ZYGGOT ONLINE THERMOGRAPHY

ONLINE THERMOGRAPHY - CONTINUOUS TEMPERATURE MONITORING

ETHERNET

ZYGGOT V5F/V5L ONLINE THERMOGRAPHY SYSTEM

CONTINUOUS TEMPERATURE MONITORING PROTECTION SYSTEM

CONTACTLESS ONLINE THERMOGRAPHY SYSTEM
FOR LOW AND MEDIUM VOLTAGE APPLICATIONS

CATALOG

varixx

World's First Online Thermography System (2004).
World Leader in Continuous Temperature Monitoring.
World's First UV Arc Protection System*.
Over 1 Million Sensors Installed Worldwide.
* Patent Letter No. PI 0903809-4

CATALOG ZYGGOT V5F/V5L V3.0 BUILD 182 ENGLISH August 2026

ZYGGOT THERMOGRAPHY
TEMPERATURE MONITORING SYSTEM

Tubular Sensor

BT Sensor

DESCRIPTION

The low-cost ZYGGOT system was designed to allow “online” monitoring of temperatures of low and medium voltage components and internal connections, transformers, motors, etc. The ZYGGOT system introduces an important innovation in the market as the current new safety regulations prohibit the opening of energized electrical panels for any type of measurement, including temperature measurements with manual point measurement guns or thermography cameras.

The ZYGGOT system allows to monitor temperatures “On Line”, both selected targets and of the air surrounding the sensor.
An important feature is the measurement of both the target and the sensor body at the same time, which is equal to the temperature of the surrounding air.
This same characteristics also allows detecting the internal temperature rise of the panel, which can identify obstruction or ventilation failure or even temperature rise of equipment not directly monitored.

Sensors with opening angles of 7º, (other angles, on request) allow monitoring both well-defined points and areas of any dimension depending on the distance from the sensor to the area.

VZX V5F Relay

Each sensor has an LED that flashes on command from the relay to facilitate diagnosis and check the address.
Different Alarm and Trip levels allow optimizing the protection system. Each relay can monitor up to 125 sensors.
The Relay automatically indicates sensors not responding.

The data transmission method between sensors and relay uses RS-485 physical layer communication, with all sensors connected in parallel using shielded cables with mini-USB connectors that allow quick installation and operation without the need for any tools.

The Zyggot Temperature system relay can be connected to a communication network with a supervisory system or remote monitoring.

The ZYGGOT Relay has Ethernet communication with several protocols, and can be accessed from anywhere by mobile devices or not.

Note: Optionally available with Zyggot Arc Voltage protection system integrated in the same unit, saving space in the panel door and improving the interaction between the two protection systems.

APPLICATION

Temperature monitoring and “On Line” protection of electrical connections and components for low and medium voltage electrical panels, transformers, motors, brakes, processes, etc.

BENEFITS

* Prevents opening of the energized panel.
* Periodic thermography is not required.
* Provides target and indoor air readings.
* Non-contact measurement.
* Indicates possible sensor failure.
* Failure history.

System Features with Tubular or BT Sensors

* Applicable in low (BT or Tubular) and medium voltage (Tubular).
* RS485 network with mini USB connections.
* Smart Sensors powered by the network itself.
* Measuring angle of 7º (15º and 60º consult).
* Continuous readings.
* Relays with touch screen color graphic display with Modbus RTU and Ethernet communication.
* Fault history with “Time Stamp”.
* Reading and over- temperature protection of up to 125 points (targets) or areas.
* Reading and over-temperature protection of up to 125 air temperature points (sensor body).
* Reading and protection of up to 125 sensor supply voltage (network supplyed).
* Readings and protections related to 4 analog inputs.
* External fault monitoring.
* Monitoring of sensor states.
* 4 + 8 programmable digital imputs.
* 4 + 8 programmable digital outputs.
* Each sensor has an LED that flashes and can be controlled by the relay to facilitate its location and address on the network.
* «Fail Safe» mode operation.
* Optionally with Zyggot Arco system integrated in the same unit (Model FTA THM+ARC).
* **Protocols**:

MODBUS RTU: Modbus by serial communcation.
TCP/IP (Modbus Slave): Modbus over Ethernet).
FTP: (File Server) File Transfer Protocol.
NTP Protocol: Network Time Protocol

KEY POITS

MAIN ADVANTAGES

- TESTABLE WITH SYSTEM OFF
- WITH ETHERNET
- AVOID OPENING THE PANEL
- AVOID CONVENTIONAL THERMOGRAPHY
- EASY INSTALLATION-125 SENSORS P/ RELAY
- MEASUREMENT W/O ELECTRICAL CONTACT
- DOES NOT USE BATTERIES
- INDIRECTLY MEASURES THE WHOLE SYSTEM (AIR)
- PROVEN RELIABILITY
- EVENT HISTORY
- TEMPERATURE PLOT
- WORLD LEADING SYSTEM

The ZYGGOT system with tubular sensors was developed for low and medium voltage panels. The sensors measure temperature, without physical contact, by infrared detection and allow local and online reading and protection for up to 125 points per relay. Each sensor measures two levels of temperature: from the target and from the air surrounding the sensor (case) allowing detection of failures in unmeasured points, by indirect heating of the air. They are networked using mini USB cables, in sizes from 0.3 to 8.0 meters (supplied), allowing for quick, error-free and tool-free installation. The relay provides protection locally and also through a supervisory system. Alarm and trip levels are freely programmable for each point. An eventual failure in one of the sensors does not interrupt the operation of the other sensors. The BT Sensor is applied in low voltage MCCs, which require a high number of sensors in a small space, in addition to demanding a low cost. Its quick fixing base can be fixed by means of a screw or by means of a stainless steel fix tape directly on the bus to be monitored.

HEY POINTS

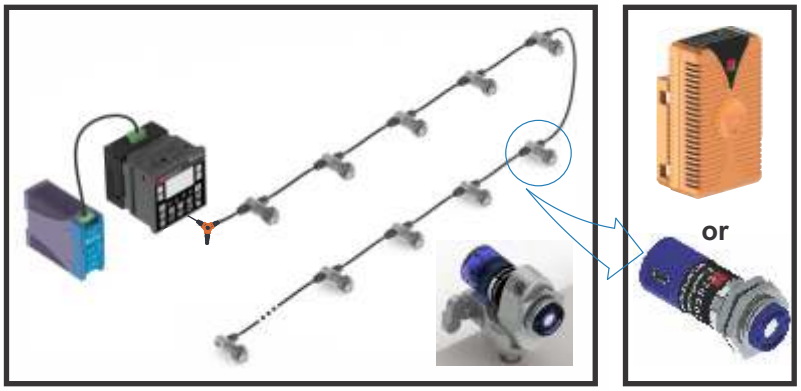
* Color Touch Screen.
* Has Ethernet communication with several protocols.
* Several built-in protections.
*Real-time graphical recording (Plot).
* History of failures and events.
* Continuous readings of target and surrounding air temperatures.
* Modbus RTU and Ethernet communication.
* Each relay presents up to 375 continuous measurements, namely: Temperature of 125 targets, Temperature of 125 sensor bodies (surrounding air), voltage of 125 temperature sensors (allowing monitoring of network integrity).
* Avoids opening of energized panel for possible thermography.
* Indirectly monitors undefined points, by increasing the temperature of the surrounding air.

APPLICATIONS

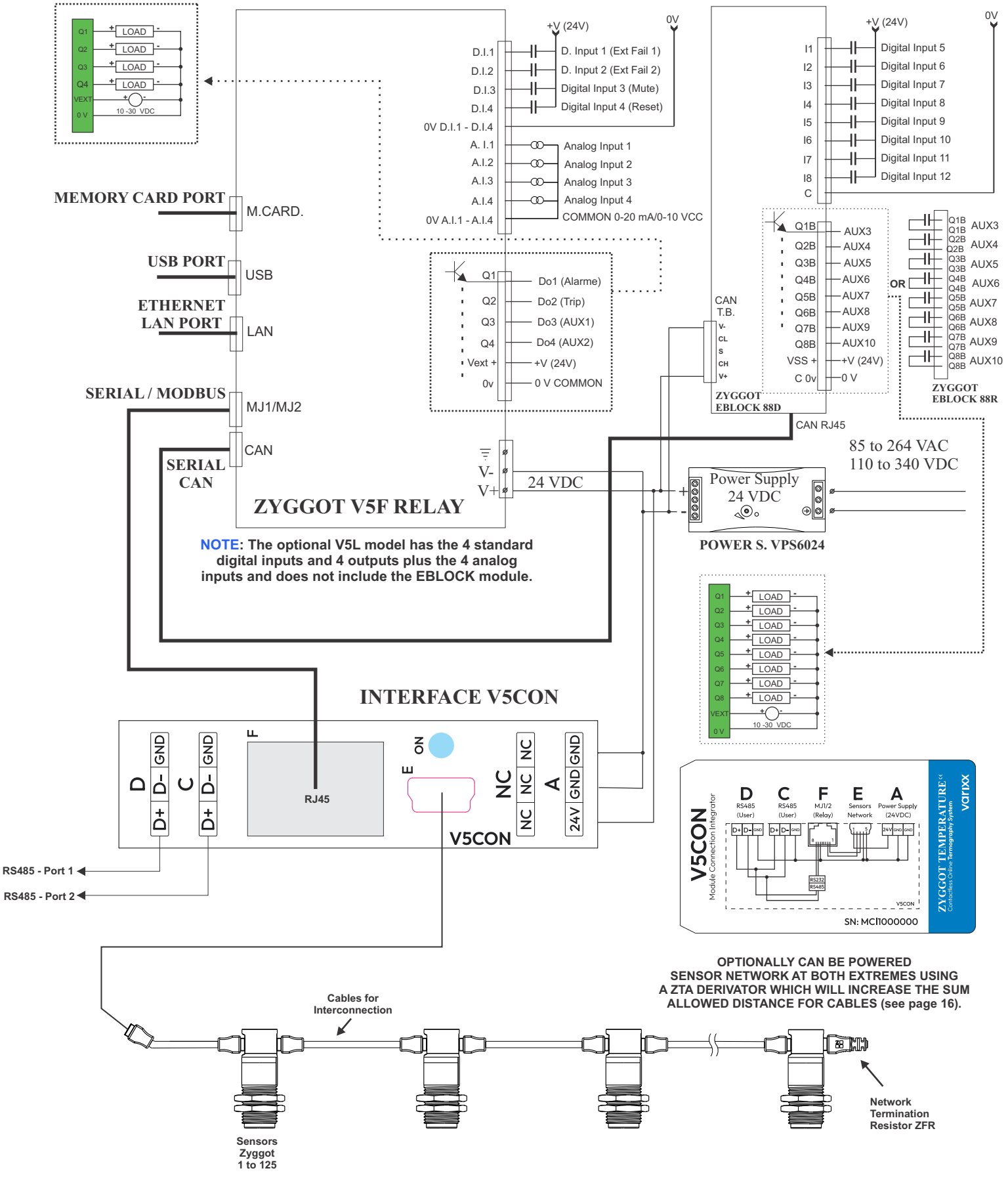
- **Internally to panels, to avoid opening for periodic thermographs.**
- **Supervision of Transformers.**
- **Engine Supervision.**
- **Brake supervision.**
- **Non-contact process supervision.**

MAIN FEATURES

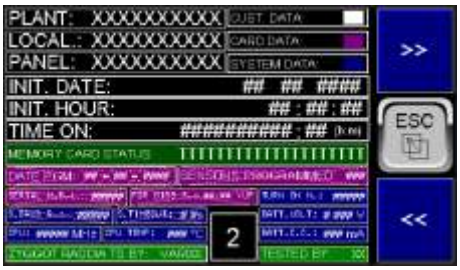
- **Reads temperature of up to 125 targets per relay.**
- **Reads temperature of up to 125 sensors (body / surrounding air, allowing detection of temperature increase in points not directly monitored.**
- **Reads net supply voltage of up to 125 sensors.**
- **Configurable alarm and trip levels for temperature and analog inputs.**
- **Real-time graphic record for temperatures and analog inputs.**
- **Detection of differential temperature increase integrated into the relay and configurable by the user.**
- **Fault history and status.**
- **Continuous readings.**
- **4 analog inputs with configurable alarm and trip levels.**
- **4 + 8 digital inputs for external events or faults (ventilation, doors, etc.).**
- **4 + 8 configurable digital outputs.**
- **Modbus RTU + Ethernet TCP IP. (All data accessible via Ethernet)**

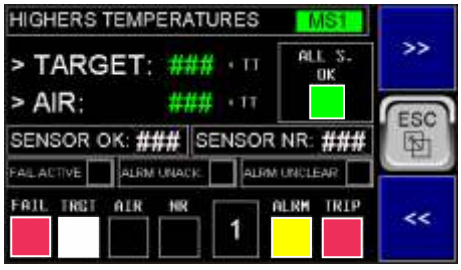


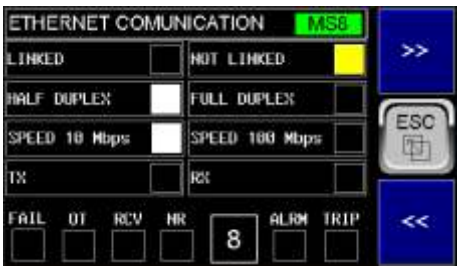
TYPICAL CONNECTIONS

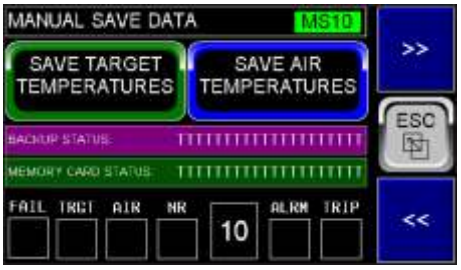


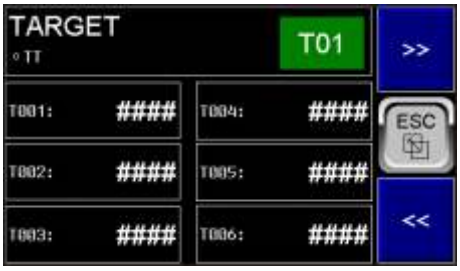
HUNDREDS OF ACCESSIBLE SCREENS



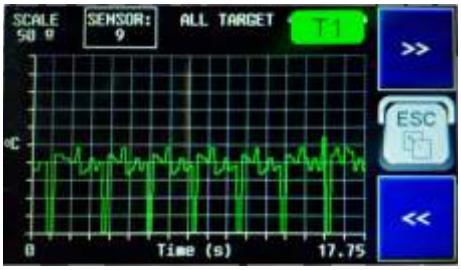


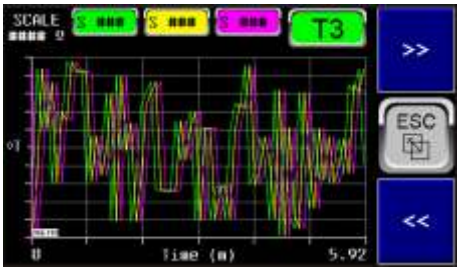


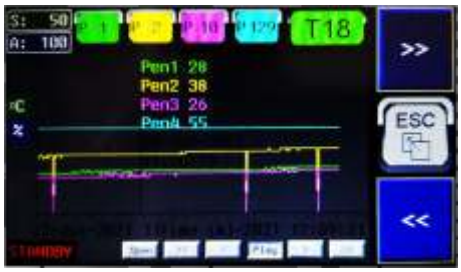


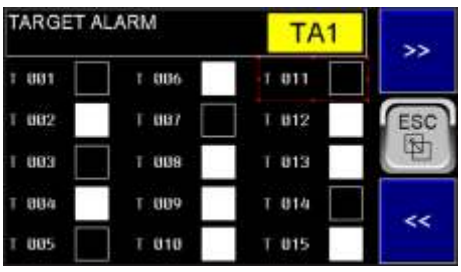


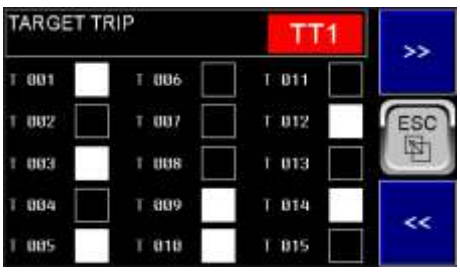
FOR EASY ACCESS TO ALL FUNCTIONS

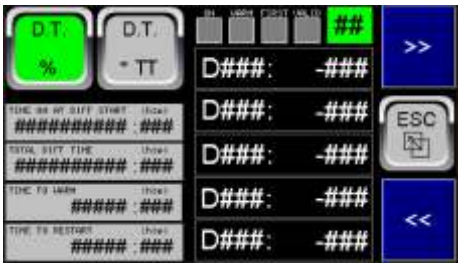


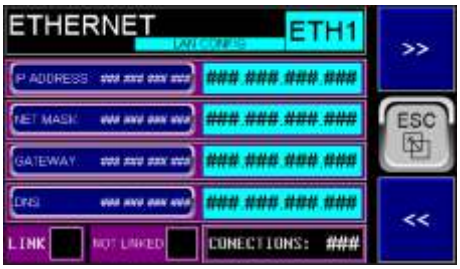


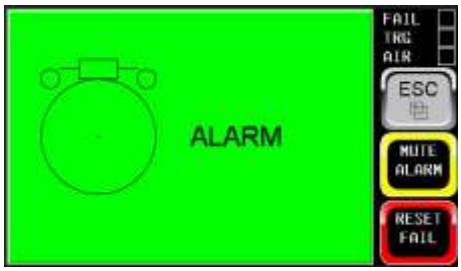


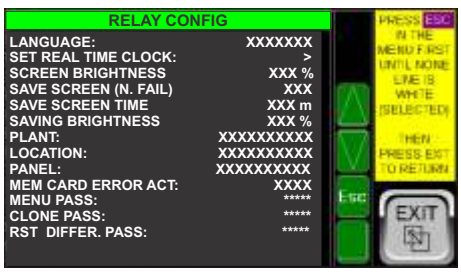












PRODUCT COMPOSITION

COD: VZX/V5F/N ou VZX/V5F/S

RELAY 96 X 125 Touch Screen

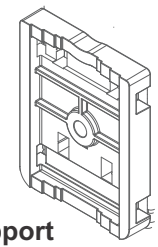
COD: VST/M/7/300/24

TUBULAR SENSOR

COD: ZSB/M/60/120/24

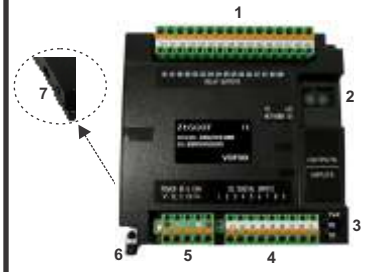
BT SENSOR

Included with each sensor



Quick Fix Support for the BT Sensor

COD: EB/88D ou EB/88R
(Para ser utilizado com o relé V5F)



EBLOCK P/ MODELO V5F

Technical information

V5F RELAY FEATURES

Power Supply	24 VDC
Moisture	5 to 95%
Sensores N.	up to 125 sensors
Resolution	1°C
Inputs	4 analogue 4 digital (24VDC)
Outputs	2 outputs for Alarme and Trip (N.O.) 2 programmable outputs (N.O.) 1 output for connection of the sensors
Comunication	Modbus RTU Devicenet (optional) Ethernet TCP-IP (Included)
Screen	Color, Touch Screen WVGA

Technical information

FEATURES: EBLOCK 88x (x=D or x=R)

Power Supply	24 VDC (10 - 30 VDC) 2W
Moisture	5 to 95%
Communication	CAN
Temperature	Oper: 0 to 60 °C /// Armaz: -10 to +60 °C
Imputs	8 Digital Imputs (12 - 24 VDC)
Outputs	Model 88D = 8 Digital Outputs (DC) Model 88R = 8 Digital Output (Relay)
Imputs	Imp.: 10K /// Treshold: 8 VDC / 3 VDC
Distance Max	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)

Technical information

FEATURES: TUBULAR SENSOR

Measurement angle:	7°
Typical read error (*):	+/- 0,5°C (trg: 0-125°C)
Normal Distribution (125 S):	0.48°C at 80°C target
Emissivity:	Programmable (0,95 std)
Resolution:	1°C
Target reading:	0 to 300 °C
Environment reading:	0 to 75 °C
Power:	24 Vcc
Diameter:	19 mm
Length:	53 mm
Communication:	Modbus RTU
Material:	Stainless Steel / Polycarbonate

(*) See test report at the end of this manual

Technical information

FEATURES: BT SENSOR

Measurement angle:	120°
Typical read error (*):	+/- 0,5°C (trg: 0-125°C)
Normal Distribution (125 S):	0.48°C at 80°C target
Emissivity:	Programmable (0,95 std)
Resolution:	1°C
Target reading:	0 to 120 °C
Environment reading:	0 to 75 °C
Power:	24 Vcc
Diameter:	54 mm
Length:	31 mm
Communication:	Modbus RTU
Material:	Polycarbonate

(*) See test report at the end of this manual

Informações Técnicas

Connectors: EB/88D & EB 88R (*)

1:	Digital Outputs / Relay Outputs
2:	NET address selection switches
3:	LEDs de status
4:	Inputs
5:	CAN & Power Supply
6:	Ground
7:	CAN RJ45

RELAY

Relays are available in 4 models

.

VZX/B1/U: with monochromatic liquid crystal display and keys (see specific manual).
VZX/V5L/N or **VZX/V5L/S**: with color touch screen, normal (end N) or Fail Safe (end S).
VZX/V5F/N or **VZX/V5F/S**: Same as VZX/V5L but with expansion modules for 12 digital inputs and 12 outputs (See Specific Manual).

SENSORS

Sensors are available in two models.

VST/M/7/300/24: tubular sensor, for medium and low voltage applications.
VSB/M/60/120/24: LV sensor, for low voltage bus applications.

Both with two mini USB connections for connecting cables.

COD: ZA232-2

Y SPLIT DERIVATOR RS232

COD: VPS6024 ou VPS 12024

POWER SUPPLY 24 VDC

COD: V5CON
(included with each Relay)

INTERFACE

ACCESSORIES AND SPARE PARTS

ZYGGOT

Accessory

COD: VPS6024 or VPS12024

POWER SOURCE

Accessory

COD: ZSF2

Support for fixing and sight for tubular

Accessory

COD: VZX/B1/U ou VZX/B1/U/P

SUITCASE WITH LASER SIGHT

Accessory

COD: ZFR

COD: ZTA

COD: ZCB4/2U/xxx

Y-split Derivator, USB cables and terminating resistor

Accessory

COD: VLP2

Laser sight attachable to tubular sensor for startup

Accessory

COD: ZA232-2

DERIVADOR RS232

Acessory

COD: V5CON (included in each Relay)

Interface

Acessório

COD: RJ45/C2 (Included in each module V5CON and each Eblock)

RJ45 CABLE

ABOUT VARIXX

For over 40 years, Varixx has followed its vocation for the development of high technology products and focuses its efforts on serving the industrial market with quality and speed. The know-how in power electronics has allowed us to offer the market a wide range of products that have become known for their long service life and reliability. We were the creators of the global online thermography market, with the Zyggot line, which is becoming a world reference in the market for temperature monitoring and diagnostics and arc-flash detection, in electrical systems in general.

Also part of our product portfolio are the LED lighting fixtures from our ONNO division, developed and manufactured 100% in Brazil with cutting-edge technology. Varixx values the introduction of innovative concepts worldwide.

AREAS OF EXPERTISE

- MANUFACTURERS OF MACHINE GENERATORS AND SYNCHRONOUS MOTORS
  Static Exciters, Control Box Controllers, Low and Medium Voltage Soft
- ALUMINUM AND HYDROGEN / OXYGEN PRODUCTION
  High Current Rectifiers, Solid State Contactors, Smart Relay for CCM, Online Thermography System and Arc Voltage Detection and Onno LED Luminaires.
- BASE INDUSTRY, MINING AND STEEL INDUSTRY
  Smart Relays for CCM's, Low and Medium Voltage Soft Starters, Solid State Contactors, AC/DC Converters for Electromagnets, High Current Rectifiers, Online Thermography System, Arc Voltage Detection and Protection and Onno LED Luminaires.
- OIL COMPANIES
  Smart Relays for CCM's, Static Excitation, Low and Medium Voltage Soft Starters, Solid State Contactors, Online Thermography System, Arc Voltage Detection and Protection and Onno LED Luminaires.
- PANEL ASSEMBLY COMPANIES
  Smart Relays for CCM's, Online Thermography, Arc Voltage Detection and Protection System, Semiconductors, Power Supplies and Onno LED Luminaires.

Why ZYGGOT Thermography?

- **SINGLE CABLE / EASY TO INSTALL**
- **PREDICTIVE / DIFFERENTIAL PROTECTION**
- **ADEQUACY TO NR-10 AVOID ACCIDENTS**
- **AVOID OPENING PANEL / AVOID CATASTROPHIC FAILURES**
- **WAIVER CONVENTIONAL THERMOGRAPHY / MEASURE AIR TEMP. TOO**
- **NO CONTACT / WITH ETHERNET COMMUNICATION**

KNOW MORE!

ZYGGOT ARC

ARC FLASH PROTECTION SYSTEM

- **Low Cost // Up to 50 sensors per relay.**
- **First in the market // Faster (300 uS vs 6 mS)**
- **Ultraviolet arc-flash detection**
- **Does not work with ambient light (False Alarm)**
- **No current reading**

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ZYGGOT THERMOGRAPHY