



PRESense

Enabling Full-Spectrum
Network Visibility

Deeper Insight.
Smarter Decisions.
A More Resilient Network.



ACTIVITY
Harmonic excursion

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From Complexity to Clarity

As low-voltage networks become increasingly complex, utilities need more than monitoring; they need insight. PRESense combines advanced LV monitoring, embedded intelligence, and proven fault-location expertise to help network operators understand network behaviour and act with confidence. From everyday loading and power quality to pre-fault activity and transient events, it provides the engineering insight needed to improve performance, support electrification and keep customers connected.

The Challenge

Electric vehicles, heat pumps, rooftop solar and battery storage are transforming LV networks. Increasing demand, bidirectional power flows and changing voltage conditions are placing new pressures on ageing infrastructure.

Yet many operators still have limited visibility of what happens between the substation and the customer. Capacity constraints can remain hidden, power quality issues can go undetected, and cable deterioration may only become apparent when supplies are interrupted.

Meeting these challenges requires more than periodic measurements or historical reports. Operators need continuous insight into network conditions, early warning of deterioration and reliable fault location when failures occur.

The Low-Voltage Network Has Changed.

Traditional Monitoring Hasn't.



Why PRESense

Built on more than
30 Years
of Fault Location
Expertise

Camlin's heritage is in solving real network faults. As pioneers in fault location, we helped bring capabilities once associated with specialist measurement vans into portable equipment that engineers could take directly to the problem.

PRESense builds on that experience, combining robust monitoring hardware with embedded intelligence to capture and interpret the electrical events that matter - from pre-fault activity and self-clearing transient faults to permanent failures.

- + Load Capture
- + Fault Capture/location
- + Pre-Fault Capture/Location
- + Early Life Fault Capture/Location
- + Premises Safety (RLM)
- + Long Term Asset Health

Engineering expertise built in

Signal analysis and machine learning informed by more than 30 years of practical fault location experience.

Visibility beyond routine measurements

High-resolution capture reveals short-duration events that conventional load monitoring can miss.

Intelligence at the edge

On-device processing identifies relevant events and reduces the need to transfer large volumes of raw data.

Designed for long-term deployment

Robust hardware and remote software upgrades support evolving monitoring and analytical requirements.

Support before and after failure

Early detection helps prioritise intervention; proven fault location supports faster restoration when a fault occurs.



Key Applications

One Solution. Multiple Operational Priorities.

PRESense captures network data and turns it into insight that supports operations, planning and asset management. Within Camlin Energy's wider ecosystem of monitoring, auto-reclosing technology, software and services, it helps connect detection with practical action.

1 Network Visibility

Gain a detailed view of monitored LV feeders, from routine operating conditions to short-duration disturbances. PRESense combines continuous measurements with event capture to help operators investigate changes, understand network behaviour and make informed decisions.

2 Load and Capacity Monitoring

Understand how electrification is changing demand on the network. Continuous current and voltage measurements reveal loading patterns, neutral loading, phase imbalance and reverse power flow, supporting capacity assessments, connection decisions and targeted reinforcement.

3 Developing Fault Detection and Fault Location

Before failure: PRESense identifies electrical signatures associated with pre-fault activity and transient faults, helping operators investigate deterioration before a permanent fault interrupts supplies.

When a fault occurs: Advanced fault location narrows the search area. Location estimates, location tolerance, fault energy and supporting waveforms give engineers practical information for diagnosis, targeted excavation and restoration.

Together, these capabilities support planned intervention and effective reactive response, helping reduce emergency attendance and reliance on specialist measurement vans where appropriate.

4 Cable Health

PRESense captures fault activity and other electrical indicators that can contribute to a clearer understanding of cable condition.

Camlin Energy have developed cable health indexing to bring monitoring and fault data together with asset information, historical performance and criticality. The aim is to help operators prioritise cable investigation, replacement and reinforcement using a condition-based assessment. Early dashboards are a foundation for this work; a comprehensive cable health index remains in development.

5 Voltage and Power Quality

Monitor voltage behaviour, harmonics and short-duration disturbances to understand the effects of changing demand and distributed generation.

Continuous visibility helps operators investigate voltage excursions and emerging power quality issues, supporting proactive assessment alongside targeted on-site investigations.

6 Asset Performance

Assess the electrical conditions affecting monitored assets, including sustained loading, phase imbalance, harmonics and reverse power flow. These indicators help operators identify operating stress, prioritise further assessment and make better use of existing infrastructure.

Our Approach

**Capture What Matters.
Understand the Risk.
Take Targeted Action.**

PRESense supports the full operational cycle: understanding normal conditions, identifying emerging problems and responding effectively when faults occur.

1 Capture What Matters.

Current Across
Monitored
Feeders

Voltage
Performance

Network
Loading &
Utilisation

Power Quality

Harmonics



Phase
Imbalance

Neutral
Loading

Reverse
Power Flow

Transient &
Waveform Events

Developing
Fault Signatures

Routine measurements alone cannot explain every network problem. Short-duration faults, voltage excursions and other disturbances require detailed event capture.

Multiple independent trigger methods operate simultaneously, enabling PRESense to capture relevant events alongside continuous network measurements. High-resolution waveforms preserve the detail engineers need to investigate both fault activity and wider network performance.

2 Identify Risk Before Impact

PRESense applies advanced signal analysis and machine learning informed by real-world fault expertise to identify patterns associated with developing problems.

This helps operators assess:

- Which feeders show signs of deterioration.
- Whether detected fault activity is recurring or changing.
- Where further investigation should be prioritised.

Where developing activity can be detected, operators gain an opportunity to schedule investigation and remedial work before a permanent failure. When faults occur without detectable warning, conventional fault location remains essential to an effective response.



3 Enable Targeted Action

PRESense provides engineers with fault location estimates and associated tolerance, fault energy and supporting waveform evidence.

These details help teams narrow the investigation area and prepare for the work required—supporting faster diagnosis, more targeted excavation, fewer unnecessary site visits and shorter restoration times.

Technical Excellence

Engineered for Real-World Networks

Practical installation, powerful edge processing and flexible integration make PRESense suitable for targeted deployment and wider network rollout.

1 Quick and Simple to Install

PRESense is designed for quick, straightforward installation at LV substations, with minimal disruption to network operations.

Operators can begin with priority feeders and expand deployment as requirements grow. Remote configuration and device management support ongoing operation without unnecessary site visits.

- Quick, straightforward installation.
- Deployment focused on priority locations.
- Remote configuration and management.
- Expansion from initial installations to larger fleets.

Proven in the field (Deployment call out)

Deployed in its thousands, PRESense is already providing operational intelligence on live distribution networks.

2 Intelligence at the Edge

A hybrid computing architecture combines an FPGA with dual microcontrollers, enabling high-speed signal acquisition and analytical processing to operate within the device.

Processing events at the network edge reduces reliance on transferring continuous raw data to the cloud. Remote software upgrades allow functionality to evolve after installation.

3 Advanced Signal Processing

Electrical noise can obscure the small disturbances associated with developing faults.

PRESense uses advanced digital filtering to separate relevant electrical signatures from background noise while preserving the detail required for analysis. This supports higher-confidence detection and helps reduce false positives.



Detect the signal.



Remove the noise.



Identify genuine risk.

4 Built to Integrate

PRESense connects with the operator's wider operational environment.

Industry-standard DNP3 communications support SCADA integration, while REST APIs provide routes into planning systems, outage management platforms and analytical applications.

Native integration with Sapien supports centralised fleet oversight, analytics and remote device management.

Smart meter data is also being considered as a complementary input to the wider solution. Future integration could add customer-level context to PRESense's detailed feeder measurements and event capture.

5 Deployment Guided by Network Need

Before deployment, Camlin Energy works with network operators to identify where enhanced visibility can deliver the greatest value.

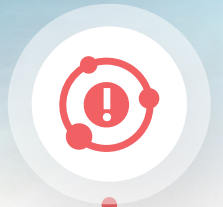
Available information - including circuit characteristics, loading, asset criticality, fault history, power quality indicators and known constraints - helps identify priority locations.

This approach directs investment towards circuits where detailed monitoring can answer specific operational questions, support fault investigation or improve planning decisions.

Engineered for real-world networks.



ACTIVITY
Go-install



More Than a Monitor

Part of a Connected Operational Ecosystem



PREsense plays an integral role in Camlin Energy's wider combination of monitoring, auto-reclosing technology, software and engineering services.

PREsense provides detailed measurements and fault intelligence. Sapien brings information together for analysis and fleet management. Complementary auto-reclosing technology and engineering services support fault response and practical intervention.

The value comes from connecting these capabilities around the operator's needs: identifying the issue, understanding its significance and supporting the next action.



Control room and operations teams

Assess detected events and coordinate investigation with clearer information about fault location and network conditions.



Field engineers

Arrive with location estimates, tolerance, fault energy and waveform evidence to support diagnosis and targeted work.



Planning teams

Use measured current and voltage behaviour to assess capacity, connection requirements and reinforcement priorities.



Asset managers

Use operating conditions and recorded fault activity to prioritise further assessment and inform investment decisions.

Benefits to Utilities

+ Accelerated electrification:

Better evidence for capacity assessments, customer connections and reinforcement.

+ Improved network reliability:

Earlier investigation of developing faults and faster response to failures.

+ Lower operational costs:

More targeted site attendance, excavation and specialist fault investigation.

+ Greater workforce efficiency:

Practical engineering information before teams arrive on site.

+ Support for regulatory performance:

Better evidence to support reliability, service quality and investment objectives.

Customer Testimonial

“PRESense has fundamentally changed how we identify and respond to developing faults. Our engineers now arrive on site with significantly more information, allowing us to restore supplies faster and reduce unnecessary excavation.”

Chino Atako,

Senior Asset Engineer,
UK Power Networks

Case Study



Colchester, UK



Fault identified within **days of installation**
(Device ROI within 1 week of installation)



Located and pinpointed within **5 hours**



Enabled repair before peak Christmas trading period

Impact



£3,269 cost saving



22 staff hours saved



Avoided transport disruption
and unnecessary excavation

Conclusion

The Future of Low-Voltage Network Intelligence is PRESense

As customer expectations increase, electrification accelerates, and operational pressures continue to grow, utilities require greater visibility, faster decision-making, and more confidence than traditional monitoring technologies can provide.

PRESense has been designed to meet this challenge.

By combining continuous monitoring, advanced sensing, predictive artificial intelligence and industry-leading fault location, PRESense enables utilities to move beyond reactive maintenance towards truly predictive network operation.

It transforms every monitored LV substation into an intelligent edge device, providing the operational insight required to improve reliability, optimise investment, accelerate electrification and deliver better outcomes for both utilities and their customers.



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