Gantner instruments

Q.series

Intelligent Solutions for Measurement and Test Automation

Q.series | System Overview and Target Applications

Gantner Instruments is a leader in the development, manufacturing, marketing of measurement and test automation solution to industry.

Gantner Instruments specializes in the measurement of mechanical, thermal and electrical quantities in engine and component tests, as well as process and long-term monitoring. Our expertise can be found in all our products and related services. Our products offer high performance and flexibility, while remaining a user-friendly and open architecture – even in complex applications.

High precision, fail-safe operation, high resistance to temperature and EMC interferences, and a solid design for use in hostile environments are properties that every Gantner product features. We guarantee a MTBF (Mean Time between Failure) of at least 20 years for our products. Gantner Instrument products are tested to ISO-17025 and manufactured according to ISO-9001 standards.

Key Features of all Gantner Products:

- High-Speed
- Precise
- Flexible
- Robust
- Reliable

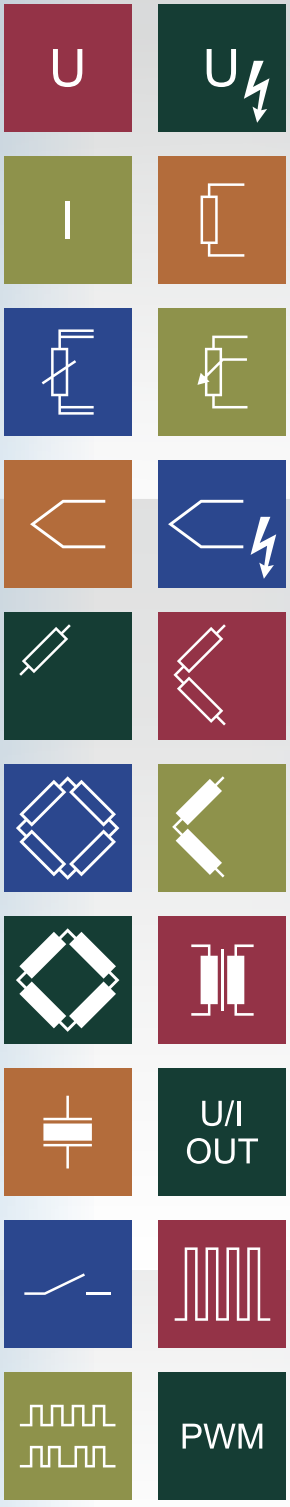
Intelligent Solutions for Measurement and Test Automation

ENGINE TESTING

COMPONENT TESTING

STRUCTURAL MONITORING

PROCESS MONITORING

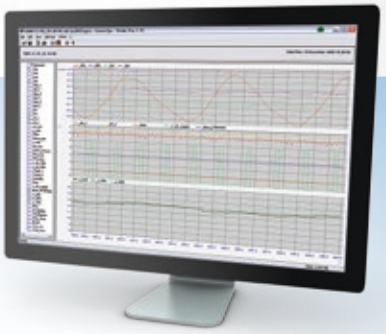


Distributed Measurement and Control

The innovative design of the Q.series measuring system offers the maximum flexibility. Each Q.series module may be randomly installed close to the actual point of measurement and connected via high-speed serial interfaces. This not only reduces cabling complexity, but also allow a highly synchronized measurement that is less prone to noise due to shorter sensor cables runs.

Flexible, Scalable Packaging Options

Q.series systems are available in a wide variety of packaging styles, designed for multiple tasks. Q.series housings range from compact and distributed DIN-mount units, to high density 1U and 3U rack systems, to robust, portable systems designed for mobile applications. One common hardware platform with mutiple housing options allow maximum application flexibility.



All Q.series systems come with a test.controller for data synchronization, concentration, and communication to a host system via an integral Etherent interface. Additional communication and storage options are also available to support specific application requirements.

Q.series | Packaging Options

Q.bloxx

Modular Design for DIN Rail Mounting

The DIN-rail mount design of Q.bloxx provides the most flexibility and the most attractive price point, especially in smaller systems. The ability to freely mix and distribute measurement modules provides the highest in overall system adaptability and expandability.

Q.bloxx EC

EC Version with EtherCAT Interface

All Q.bloxx modules are also available in an EC version with an EtherCAT interface for high performance measurement and control applications. Q.bloxx EC modules each have integral control and logic functions and are packaged in environmentally hardened (up to IP65) DIN-rail mount enclosures that easily snap together for system expansion.

Q.staxx

Robust Design for Pallet Systems

To save setup time and thus expensive test costs, devices are largely prepared in the preparation room or the workshop. The sensors are being connected to the measuring system, joined by the supply and fieldbus. Then, the whole device including the operational measuring system is brought to the test room on a pallet. The test will be faster and saves a lot of preparation time inside the test room.

Q.raxx slimline

19" system (1U)

When high density packaging is required in a minimum of space (as found in engine and component test cells), Q.raxx slimline provides the best solution. Each 1U 19" rack mount chassis supports up to 16 universal, voltage or temperature measurements, up to 32 bridge measurements, and up to 64 digital I/O channels.

Q.raxx

19" system (3U)

Q.raxx 3U takes the functionality of the Q.bloxx family and provides it packaged in a 19" rack mount chassis. With an integral test controller, the Q.raxx 3U provides 13 expansion slots (for up to 208 channels) with various front panel connector options.

Q.brixx

Portable, Robust Data Acquisition and Control

The Q.brixx system takes the functionality of the Q.series and delivers it in a scalable and portable package housed in a rugged aluminum enclosure. Up to 16 modules can be added to the Q.brixx system, including a choice of test.controllers, measurement modules, and a number of flexible signal conditioning options.

Q.series | Overview of Modules

Q.bloxx

Q.bloxx EC

Q.brixx

Q.raxx 19" system (3U)

Q.raxx slimline 19" system (1U)

Q.staxx-pallet systems

		A101	A102	A103	A104	A105	A106
Housing	Q.bloxx	■	■	■	■	■	■
	Q.bloxx EC	■	■	■	■	■	■
	Q.brixx	■	■		■	■	■
	Q.raxx	■	■		■	■	■
	Q.raxx slimline	■			■	■	■
	Q.staxx				■	■	
SIGNAL INPUTS							
U	Voltage	■	■	■	■		
$U_{\lightning}$	Voltage (1.2 kV isolation)						
$U_{\lightning}$	Voltage (range up to 1.2 kV)						
I	Current	■	■	■			
	Resistance	■				■	
	Potentiometer	■					
	Pt100, Pt1000	■				■	
	Thermocouple	■			■		
	Thermocouple (1.2 kV isolation)						
	DMS-full, half and quarter bridges	■	■				■
	Inductive full and half bridges						■
	LVDT						■
	IEPE/ICP sensors	■	■				
	Frequency						
	Pulse width						
	Counter signal						
	Time						
	Status	■	■	■			■
SIGNAL OUTPUTS							
U	Voltage		■				■
I	Current		■				■
	Frequency						
	Pulse Width						
	Status	■	■	■			■
CHANNELS		2	1	8	8	4	2
DATA RATE (HZ)		100 k	100 k	100	100	10	10 k

A107	A108	A109	A111	A116	A123	A124	A127	A128	D101	D104	D105
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■		■	■					■		
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	■	■							■		■
4	8	4	4	8	4	4	4	4	8	16	16
10 k	10 k	100 k	100 k	10 k	100 k	10 k	100 k	100 k	100 k	10 k	10 k

The innovative Q.series system is available in different housings to allow the best fit packaging for a wide variety of applications. The measurement and control modules used, however, are all technically the same. One standard platform with flexible housing options. This allows various Q.series systems to easily work together: Q.bloxx on a test bench, Q.brixx for portable measurements, Q.staxx on an engine pallet, and Q.raxx in a switch cabinet. AI systems use the same exact tools for configuration and programming, the same exact tools for documentation, and the same exact software for data acquition and analysis. All systems can be easily integrated together, and expanded as required. Each Q.series module has a unique set of features geared toward specific measurement and control requirements. This allows the modules to be mixed and matched as required to build the optimal system.

All modules share some key features:

- Galvanic isolation (up to 1200 V) for each channel, supply and interface
- Low susceptibility to electromagnetic interferences
- Operating temperature in the range of -20 to +60 °C
- 10 to 30 VDC power, 2 W per module

Q.series | Controller Overview

For Superior Data Management

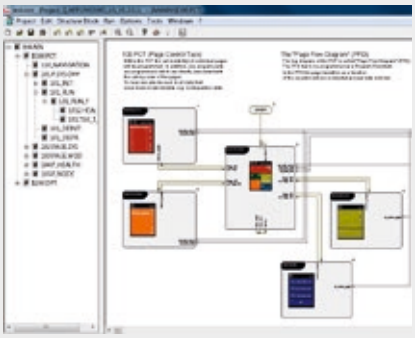
Adding a controller transforms the Q.series modules into a powerful data acquisition and control system. The controller is the interface between the Q.series modules and the connected host/automation system (PC or PLC). The main functions of the controller are to provide the synchronization of the measurement data from multiple Q.series modules, buffering and conditioning of that data, and transmission of the data to the host/automation system via Ethernet, Profibus, CANopen, EtherCAT, or other supported protocols. Multiple controller options are available to support systems of all sizes and level of complexity.

By separating the controller from the measurement modules, communication is significantly optimized (only one slave for PC or PLC). In addition, as interface or performance requirements evolve, it is easy to upgrade the controller alone leaving the majority of the system investment (the measurement modules) intact and 'future proof. Additionally, depending on the controller that is selected, the user may select from a number of options, including:

- **EtherCAT**
- **Profibus-DP**

Every Q.brixx or Q.raxx-3U system is provided with an integral controller. The Q.raxx slimline can be specified with or without a controller. The Q.gate, Q.pac, and Q.station controllers provide 2 or 4 communication ports for the connection of up to 16 Q.bloxx or Q.staxx modules per port, or up to 64 modules per controller. Multiple controllers can also be synchronized together for larger or widely dispersed systems.

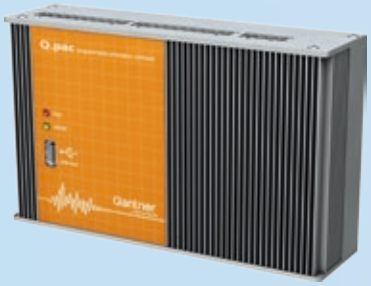
The T versions of the controllers include an integral PAC (prorammable automation controller) kernel. With this kernel, it is possible to use the (free downloadable) graphical programming tool called test.con Studio. test.con Studio allows the implementation of various embedded programming tasks from an extensive function library that is included. (More about test.con Studio on pages 26/27)



Q.station is also available in a D version which includes an integral 3.5" VGA touch screen display and a built-in VNC server for connecting external displays.

Q.gate

Q.pac



Q.station

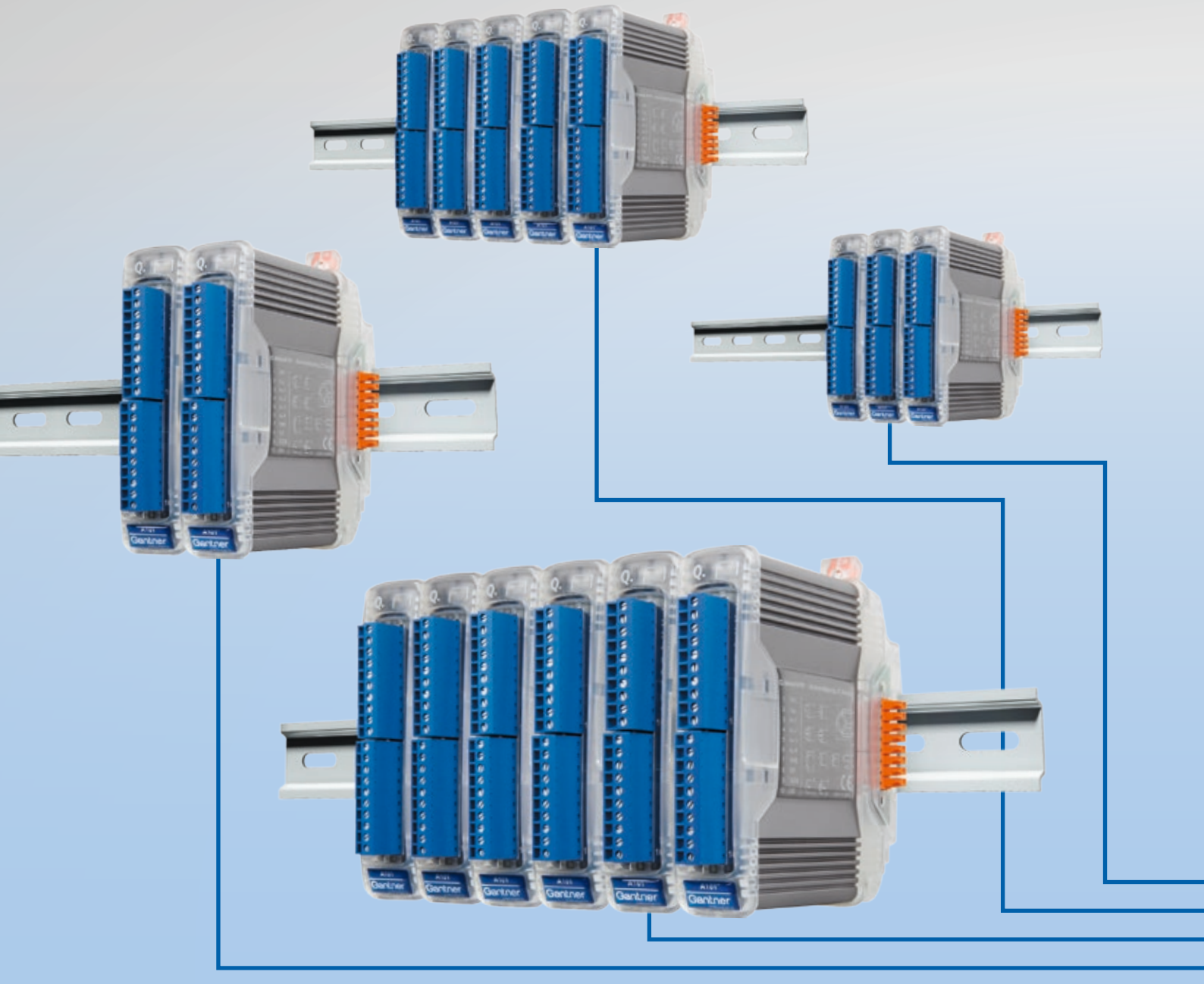
Test Controller	Q.gate				Q.pac		Q.station			
	IP	IPT	DP	DPT	EC	ECT	101	101T	101D	101DT
HOST INTERFACES										
Ethernet TCP/IP	■	■	■	■	■	■	■	■	■	■
EtherCAT					■	■	■	■	■	■
Profibus-DP			■	■						
RS-232	■	■	■	■	■	■				
SLAVE INTERFACES										
RS-485	2	2	2	2	4	4	4	4	4	4
CAN							■	■	■	■
DATA STORAGE										
RAM (MB)	16	16	16	16	16	16	500	500	500	500
Flash (MB)					128	128	4000	4000	4000	4000
USB expandable	1 x	1 x	1 x	1 x	1 x	1 x	2 x	2 x	2 x	2 x
SD card							■	■	■	■
Min cycle time (ms)	1	1	1	1	1	1	0.1	0.1	0.1	0.1
Real-time clock	■	■	■	■	■	■	■	■	■	■
Digital inputs and outputs			4	4	8 x fix	8 x fix	8	8	8	8
Display 3.5" VGA touch screen									■	■
Graphical PAC-kernel graphical programmable, including free download test.con Studio		■		■		■		■		■
Typical power consumption [W]	2.5	2.5	3.0	3.0	4.5	4.5	10.0	10.0	12.0	12.0

Q.series | Distributed Configuration

Modular Measurement and Control

Distributed measurement and control systems are easily configured with Q.bloxx modules and a single test controller (many to choose from). The Q.bloxx modules are connected to the controller via high-speed RS-485 interfaces. Even with this distributed approach, it is easily possible to achieve synchronized measurements with a total system jitter of less than 1 µs. The test controller manages all of this and provides the time-stamped data to a wide variety of communication methods – in parallel.

A key benefit to this approach is the ability to simultaneously provide deterministic closed loop control (via EtherCAT) and high-speed data acquisition (via Ethernet).



Interface for transmitting high volumes of data, e.g. for logging applications

parallel

Deterministic communication for automation tasks via fieldbus systems*

EtherCAT

PROFIBUS

Ethernet TCP / IP

EtherCAT

Profibus-DP

CAN

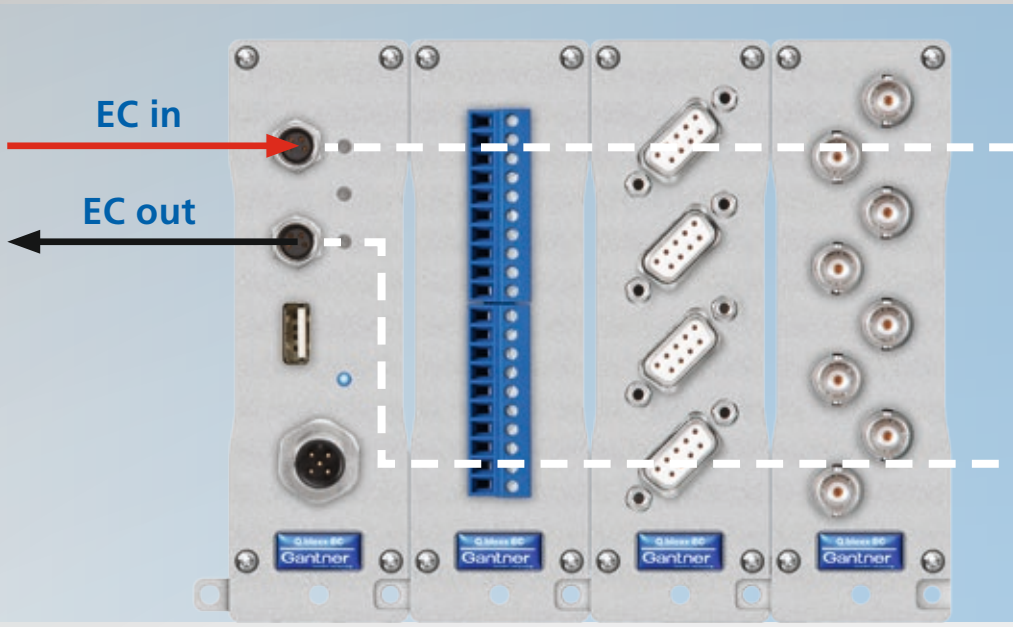
CAN data may be read and written in synchronization with the module signals.

*further communication protocols are in preparation

Real-time Ethernet

EtherCAT is an open, high performance Ethernet-based fieldbus system designed for the deterministic needs of high performance data acquisition and control applications (IEC standard 61158).

Short cycle times (≤ 100 µs) and low jitter for exact synchronization (≤ 1 µs) are characteristics of the EtherCAT interface.



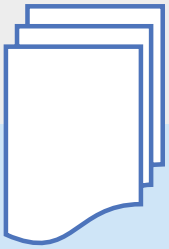
Introducing Q.bloxx EC

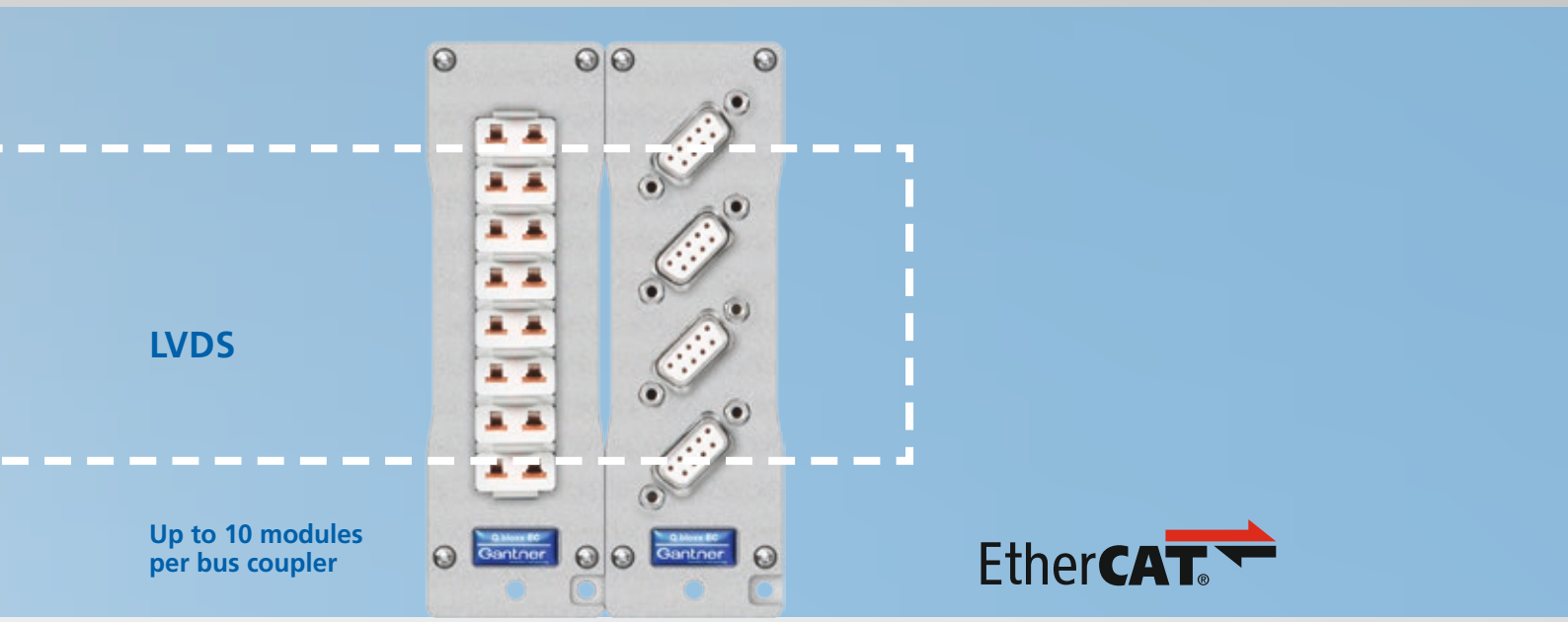
All Q.bloxx modules are also available in EC (EtherCAT) versions. Thus, flexible real-time measuring systems may be configured.

- Read/Write Configuration via SDO
- CoE in accordance with "Modular Device Profile" (ETG.5001.1)
- File transfer via FoE (ETG.1000.5)
- Configurable PDO mapping for optimized data throughput
- Distributed clock for data synchronization (ETG.1020.0)
- XFC oversampling technology (oscilloscope function)

Configuration via read/write of SDO or via file transfer (FoE)

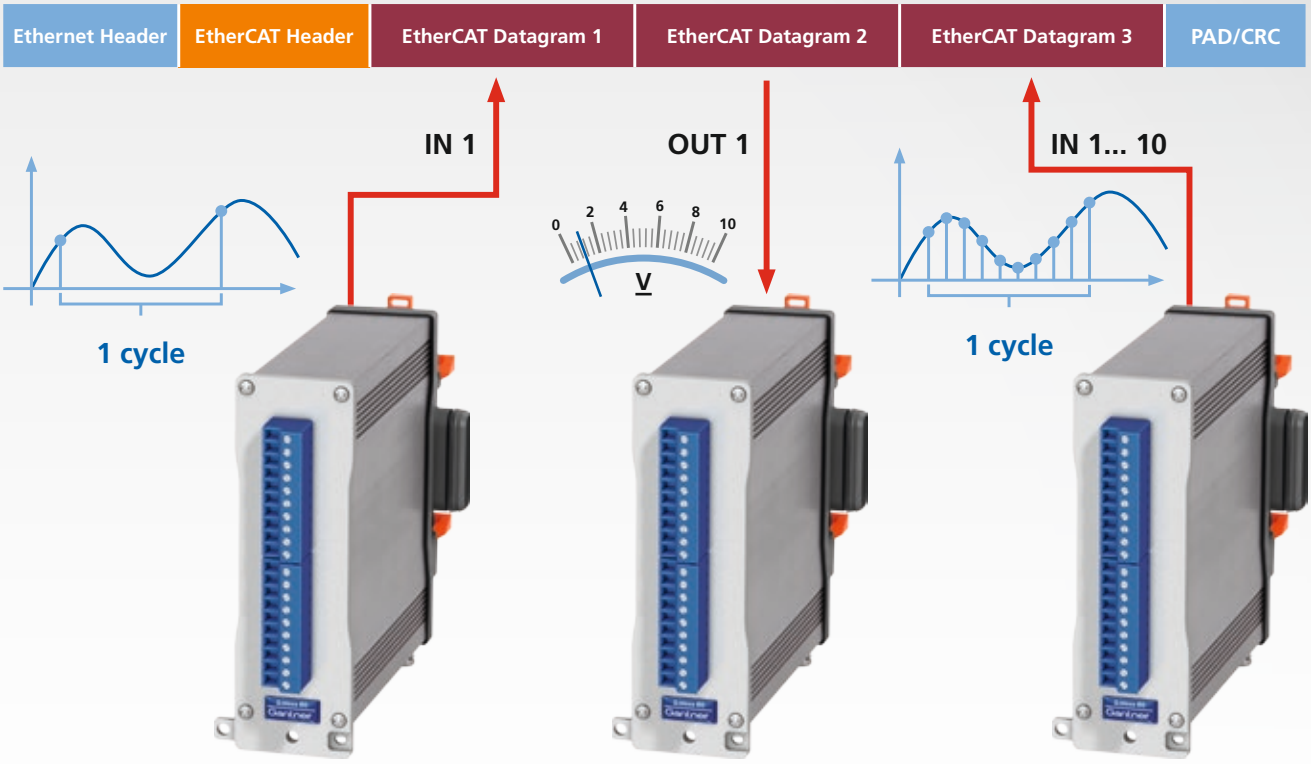
Selection of Predefined Templates:	**Template ±10 V**	**Template Pt100 4-wire**	**TCK template**
	Template 4...20 mA	**Template full bridge**	**TCJ template**
	Template Pt100 2-wire	**Template half bridge**	**...**





Oversampling

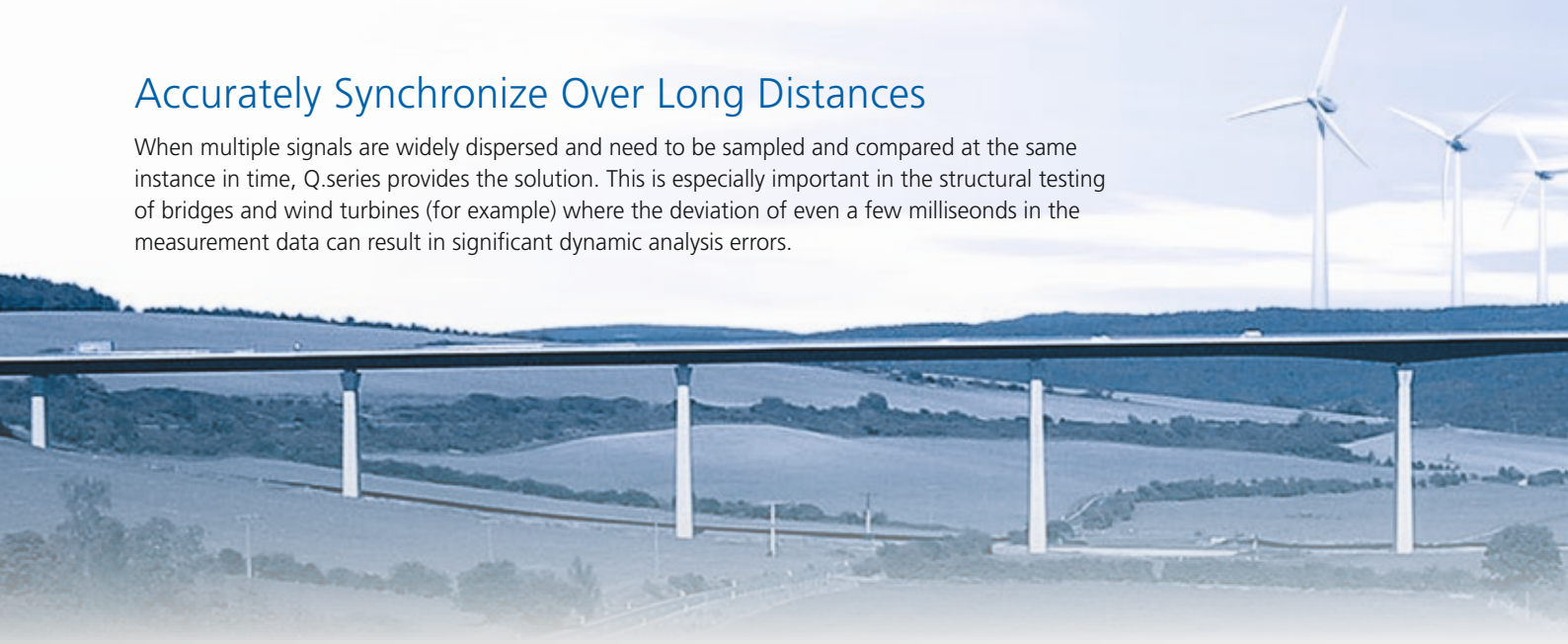
EtherCAT allows the transmission of very high data rates by oversampling. In this case, a higher number of values per channel is transmitted via PDO in order to reduce protocol overhead.



Q.series | Distributed and Synchronized Acquisition

Accurately Synchronize Over Long Distances

When multiple signals are widely dispersed and need to be sampled and compared at the same instance in time, Q.series provides the solution. This is especially important in the structural testing of bridges and wind turbines (for example) where the deviation of even a few milliseonds in the measurement data can result in significant dynamic analysis errors.

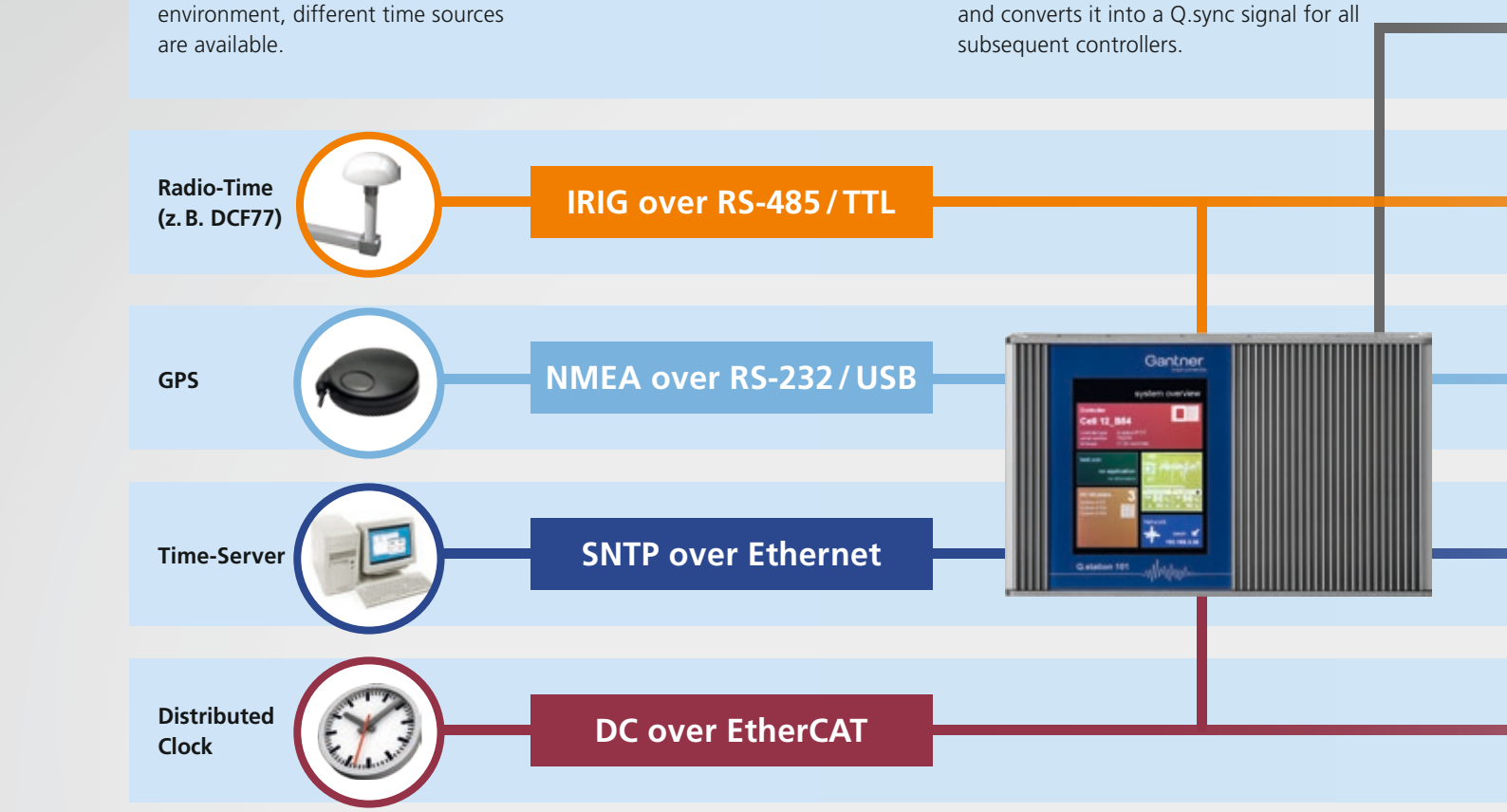


Timer

Depending on the application and environment, different time sources are available.

Time **Master** (alternatively)

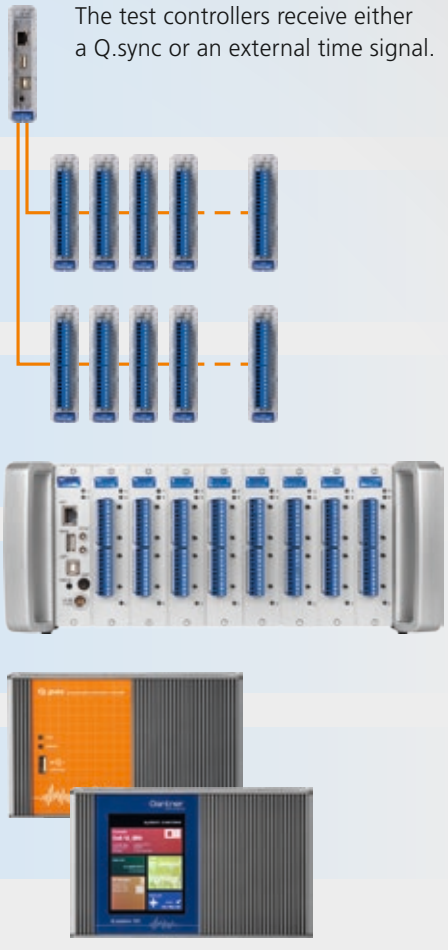
The test controller receives the time signal and converts it into a Q.sync signal for all subsequent controllers.



Time **Slaves**

Q.sync over RS-485

The test controllers receive either a Q.sync or an external time signal.



Q.sync

As Master, the test controller synchronizes all other test controllers. The controller's internal time signal is used with an accuracy of < 2 µs.

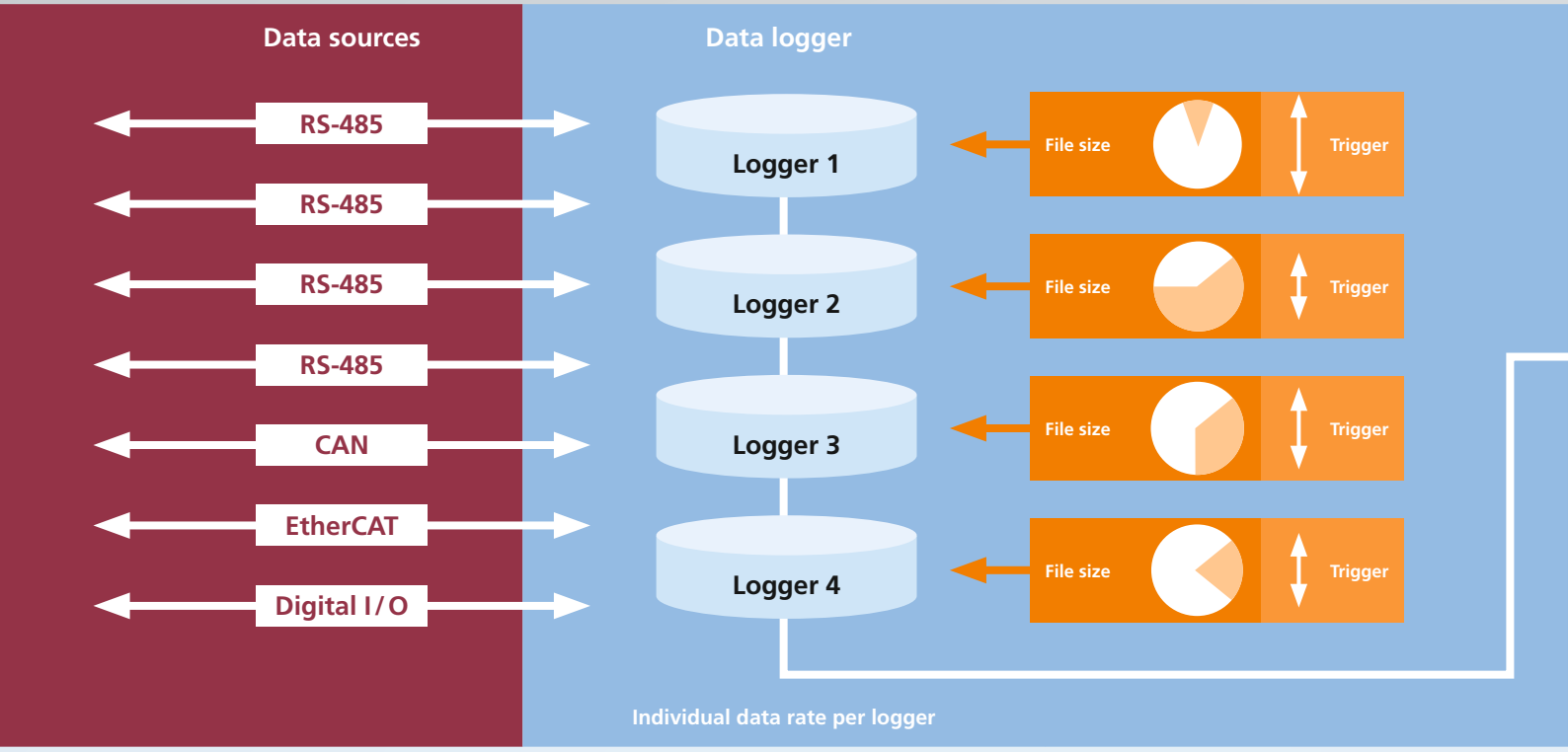
Q.sync

As Master, the test controller receives an external clock signal, all other test controllers are synchronized via Q.sync with an accuracy of < 2 µs.

Extern sync

As Slave, all test controllers receive an external time signal, ideally the same – accuracy is dependent on the timer.

Logging/Recording of Measurement Data – an easy tack for Q.series



Data sources

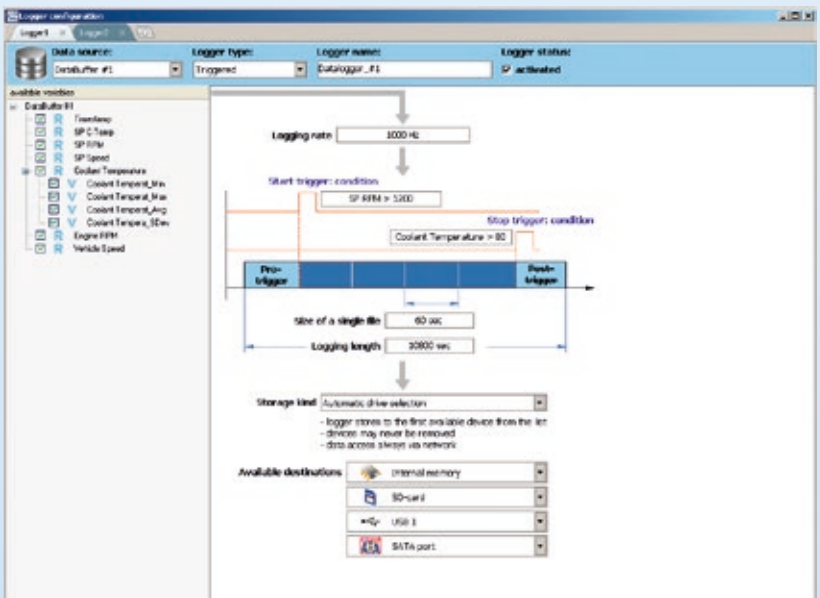
Selection of logged data such as measuring channels, arithmetic channels, virtual variables or status signals

Data logger

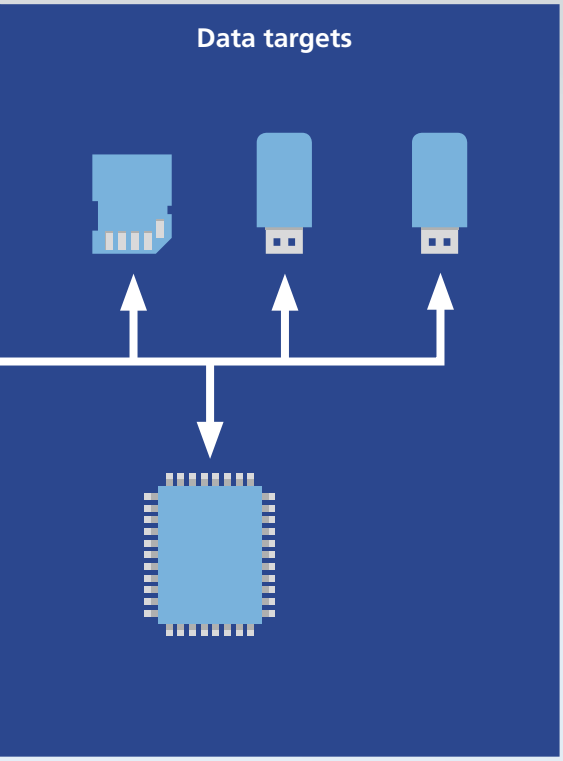
The test controller Q.station features extensive logging capabilities. Multiple data loggers may be configured with different sampling rate

Recording conditions

Continuous, conditioned and repetitive recording, start and stop conditions, pre- and post-triggers, storage duration, file size, etc.



Logging of Statistical Data – at the click of a mouse



Data targets

Recorded data may be saved on internal memory, USB stick or SD card – priorities are possible. (If no SD card, use USB.) If a storage medium is removed, saving is continued onto an alternative medium.

Especially in the structural monitoring of wind energy plants and buildings, it is useful to reduce data load from the measured quantities to only show the maximum, minimum, mean and standard deviation parallel to the raw data, for example in 10 minute intervals. The Q.series offers a very convenient solution.

Q.series | High-voltage, high-isolation measurements

e-mobility

The Q.series modules A123, A124, A127 and A128 provide galvanic isolation of 1200 VDC for each channel, the supply, and the communication interface.

This allows measurement of voltages, currents and temperatures at a high voltage potential. Our Modules A127 and A128 feature measurements up to ± 1200 VDC. High currents are measured via Hall-effect sensors or current shunts.

Abb.: BMW AG

Q.series A123

4 voltage inputs for 100 mV, 1 V, 10 V, up to 100 kHz per channel, Isolation 1200 VDC

Q.series A124

4 inputs for thermocouples, up to 10 kHz per channel, Isolation 1200 VDC

Q.series A127

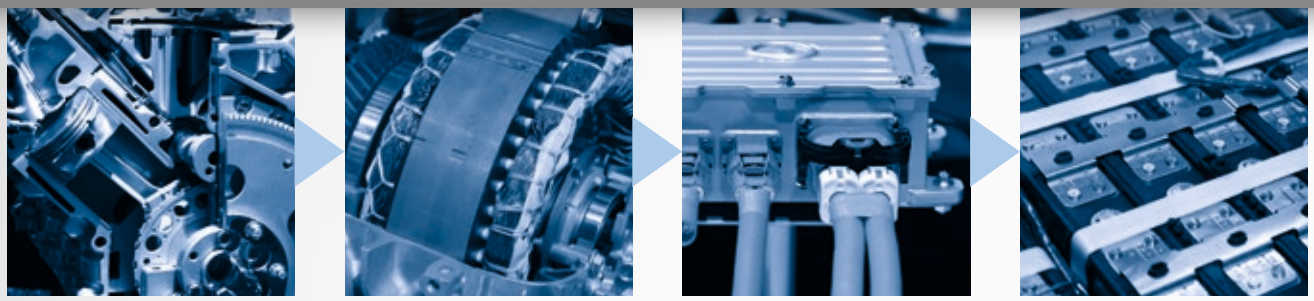
2 voltage inputs for 40 V, 120 V, 400 V, 1200 V
2 inputs for currents over Hall or Shunt 80 mV, 240 mV, 800 mV, 2400 mV up to 100 kHz per channel, Isolation 1200 VDC Performance and efficiency calculation in the module

Q.series A128

4 voltage inputs for 40 V, 120 V, 400 V, 1200 V up to 100 kHz per channel, Isolation 1200 VDC

Abb.: Chevrolet

Leading manufacturers and testing laboratories use solutions based on our Q.series, including Bosch Battery Systems, GM and TÜV SÜD. The key benefits of selecting Q.series include superior channel-to-channel isolation, high noise immunity, and precise high-speed measurements.

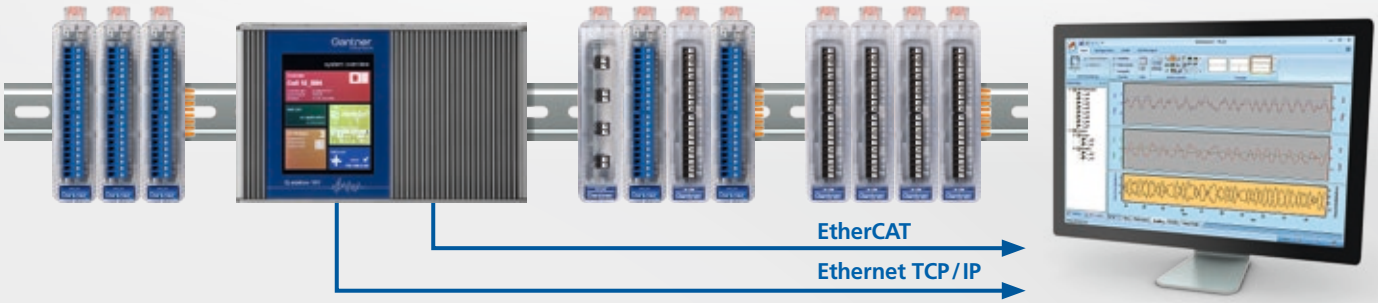


Measurement and automation with Q.series throughout the entire drive train of a hybrid vehicle

Internal combustion engine
- Temperature
- Torque
- RPM
- Pressure
- Voltage

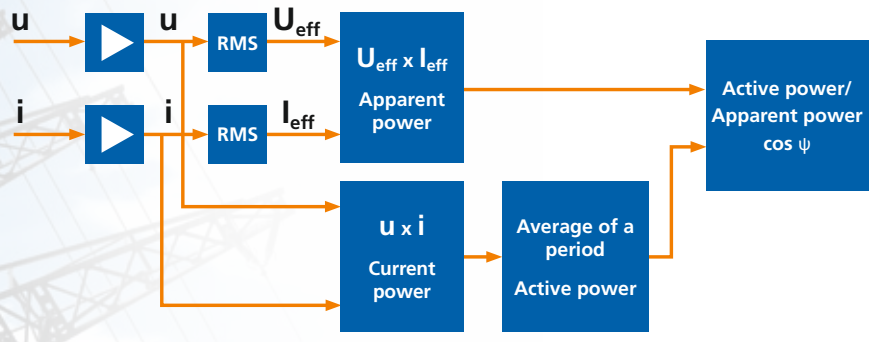
Motor / Generator
- Temperature
- Alternating voltage
- Alternating current
- Performance
- Efficiency

Battery and battery management system
- Loading and unloading
- Short-circuit test
- Overcharge, over-discharge
- Cell and pack voltage
- Thermal load

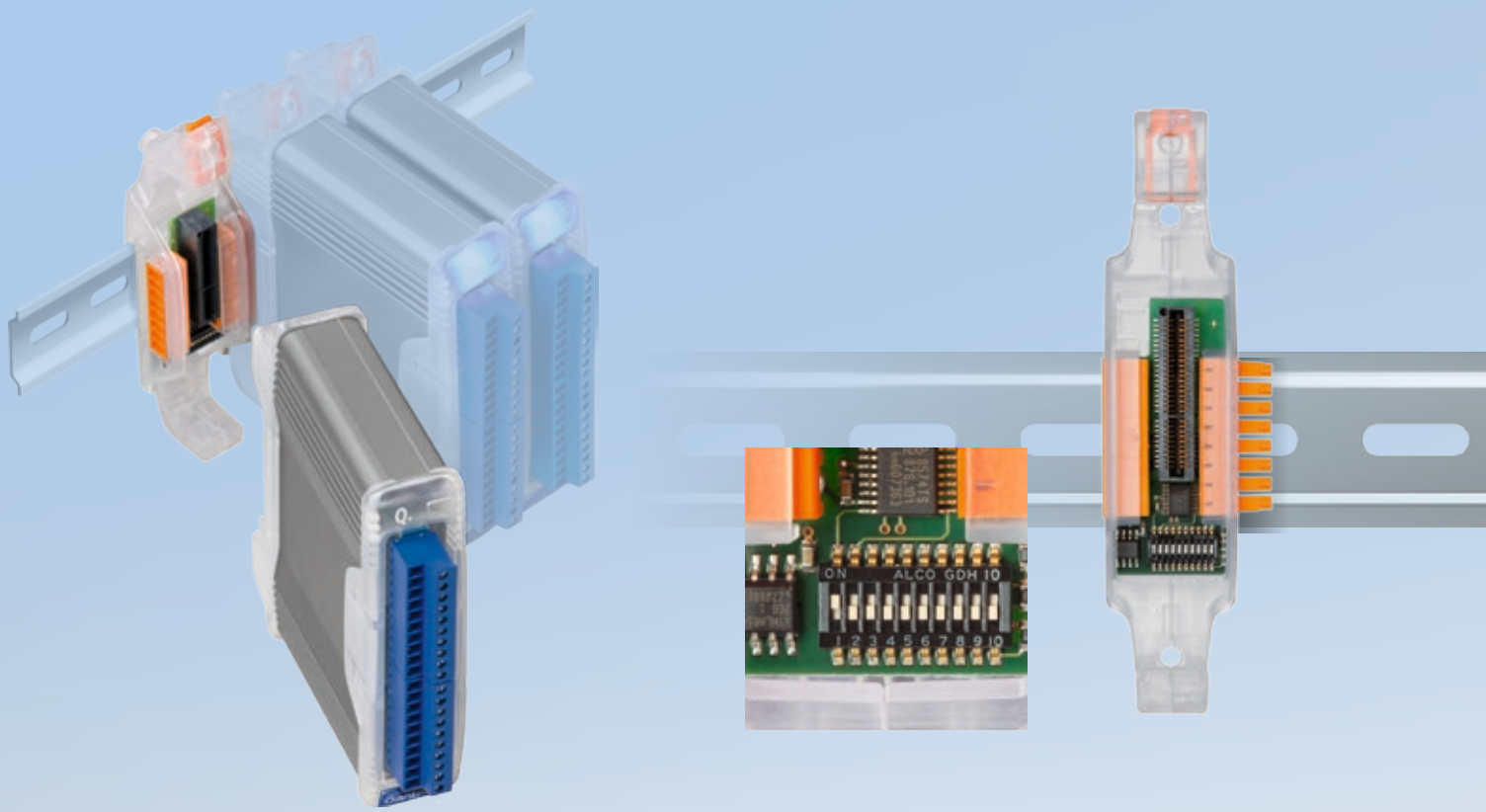


Power Monitoring

The features of the Q.series modules makes them ideal for applications in the energy sector. They are an attractive option thanks to their compact design, environmental characteristics, a measuring rate of up to 100 kHz and the ability to do calculations within the module (rms values, performance, efficiency). For example: the measurement and calculation of 3 phases and the measuring of DC signals before the inverter can be accomplished with only 2 A127 modules.



Q.series | Module Highlights



HOT SWAP – Simple and Safe

With HOT SWAP, a solution is available that is both, simple and safe: Modules can be removed and replaced while the system is powered and running.

Q.bloxx modules feature a DIN-mounted 'foot'. This Q.socket has non-volatile memory that contains the modules configuration data. The user decides whether the module boots from this foot, or from the modules internal information. The boot mode is selected via DIP switches on the foot or via software. With HOT SWAP and the intelligent socket, module replacement is easy – with no need for reconfiguration or interruption of the system operation.

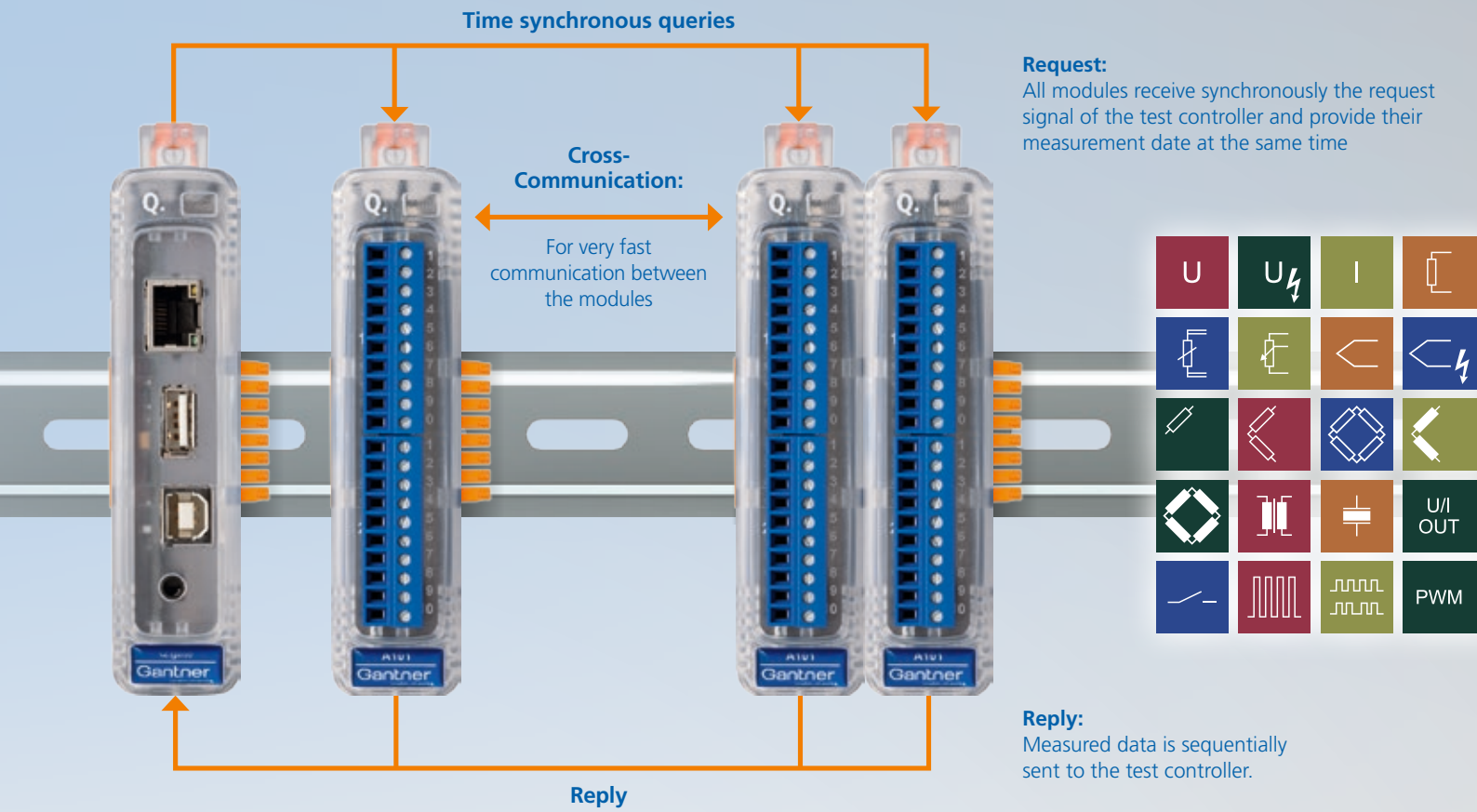
Module Communication Interface

The Q.bloxx modules communicate with the test controllers via the RS-485 serial interface for data acquisition, synchronization and control. The data transmission follows a very efficient protocol with a baud rate of up to 48 MBaud.

In addition, the interface provides a Modbus RTU protocol and optionally Profibus-DP for direct connection to the automation system. without the need for a test controller.

TEDS According to IEEE 1451.4

The universal modules A101 and A102 of the Q.bloxx series are capable of communicating with TEDS sensors. After connecting the sensor, the Q.bloxx modules read the information and check compatibility. Subsequently, the current module configuration will be overwritten with the TEDS data and forwarded to the connected controller.



Signal Conditioning Distributed, Fast and Accurate

The universal modules A101, A102, A123, A127 and A128 provide a sampling rate of 100 kHz per channel. The signal conditioning for data reduction is also processed at this rate, such as filtering with high-, low- and band-pass characteristics, storing minimum or maximum, and the calculation of the RMS value. With this approach, signal conditioning and engineering unit conversions are done in the module, thus minimizing the load on the bus or the controller to do these tasks. Several math and signal conditioning functions are available.

Sigma Delta or Successive Approximation

The majority of the Q.series modules employ a 24-bit sigma-delta converter for digitizing the analog signals measured. This 'integrating' approach provides maximum stability and noise rejection, making it the ideal choice for precise data acquisition. There are times, however, when signal response is more important than the signal quality, as is the case in closed loop control tasks.

For such applications, the Q.bloxx A102 is the better choice. The A102 employs a 19-bit successive approximation converter (SAR) which provides an instantaneous response to a step change, and an analog output for control.

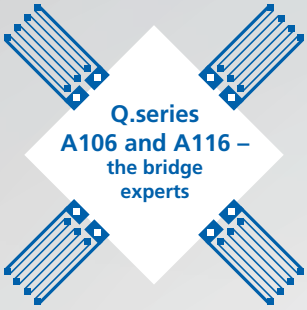
Peer-to-Peer Communication between the Modules

Q.bloxx modules communicate using an RS-485 serial bus at speeds up to 48 MBaud. Measurement variables are written into pre-defined time slots, which in turn can be read directly by other connected modules. This allows direct peer-to-peer sharing of variables (i.e. the mapping of an input to an output) without the data first having to go through the test controller, and therefore reducing overall system loading.

World Class Strain Gage Measurement Expertise

Several modules of the Q.series detect signals from bridges:

- A101, the multifunction module with a sampling rate of 100 kHz
- A102, the fast module (SAR) with integral analog output
- A106, the universal bridge module with selectable DC- and CF-input
- A107, the budget-friendly 4-channel module with a sampling rate of 10 kHz
- A116, the 8-channel module for quarter-, half- and full-bridges at 10 kHz/channel

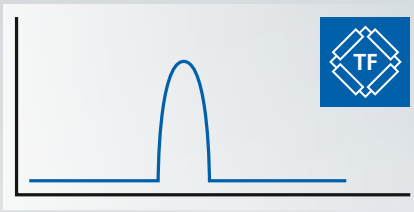


A106 – The Universal Bridge Module

This module provides three options for the excitation of the measuring bridge:

DC Voltage Supply

Suitable for high-impedance measuring bridges as well as long cables between transducer and measuring device. With DC power, cable capacitance shows no effect.



Carrier Frequency Feed Supply

Only modulated signals are transmitted. Therefore, carrier frequency devices show better behavior in drift, noise, and susceptibility.

CF 4.8 kHz

Suitable for strain gages and inductive transducers. Although, longer cables may induce phase shifts between the supply and the measurement signal causing reduced sensitivity.

CF 600 Hz

This carrier frequency is suitable for high accuracy needs. Cable capacitance shows no considerable effect.

Temperature Measurement Is Our Domain

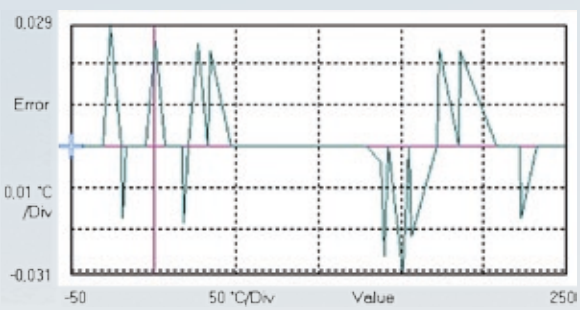
Whether with resistance sensors or thermocouples, temperature measurement with Q.series measurement modules is always the best available solution.

Demanding users rely on the precision of our Q.series measuring modules, such as the weather service, several research institutes or for dedicated tasks in aviation and the automotive industry.

Measuring Module A104 for Thermocouples

- 8 measuring channels per module, all of them are galvanically isolated
- Precise cold junction compensation, max. deviation of 0.3 °C
- Suitable for all standard thermocouples
- High accuracy digitalization and calculation of moving average
- Includes selective suppression of noise pulse
- An additional filter for suppression of 50 Hz and 60 Hz disturbances ensures stability and EMC behavior suitable for industrial use
- Automatic optimization of the linearization characteristics depending on the measuring range, e.g. in the range -50 to 250 °C, 0.03 °C deviation

Best A104 overall deviation is <0.5 °C.

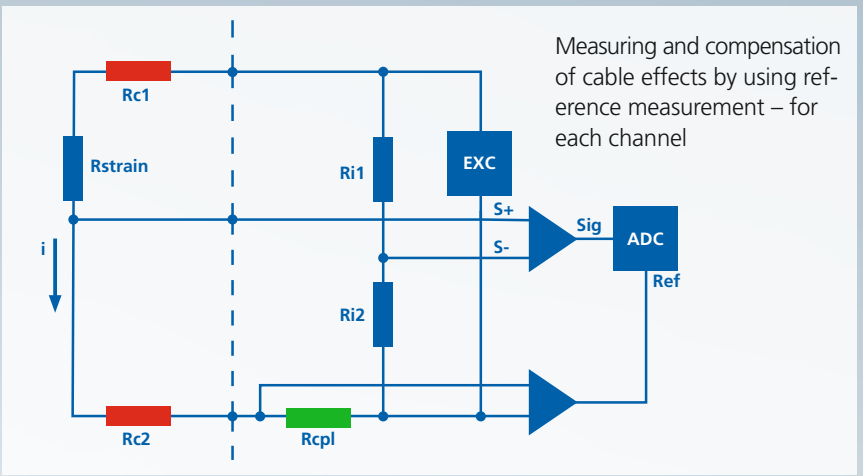


surements

A116 – The High Density DC Bridge Module

The preferred module for quick and compact solutions for measurements with strain gauge quarter-, half- and full-bridges.

- Measuring and conditioning of up to 8 parallel channels with 10 kHz – no multiplexing
- Compensates cable interferences by simultaneous reference measurement of the voltage drop
- 120 Ω and 350 Ω completion resistors – 0.05 ppm/K – for high temperature stability
- Shunt resistor for detecting changes during the measurement
- Measuring range 2,000 µm/m and 20,000 µm/m for easy adjustment to the signals
- Q.station allows synchronous detection (jitter 1 µs) of several hundred channels



Measuring and compensation of cable effects by using reference measurement – for each channel

Why 0.05 ppm/K completion resistors?

The stability of the overall measurement is mainly dependent on the temperature sensitivity of the completion resistors:

A 350 Ω strip changes its resistance at 1000 µm/m (k=2) to 700 mΩ. The temperature stability of the A116 completion resistor is 0.05 ppm/K, which corresponds to 0.025 µm/m per degree of temperature change or 0.025% / 10 K. If resistor stability is only 5 ppm/K for example, deviation will be 2.5 µm/m per degree or 2.5% / 10 K.

Measuring Module A105 for Resistance Sensor Pt100/Pt1000

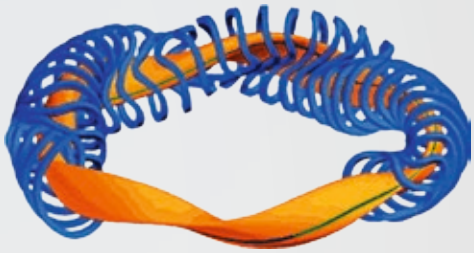
A sophisticated circuitry, extremely good components and permanent reference measurements make the Q.series A105 the most accurate and stable measurement module in its price range.

The compact module offers four galvanically isolated input channels for measuring with Pt100, Pt1000 and resistors in 2-, 3- or 4-wire technology.

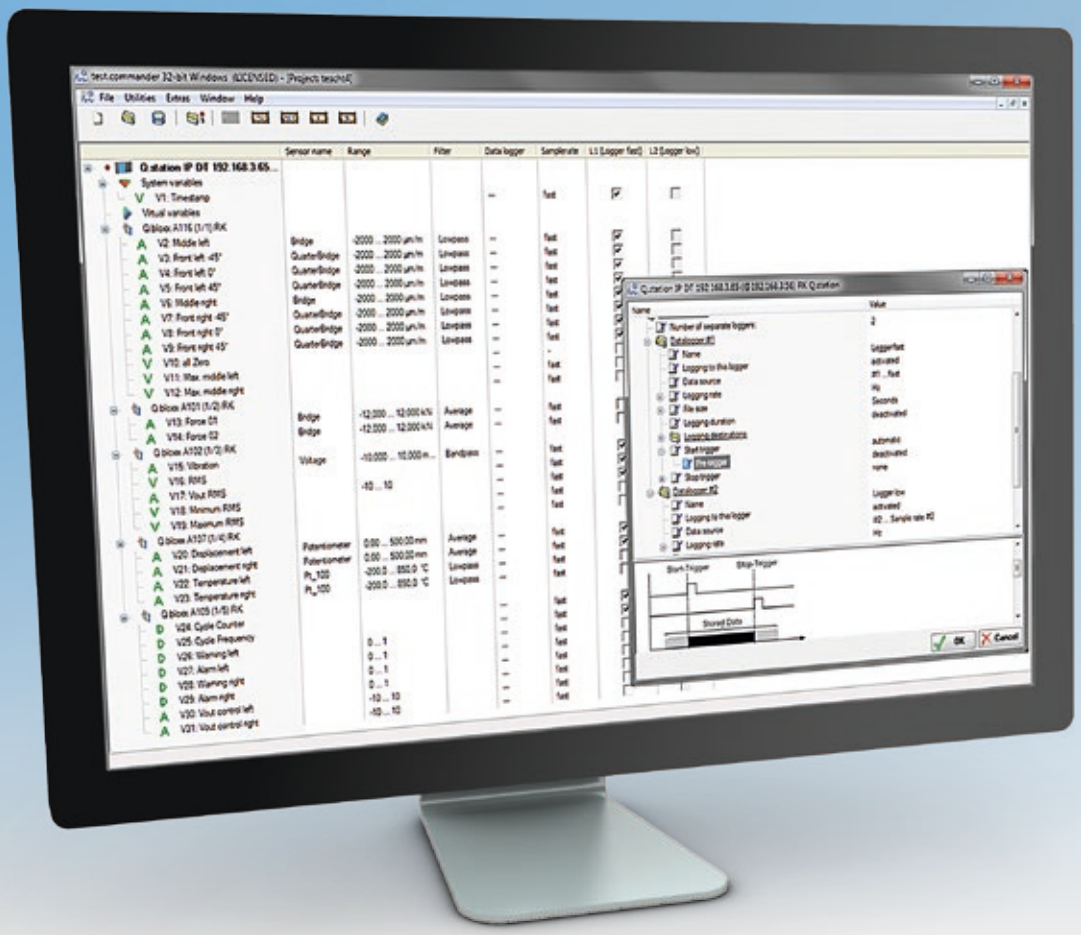
The A105 is optionally also available for the measurement with Cryo sensors (e.g. TVO or Cernox), such as used in gas production, particle physics and fusion technology.

Special attention is paid to a minimal energy input into the sensor and a high flexibility in the linearization value.

Minimum deviation at changes of the ambient temperature **0.02 °C / 10 K**



Q.series | Software Tools to Configure, Visualize and



The Q.series software strategy mainly pursues one goal:

Maximum flexibility for the user.

Easy-to-Use Software Tools for:

- Configuration of the measuring system
- Visualization and storage of measurement data
- Archiving of data on local PCs, networks or databases (server software)
- Graphical programming of the PAC functionality

And Additional Functionality from:

- Software from partner companies
- Drivers for standard packages
- An open interface for the integration of the Q.series products in test and automation solutions

test.commander

Configuration of the Measuring System

test.commander is the software for quick configuration of all Q.series systems. Intuitive and clear structures guarantee the shortest start-up times. test.commander supports the standard Ethernet interface. As a FTP client, it reads and writes configuration files and has therefore access to all system parameters. The module configuration software ICP 100 and the visualization software test.viewer are included in test.commander.

The Q.series' concept of file transfers and its open file system allows any user with a FTP client to access the configuration data to modify and restore them to the test controller. User access rights protect your settings. Special knowledge of the manufacturer's software is not required.

Archive

test.viewer

Visualization and Storage of Measurement Data

Online visualization and display of your stored measurements in different graphics windows or in numerical form. Zoom functions and the possibility to measure signals allow test.viewer a quick initial analysis of the data. Other functions are:

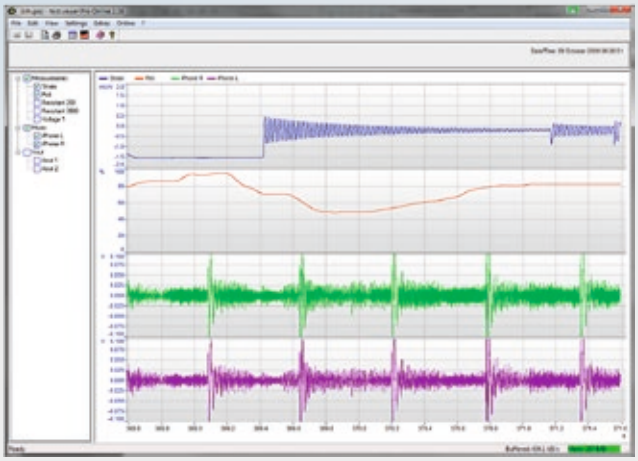
- Y/t- and X/Y-display
- Online FFT analysis
- Grouping of signals in the explorer bar
- Converting of yor data into the formats: GreenEye (*.ged), DASYLab (*.ddf), Famos (*.dat), MATLAB (*.mat), Bernard (*.bbl), WAVE (*.wav) and Excel (*.csv).

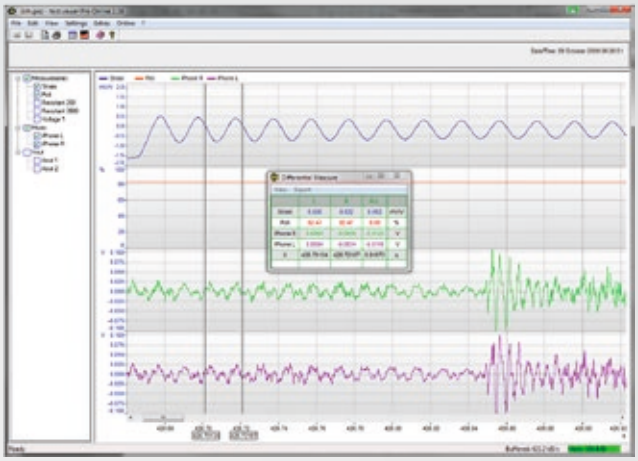
test.node

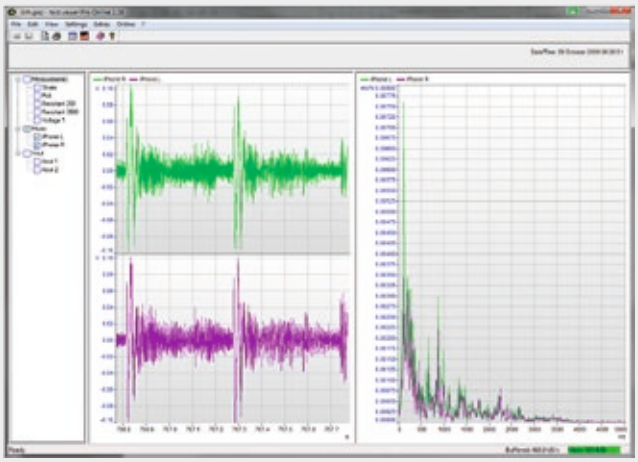
Archiving of Data on Local PCs, Networks or Databases (Server Software)

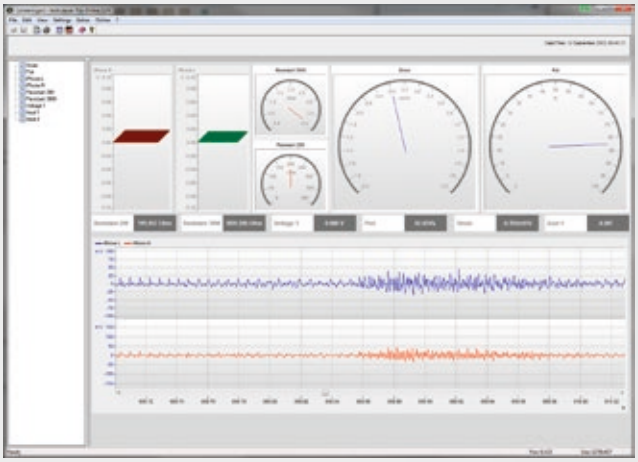
The server software test.node allows to read data from one or more test controllers, and, depending on the configuration, to convert and store it to a directory of any server in the network or the www.

- Converting data into different formats (see test.viewer)
- Storing data on a local PC, a network or in SQL databases
- File naming: date, time, directory path (free choice)
- Copy and paste, or cut and paste of the controller data
- Selectable transfer rate and file size
- Visualization of your data, even online with test.viewer



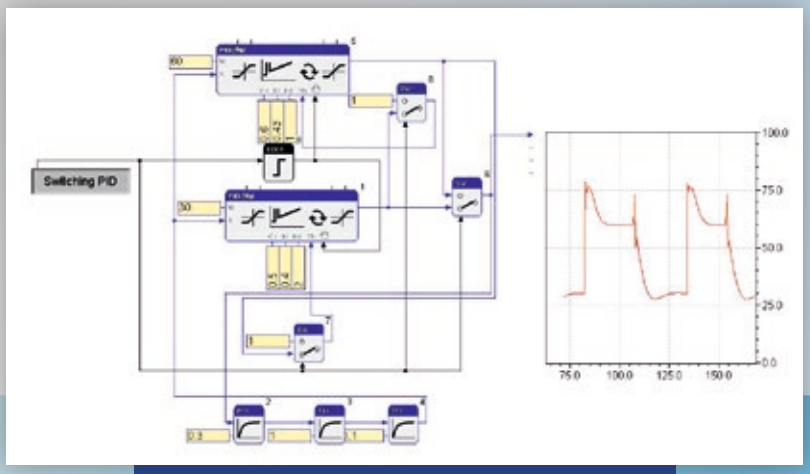






test.con Studio – The complete measuring, conditioning, data management, control, visualization and operation tool for test automation

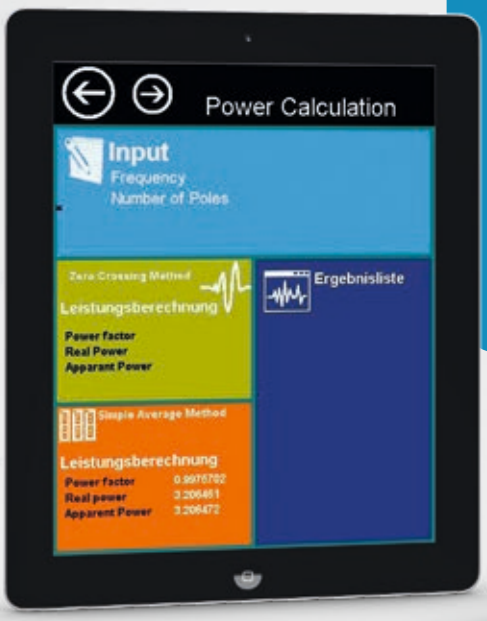
test.con Studio allows graphical programming of application-specific functionalities and embeds them to a version T test controller (e.g. Q.station 101DT). Once compiled, the application runs in real time with no need for a connected PC.

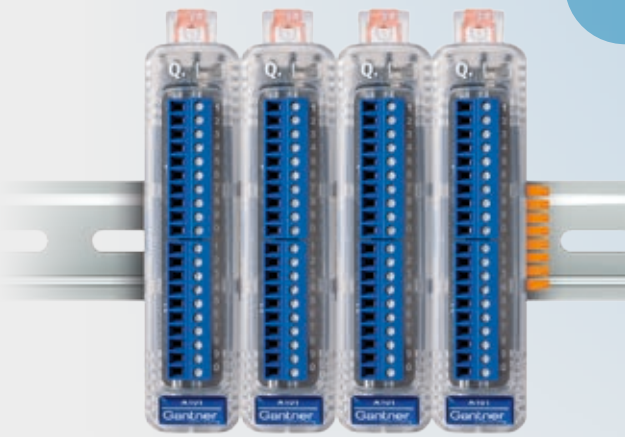


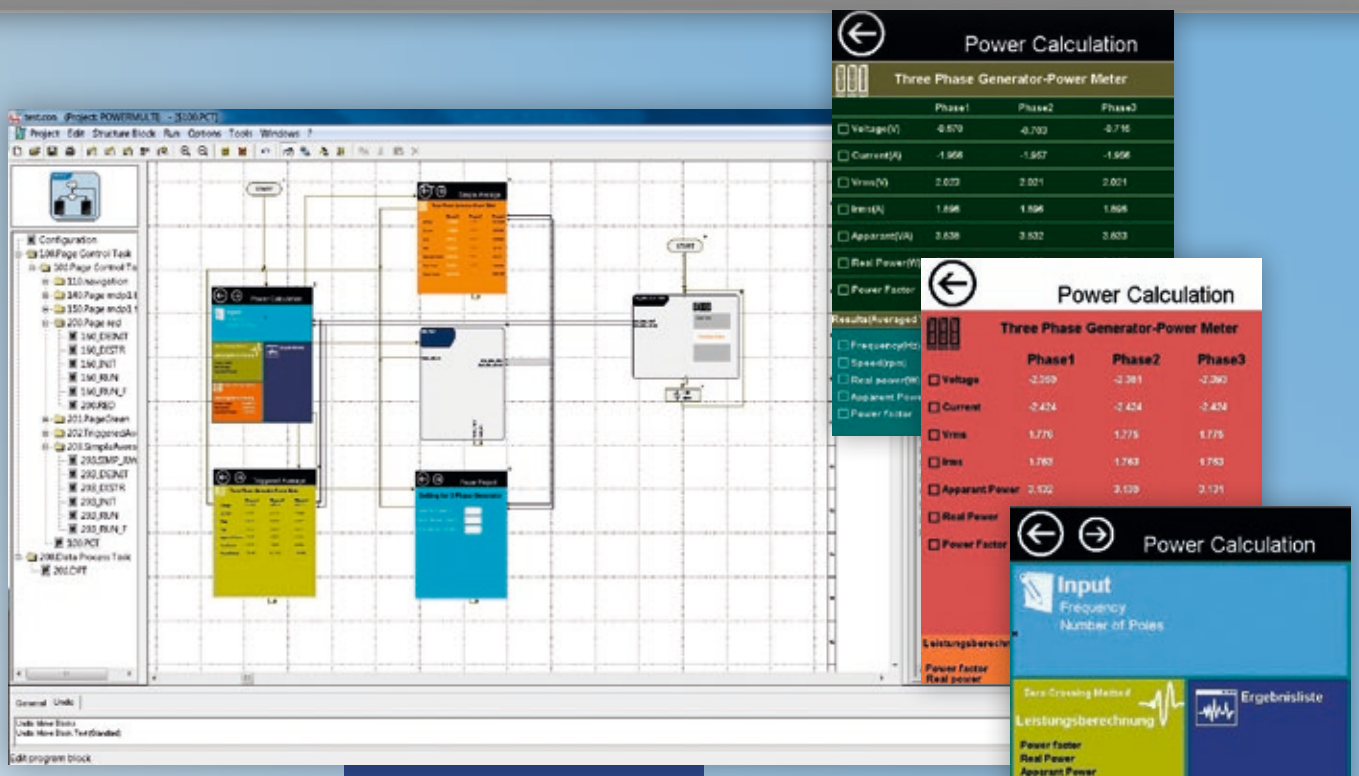
Create specific applications with a comprehensive library

- Arithmetic (V5.1)
- Control elements (V0.0)
- Controller (Float) (V1.1)
  - PID-Controller
- Converter (Time) (V3.1)
- Converter (V7.1)
- Counter (Word) (V1.1)
- Digital Filter (V1.1)
- Dynamic Texts (V0.1)
- Edge detection (Bit) (V1.1)
  - Falling edge (1-0)
  - Rising edge (0-1)
- Extended SFB (V2.1)
- Flip-flops (Bit) (V1.1)
- HMI Masks and Objects (V8.1)
- HMI Parameter Blocks (V4.0)
- Logic (Bit) (V2.1)
  - AND
  - NOT
  - OR
  - XOR
- Numeric (Float) (V2.1)
- PID-Controller (Float) (V2.0)
- Selection and comparison (V
- Sequence blocks (V2.1)
- Signal generators (V1.1)
  - Pulse signal
  - Rectangle signal
  - Sawtooth signal
  - Sine signal
  - Triangle signal
- Signal processing (V2.1)
- Standard
- Standard transmission terms
  - Derivative term
  - DT1-Term
  - Integral term
  - Nonlinearity
  - Proportional term
  - PT1-Term
  - PT2-Term (able to oscillat
- Timer (Float) (V1.1)

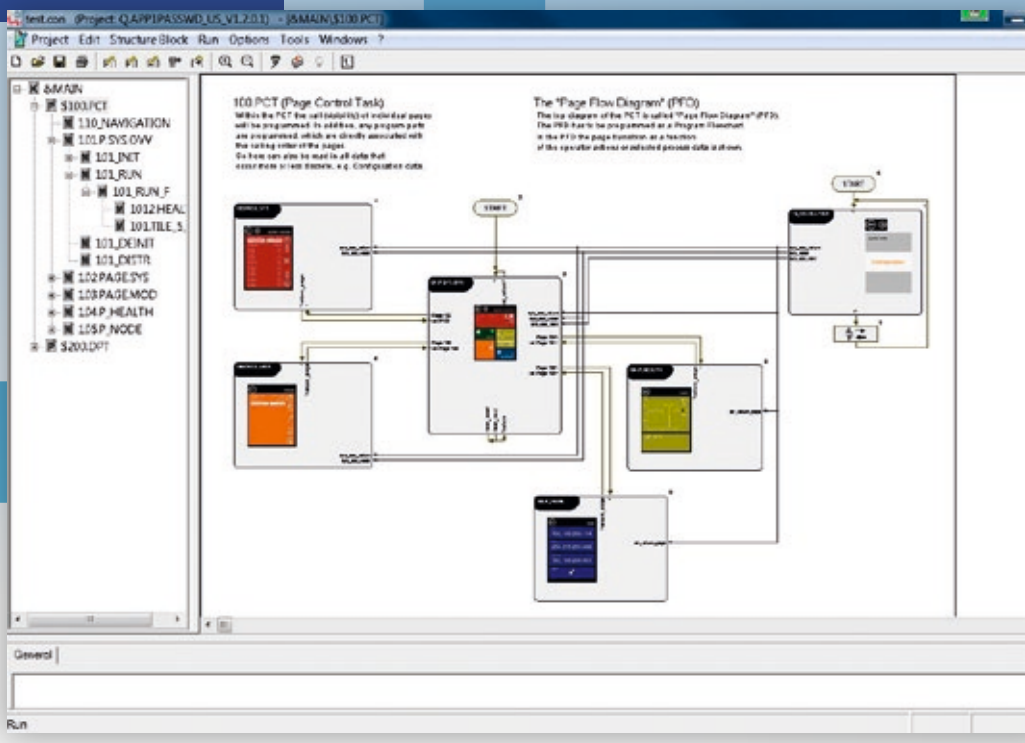
Via VNC connection, a tablet or smart phone may also be connected to the measuring system







Individual design of multiple displays for operation and visualization using the mask designer



After loading the application to the test controller, it runs independently of a PC

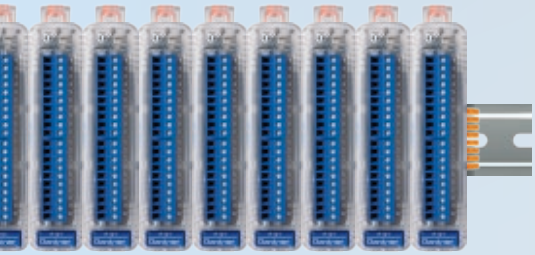
test.con Studio is a free application and runs on any T version of the test controllers

Q.bridge – the Native Gateway to LabVIEW™

The Best of Both Worlds

LabVIEW™ offers a variety of built-in functions for handling of measurements and automation tasks. This functionality may also be used with the Q.series measurement and I/O modules because the test controller Q.bridge allows connection of the precise and robust Q.series modules to the world of LabVIEW™. Q.bridge is based on a real-time capable one-board computer from National Instruments (NI RIO). Both, the FPGA and the real-time firmware are 100% implemented in LabVIEW™.

Q.series

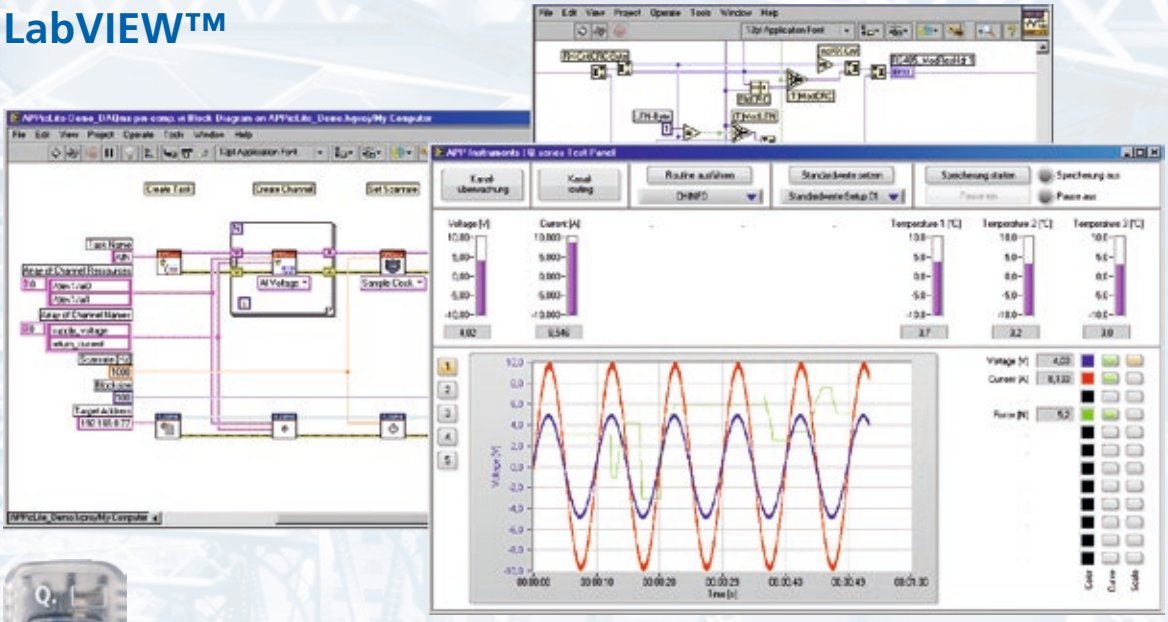


Q.bridge

Q.bridge at a Glance

- Native LabVIEW™ drivers VIs
- Based on National Instruments hardware
- Platform-independent architecture, no DLLs
- Configuration and communication via an open network protocol
- Any LabVIEW™ version may work
- Different data rates possible at the same time
- 2 UARTs for connecting up to 32 measuring modules

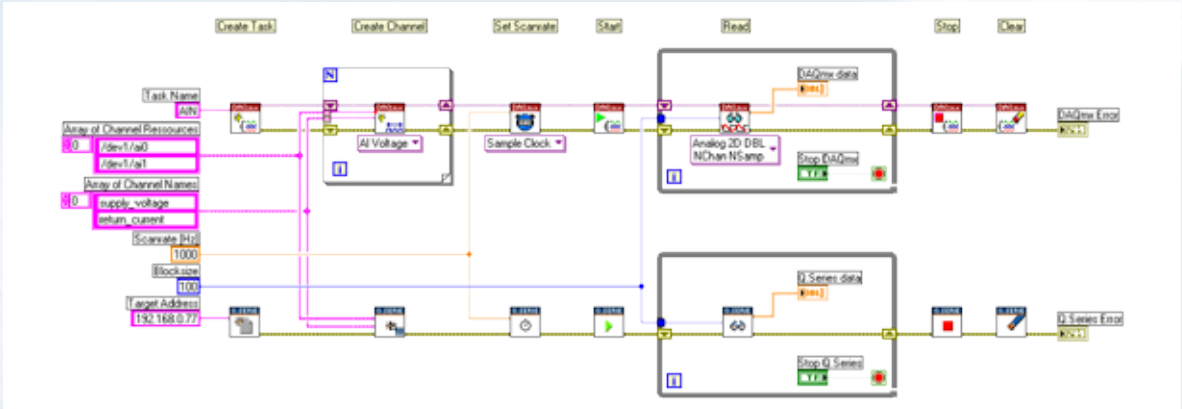
LabVIEW™



The use of high quality measuring modules in combination with LabVIEW™ offers many advantages

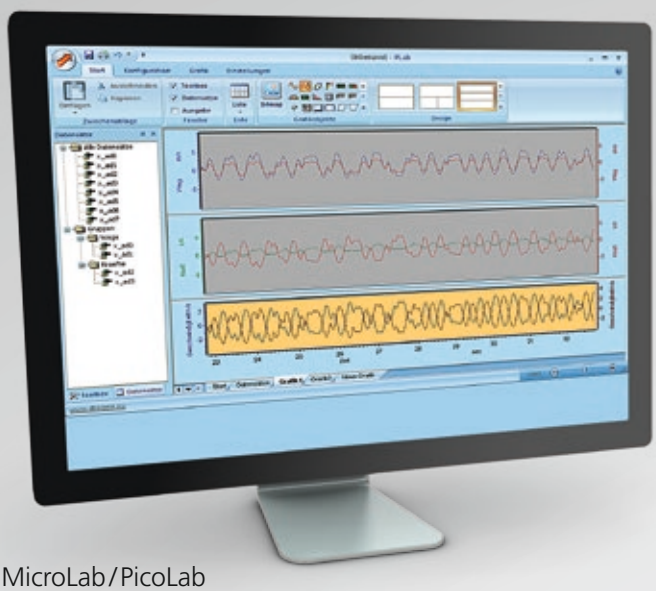
For example:

- 100% DAQmx compatibility
- A wide range of functions, such as precise temperature measurement, measurement with strain gauge bridges in DC- or CF-technology, high-voltage modules
- Decentralized concept for maximum flexibility
- Galvanic isolation for each channel
- Simultaneous detecting of analog and digital frequencies and counter inputs



Example: NI DAQmx Driver VIs (above) and Q.bridge Driver VIs (below)

Q.series | Additional Software Support Tools



MicroLab/PicoLab

SignaSoft

Integrated Software Packages for Data Acquisition and Control

It is our goal to offer best-in-class choices when it comes to application software. While we offer one of the most complete ranges of programming and data management tools, sometimes application requirements are not completely met. It is for this reason that we offer a fine-tuned suite of additional application software that perform seamlessly with Q.series systems. These software packages include IPEmotion, Signsoft, MLab/MGraph, and PLab/PGraph.

DIAdem®
DASYLab™
MATLAB®
LabVIEW™
MSCPP60
MSVBasic60
DELPHI2006

Standard Drivers for 3rd Party Software

When you already have a 3rd Party software package in mind, or want to program your own custom solution, Gantner has you covered.

We offer you:

- Drivers for the integration of our products into DIAdem projects
- Drivers for the integration of our products into DASYLab projects
- Drivers for the integration of our products into MATLAB projects
- Free VI files as an example for the integration of our products into LabVIEW
- Free sample projects for integration into MSCPP60, MSVBasic60 and DELPHI2006


IPEmotion
Darstellungselement ändern in
Darstellungselement kopieren
Kanal hinzufügen
Kanal entfernen
Bereich horizontal teilen
Bereich vertikal teilen
Bereich löschen
Eigenschaften
xt-Diagramm
Alphanumerische Anzeige
Balken
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Systemstatus

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