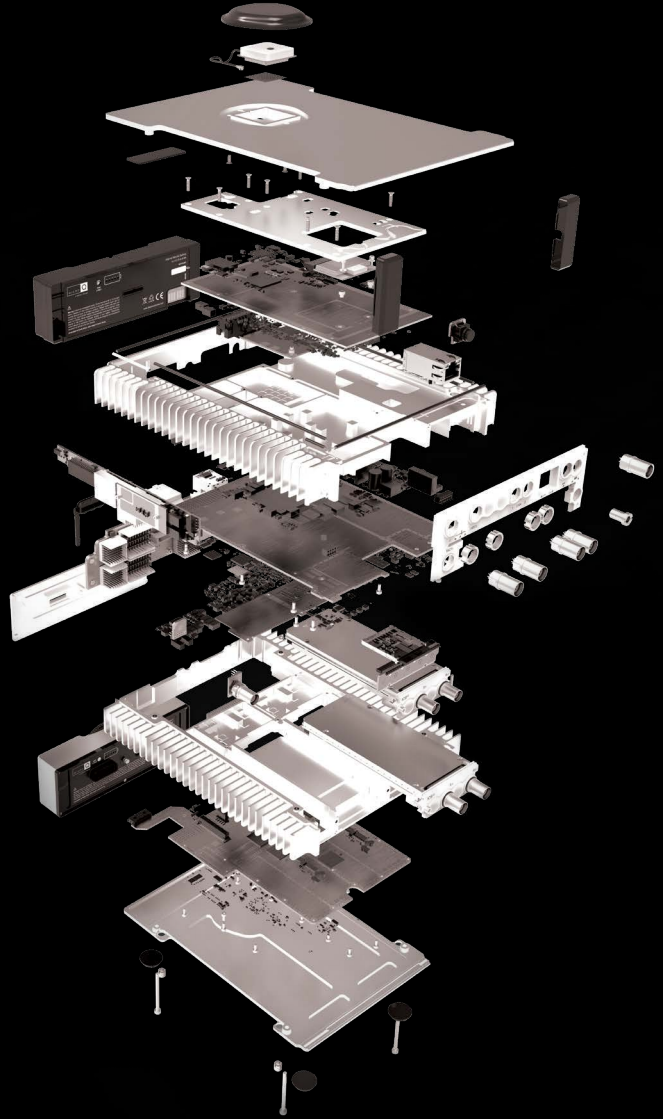


QUANTUS SERIES

HIGH
SAMPLE
RATES
EXCELLENT
SIGNAL
CONDITIONING
LOW
NOISE
FLOOR

QUANTUSSERIES

A great name for high precision Data Acquisition.

(Latin) adjective
quan·tus | /ˈkwɒnt3ːs/

ICP®
VOLTAGE
TACHO
TEMPERATURE
STRAIN
PT100
MICROPHONE
OUTPUT VOLTAGE
TIME AND POSITION
DIGITAL
PIEZOELECTRIC CHARGE.

From the Latin meaning,
how much and how great

QUALITY AND QUANTITY

it's not often you get both

Since 1984.

More than 150 000 Channels in the market.

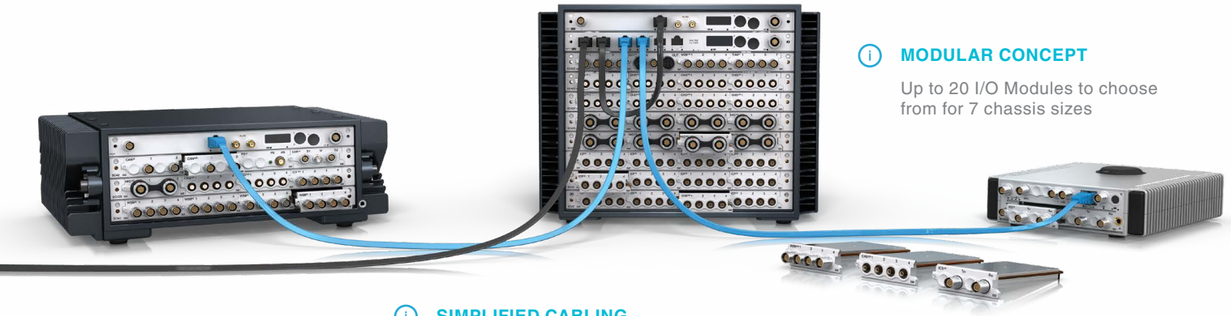
Integrated but **OPEN.**

The **Quantus**Series is more than just an acquisition System. Together with our Software Partners, it is a complete suite of tools for Structural Acquisition and the most demanding Data Acquisition applications. Our Systems are used globally in applications where accuracy and the quality of signal conditioning come first.

Readily

EXPANDABLE.

Whether you are swapping out Modules for different tasks or synchronizing Systems for higher channel counts and distributed positions, the freedom to grow your measurement landscape is yours.



MODULAR CONCEPT

Up to 20 I/O Modules to choose from for 7 chassis sizes

SIMPLIFIED CABLING

For multi-system configurations; PTP Synchronization and PoE Power can be provided through one cable using a QuantusSeries SP45 PoE switch.

WHAT ARE WE REALLY GOOD AT?

1. **INSIDE**
   High sampling rates, high bandwidth, low noise floor. Unrivalled signal conditioning.

2. **OUTSIDE**
   Singular platform, rugged design, portable and compact high-channel density modular Systems.

3. **FREEDOM**
   20 I/O Module options to choose from, tethered or independent measurement options and synchronization for larger distributed measurements with simple cabling.

4. **OPEN**
   Flexible software options, from a RESTful interface to full turnkey solutions for advanced applications, in collaboration with our **Partner**Network.

5. **LASTING VALUE**
   Modular, partially upgradable Systems providing a lasting investment that keeps up with the latest technological advancements.

   World-class calibration and support services to keep your System healthy for up to 15 years.

   One company, all in-house and with a team dedicated to unsurpassed levels of quality.

01.

INSIDE

OUTSIDE

FREEDOM

OPEN

LASTING VALUE

UNRIVALLED SIGNAL CONDITIONING

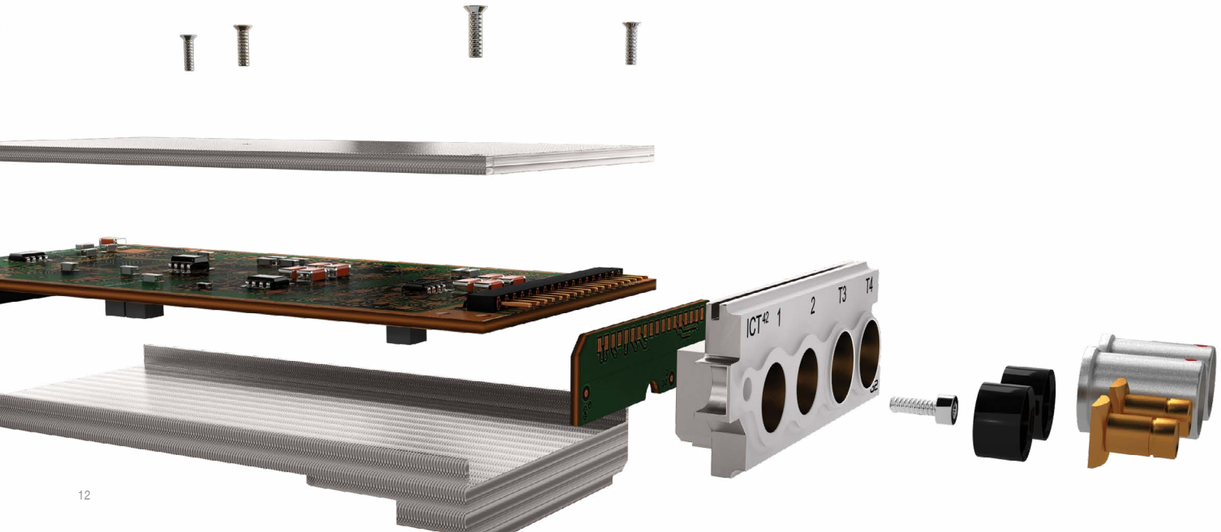
- 204.8 kSa/s with 24-bit resolution (up to 5 MSa/s)
- Low noise floor
- Phase accuracy

ALL IN ONE

- Supports real time data alignment, resampling, slow speed channels and more – all in the frontend with no need for external signal conditioning
- Signal conditioning, analog to digital converter and computing – all in one

UNRIVALLED

Signal Conditioning.



ALL MODULES INCLUDE THE FOLLOWING FEATURES:

- 50 V galvanic isolation from one Module to another
- Automatic internal calibration capability
- All settings are software configurable
- Very high channel density
- Excellent signal to noise performance
- Excellent spurious free-dynamic range, total harmonic distortion and crosstalk
- Finely tuned for the best performance at the lowest possible power
- Protection to accommodate both transient and continuous over-voltages
- Strong Electromagnetic Interference (EMI) screening for lower noise floor
- Firmware protection from excessive external EMI events
- Low power consumption

PARAMETER	MAXIMUM DATA RATE	MODULE	MODULE DESCRIPTION
ANALOG			
±10 V voltage input	409.6 kSa/s	ALI	2 channel Voltage Input
ICP® based microphones, accelerometers, load cells and pressure sensors ±10 V voltage input	51.2 kSa/s	WSB	4 channel Bridge / ICP®/ Voltage Input
	102.4 kSa/s	ICS	6 channel ICP®/ Voltage Input
		CHS	6 channel Charge / ICP® / Voltage Input
	204.8 kSa/s	ICT	2 channel ICP®/ Voltage Input
		ICP	4 channel ICP®/ Voltage Input
		MIC	2 channel Microphone / ICP®/ Voltage Input
		WSB	4 channel Bridge / ICP®/ Voltage Input
		CHM	4 channel Charge / ICP® / Voltage Input with Buffered Outputs
±60 V voltage input	204.8 kSa/s	ICT	2 channel Tacho / ICP®/ Voltage Input
		ICP	4 channel ICP®/ Voltage Input
Tacho pulse input with 4.9 MSa/s Scope Mode	700 kPulse/s[1]	ICT	2 channel Tacho

Note 1: *Pulse rate for sum of both channels*

In addition to the quality of analog signal processing and sensor support, every System in the **Quantus**Series family uses state-of-the-art digital processors to further process and manage signal information. Processing in the front-end hardware improves phase accuracy, effective bandwidth, and scalability of the System for real-time measurements.

ANALOG

PARAMETER	MAXIMUM DATA RATE	MODULE	MODULE DESCRIPTION
Piezoelectric based accelerometers, load cells, etc. (Single-Ended)	102.4 kSa/s	CHS	6 channel Charge / ICP® / Voltage Input
	204.8 kSa/s	CHG	4 channel Charge Input
		CHM	4 channel Charge / ICP® / Voltage Input with Buffered Outputs
Piezoelectric based accelerometers, load cells, etc. (Differential)	204.8 kSa/s	DCH	2 channel Differential Charge Input
E, J, K, T and U thermocouples as well as Pt100 sensors ±10 V voltage input	6.4 kSa/s	THM	8 channel Thermocouple / Pt100 / Voltage Input
Current and Voltage excited strain gauges including dynamic strain. load cells, pressure sensors, strain based accelerometers, inductive displacement (LVDT) and rope displacement sensors ±10 V voltage input	51.2 kSa/s	WSB	4 channel Bridge / ICP® / Voltage Input
	204.8 kSa/s	WSB	4 channel Bridge / ICP® / Voltage Input
Bridge and Resistive Sensors used in Pyro-Shock / Mechanical Shock ±5 V voltage input	1.25 MSa/s	ALI @1250	2 channel Bridge / ICP® / Voltage Input
	2.5 MSa/s	ALI @2500	
	5 MSa/s	ALI	
Acoustic Camera with ICP® and ±10 V voltage input	102.4 kSa/s	ACM	24 channel Acoustic Camera
200 V or non-polarized microphones	204.8 kSa/s	MIC	2 channel Microphone / ICP® / Voltage Input

TIME, POSITION AND COMMUNICATION

GPS	10 Hz	GPS	GPS Receiver for Time Synchronization and Position
CAN	2 Mbit/s (simultaneous)	CAN	2 channel CAN bus Interface

OUTPUT

±10 V Signal Outputs: DC, Sine, Triangle, Square, and White Noise	204.8 kSa/s	ALO	4 channel Analog Output

MONITORING

Note 1: *Pulse rate for sum of both channels*

Buffered outputs for external monitoring of the conditioned input signals	98 kHz bandwidth	ALO	4 channel Buffered Analog Output
	204.8 kSa/s	CHM	4 channel Charge / ICP® / Voltage Input with Buffered Outputs
	2.375 MHz bandwidth	ALI	2 channel Buffered Analog Output

Note 1: *Pulse rate for sum of both channels*

02.

INSIDE

OUTSIDE

FREEDOM

OPEN

LASTING VALUE

RUGGED

- Machined from aluminium
- Conduction cooled
- Ambient operational temperature: - 40 °C to + 62 °C depending on System configuration

COMPACT AND VERSATILE

- Highest channel density in the market
- Compatibility for any Module
- Same System, portable or rack-mountable

SIMPLIFIED CABLING

- One cable for power, synchronization and Ethernet communication or standalone with no cables

FROM 2 TO 1000s OF CHANNELS,

the **Quantus**Series is the most portable, flexible, and scalable System available on the market.

DECA Q

10^{1}

16-216 Channels

*per single System

*more when synchoronized

MICRO Q

10^{-6}

2-18 Channels

*per single System

*more when synchoronized

MICRO Q BLACK

10^{-6}

2 Channels

*per single System

*more when synchoronized

DECA

EXTENDED BATTERY LIFE

Easily swappable and removable with up to 2 hours operation time

PORTABLE

FLEXIBLE PLATFORM

with accessories.

REMOVABLE HANDLE

16-48 Channels

EXTREME CONDITIONS

DECA**Q**-06 Harsh

ENCLOSED

Machined from aluminium

8-24 Channels

48-120 Channels

CUSTOMIZED MOBILE MOUNTS

RACK-MOUNTABLE

72-216 Channels

**216 channels - 100 kSa/s*

DECA

ACTUAL SIZE

2-18 Channels

SIMPLE CONNECTION TO SMART DEVICES

Optional Wi-Fi

ONE CABLE FOR SYNCHRONIZATION AND ETHERNET

100% DATA CONFIDENCE

128 GB SSD

MULTIPLE SWAPPABLE BATTERIES

Up to 48 Channels Charge | Voltage | ICP®
Up to 64 Channels Temperature

FREEDOM OF CHOICE

Up to 32 Channels Bridge | Voltage | ICP®
Up to 16 Channels High-Speed Bridge and Voltage

Up to 16 Channels Microphone | Voltage | ICP®
Up to 16 Channels Tacho | Up to 16 Channels ICP® | Voltage

OR A COMBINATION OF ANY OF THE ABOVE

MICRO Q

ACTUAL SIZE

2-18 Channels

I/O MODULES

- 6 to 12 Channels Charge I Voltage I ICP®
- 8 to 16 Channels Temperature
- 4 to 8 Channels Bridge I Voltage I ICP®
- 2 to 4 Channels High-Speed Bridge and Voltage
- 2 to 4 Channels Microphone I Voltage I ICP®

CONNECT AN ATTOQ

For additional tethered features

HDI

Combined ICP® / Voltage

GPS

Time, position data and synchronization with drift compensation

CAN / CAN FD

Interface to CAN communication bus

SIMPLE CONNECTION TO SMART DEVICES

Optional Wi-Fi

10 – 30 VDC input

ONE CABLE FOR POWER, SYNCHRONIZATION AND ETHERNET

BUILT-IN BATTERY AND POWER BANK

Attach and swap for increased uninterrupted measurement time

TAC

Analog Tachometer

128 GB SSD

100% data confidence

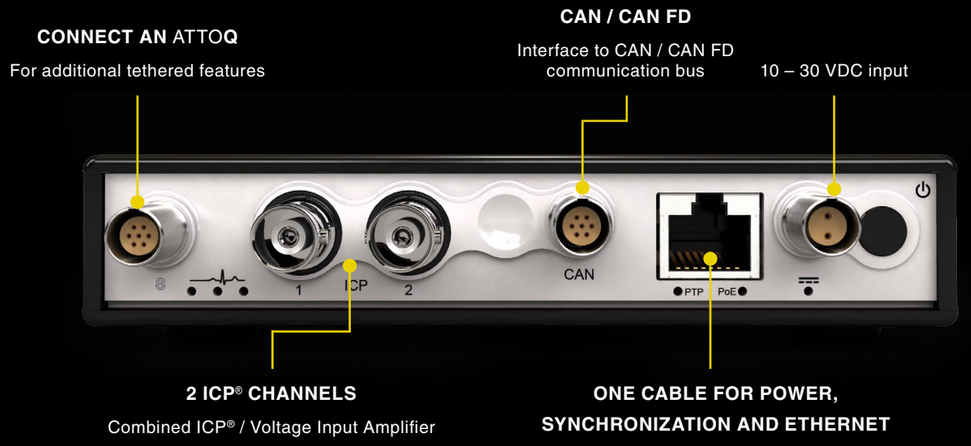
FREEDOM OF CHOICE

Choose from a variety of signal conditioning Modules to be ready for any measurement scenario

MICRO Q BLACK

ACTUAL SIZE

2 Channels



- **HIGHLY COMPACT FORM FACTOR**
- **NO COMPROMISE ON QUALITY SIGNAL CONDITIONING**
- **SYNCHRONIZE TO INCREASE CHANNEL COUNT**
- **SIMPLE LOW-COST SOLUTION FOR REPEATABLE MEASUREMENT SETUPS**

03.

INSIDE

OUTSIDE

FREEDOM

OPEN

LASTING VALUE

FOR ALL SENSOR TYPES

- 20 I/O Module options for any sensor type
- Strain, temperature, sound, vibration, shock and more
- Digital bus: CANbus, Ethernet, Wi-Fi and more to come
- Modular concept – build your own System from selected components

TETHERED OR INDEPENDENT

- Choose Systems with or without a built-in battery and get the same laboratory quality, whether your measurement is connected to a power source or is out in the field.

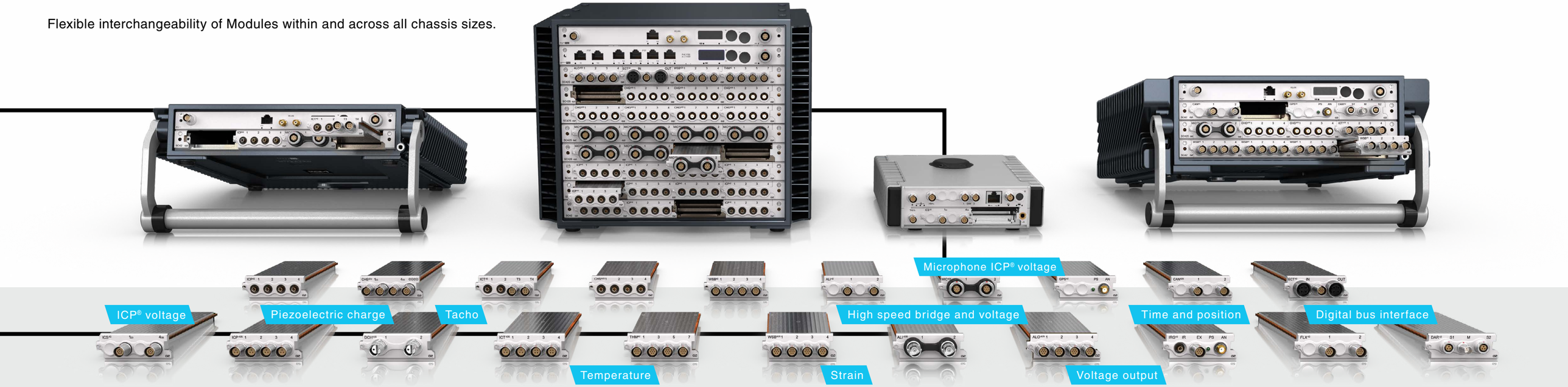
SYNCHRONIZE

- Synchronize **Quantus**Series Systems with either Precision Time Protocol (PTP) or GPS

Modular

the choice is yours

Flexible interchangeability of Modules within and across all chassis sizes.



Tethered

simple and expandable

UPS
Optional

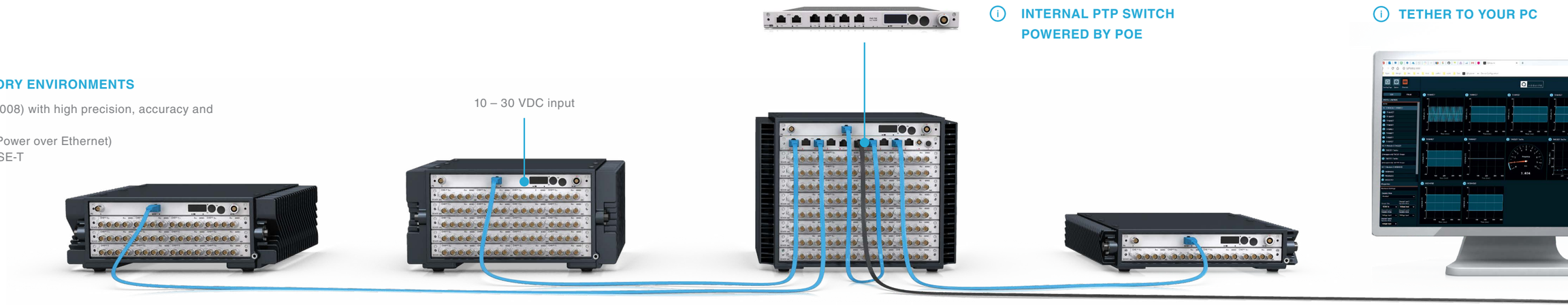
PoE
PoE

FOR LABORATORY ENVIRONMENTS

PTP IEEE (1588-2008) with high precision, accuracy and robustness

PoE IEEE 802.3 (Power over Ethernet)

Ethernet: 1000BASE-T



INTERNAL PTP SWITCH POWERED BY POE

TETHER TO YOUR PC

ONE CABLE FOR POWER, ETHERNET AND SYNCHRONIZATION

SYNCHRONIZE TO WITHIN 50 ns.

Independent

for ultra-portability

Removable SD *Optional*

SSD *Optional*

Multiple Batteries

Wi-Fi *Optional*

GPS *Optional*

SET UP AND RUN YOUR MEASUREMENTS

SYNCHRONIZE WITH GPS

Use GPS for location

SHARE AND CHARGE

Hot swap external batteries for all day operation
Download data and share.

TRANSFER DATA OVER WI-FI

SYNCHRONIZE WITH GPS TO WITHIN 500 ns.

04.

INSIDE

OUTSIDE

FREEDOM

OPEN

LASTING VALUE

OPEN DATA FORMATS

- Your data belongs to you – open and accessible data formats

EMBEDDED OPEN SOFTWARE

- Use MATLAB | LabVIEW | Python | C# | C++ and build your own System from selected components using our RESTful interface, **Q**Server
- Use embedded and included software for setup, remote control and acquisition of your data

PARTNERNETWORK INEGRATED SOLUTIONS

- Software for application-specific analysis. Choose our instrumentation platform with your preferred software

EASY
OPEN
RESTFUL
MODERN
ACQUIRE
CHECK
MANAGE
ECOSYSTEM
INTERFACE
DATA
SIMPLE
VIEW
OPTIONS
GUIDED
CLICK
TRACK
MONITOR
INTERACT

Our instrumentation comes with embedded software that we believe is necessary for you to be able to set up, control and record your measurement and a simple interface to write your own. For a full integrated solution choose a third-party software package from our **Partner**Network.

QUANTUS SOFTWARE

SUITE

BASIC ACQUISITION INCLUDED

DEVELOPER'S TOOLBOX

INTEGRATED SOLUTIONS

Ready when you are.

ACCESSIBLE FROM ANY BROWSER AND ANY DEVICE.

#out of the box

Embedded Easy Acquisition.

QAcquire is an intuitive app for configuring, calibrating, monitoring and making measurements. For remote operation, connect to **QAcquire** via Wi-Fi or Ethernet.

Embedded and included on all **Quantus**Series instruments, **QAcquire** configures, controls and monitors your measurement in a modern and effortless way.

YOUR DATA BELONGS TO YOU

MATLAB
LABVIEW
PYTHON
C++
C#

Do it yourself.

LANGUAGE INDEPENDENT

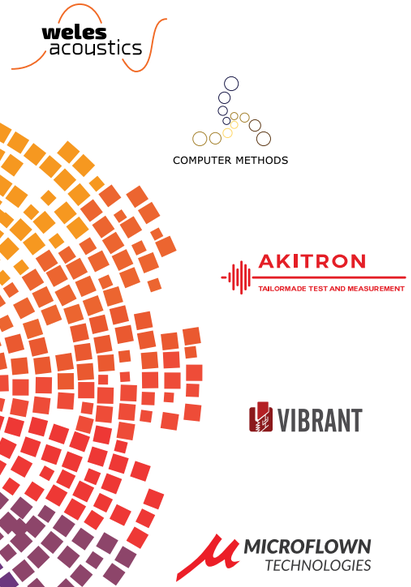
#developer

Empowering.

With the **QServer** RESTful interface, developers can effortlessly interact with the System, eliminating the need to delve into intricate hardware configurations. This streamlines the development workflow and empowers developers to concentrate on the core functionalities of their application, ensuring efficiency and ease of use.

- A RESTful API for easy measurement setup.
- Customizable data streaming formats allow developers to choose between high-performance applications and ease of use.
- Utility Libraries that can be integrated into applications to facilitate:
  - The discovery of devices on the network,
  - The upgrading the software running on the device,
  - The download and conversion of Internal Data Storage data to standard data formats
  - A plug-in-style customer data exporter interface to expand on the formats available for Internal Data Storage conversion.
  - Thin interface libraries for strongly typed languages (such as C#). These interface libraries help convert strongly typed values in the developer's application to their RESTful counterparts, reducing the integration time.

APPLICATION DRIVEN



PARTNER NETWORK

MECALC.com/partners-distributors-network.php

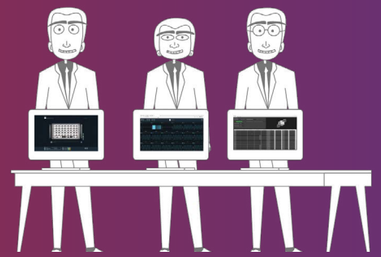
#partners

Integrated Solutions.

For over 35 years, our hardware has been used in a variety of applications, from pass-by to modal analysis and acoustic control Systems. Contact one of our **Q**Experts for more information about how our Systems will match your application.

PartnerNetwork

Visit our website for more information



GITHUB

https://github.com/MECALC

SCRUMSPACE ONLINE COMMUNITY

#scrumspace

MATLAB
LABVIEW
PYTHON
C++
C#

Let’s Collaborate

Being a Power User means you’re not just using **Quantus**Software – you’re shaping it, tweaking it, and making it your own. Build on our out-of-the-box acquisition using open-source toolboxes for data acquisition and analysis software development or choose multiple pre-integrated solutions from our **Partner**Network.

Let’s collaborate on **Scrum**Space, a platform where Power Users can find shared examples that facilitate the seamless integration of **Quantus**Software into their measurements. Together, we can turn your ideas into reality and create software solutions customized to your measurement needs. On GitHub find our Developer’s Toolbox where you can access open-source toolboxes for data acquisition software development, and contribute your own solutions and tips to the platform.

Whether you are working with **Quantus**Software out of the box basic acquisition, a developer doing it yourself with the help of our **Q**Server RESTful API, or integrating with a **Partner**Network solution becoming a Power User is for anyone who wants to integrate **Quantus**Software and take their measurements to the next level.

05.

INSIDE

OUTSIDE

FREEDOM

OPEN

LASTING VALUE

CUSTOMIZE

GROW YOUR SYSTEM

- Built on standards that sustain technological advancements
- Modular Systems that are always expanding – new releases of Modules and upgrades are available several times a year
- Add / swap new Modules when the need arises, and synchronize all Systems

CALIBRATION

- Manufacturers' proprietary calibration Systems and functionality check
- On-site and campaign calibrations, the flexibility to choose between our expert calibration services or the option to train your own metrology lab
- ISO 17025 Calibration Accredited

IT'S ALL US

- All hardware, firmware, drivers and accessories are designed and manufactured in-house at MECALC

Custom

in-house development and manufacturing

THE DIFFERENCE IS US.

From custom cabling to solutions that enable our instrumentation to fit seamlessly with your measurement architecture, our in-house design and production capabilities are ready to create custom infrastructure to integrate with your measurement landscape.

MECALC works closely with our partners to meet the evolving trends in Test and Measurement applications. With one of the largest in-house development teams in the industry, we have the resources to work closely with our partners to meet new challenges.

CUSTOM MADE MOBILE MOUNT WITH INTEGRATED BNC CONNECTORS

Welcome to your next

investment in capital equipment.

QuantusSeries Systems are designed with the long-term in mind. Our modular concept keeps our Systems updated with the latest technological advances. Components from different generations can coexist in the same System, allowing Systems to be partially upgraded as needed.

MECALC's in-house development team is one of the largest in the industry and regularly adds the latest technological advancements to the **Quantus**Series. Upgrades to support the latest sensors, improve signal quality, and support new applications are continuously added to the I/O modules. And, new System designs provide faster data processing and data transfer, lower power consumption, higher channel counts, and more.

Contact MECALC for more information about upgrade campaigns and new product releases.

05 year warranty

10 year warranty

15 year warranty

SUPPORT MIXED GENERATION FOR PARTIAL UPGRADES

TECHNOLOGY ADVANCES AT AN ACCELERATED PACE.

WE KEEP UP.

MODULAR UPGRADES

Recycle and Upgrade.

Calibration

and system health check.

All new **Quantus**Series Systems are delivered with an optional ISO/IEC 17025 accredited calibration.

MECALC's ProCal calibration service includes a full factory test of the entire System and exercises all measurement modes on the instrument as a comprehensive manufacturer's proprietary calibration. This calibration option verifies measurement accuracy plus the correct operation of internal voltage references, grounding, AC coupling, filters, noise performance, excitation voltage, integrity checking, digital channels, all connector pins, Signal Conditioning cards, Wi-Fi, SSD, batteries, handles, buttons, and many more.

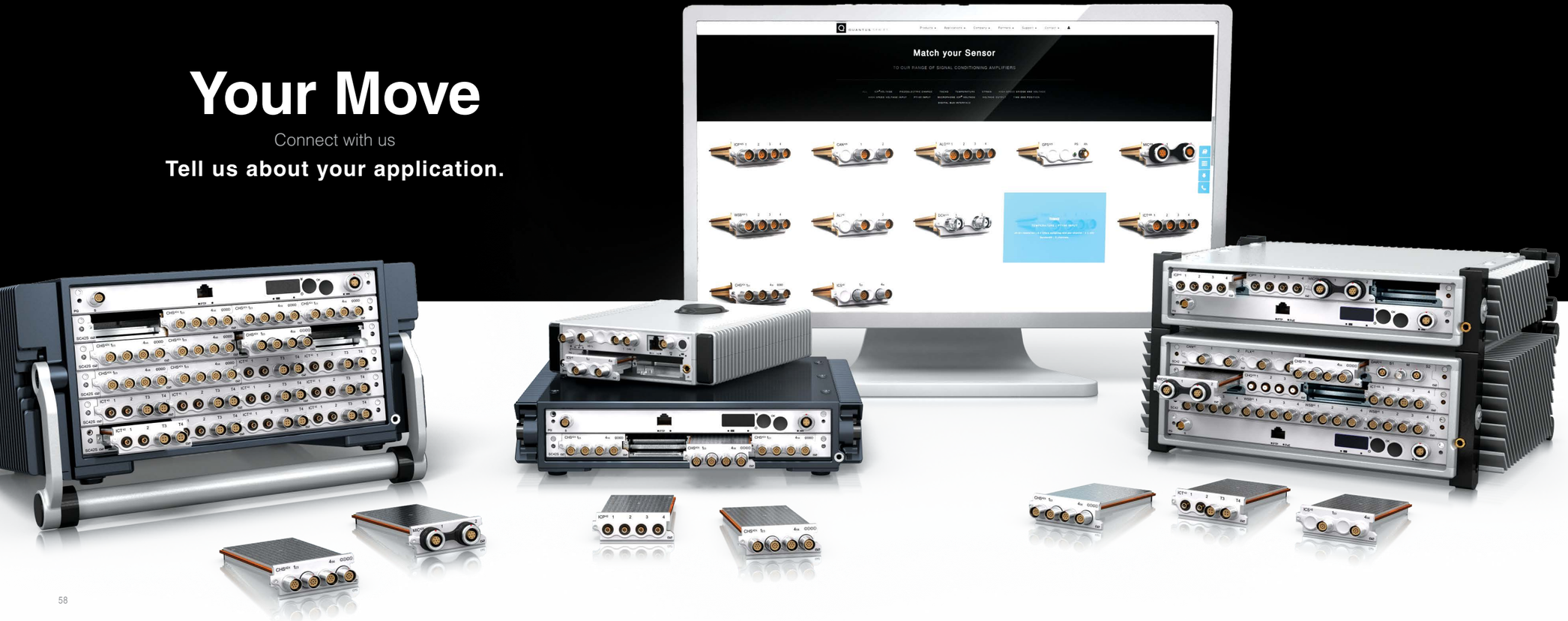
These tests ensure **Quantus**Series Systems continue to operate as specified at every stage of their life cycle.

The **Quantus**Series is a highly modular System and ProCal is designed for Systems that will be reconfigured in the field. Swapping or moving Modules between slots or Systems can then be done with confidence. And, the validity of a System calibration is preserved when a defective Module is replaced with a calibrated Module of the same type.

Your Move

Connect with us

Tell us about your application.



DOWNLOAD CATALOG

MECALC.com

MECALC technologies

USA | SOUTH AFRICA | EUROPE | ASIA

MECALC.com | hello@QuantusSeries.com

Follow MECALC Technologies

United States: +1-404-800-0825 Germany: +49 (0)30-555-795-760

MECALC IS A HIGHLY SPECIALISED ENGINEERING DESIGN HOUSE WHICH ENJOYS PUSHING INNOVATION AHEAD OF THE GAME.

MECALC researches, designs, develops and manufactures advanced acquisition and control Systems. Since 1984, we've been driven to position ourselves at the forefront of new developments and thinking.

Used to optimise noise, vibration and structural integrity in prototype or quality control testing, our **Quantus**Series instrumentation is crucial to markets where exceptional development and production quality are essential.

CHARGED TO INNOVATE, we're inspired to create products for those who are as passionate about creating theirs.

a mecalc design

QSS24/02.