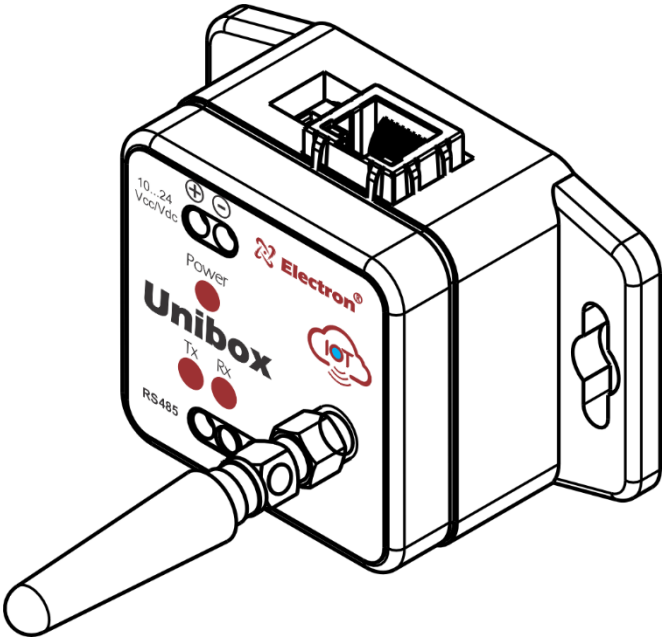
Electron



UNIBOX

Catalogue

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INTRODUCTION

UNIBOX is an advanced and flexible solution, capable of integrating industrial equipment and substations into an IoT ecosystem. With its storage capacity, remote communication and compatibility with standard market protocols, it provides **complete and efficient monitoring**, improving **operational safety and optimizing predictive maintenance**.

UNIBOX was designed to communicate with up to **32 sensors** through the **Modbus RTU** protocol and allow direct integration with the MONITRAFO platform, or local system that requires communication with RJ-45 input, enabling the sending of monitoring and protection data from transformers through a wired network. This functionality expands the connectivity options of the equipment, ensuring greater flexibility in the implementation of supervision and control systems.

The **UNIBOX** has a built-in Wi-Fi modem and an Ethernet port with RJ45 connector. This feature, when enabled, allows connection to the Internet through the cell phone and immediately sends the collected and measured data to an **MQTT Broker Server**. The data is accessible through the **MONITRAFO.com** platform, allowing remote monitoring of equipment and substations.

Compact and easy to install, the **UNIBOX** has a robust construction and high communication stability, being suitable for applications in industrial environments and electric power systems. Its use eliminates the need for external converters or additional interfaces, optimizing space in panels and simplifying network architecture.

With integration into the MONITRAFO platform, users can configure custom projects, track measurements in real time, and access detailed reports of monitored quantities, triggers, alarms, and predictive maintenance. Monitoring can be done via **internet browser or MONITRAFO app**, available for Android and iOS.

When integrated with the **MONITRAFO** platform, **UNIBOX** offers a complete ecosystem for monitoring and managing electrical assets, significantly expanding its functionalities:

- **Efficient Monitoring:** Access to advanced monitoring, diagnosis, and fault prevention tools directly from the cloud, allowing flexibility and operation from anywhere with internet access.
- **Real-Time Alerts:** Immediate notifications of faults and alarms via SMS, WhatsApp, and email, ensuring quick responses to critical events.
- **Reports with Artificial Intelligence:** Generation of detailed reports with accurate diagnoses, assisting in preventive maintenance and identifying potential problems before they become critical.
- **Interactive Dashboards:** Personalized visualization of projects through modes such as Dashboard, Overview and Map, facilitating the identification of active events and the efficient management of monitored assets.
- **Event Announcer:** Real-time notification to the entire team of substation incidents, promoting effective collaboration and ongoing equipment maintenance.
- **Maintenance Schedule:** Periodic maintenance recommendations generated by IEDs and artificial intelligence, ensuring the best performance and extending the useful life of sensors and electrical assets.
- **Team Communication:** Integration and facilitated communication between team members through notifications and chat on the platform, optimizing maintenance management and maintaining a history of actions.
- **API and Integrations:** Support for various programming languages and integration with ERP systems and IoT platforms, such as SAP, Oracle, Totvs, AWS, Google Cloud, Azure and IBM Watson, providing flexibility and versatility in meeting the specific needs of users.

COMMUNICATION AND PROCESSING FEATURES

- **Gataway Modbus RTU ⟷ TCP Converter:** Allows efficient integration and communication with equipment in a transparent way, ensuring real-time data collection and processing.
- **Gatway Modbus RTU ⟶ IoT Network:** Variables received through the RS485 Modbus Master port are made available for monitoring using the Modbus RTU protocols that are native to **UNIBOX.**

COMMUNICATION AND POWER INTERFACE

- **1 x RS-485 Ports:**
  - ANSI/TIA/EIA-485-A Standard
  - Half-duplex, multipoint, up to 32 devices
  - Maximum distance: 1,200 meters
  - Speed from 2,400 to 115,200 bps
    - SLAVE: Modbus RTU, retransmissionof received data
    - MASTER: Modbus RTU, configurable, with handling of variables and mathematical formulas
    - Capacity for up to 32 sensors
- **Communication protocols**
  - Communication protocols: Modbus RTU; Modbus TCP; MQTT (IoT); SMMP (Send UPS Data to Cloud).
- · **WiFi modem:**
  - Connection via 802.11 b/g/n/e/i
  - WPA/WPA2/WPA-Enterprise Security Protocol
  - AES/RSA/ECC/SHA Encryption
  - Up to 150 Mbps transmission with external antenna
- · **Ethernet TCP/IP (RJ-45):**
  - 1 Ethernet Port
  - Integration with servers and remote monitoring systems
- · **Alimentação:**
  - Power supply: 10-28 Vdc.

TECHNICAL DATA

EHMI – TECHNICAL DATA	
Feeding	10 to 28 Vdc
Serial Communication Port	1 RS-485 (Slave/Master)
Communication Protocol	Modbus RTU; Modbus TCP; MQTT (IoT); SMMP (Send UPS Data to Cloud).
Auto Baud Rate (automatic detection and selection)	2,400 to 115,200 bps
Box	80.4 x 50.8 x 35 mm

Table 1 – Technical Data

CONNECTION DIAGRAM

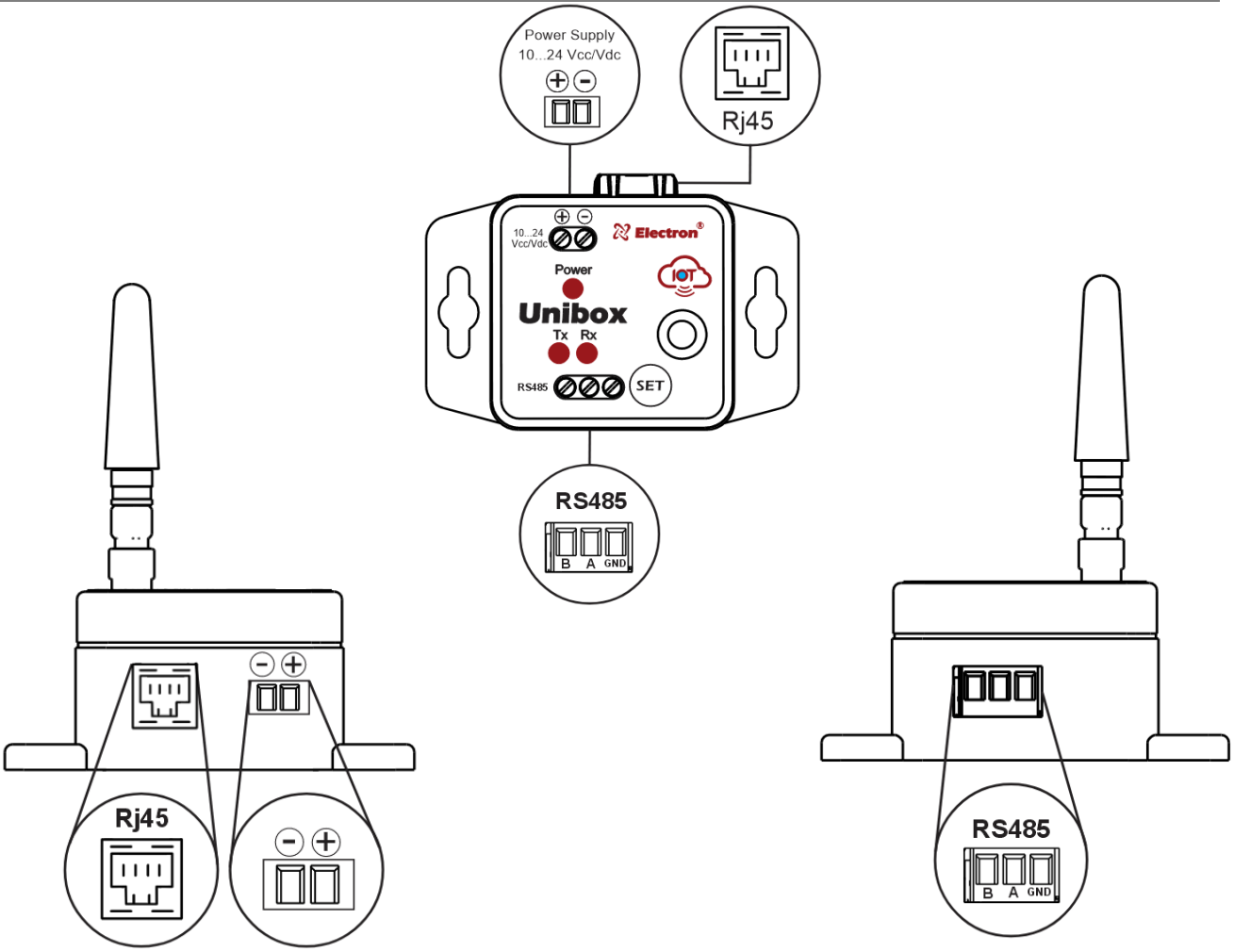

Fig 1 – Connection diagram image

DIMENSIONS

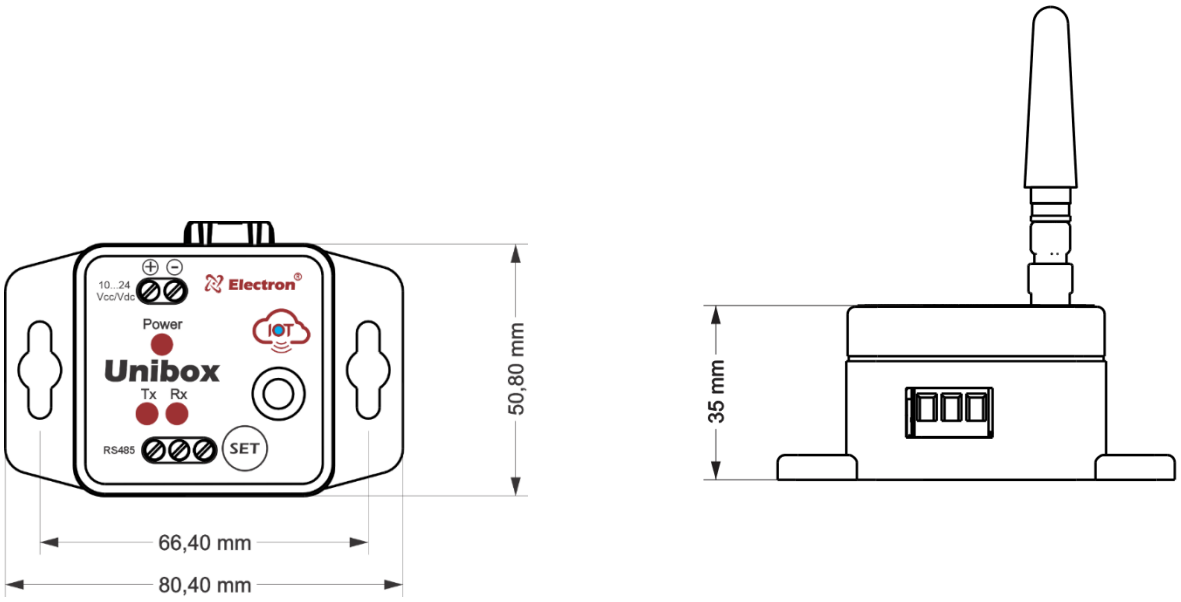

Fig 2 – Image dimensions

APPLICATION EXAMPLE - CONVERTER

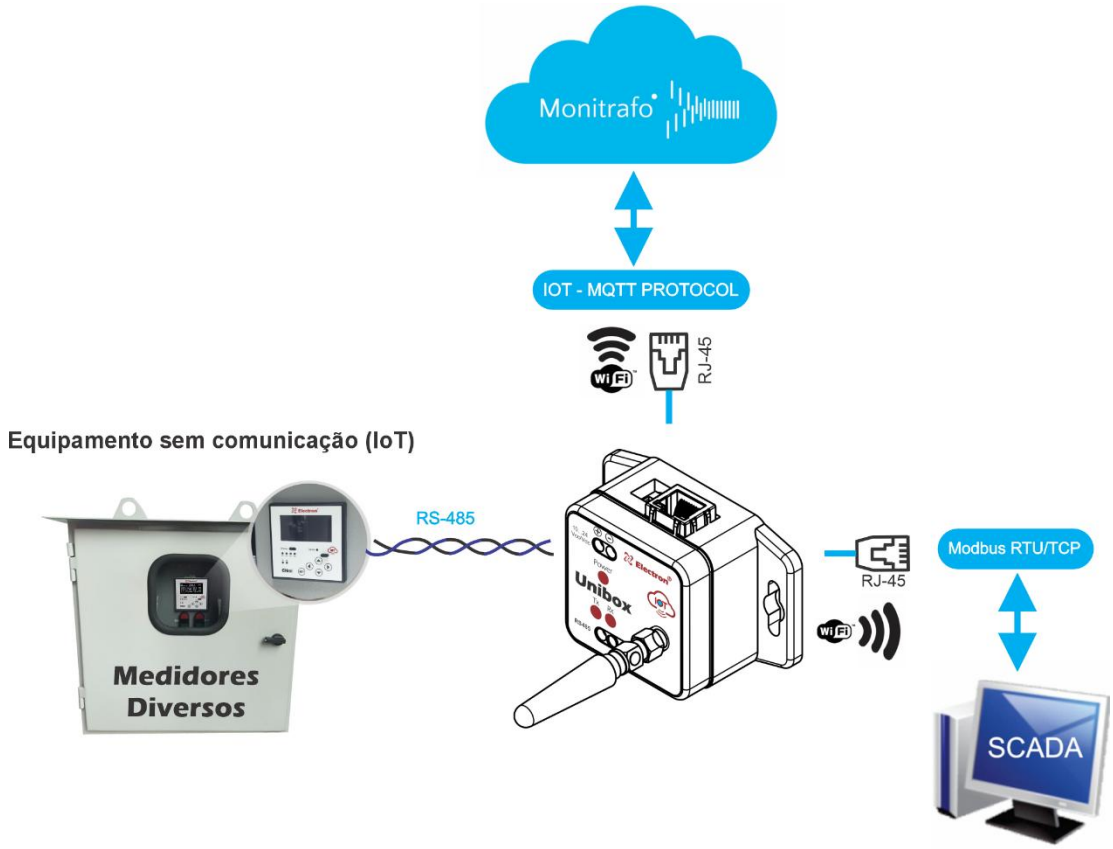

Fig 3 – Application Example

APPLICATION EXAMPLE - GATEWAY

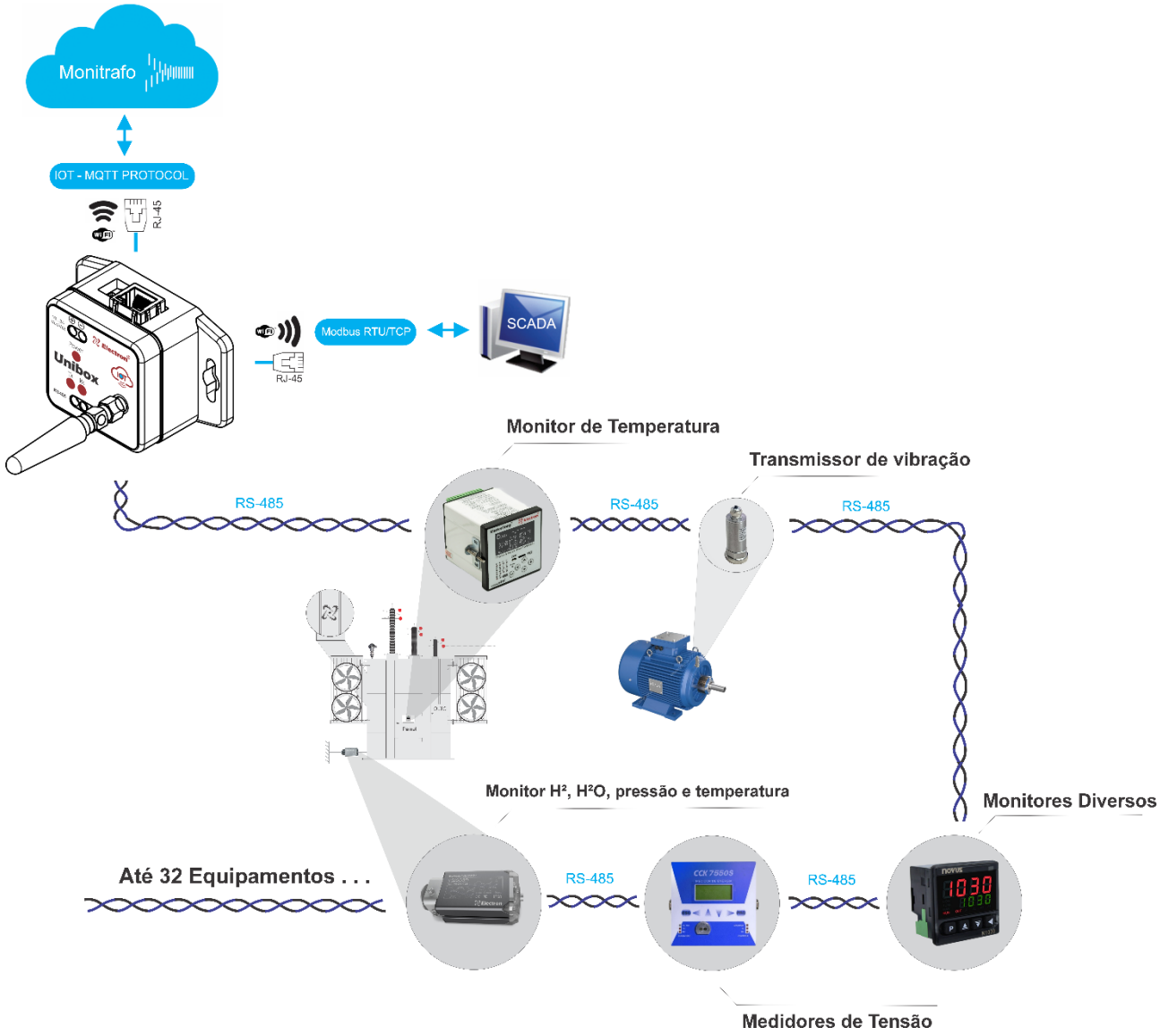

Fig 4 – Application Example

GETTING TO KNOW UNIBOX

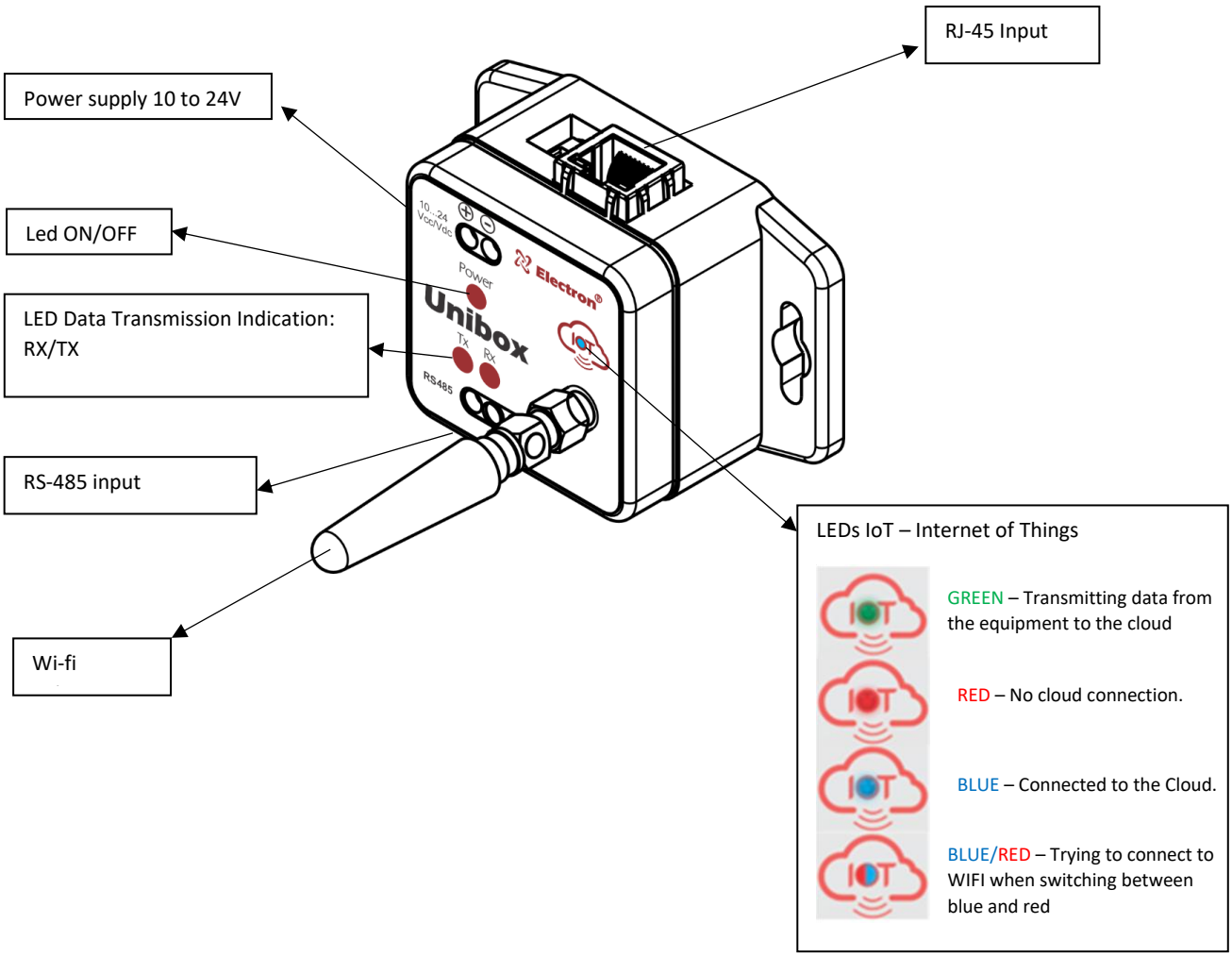

Fig 5 – Getting to know UNIBOX

ORDER SPECIFICATION

Code: PA1232

Name: Unibox

Product Description: UNIBOX is capable of communicating with up to 32 sensors via Modbus RTU protocol, processes the received data, allowing integration with the local SCADA system that use local network. Equipped with an integrated WiFi modem, an Ethernet port with RJ45 connector, the device enables Internet connection and immediate sending of the collected data to an MQTT Broker Server, when this function is enabled, the data is accessible through the MONITRAFO.com platform, allowing remote monitoring of equipment and substations in a practical and efficient way.

WARRANTY TERM

UNIBOX Electron has a warranty period of two years from the date of sale stated on the invoice, with coverage for any manufacturing defects that make it unsuitable or unsuitable for the applications it is intended for.

Disclaimer of Warranty

The warranty does not cover transportation expenses for technical assistance, freight and insurance for shipment of a product with evidence of defect or malfunction. The following events are also not covered: Natural wear and tear of parts due to continuous and frequent use, damage to the outside caused by falls or improper packaging; attempt to repair/break a seal with damage caused by persons not authorized by Electron and in disagreement with the instructions that are part of the technical description.

Loss of Warranty

The product will automatically lose its warranty when:

• The instructions for use and assembly contained in this manual and the installation procedures contained in the NBR 5410 Standard are not observed;

• Subjected to conditions outside the limits specified in the respective technical descriptions;

• Violated or repaired by a person other than Electron's technical team;

• The damage is caused by a fall or impact;

• Infiltration of water or any other liquid occurs;

• Overload occurs that causes degradation of the components and parts of the product.

Use of the Warranty

To enjoy this warranty, the customer must send the product to Electron along with a copy of the purchase invoice properly packaged so that there is no damage in transport. For an emergency service, it is recommended to send as much information as possible, regarding the defect detected. This will be analyzed and subjected to full functional tests.

The analysis of the product and its eventual maintenance will only be carried out by the technical team at the headquarters of Electron do Brasil.