

PERCEPTO



PERCEPTO EMPOWERS  
ENEL WITH **AUTONOMOUS  
DRONE TECHNOLOGY**







## FIRST EVER AUTONOMOUS DRONE SYSTEM DEPLOYED AT AN ENERGY SITE

Energy giant Enel officially announced it completed the integration of a Percepto autonomous drone system at the Torrevaldaliga Nord power plant, Civitavecchia, Italy.

The system was integrated to perform round-the-clock monitoring including security, safety and inspection missions, providing real-time alerts when needed.

Enel, one of Europe's largest energy firms, continues to lead innovation for industry 4.0 using Percepto's autonomous drone technology to digitize infrastructure while providing paramount security and safety standards for uninterrupted operations of their multi-location facilities.

Enel is continuously investing in advanced technologies to help accelerate innovation and transform the energy sector.

This case study explores Enel's implementation of Percepto's solution to deliver

**FULLY AUTONOMOUS PATROL, INSPECTION, AND DATA INSIGHTS,**  
and the potential capabilities and benefits for energy facilities.

## THE CHALLENGE:

Operations and security managers are always seeking to acquire deep, meaningful insights to optimize facility production and reduce maintenance costs and response times, while optimizing facility production.

A large number of drone solutions offered in industrial settings are pilot dependent, limiting their value and availability. Existing drone technologies lack the competencies needed to capture the constant, continuous data required to obtain meaningful insights and perform deep analysis, and only provide sporadic, segmented snippets of information.



## THE OPPORTUNITY:

Percepto's autonomous drone solution makes it possible to perform round-the-clock data acquisition for real time monitoring, analysis and alerts, while reducing the dependency on pilots and support teams. Percepto's easy to use management system provides for seamless team integration, allowing your on-site team to gain a new skill-set in a cutting edge field

By combining computer vision and Artificial Intelligence capabilities, Percepto provides ENEL the following insights:



MONITORING CAPABILITIES



REAL TIME ALERTS



HUMAN AND VEHICLE DETECTION



OBJECT INSPECTION AND TRACKING



ANOMALY RECOGNITION

Percepto real time monitoring and alerts enable ENEL to:

**+** IMPROVE  
DECISION  
MAKING

**+** IMMEDIATELY  
RESPOND TO  
EVENTS

**+** REDUCE  
MAINTENANCE  
COSTS

**+** PREEMPTIVE  
MAINTENANCE

**+** ON-GOING  
VISUAL DATA  
COLLECTION

YOUR NEW TEAM MEMBER:

## THE MOST INNOVATIVE COST EFFECTIVE AUTONOMOUS DRONE

### SPECIFICATIONS:



**WEIGHT:**  
8.5 Kg [19 lbs]



**FLIGHT TIME:**  
Up to 40 minutes



**PAYLOAD:**  
2 x cameras (4K day camera and radiometric thermal night camera)



**CHARGING TIME:**  
40 min [100%]



**MAXIMUM FLIGHT RANGE:**  
16.5 km [10.2 mi.], round trip



**MAXIMUM FLIGHT ALTITUDE (REGULATED):**  
130 m [400 ft.]



**MAXIMUM SPEED:**  
65 km/h [40 mph]



**MATERIAL:**  
Carbon fiber composite



- **4K RES DAY AND NIGHT (THERMAL) VIDEO STREAMING**

Standard payload is equipped with a dual camera set including a high-resolution day camera and a thermal camera.

- **PERCEPTOCORE**

integrated proprietary technology enables advanced computer vision and AI capabilities in real-time

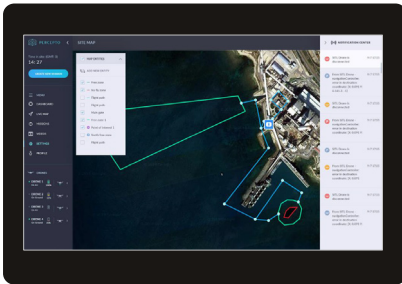
- **PERCEPTOBASE™**

located on-site ensures on-demand operations with fast charging and drone protection while not in use.

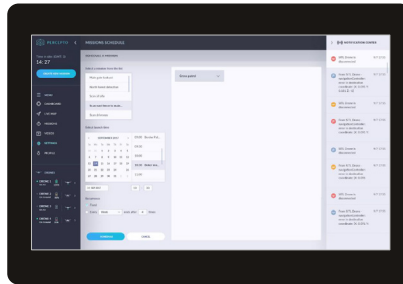




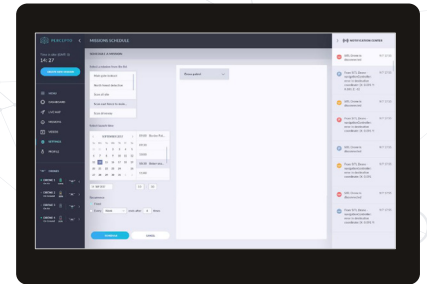
# EMPOWER YOUR TEAM: MULTI-SITE, MULTI-DRONE MANAGEMENT MADE EASY



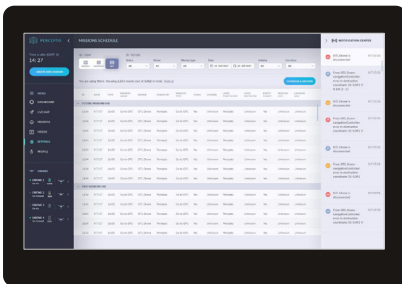
SITE SET UP



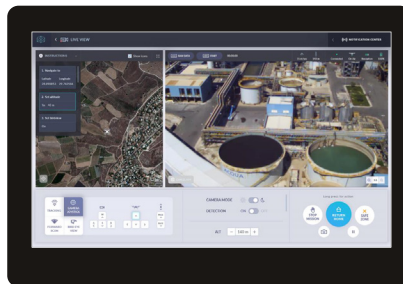
MISSION PLANNING



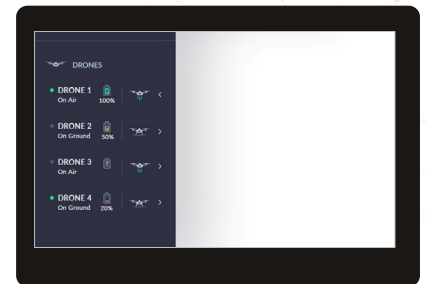
MISSION SCHEDULING



DATA ARCHIVE

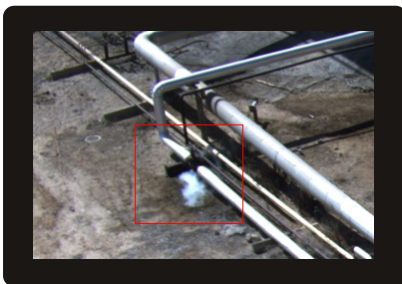


LIVE OPERATIONS



FLEET MANAGEMENT

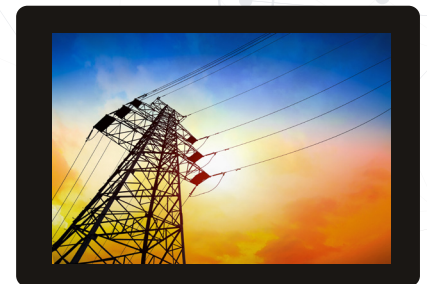
## ENERGY SITE APPLICATIONS



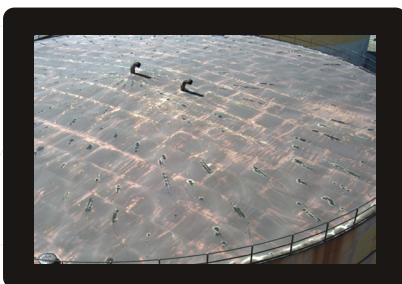
GAS LEAK DETECTION



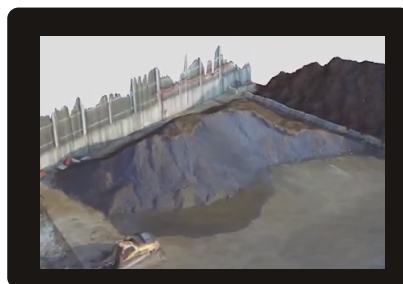
TANK INSPECTION



ELECTRICAL FAULT  
DETECTION



ROOF TOP INSPECTION



INTEGRATED ELEVATION  
MAPS



HUMAN DETECTION AND  
TRACKING



# NO CHALLENGE IS TOO BIG



PerceptoBase is Located **ON-SITE**, operating missions within **5 KM RADIUS** **WITH BUILT-IN SAFETY** mechanisms preventing the drone from posing any risks.





“

*Torrevaldaliga Nord is the first power plant in the world to use Percepto systems, confirming Enel's leading role in technological innovation. This cooperation generates positive impacts not only on the overall plant efficiency, but also on our workers, who can now operate the most advanced technologies, acquiring new skills along the way*

Nicola Rossi, Head of Innovation at Enel's Global Thermal Generation.

”