

## Thermal imager testo 883 demonstrates its versatility at badenovaWÄRMEPLUS GmbH & Co. KG



badenovaWÄRMEPLUS GmbH & Co. KG was founded in 2007 in Freiburg im Breisgau. With the support of several subsidiaries, the energy service provider builds and operates heating networks and plants in the area between the Upper Rhine and the Northern Black Forest. The "Plus" in the company's name stands for "new ways", i.e. the switch from traditional heat supply to the use of renewable energies, but also for "more partnership" in the energy transition and supply.

The partnership relationship is demonstrated in particular by accompanying the customers even after commissioning in the maintenance and servicing of the plants as well as in the optimization of operations. The team of Mr. Christian Schächtele, who is responsible for coordinating the maintenance and operation of the plants, has been supported by the thermal imager testo 883 since 2021.

### **badenovaWÄRMEPLUS GmbH & Co. KG**

badenovaWÄRMEPLUS GmbH & Co. KG is a wholly owned subsidiary of badenova AG & Co. KG. Since 2007, the Freiburg-based energy service provider has been building and operating heating networks and plants in southwestern Germany together with several subsidiaries. This includes heat generation and cogeneration plants, photovoltaic, biogas and wind power plants, as well as heating networks whose total network length exceeds 120 km.

At its headquarters in Freiburg, badenovaWÄRMEPLUS employs 95 people. Of these, 11 are involved in the maintenance and servicing of the equipment under their care. This is because the energy service provider's job does not end with the commissioning of a plant, but actually only begins there. After energy concept creation, planning, construction and installation of the plant, badenovaWÄRMEPLUS takes care of regular operation and maintenance, as well as operational optimization in order to operate plants in an energy-efficient manner and to prevent operational malfunctions.



Figure 1:  
Thermographic measurement on a medium voltage switchgear.



Figure 2:  
Thermographic image of the connection of a transformer (20,000 volts to 400 volts) via low-voltage cable.

### The challenge.

When maintaining the various systems, Mr. Schächtele and his team use the testo 883 thermal imager to detect thermal irregularities at an early stage, prevent malfunctions and ensure efficient operation of the systems. The testo 883 must be versatile in this respect, as each type of plant has very individual requirements for the measurement task, which poses various challenges for the measurement technology:

For example, the Testo thermal imager, which was launched in January 2021, supports the badenovaWÄRMEPLUS team in the maintenance of thermal systems and the thermographic inspection of up to 600 control cabinets and components.

In the medium-voltage range, Mr. Schächtele and his colleagues use the infrared imager to thermographically monitor transformers and associated switchgear and to assess heating conditions. The challenge here is the increased safety distance that must be maintained for medium-voltage systems.

Even in the regular inspection of photovoltaic systems, which are thermographed over a large area to locate temperature hotspots on the modules, the distance from the riser (e.g. roof access) to the modules plays an important role in the measurement for condition assessment. In addition, the measurement takes place outdoors, i.e. under very bright ambient conditions, which requires a good display quality as well as corresponding contrast adjustment options on the thermal imager.

In addition, inverters are tested for defective components and thermographic inspections of lines and components

of the heat coupling systems are carried out on a regular basis. Especially in (combined) heat and power plants, the measurement takes place in a rather warm indoor environment. During thermographic measurement, Mr. Schächtele's team is thus faced with the challenge of setting the best possible contrast in order to produce a meaningful thermal image.

### The solution.

The testo 883 set includes both the thermal imager including standard lens and a exchangeable telephoto lens. The two lenses make it possible to cope with very different measurement environments. Mr. Schächtele and his team also appreciate the intuitive operation and long battery life of the testo 883 as features that are convincing in everyday work.

When checking PV systems for so-called temperature hotspots, the badenovaWÄRMEPLUS maintenance team uses the standard lens (30° x 23°) or the telephoto lens (12° x 9°), depending on the location. The telephoto lens is suitable for bridging the usually greater distance between

"I would recommend the camera to anyone at any time. Just the right tool for professionals."

**Christian Schächtele**  
Team management Coordination  
of maintenance and operation





Figure 3:  
The testo 883 thermal imager in use inspecting a PV system.

the imager and the modules. The integrated laser marker facilitates the alignment of the thermal imager to the respective measuring point. Thanks to the good display quality of the testo 883 thermal imager, measured values and results can be seen perfectly even on sunny days under very bright ambient conditions.

Mr. Schächtele also uses various lenses and the laser marker for measurements on combined heat and power plants in order to be able to maintain the safe distance and to target the object from a distance. Due to the very good NETD of 40mK, of the testo 883 thermal imager, thermal anomalies on the equipment can be reliably detected.

In testing, the camera also convinces with its handy and easy-to-grip design and convenient operation via touch display and joystick. The button, which can be freely assigned with a user-defined function, is used by the specialists of badenovaWÄRMEPLUS to switch to frequently used measurement settings in their routine daily work. Testo offers various options for the assignment of this button. Among other things, the testo SiteRecognition function can be stored. The testo SiteRecognition technology handles measuring location recognition, as well as storage and management of thermal images resulting from inspections.

"My staff warmed up to the instrument very quickly. There were no fears of contact here. A definite plus!"



**Christian Schächtele**

### **The advantages.**

testo 883 thermal imager combines all advantages for top performance:

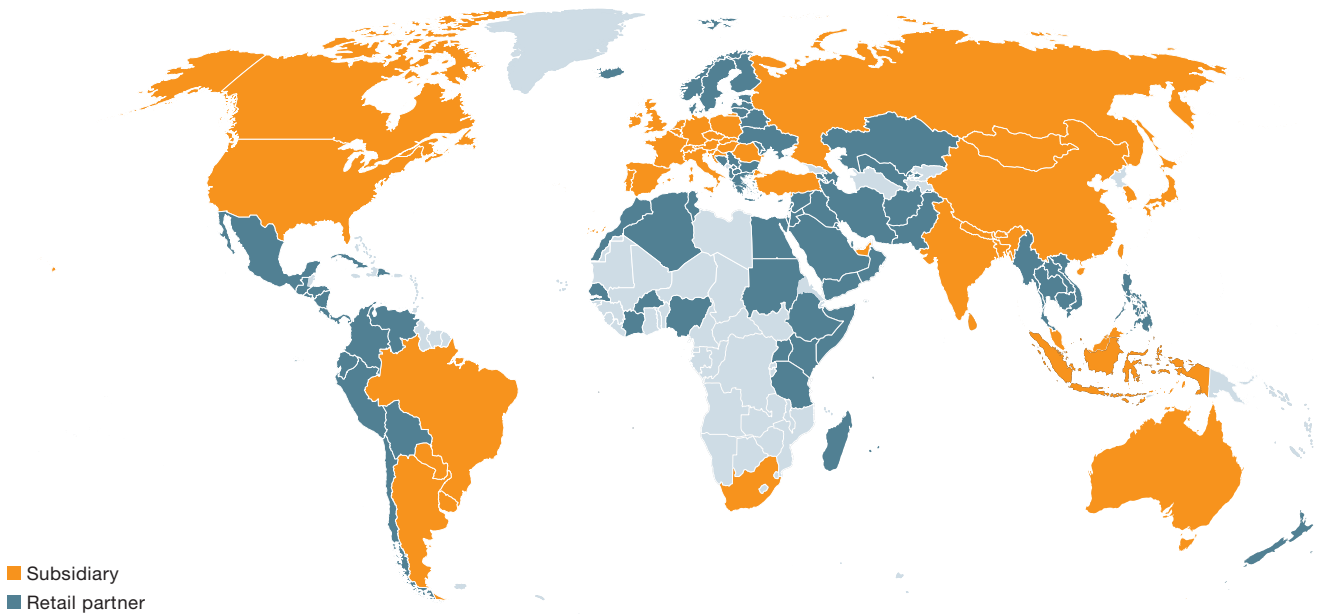
- Best image quality: IR resolution of 320 x 240 pixels (with SuperResolution 640 x 480 pixels)
- testo SiteRecognition: intelligent measurement site recognition and automatic image management:
  - Easy generation of Testo codes manually or by importing existing inventory lists.  
Alternatively: Use of existing codes (QR codes, barcodes, datamatrix 128)
  - Export of measurement results into third programmes
  - Specific pre-settings for the respective measurement site, such as coloured marking of affected areas in the thermal image when permitted upper or lower limit values are exceeded
- Extensive analysis and documentation with testo IRSof software
- Manual focus and interchangeable lenses
- Wireless transmission of additional measured values directly into the thermal image; e.g. measured values of the clamp meter testo 770-3

### **More information.**

Find more details on the thermal imager testo 883 and answers to all your questions on thermography in electrical maintenance at [www.testo.com](http://www.testo.com).



## High-tech from southern Germany.



For over 60 years, Testo has been known for creating innovative measuring solutions made in Germany. As a world market leader in portable and stationary measuring technology, we support our customers in saving time and resources, in protecting the environment and human health and in increasing the quality of goods and services. More than 3000 employees work in research, development, production and marketing for the high-tech company in 34 subsidiaries all over the world. Testo impresses more than 1 million customers all over the

world with high-precision measuring instruments and innovative solutions for the measurement data management of tomorrow. An average annual growth of over 10% since the company's foundation in 1957 and a current turnover of just short of 300 million Euros impressively demonstrate that southern Germany and high-tech systems go perfectly together. The above-average investments in the future of the company are also a part of Testo's recipe for success. Testo invests about a tenth of annual turnover in research and development.

### Sources:

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