

# SMIGHT GRID2

Upgrade for your distribution grid

## DATA GAP IN THE DISTRIBUTION GRID

The energy transition, particularly the increase in PV systems is presenting grid operators with new challenges. As a result, the demands placed on the low-voltage grids are rising. Grid operators need to know where and how the load is changing in order to enable them to expand and operate their grids effectively. Robust and extensive recording of data from the low-voltage grid is therefore essential for mastering the challenges of the energy transition.

## THE SOLUTION

SMIGHT Grid2 addresses this need and uses patented sensors and IoT technology to measure the current and voltage at local transformer stations and cable distribution cabinets. Grid operators can thus determine with geographic precision over a wide area and in real time where power grids are reaching the limits of their capacity.

**SMIGHT Grid2 supports you in the following areas:**

- Strategic grid planning with live data
- Renewal of operating assets
- Precise load management
- Grid connection inquiries
- Operational decision-making on the basis of data

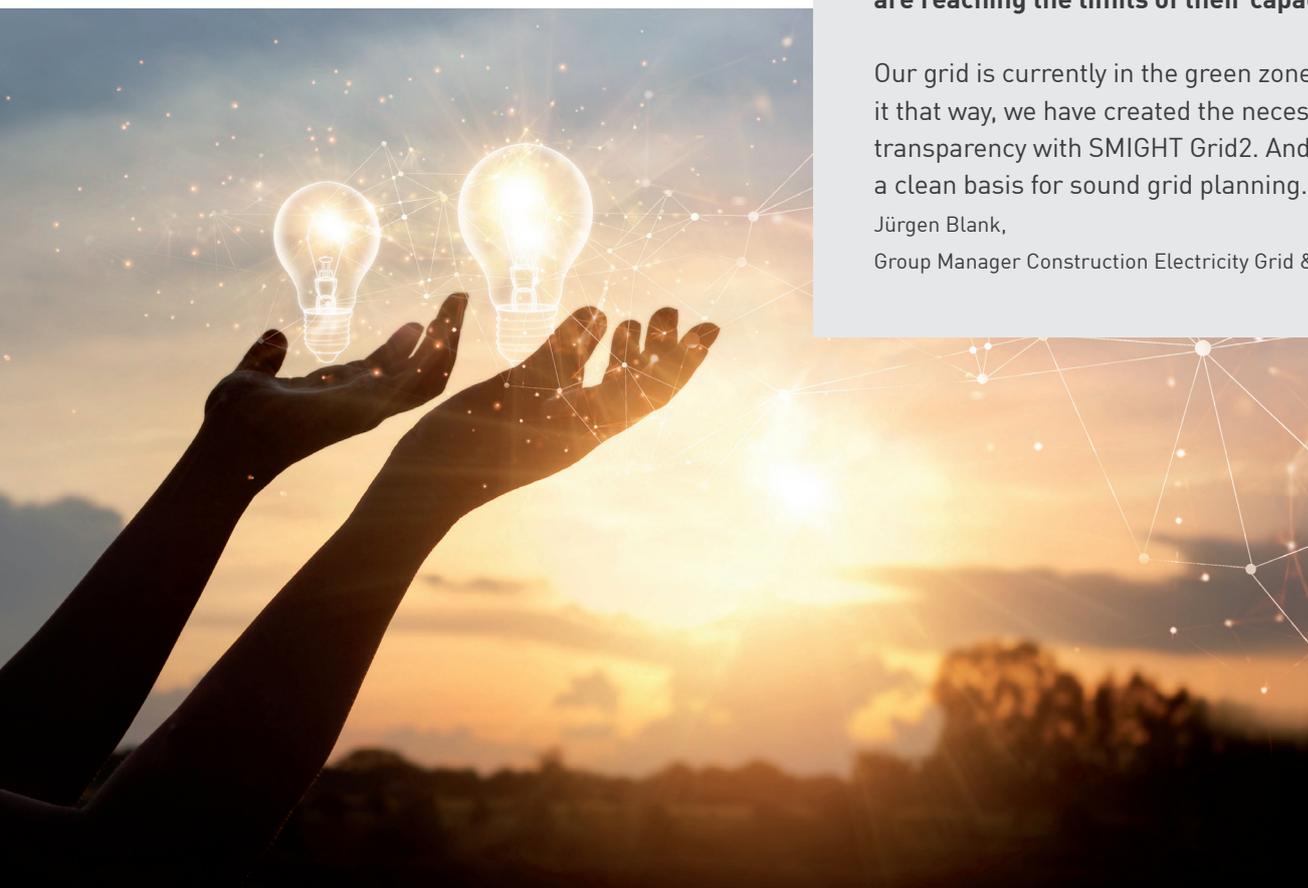
SMIGHT Grid2 thus provides the basis for guaranteeing optimal grid load and a successful energy transition.

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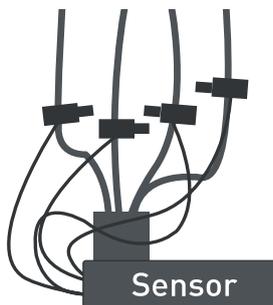
**SMIGHT Grid2 shows us where power grids are reaching the limits of their capacity.**

Our grid is currently in the green zone. To keep it that way, we have created the necessary transparency with SMIGHT Grid2. And we have a clean basis for sound grid planning.

Jürgen Blank,  
Group Manager Construction Electricity Grid & Systems

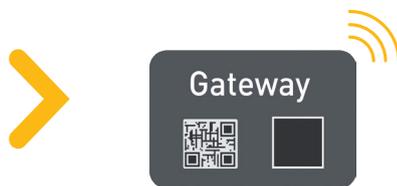


# ALL PROCESSES COVERED WITH SMIGHT GRID2



#1

**SMIGHT sensors** record the feeder-specific value of the current with the flow direction and phase angle ( $\cos \varphi$ ) once a minute in a four-phase process. A separate power supply is not needed.\*



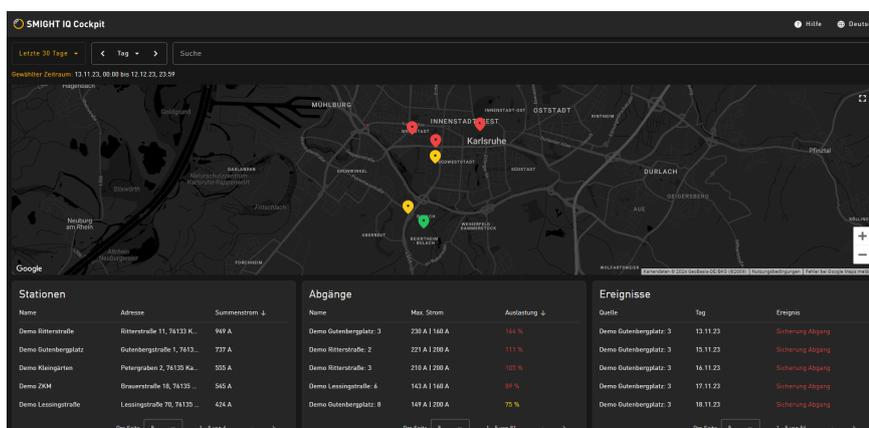
#2

The **SMIGHT gateway** measures a busbar voltage and securely relays the data via LTE to our IoT platform as 15-minute values. The devices are constantly monitored and updated by SMIGHT.



#3

The **SMIGHT IQ Cloud** securely stores the data center (ISO 27001) and provides you with all the necessary information in graphic form on the SMIGHT IQ Cockpit.



#4

In the **SMIGHT IQ Cockpit** you can see the critical statuses and developments in the network at a glance. Traffic light colors indicate how high the utilization is.

Clicking on the event takes you to a detailed view of the measurement series for a transformer or outgoing circuit - down to phase level and in one-minute

#5

The **SMIGHT Grid API** allows you to transfer data to your grid calculation software or other systems of your choice.

\* With Grid2 Sensor Flex, the power supply works directly via a load-switching strip.

## ADVANTAGES OF SMIGHT GRID2



### PATENTED POWER GRID SENSOR TECHNOLOGY

The specially developed sensor technology can be quickly and easily integrated into the existing infrastructure. One SMIGHT Grid2 sensor is used for each feeder. The current's effective value is determined by means of a four-phase recording taken from the high-frequency sampling of the flow using a clamp-type core current transformer. The synchronously measured voltage in the SMIGHT Grid2 gateway can also be used to determine the load flow direction as well as the active and reactive current. The Grid2 Sensor Flex with four Rogowski coils is suitable for particularly tight installation situations and conductor cross-sections of up to 300 mm<sup>2</sup>.



### PLUG & PLAY

The hardware can be installed in less than 60 minutes by your company's own staff while operations continue. Commissioning is performed by a specially developed app that scans the QR codes on the devices and assigns them accordingly. This is what also makes SMIGHT Grid2 suitable for use across a wide area.



### DATA TRANSMISSION AND SERVICE FROM ONE SINGLE SOURCE

With the SMIGHT Grid2 gateway, the data is securely transmitted via LTE. Our expert service team keeps a constant eye on everything, monitoring the transmission path as well as the devices and providing remote support if required. As a result, from the sensor technology and IoT platform to data visualization, you get a comprehensive solution from one single source, including service.



## GET STARTED WITHOUT AN IT PROJECT

Once the hardware has been commissioned, you can work with the data right away. The SMIGHT IQ web platform gives you quick and clear insights into your grid, from the station to the feeders and individual phases. You can identify anomalies and their frequency and will be notified by e-mail if any threshold values are exceeded. If necessary, you can take specific action and monitor the situation on the data side.



## OPEN BUT SECURE

Stored in a German data center (ISO 27001), we place the password-protected data at your disposal. Grid calculation tools, GIS or other systems can be easily connected via a programmable standard interface (REST API). The data thus serves as a basis for improved grid models and simulations.



## READY FOR §14A ENWG

Data is the key to successful implementation of §14a EnWG. Because the more you know about your grid, the more proactively you can act. And where there is no bottleneck, there is no need to manage it. SMIGHT Grid2 helps you to do this.

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**With SMIGHT Grid2, we are well positioned for all (future) challenges.**

The permanent measurement gives us a good feeling, because we can act before things become critical.

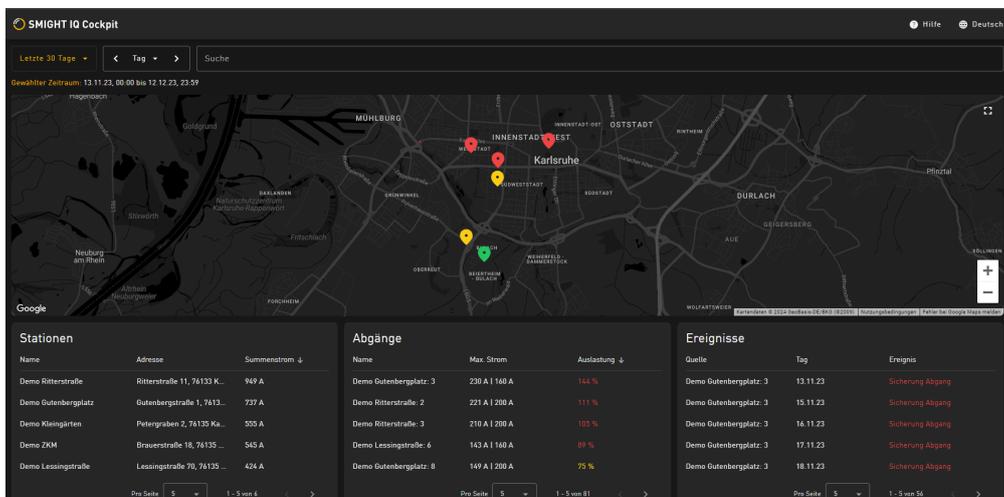
Patrick Nass, Member of the Management Board of Stadtwerke Bayersdorf KU

## DATA IN USE

At the heart of the data is the SMIGHT IQ web platform. The measured values are presented in graphic form and give you answers to many questions, from conductor level to station level. The SMIGHT IQ reports supplement all of this information with trends and developments in the entire grid area.

### RECOGNIZE CRITICAL POINTS IN THE NETWORK

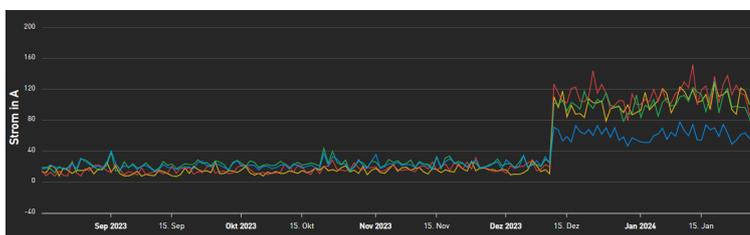
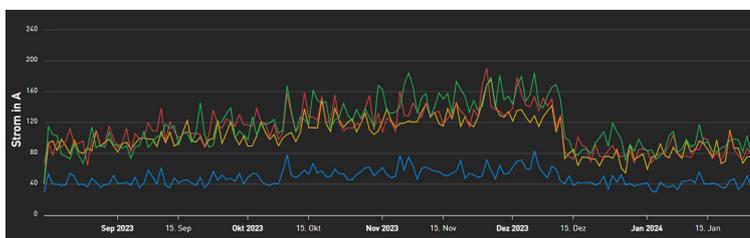
- > In which stations are individual exits utilized in the threshold or limit value range?
- > How has capacity utilization developed in recent weeks and months?
- > Is this a one-off event or a permanent overload? And does the situation force me the situation force me to implement load management in accordance with §14a EnWG or to expand the grid?



The SMIGHT IQ Cockpit gives you an overview of the status of your grids.

### RECOGNIZE & USE EXISTING CAPACITIES IN THE NETWORK

- > Can I solve overloads through targeted switching operations and how do I validate the result?
- > Can additional consumers or generators be permitted?
- > Is there still capacity on the cables and when is the time for a planned grid expansion?



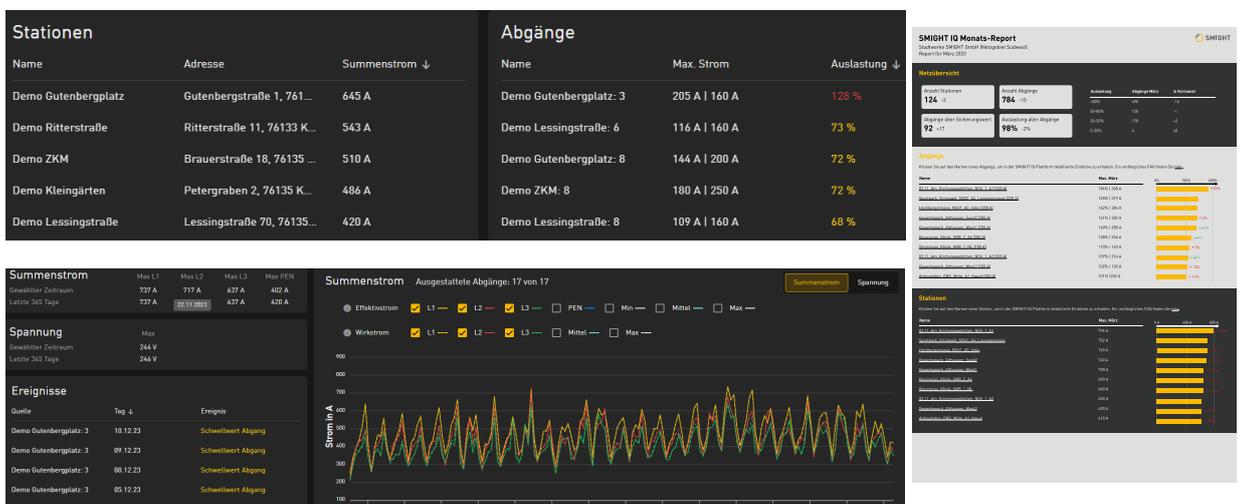
Plan and carry out switching operations safely and in a controlled manner with SMIGHT IQ.



Would you like to find out for yourself just how intuitive data visualization and analysis can be with SMIGHT Grid2? Then take a look at our SMIGHT IQ demo: <https://smight.com/iq-demo>

## PRIORITIZE GRID EXPANSION AND RENEWALS

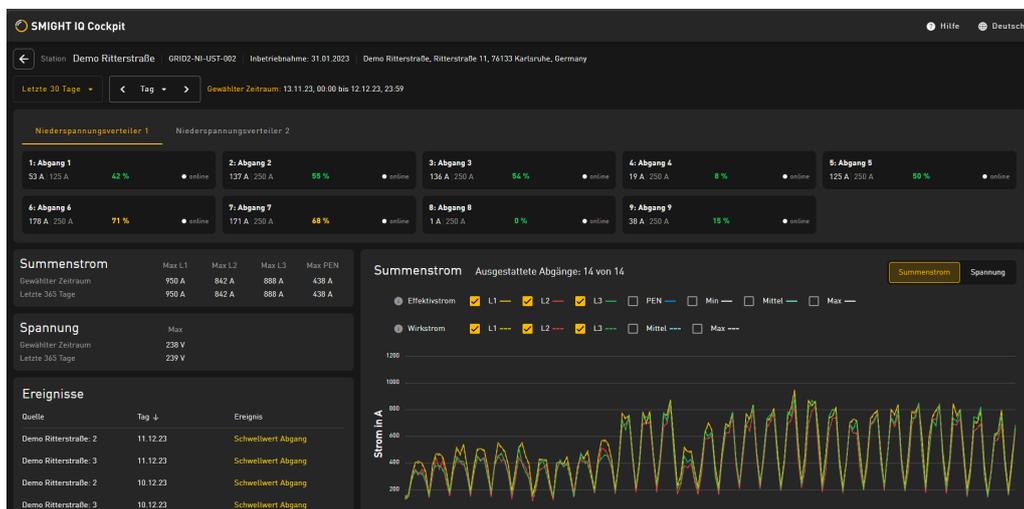
- > Is there any equipment in the inventory that is in a critical condition?
- > Which equipment needs to be replaced in the short term, which can I continue to monitor for the time being? monitor for the time being?
- > How can I use the available budget in a targeted manner and prioritize my investments?



Both the dashboard and the SMIGHT IQ monthly report provide you with an overview of the most heavily utilized stations and departures.

## VALIDATE NETWORK MODELS

- > Does the grid calculation deviate from the real measured values?
- > How can I create grid planning based on real measurement data?
- > Can I prevent future congestion and switching operations in accordance with §14a EnWG through targeted grid expansion? prevent?



Regardless of the level: you can plan based on data in the SMIGHT IQ Cockpit.

## SUCCESSSES AND EXPERIENCE

### DISCOVER SMART GRIDS – OUR REFERENCES

SMIGHT Grid2 was developed in conjunction with Netze BW GmbH and is now successfully used by more than 60 grid operators in Germany.



We need more brains instead of more diggers to better understand our grid and gear up for the future. More brains only come with digital solutions – like SMIGHT Grid.

**SMIGHT Grid allows us to see what is happening in our grid and react accordingly.**

Gerhard Ammon, Managing Director, Stadtwerke Fellbach GmbH



If you would also like to digitalize your grid operations and find out more about SMIGHT Grid2, then write to us: [info@smight.com](mailto:info@smight.com)

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