PYRUS TL/E COMUNICATOR EN 54 - 21

PYRUS Fire Innuvation

NUVASAFE
SAFER IN THE CLOUD

ABOUT US

Nuvathings is a Spanish technology company (Barcelona, 2017) dedicated to the manufacturing and distribution of industrial systems that ensure environmental connectivity.

Its founder, Joan Vidal, is an engineer with more than 20 years of experience in the electronic security, industrial systems, and IoT sectors.

> *After developing over 70,000 devices and identifying the limited scalability of generic platforms on the market, I decided to create a complete IoT ecosystem accessible to both large and small companies.*

NUVATHINGS

Joan Vidal

Founder of **Nuvathings**

LEGAL FRAMEWORK

NUVASAFE
SAFER IN THE CLOUD

CPR CERTIFICATE

The trade of fire protection products is governed by the Construction Products Regulation (CPR).

Almost every product in fire protection systems (PCI) must have a DoP (Declaration of Performance issued by the manufacturer) based on a CPR certificate.

The product requirements are contained in harmonized standards.

Alarm and fault transmitters to fire alarm receiving centers are harmonized under the EN54-21 standard.

The CPR directive requires that production samples be periodically tested by the manufacturer.

IMQ

CERTIFICATO DI COSTANZA DELLE PRESTAZIONI

CERTIFICATE OF CONSTANCY OF PERFORMANCE

0051–CPR–2841

In conformità al Regolamento 305/2011/UE del Parlamento Europeo e del Consiglio del 9 marzo 2011 (Regolamento Prodotti da Costruzione o CPR), questo certificato si applica al prodotto da costruzione

In compliance with Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation, or CPR), this Certificate applies to the construction product

APPARECCHIATURA DI TRASMISSIONE ALLARME E DI SEGNALAZIONE REMOTA DI GUASTO E AVVERTIMENTO
ALARM TRANSMISSION AND FAULT WARNING ROUTING EQUIPMENT

Modello/Tipo: *Model/Type* **PYRUS-TL – PYRUS-TLE**

Marca commerciale: *Trade mark* **NUVASAFE**

Altre caratteristiche: *Other features* **fw 0210-090922**

Costruito da / *Manufactured by:*
THINGS4NUVA SL
C/Cami Vell Sarria 23, 7-3. 08029 – Barcelona, SPAIN

Nella fabbrica / In the manufacturing plant:
PI.W00087

Questo Certificato è rilasciato da IMQ S.p.A. quale Organismo Notificato per il Regolamento (UE) 305/2011. Il numero identificativo di IMQ S.p.A. quale Organismo Notificato è: **0051**
Questo certificato è soggetto al Regolamento valutazioni e verifiche di costanza delle prestazioni di prodotti da costruzione in qualità di Organismo Notificato, ai sensi di Regolamento (UE) n. 305/2011 e Decreto Legislativo n.106/2017 (REG. ON/CPR)
This Certificate is issued by IMQ S.p.A., a Notified Body according to Regulation (EU) No. 305/2011. IMQ S.p.A. Identification Number is: **0051**
This certificate is subjected to the Regulation of Assessment and Verification of Constancy of Performance of the Construction Products as Notified Body, according to Regulation (EU) no. 305/2011 and Legislative Decree n.106/ 2017 (REG. ON / CPR)

ACCREDIA
PRD N° 005 B

IMQ S.p.A. con Socio Unico | Via Quintiliano 43 | Italia - 20138 Milano | www.imq.it

IMQ

Questo certificato attesta che tutte le disposizioni riguardanti la valutazione e la verifica della costanza della prestazione descritte nell'Allegato ZA della/e norma/e
This Certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard(s):

EN 54-21:2006

nell'ambito del **Sistema 1** per le prestazioni specificate in questo certificato sono applicate e che il sistema di controllo della produzione eseguito dal fabbricante è stato verificato in maniera da assicurare la costanza delle prestazioni del prodotto da costruzione sopra citato

under System 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the constancy of performance of the above mentioned construction product

DATA EMISSIONE / ISSUED ON: 25/11/2022
REVISIONE / REVISION: 0

B.U. PRODUCT CONFORMITY ASSESSMENT
CPR TECHNICAL DIRECTOR

DocuSign

Questo certificato è stato emesso per la prima volta il 25/11/2022 e ha validità sino a che i metodi di prova e/o i requisiti del controllo della produzione in fabbrica stabiliti nella norma armonizzata, utilizzati per valutare la prestazione delle caratteristiche dichiarate, non cambino, e il prodotto e le condizioni di produzione nello stabilimento non subiscano modifiche significative.

This certificate was fist issued on 25/11/2022 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonized standard, used to assess the performance of the declared characteristics, do not change, and the products, and the manufacturing conditions in the plant are not modified significantly.

Questo Certificato è rilasciato da IMQ S.p.A. quale Organismo Notificato per il Regolamento (UE) 305/2011. Il numero identificativo di IMQ S.p.A. quale Organismo Notificato è: **0051**
Questo certificato è soggetto al Regolamento valutazioni e verifiche di costanza delle prestazioni di prodotti da costruzione in qualità di Organismo Notificato, ai sensi di Regolamento (UE) n. 305/2011 e Decreto Legislativo n.106/2017 (REG. ON/CPR)
This Certificate is issued by IMQ S.p.A., a Notified Body according to Regulation (EU) No. 305/2011. IMQ S.p.A. Identification Number is: **0051** This certificate is subjected to the Regulation of Assessment and Verification of Constancy of Performance of the Construction Products as Notified Body, according to Regulation (EU) no. 305/2011 and Legislative Decree n.106/ 2017 (REG. ON / CPR)

ACCREDIA
PRD N° 005 B

IMQ S.p.A. con Socio Unico | Via Quintiliano 43 | Italia - 20138 Milano | www.imq.it Pagina 2 di 2

NUVASAFE
SAFER IN THE CLOUD

INTEGRATED OR EXTERNAL TRANSMITTER

If the device is located outside the panel enclosure, EN 54-21 requires:

- Two indicator LEDs, if the panel does not include them **(99.99% of the installed market).**
- Two independent and protected power supply inputs.

NUVASAFE

5.3 Indicación de señales

En el equipo de transmisión, deben indicarse, mediante indicadores emisores de luz separados para los elementos a) y b), las siguientes señales. Además, dichas señales pueden indicarse en el ECI, en cuyo caso no es necesario indicar las señales al equipo de transmisión

7.7 Indicaciones mediante indicadores emisores de luz

7.7.1 Las indicaciones obligatorias de los indicadores emisores de luz deben ser visibles en un ambiente de alta intensidad de luz hasta 500 lux, en un ángulo de hasta 22,5º con respecto a la línea que atraviese el indicador perpendicularmente a la superficie en la que se encuentra montado:

– a 3 m de distancia: la indicación de suministro de alimentación,

– a 0,8 m de distancia: el resto de indicaciones.

7.7.2 Si se emplean indicaciones destellantes, los periodos de encendido y/o apagado no deben ser inferiores a 0,25 s y las frecuencias de destello no deben ser inferiores a 0,2 Hz para las indicaciones de fallo.

7.8 Colores de las indicaciones

Los colores de las indicaciones generales y específicas procedentes de los indicadores emisores de luz deben ser amarillos para indicaciones de aviso de fallo y rojas para la indicación de los acuses de recibo.

7.9 Ensayo de los indicadores

Todos los indicadores visibles obligatorios en el equipo de transmisión deben poderse ensayar mediante funcionamiento manual en un nivel de acceso 1 ó 2.

7.5.2 Si el equipo de transmisión está diseñado para su utilización con un suministro de alimentación (elemento L de la figura 1 de la Norma Europea EN 54-1:1996) contenido en un armario separado, entonces debe dotarse de una interfaz para, al menos, dos vías de transmisión al suministro de alimentación, de tal forma que un cortocircuito o una interrupción en una de ellas no impida el suministro de alimentación al equipo de transmisión.

KEY ASPECTS

INPUTS

The device has **4 inputs** on the motherboard for signal transmission. **Expandable** with modules of 4 inputs / 2 relay outputs Modbus.

CHANNELS

The device supports up to **triple communication channels:** CELLULAR, LORA, and ETHERNET (optional), providing the latest generation 5G technologies for secure communications.

LEDS

Two LEDs indicate transmission and fault. Required if the control panel does not include them.

INTEGRATIONS

Via RS485, RS232 with adapter, and/or ETHERNET. There is an integration table at:

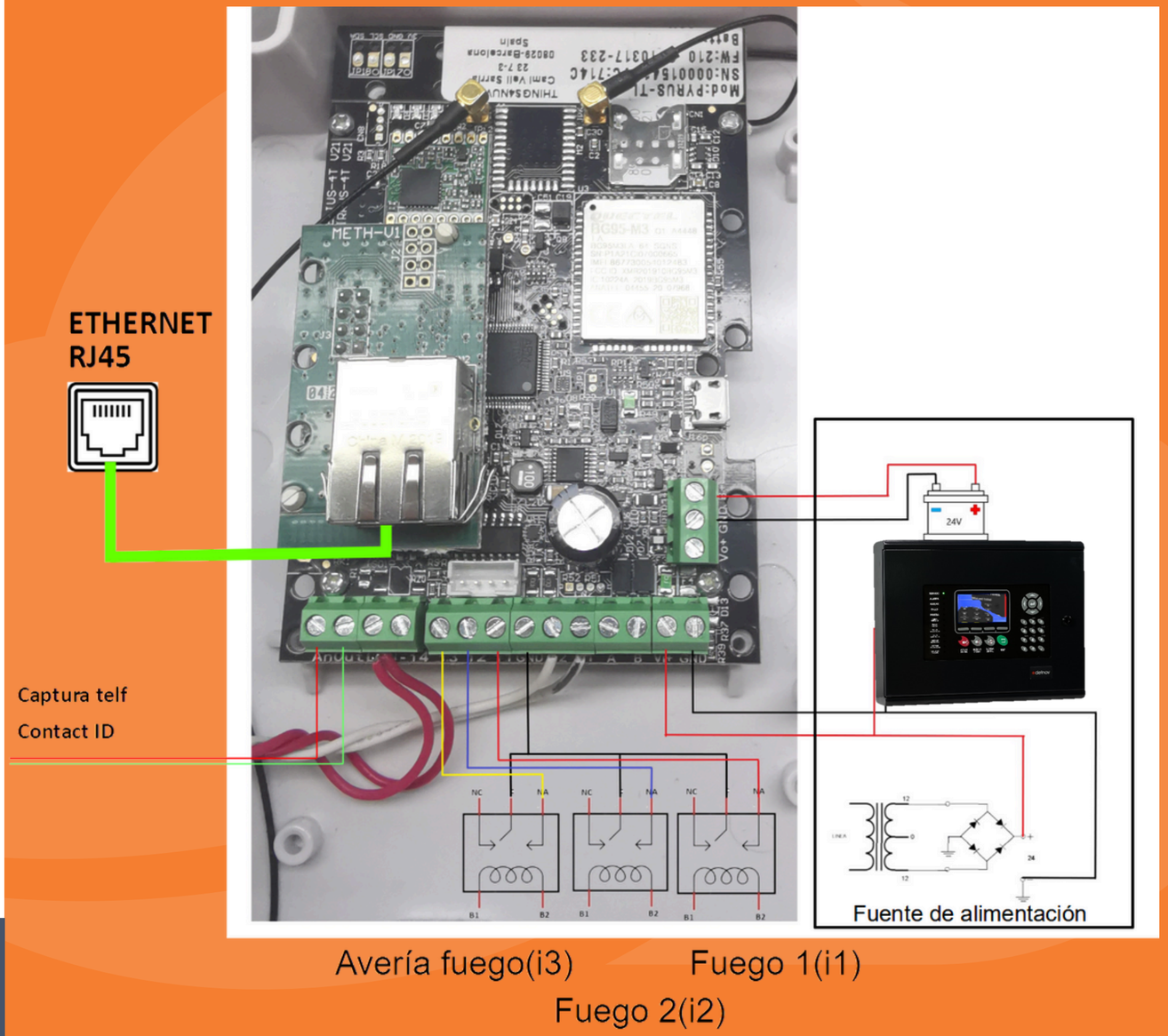
PYRUS-TLE can operate as a router.

CONNECTION DIAGRAM

The device allows event input from the panel via:

- 4 Inputs
- Serial channel RS485 or RS232
- Input via ETHERNET with SIA DC09
- Input via telephone capture in Contact ID

SIA DC09 is becoming a standard in CRI communications, due to its ability to send the names of the points that cause events.



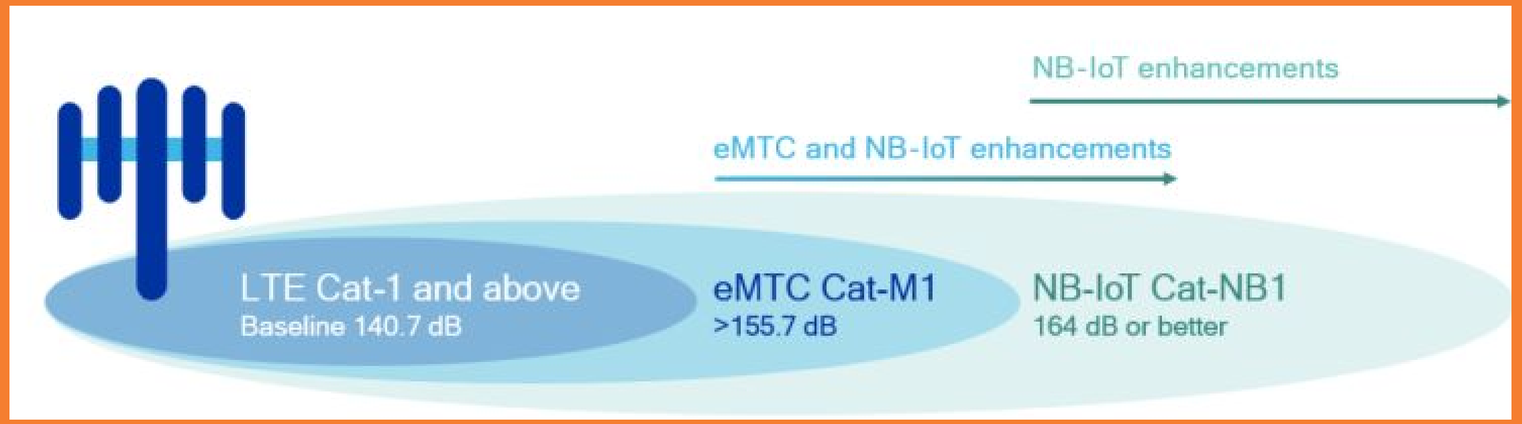
NB-IOT AND LTE-M

New Technologies. Designed for machines and sensors that must remain in service for at least 10 years.
Vodafone and Movistar will eliminate GPRS at the beginning of 2026, and **one-third of the network will be shut down.**

5G

HIGH COVERAGE

Both NB-IOT and LTE-M provide much improved coverage compared to any previous technology—2G, 3G, or 4G.



NUVASAFE
SAFER IN THE CLOUD

NB-IOT AND LTE-M

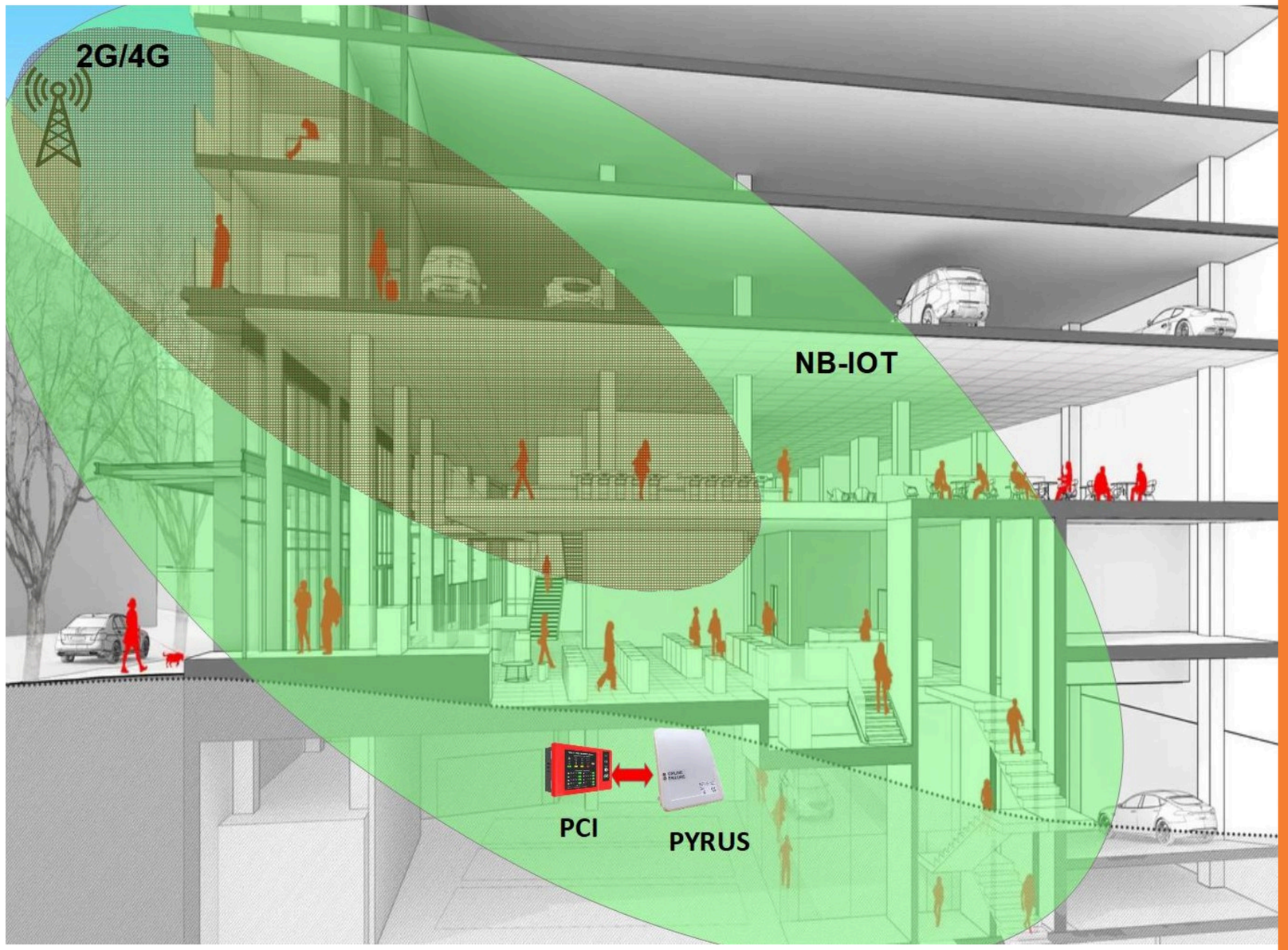
NB-IoT LTE-M

Coverage maps of the operators

https://www.vodafone.es/c/empresas/es/mapa-de-cobertura-movil-iot/

https://mapacob.aptica.es/client/index.html?id=orange_tecnologias

NUVASAFE



NB-IOT

UNRIVALED COVERAGE

NB-IOT allows links up to 164 dB, compared to 140 dB for 4G and 149 dB for GPRS.

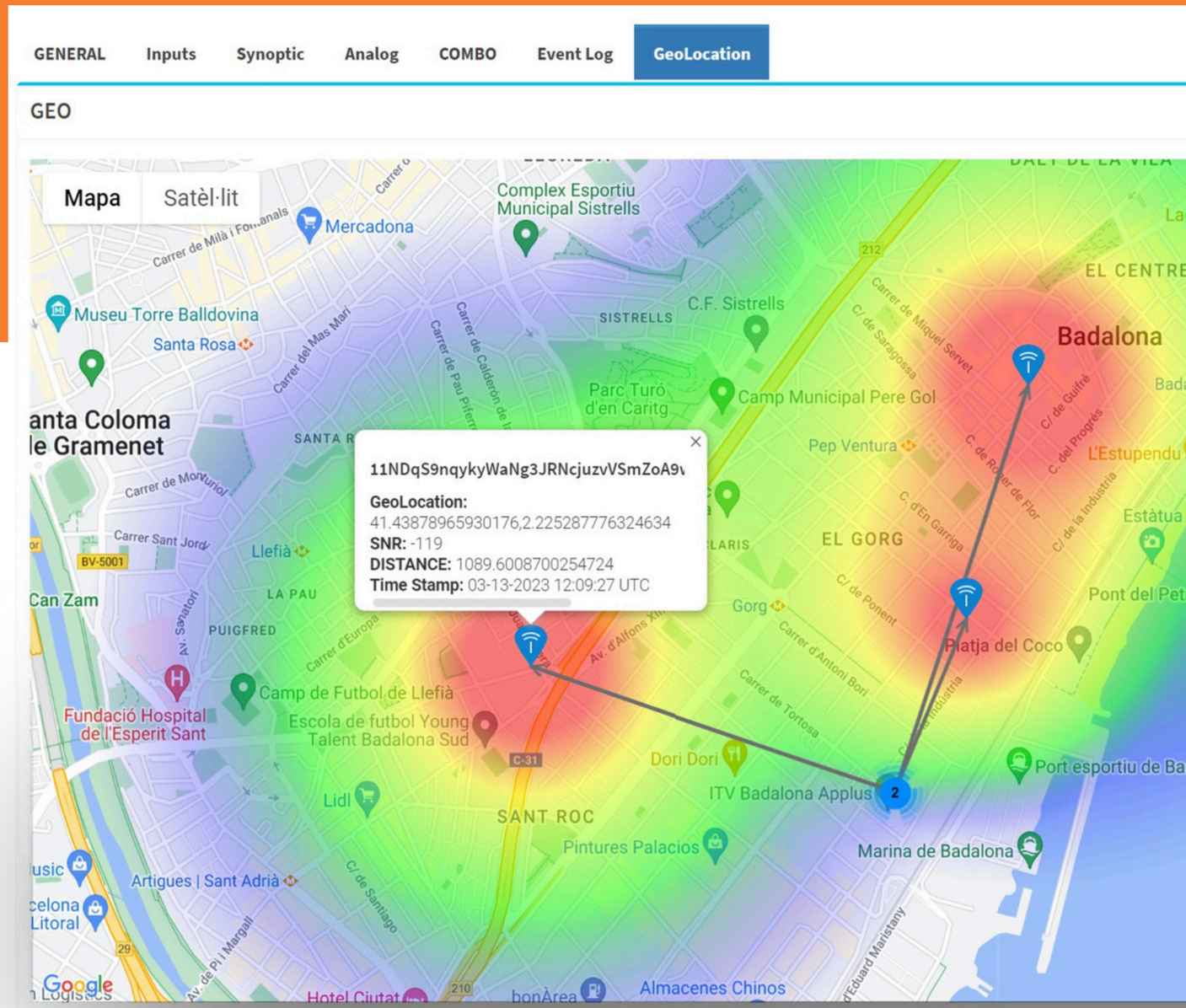
It is the only technology that will allow us to cover installations underground and in isolated rural areas.

NUVASAFE
SAFER IN THE CLOUD

LORA COMMUNICATION BACKUP

In PCI applications, **LORA links provide an extra layer of communication security** for when cellular or fixed networks fail. With the Helium network, we have LORA backup available in many areas of the country.

Each installed device in turn becomes a new network point and will provide LORA coverage to other devices nearby. **Each installed device creates a local LORA network for sensor installations such as water, electricity, CO2, etc.**



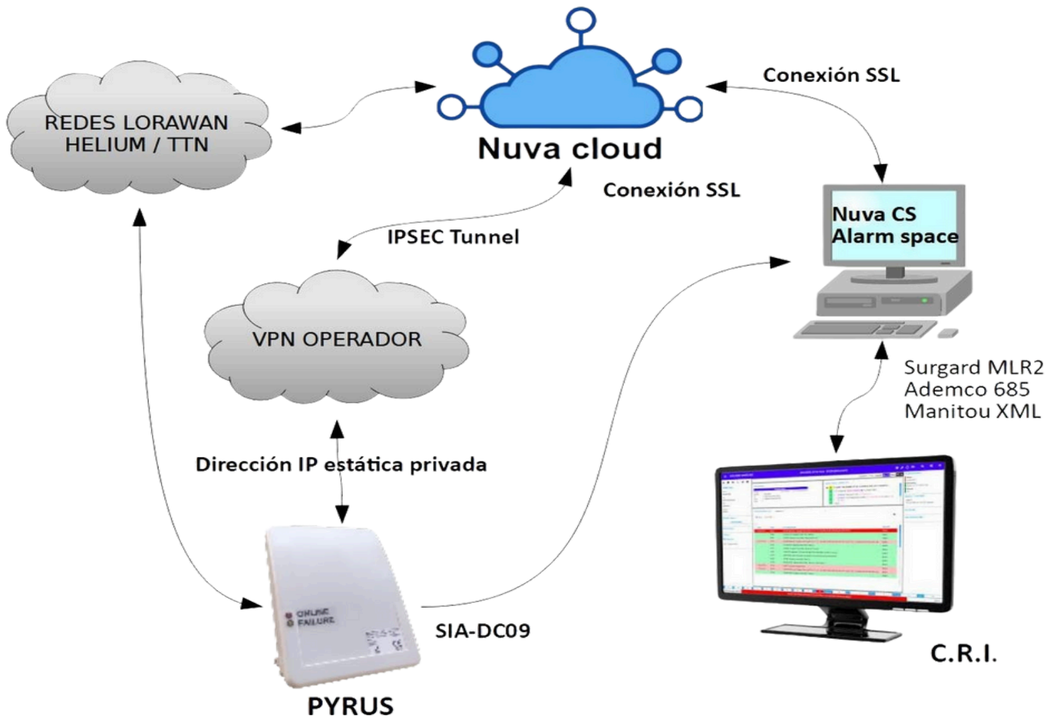
NUVASAFE

COMMUNICATION SCHEME TO CRI

The normal communication route to CRI is via Cloud, since advanced functions, VPN network, bidirectional integrations, and **LORA networks are implemented in the cloud.**

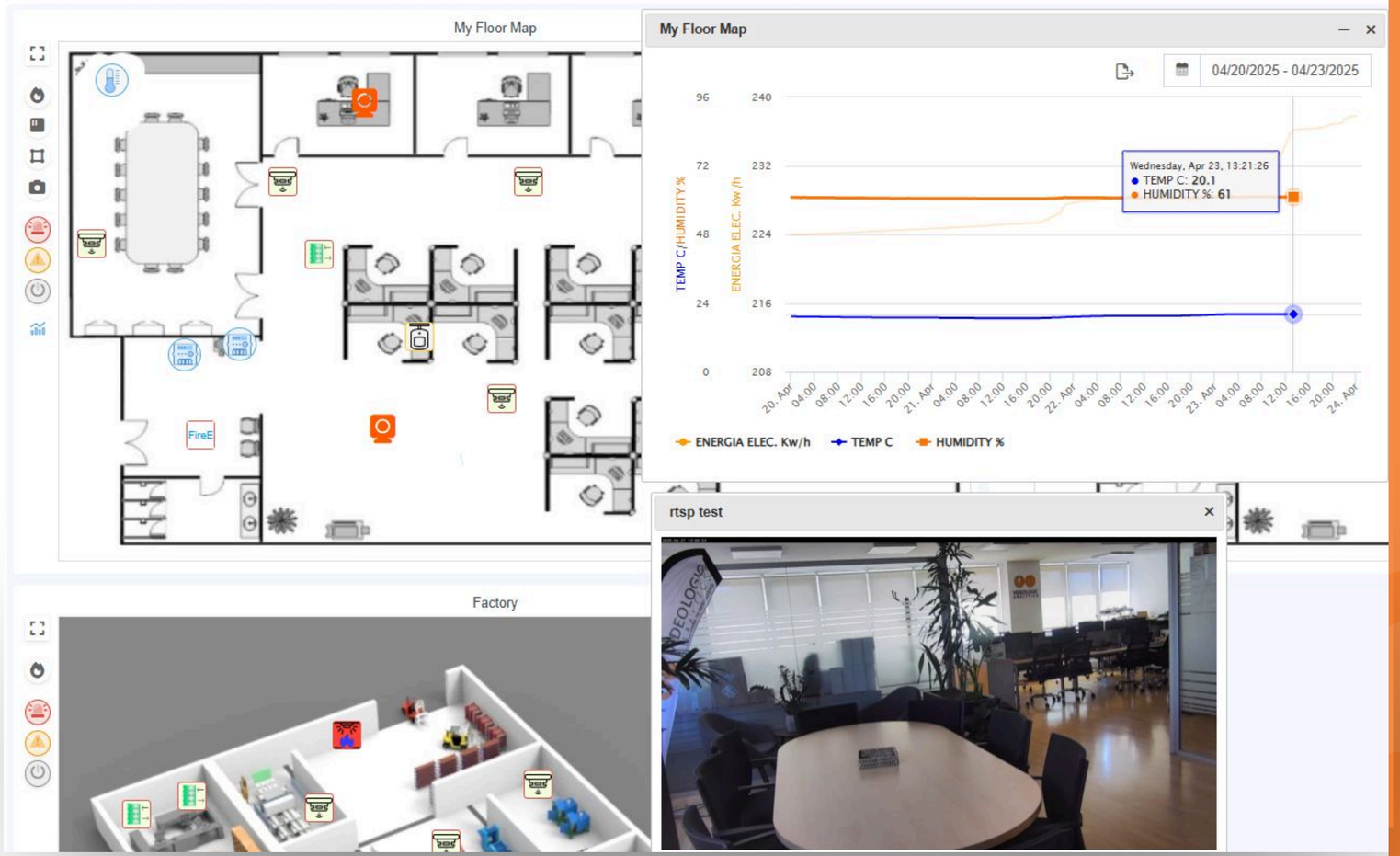
However, if the cloud goes down, the devices can send directly to CRI using the SIA-DC09 protocol, which is already implemented in many receivers.

Platform with integrated SCADA.



NUVASAFE

PLATFORM SCADA CLOUD



Accessible, powerful, and low-cost **SCADA**, designed for small, medium, and large industries.

Access from any device:

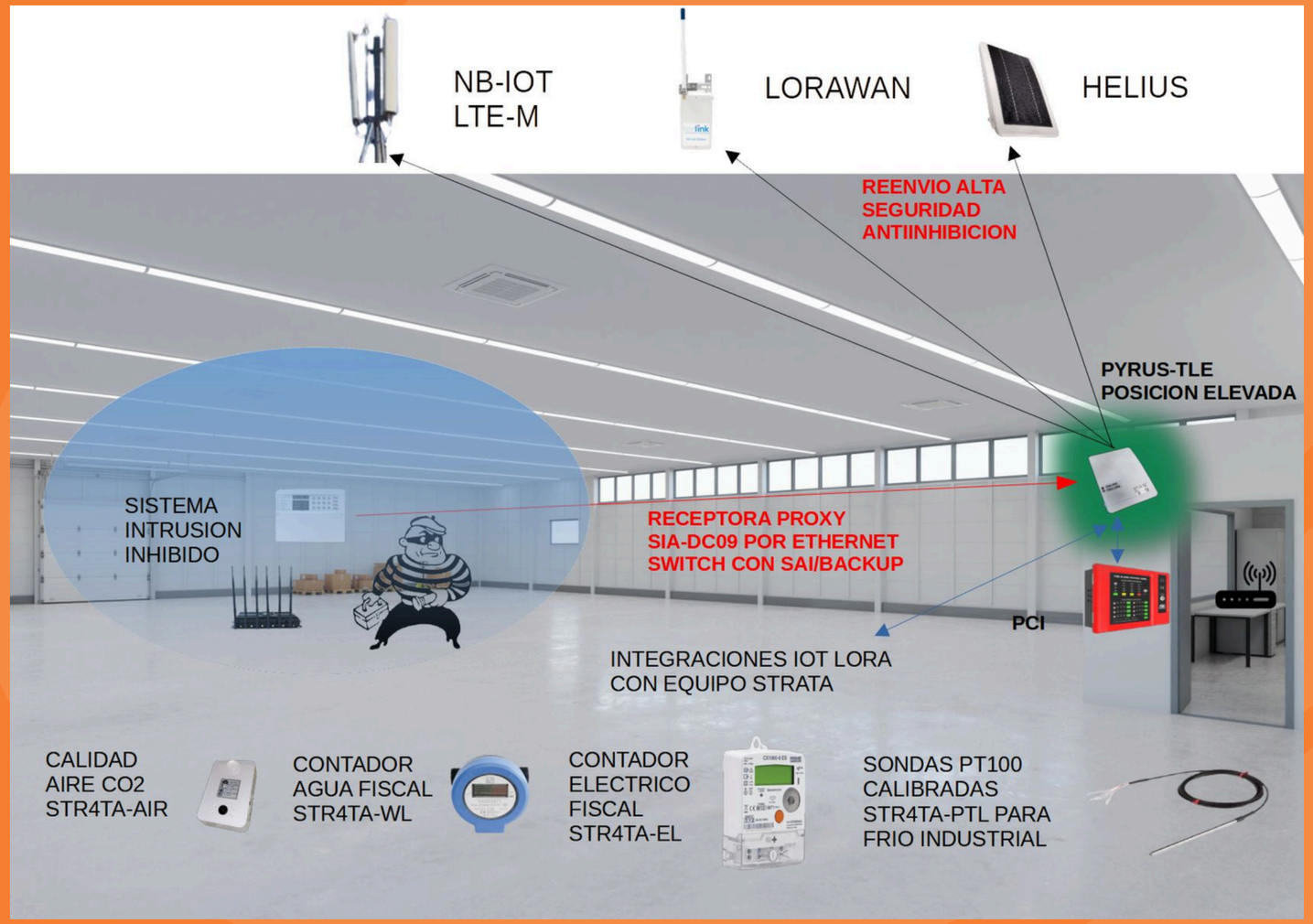
- Web app and optimized visualization for mobiles and tablets
- Full control in the field, office, or remotely

Complete integration in a single platform:

- Security systems (presence, access, intrusion)
- Fire systems (PYRUS + connected sensors)
- Environmental and industrial sensors (water, energy, air quality, temperature)
- Video surveillance and IP cameras
- Energy, air quality, production, utilities
- Interoperable with existing systems (local SCADA, BMS, ERPs)

All from NUVA's own cloud infrastructure, with support, updates, and secure access.

PROXY RECEIVER SIA-DC09

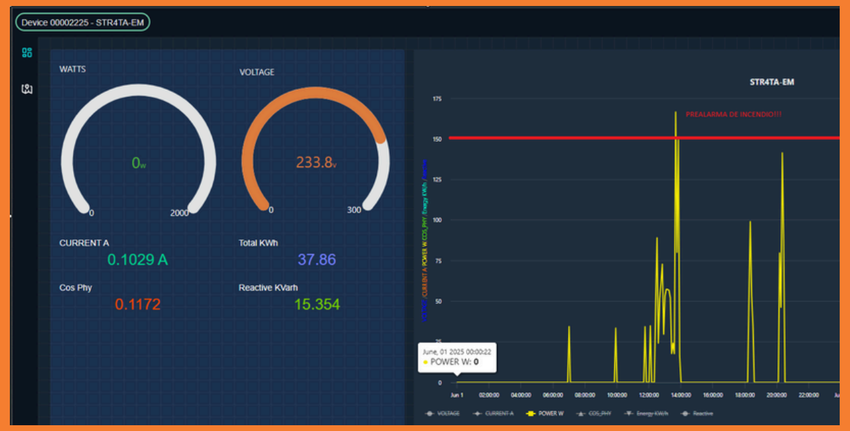


- In most business installations, we will find a security system that has its own communication channels, often via **ETHERNET**.
- With the **PROXY** receiver solution, the PYRUS-TLE, in case of fiber/ADSL outage or jamming, becomes a local CRA (alarm receiving center) for the intrusion system signals. It allows the PYRUS to receive signals from the panel via SIA-DC09 and forward them through its anti-tampering means (LORA and NB-IOT).

EARLY DETECTION OF ELECTRICAL FIRES

PYRUS + STR4TA

Most systems detect fire.
We detect the risk before it happens.



INTEGRATED FUNCTION:

- **The STR4TA-EM sensor monitors:**

Real-time active power
Power factor (cos φ)
Behavior by time slots

- **Embedded algorithm (Edge AI):**

Learns normal night-time consumption
Calculates hourly averages and deviations

  - Detects:
    - Consumption outside scheduled hours
    - Unexpected power spikes
    - Critical energy inefficiency (low cos φ)

- **PYRUS transmits the alert** via a secure channel to the Receiving Center (EN54-21), **even without cloud.**

RESULT:

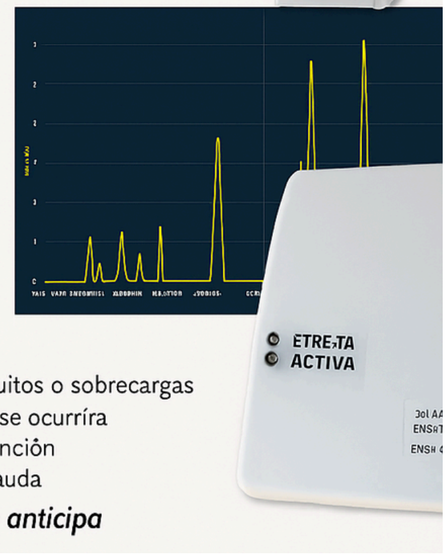
- Active prevention of short circuits or overloads.
- Generation of alerts before fire occurs.
- Reduction of response times.
- Regulatory compliance with added intelligence.

DETECCIÓN TEMPRANA DE INCENDIOS ELÉCTRICOS – PYRUS STR4TA

l a mayoría de los sistemas detectan el fuego.
Nosotros detectamos el riesgo antes de que ocurra

Función integrada:

El sensor STR4T-EM monitora E$_c$at
› Monítorea entíempo de tíempo actuɣmaticoı (cos φ) y ácu-
› prenda las tendencias de consumo nocturno
Detecta algunas anonmalias:
– SAD fuera de horarío*
– Picos de potencia inesperados
– Ineficiencia energética critica



Resultado

› Prevener la ractiva de cortos circuitos o sobrecargas
› Generación de alertas antes que se ocurríra
› Reducción de tiempos de intervenciòn
› Cumplír con una inteligencia agrauda

'La mejor alarma es la que se anticipa

NUVASAFE

SAFER IN THE CLOUD