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## RIN – Level Indicator Relay

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Catalog

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## INTRODUCTION

**The Level Indicator Relay – RIN**, was developed to supervise the absence of liquid (Oil, Water, etc.) Corrugated Tank Transformers (Hermetic) and liquid tanks in general in order to continuously monitor the integrity of the leaks.

The operation of the RIN consists of monitoring the oil level through a photoelectric sensor that detects the presence of oil, water or any liquid that works continuously at a temperature up to 120°C, the operation of this sensor is through light refraction that is detected when the polysulfone dome, belonging to the family of high performance thermoplastics, detects the absence of liquid, the sensor instantly detects internal variations caused by this refraction and immediately triggers the relay that is in the sensor's power and control module.

The circuit of the RIN module is Microprocessed, fully isolated and protected against electrical surges and inductions, it was built according to strict quality standards and use state-of-the-art electronic components (SMD), its hardware was designed to withstand severe working conditions, and can be installed directly in transformers and tanks of industrial dimensions in power substations, offshore platforms and chemical industries. It meets the levels of requirements, supportability and reliability according to IEC, DIN, IEEE and ABNT standards.

In addition to monitoring the absence of liquids locally through an indicative LED on the front, the RIN also contains a Micro USB port with Modbus RTU protocol and DNP 3 L1 that allows remote access to the instrument so that monitoring can be done online through a supervisory system.

## MAIN FEATURES

- Universal power supply 48 to 265 Vdc/Vac;
- Microprocessor and High Speed Operation Relay Module;
- Compact Box with 22.5x100x113.5 mm in ABS for DIN rail 35 mm;
- AISI-304 Stainless Steel Sensor dimensions; 14x70/M16x70mm;
- 1 x 6A relay with NAF contact with programmable logic;
- 1 6A relay with NC contact for indication of instrument or sensor faults (watchdog);
- Connectors with exclusive "Pluggable System";
- RS485 Digital Output with Modbus RTU or DNP 3 L1 protocol;
- Auto Baud Rate, communication speed with automatic detection and selection from 2,400 to 57,600 bps;
- Front USB 2.0 for parameterization via UseEasy™ software;
- Easy INSTALLATION and Application;
- 2 years warranty;

## TECHNICAL DATA - RIN

Level Indicator Relay	
Feeding	48 a 265 Vcc/Vac 50/60 Hz
Sensor Input	SLE
Switching Operating Temperature	-40 to +85°C
Maximum Switching Capacity	70W/250VA
Maximum Driving Current	6.0 Amps
Outbound Contact	1 NAF and 1NF
Serial Communication Port	RS-485
Communication Protocol	MODBUS-RTU e DNP3.0 Lv.1
Auto Baud Rate (Auto Detection & Selection)	2,400 to 57,600 bps
Fixation	DIN Rail
Box	25.5 x 100 x 113.5 mm

Table 1 – Rin Technical Data

## TECHNICAL DATA – SSL

Liquid Sensor – SSL	
Sensor Type	Photo Transistors
Dimension	dia. 14x70mm/M16x70mm
Material	AISI-304 Stainless Steel
Sensor Operating Temperature	-40 to +125°C
Degree of Protection	IP67
Response Time	50 µS
Working Pressure	0 to 5 bar
Fixation	Threaded or Flat Body
Cape	3x18 AWG with Ground Mesh

Table 2 – SSL Technical Data

## TYPE TESTS ATTENDED

- Applied Voltage (IEC 60255-5): 2KV / 60Hz / 1 min. (against the ground);
- Voltage Impulse (IEC 60255-5): 1.2/50µsec. / 5KV/ 3neg. and 3 pos. / 5 secs. Interval;
- Immunity to Electrical Transients (IEC 60255-4) (IEC 60255-6): 2.5KV / 1.1 MHz / 2sec, 400 surges / sec. – Cycles;

RIN DIMENSIONS

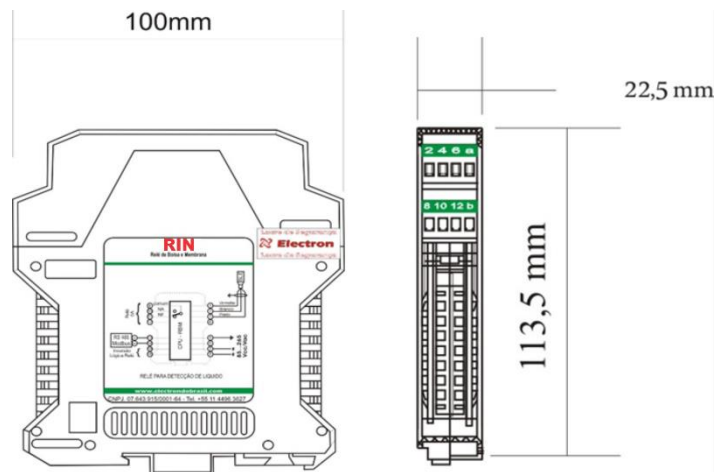


Image 1 – Rin dimension

CYLINDER HEAD DIMENSIONS

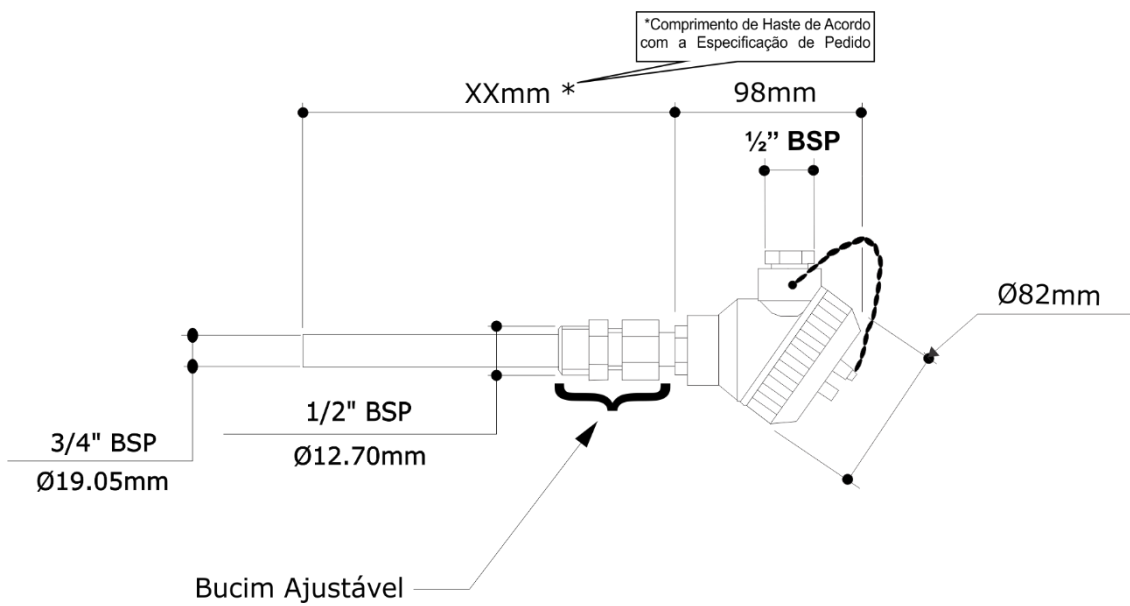


Image 2 – Head Dimension

CONNECTION DIAGRAM

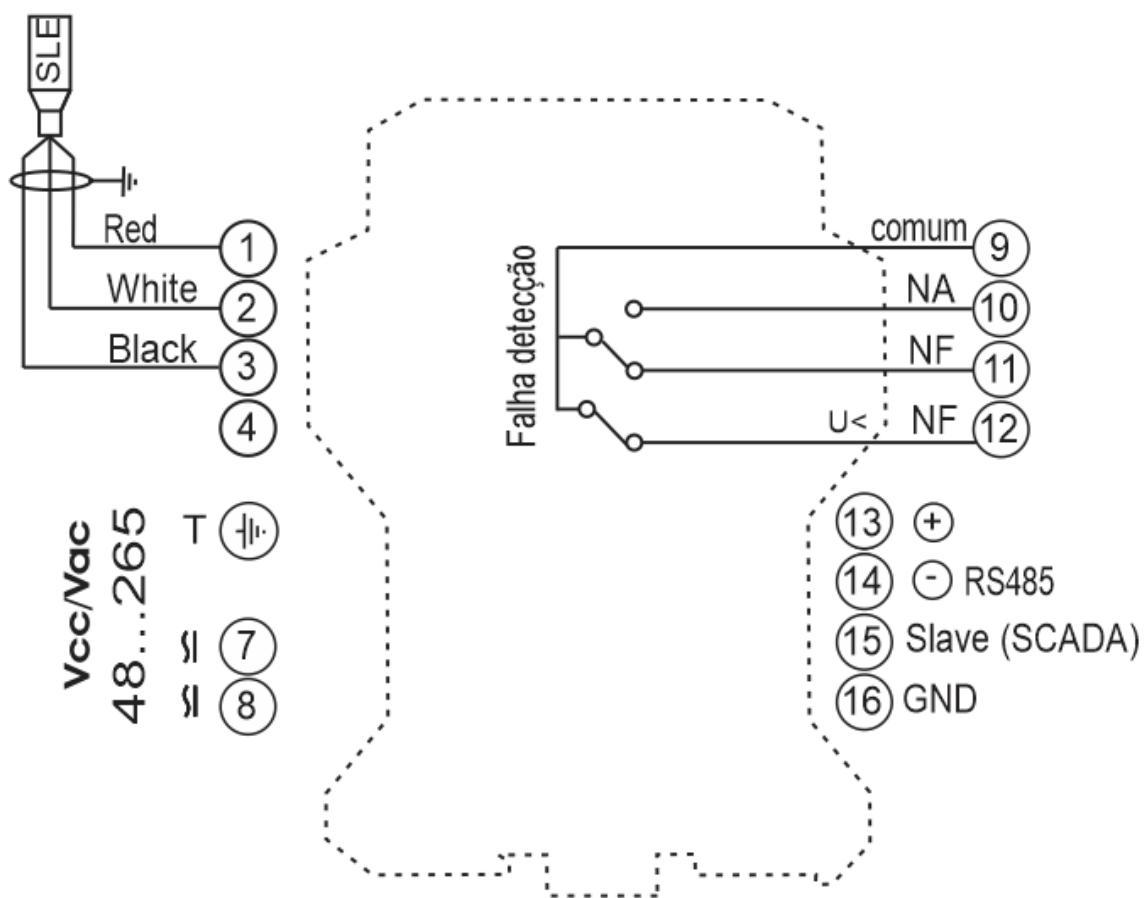


Image 3 – Rin Connection Diagram

CYLINDER HEAD JUNCTION BOX CONNECTION DIAGRAM

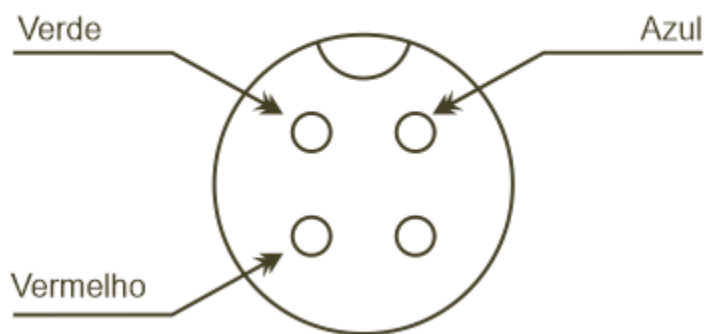


Image 4 – cylinder head connection diagram

GETTING TO KNOW RIN

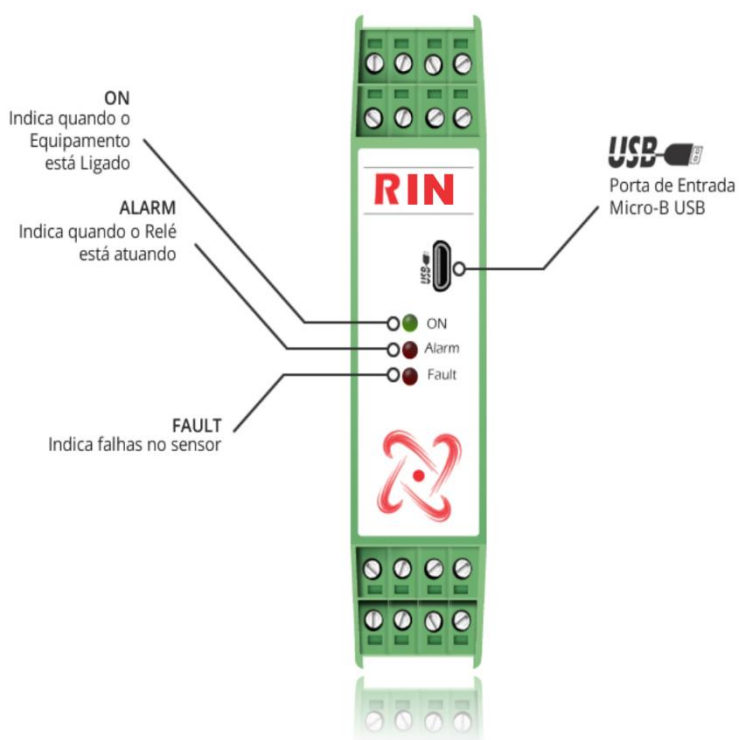


Image 5 – getting to know Rin

*The configurations of the Equipment are made through the RIN Software through the Micro-B USB port*

RIN APPLICATION

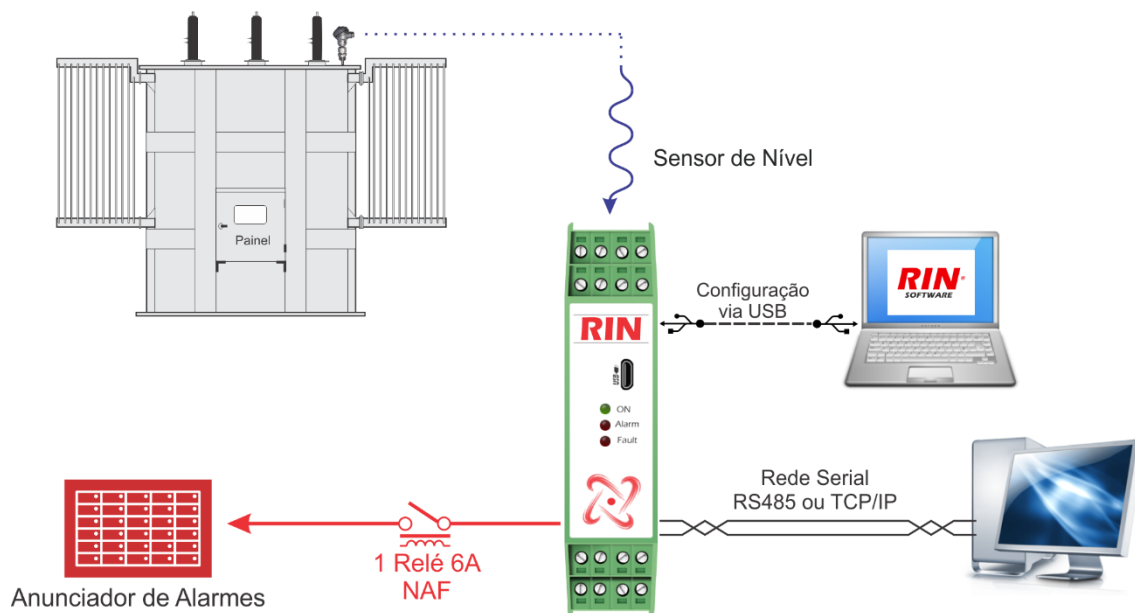


Figure 6 – Rin Application Examples

## SENSOR OPERATION DETAIL

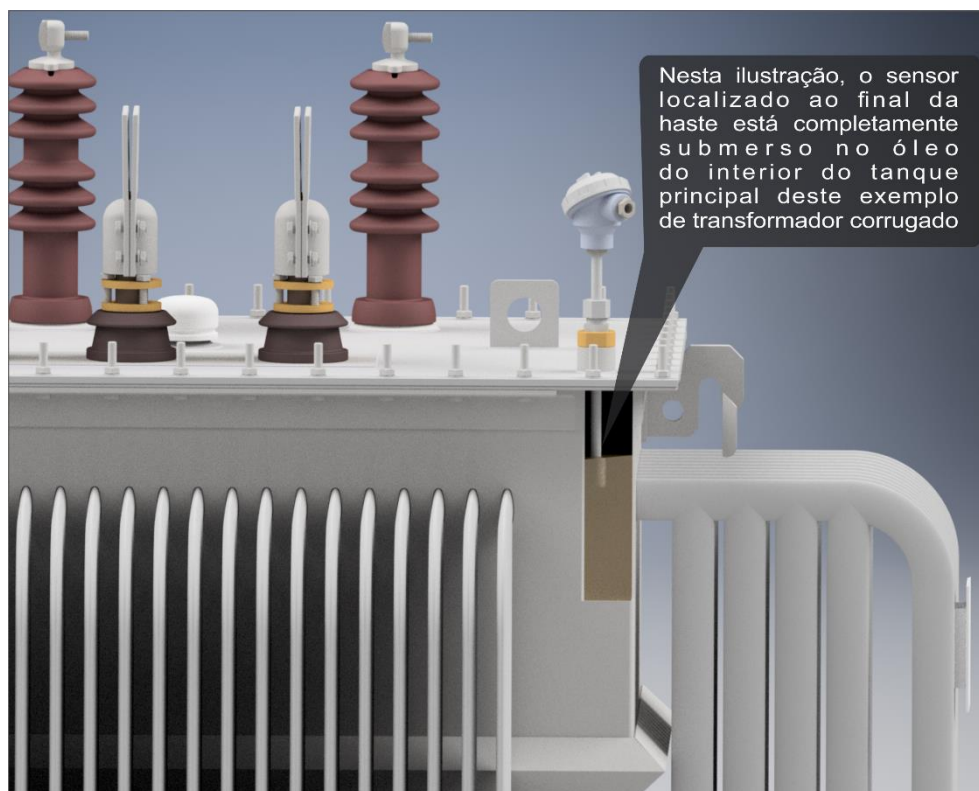


Image 7 – details of the sensor's operation

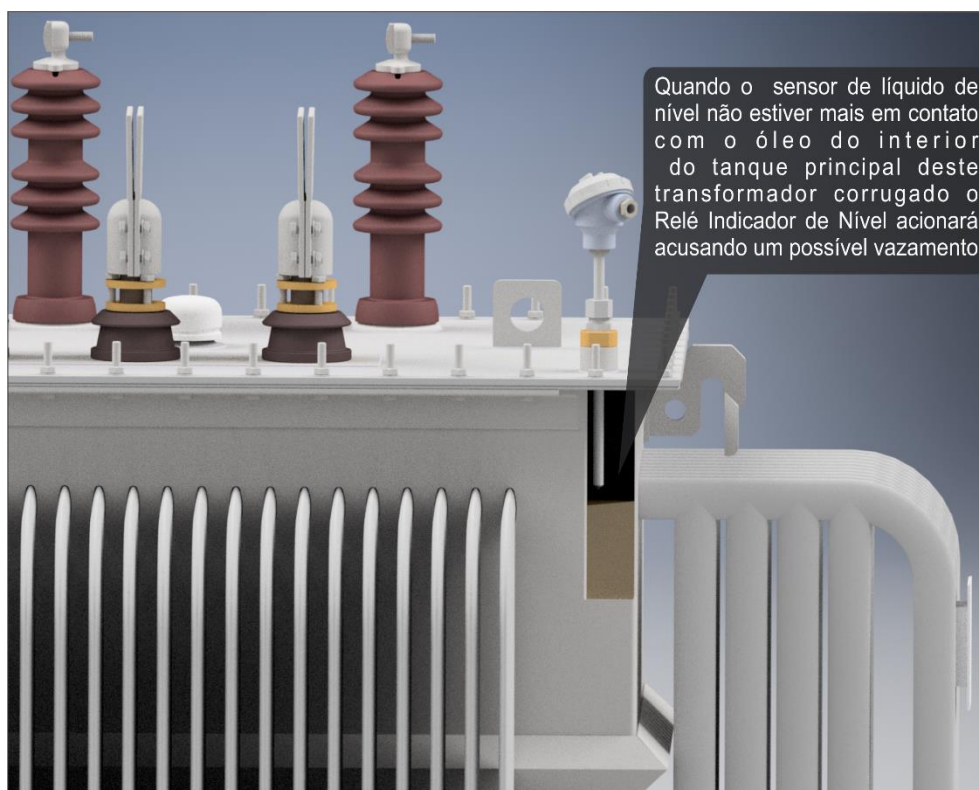


Image 8 – Detail of low oil level detection