, eliminating the need for dedicated relays and current monitoring, and offering easy integration with SDCD systems. The sensors are connected to the detection and trip gateway by a digital network, which ensures efficient communication with simplified cabling and linear topology.

Main Features

- No Current Measurement required to confirm the arc.
- Arc flash action in less than 250µs.
- Reduces incident energy by up to 150x.
- High selectivity. Allows independent trips for each cubicle.
- Detects UV at points not visible by reflection.
- Up to 50 sensors networked by trigger gateway.

ZYGGOT® SPL

Ultraviolet Arc Flash Mitigation with multiple gateways for High Selectivity and Low Cost



Allows connection of up to 50 sensors per gateway

This architecture allows for **high selectivity** in circuit breaker tripping, acting in a localized manner, greatly facilitating identification and other factors related to maintenance. The Gateway is responsible for tripping the associated circuit breaker whenever an arc flash is detected. Both the sensors and the Gateway are **cost effective** solutions.

Each Gateway has an additional digital input, which can be configured to detect external faults or arc chain events, allowing coordinated tripping of multiple circuit breakers in critical situations. All sensors are connected in parallel, using shielded cables with mini-USB connectors, which allows for practical, quick installation without the need for tools. Each Gateway has one NA/NF trip output and two MPN digital outputs.

Multi-Gateway: This configuration allows you to implement the selectivity function between compartments, enabling only the circuit breaker associated with the compartment in which the arc was detected to be tripped. This multi-gateway approach avoids unnecessary shutdowns and outages of the entire installation, reducing operational impact.

ZYGGOT® ARC

Ultraviolet Arc Flash Mitigation System

ZYGGOT® Arc protects electrical systems through a smart network of sensors capable of detecting ultraviolet radiation emitted in the early stages of an arc flash, even before visible light and consequent overheating. This feature allows for an early response and protects equipment in low, medium, and high voltage environments, including outdoor installations and critical conditions. The high speed of action, by detecting the arc flash in its initial phase, mitigates the arc flash, eliminating the damage caused by it, unlike conventional systems based on light and current detection, which only reduce the impacts of the event. In addition, the reduced cost and ease of implementation make this solution significantly more efficient and affordable.

Smart trigger relay
(with ARM CORTEX microprocessor).

High-speed CAN network for sensors
(powered by the network itself).

No concentrators or interfaces required;
Relays and sensors are configured and tested by PC by free software.

Each sensor has an LED that flashes to detect faults or location.

Easy testing with manual tester
(ArcSafe arc generator).

ZYGGOT® Arc Touch Screen Relay

Power Supply

24 Vdc

Inputs

4 analogs

4 digitals (12 to 24Vdc)

Outputs

2 outputs for Alarm and Trip (N.O.)

2 programmable outputs (N.O.)

1 output for sensor connection

Communication

Modbus RTU - (RS-485)

Modbus TCP - (Ethernet)

EtherNet/IP - (Ethernet)

ZYGGOT® Arc Relay

Power Supply

24 Vdc

Inputs

2 digitais (Reset/Inibição)

Outputs

2 digital outputs for Trip

1 digital outputs for Alarm

1 output for indication (Armed)

Communication

Modbus RTU - (RS-485)

Detection in the first phase of the arc (before visible light).

Ultra-fast action less than 0.3 milliseconds (300µs).

Lowest incident energy on the market (100 to 150x lower than light+current).

Wide detection area (90°).

Does not detect visible light, preventing false trip.

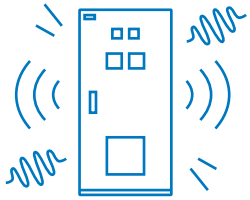
No current reading required.

ZYGGOT® OCTO

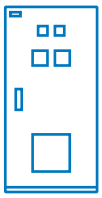
UV sensor for Arc Flash Mitigation in Electromagnetically harsh environments

Used in installations with high levels of noise and electromagnetic interference (EMI), typical of medium voltage, large drives, and substations, the robustness of the sensor is crucial to maintaining consistent performance. That is why Varixx has evolved the UV platform and presents the ZYGGOT® Octagonal (OCTO): a sensor with improved architecture and construction for superior immunity in highly electromagnetically “polluted” environments, while maintaining full compatibility with existing systems.

Application



High electromagnetic interference (EMI) environments.
Typically in medium voltage and installations with high power concentration and switching.



Compatibility with Conventional Environments.
Fully applicable to conventional environments, without any impact on system performance or reliability.

Main Features

Greater electromagnetic immunity
Optimized layout and architecture, with internal shielding to reduce sensitivity to interference.

Easier and faster installation
Optimized connectors and easier commissioning in large-scale systems (auto-addressing).

Lighter and more efficient construction in materials
Lighter and more efficient construction in materials: less use of steel and greater use of FARADEX™ composite, with a positive impact on logistics and durability (reduction in mass and maintenance).

More competitive cost
Improved construction efficiency and targeted application for harsh environments.

ZYGGOT® OCTO

UV sensor for Arc Flash Mitigation in Electromagnetically harsh environments

Key Features

1

Simple and straightforward retrofit Maintains full compatibility with existing systems, using the same mounting and connector, without requiring mechanical or special adaptations to the infrastructure.

2

Superior EMI Immunity The core concept of OCTO is resistance in electromagnetically “polluted” environments, ensuring consistent performance even with high noise levels.

3

Reinforced Internal Shielding The architecture has been evolved to include internal shielding and a PCB redesign, dramatically reducing sensitivity to external interference.

4

Enhanced Geometry and Architecture the octagonal design reflects an optimized construction, specifically designed to raise the standard of robustness in the field against electric fields.

5

Cost Competitiveness Efficiency in construction and targeted use of materials position the product at a more competitive cost, favoring standardization and upgrades.

6

Smart Commissioning (Auto Addressing) Facilitates installation in large-scale systems through features such as auto addressing, making the process faster and more practical.

7

Material Efficiency with FARADEX™ Replaces part of the steel with FARADEX™ composite, resulting in a lighter, more durable construction with less logistical impact.

8

Detection Performance Maintained Despite physical developments, it fully preserves the reliability parameters: same field of view, same speed, and same sensitivity as previous sensors.

ZYGGOT® THM+ARC

Continuous Thermographic Monitoring (Online) + Ultraviolet Arc Flash Mitigation

ZYGGOT® THM+ARC is an innovative solution worldwide when it comes to protection and measurement systems. It was developed to meet growing demands for reliability and safety standards (e.g., NBR 17227) in electrical systems. It integrates two well-known Varixx systems: ZYGGOT® Temperature (Continuous Thermographic Monitoring) together with the ZYGGOT® Arc system (Arc flash Detection and Mitigation). ZYGGOT® THM+ARC combines the best of both technologies in a single relay, offering financial, space, extreme safety and robust protection.

Selectivity

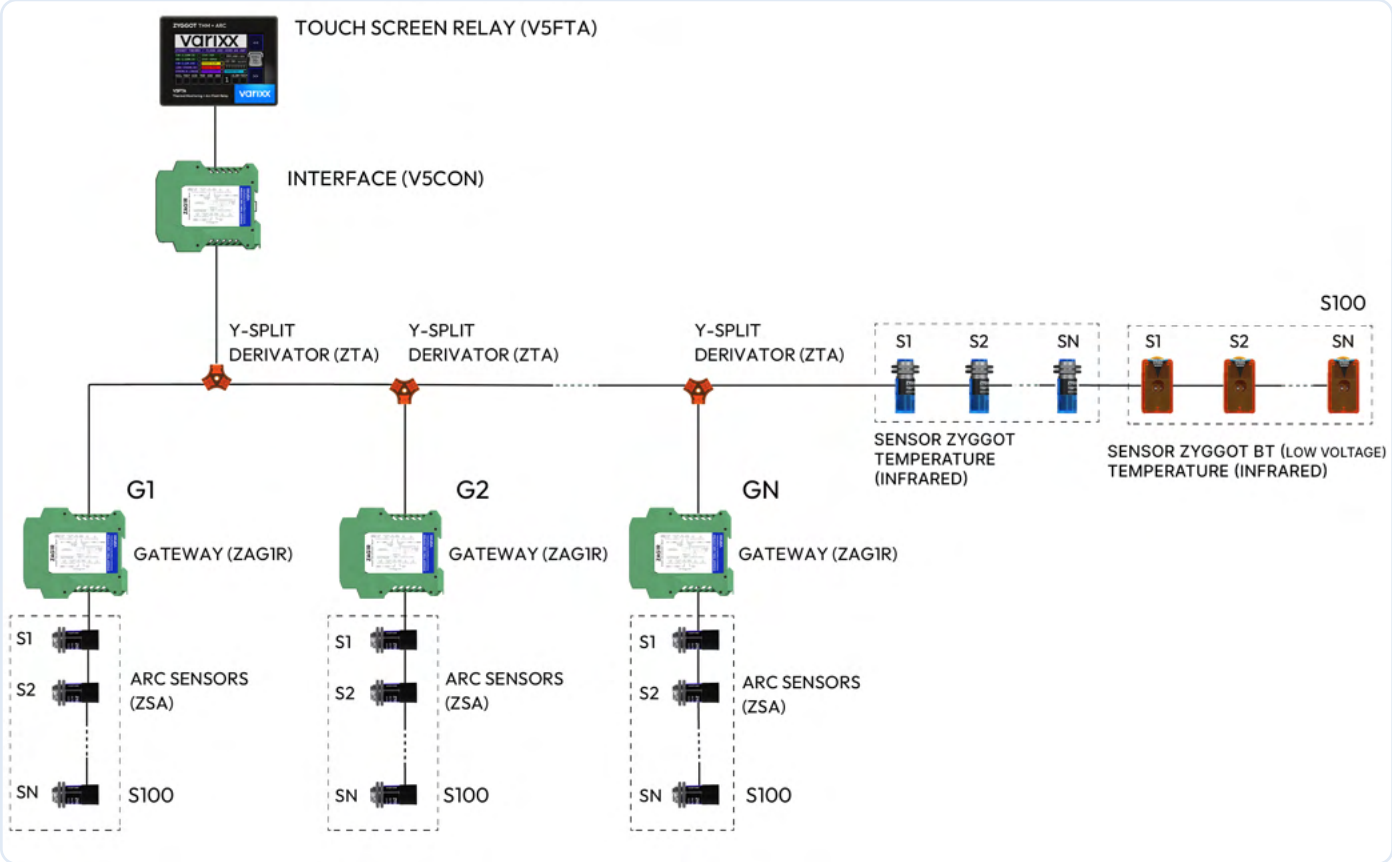
Supports up to 40 gateways, with 100 arc sensors per gateway, providing wide coverage and high detection efficiency. The multi-gateway version of ZYGGOT® THM+ARC enables highly accurate arc selectivity, which is essential for tripping circuit breakers independently and in a controlled manner, as it allows each circuit breaker to be tripped independently of the others. Each compartment of the panel can be equipped with a dedicated, cost-effective gateway, while a single central relay manages the entire system. Available in **Mono and Multi-Gateway**, the system easily adapts to different industrial architectures, making it ideal for use in substations, motor control centers (MCCs), transformers, data centers, and critical electrical installations.

Main Features

- Continuous monitoring (24/7) of up to 100 non-contact temperature sensors by relay.
- Acts in less than 250µs in the pre-arc phase (before visible light).
- Reduces incident energy by up to 150x compared to light and current detection systems.
- Color Touch Screen. Modern and user-friendly interface with over 200 screens.
- Modbus RTU (RS-485) Modbus TCP (Ethernet) EtherNet/IP (Ethernet).
- Up to 100 arc sensors per gateway (up to 40 gateways—total of 4,000 arc sensors).

ZYGGOT® THM+ARC

Continuous Thermographic Monitoring (Online) + Ultraviolet Arc Flash Mitigation



Selective Protection and Advanced Monitoring for Electrical Systems

Each sensor has an LED that can be activated by the relay, facilitating diagnosis and verification of addressing on the network. The system allows you to configure different alarm and trip levels for the target and sensor body (surrounding air) temperatures, optimizing the thermal protection strategy.

Each relay can monitor up to 100 thermal sensors. The relay automatically identifies sensors that are not responding and monitors the supply voltage individually, allowing you to detect problems in the network, such as cabling exceeding the recommended length. The thermal sensors are connected directly to the relay (V5FTA) by an interface (V5CON).

Arc detection sensors are connected by one or more gateways (up to 40 ZAG1R in the Multi-Gateway version), allowing unprecedented selectivity in tripping specific circuit breakers per compartment. The relay reads the temperatures of the target and the sensor body, detects arc flash occurrences and arc sequences, and monitors the status of the sensors (both thermal and arc) and the power and communication voltages. There are 4 or 12 digital outputs available, in addition to 4 analog inputs on the relay. the ZAG1R gateway (for arc detection) has 3 more digital outputs, one trip and two programmable by relay or software, and two digital inputs, one reset and one programmable. The trip output has an ultra-fast solid-state relay and an additional N.O. dry contact in parallel. The programmable outputs are normally open dry contact type.

The ZYGGOT® THM+ARC system relay can be integrated into a communication network for local supervision or remote monitoring. It has an **Ethernet** interface compatible with various protocols, allowing access from anywhere by mobile devices or fixed stations.

ZYGGOT® TEMPERATURE

Continous Thermographic Monitoring - Online Thermography

ZYGGOT® Temperature is a non-contact online thermography system for critical electrical assets. Intelligent sensors (infrared detection), without physical contact, monitor everything in real time, measuring the temperature of the monitored point and the surrounding air, also allowing identification through differential heating analysis. It detects anomalies early, even in areas that are not directly supervised. The relay easily integrates with supervisory systems by remote communication, facilitating centralized monitoring. With configurable alarms and commands (trip) for each point individually, total control is possible.

Touch Screen Temperature Relay

Power Supply

24 Vdc

Inputs

4 analogs

4 digitals

12 digitals

Outputs

2 outputs for Alarm and Trip (N.O.)

2 programmable outputs (N.O. / light version)

10 programmable outputs (N.O. / full version)

1 output for sensors connection

Communication

Modbus RTU (RS-485)

Modbus TCP (Ethernet)

EtherNet/IP (Ethernet)

Temperature Relay

Power Supply

24 Vdc

Inputs

4 analogs

8 digitals (24 Vdc)

Outputs

2 outputs for Alarm and Trip (N.O.)

4 programmable outputs (N.O.)

1 output for sensors connection

Communication

Modbus RTU (RS-485)

Profbus DP (optional)

Measures the air temperature around the sensor, allowing indirect thermal elevations at other points to be identified.

Continuous Monitoring and integrated programmable Differential Alarm.

Allows up to 125 sensors on a single network.

Easy deployment and testing. No batteries required. Can be tested with the system turned off.

Networked sensors, powered by the communication cable itself.

History of faults and actions with Real Time Stamp.

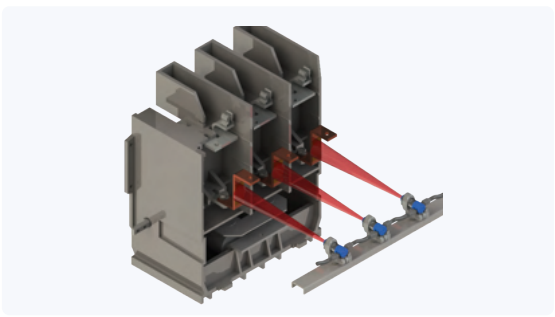
ZYGGOT® TEMPERATURE

Continous Thermographic Monitoring - Online Thermography

ZYGGOT® TEMPERATURE: Solution for Low, Medium and High Voltage

ZYGGOT® Temperature Sensors continuously measure (online, 24/7) the temperature in low, medium, and high voltage electrical panels and other critical connections. Each sensor measures two temperature points: the selected target and the surrounding environment. They are networked, allowing for quick, error-free installation without tools. They use infrared detection technology for non-contact measurement, allowing readings of up to 125 points per relay.

Support for fixing and sighting

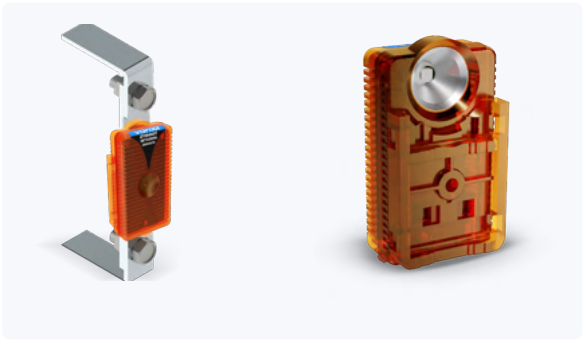


Sight measurement of critical points

ZYGGOT® TEMPERATURE LV: Solution for Low Voltage

ZYGGOT® LV Sensors were developed for applications in confined spaces with many critical points and connections. They can be secured using a screw or stainless steel tape directly to the busbar, saving space without compromising insulation. They are networked with cables available from 0.3 to 8 meters, allowing for quick, error-free installation without tools. Polycarbonate body.

Topology: Reliable LV Sensor network connection cables for 800 VAC applications



Sensor attached directly to the busbar but with non-contact measurement (infrared)

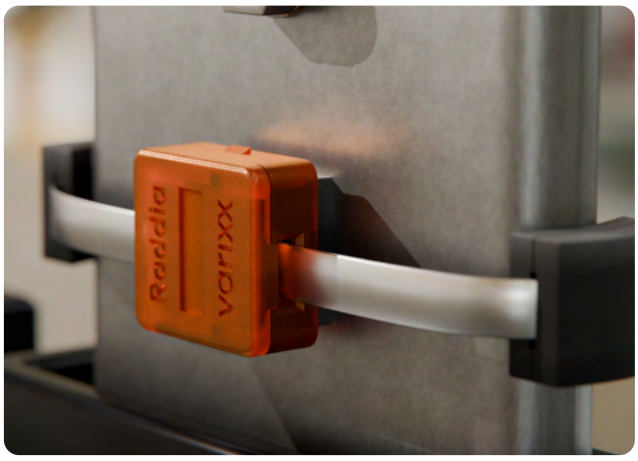
ZYGGOT® RADDIA TS

Continuous Radio Thermographic Monitoring (Online) for low, medium and high voltage

Raddia system is designed to provide continuous, real-time monitoring of temperatures in low, medium, and high voltage components and internal connections, such as transformers, motors, and electrical panels, using radio signal transmission technology without the use of batteries. With its wide versatility, the system is compatible with applications ranging from low voltage to high voltage (35 kV or more) and can be used in cubicles of any type.

Monitoring up to 125 sensors per relay

Capable of monitoring up to 125 sensors per relay, Raddia TS ensures comprehensive coverage with configurable alarms and triggers that optimize electrical system protection. Its radio data transmission at 433 MHz or 470 MHz frequencies allows for quick and easy installation.



Main Features

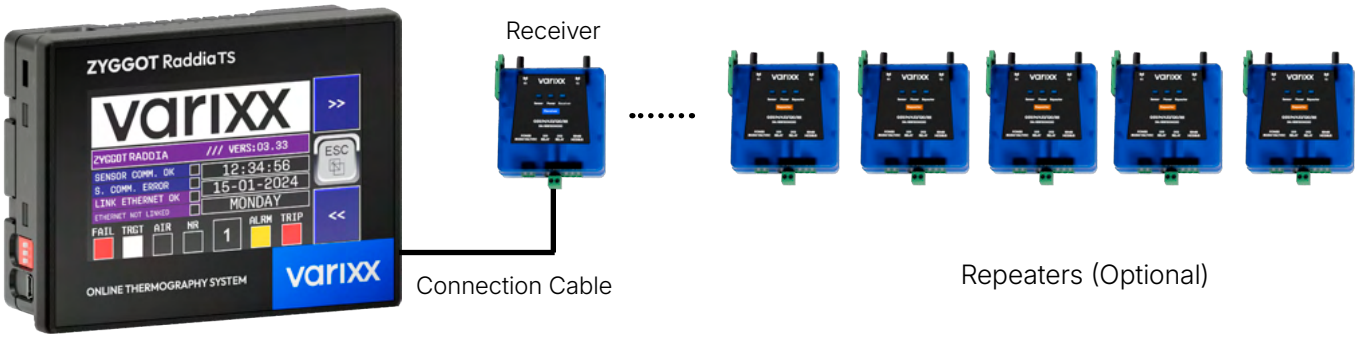
- Easy to install, does not use batteries (battery-powered sensors can be supplied as an option).
- It operates powered by the bus current from 5A.
- Reading and protection of up to 125 points per relay.
- Modbus RTU (RS-485)
  Modbus TCP (Ethernet)
  EtherNet/IP (Ethernet)
- Radio signal transmission.
- History of faults and actions with Real Time Stamp.

ZYGGOT® RADDIA TS

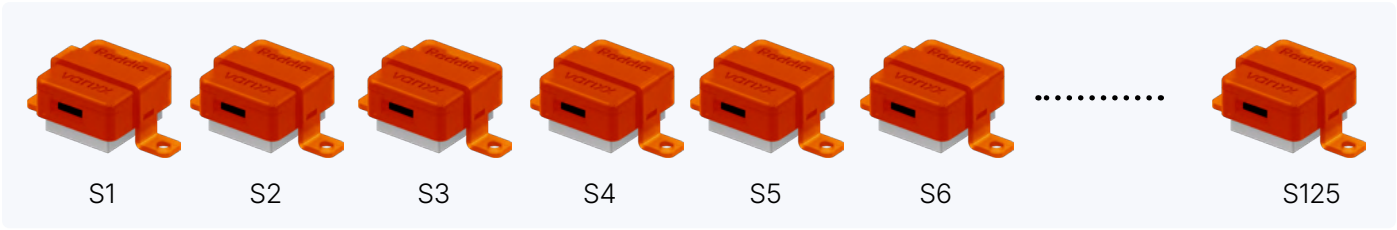
Continuous Radio Thermographic Monitoring (Online) for low, medium and high voltage

Typical Network Connection

For MJ1/MJ2 of the Relay



Number of Sensors



Communication and Programming

ZYGGOT® Raddia TS Relay has an Ethernet communication interface, allowing remote access from any location with network connectivity. **Several industrial communication protocols** are incorporated into the device, enabling activation and configuration directly from the equipment's parameterization screens.

The system allows remote data acquisition, such as temperature readings and flag statuses, by computers, mobile devices, or integration with SDCD systems. For this, the relay must be connected to a local area network (LAN) with access to the wide area network (WAN), in addition to the correct IP addressing as parameterized in the equipment. Remote parameterization of the relay is also supported, including adjustments to alarm levels, trip setpoints, and other operating parameters.

ZYGGOT® RADDIA TF

Continuous Radio Thermographic Monitoring (Online) for Transformers up to 35 kV

The RADDIA TF system was developed to enable online monitoring of the temperature of high and medium voltage transformers, with radio signal transmission. The RADDIA series wireless temperature measurement sensor is designed in accordance with the specification for wireless temperature measurement equipment. It is suitable for high-voltage equipment up to 35 kV, of any type. The sensors can be installed at any point between the winding layers.

Monitoring up to 125 sensors per relay

The system allows the installation and monitoring of up to 125 sensors per relay, enabling the simultaneous reading of multiple points. Each relay performs the reading, interpretation, and action based on the thermal values received.

Four programmable digital outputs are available, fully configurable for alarms or trip commands.

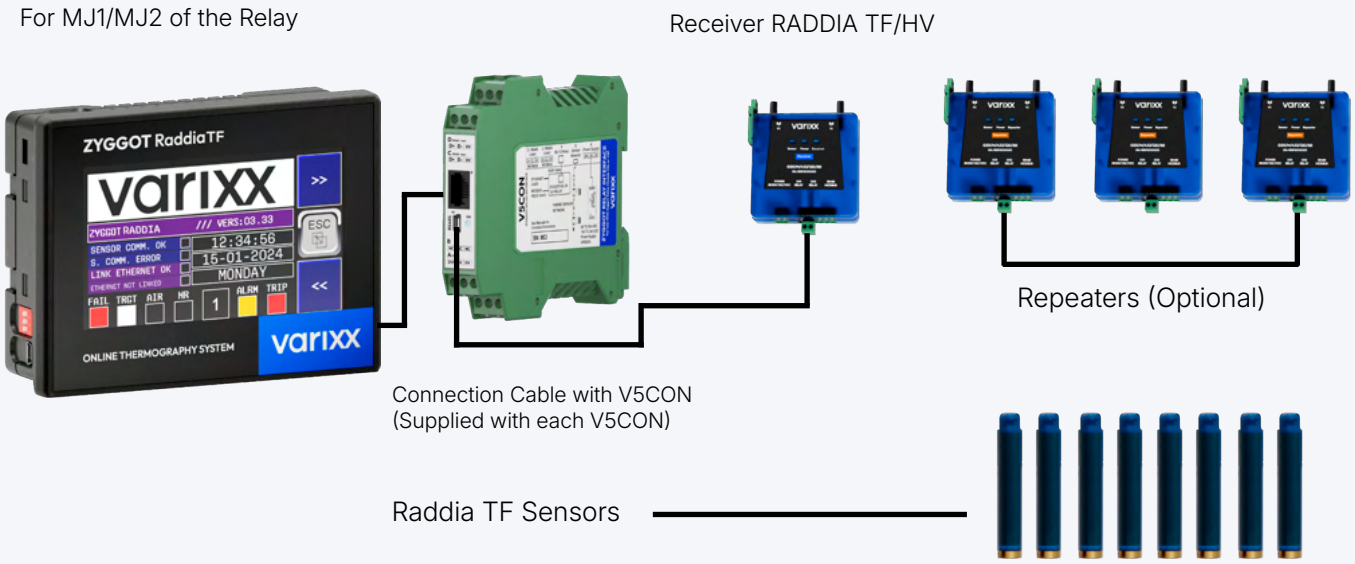
Main Features

- Reliable radio communication, ideal for highly complex industrial and electrical environments.
- Complies with current safety standards, eliminating the need to open energized panels.
- Real-time graphical recording for temperatures and analog inputs.
- Quick and non-invasive installation, with no need for additional cabling.
- Continuous reading, with alarm and trip levels individually configurable per sensor.
- Ethernet connectivity with multiple industrial protocols.

ZYGGOT® RADDIA TF

Continuous Radio Thermographic Monitoring (Online) for Transformers up to 35 kV

The central relay of this system acts as a hub and interface between the sensors and automation systems. It also has a graphical interface and internal memory for recording faults, events, and real-time temperature graphs (plot). It can be integrated into existing automation architectures, operating in fail-safe mode, with support for time synchronization protocols (NTP), web server (HTTP), and file transfer (FTP).



Data transmission between sensors

The temperature reading is transmitted in real time, using radio communication in the 433/470 MHz bands, ensuring secure coverage without additional cabling. The data is sent directly to the RADDIA relay or integrated into supervisory or remote monitoring systems. The relay has Ethernet communication with various protocols and can be accessed from anywhere by mobile or non-mobile devices.

ZYGGOT® SG

Continuous Thermographic Monitoring for Low Voltage up to 800 VAC - Disruptive Cost Effective Online Thermography

ZYGGOT® SG system was developed as a complement to Varixx's ZYGGOT® family of solutions, offering continuous, real-time monitoring of temperatures in internal or external connections of **MCC** and **Data Center drawers**, as well as shielded **Busbar-type**. The design aims to provide easy installation, high reliability, and cost effective.

Smart digital sensors with a capacity of up to 400 sensors per gateway

Intelligent, ultra-compact sensors connected to a "One Wire" network, with automatic detection and addressing, encapsulated in high-temperature polycarbonate and powered directly by the network itself. If one sensor fails, the others continue to operate normally, ensuring the reliability of the system, which has two types of sensors: Single Port and Dual Port.

Dual Port sensors allow for cascading connections, supporting up to 50 sensors per gateway port and cables up to 300 meters long, providing scalability and flexibility for a variety of applications.

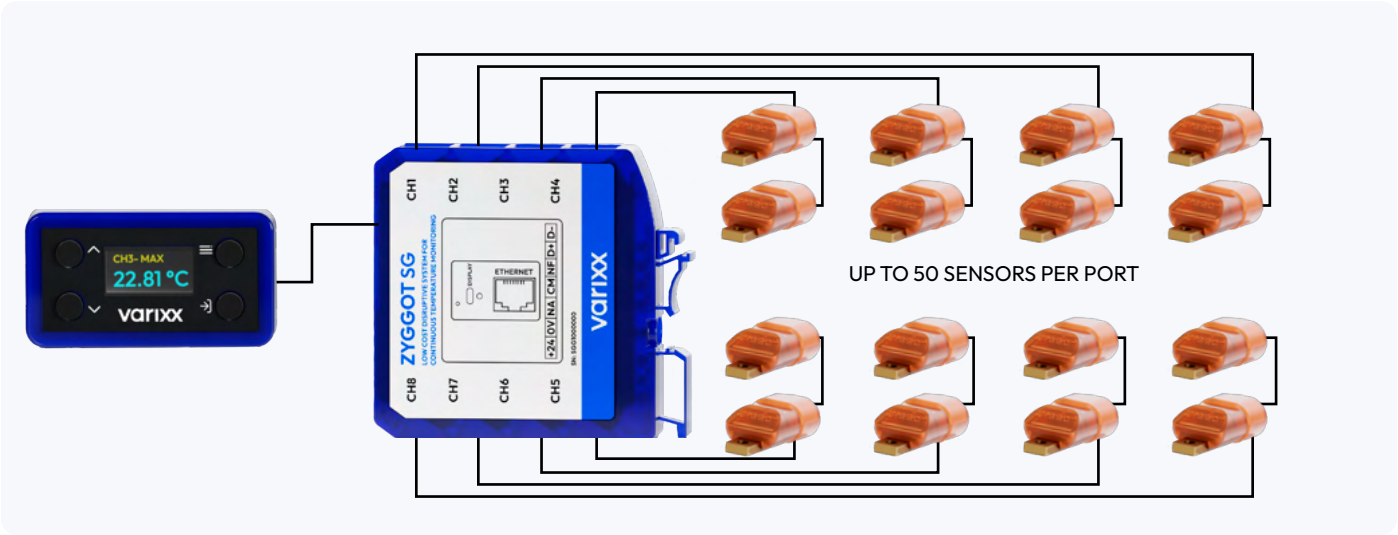
Main Features

- Thermographic monitoring for MCC, Data Center, Busbar, etc.
- Simple and Quick Installation Plug-and-play sensors with USB C connectors and automatic addressing.
- Compatible with shielded Busbar-type.
- Serial connection of up to 400 sensors per gateway, with dual port sensors (50 per port).
- One Wire network.
- Display for real-time monitoring.

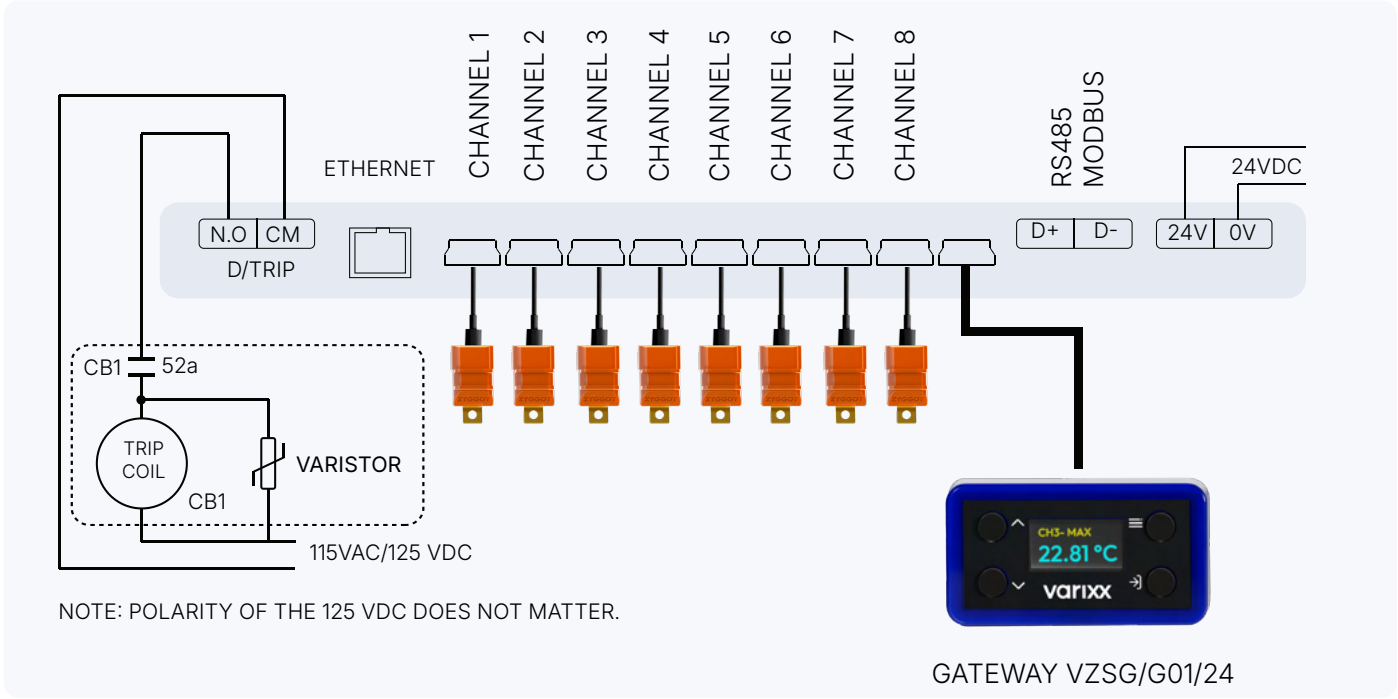
ZYGGOT® SG

Continuous Thermographic Monitoring for Low Voltage up to 800 VAC - Disruptive Cost Effective Online Thermography

ZYGGOT® SG topology with daisy-chained dual port sensors



Example of typical application in a MCC Drawer or Data Center with Mono Port sensors (8 sensors per Gateway)



Communication

ICMP - Internet Control Message Protocol.
SRTP - Service Request Transport Protocol.
TCP/IP - Transmission Control Protocol (Modbus TCP Server ou Modbus Slave).
ETHERNET/IP - Internet Protocol (Ethernet IP Server).
FTP - File Transfer Protocol
HTTP - Hypertext Transfer Protocol.
ASCII Over TCP/IP - ASCII Transmission Control Protocol.
NTP - Network Time Protocol.
Modbus RTU (RS-485)

ZYGGOT® SG TF

Continuous Thermographic Monitoring for Low Voltage Transformers up to 800 VAC
Disruptive Cost Effective Online Thermography

ZYGGOT® SG TF was developed as a complement to the other solutions in the Zyggot® line, with the aim of providing continuous, real-time thermal monitoring of transformers with voltages up to 800 VAC. It prioritizes easy installation, high operational reliability, and low implementation costs.

Smart digital sensors with a capacity of up to 96 sensors per gateway

Intelligent, ultra-compact sensors connected to a 1-Wire® network, with automatic detection and addressing. They are encapsulated in stainless steel and high-temperature polycarbonate, ensuring robustness and durability even in harsh environments. Powered directly by the network itself, the sensors maintain continuous system operation even in the event of individual failure; failed sensors do not affect the others. Each gateway channel also supports the concatenation of up to 12 sensors, with a total cable length of up to 300 meters per channel, providing flexibility and range in distributed installations.

Main Features

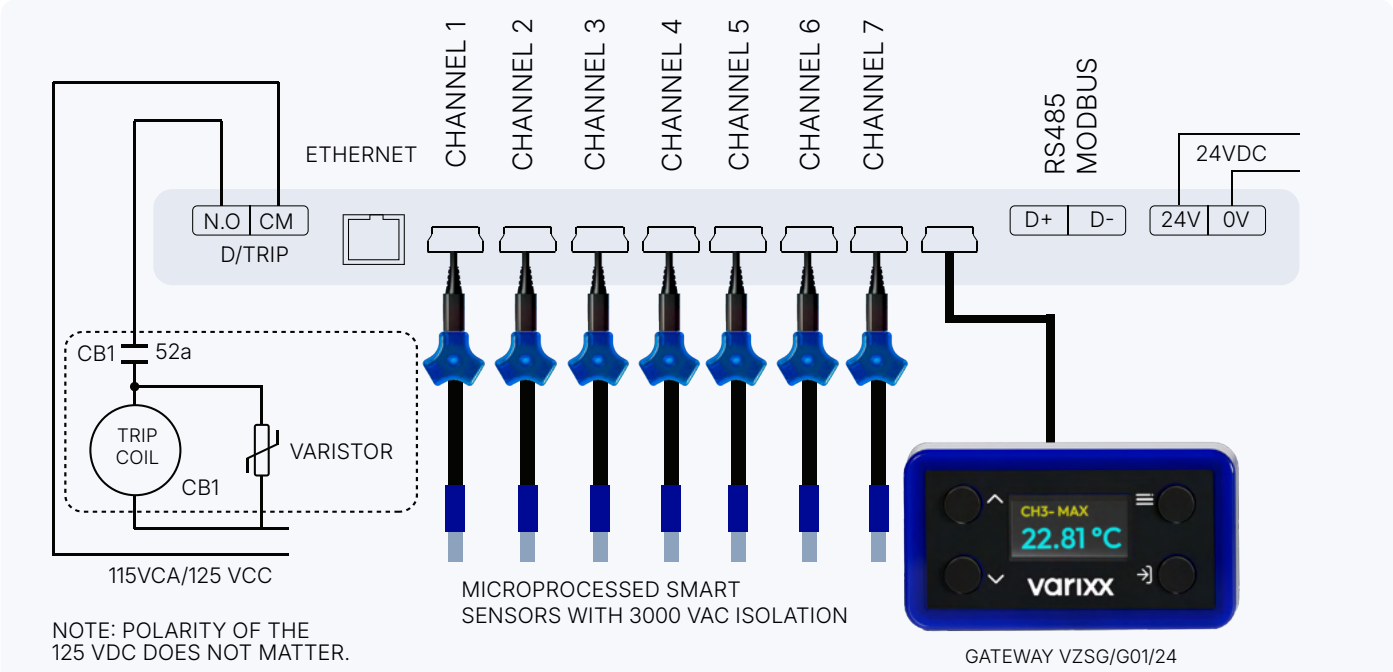
- It has a web server and remote control by Ethernet.
- Low acquisition and installation costs.
- High insulation 3000 VAC
- Auto-addressing and sensor monitoring.
- IEC 61850 for substation.
- Testable with the system off and highly scalable.

ZYGGOT® SG TF

Continuous Thermographic Monitoring for Low Voltage Transformers up to 800 VAC
Disruptive Cost Effective Online Thermography

ZYGGOT® SG TF system can be supplied with interconnection cables ranging from 1 to 20 meters, making it ideal for use in low-voltage transformers or other similar systems. In more complex applications, the sensors can be connected in series (concatenated), allowing for expansion of the monitoring network. The system supports up to 12 sensors per port/channel, reaching a total of up to 96 sensors per gateway, depending on the architecture adopted.

Example of typical application in Transformers up to 800 VAC
(system with sensors and control module installed on the front of the panel



The output can be used for an alarm signal or a flashing light instead of a trip.

Smart sensor and Dual Port interface

Gateway and control module with Display

Gateway with 8 ports / channels for sensors

Communication

ICMP - Internet Control Message Protocol.
SRTP - Service Request Transport Protocol.
TCP/IP - Transmission Control Protocol (Modbus TCP Server ou Modbus Slave).
ETHERNET/IP - Internet Protocol (Ethernet IP Server).
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ZYGGOT® TOH

Continuous Thermographic Monitoring (Online) + Ozone + Humidity

Varixx has developed an integrated Continuous Temperature + Ozone + Humidity Monitoring system, creating a complete predictive solution. This is because it considers the three most critical variables that directly influence arc formation: temperature, humidity, and ozone concentration. All readings can be accessed remotely anywhere in the world, thanks to Modbus and Ethernet communication available in the system relay.

ZYGGOT® TOH sensors

ZYGGOT® TOH is equipped with sensors for low, medium, and high voltage panel applications. It performs non-contact connection point and air temperature measurements. It integrates ultrasensitive ozone sensors capable of detecting concentrations in the range of 0 to 2000 parts per billion (ppb), in addition to sensors for measuring relative air humidity. It is worth remembering that systems with compromised or aged insulation have a high rate of partial discharges and corona, which result in increased ozone (O^3) generation.

Sensor:
Ozone and Humidity
ZSO/2000

Sensor:
Temperature
ZST/M/7/300/24

Sensor:
Temperature LV
ZSB/M/60/120

Main Features

- Detects aging of components and insulators, preventing critical failures.
- Advanced selectivity with independent alarms for accurate fault identification.
- Advanced technology for accurate and ultrasensitive ozone detection.
- Sensors monitor the temperature of the target and the environment to identify differences in gradients.
- Ozone and humidity sensors detect early degradation of insulation and failures in heating or ventilation.
- A single relay can monitor up to 4 variables, using up to 100 sensors and performing up to 250 measurements.

ZYGGOT® TOH

Continuous Thermographic Monitoring (Online) + Ozone + Humidity

Monitoring, Alarm, and Trip based on the four most important variables for preventing arc flash: Multi-temperature of connections; Multi-temperature of internal panel air; Ultra-sensitive multi-level ozone; Internal panel air humidity. Each sensor has an LED that flashes under relay command, facilitating diagnosis and address verification. The system allows you to configure different Alarm and Trip levels for the target and sensor body (surrounding air) temperatures, optimizing the protection of monitored assets. Each relay can monitor up to 125 temperature sensors or combined ozone and humidity sensors, monitoring the supply voltage of each one, facilitating the detection of possible network failures.

The Thermal sensors and Ozone + Relative Humidity sensors are connected directly to the relay by the V5CON interface. The relay reads the temperature values of the target and the sensor body, as well as the ozone and humidity levels at up to each of the 125 points in the system.

Readings of up to 125 target temperatures (points) and 125 indoor air temperatures. Readings of up to 125 highly sensitive ozone level sensors + 125 indoor air humidity levels. Non-contact measurements. Can trigger an alarm in the event of a temperature increase or ozone levels depending on the weather. Indicates any sensor failure. Failure history. **Modbus and Ethernet communication.**

4 or 12 programmable digital outputs are available, in addition to 4 or 12 digital inputs and four analog inputs. The ZYGGOT® TOH system relay can be connected to a communication network for integration with supervisory systems or remote monitoring. It has an Ethernet interface with several communication protocols and can be accessed from anywhere by mobile or fixed devices.

varixx

Varixx has created the ZYGGOT® Monitoring and Protection line, which brings together pioneering, innovative, and intelligent technologies. These solutions act predictively, protecting industrial electrical installations of all sizes and segments, with state-of-the-art features that are unique worldwide.

sales@varixx.com

United States - Houston, Texas

708 Main Street Fl, 10 Houston TX, 77002

vendas@varixx.com.br

Brazil - Piracicaba, São Paulo

Rua Phelipe Zaidan Maluf, 450 - Distrito Industrial Unileste

varixx.com