

# Four Steps to Easily Integrate Optical Sensors Into Your Measurement Chain

MAY 27<sup>TH</sup>, 2021

Cristina Barbosa



## Cristina Barbosa

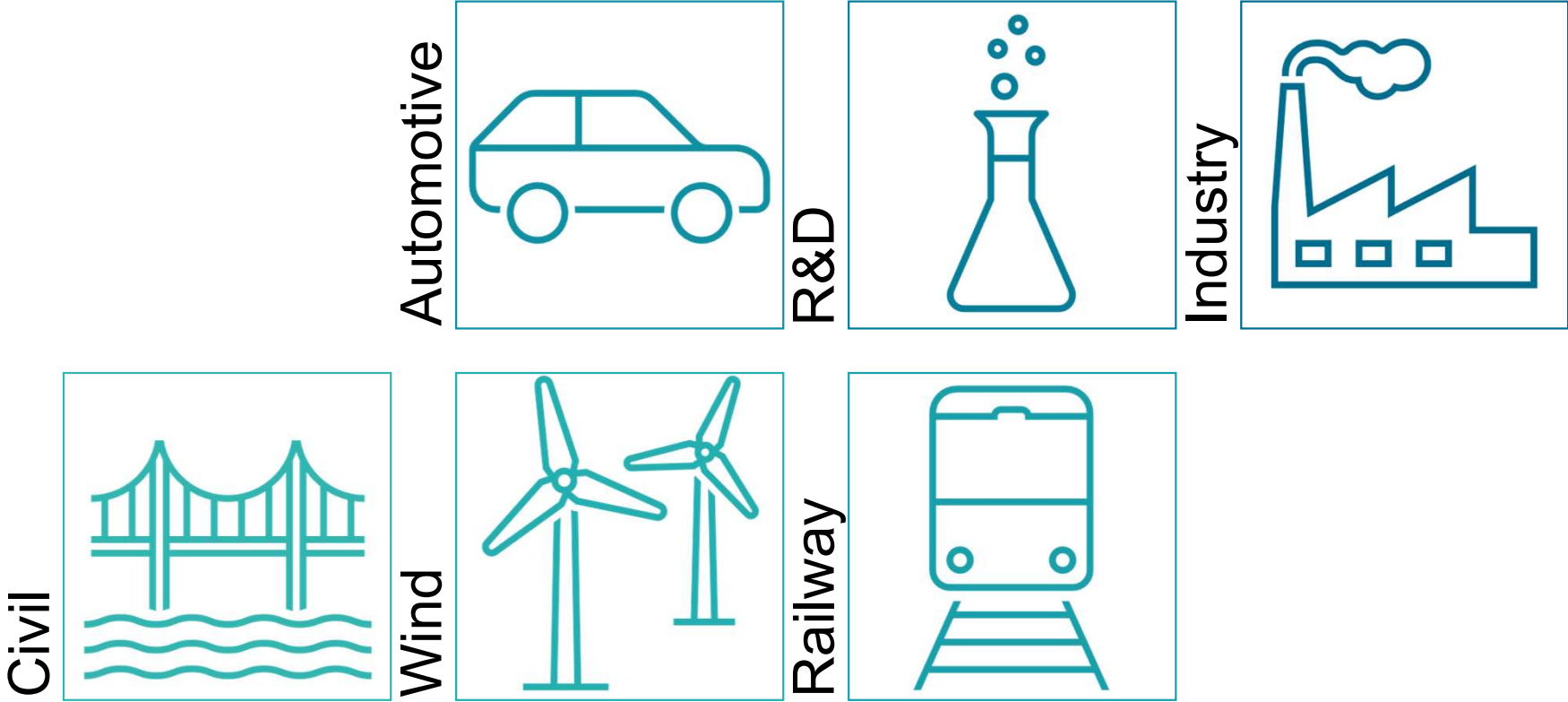
- Product Manager, HBK Optical Business
- Degree in Civil Engineering
- 15 years of experience in optical measurement solutions within HBK FiberSensing

**E-Mail:** [cristina.barbosa@hbkworld.com](mailto:cristina.barbosa@hbkworld.com)



# A measurement chain

REGARDLESS OF THE INDUSTRY



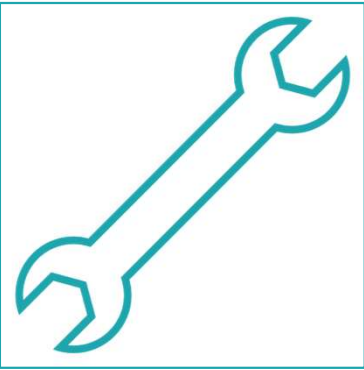
# A measurement chain

REGARDLESS OF THE APPLICATION

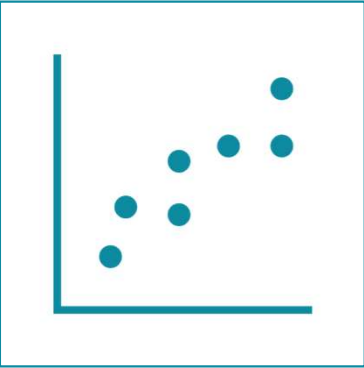
Parts testing



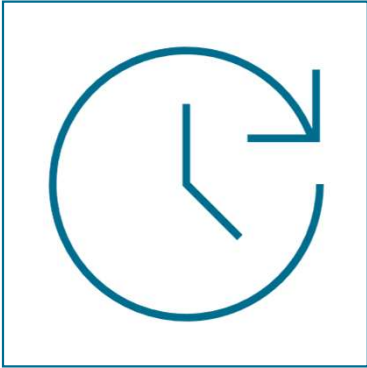
Maintenance



Monitoring



Prediction

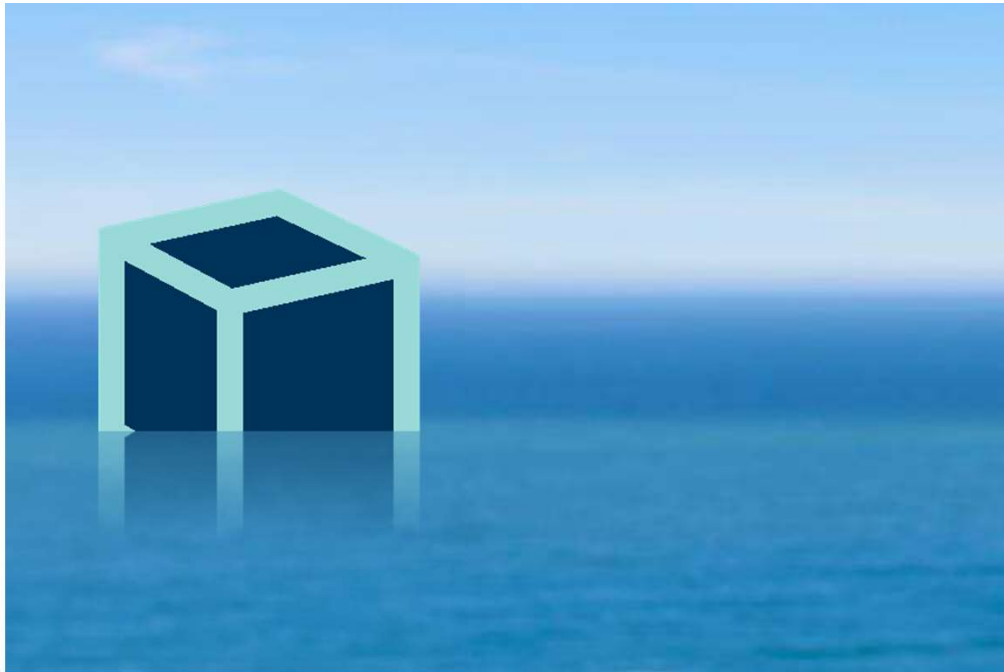


## A measurement chain



read  
your  
product

## A measurement chain



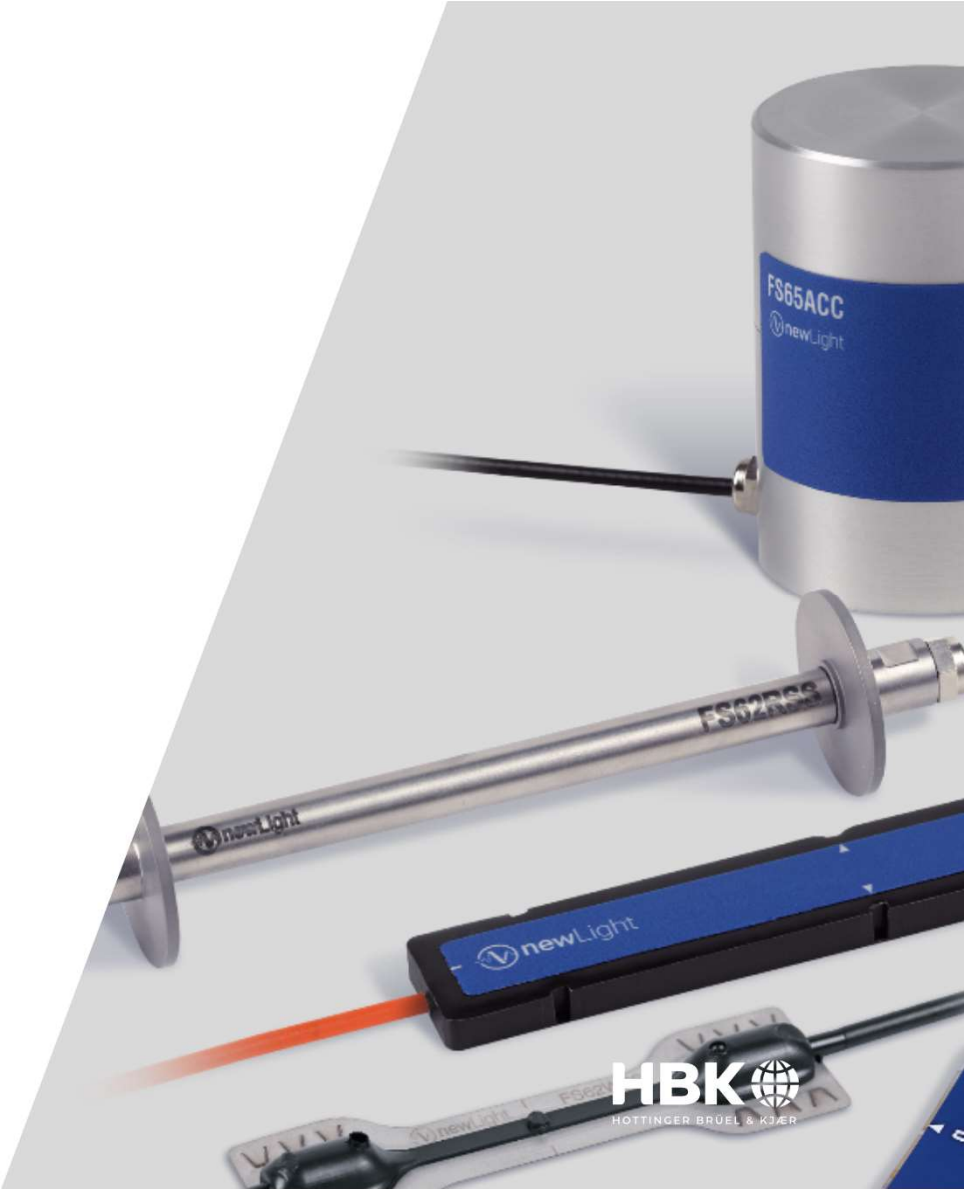
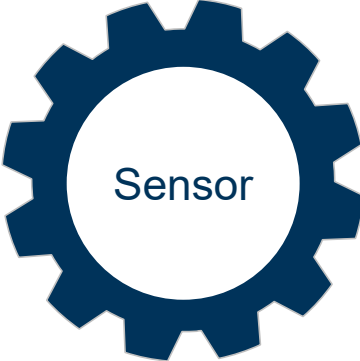
read  
your  
product

## A measurement chain

meaningful  
data

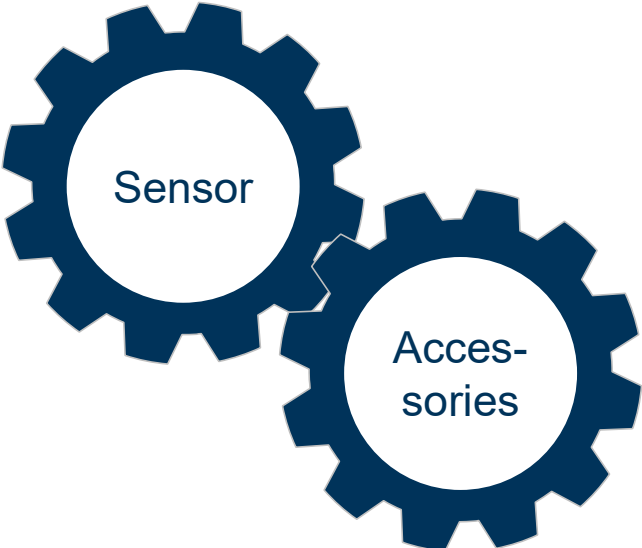


# Components

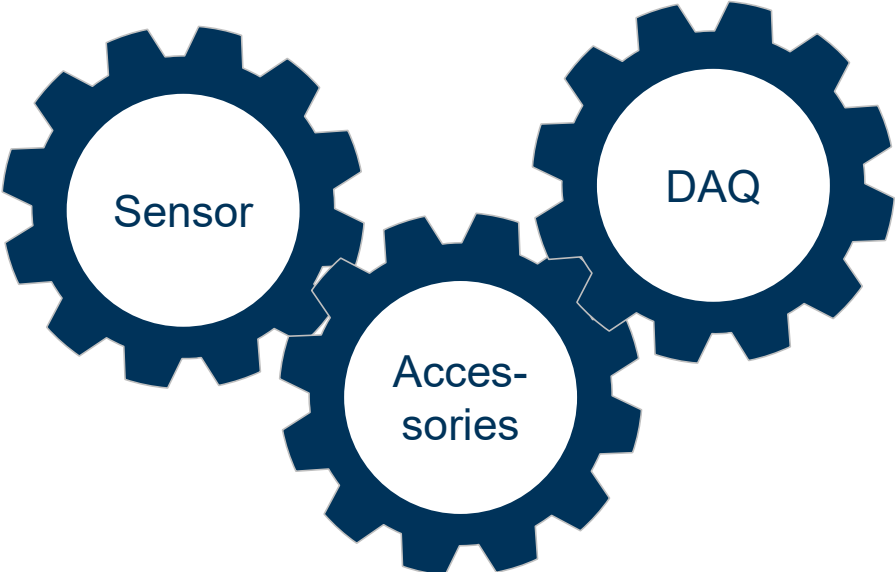




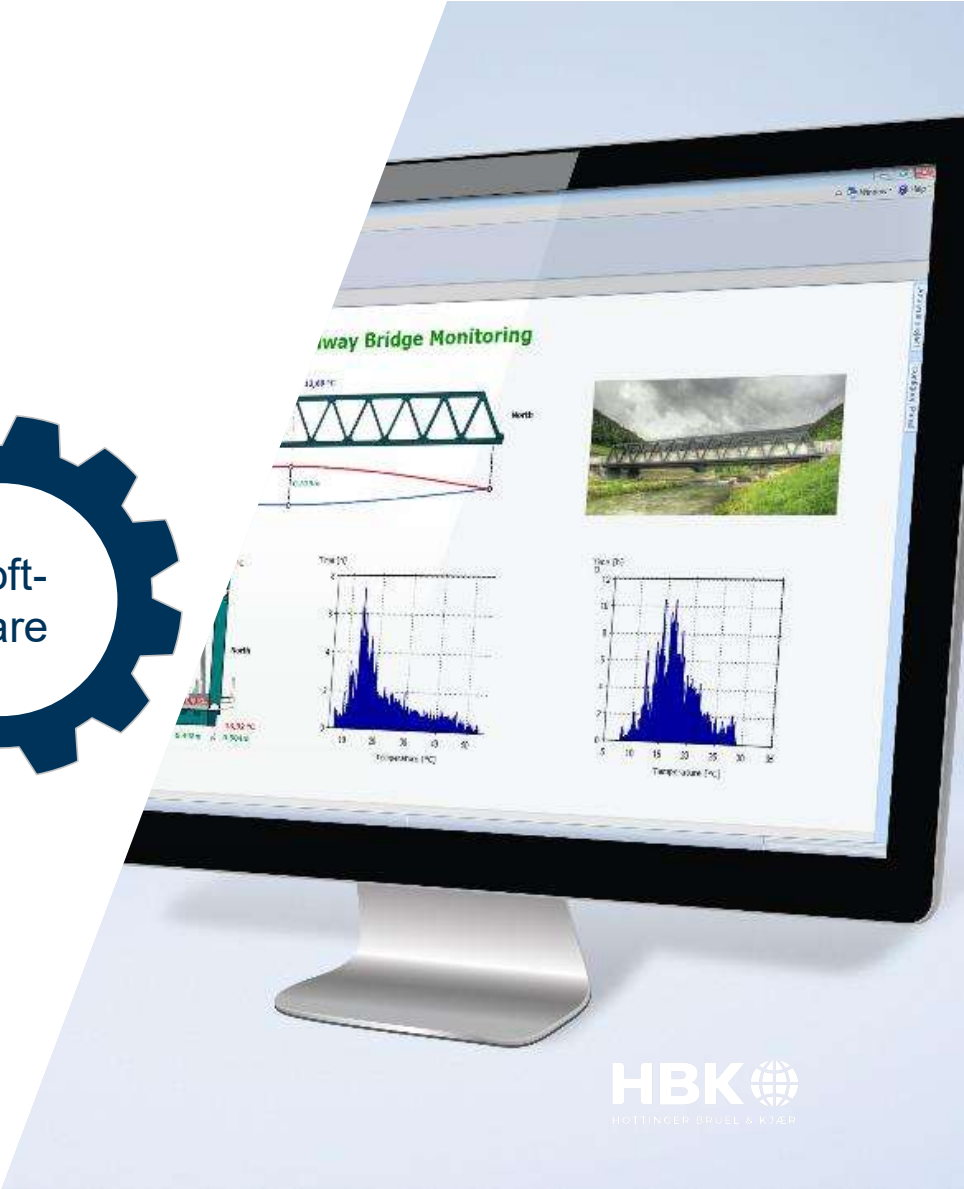
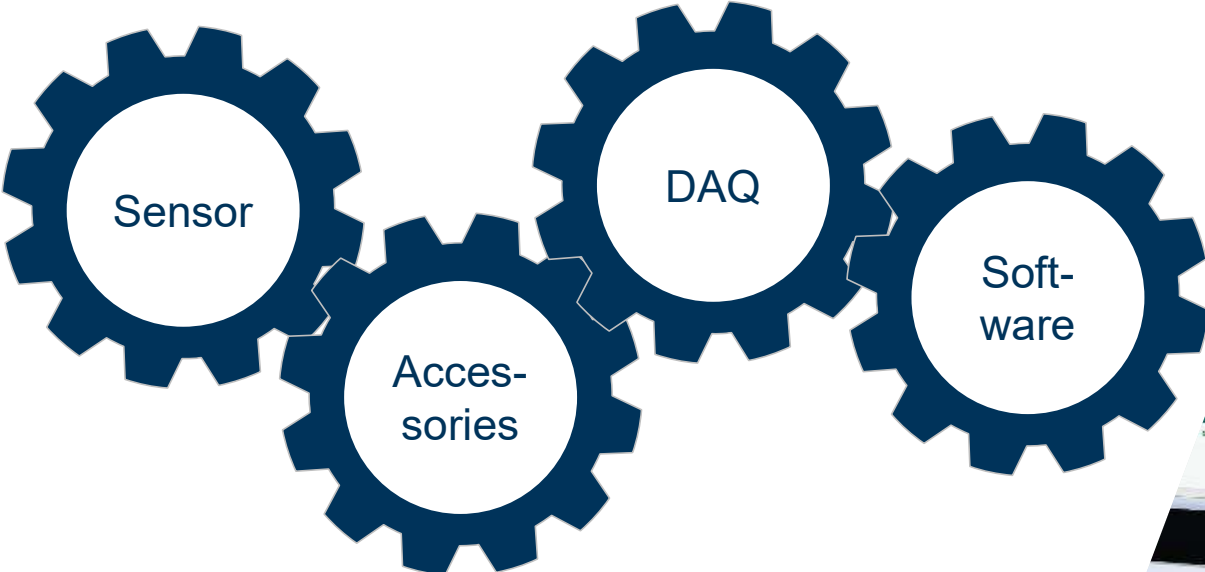
# Components



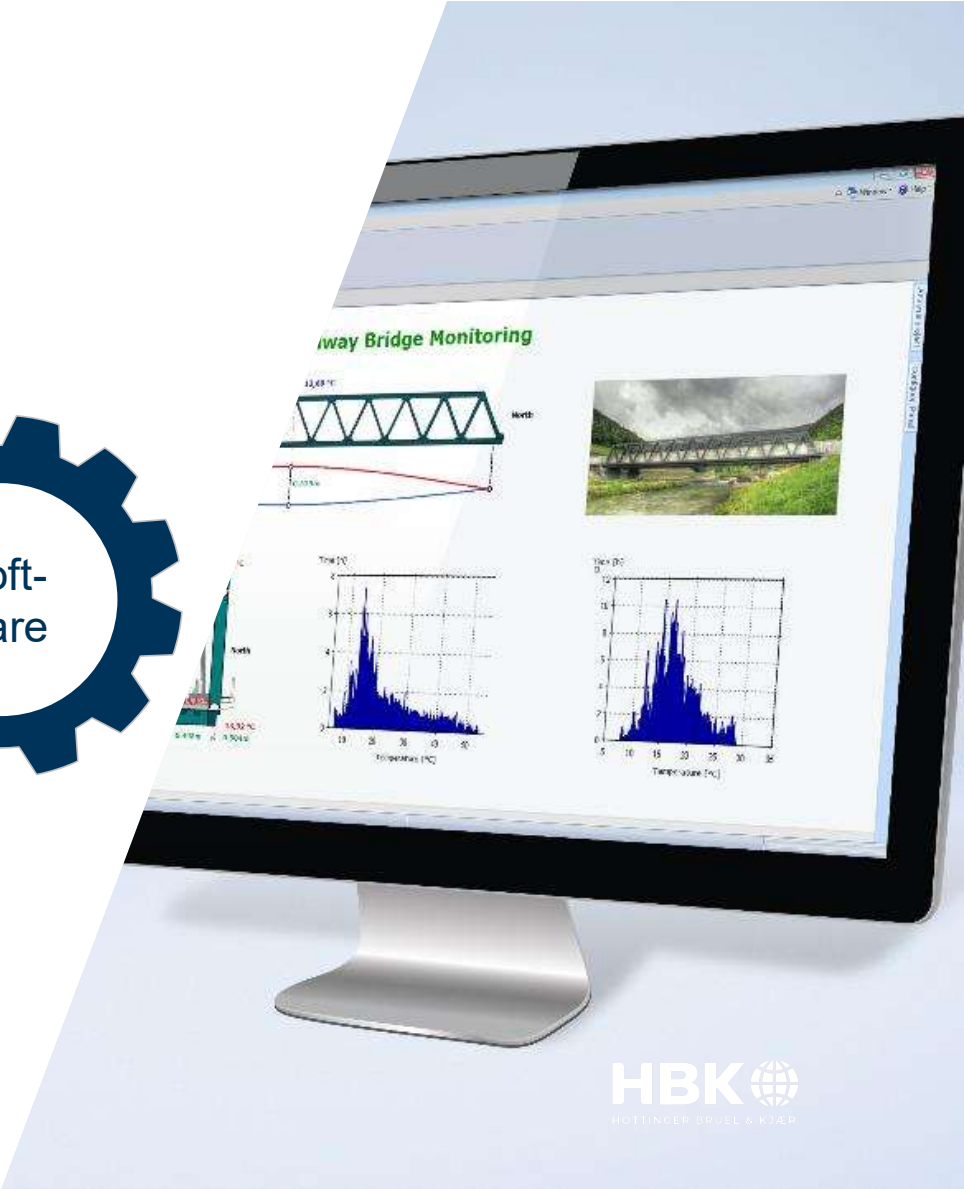
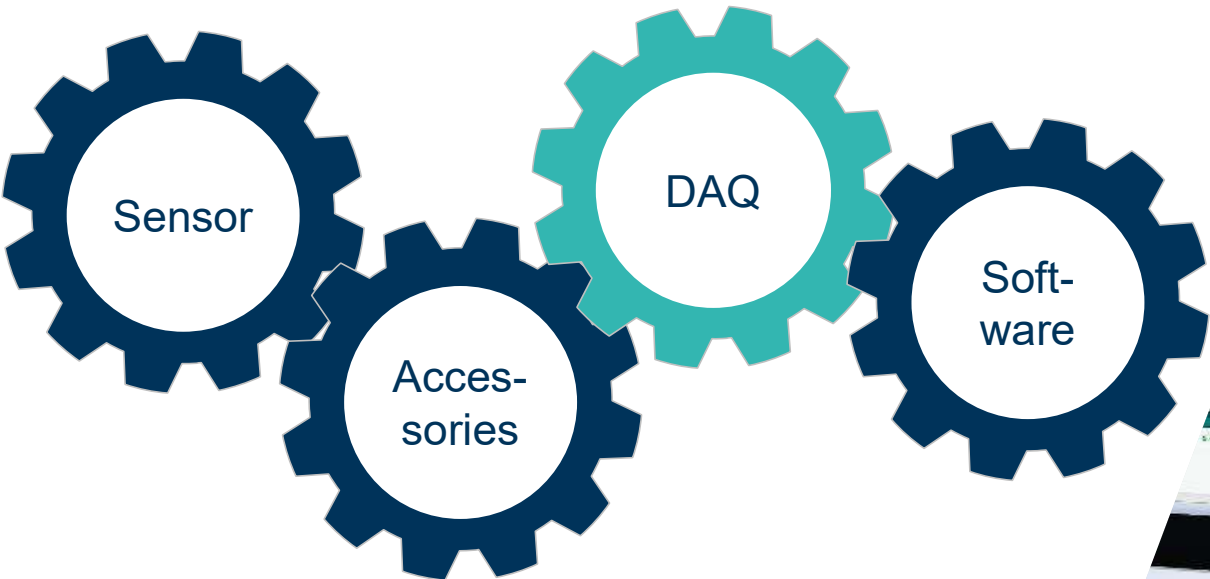
# Components



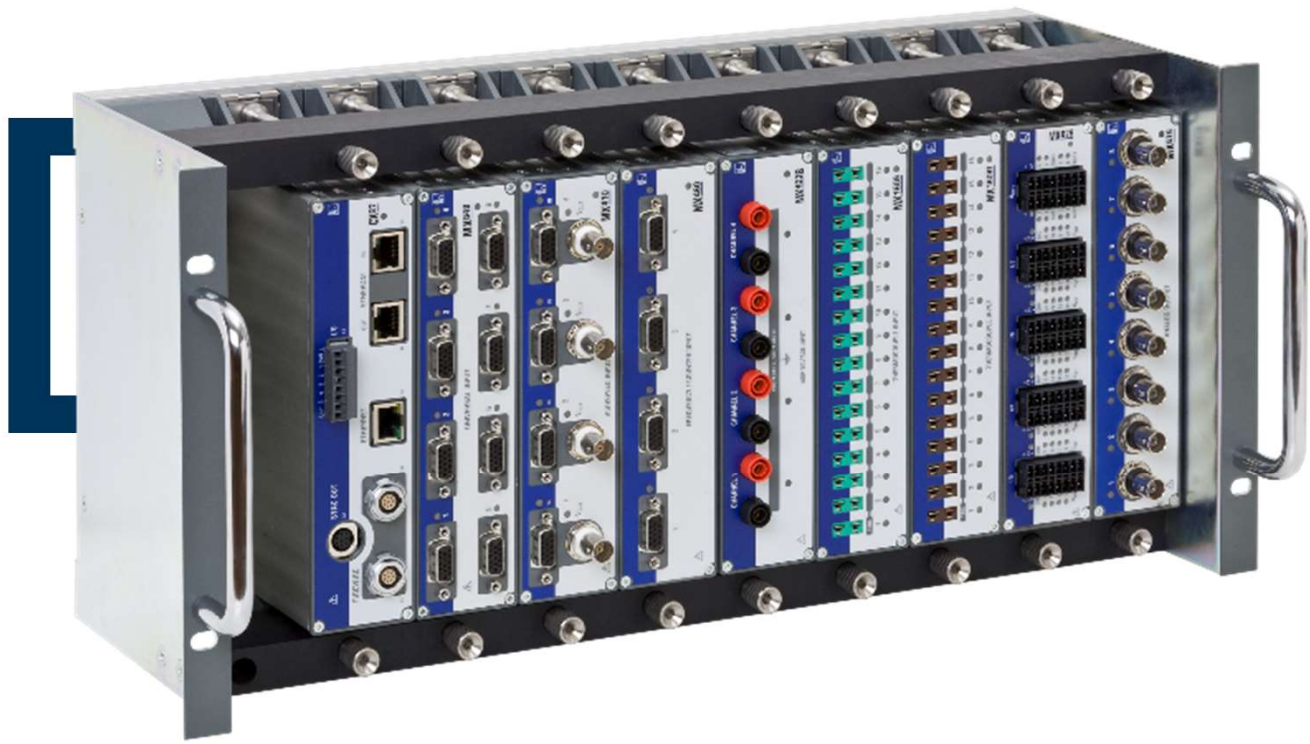
# Components



# Components



# QUANTUM X

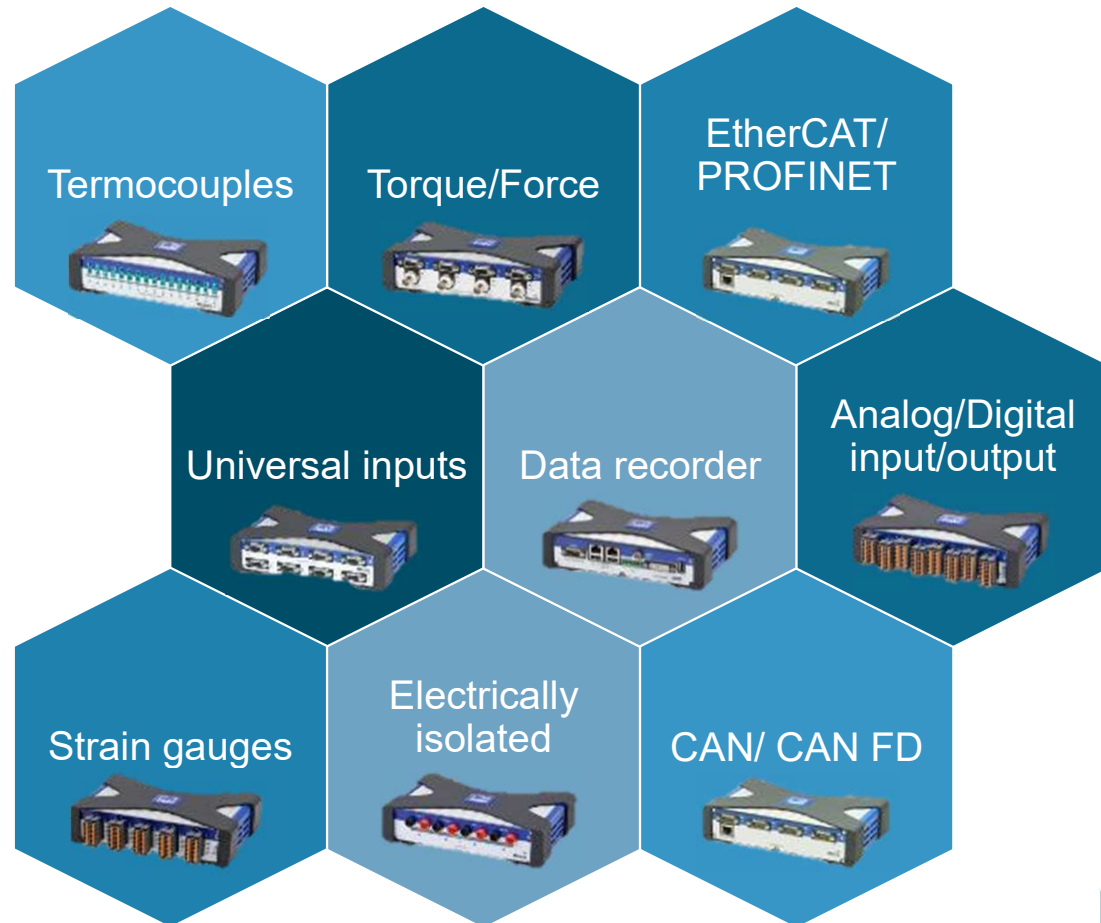


# QuantumX platform



## Flexible

- Every module is a data acquisition unit
- Mobile and stand-alone for vehicle testing
- Integrated in real-time for bench testing
- Portable for service jobs
- Permanently installed in monitoring applications

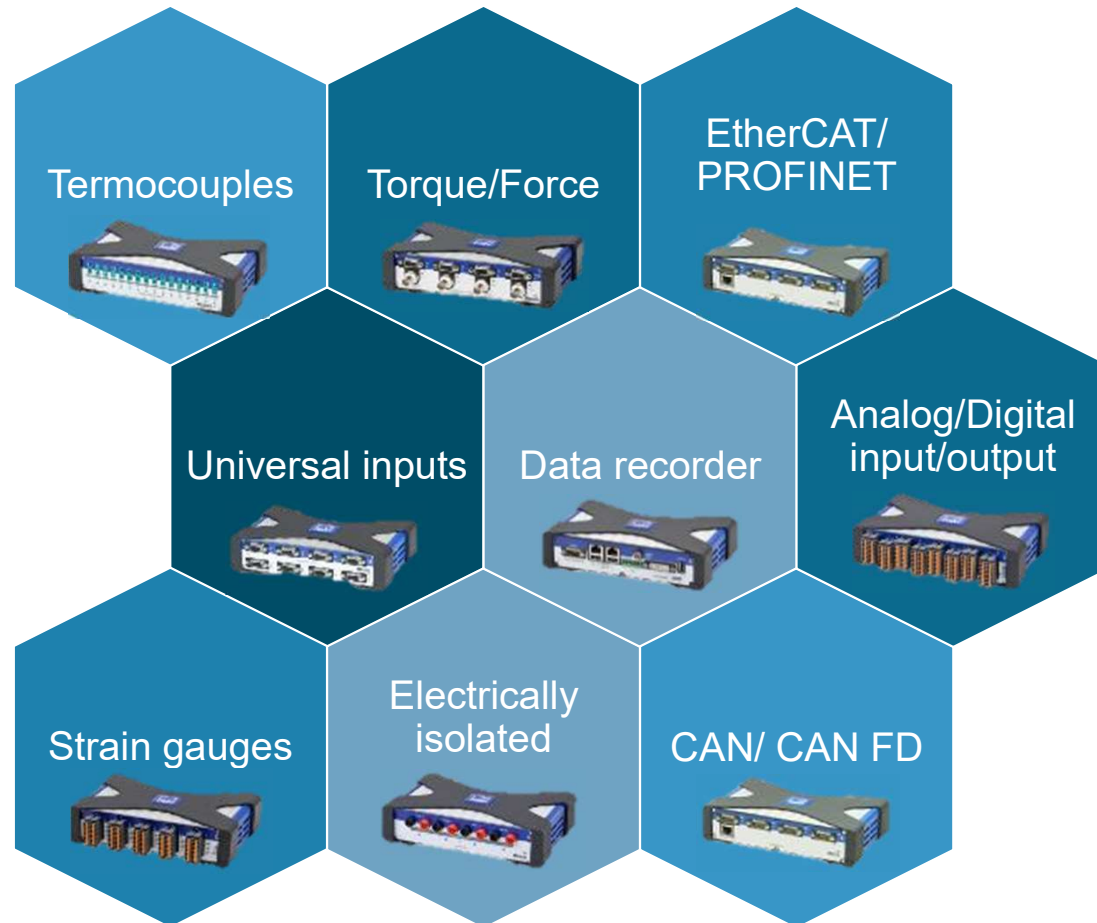


# QuantumX platform



## Reliable

- Established in the market for 10 years and trusted by thousands of customers
- High measurement accuracy due to patented technology
- Long-term stability along with an integrated calibration certificate

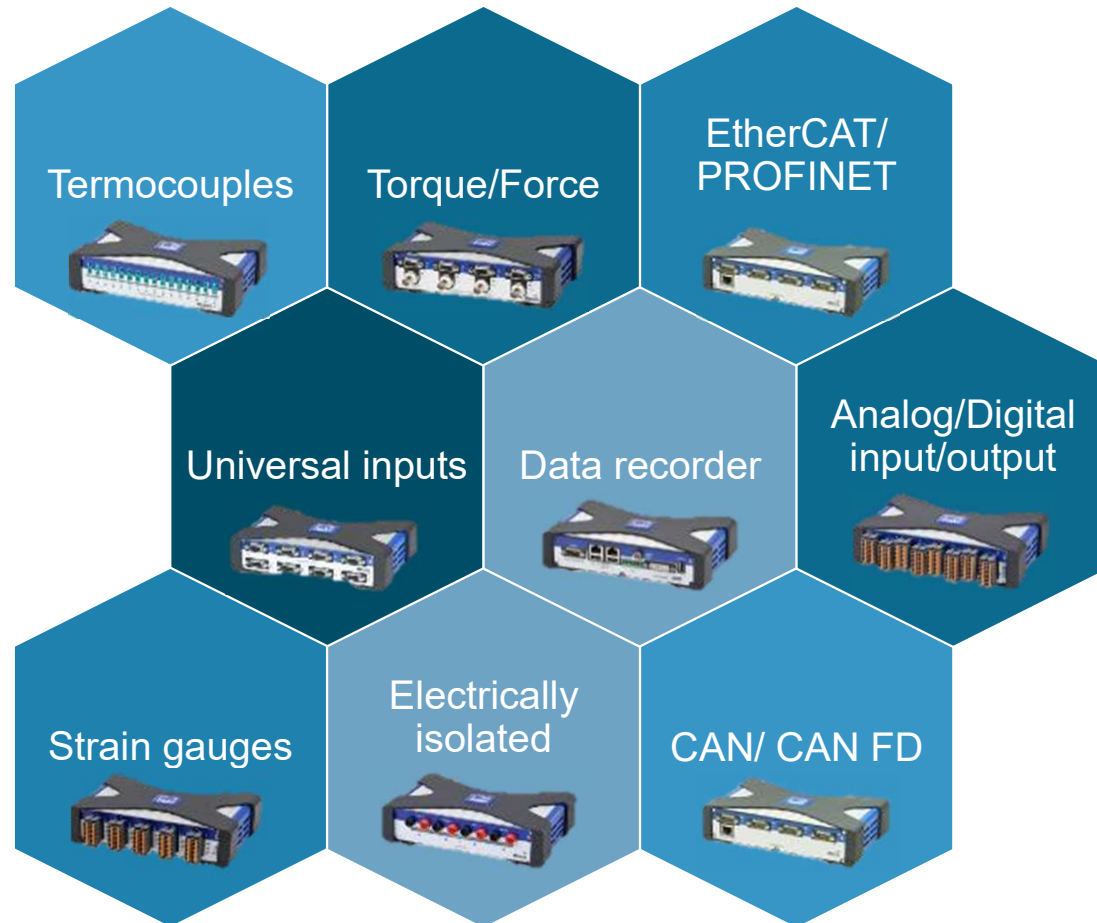


# QuantumX platform



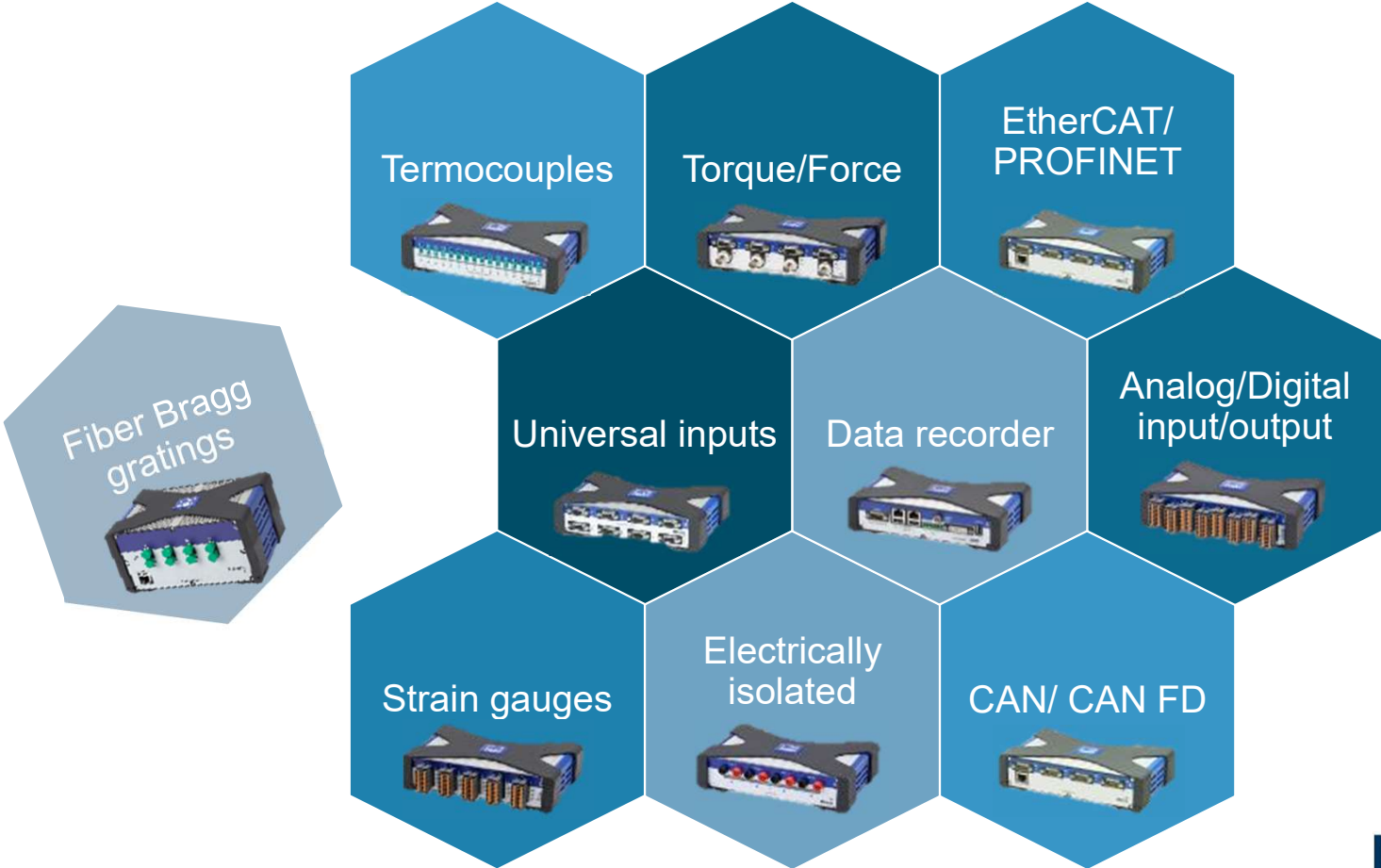
## Easy to use

- Small and portable
- Intuitive operation by HBM's [catman](#) software
- Open for many different software platforms: LabView, Visual Studio .NET, DIAdem, CANape, DASYlab, and more!



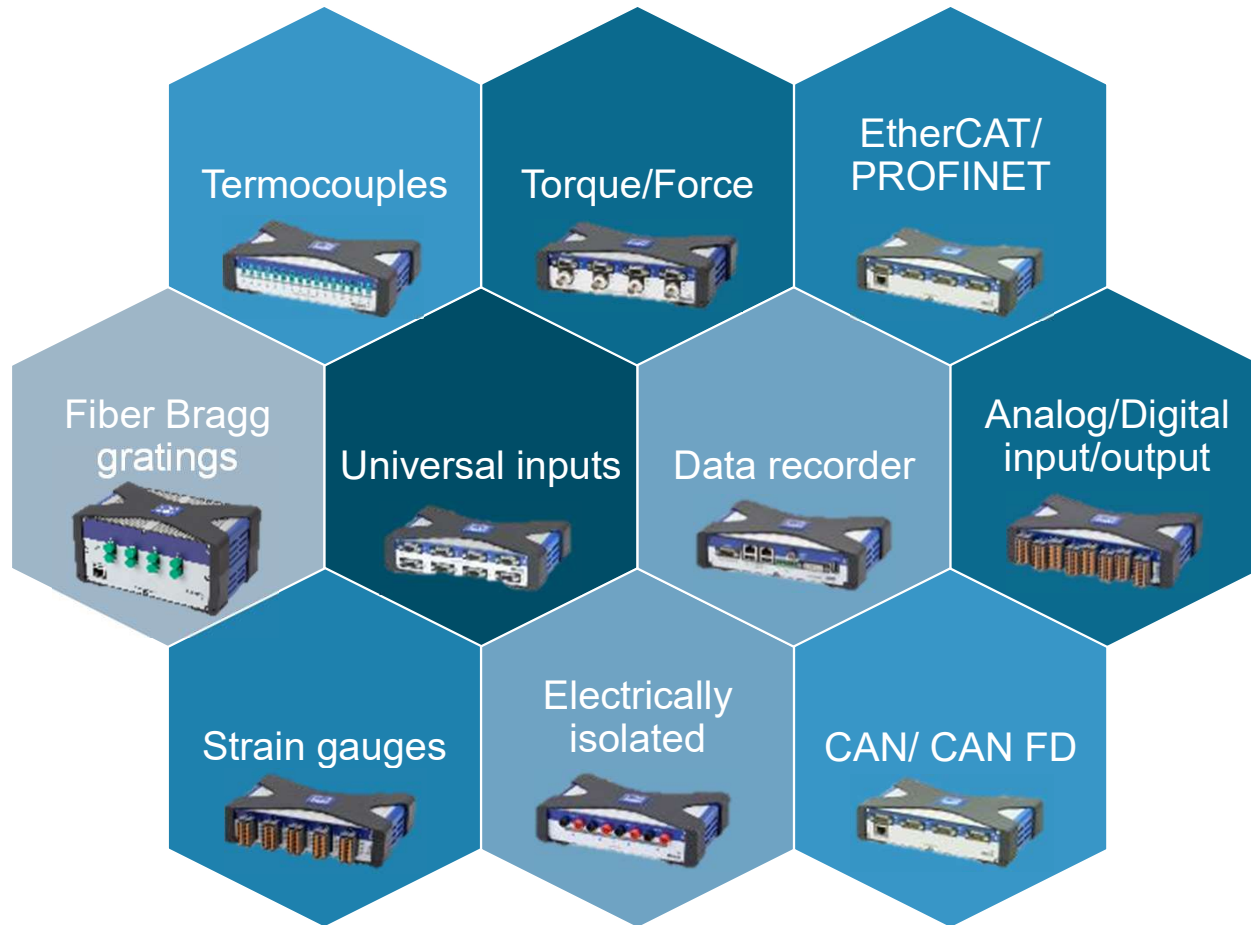


# QuantumX platform



# QuantumX platform

## MXFS



MXFS

QUANTUM<sup>X</sup>



BraggMETER

# MXFS



Well established platform

Modular approach

AO, DO, Common Protocols

Software compatibility

## THE COMBINATION OF



Multiplexing and multipurpose

Immunity to EMI and RFI

Low losses

Passive technology

Absolute measurements

# MXFS

## GENERAL CHARACTERISTICS

128 channels

- 8 FC/APC connectors
- 16 channels per connector

Sweeping laser

- Selectable speeds (2000S/s or 100S/s)

Dimensions

- 198 x 95 x 135mm

Communication

- Ethernet



# MXFS

## GENERAL CHARACTERISTICS

128 channels

- 8 FC/APC connectors
- 16 channels per connector

Sweeping laser

- Selectable speeds  
(2000S/s or 100S/s)

Dimensions

- 198 x 95 x 135mm

Communication

- Ethernet
- FireWire
- Backplane

Synchronization

- PTPv2, NTP
- EtherCAT, IRIG-B

Environment

- Operating temperatures  
[-20 to 50] °C
- Storage temperatures  
[-40 to 75] °C





# MXFS

## OPTICAL CHARACTERISTICS

### Range

Wavelength range from 1500nm to 1600nm

### Reference

Internal gas-cell for absolute reference at every sweep

### Noise

Dynamic Range of 20dB

### Detection

Enhanced peak detection per defined channel at dynamic sampling rates

### Detail

0.5pm resolution attained with filtering and 1pm without filtering at 100S/s

### Reliable

3pm stability at 100S/s and 6pm at 2000S/s



# MXFS

## QUANTUMX CHARACTERISTICS

### Modular

Part of the QuantumX Family, based on the new SoC, operates as stand alone or together with other modules

### Data

XML configuration and HBM data streaming

### Software

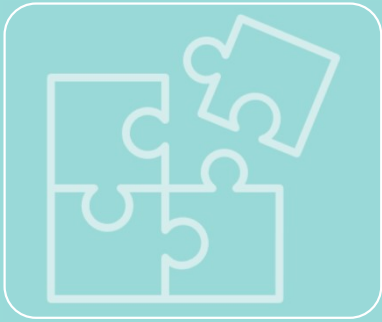
Delivered with catmanEasy; compatible with Common API, MX Assistant and LabVIEW driver

### Certification

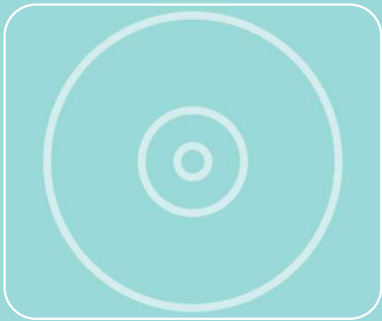
CE, Shock and vibration (EN60068-2-6 / EN60068-2-27)



## Using catman software



take advantage of the  
new module



easily integrate  
optical technology

**STEP 1:**

**Connect  
to the  
optical  
device**



A close-up photograph of a person's hand pointing towards a sensor strip mounted on a dark, metallic robotic arm. The sensor strip is a long, thin component with several small yellow rectangular sensors spaced along its length. In the background, a white table holds various electronic components, including a red and white sensor module and some wires. The overall scene is a workshop or laboratory setting.

**STEP 2:**

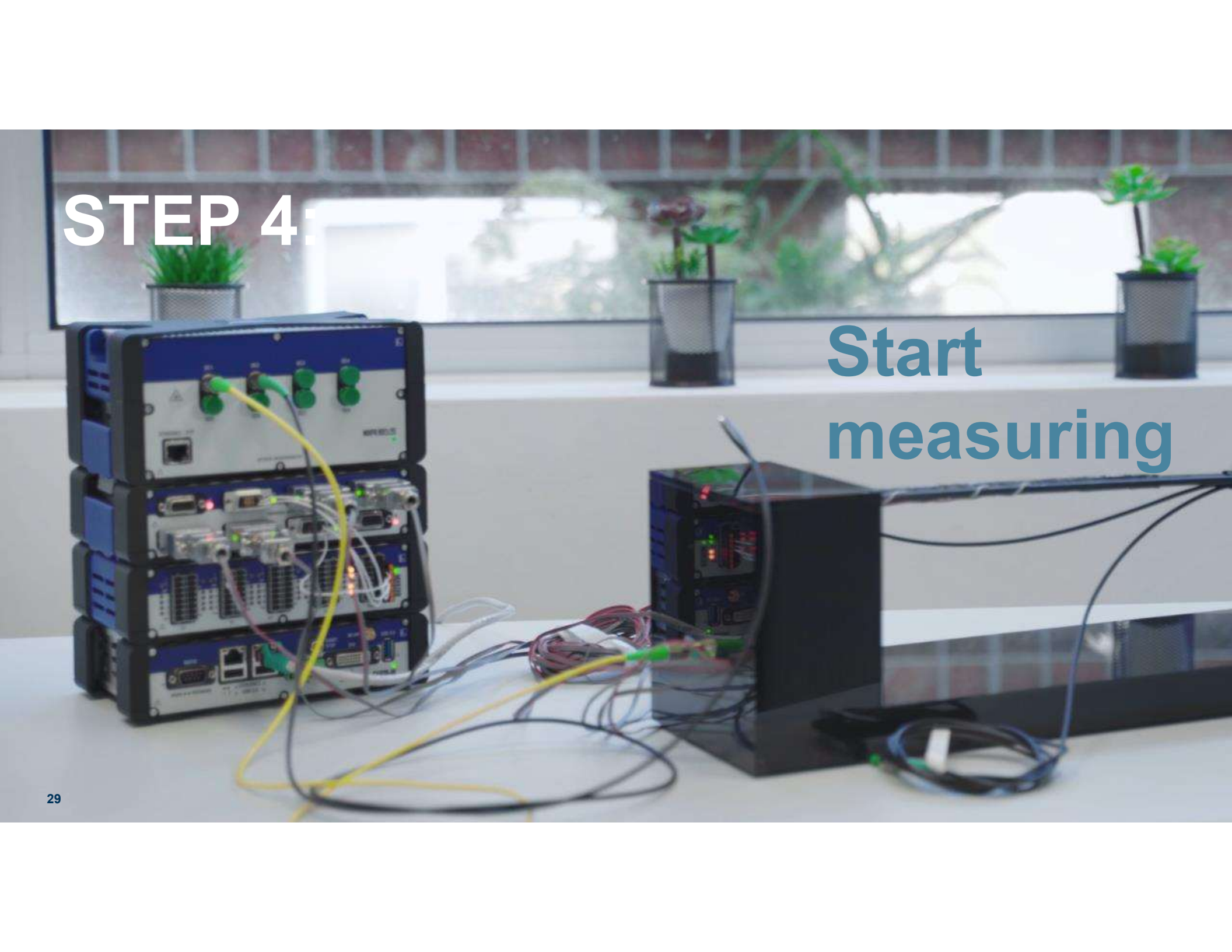
**Configure  
sensor  
ranges**

**STEP 3:**

**Assign sensors**

**STEP 4:**

**Start  
measuring**



# Live Demo



CX22



MX840B



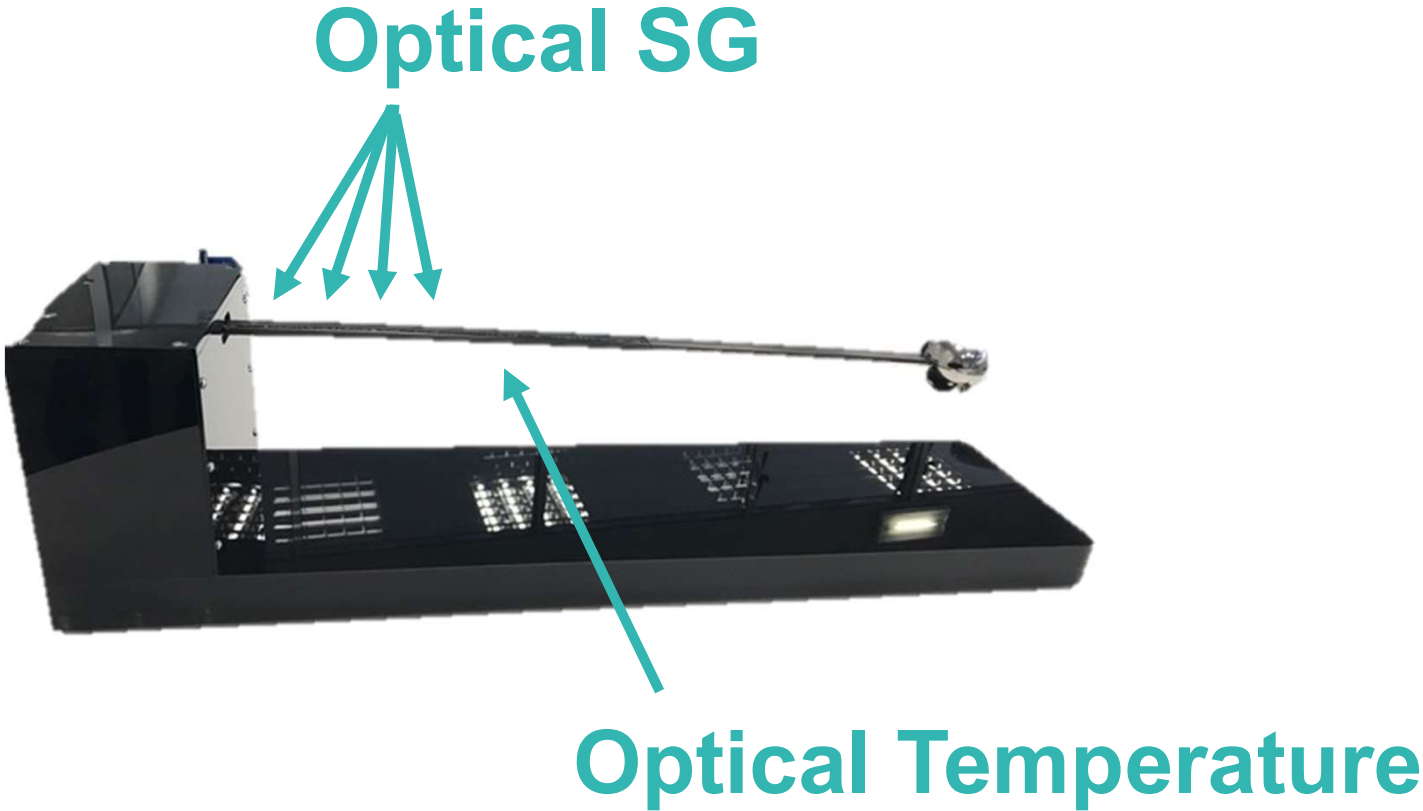
MXFS

# Live Demo

## Electrical SG



# Live Demo



Optical SG

Optical Temperature



## Questions?

- ▲ Please type any questions you have into the WebEx Q&A dialog
- ▲ You can open the Q&A window by selecting the “Q&A” icon in the WebEx toolbar at the top of your screen:



- ▲ Today’s presentation will be E-mailed to all attendees. The webinar will also be posted on our website: <http://www.hbm.com/en/3157/webinars/>
- ▲ If you have additional technical questions, feel free to contact our Americas technical support team at [support@usa.hbm.com](mailto:support@usa.hbm.com) or the European technical support team at [support@hbm.com](mailto:support@hbm.com).



# Thank You

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