# Environmental Monitoring

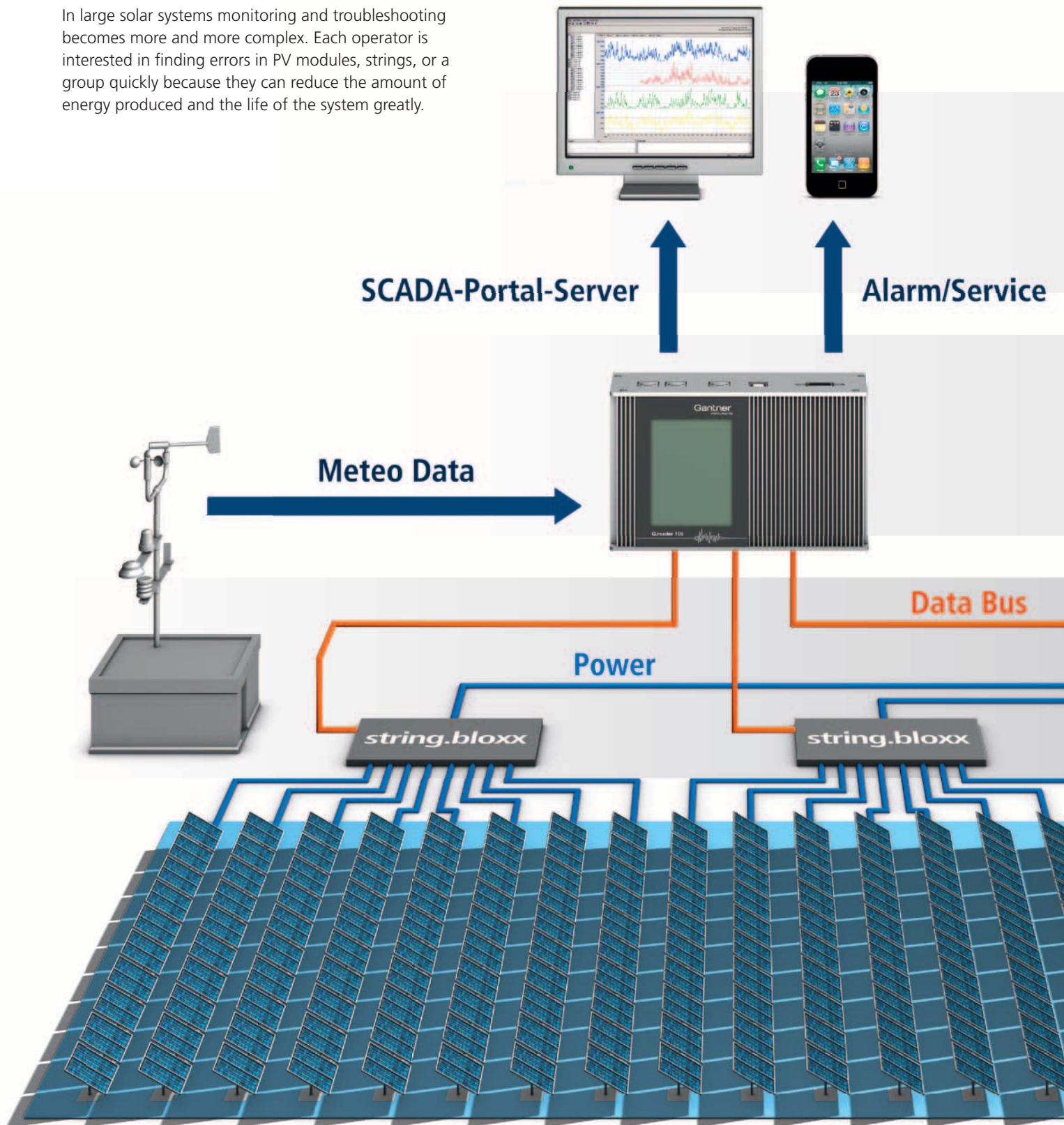# MONITORING AND CONTROL OF PHOTOVOLTAIC SYSTEMS

Intelligent Solutions for
Environmental Monitoring

## MONITORING AND CONTROL OF PHOTOVOLTAIC SYSTEMS

In large solar systems monitoring and troubleshooting becomes more and more complex. Each operator is interested in finding errors in PV modules, strings, or a group quickly because they can reduce the amount of energy produced and the life of the system greatly.

**SCADA-Portal-Server**

**Alarm/Service**

**Meteo Data**

**Data Bus**

**Power**

string.bloxx

string.bloxx

## INTELLIGENT SOLUTIONS AT ALL LEVELS

### SCADA LEVEL

Database and web portal applications complete the solution intelligently and customer-oriented and provide for transparency and global availabilities of the data of a PV system.

### DATA LEVEL

Data loggers record the measured data of the string monitoring. Furthermore, meteorological data and other state variables are added. Signal conditioning, storing, compressing, and communication in many ways are are the strengths of flexible data solution.

### STRING LEVEL

Used in medium and large PV systems, design and production errors will already be recognized on the DC side for each PV string, regardless of the inverter or damages, contaminations and burglary.
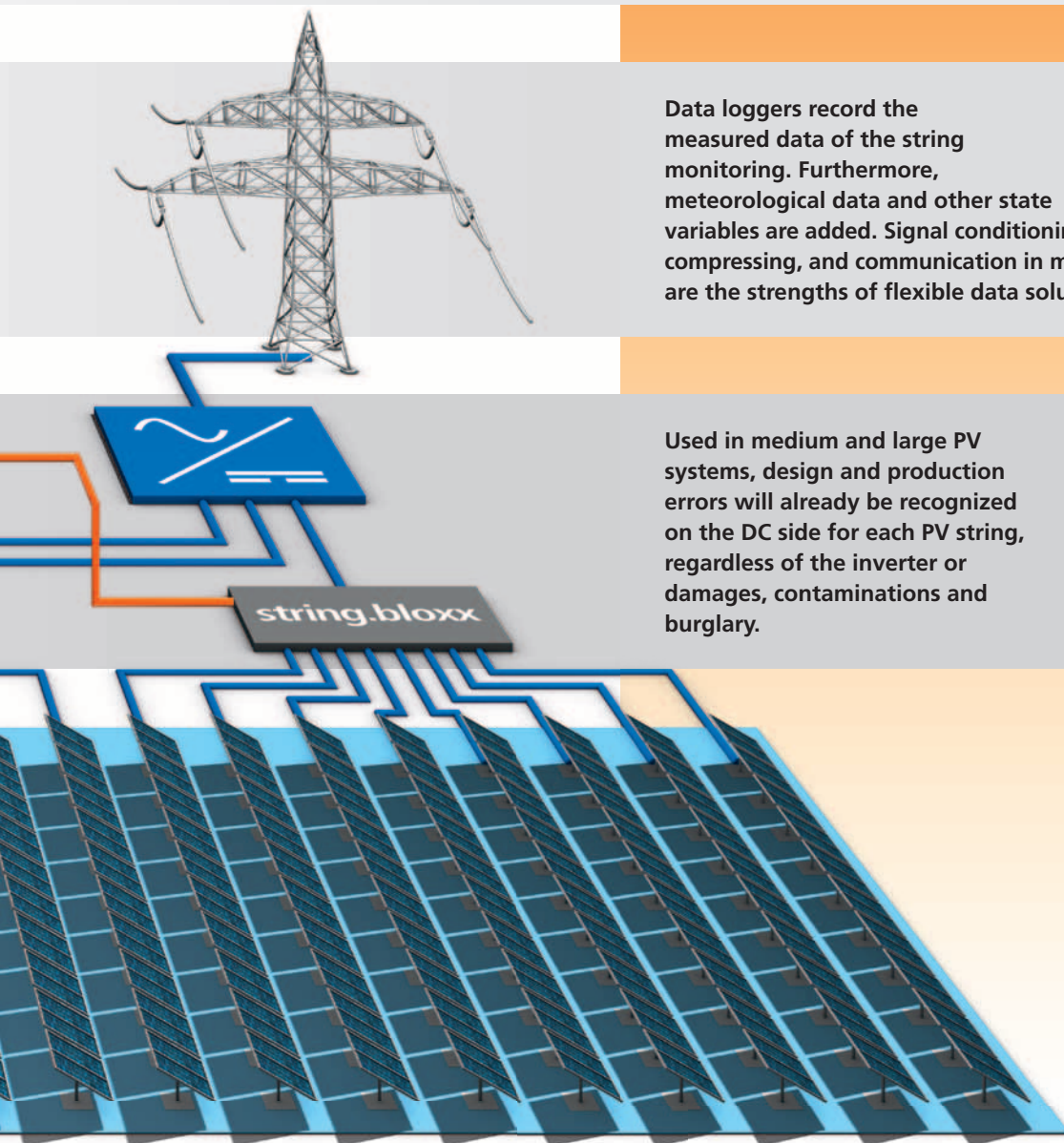
string.bloxx

## STRING LEVEL

By string monitoring precise checking of the DC side of photovoltaic systems is possible independently of the inverter. So errors can be detected in time and fixed.

The product line string.bloxx is designed for these demanding measurements in the field of photovoltaics. The application areas are solar systems in the kilowatt up to the megawatt range.

With the help of the string monitor box string.CB each solar module line can be connected in parallel and connected by larger cables to the inverter.

### string.bloxx 108

- **8 analog current input channels (± 20 A)**
- **1 analog voltage input channel (0–1000 VDC String voltage)**
- **2 Pt1000 temperature input channels (Panel and cabinet temperature)**
- **3 digital inputs for monitoring, surge protection and main switch**
- **1 digital output to triggering the main switch**
- **Signal conditioning: DC power, linearization, average, scaling, alarm**
- **Integrated LC display for measured value and configuration**
- **RS485 fieldbus interface Modbus-RTU, ASCII (optional OEM protocolls)**

# string.CB 08/16/24



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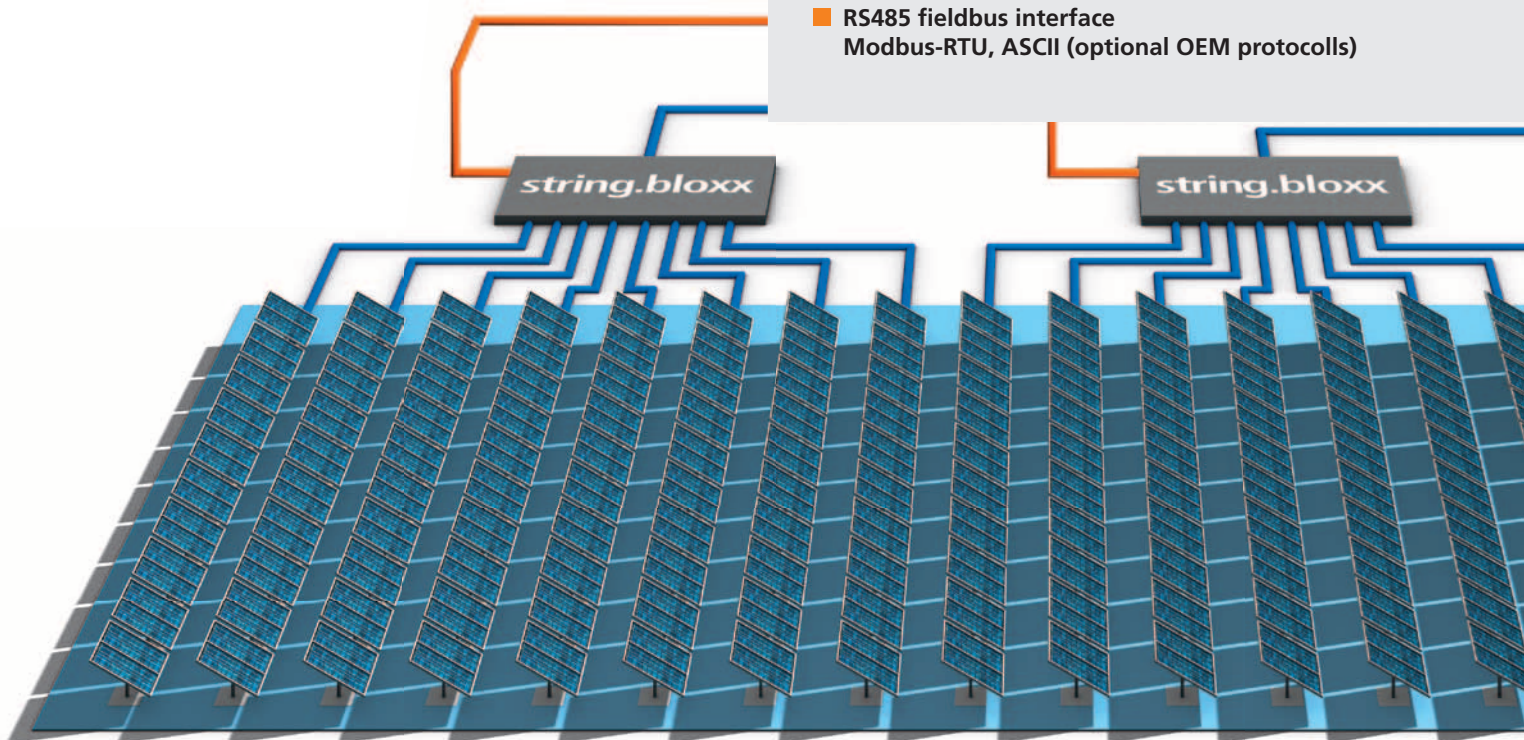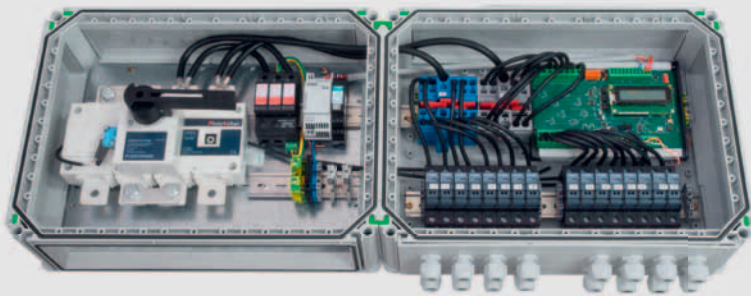
- 8, 16 or 24 PV strings connectable
- Monitoring of contacts, circuit breaker and protection device
- Control output for remote control triggering circuit breaker
- Connectable to Test Controller and data logger
- Solating lever fuse bracket in the plus and minus line with protection against contact
- DC-circuit breaker
- Consequent 1000 VDC design
- Housing in industry quality regarding material and manufacturing:
  IP65, UV and weather proof, -35 °C to +80 °C

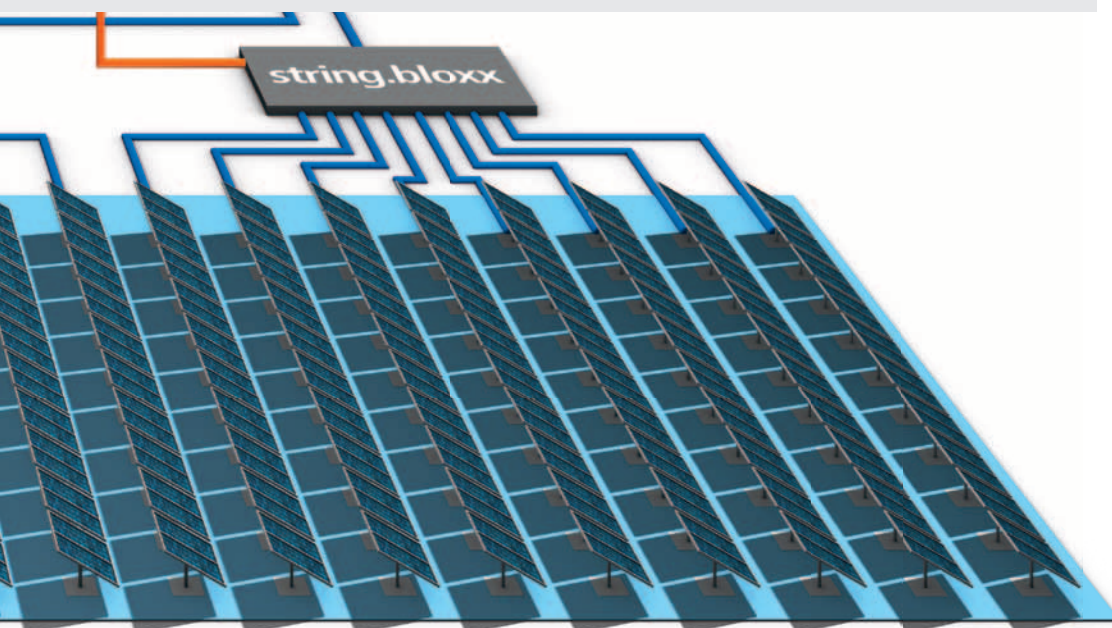**Shunt measurement ensure high accuracy and good stability:**

Accuracy 0.25 %
Stability 0.01 %/K

**Consistently designed for 1000 VDC:**

Terminals, cables, connectors, housings

**Concept „All in One":**

Current, voltage, temperature, digital inputs and outputs, relays, integrated display

## DATA LEVEL

The intelligent data loggers are designed for the precise detection of analog and digital measurement and state variables. They allow the acquisition, flexible storage, reduction, and transmission of data to higher level systems. Data transfer is possible by cable via modem or Ethernet (LAN) or wireless via GPRS/UMTS modem (WLAN) – the loggers meet all requirements.

With the modular concept inputs and outputs can be flexible added. So in the field the power supply for example by solar energy is sufficient.
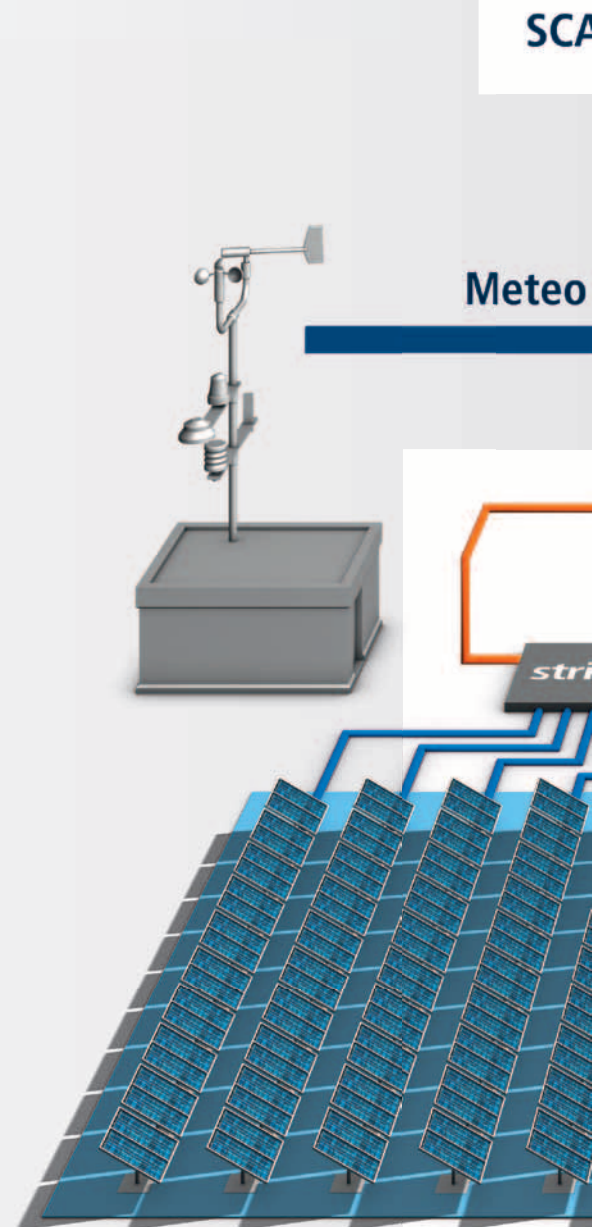
**Connection of the string.bloxx modules and where applicable third party devices via the standard Modbus interface.**

**The system grows with the requirements. Distributed Q.series measurement modules can be integrated at any time.**
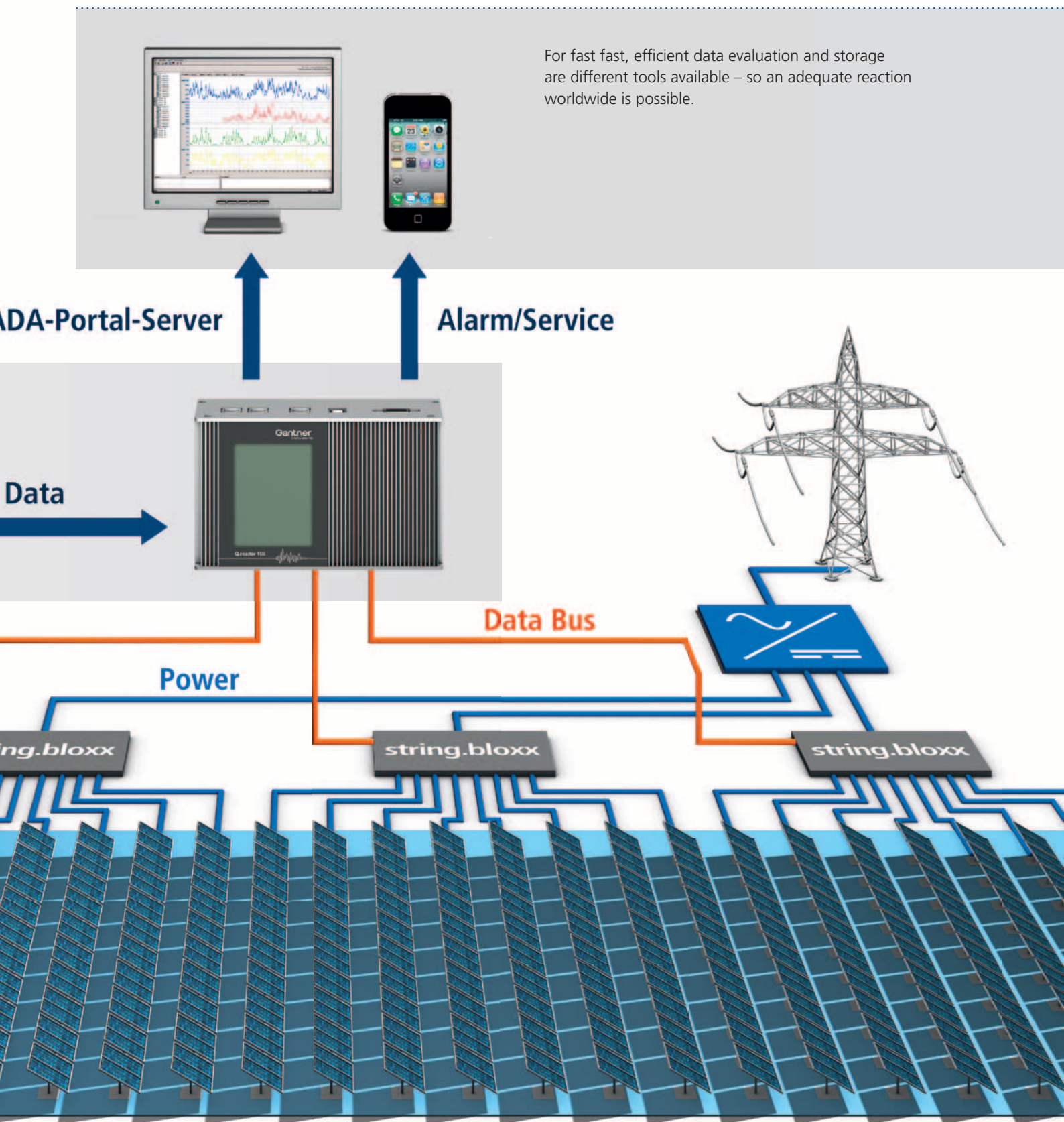
SCA

Meteo

### Exemplary features of the data logger Q.reader

- **8 universal analog inputs**
  **8 digital inputs**
  **4 digital outputs and**
  **2 relays**
- **Measuring rate 10 Hz**
- **Large data storage, expandable via USB**
- **Modern communication (integrated modem, Ethernet, USB…)**
- **Comfortable MMI**
- **Easy operation system – One device concept**
- **Internet applications, "cloud computing"**

## SCADA LEVEL

For fast fast, efficient data evaluation and storage are different tools available – so an adequate reaction worldwide is possible.

**SCADA-Portal-Server**

**Alarm/Service**

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## Web Portal

Applications individually tailored to the requirement allow the plant manufacturer, operator, and end customer the global access to his data via internet restricted only by access authorization.
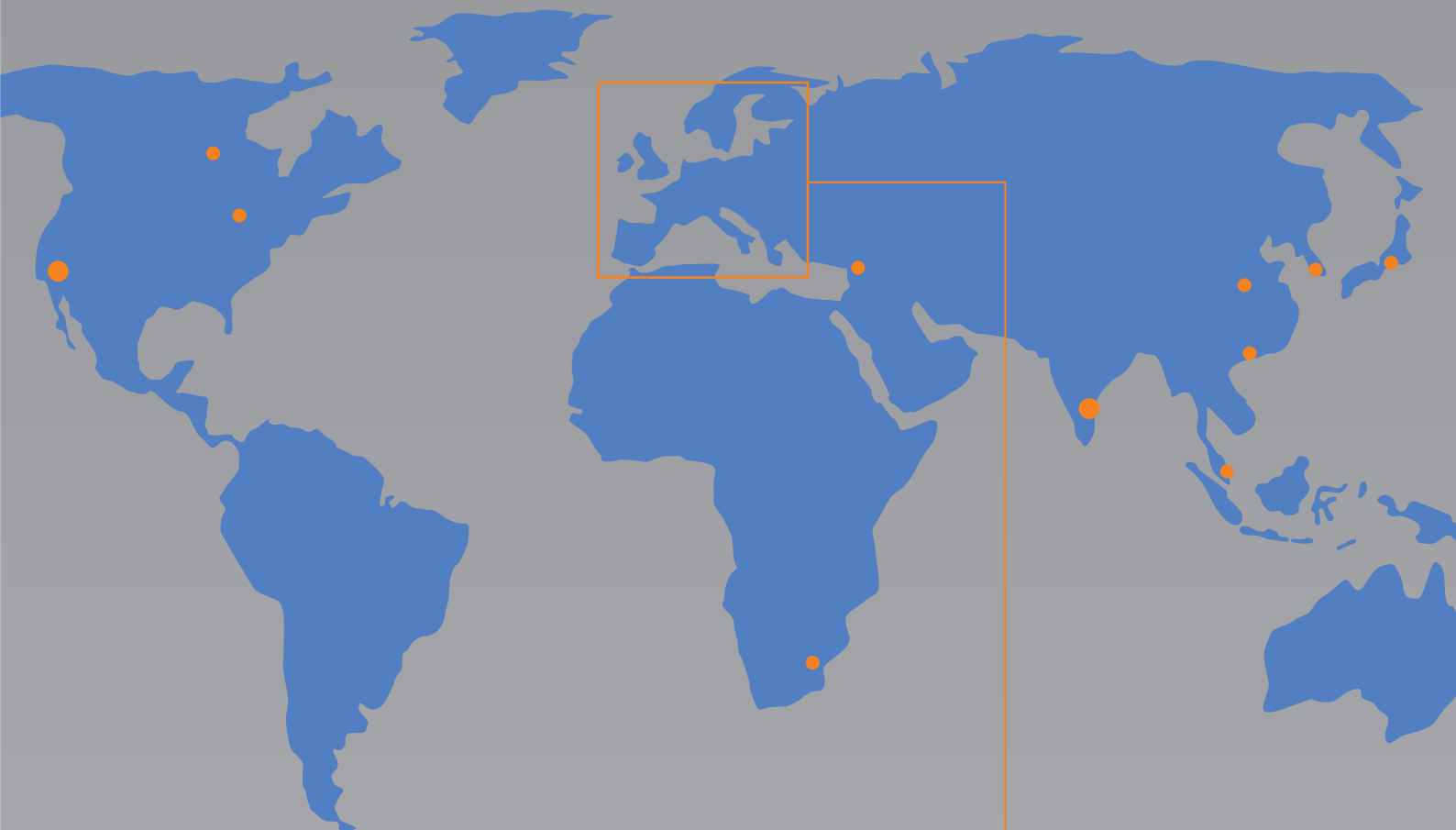
## test.node

With the server software test.node the data of one or more test controllers can be read. Depending on the configuration the data can be packed, converted, and stored into a directory of any server of the network or internet.

# Gantner
## instruments
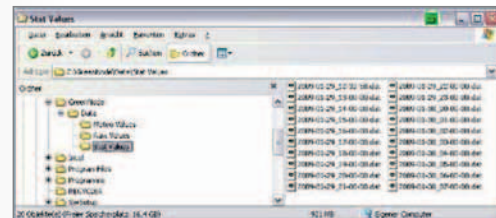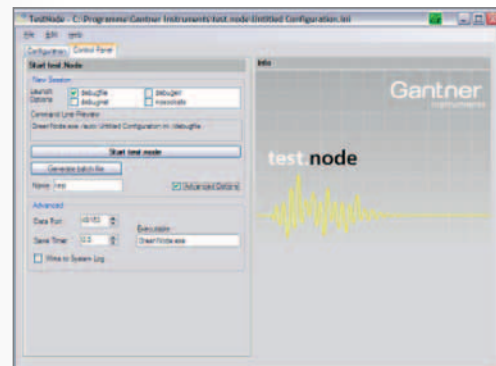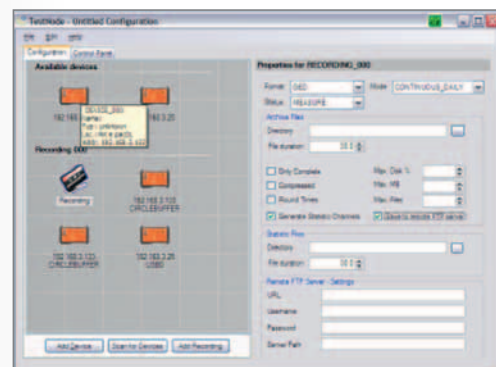
**Austria**

**Gantner Instruments Test & Measurement GmbH**
Silvrettastrasse 11-13 · A-6780 Schruns
Tel. +43 (0)5556 77463-0
office@gantner-instruments.com

**Germany**

**Gantner Instruments Test & Measurement GmbH**
Heidelberger Landstrasse 74 · D-64297 Darmstadt
Tel. +49 (0)6151 95136-0
testing@gantner-instruments.com

**Germany**

**Gantner Instruments Environment Solutions GmbH**
Am Mühlgraben 8 · D-08297 Zwönitz
Tel. +49 (0)37754 3351-11
office@gantner-environment.com

**USA**

**Gantner Instruments Inc.**
9835 Carroll Centre Road · CA 92126 San Diego, USA
Tel: +1 (888) 725-6997 (888 QBLOXXS)
info@gantnerinstruments.com

**India**

**Gantner Instruments India Pvt. Ltd.**
4th Floor Ceebros Arcade · Sardar Patel Road
Adyar Chennai - 600 020, India
Tel. +91 44 24430 659/661
info@gantnerinstruments.in

**www.gantner-environment.com**