



PRECISE AND SMART SIGNAL CONDITIONER

ClipX signal conditioner

With an accuracy class of 0.01 and an integrated calibration certificate, the interference-proof signal conditioner ClipX is setting new standards in industrial process control.



Clip. Measure. Control.

CLIPX IS THE ALL-ROUNDER FOR MONITORING AND MEASURING TASKS IN TEST BENCHES, MACHINES, AND SYSTEMS.



Production monitoring

- Quality control in production
- Fewer rejects due to traceable testing and measuring equipment



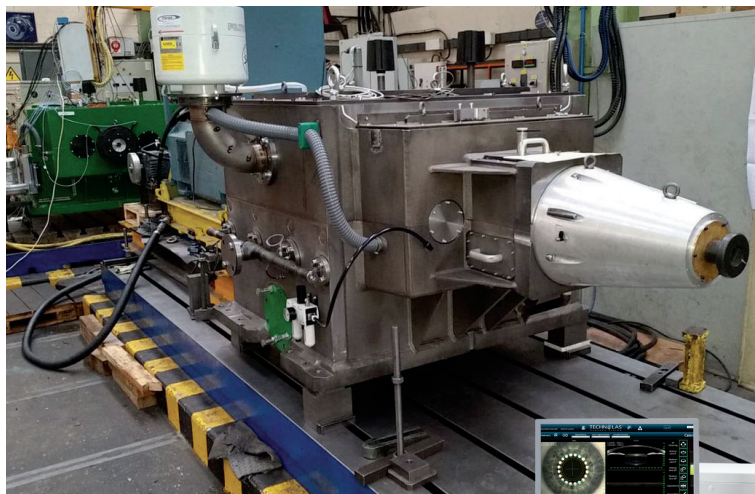
Monitoring of machines and systems

- Monitoring of a machine's operating status (remote control and monitoring)
- Prevention of system downtime (predictive maintenance)

Everything about industrial measurement technology can be found at:
www.hbkworld.com

Industrial test benches

- Easy integration of the digital measurement chain owing to the use of modern automation interfaces
- Isochronous real-time connection to the test bench control system



End-of-line test benches

- Precise product and component testing due to high-grade testing and measuring equipment
- Smart data pre-processing using internal calculation channels (Smart Functions) in the ClipX device

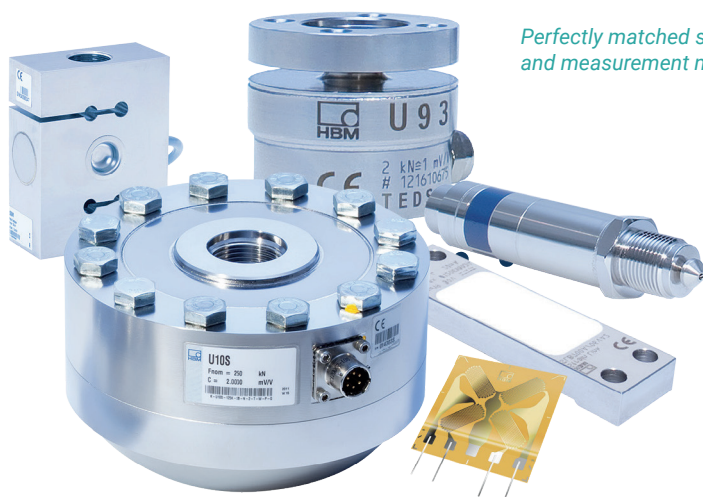
Digital and analogue measurement chains

WITH CLIPX, YOU GET A POWERFUL NEXT-GENERATION SIGNAL CONDITIONER, AND HBM IS AVAILABLE TO YOU AS A COMPETENT PARTNER FOR COMPLETE MEASUREMENT CHAINS. ALL THE COMPONENTS ARE PERFECTLY MATCHED TO EACH OTHER – FROM THE SENSOR THROUGH THE ELECTRONICS TO THE WEB INTERFACE – AND PROVIDE PRECISE AND DEPENDABLE MEASUREMENT RESULTS.

Sensors and transducers

TEDS

Perfectly matched sensors and measurement modules



Measured quantities

Acquire force, strain, pressure, and torque with a guaranteed accuracy class of 0.01 due to HBM's working standard calibration. Sensors and amplifiers are perfectly matched to each other and provide interference-proof measurement results. The integrated web interface or, optionally, TEDS technology (plug-and-measure) allows parameterisation in a few seconds.

System configuration

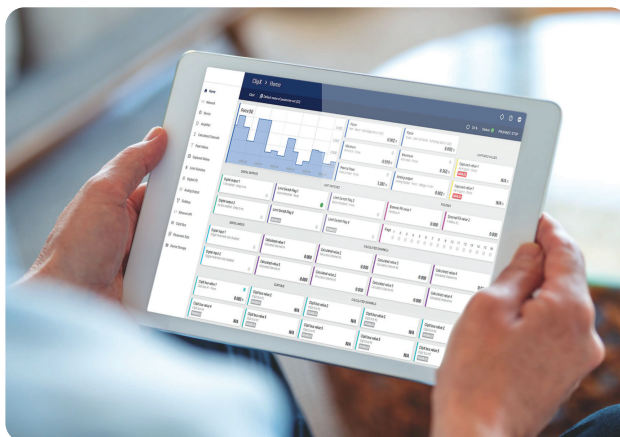
Owing to the plug and play principle, up to six devices can be connected to each other and the measured data can be pre-calculated, depending on the application. Modern automation interfaces allow easy connection to a PLC or control PC.

Measurement modules

Open standard interfaces



*Remote access to all
device data and parameters*



*Time and
cost savings*



Data processing

The responsive web interface makes configuring the ClipX via a PC, tablet, or smartphone an easy task. The integrated health monitor ensures fast and convenient diagnosis.

Increased efficiency

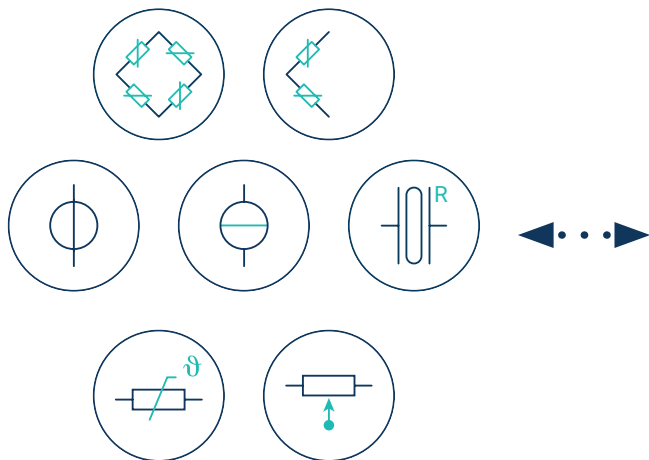
ClipX is immediately operational due to its intuitive web interface. Precise and fast testing and measuring equipment enables you to enhance the quality of your processes and save time and costs.

Easy system integration

CLIPX CAN BE EASILY INTEGRATED INTO MACHINES AND SYSTEMS. IT IS IMMEDIATELY READY FOR USE, REGARDLESS OF WHETHER YOU ARE USING ANY NUMBER OF INDIVIDUAL STAND-ALONE DEVICES OR MEASUREMENT SYSTEMS WITH UP TO SIX DEVICES COUPLED VIA THE CLIPX BUS.

Sensors and transducers

ClipX acquires force, strain, torque, pressure, displacement, temperature, current, and voltage.



Measurement modules

You can choose between ClipX modules with or without a fieldbus connection, depending on the application.

TEDS



The strengths at a glance

- Guaranteed accuracy class of 0.01 and 3.5 kHz measurement bandwidth
- High resolution of 32 bits, also for optimised partial load operation
- Pre-processing of measured values owing to internal real-time calculation channels (maths, counter, analysis window, PID controller, etc.)
- Internal diagnosis: health monitoring and error memory
- Traceability is ensured by an integrated calibration certificate
- EMC-tested measurement results due to carrier frequency technology (CF) and high measurement bandwidth owing to DC sensor supply (DC)
- ePlan macros allow efficient control-cabinet design
- 3D-STEP files facilitate machinery and application modelling



Benefit from...

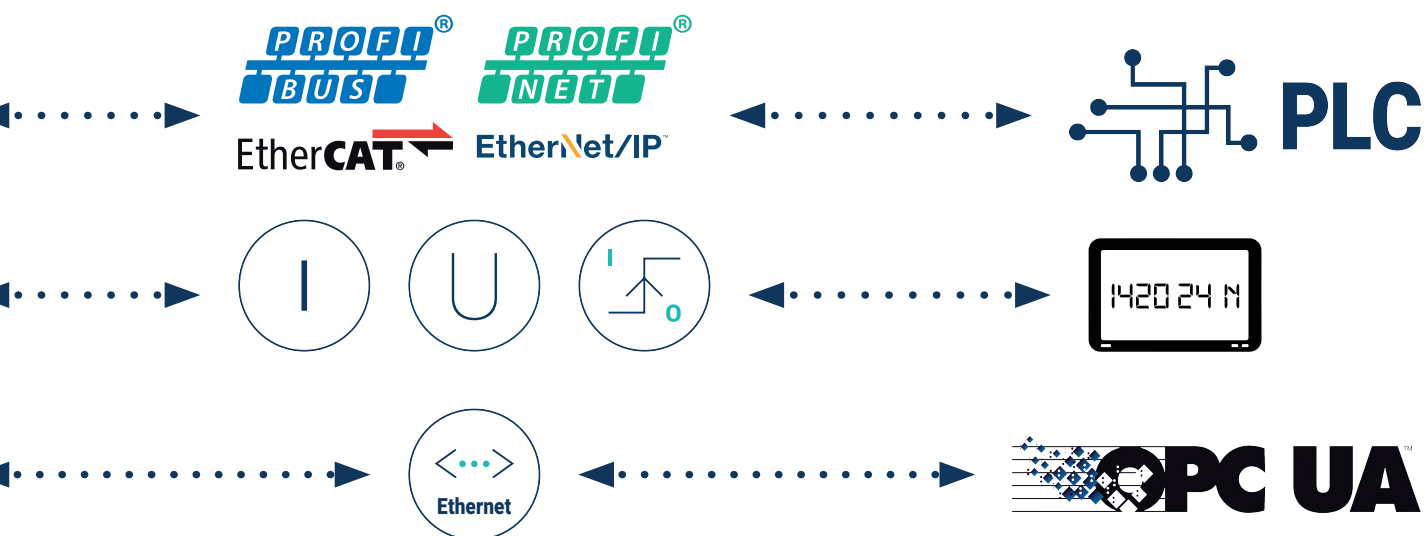
- Reliable diagnosis/remote maintenance
- Comprehensive process analysis
- Easy device parameterisation

Interfaces

Modern automation interfaces enable ClipX to be connected to different types of control systems.

Control system

ClipX communicates with the PLC and/or a system PC.



Measured quantities

- Easy-to-use via the intuitive web interface
- Real-time interfaces using Ethernet-based fieldbuses and analogue outputs (current and voltage) allow use in fast control tasks
- Ethernet interface with NTP synchronisation for PC control applications
- Device control and parameterisation through access to all the device parameters, measured values, and diagnostic information via a central object directory
- Open to integration with many other software programs: LabVIEW and Visual Studio .NET under Windows® as well as Linux
- Secured by internal device diagnosis (health monitor) and three-level, password-protected user administration

Intuitive web interface

CLIPX COMES WITH A MODERN WEB INTERFACE THAT IS IMMEDIATELY OPERATIONAL WITHOUT ANY SOFTWARE INSTALLATION.



- Simple touchscreen operation with zoomable ClipX web browser and data monitoring
- Network capability due to standard Ethernet technology
- Ideal for remote maintenance via a company network or the Internet
- The web interface can be used on mobile devices via a WLAN router
- Multilingual user interface with integrated help and Adjustment Assistant for parameterising the measurement channels

Easy handling and individual visualisation

Whether you are a machine operator or installer, the configurable, three-level user administration (operator, service, administrator) always gives you access to all relevant device and diagnostic data. This cuts down the number of software tools you need, reduces complexity, and enables you to detect system faults at an early stage.



Flexible system configuration

CLIPX ALLOWS FOR THE SYNCHRONISATION OF BOTH INDIVIDUAL MEASUREMENT CHAINS AND SYSTEMS IN MILLISECONDS – OPTIONALLY WITH A SIMULTANEOUS PC OR FIELDBUS CONNECTION.

- Measured values including their status (diagnosis) are transmitted via the ClipX bus
- No head module is required, which reduces costs
- Direct processing of all signals such as summation, peak values, or controls
- The multi-client capability enables all interfaces to be used in parallel and in real time
- Digital inputs and outputs can perform fast control and monitoring tasks (for example, alarms)
- Scalable up to several hundred devices















Every ClipX has an OPC-UA interface

Ready for the Industrial Internet of Things

ClipX already meets the requirements of the future IIoT.

- Easy amplifier parameterisation via TEDS or the smart Adjustment Assistant
- Smart devices owing to Smart Functions (diagnosis and analysis) and TEDS sensor identification
- Non-interacting, parallel operation of the PLC, the system PC, and the service interfaces
- High forward-compatibility and investment security due to flexible automation interfaces and data logging to the Cloud (OPC-UA protocol on request)

ClipX – the facts

		
BM40	BM40PB	BM40IE
Without a fieldbus	Profibus slave (DPV1)	Profinet device (4 kHz data rate) EtherCAT® slave, (4 kHz data rate) Ethernet/IP™ slave (1 kHz data rate)
PC Ethernet interface: <ul style="list-style-type: none"> Parameterisation (ClipX web interface) and for PC applications Ethernet (TCP/IP) interface with up to 1 kHz data rate per ClipX Open to integration with many other software programs: LabVIEW and Visual Studio .NET etc, under Windows® as well as Linux OPC-UA via Ethernet interface 		
Sensor input: <ul style="list-style-type: none"> One switchable measurement input with TEDS technology and internally stored calibration certificate, 19.2 kHz sample rate, 24-bit analogue-to-digital conversion and filtering, up to 3.5 kHz measurement bandwidth, sensor supply optionally by DC or carrier frequency, 2-point, polynomial, or table-based scaling <div> <div>  SG full bridge (0.01)  DC DC sensor supply (5 V)  Pt100 (0.5°C) </div> <div>  SG half bridge (0.1)  TF Carrier frequency sensor supply (5 V, 1200 Hz)  Voltage signal (0.05) </div> <div>  Piezoresistive full bridge (0.01)  Potentiometric transducers (0.1)  Current input (0.05) </div> </div> <p><i>Accuracy class specified in parentheses</i></p>		
Signal analysis (free parameterisation): <ul style="list-style-type: none"> 3 peak values: Min, max, peak-peak, sample + hold function (52 µs acquisition time), 2 sample/hold values 4 adjustable limit values, 2 digital inputs, 2 digital outputs (1 ms response time) 1 analogue output (mA/V), switchable (2 kHz bandwidth, 0.05% accuracy) 		
Internal calculation channels: <ul style="list-style-type: none"> Measured and analysis signals as well as fieldbus and Ethernet values can be used Algebra (+, -, *, /), logic blocks (AND, OR, ...), timer, counter, mean value, peak values, 6 × 6 matrix, tolerance window, pulse width measurement, PID controller, signal generators Scaling: matrix compensation for multi-component sensors (2 × 2 to 6 × 6), coordinate conversion (polar/Cartesian) 		
ClipX bus: <ul style="list-style-type: none"> Measured-value bus for the transmission of signals and signal status between ClipX devices, up to max. six coupled devices, 1 kHz data rate 		
Parameter sets: (formulations)/device memory/diagnosis <ul style="list-style-type: none"> 10 internal parameter sets for storage of all device settings, 3-level user administration (operator, service, administrator) Diagnosis and internal error signalling, health monitor for monitoring of all signals and device functions Device LEDs on the front provide direct diagnostic information 		

EtherCAT® is a registered and licensed trademark of Beckhoff Automation GmbH

EtherNet/IP™ is a registered trademark of Open DeviceNet Vendor Association, Inc. (ODVA)

Plan with HBK

BENEFIT FROM OUR WORLDWIDE SERVICE AND SUPPORT NETWORK AND KNOW-HOW FOR YOUR SOLUTION. OUR COMPETENT TEAM OF ENGINEERS AND TECHNICIANS SUPPORTS YOU WITH MANY SERVICES – AT EVERY STAGE OF YOUR TEST AND MEASUREMENT PROJECT.

- On-site commissioning
- HBK calibration service
- Application consulting
- Application software development
- HBK Academy training
- Digital measurement chains from a single source

More information at:
www.hbkworld.com



**We provide exceptional
sensing and insights
to create solutions for
a cleaner, healthier
and more productive
world**



ACCELERATE YOUR PRODUCT INNOVATION

HBK provides integrated solutions and domain expertise across the test and measurement product life cycle, bridging the gap between the physical world of sensors, testing and measurement and the digital world of simulation, modelling software and analysis.