VisNet®
From EA Technology

VisNet® Apps
Grid-Edge Apps: Powering tomorrow's grid today

Optimise your electricity network with real-time actionable insights

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The Apps Your **Network Needs**

The low-voltage (LV) distribution network has been in operation for over a century, with much of the infrastructure significantly degrading over time. As demand on this ageing network grows, particularly with the integration of low-carbon technologies (LCTs), fast issue detection and resolution are essential to maintain a stable power supply.

To meet these challenges, network owners and operators increasingly rely on automation and intelligent data processing to efficiently manage assets, prevent failures and identify areas for reinforcement.

Our Apps coupled with the VisNet Hub, provide a cutting-edge solution, using configurable on-device algorithms to filter and process high time resolution data directly from your network. Insights are visualised through our intuitive VisNet Detect Pro user interface, offering a clear view of performance. Operating within a secure, encrypted environment, the Apps ensure data protection. Seamless over-the-air (OTA) updates allow for easy installation of new Apps and features, while regular firmware updates keep your system optimised.

With the Apps, the Hub and Detect Pro, you can efficiently monitor and enhance your network.

Optimise Your Assets

Stay one step ahead with our powerful insights and innovative solutions for LV management.

The Hub offers owners and operators of the electrical grid the potential to introduce flexibility into the distribution network more efficiently, with less risk and at a lower cost than traditional processes. Coupled with our Apps, the results are exceptional. So much so, the Hub won the King's Award for Enterprise 2024 in the 'Innovation' category. Add in the advanced visualisation features of Detect Pro and you can anticipate tomorrow's grid, today.

Turning Data into Actionable Insights

Designed to be the window into your data, with 24/7 web-based access, Detect Pro allows you to view all your captured and calculated data efficiently and effectively. But what really sets the system apart is how that information is presented.

Built with the user in mind, the interface delivers effective data visualisation, so you can identify network issues at a glance. If you need to dive deeper, you can drill down into the data to understand exactly what is causing the problem. Instantly gain a clear understanding of your network operation and rapidly take control of any issues.

VisNet **Reliability Apps**

Reactive Operations App

Reactive. Reliable. Remarkable.

Our Reactive Operations App delivers real-time monitoring and instant alerts for supply losses, providing clear insights into fault type, location and the overall health of a network's cables.

Powered by data from the Hub, this App enables operational teams to quickly detect and resolve faults, reducing Customer Interruptions (CI) and Customer Minutes Lost (CML). By enhancing network reliability and minimising downtime, it also helps asset management and operational planning teams refine maintenance schedules and make informed long-term investment decisions.

The benefits of our Reactive Operations App include:

- Fuse blow identification: Instantly alerts teams to fuse failures, enabling a rapid response. DNOs are notified of faults before customers call, accelerating power restoration.
- Impedance to fault data: precisely pinpoints fault locations, improving response time.
- Fault type identification: helping operators understand the nature of the issue.
- Fault energy: supporting asset management teams to evaluate the impact that fault events may have on the ageing of local assets.

Proactive Operations App

Proactive. Protective. Powerful.

Our Proactive Operations App uses pre-fault data to identify potential faults and outages in the distribution network.

The technology has been expertly designed for network operators and maintenance teams who need to resolve potential issues before they occur and cause a loss of supply. The App uses data from VisNet LV monitoring hardware, allowing maintenance teams to anticipate and prevent faults and outages, ensuring a reliable power supply to customers and minimising maintenance and repair costs.

Packaging insights from pre-fault data, the App provides network operators with a comprehensive overview of their LV assets' condition, with the benefits including:

- Pre-fault waveform capture: showing the characteristics of the fault.
- Impedance to pre-fault: pinpointing the origin of potential faults, guiding network operators on where to focus their efforts.
- Circuit condition: categorising LV circuits from 'failure imminent' to 'healthy', helping operators prioritise proactive responses.
- Event trending: tracking changes in circuit condition over time, identifying trends that might indicate deteriorating assets and supporting timely intervention.

DID YOU KNOW?

You can cut customer outages by up to 120 minutes by responding to VisNet Hub alerts! How would this benefit your customers?

DID YOU KNOW?

We predicted 71% of LV faults which subsequently occurred within a year.

VisNet **Capacity Apps**

Our suite of Capacity Apps processes data locally on the device to provide network operators with enriched insights into their asset's capacity. Our Circuit Capacity App and Transformer Capacity App process real-time and historic loading data to deliver automated alerts when circuits and transformers approach, reach, or exceed their operating limits.

The Capacity Apps process data at a granular level, providing detailed headroom visibility by feeder and phase. This enables quicker connections for low-carbon technologies (LCTs) while optimising LV grid usage, ultimately releasing an average of 22% more capacity. By identifying available headroom on individual phases, they help grid operators maximise asset capacity and avoid costly upgrades.

Circuit Capacity App

Incredible Insights

Developed with a variety of time horizons in mind, from short-term operations to network planning and longer-term asset investment, the Circuit Capacity App flags issues where a single LV circuit feeding one street or local area is experiencing higher demand than another circuit.

The App takes measurement data from the LV circuit to generate insights related to the rating of the cable or overhead line, including:

- Circuit short-term and long-term overload
- High neutral current
- Circuit reverse power
- Overvoltage and undervoltage (compared to statutory limits)
- Phase imbalance

Transformer Capacity App

Management Through Measurement

Developed as a tool for day-to-day management and forward-looking planning, the Transformer Capacity App is a critical component in getting the most out of a transformer feeding multiple connected customers, helping operators balance immediate needs with future goals.

The App takes measurement data from the LV circuit to generate insights related to the nameplate rating of the transformer, including:

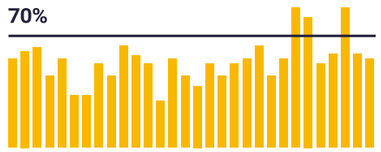
- Transformer short- and long-term overload
- Transformer reverse power
- Phase imbalance
- Demand duration curve (coming soon…)

DID YOU KNOW?

1% of LV monitored circuits are over 150% unbalanced, causing a 200% increase in energy loss, but our Apps can help target high-risk assets for intervention.

DID YOU KNOW?

On average, 90% of the LV grid is less than 70% utilised. DNOs using VisNet Capacity Apps release 22% more grid capacity by increasing utilisation.



VisNet **Quality of Supply Apps**

Power Quality App

State-Of-The-Art Dynamic Data

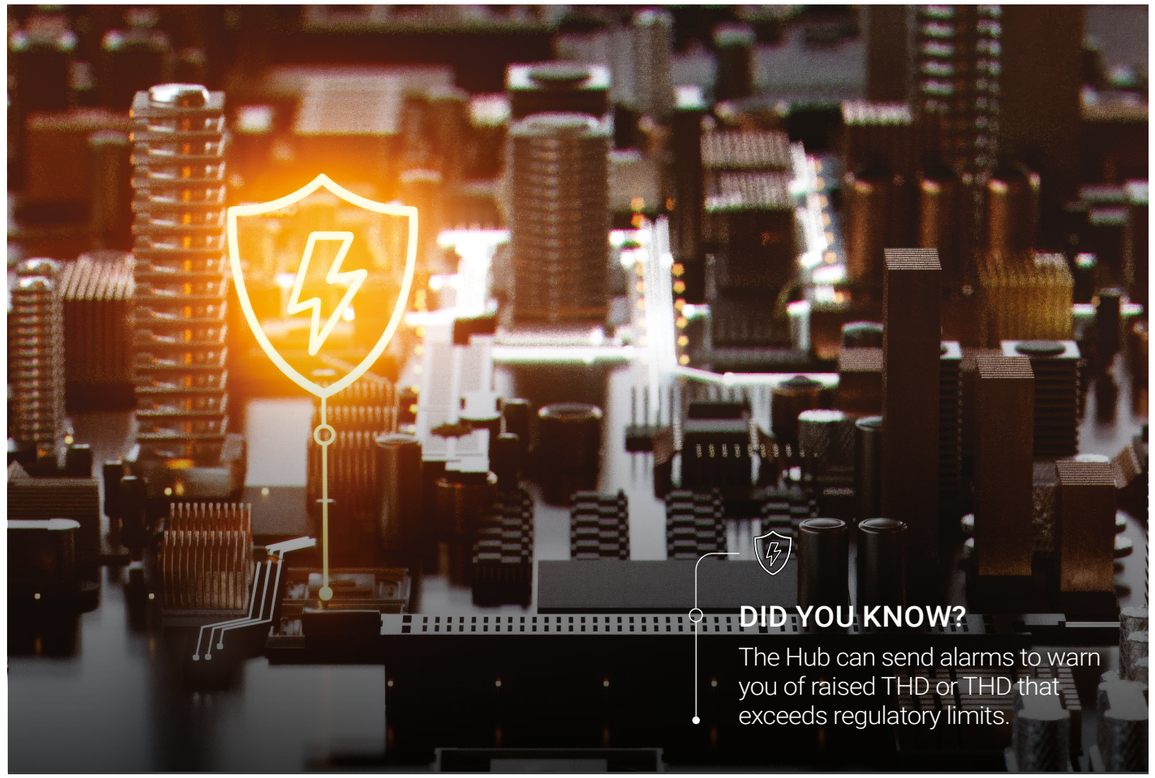
Our Power Quality (PQ) App provides insights into the changing dynamics of your LV network, monitoring factors that could affect the electricity supplied to your customers and their connected loads.

Development of this App drew on our powerful insights into how growing distributed energy resources (DER) deployment could cause PQ issues across the LV network. Solar panels, electric vehicle chargers and heat pumps are significantly impacting local voltage levels and power quality. The increasing variety of customer-connected loads sensitive to these types of issues, including smart devices and power electronics, is also adding complexity to the network.

As well as detecting and alerting network operators to significant issues in real time, our Power Quality App monitors the progression of potential concerns, notifying operators to act before problems actually occur.

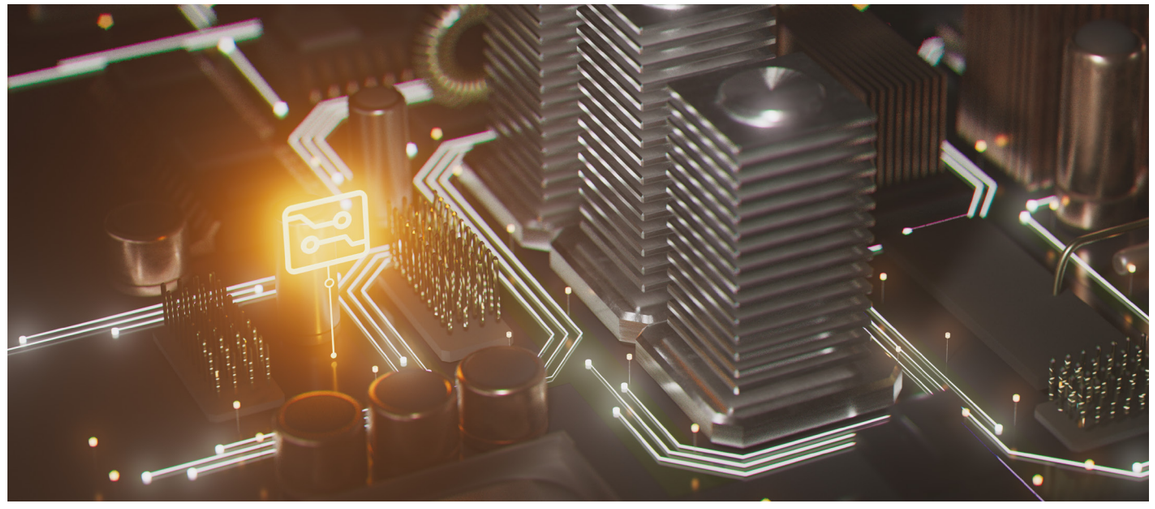
Features of the App include:

- Monitoring total harmonic distortion (THD) levels/thresholds
- Neutral discrepancy alert
- Statutory voltage limits
- Monitoring of PQ factors from voltage fluctuations to more granular issues such as flickers and dips



VisNet **Local Integration Apps**

Our Local Integration Apps are designed to enhance system monitoring by leveraging plug-and-play devices connected to the Hub. They include Apps, which provide equipment status for ALVIN Reclose devices, and read transformer temperatures from connected sensors.These Apps facilitate real-time monitoring and remote control within a localised system.



ALVIN® Reclose Device Support App

Harnessing The Power of Plug-And-Play Data

Empowering local integration, automation and control is critical for the efficient operation of an LV network.

The Hub supports the ALVIN Reclose and Reclose[2] as a plug-and-play companion device, ensuring easy commissioning and installation. The App not only provides visibility of the equipment status for ALVIN Reclose devices plugged into the Hub (i.e. Open/Closed) but also enables remote switching and control capabilities.

Features of the App include:

- Equipment status
- ALVIN Reclose control
- Local automation

Temperature Sensor App

Transforming Control

This App provides real-time transformer temperature readings through a temperature sensor (an approved accessory) that is magnetically secured to the transformer's tank

These readings allow the user to leverage valuable insights into potential stresses facing an asset, empowering you to take proactive steps to maintain peak network performance.

DID YOU KNOW?

The Hub can be used to stream data every second to local devices. How could this high resolution data help your innovation projects?

Capabilities For A Changing Market

The electricity network is undergoing a period of rapid consumer transition, including the growing popularity of electric vehicles and heat pumps. Pressure is increasing on the LV cables that deliver power to our homes and businesses.

As the pressure society puts on the LV networks grows, optimising the performance of those networks becomes increasingly crucial. Our Apps deliver the support you need for energy networks that are safer, stronger and smarter than ever before.

Anticipate tomorrow's grid, today.

To book your demonstration or to receive further information, please contact us on:
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