

Scalable Electricity Monitoring – Non-Intrusive Insights for Industrial Machines

Location: Manufacturing facilities, Europe

Milesight Partner
Heliotics

Location
Manufacturing facilities, Europe

Applications
Energy Efficiency, Smart Industry,
Machine Monitoring

Devices Deployed
100+ CT10x/ CT30x

Background

In today's data-driven industrial landscape, optimizing the performance and reliability of machinery is essential for maintaining competitiveness and operational efficiency. Leveraging advanced IoT technologies and LoRaWAN connectivity, industrial operators now have powerful tools to remotely monitor and manage production equipment. Heliotics' solutions empower factory and facility managers to gain real-time insights into machine status, energy usage, and environmental conditions without invasive installations. Common challenges in industrial monitoring include ensuring sensor compatibility, managing installation in harsh conditions, data accuracy, and integrating analytics into daily operations. Overcoming these hurdles is key to improving uptime, predictive maintenance, and cost control across production environments.

Our partner Heliotics helps customers optimize energy efficiency by monitoring energy consumption across various industries. At the manufacturing facilities in Europe, Heliotics successfully deployed a non-intrusive power monitoring solution that significantly reduced energy consumption.



Challenges

Lack of Real-time Data

Manufacturing facilities often face high energy costs due to a lack of real-time insights. Even when operating under similar conditions, machines consume electricity inconsistently, making it difficult to detect inefficiencies and control expenses.

Unexpected Costs

Tracking machine usage and maintenance needs is challenging, leading to unexpected downtime and rising costs.

Solution

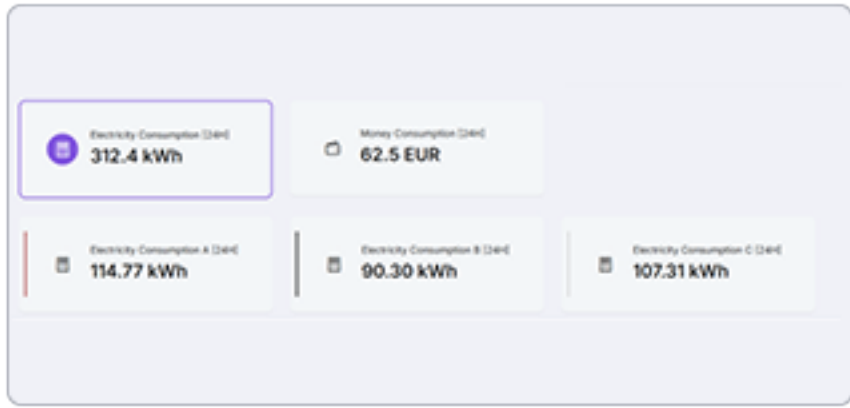


With the help of Heliotics, the customer successfully deployed a non-intrusive power monitoring solution featuring Milesight CT10x Smart Current Transformers to provide real-time energy insights without disrupting operations. This IoT-based system enables remote monitoring, predictive maintenance and data-driven decision-making, helping to optimize efficiency and reduce costs. Around 30 devices were deployed across 10 machines and the CT10x was deployed on almost every machine in the factory.

Milesight CT10x Smart Current Transformer is an ideal candidate in this project. Installing the current transformer is a breeze as you don't need to care about the current direction. Its split-core design enables easy installation without interrupting the circuit. Using magnetic induction, it captures the magnetic field generated by the current and converts it into an electrical output proportional to the measured current. For example, you can input the nominal voltage, current, and power factor to come out with the general power consumption. It can offer automatic calculation of cumulative amps-hour values once per second, so the detection frequency is one second. And it can be pre-charged and configured using the USB Type C, enabling a swift and hassle-free setup with the LoRaWAN® gateway. For your convenience, the configuration can be done via USB other than NFC.



Data collected from Smart Current Transformer installed in multiple machines across automotive facilities is presented in centralized platform, showcasing real-time inefficiency detection from continuous monitoring of energy usage. The Heliotics CORE IoT Monitoring Platform provides real-time electricity insights to help businesses reduce costs and optimize energy usage. Milesight smart sensors track power consumption, detecting inefficiencies and anomalies early. All data is displayed in an intuitive dashboard, offering a clear overview of energy usage and cost distribution. The system operates wirelessly via LoRaWAN®, ensuring seamless data transmission. With a non-invasive, cable-free installation, it integrates smoothly into operations, enabling proactive decision-making and lower maintenance costs.



Results

Decreased in Energy Costs

Energy monitoring goes beyond just tracking electricity usage, it also provides deep insights into machine performance. Variations in energy consumption between machines doing similar work can reveal inefficiencies or highlight the need for maintenance. By identifying and addressing these discrepancies, companies can improve operations and reduce costs. Another important advantage is smart scheduling. With clear visibility into each machine's energy consumption, production can be planned during off-peak hours when electricity rates are lower. This helps lower energy costs without impacting production targets.

Energy monitoring also helps detect anomalies, such as sudden spikes or irregular consumption patterns, which can be early signs of mechanical issues. Acting early supports predictive maintenance strategies, helping to prevent unexpected breakdowns, minimize downtime, and extend equipment lifespan.

One real-world example: by monitoring 10 machines, one customer achieved notable energy savings and reduced maintenance costs. Specifically, they saw a 21% reduction in energy costs, a 17% drop in unplanned downtimes through predictive maintenance (thanks to early issue detection), and gained actionable insights by comparing machine efficiency to pinpoint issues. While results may vary, this case illustrates the potential benefits companies can gain by implementing smart energy monitoring systems.

The Heliotics CORE plug-and-play platform provides full transparency into electricity usage, offering real-time dashboards, actionable insights, proactive alerts, advanced analytics and seamless connectivity—helping companies of all sizes boost efficiency and prepare for the future.

Reduced Manual Costs and Improved Maintenance Efficiency

The CT sensors are designed to be installed without touching or changing any wiring. There's no need to call a certified inspector for an electrical safety check after installation. This saves time, reduces costs, and makes the whole setup much simpler, as automated monitoring provides real-time insights without manual checks.

Centralized Management for Data-driven Decision Making

Heliotics CORE is a universal plug-and-play platform designed for easy integration across all types of environments and use cases. It can monitor and visualize any kind of data — from electricity consumption and environmental parameters to machine health and material flows — making it a flexible tool for diverse industrial and non-industrial applications.

With all data presented in real-time, it empowers companies to make smarter decisions based on accurate, up-to-date information.

The platform automatically recalculates energy usage into kilowatt-hours (kWh) and allows consumption tracking in multiple currencies, ensuring clear cost analysis and financial transparency.

Beyond basic monitoring, Heliotics CORE offers advanced data processing capabilities — enabling combination of data from multiple sensors into a single dataview, creation of aggregations, calculation of sums and averages, and display of important statistical values like minimums, maximums, and standard deviations.

Thresholds can also be set and visualized directly on charts, making it easy to detect when monitored values exceed defined limits and take timely action. Combined with customizable dashboards, real-time smart alerts, seamless sensor integration, and intuitive data management, Heliotics CORE provides a powerful, centralized solution for driving operational improvements and supporting data-driven decision making across a wide range of industries and applications.

Why Choose Milesight



The CT10x was selected for its non-invasive design, eliminating the need for external power cables while being self-powered through its current transformer. Its compact design ensures seamless installation even in challenging and hard-to-reach environments.

Furthermore, the CT10x offers exceptional accuracy, capable of detecting even the smallest fluctuations in consumption. Unlike other devices that require a technician to perform routine revision reports after installation, the CT10x eliminates this need, which is a significant benefit for our customers.

Additionally, its straightforward deployment and configuration via Milesight Toolbox platform streamlines the process, delivering efficient, reliable and low maintenance monitoring solutions.

Milesight Partner

About Heliotics

Heliotics provides comprehensive software solutions for production and industry monitoring, utilizing IoT technologies such as LoRaWAN and NB-IoT. The Heliotics CORE plug-and-play platform offers a highly customizable and scalable solution, integrating a range of smart sensors that empower manufacturers to efficiently monitor and manage their production operations.

Heliotics focuses on delivering seamless connectivity and real-time data analytics. Our platform streamlines monitoring, control and data integration while providing features such as predictive maintenance, downtime reduction, real-time alerts and advanced analytics for deeper insights.

With over a decade of experience across a wide range of industries, including automotive, logistics and machinery, we offer scalable, user-friendly solutions that help organizations optimize their processes, improve efficiency and make data-driven decisions.