

ZYGGOT SG

W/ ETHERNET

LOW COST DISRUPTIVE SYSTEM FOR CONTINUOUS TEMPERATURE MONITORING



ONLINE THERMOGRAPHY FOR CCMs DATA CENTERS AND SWITCHGEARS
UP TO 200 SENSORS PER GATEWAY AND 480 PER RELAY

SISTEMA ZYGGOT SG

The **ZYGGOT SG** system was designed to complement other Varixx solutions from the Zyggot family, to provide continuous, real-time monitoring of temperatures at internal or external connections of CCM drawers, as well as Busbar-type shielded busbars, with the aim of achieving easy installation, high reliability and low cost. Very small sensors facilitate installation at any point of interest.

MAIN ADVANTAGES AND FEATURES



TESTABLE WITH SYSTEM OFF

ETHERNET (MODBUS OVER ETH)

NETWORKED SMART SENSORS

HIGH EASE INSTALLATION

SELF ADDRESSING OF SENSORS

HIGHLY SCALABLE

PROGRAMMABLE ALARM LEVELS

MONITORS SENSORS STATUS

HIGH INSULATION - 3000 VAC

MODBUS RTU (RS485 PORT)

RESTful API (FOR EMBEDDED APLIC.)

IEC 61850 FOR SUBSTATIONS

IOT (INTERNET OF THINGS) MQTT

DOES NOT USE BATTERY

HIGH RELIABILITY

REAL TIME CLOCK BY ETHERNET (NTP)

LOW ACQUISITION AND INSTALLATION COST

HAS WEB SERVER

REMOTE CONTROL VIA ETHERNET

SMART SENSORS

Intelligent, tiny, networked «**1-Wire®**»* sensors, with automatic detection and addressing, encapsulated in high-temperature polycarbonate and powered by the network itself, meaning that if one sensor fails, the others continue to operate normally. There are two types of sensors: «**Single Port**» and «**Dual Port**». Dual port sensors can be concatenated with up to 50 sensors per gateway channel and up to 300 meters of cables per channel. * (Trademark of its owner).

UP TO 400 SENSORS PER GATEWAY



MONO PORT SMART SENSOR
WITH GOLD-PLATED TERMINAL



DUAL VERTICAL PORT SMART SENSOR
WITH GOLD-PLATED TERMINAL



DUAL VERTICAL PORT AND MONO PORT SMART
SENSOR WITH GOLD-PLATED TERMINAL



DUAL-PORT SENSORS WITH FORK FOR MOUNTING ON CONNECTION SCREWS (M6, M8, M12, ETC.)
AND DUAL-PORT SENSOR FOR LINEAR CONNECTION (FOR USE, FOR EXAMPLE, IN BUSBARS).

MOST DISRUPTIVE SYSTEM ON THE MARKET

The ZYGGOT SG system was designed to meet the need for reliable and low-cost monitoring for CCM and Data Center drawers, with quick and easy installation, without the need for sensor address programming as they are self-addressable.

CONTROL MODULE FOR LOCAL MONITORING

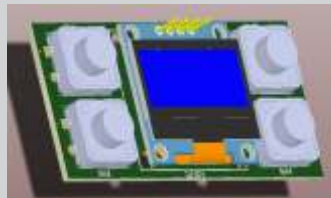
In addition to Modbus RTU and Ethernet communication, the system allows local monitoring, at the panel door, with continuous readings and programming of system parameters.

DISPLAY INSTALLABLE IN PANEL BUTTON HOLE

A standard 22 mm diameter hole is all that is needed to install the small control module. And it is connected to the gateway using a simple USB cable, requiring no tools.



GATEWAY / SENSOR AND CONTROL MODULE
WITH DISPLAY



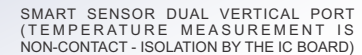
IC BOARD, CONTROL MODULE
WITH DISPLAY



IC BOARD, CONTROL MODULE
WITH DISPLAY (REAR / SIDE)

The ZYGGOT SG system, the latest release on the market, shares the same reliability as Varixx's ZYGGOT system, with thousands of systems installed worldwide and proven to be reliable and efficient. Each component is carefully selected and each product is 100% factory tested in real operation.

All system components are manufactured at Varixx's industrial plant, without any outsourcing, to ensure reliability. The Pick and Place machines are state-of-the-art, with linear motors and precision of 1 μm (one micron). Even the plastic injection molds are 100% developed at Varixx on a 5-axis machining center with precision of 0.1 micrometer.

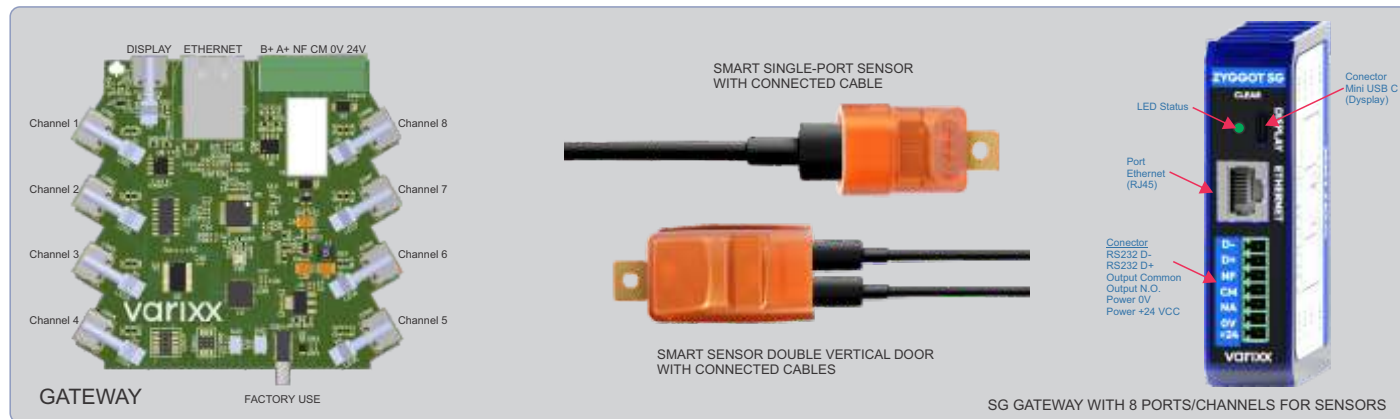


EASE COMMISSIONING

The **ZYGGOT SG** system, with its ready-to-connect and use components, including cables with USB connectors, was designed to make the installation and commissioning of the system as easy as possible.

LEDS FOR STATUS INDICATION

The Gateway has RGB LEDs on all ports, which change color according to operating conditions. Each sensor also has an LED that indicates its operating condition. On the Gateway, the LEDs will be **yellow** if no sensors are communicating, **green** if all sensors are communicating, and **red** in case of a fault or alarm. The control module on the panel door or each drawer also indicates the operating conditions.



TWO POSSIBILITIES OF APPLICATION

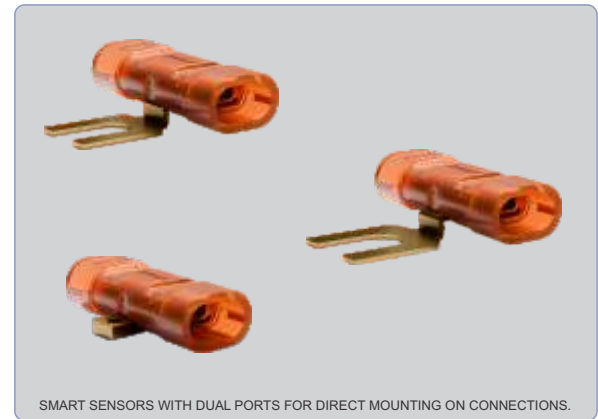
The ZYGGOT SG system can be supplied with 3 types of sensors: one single-port sensor for use in MCC or Data Center drawer, and two dual-port sensors which can be combined for use in more complex systems. They can support up to 25 sensors per channel/port and up to 200 sensors per gateway without using the Zyggot SG relay, or up to 16 sensors per gateway and up to 80 gateways with the use of the **Zyggot SG** relay (max 480 sensors per relay).

COMPACT SENSORS ALLOW FOR EASY INSTALLATION.

The same gateway can be used for both single-port and dual-port sensor systems. Below are front and rear views of a single-port and a vertical dual-port sensor with Mini USB Type-C connectors.



DUAL-PORT SENSORS WITH FORK FOR MOUNTING ON CONNECTION SCREWS (M6, M8, M12, ETC.) AND DUAL-PORT SENSOR FOR LINEAR CONNECTION (FOR USE, FOR EXAMPLE, IN BUSBARS).



APPLICATION DETAILS

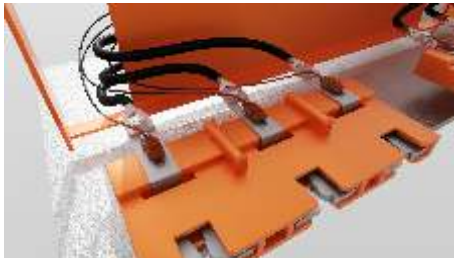
The **ZYGGOT SG** system allows for application in confined spaces and easy installation thanks to its plug-in cable system. The optional control and programming module can be installed in standard push-button holes (22 mm). The gateway can be installed inside pull-out drawers.

SYSTEM FOR DRAWERS IN CCMS OR DATA CENTERS

Below is an example of a complete system with 1 **Gateway**, a control module with display, and 6 sensors. Simply connect everything with the supplied cables. The Gateway is installed on a standard DIN rail.

DUAL-PORT SENSOR ALLOWS FOR CHAINING.

The same **gateway** can be used for both **single-port** sensor systems and **dual-port** sensor systems. The middle example shows a control module with a display installed next to the buttons and an indicator light on the pull-out drawer door.



COMPLETE, COMPACT AND WITH ETHERNET COMMUNICATION

The **ZYGGOT SG** system, with Gateway containing a connector for connecting 24 VDC power supply and RS485 communication, in addition to a dry contact output for alarm or trip, is a miniature work of art, with **ETHERNET** communication that allows reading of system temperatures from anywhere in the world, simply by having access to the Internet and a Browser, PLC or DCS system from the user.

LAST GENERATION ETHERNET GATEWAY

The printed circuit board inside the **Gateway**, shown below, with its sensor connection ports, TB for RS485 Modbus RTU connection and dry relay contacts for signaling and alarm, has an ultra-fast microprocessor, as well as peripherals and LEDs to indicate operation. The **RS485** port and **Ethernet** port allows integration into the user's DCS system. All you need is a browser with the system's IP address for fully remote operation with readings, programming and operation without the need for any programming (internet server present in the gateway).

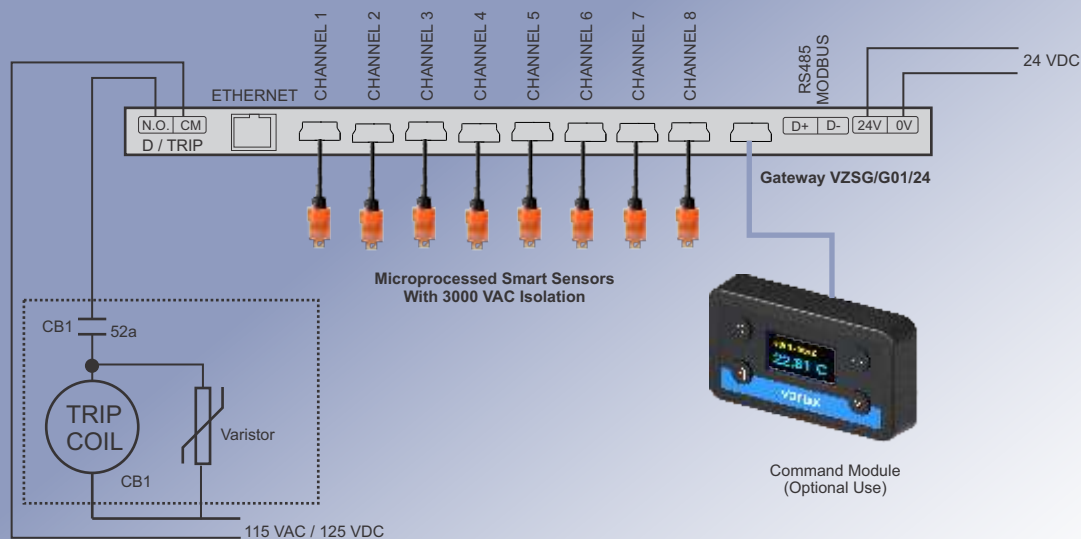


SCREEN OF A
BROWSER
CONNECTED
TO ZYGGOT SG
VIA ETHERNET
USING THE
PAGE SERVER
RUNNING
DIRECTLY
ON THE
GATEWAY.
(ZERO
PROGRAMMING)



EXAMPLE OF A TYPICAL APPLICATION IN
A MCC OR DATA CENTER DRAWER

**SINGLE-PORT SENSORS SYSTEM FOR INSTALLATION INSIDE REMOVABLE DRAWERS
WITH CONTROL MODULE INSTALLED ON THE FRONT OF THE DRAWER**

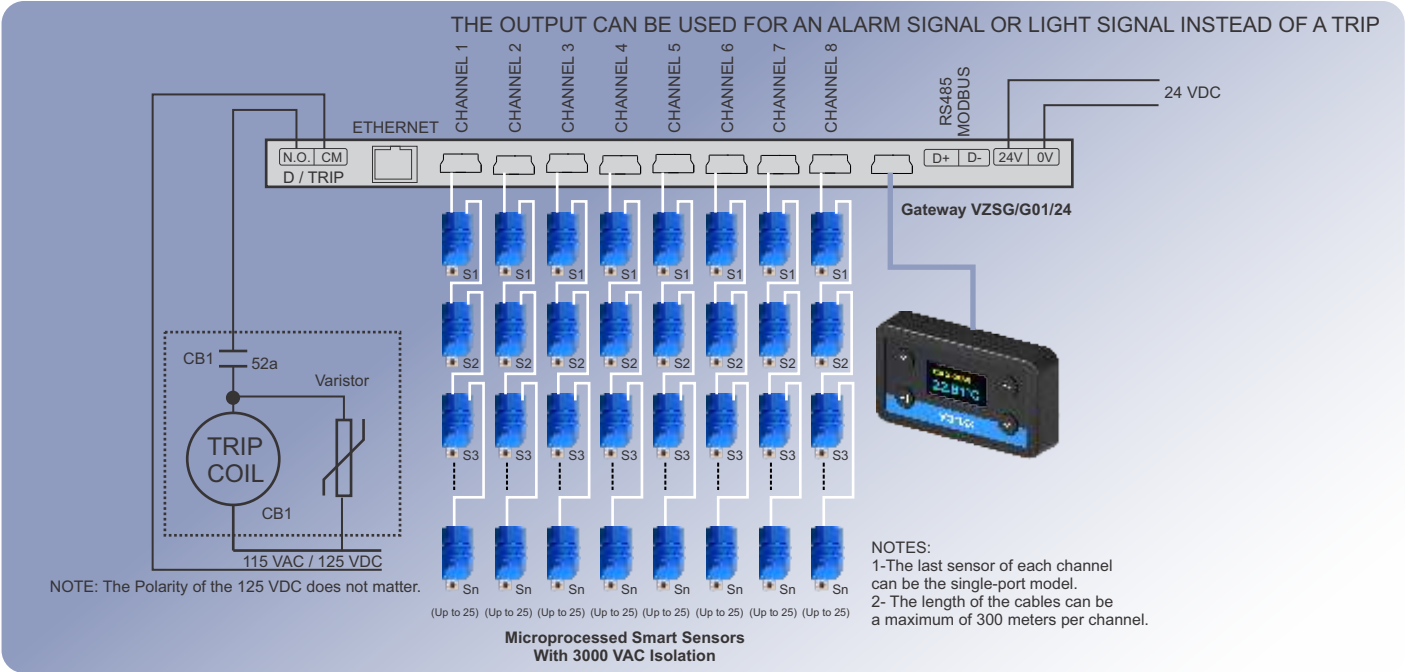


NOTE: The Polarity of the 125 VDC does not matter.

THE OUTPUT CAN BE USED FOR AN ALARM SIGNAL OR LIGHT SIGNAL INSTEAD OF A TRIP

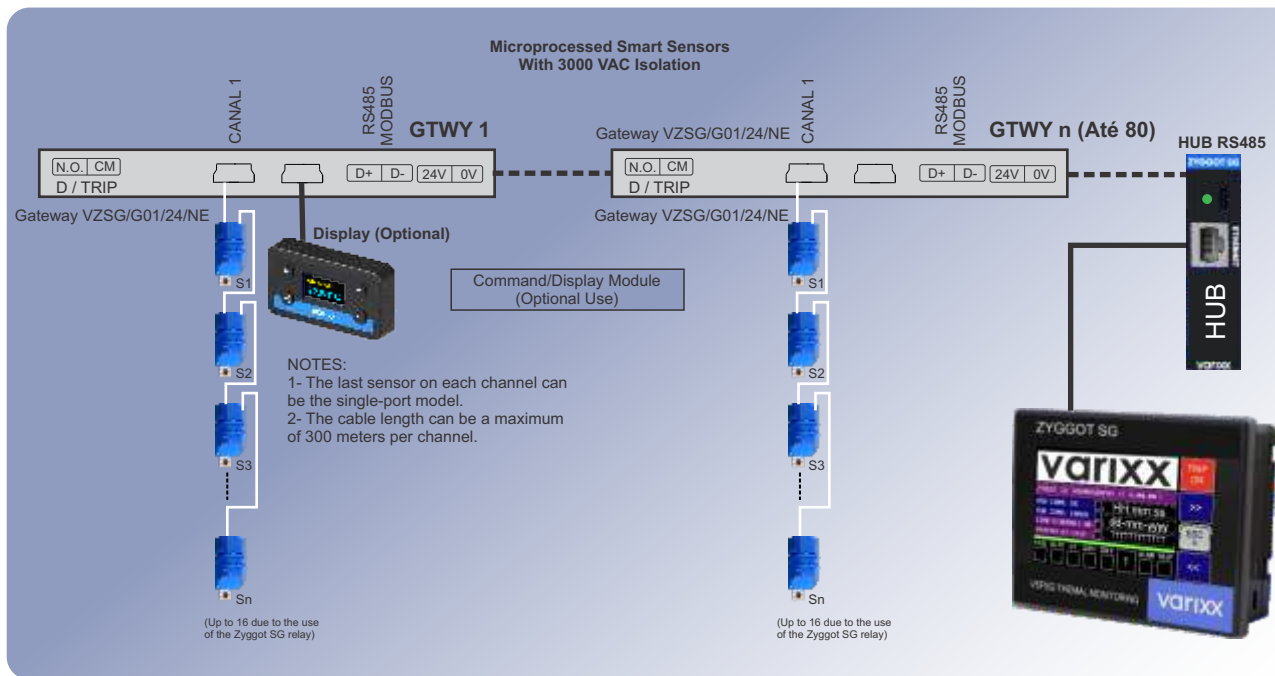
EXAMPLE OF A TYPICAL APPLICATION IN SWITCHGEAR, BUSBAR OR PULL-OUT DRAWERS

SYSTEM WITH DOUBLE PORT SENSORS FOR INSTALLATION IN SWITCHGEARS OR SHIELDED BUSBAR WITH CONTROL MODULE INSTALLED ON THE FRONT OF THE PANEL



EXAMPLE OF A TYPICAL APPLICATION USING THE ZYGGOT SG RELAY.

SYSTEM WITH ZYGGOT SG RELAY (OPTIONAL USE), DOUBLE PORT SENSORS AND CONTROL MODULE.
PROGRAMMING WITH DISPLAY (OPTIONAL USE - ONLY ONE UNIT IS NEEDED TO PROGRAM THE GATEWAYS).



HUNDREDS OF SCREENS ON THE OPTIONAL SG RELAY.

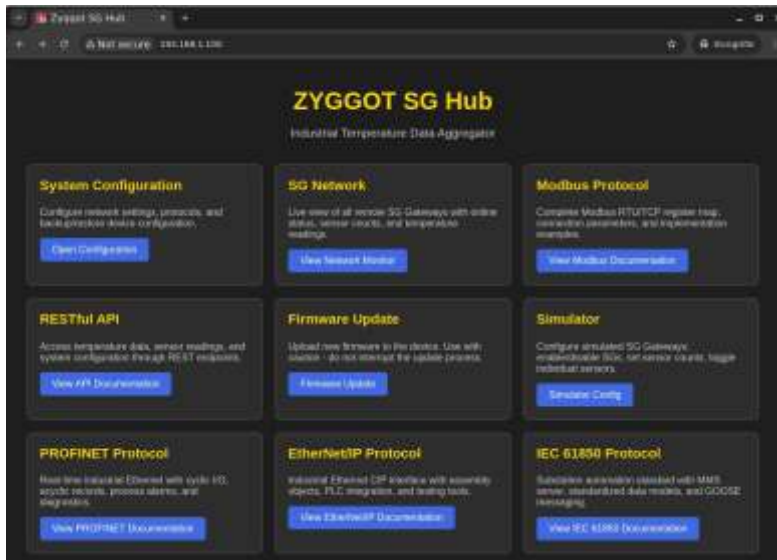
The **ZYGGOT SG RELAY** system adds an important option for users who want additional information and protections on an intelligent relay with a color screen, thus eliminating the need for multiple control modules with displays. The relay can monitor up to 80 Gateways and up to 480 SG sensors.



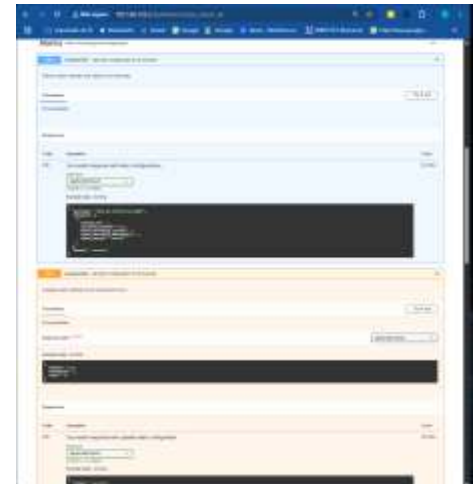
ETHERNET REMOTE CONTROL PAGE

Control Page - Home: Once the appropriate Ethernet communication parameters have been configured in the control module, whether with Static IP or dynamic IP with DHCP, a browser with the address <http://xxx.xxx.xxx.xxx> is enough to access this home screen, without the need for any programming (Zero Programming) to have access to all the Operation Functionalities, Data, Modbus Documentation, MQTT Documentation and API Documentation for eventual integration (Embedding) with the user's SDCDs.

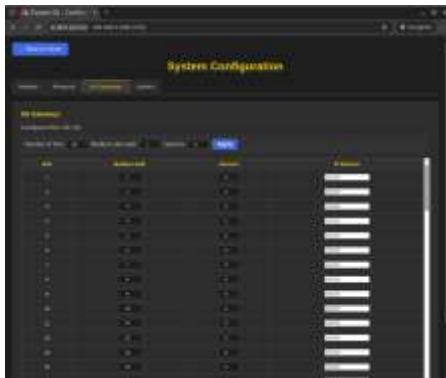
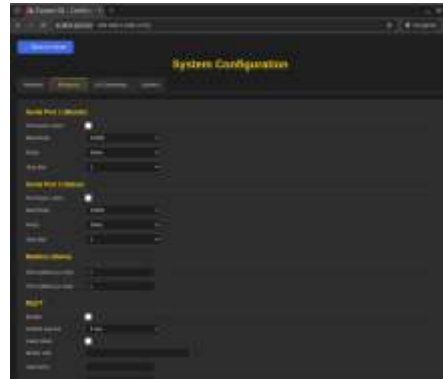
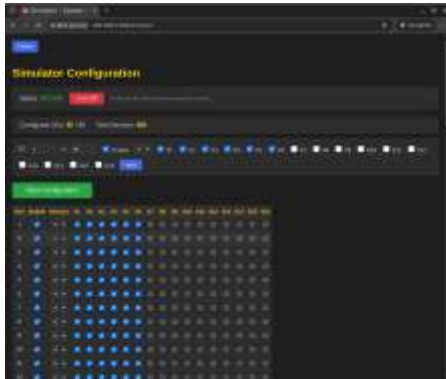
TOTAL REMOTE CONTROL Via the Internet (ETHERNET) and IOT (Internet Of Things) with MQTT Protocol (Message Queuing Telemetry Transport), IEC 61850, PROFINET, APIs, etc.



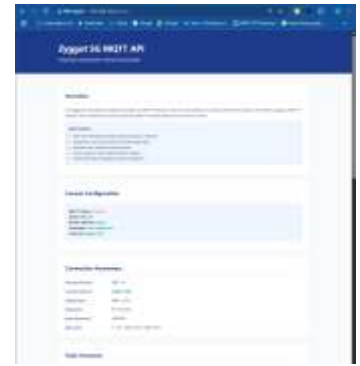
APIs and documentation that are fully open and accessible via a connected browser allow for full integration with the user's DCS systems.



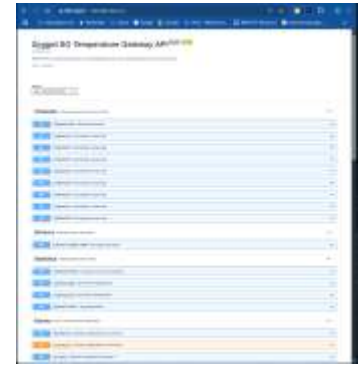
ETHERNET PROGRAMMING AND CONTROL SOFTWARE



ETHERNET PROGRAMMING AND CONTROL SOFTWARE



ETHERNET PROGRAMMING AND CONTROL SOFTWARE



DOZENS OF ACCESSIBLE SCREENS AND MENUS

MENU	Description	View - 0	Edit - 1	Admin - 2
MENU	Main Menu	x	x	x
SAVE	Save Data		x	x
1. STATUS	Status	x	x	x
2. CHANNEL	Channel	x	x	x
2.1 TOTAL	Channel Total	x	x	x
2.2 OFFLINE	Channel Offline	x	x	x
2.3 INDEX	Channel Index		x	x
2.4 FIND	Channel Find	x	x	x
2.5 CLEAR	Channel Clear		x	x
2.6 INFO	Channel Info	x	x	x
3. ALARM	Alarm	x	x	x
3.1 STATUS	Alarm Status		x	x
3.2 OVER TEMP	Alarm Over Temperature	x	x	x
3.3 UNDER TEMP	Alarm Under Temperature	x	x	x
3.4 SETUP	Alarm Setup		x	x
3.4.1 ALL	Alarm Setup All Channel		x	x
3.4.2 CHAN.	Alarm Setup By Channel		x	x
3.5 OUTPUT	Alarm Output		x	x
4. SCREEN	Screen		x	x
4.1 LOCALE	Screen Locale		x	x
4.2 CLOCK	Screen Clock		x	x
4.2.1 ADJUST	Screen Clock Adjust		x	x
4.3 DELAY	Screen Delay		x	x
4.4 TIMEOUT	Screen Timeout		x	x
4.6 SHOW 1	Screen Show 1		x	x
4.7 SHOW 2	Screen Show 2		x	x
4.8 TEST	Screen Test		x	x
5. PROTOCOL	Protocol		x	x
5.1 MODBUS	Protocol Modbus		x	x
5.2 API WEB	Protocol Restful - API		x	x
5.3 MQTT IOT	Protocol Mqtt - IOT		x	x
5.3.1 BROKER	Protocol Mqtt Broker		x	x
5.3.2 LOGIN	Protocol Mqtt Login		x	x
6. ETHERNET	Ethernet		x	x
6.1 E STATUS	Ethernet Status		x	x
6.2 AUTO	Ethernet Auto		x	x
6.3 STATIC	Ethernet Static		x	x
6.3.1 ADDRESS	Ethernet Static Address		x	x
6.3.2 GATEWAY	Ethernet Static Gateway		x	x
6.3.2 MASK	Ethernet Static Mask		x	x
6.4 DNS	Ethernet Dns		x	x
6.4 DNS BKP	Ethernet Dns Backup		x	x
6.4 DNS MAIN	Ethernet Dns Main		x	x
6.5 NTP TIME	Ethernet Ntp		x	x
6.5.1 NTP SV	Ethernet Ntp Server		x	x
6.6 PING	Ethernet Ping		x	x
6.6.1 RESULT	Ethernet Ping Result		x	x
7. SERIAL	Serial RS485		x	x
8. LOGIN	Login	x	x	x
9. PASSWORD	Password		x	x
0. ABOUT	About	x	x	x

SOME SYSTEM SCREENS



ZYGGOT SG SYSTEM FEATURES

Applications and General Features

- Applicable in low voltage, up to 800 VAC (tested with 2x Nominal +1KV).
- Applicable in MCC drawers.
- Applicable in Data Center systems with extractable drawers.
- Applicable in Busbar monitoring (shielded busbars).
- Sensors powered by the **1-Wire** network itself.
- A single 24 VDC source powers the entire system.
- Up to 400 sensors per Gateway in the version with double-port sensors.
- Up to 8 sensors per Gateway in the version with single-port sensors.
- Does not use batteries.
- Continuous temperature readings of each point automatically.
- Self-addressable - each sensor is detected and addressed automatically.
- Polycarbonate sensors for high temperatures (up to 150 °C).
- Concatenated sensors, if one fails the others continue to operate.
- Very low acquisition and installation costs.
- Full remote control via Ethernet with zero programming.

Communication

- Modbus RTU communication (Rs485).
- Ethernet communication (RJ45).

Temperatures

- Measurement: -55°C to 150°C
- Maximum sensor temperature: 150°C
- Gateway ambient temperature: -30°C to 105°C

Gateway Outputs

- 1 Output: 5A / 250 VAC or 5A / 30 VDC. (dry contact).

Resolution and Accuracy

- Resolution: 0.01 °C
- Accuracy better than 0.2 % of the measured value from +10 °C to +45 °C.
- Accuracy better than 0.3 % of the measured value from -40 °C to +105 °C.
- Accuracy better than 0.4 % of the measured value from -55 °C to +150 °C.

Interconnection Cables

- Interconnection cables supplied in lengths from 20 cm to 8 meters.
- Cables with USB C connectors on both ends, ready to use.
- Maximum network length for each channel: up to 300 meters for dual-port sensors.

Sensor Types

- Single Port One Wire Sensor for use with up to 8 sensors per Gateway.
- Dual Port One Wire Sensor with vertical connectors. For systems with up to 400 concatenated sensors, up to 50 per channel.
- Dual Port One Wire Sensor with horizontal connectors. For systems with up to 400 concatenated sensors, 50 per channel.

Programming

- Easily programmable via the drawer or panel door control module.
- Complete programming, including alarm level, communication parameters, etc.

Codes

- Gateway: VZSG/G01/24
- Hub for relay interface: Rs485 HUB (optional use)
- Zyggot SG Relay: V5SG (optional use)
- Single-Port Sensor: VZSG/S01/24
- Vertical Double-Port Sensor: VZSG/S02/24
- Horizontal Double-Port Sensor: VZSG/S03/24
- Control module with display: VZSG/M01/24 (optional use)
- 6A/24 VDC Power Supply: VPS6024
- 12A/24 VDC Power Supply: VPS12024

GATEWAY ZYGGOT VZSG/G01/24



GATEWAY MONOPORTA VZSG/G01/24/NE



SENSORES INTELIGENTES ZYGGOT SG VZSG/S0X/24 VZSG/D0X/24 VZSG/D0X/M6, M8, M12 e VZSG/D0Y/24



CONTROL MODULE VZSG/M01/24



Communication:	Modbus RTU and Ethernet
Output:	1 dry contact alarm 5A/250VAC
Sensors:	8 or up to 400 per Gateway
Power Supply:	24 VDC (5 a 30 VDC)
Consumption without Display:	73 mA
Consumption with Display:	81 mA
Measuring Range:	-55°C to +150°C
Ambient Temperature:	-30°C to +125°C
Dimensions:	22W x 91H x 98D mm
Material:	ABS

Communication:	Modbus RTU
Output:	1 dry contact alarm 5A/250VAC
Sensors:	8 or up to 400 per Gateway
Power Supply:	24 VDC (5 a 30 VDC)
Consumption without Display:	73 mA
Consumption with Display:	81 mA
Measuring Range:	-55°C to +150°C
Ambient Temperature:	-30°C to +125°C
Dimensions:	22W x 91H x 98D mm
Material:	ABS

Communication:	1-Wire Network
Ports:	1 or 2 depending on the model
Number of Sensors:	8 or up to 400 per Gateway
Powered by Network	24 VDC (5 a 30 VDC)
Consumption with LED off:	250 uA
Consumption with LED on:	5 mA
Measuring range:	-55 °C to +150 °C
Maximum temperature:	+150 °C
Dimensions VZSG/S01/24:	18W x 12H x 33L mm
Dimensions VZSG/S02/24:	17W x 18H x 38L mm
Dimensions VZSG/S03/24:	30W x 12H x 55L mm
Material:	Polycarbonate

Communication:	RS485 Network
Display:	Color Liquid Crystal
Buttons:	4 for operation and programming
Powered by Network	24 VDC (5 a 30 VDC)
Consumption:	8 mA
Measuring Range:	-55°C to +150°C
Ambient Temperature:	-40°C to + 80°C
Dimensions:	66W/37H/13D mm
Material:	ABS

a) Note that the Multiport Gateway can be programmed by the SG software to simulate up to 8 gateways for use with the Zyggot relay (1 per channel), and in this way it can use up to a minimum of 10 gateways with or without combination with single-port gateways for use with relays, and up to 480 sensors.

a) Note that the low-cost Single-Port Gateway, developed primarily for internal use in CCM drawers, unlike the Multi-Port Gateway, does not have Ethernet but only Modbus for connection to the Zyggot SG relay, which does have an RS485 port with Ethernet.

ZYGGOT RELAY V5SG



ZYGGOT SG HUB HUB485



POWER SUPPLY VPS6024



I/O EXPANSION MODULE FOR RELAY BLOCK 88 X (X=D OR X=R)



Alimentação	24 Vcc
Umidade	5 a 95%
Nº de sensores	até 100 sensores
Resolução	1°C
Entradas	4 analógicas 4 digitais (12 a 24Vcc)
Saídas	2 saídas de Alarme e Trip (N.A.) 2 saídas programáveis (N.A.) 1 saída para conexão para os sensores
Comunicação	Modbus RTU Devicenet (opcional) Ethernet TCP-IP (opcional)
Tela	Colorida, Touch Screen WVGA

Communication:	Modbus RTU and Ethernet
Power Supply:	24 VDC Nominal (5 to 30 VDC)
Consumption:	50 mA
Room Temperature:	-30°C to +125°C
Dimension:	22W x 91H x 98D mm
Material:	ABS

• O software online **Zyggot SG**, permite configurar o HUB RS485, para permitir simulação de até 80 Gateways e até 480 sensores. Pelo programa, com qualquer browser, pode-se simular sensores e Gateways online e offline permitindo visualizar a operação do relé Zyggot SG. É útil para treinamento por exemplo.

Supply Voltage:	85 VAC a 250 VAC
Output:	24 VDC
Output Current:	6A or 12 A
Ambient Temperature:	-40 °C a + 80°C
Dimensions:	40W / 85H / 110D mm
Material:	ABS

Power Supply	24 VDC (10 - 30 VDC) 2W
Humidity	5 to 95%
Communication	CAN
Temperature	Oper: 0 to 60 °C /// Stored: -10 to +60 °C
Inputs	8 Digital (12 to 24 Vcc)
Outputs	Model 88D = 8 Digital (DC) Model 88R = 8 Digital (Dry contact)
Input	Imp.: 10K /// Threshold: 8 VDC / 3 VDC
Max Distance.	1000 M
Output Current (Model 88D)	2,5 A Max per point /// 10A Total Max (model 88D)
Output (mod 88R)	3,0 A @ 250 VAC Res. Max (mod. 88R)

• The Eblock module is optional, expanding the relay's inputs and outputs to 12 digital inputs and 12 digital outputs, which can be "open collector" or dry contact outputs depending on the type.



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Since 1976, Varixx has pursued its vocation for the development of high-tech products. The know-how in power electronics has always allowed it to offer a wide range of products that have become known for their innovation, long service life and quality.]Holder of numerous technological patents, Varixx values the introduction of functional and intelligent concepts into the global market.

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