



# DEWEsoft®

GENERAL CATALOG V23-2



**7**  
YEAR WARRANTY  
DEWEsoft

V23-3

FREE UPGRADES

PROCESS

ACQUIRE ANY DATA



EXTREMELY DEEP IN FUNCTIONALITY

# FREE ANALYSIS ONE SOFTWARE.



## **EASY TO LEARN**

Intuitive user interface. Free PRO on-line training courses. Free webinars. Large user community. Local support also in your country.

## **SAVE TIME**

Advanced technology aimed at easy setup and rock solid results. Our real-time "live" data visualization means instant data qualification.

## **SAVE MONEY**

No hidden costs! Software is included with all of our instruments. Free lifetime software upgrades. Free data analysis. No maintenance fees. You buy it, you own it.

VISUALIZE

EASY TO LEARN



## ANALOG CHANNELS

Voltage, Current, Potentiometer, Temperature, Strain, Stress, Force, Displacement, Velocity, Acceleration, Sound pressure, Pressure, Resistance, Torque, Mass and TEDS.

## OUTPUTS

Analog out, digital out alarms, CAN, EtherCAT®, Ethernet, RS232 and OPC UA.

## VEHICLE BUS SYSTEMS

CAN, CAN FD, XCP, LIN, FlexRay, CCP, OBDII, J1587/J1708, J1939, SENT, Arinc 429, MIL 1553, Chapter 10, iNET and Kiroad.

## NAVIGATION

GPS and Inertial platforms.

## VIDEO

Video from DirectX, GigE, high-speed Photron™ and Optris infrared cameras.

No other software allows you to connect so many different kinds of data sources and record them all synchronously, see them in real time, and record them to a single data file. That IS the Dewesoft advantage.

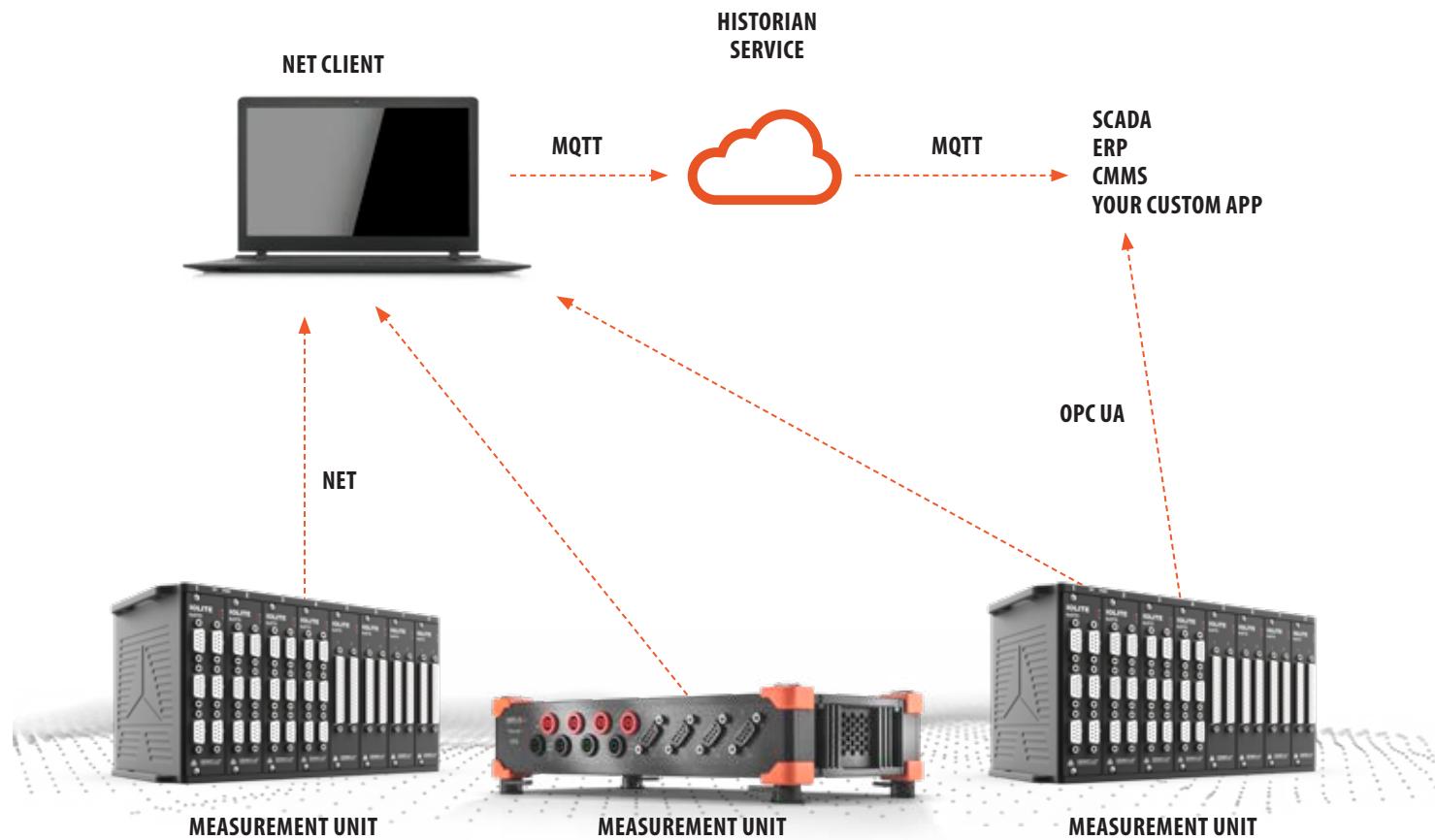
## DIGITAL

Digital inputs, waveform timing, counters, angle & frequency from encoders, any type of gear tooth sensors and tachos.

## DATA BUS SYSTEMS

OPC UA, Ethernet, Modbus TCP/IP, PCM telemetry, RS232 and RS485, Weather station and Siemens S7.

# STORE DEWEsoft® X



## ADVANCED TRIGGERING

Using triggering, only the data you need are stored. Dewesoft supports Pre trigger, Post trigger, Hold off, Post time extension, Simple edge trigger, Filtered edge trigger, Window and Pulsewidth, Slope, Delta amplitude, Relative time trigger, Absolute time trigger and FFT trigger.

## MORE THAN 500MB/SEC STORING

High performance engine allowing high data storing write speeds. Advanced data structure allows data files, even GBs long, to be loaded instantly.

## BIG DATA

For big data and Industry 4.0 applications, data can be stored to the cloud and reviewed using standard OPC UA interface.

## DISTRIBUTED NETWORKED DATA ACQUISITION

Precise synchronization allows flexible configurations of thousands of channels.

High performance storing >500MB/sec, instant file loading, triggering, networked acquisition and cloud storage.

## RAW DATA AND MATH CHANNELS

Raw data are always stored from the hardware interface channels and kept untouched. You can easily create new math channels based on the raw data, leaving the original data untouched.

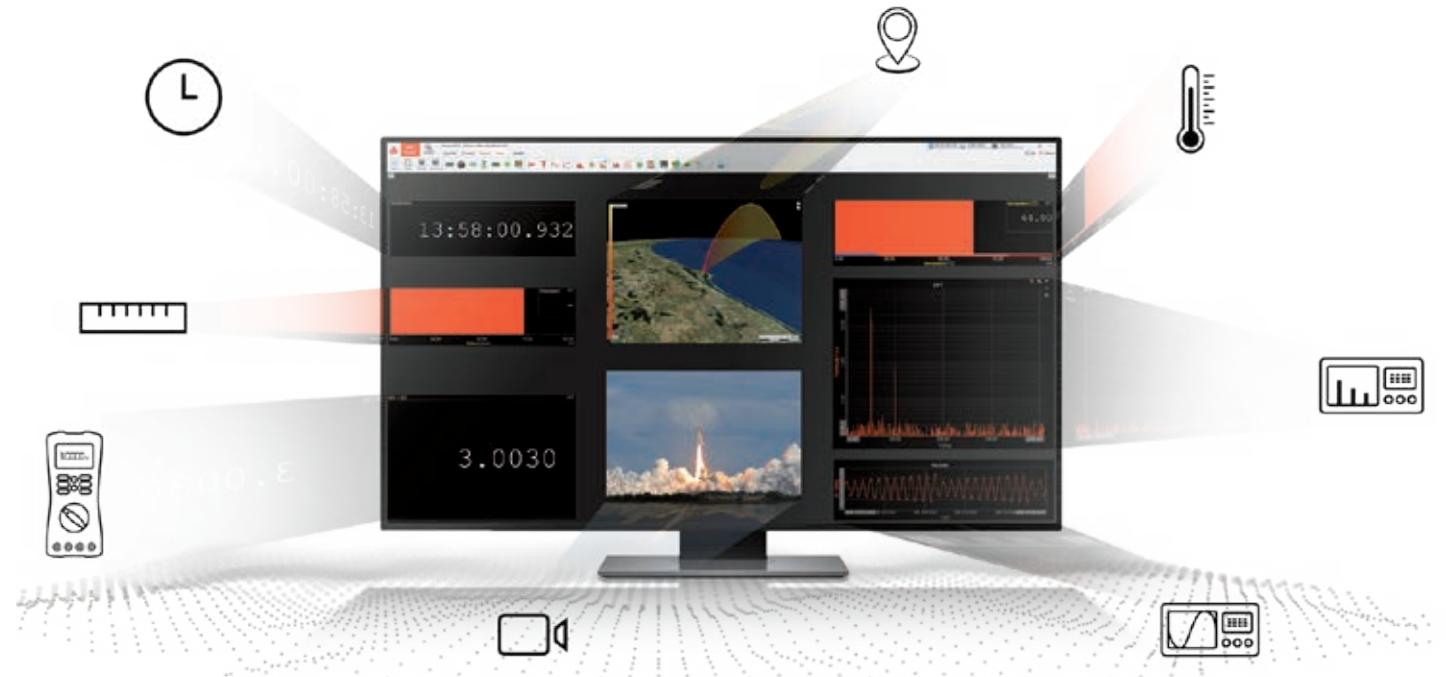
## HISTORIAN

Dewesoft historian provides a versatile solution for cloud or local networked data storage in powerful Influx time series database. Standard OPC UA interface allows communication between measurement units and database and between database and clients, so any standard SCADA, MES or mobile solution can be used for data analysis.

# DEWEsoft® X VISUALIZE

## EXTENSIVE LIBRARY OF STANDARD DISPLAYS:

- **Recorders:** horizontal, vertical and XY recorder
- **Oscilloscope:** scope, 3D scope, vectorscope
- **FFT:** FFT, 3D FFT, Harmonic FFT and Octave
- **Meters:** digital, analog, horizontal/vertical bar meters
- **Graphs:** 2D, 3D Graph, Octave, Orbit, Campbell and Contour plot
- **Video:** standard video display and thermal video display with temperature indicators
- **GPS:** positioning display with Satellite and OpenStreetMap layers
- **Control:** button, switch, knob, slider, user input
- **Combustion analysis:** P-V diagram and combustion scope
- **Rotor balancer:** for field balancing
- **Orbit Analysis:** Orbit plot, Polar plot, Bode plot, Full motion graph
- **Automotive:** 3D polygon for displaying moving objects
- **Aerospace:** AHRS, Altimeter, Vertical speed indicator, Horizontal situation indicator, Compass
- **DSA/NVH:** Modal circle
- **Other:** 2D/3D table, image, text box, line, over-load indicator, indicator lamp, legend, marker table, load indicator, indicator lamp, note



## FLEXIBLE VISUALIZATION

Simple drag-drop and assign channel generates your perfect display. Create any number of different displays.

## FILE REPLAY

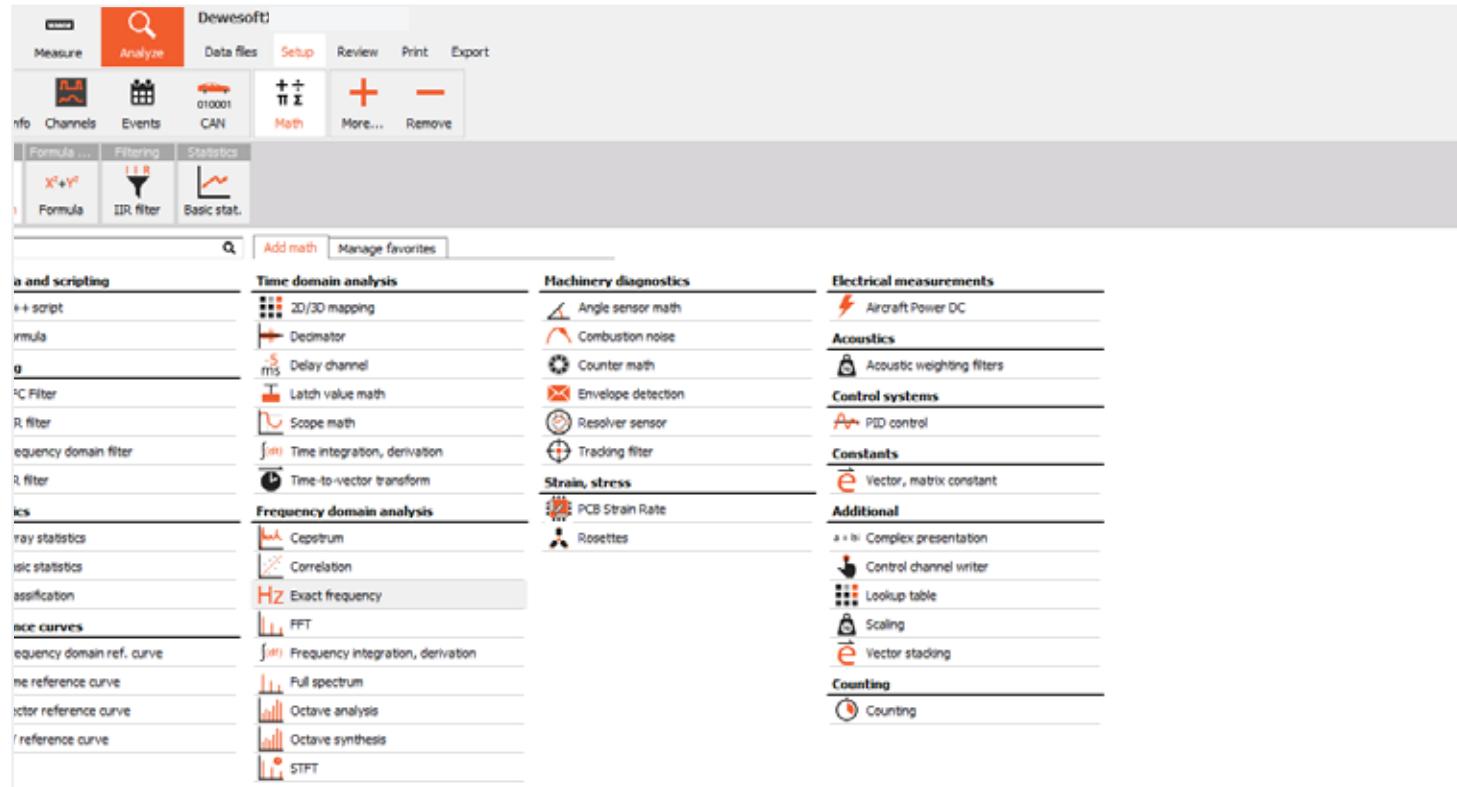
During analysis, data replay looks the same as when it was being recorded. With integrated video you can easily follow the measurement process.

Extensive widget library, flexible displays, optimized graphics.

## OPTIMIZED GRAPHICS

Using the latest CPU and GPU technologies, graphics run smoothly even on basic computers.

# ANALYZE DEWEsoft® X



## MATH LIBRARY FUNCTIONALITIES:

- Formula:** Custom formula editor
- Filtering:** FIR, IIR, FFR, CFC, integration, derivation
- Statistics:** RMS, Average, Min, Max, Std deviation, variance, classification, counting, array statistics ...
- Reference curve:** Time and frequency domain, vector and XY reference curves
- Time domain analysis:** Delay channel, Integral, derivative, Latch value math, Scope math, Time-to-vector transform
- Frequency domain analysis:** Cepstrum, Correlation, Exact frequency, Fourier transform, Full spectrum, Octave analysis, Short-time Fourier transform
- Control systems:** PID control
- Strain, stress:** Strain rosette
- Constants:** Vectors, Matrix constant

## ADVANCED APPLICATION ANALYSIS:

### POWER ANALYSIS

Power Analyzer, Power Quality, Hybrid Vehicle Analysis, Inverter Motor Analysis, efficiency measurements.

### VEHICLE ANALYSIS

Combustion Analyzer, Combustion Noise, Polygon, Brake Test, Vehicle Dynamics, Brake Noise.

### ACOUSTICS

Acoustic Weighting Filters, Octave Analysis, Sound Level Meter, Sound Power, Sound Intensity, Sound Quality, RT60.

### MACHINERY DIAGNOSTICS

Modal Test & Analysis, Order Tracking & Analysis, Rotational & Torsional Vibration Analysis, Balancing, Angle Sensor Math, Envelope Detection, Sine Processing (COLA), Tracking Filter.

An extensive and easy-to-use mathematics library for data and signal processing - all developed to match specific applications.

# DEWEsoft® X PUBLISH

## REPORTING

Create and print PDF or printed reports directly from DewesoftX.

## DISPLAY COPY

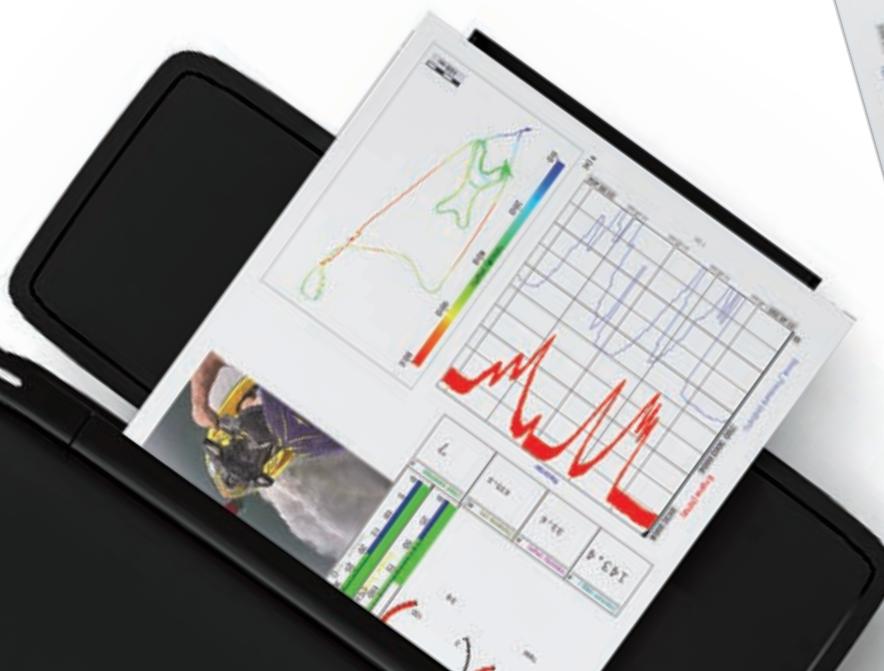
Copy/paste displays to integrate data in standard reports.

## VIDEO FILE EXPORT

If a picture is worth a thousand words, imagine the value of video! You can export your choice of live screens with all widgets to a video file.

## SEQUENCER

A built-in block diagram sequencer extends the use of Dewesoft to automated testing applications.



You can add DewesoftX on any computer to freely view and analyze files. Export data and create reports in standard formats.

## EXPORT YOUR DATA TO A VARIETY OF STANDARD FORMATS FOR FURTHER ANALYSIS...

- **MS Excel®:** standard spreadsheet software
- **FlexPro®:** powerful, easy-to-use data analysis software
- **Text/CSV and ASCII:** tab delimited text file
- **DIAdem®:** powerful data analysis software from NI
- **Famos:** signal analysis software
- **NSoft:** NCode file format for Somat software
- **MATLAB®:** MATLAB® file format
- **Sony:** Sony tape recorder compatible format
- **RPC III:** MTS file format used by road simulator testbed
- **Comtrade:** used in power & energy markets
- **UNV:** universal file format
- **WAV:** standard audio file format
- **KML:** GPS export for viewing path in Google Earth
- **BWF:** multichannel wave file format
- **ATI:** native iDeas format for dynamic signal analysis
- **SDF:** used by LMS and Prosig software
- **WFT:** Nicolet file format
- **CSV:** for exporting CAN messages
- **TDF:** file format defined and used by LMS software
- **ASAM ODS and MDF:** Open Data services and Measurement Data format by ASAM organisation (ASAM ODS with supported NVH module)
- **TAFFmat:** TEAC Data Acquisition File Format
- **Winplot [\*.sun]:** Data format compatible with Winplot, a powerful desktop graphical analysis tool that allows the user to generate displays of unrestricted amounts of data
- **iFile:** Used for AVL Concerto

# DEVELOP DEWEsoft®

## DCOM INTERFACE

Integrate Dewesoft systems as components in custom applications.

## REAL TIME EtherCAT® INTERFACE

For control applications, Dewesoft brings together the words of data acquisition and control.

## OPEN EXPORT INTERFACE

Create your own unique export format using our open export programming interface.

## OPEN DISPLAY INTERFACE

Our built-in displays cover 99% of application requirements, however you can extend our visual displays using the plugin programming interface for special cases.

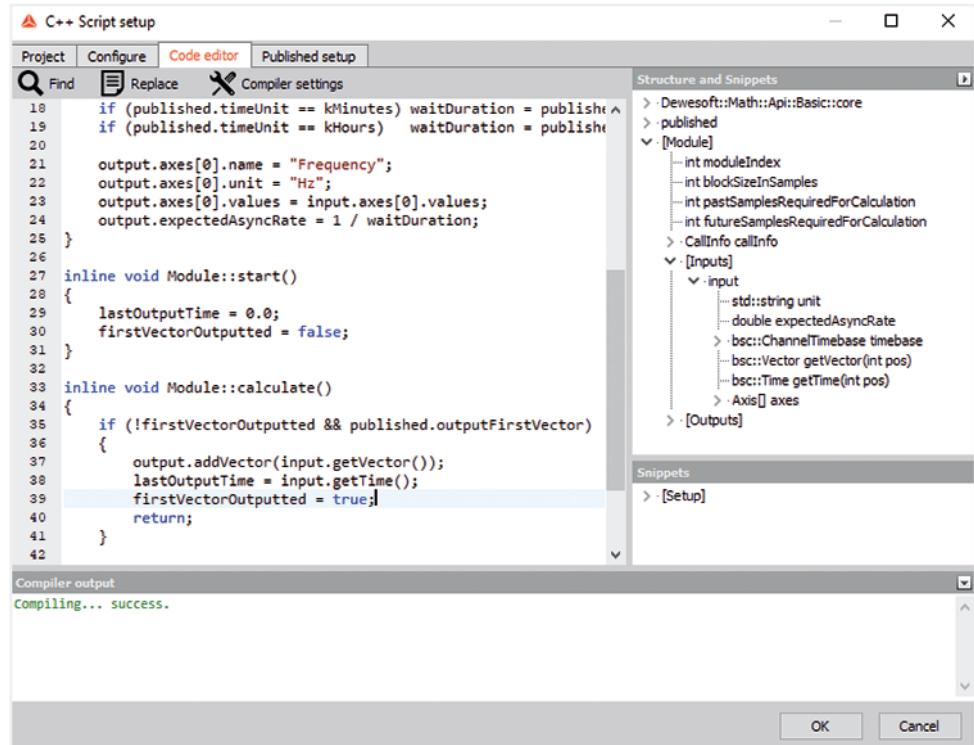
## OPC UA INTERFACE

Exchange data between Industry 4.0 systems with standard OPC UA interface.

## NET INTERFACE

Control remotely and exchange data with our simple, but powerful exchange protocol.

DewesoftX offers a wide variety of BUILT-IN functions, but it is also completely open to adapt to various applications.



The screenshot shows the DewesoftX C++ Script setup window. The main area is a code editor with the following C++ code:

```

18     if (published.timeUnit == kMinutes) waitDuration = published.timeUnit;
19     if (published.timeUnit == kHours)    waitDuration = published.timeUnit * 60;
20
21     output.axes[0].name = "Frequency";
22     output.axes[0].unit = "Hz";
23     output.axes[0].values = input.axes[0].values;
24     output.expectedAsyncRate = 1 / waitDuration;
25 }
26
27 inline void Module::start()
28 {
29     lastOutputTime = 0.0;
30     firstVectorOutputted = false;
31 }
32
33 inline void Module::calculate()
34 {
35     if (!firstVectorOutputted && published.outputFirstVector)
36     {
37         output.addVector(input.getVector());
38         lastOutputTime = input.getTime();
39         firstVectorOutputted = true;
40     }
41 }
42

```

The right side of the window features a "Structure and Snippets" panel with a tree view of Dewesoft API classes and methods, and a "Snippets" panel with a list of available snippets.

## PLUGIN INTERFACE

Using plugins you can add just about any external device to your system. Plugins can be created in virtually any programming language.

## BUILT-IN C++ COMPILER

Extend your processing capability with our built-in C++ script editor. No need for external programming tools.

## SEQUENCER

Automate test workflow with easy-to-use build-in flowchart programming tool.



	Professional	DSA	Enterprise
<b>Key features</b>			
All applications/interfaces in one software	✓	✓	✓
Synchronized data acquisition	✓	✓	✓
Unlimited number of configurable channels	✓	✓	✓
Live visualization of data	✓	✓	✓
Triggered storing	✓	✓	✓
Distributed acquisition (Dewesoft NET)	Option	Option	✓
Offline analysis (Post-processing)	✓	✓	✓
Reporting	✓	✓	✓
Localization (software translation)	✓	✓	✓
Lifetime free upgrades	✓	✓	✓
<b>Configuration management</b>			
Savable/sharable configuration files	✓	✓	✓
Project definition for different users	✓	✓	✓
Sensor database	✓	✓	✓
Adjustable physical quantities	✓	✓	✓
Modular security, encryption, access restriction	✓	✓	✓
<b>Input/output interfaces</b>			
<b>General</b>			
Dewesoft analog/digital inputs	✓	✓	✓
Dewesoft analog/digital outputs	✓	✓	✓
Analog replay of data	✓	✓	✓
Function generator	Option	Option	✓
TEDS support	✓	✓	✓
Gantner Ethernet devices	Option	Option	✓
Gyro platform - LORD MicroStrain	Option	Option	✓
Barcodes	Option	Option	✓
Scanivalve	Option	Option	✓
Moog	Option	Option	✓

	Professional	DSA	Enterprise
<b>Vehicle interfaces</b>			
Dewesoft CAN/J1939 interfaces	Option	Option	✓
Vector CAN/J1939 interfaces	Option	Option	✓
Vector CAN FD devices	Option	Option	✓
OBDII	Option	Option	✓
XCP/CCP	Option	Option	✓
XCP Slave	Option	Option	✓
FlexRay	Option	Option	✓
LIN	Option	Option	✓
SENT (SAE J2716)	Option	Option	✓
Kistler RoaDyn 2000	Option	Option	✓
Kistler KiRoad	Option	Option	
Engine Testbed	Option	Option	✓
Velodyne Lidar	Option	Option	✓
<b>GPS and IMU interfaces</b>			
Dewesoft or third party GPS devices	✓	✓	✓
Dewesoft IMU devices	✓	✓	✓
Navion	✓	✓	✓
OxTS	Option	Option	✓
Gyro platform - GeneSys ADMA-CAN	Option	Option	✓
Gyro platform - GeneSys ADMA-Ethernet	Option	Option	✓
Gyro platform - MicroStrain MIP	Option	Option	✓
<b>Aerospace interfaces</b>			
PCM telemetry	Option	Option	✓
Chapter 7 decoding	Option	Option	✓
Chapter 10	Option	Option	✓
ARINC 429 and MIL-STD-1553 devices	Option	Option	✓
iNET	Option	Option	✓
<b>Video cameras</b>			
Direct X compatible cameras	✓	✓	✓
Dewesoft DS-CAM cameras	✓	✓	✓
GigE cameras	✓	✓	✓
FLIR thermovision cameras	Option	Option	✓
Optris infrared cameras	Option	Option	✓

	Professional	DSA	Enterprise
Photron high-speed cameras	Option	Option	✓
<b>Industrial interfaces</b>			
OPC UA server	Option	Option	✓
OPC UA client	Option	Option	✓
Siemens S7	Option	Option	✓
MODBUS TCP/IP (Client)	Option	Option	✓
MODBUS TCP/IP (Server)	Option	Option	✓
Serial communication	Option	Option	✓
Ethernet	Option	Option	✓
<b>Data post-processing and analysis</b>			
<b>Standard math</b>			
Formula editor	✓	✓	✓
Filters (IIR, FIR, FFT, CFC)	✓	✓	✓
Integration, derivation	✓	✓	✓
FFT analyzer (basic)	✓	✓	✓
Statistics (basic, array, classification)	✓	✓	✓
Reference curves	✓	✓	✓
Latch mathematics	✓	✓	✓
Interactive math cursors	✓	✓	✓
Counting (histogramming)	✓	✓	✓
Exact frequency extraction	✓	✓	✓
<b>Advanced analysis</b>			
Power analysis	Option	✓	✓
Motor analysis	Option	✓	✓
Basic combustion engine analysis	Option	✓	✓
Advanced combustion engine analysis	Option	✓	✓
Combustion noise	Option	Option	✓
Vehicle dynamics (VTS)	Option	Option	✓
Polygon for vehicle analysis	Option	Option	✓
Brake noise	Option	Option	✓
Brake test	Option	Option	✓

	Professional	DSA	Enterprise
FFT analyzer (advanced)			
- Advanced cursors	Option	Option	✓
- Advanced markers			
- Bearing fault			
Octave band analysis	✓	✓	✓
Order tracking	Option	✓	✓
Orbit analysis	Option	✓	✓
Rotational and torsional vibration	Option	✓	✓
Rotor balancer	Option	✓	✓
Human body vibration	Option	✓	✓
Modal test (FRF)	Option	✓	✓
Modal analysis	Option	✓	✓
SRS (offline only)	Option	✓	✓
Angle sensor math	✓	✓	✓
Envelope detection	✓	✓	✓
Sine processing	Option	✓	✓
Harmonic tracking filter	✓	✓	✓
Full spectrum (two-sided Fourier transform)	✓	✓	✓
Cepstrum	✓	✓	✓
Sound level meter	Option	✓	✓
Sound power	Option	✓	✓
Sound intensity	Option	✓	✓
Sound quality	Option	✓	✓
Reverberation Time RT60	Option	✓	✓
Fatigue analysis	Option	✓	✓
Psophometer	Option	✓	✓

	Professional	DSA	Enterprise
<b>Visualization</b>			
Meters (digital, analog, horizontal/vertical bar)	✓	✓	✓
Recorders (horizontal, vertical and XY recorder)	✓	✓	✓
Oscilloscope (scope, scope 3D, vectorscope)	✓	✓	✓
FFT (FFT, 3D FFT, Harmonic FFT and Octave)	✓	✓	✓
Graphs (2D, 3D graph, Octave, Orbit, Campbell plot, Contour plot)	✓	✓	✓
Video	✓	✓	✓
Control (button, switch, knob, slider, user input)	✓	✓	✓
Utilities (table, image, text, line, overload indicator, indicator lamp, note)	✓	✓	✓
Interactive GPS Map and 3D Model	✓	✓	✓
Attitude or artificial horizon indicator	✓	✓	✓
<b>Data management</b>			
<b>Data export</b>			
FlexPro	✓	✓	✓
FlexPro template	✓	✓	✓
Excel	✓	✓	✓
Excel template	✓	✓	✓
Dewesoft (file reduction)	✓	✓	✓
DIadem	✓	✓	✓
Matlab	✓	✓	✓
Universal file format 58	✓	✓	✓
Famos	✓	✓	✓
NSoft	✓	✓	✓
Text/CSV	✓	✓	✓
Sony	✓	✓	✓
RPCIII	✓	✓	✓
Comtrade	✓	✓	✓
Technical data management	✓	✓	✓
JSON	✓	✓	✓
ASAM MDF4	✓	✓	✓
ASAM ODS	✓	✓	✓
S3	✓	✓	✓

	Professional	DSA	Enterprise
ATI	✓	✓	✓
HDF5	✓	✓	✓
DynaWorks neutral file	✓	✓	✓
Standard data file	✓	✓	✓
WFT	✓	✓	✓
Replay	✓	✓	✓
Wave	✓	✓	✓
Google earth KML	✓	✓	✓
Brodcast wave format	✓	✓	✓
CAN messages	✓	✓	✓
IFile CA	✓	✓	✓
Clipboard	✓	✓	✓
TAFFmat	✓	✓	✓
Winplot	✓	✓	✓
<b>Data import</b>			
Dewesoft data file merge (channel import)	✓	✓	✓
Text	✓	✓	✓
RT data (Logger)	✓	✓	✓
<b>Data exchange</b>			
Data management (FTP file transfer)	Option	Option	✓
Online data export to .csv/SQL/MySQL	Option	Option	✓
Online data writing to Excel	Option	Option	✓
Excel reporting tool (Excel add-in)	✓	✓	✓
Email/SMS alarm notifications	✓	✓	✓
<b>Automation/Development tools</b>			
Sequencer	✓	✓	✓
DCOM	✓	✓	✓
Data reader API	✓	✓	✓
EtherCAT ENI export	Option	Option	✓
C++ Script	Option	Option	✓
Third party extensions	✓	✓	✓

F L E X I B L E

ONE HARDWARE.

## DAQ SYSTEMS

### **FLEXIBLE DAQs**

Ready to be used for any measurement application, more at the same time.

### **ANY NUMBER OF CHANNELS**

Our DAQ systems are modular by design. Expand to 1000's of channels.

### **PLUG AND PLAY**

Our DAQ devices are plug and play. Technologies like smart sensors and TEDS offer automatic sensor detection and configuration.

### **FULLY SYNCHRONIZED**

Data from various sources are aligned: Analog, digital, counter, digital data buses, video, etc.

P L U G A N D P L A Y

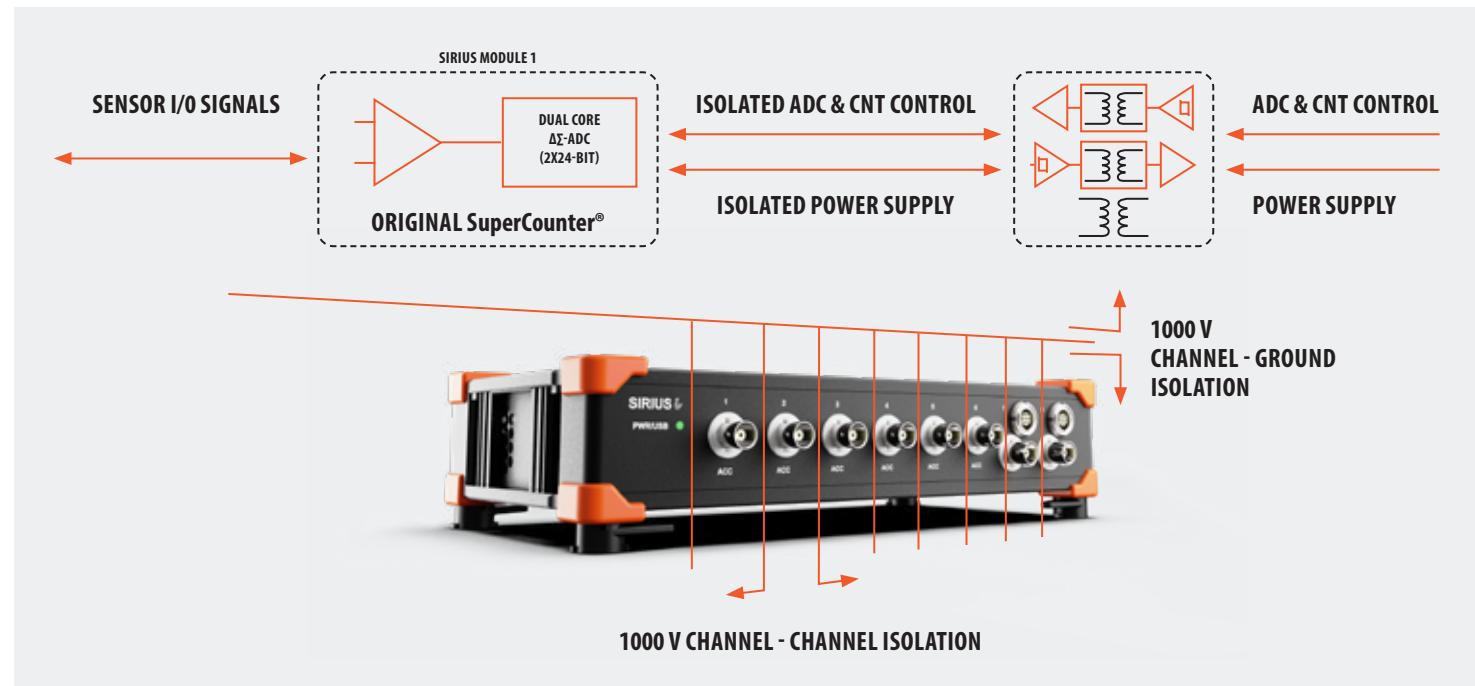
E X P A N D A B L E

# TECHNOLOGY OVERVIEW

## HIGH ISOLATION

SIRIUS instruments come with high galvanic channel-to-channel and channel-to-ground isolation (CAT II 1000 V with ranges up to 2000 V), and even include isolated sensor excitation.

Our high isolation means that you have no problem measuring high voltage potentials or common mode voltages. You are also safe with measurements like vibration, temperature, or any other measurement where non-isolated sensors are placed next to the high voltage potential against the DAQ system ground. In such cases, a non-isolated DAQ system would burn or at least give faulty results. With SIRIUS it is just one thing less to worry about.

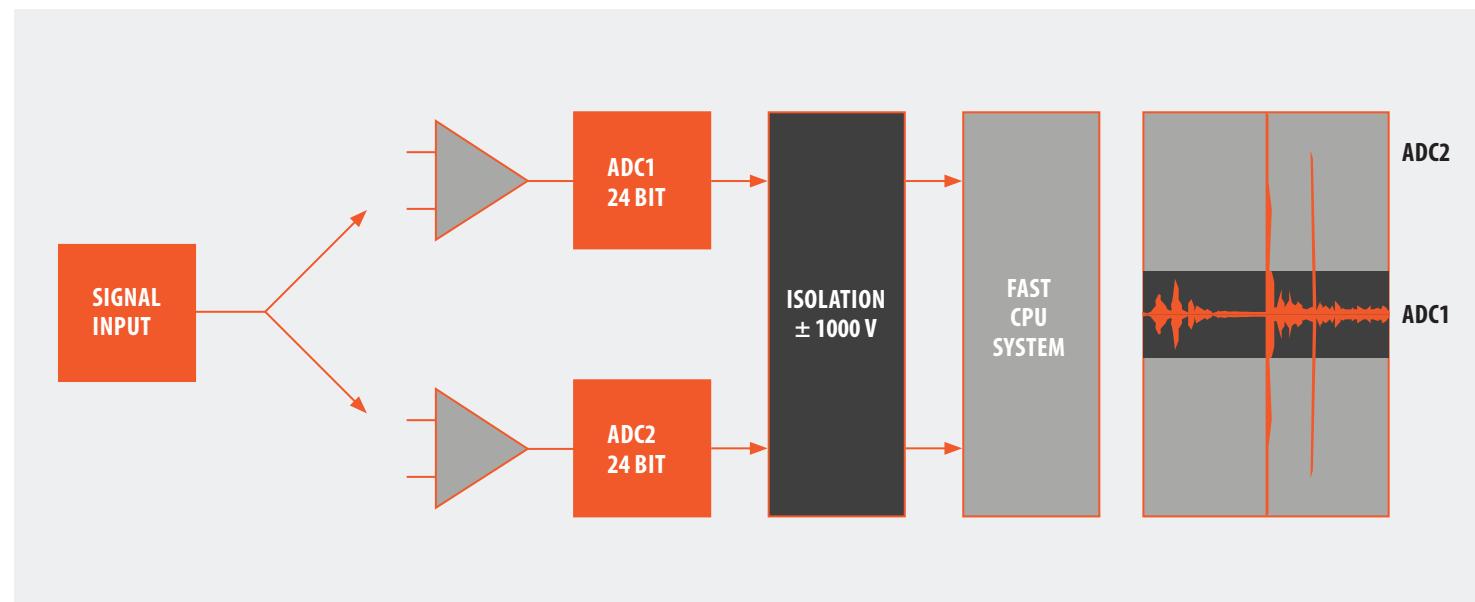


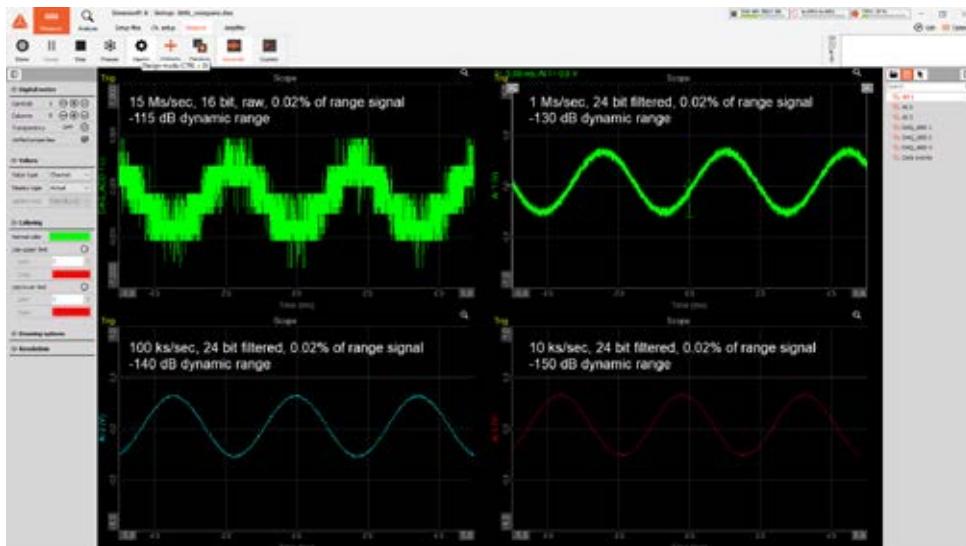
## HIGH DYNAMIC RANGE (SIRIUS®)

The most common problems you face when recording data are signal overloads, noise, and false signals recorded into the data due to aliasing. When signal levels are higher than expected, they are clipped by the ADC, resulting in wrong measurements, which means you have to do the test all over again.

DualCoreADC® technology prevents these problems. Each channel amplifier has two ADC's that always measure the high and low gain of the input signal. This results in the full possible measuring range of the sensor and prevents the signal from being clipped.

With DualCoreADC® technology SIRIUS achieves more than 130 dB signal to noise ratio and more than 160 dB in dynamic range. This is 20 times better than 24-bit systems and 20 times less noise.



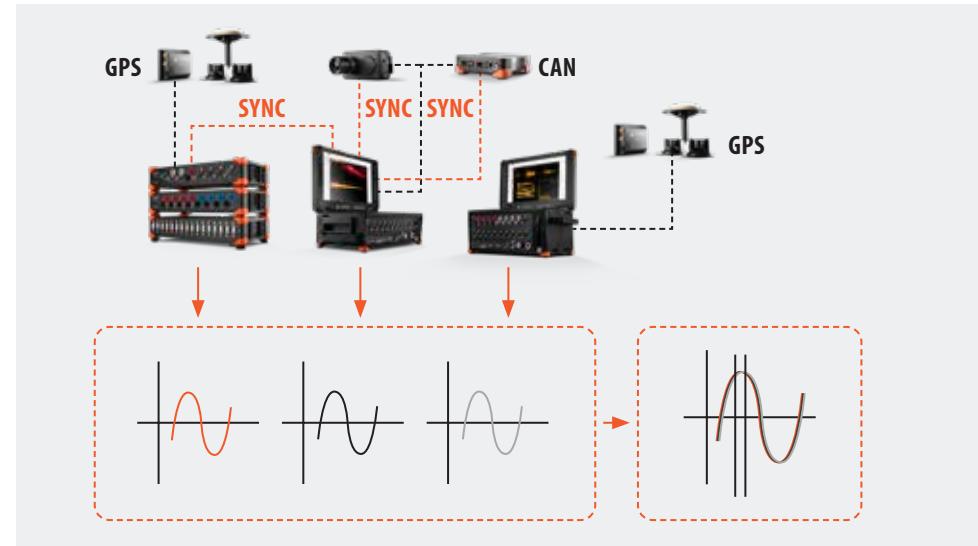


## HYBRID ADC TECHNOLOGY

Offers everything you ever wanted out of a high-end data acquisition system. High bandwidth and high dynamic mode available in parallel, software selectable per channel.

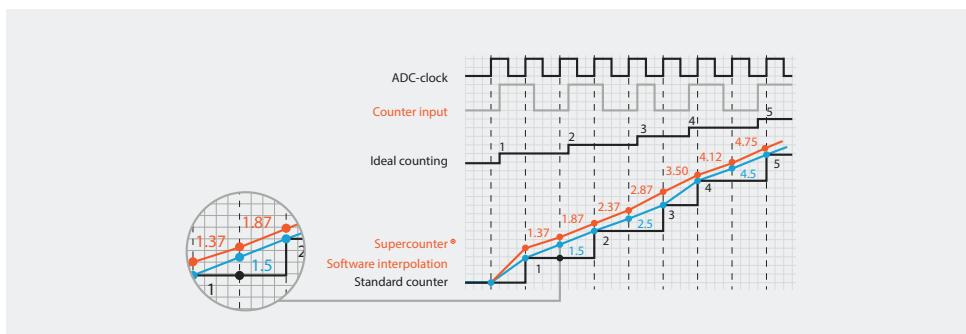
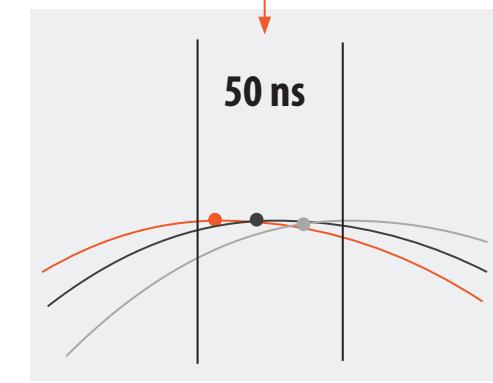
**High bandwidth mode:** with 5 MHz bandwidth and 15 MS/s sampling rate, SIRIUS XHS can perfectly acquire impulse, step, and square signals without any ringing or overshoot. Such a mode is perfect for transient recording and power analysis. Such acquisition mode is typically found in SAR ADCs.

**High dynamic alias-free mode:** data can be acquired up to 150 dB dynamic range. Up to 2 MS/s alias-free filter with a bandwidth close to the Nyquist criteria is used for frequency domain analysis of the signal like sound and vibration. This behavior is similar to classical Sigma-Delta ADCs.



## SYNCHRONIZATION

SIRIUS hardware is capable of reading different signals like voltage, strain, ICP/IEPE, charge, CAN, counter, encoder, and digital. Additionally, with the included DewesoftX software, you can easily acquire and combine data from additional interfaces like GPS, Flexray, Ethernet, Serial, PCM telemetry, and many more. Even though each data source have different sampling rates, all your data will be perfectly synchronized down to 50 nanoseconds accuracy. All this thanks to our timing and GPS synchronization technologies.



## PRECISE COUNTER AND ENCODER MEASUREMENT

SIRIUS® uses a patented technology called SuperCounter® in all of its counter/encoder inputs. Counter inputs can measure RPM and angle when testing rotating machines. Standard counters only provide integer resolution (like 1, 1, 2, 2) and their data is one sample behind the data. However, SuperCounter® can extract floating point values like 1.37, 1.87, 2.37, and time-align them precisely with the

rest of your data. This is done by measuring the exact time of the rising edge of the signal with an additional counter. Our SuperCounter® work on a 102.4 MHz time base, independent from the current sampling rate.

Counter inputs are fully synchronized with analog, CAN bus, and other data sources to enable easy applications like balancing, order tracking, and torsional vibrations.

# SIRIUS® HIGH-END DAQ SYSTEMS



## ANALOG OUTPUTS

SIRIUS slices can be configured with 8 analog outputs and function as a multi-channel function generator, can also do real-time signal conditioning, analog replay of data in analysis, and perform manual or automated control output with output voltage levels of up to +/- 10V.

## HYBRID ADC TECHNOLOGY

Offers everything you ever wanted out of a high-end data acquisition system. High bandwidth and high dynamic mode available in parallel, software selectable per channel.

## SIRIUS® SBOX

Synchronized, highly reliable data logger and powerful data processing computer.

## SIRIUS® MODULAR

Most flexible and distributable single slices with USB and EtherCAT® interface.

## SIRIUS® R4/R4rt/R4-HUB

Integrated solution with 4 SIRIUS slices and powerful SBOX computer or USB hub in one unit with real-time EtherCAT® slave interface.

## SIRIUS® XHS

High-speed data acquisition system (15 MS/s) with the new Hybrid ADC technology capable of high bandwidth transient recording and very high dynamic, alias-free data acquisition.

Our data acquisition systems are versatile, modular, easy to use and can work with any sensor with the highest precision imaginable. Input channel configurations are flexible and the input channel count can vary from 1 to 1000's of channels. Our measurement systems are flexible and can grow with you at any time in your measurement process.

## ISOLATED CAN BUS INTERFACE

High-speed CAN 2.0b channels with 1 Mbit/s data throughput with additional support for CCP, OBDII, J1939, and CAN output.



### SIRIUS® R8DB-SEA/R8rt-SEA

Integrated instrument with 8 SIRIUS slices, powerful SBOX computer, optional 19" display (R8D-SEA) and batteries (R8DB-SEA) and real-time EtherCAT® slave interface (R8rt-SEA).



### SIRIUS® R1DB-SEA/R2DB-SEA

Small-size instrument with embedded computer, 12" display and batteries.



### SIRIUS® R3-SEA

Up to 3 SIRIUS slices in a rack mounted lab unit with standard easy-to-upgrade computer.



### DEWESOFT 7-YEAR WARRANTY

Our warranty covers that the instruments function as promised for a period of 7 years from the day of the delivery.

### SENSOR POWER SUPPLY

Amplifiers provide channel-independent, programmable power supply for sensor excitation.

### HIGH ISOLATION

High channel-channel and channel-ground isolation prevents ground loops and damage to the system from excessive voltage.

### UNIVERSAL ANALOG INPUTS

A wide variety of universal and analog amplifiers that accept voltage and full/half/quarter bridge signals natively as well charge and IEPE accelerometers, thermocouple and RTD temperature sensors, current, resistance, and even LVDT sensors, with the use of DSI adapters.

### DIGITAL/COUNTER/ENCODER INPUTS

Each counter channel is capable of 3x digital inputs, 1x event counter, encoder, period, pulse-width, duty-cycle, and precise frequency and angle measurement using patented SuperCounter® technology.

# SIRIUS® XHS-SEA



## HYBRID ADC TECHNOLOGY

Offers everything you ever wanted out of a high-end data acquisition system. High bandwidth and high dynamic mode available and software selectable per channel.

## VARIETY OF AMPLIFIERS

High voltage amplifiers that can measure 2000 V peak directly. Low voltage amplifiers for connecting almost any current sensor. ACC amplifiers for connecting high-speed accelerometers and pressure sensors. The XHS-SEA range of amplifiers available will grow in the future and will also include charge and strain gauge amplifiers.

## SMALLEST FORM FACTOR

With the standard SIRIUS sized chassis you can easily carry the SIRIUS XHS-SEA in your backpack along with your laptop for field measurements.

## HIGH GALVANIC ISOLATION

High channel-to-channel and channel-to-ground isolation prevents damage to the systems from excessive voltage and avoids ground loops.

## ALIAS FREE MODE

Up to 2 MS/s data can be acquired with an extremely high dynamic range, similar to our SIRIUS DualCoreADC devices. The data is totally alias-free, so all higher frequencies are fully rejected. Such an acquisition mode is typically found in Sigma-delta ADCs, and general data recording applications.

By today's standard, you would need two totally separate data acquisition devices for those measurements and applications. But the new SIRIUS XHS-SEA data acquisition system allows you to select per channel, depending on the measurement application, the appropriate mode of ADC operation.

The future is here - and it is in the form of a single device. 15 MS/s sampling rate. 5 MHz Bandwidth. Up to 150 dB Dynamic Range. Meet our new Hybrid ADC data acquisition technology.

# XHS-PWR-SEA SIRIUS®



The SIRIUS XHS-PWR-SEA is a DAQ device designed for direct in-vehicle measurement of current, voltage, and power. It features an integrated patented DC-CT current transducer for very precise current measurements in the most demanding applications such as very high current peaks as well as leakage current measurement.

## DC-CT CURRENT TRANSDUCER

DC-CT represents an innovative principle of isolated measurement of DC and AC currents. This compact-sized patented technology allows you to measure peak currents up to 2000 A and leakage currents - with high bandwidth and ultimate performance.

## HIGH BANDWIDTH MODE

This mode offers more than **5 MHz** bandwidth and **15 MS/s** sampling rate, SIRIUS XHS-SEA can acquire impulse, step, and square signals without any ringing or overshoot. Such an acquisition mode is perfect for transient recording and power analysis, and would usually be found in SAR ADCs.

## RUGGED

IP67 rated chassis operating between -20 °C and 70 °C withstanding tough shock and vibration conditions.

## PERFECT SYNCHRONIZATION

Even though you can select some channels to be high bandwidth and some to be alias free, filtering is made in the way that all signals are perfectly time aligned with zero phase shift.

# SIRIUS® SEA MODULAR



UP TO 8 ISOLATED ANALOG CHANNELS OF SIRIUS DUAL-CORE, HIGH-SPEED OR EXTRA HIGH-SPEED.

UP TO 16 ANALOG CHANNELS WITH HD AMPLIFIERS.

## SCALABLE

SIRIUS DAQ systems can grow with needs at any time - from a single channel to a system with thousands of channels.

## FLEXIBLE

SIRIUS-SEA single slices provide you the most flexible configuration. Slice-based systems can be split or combined at any time, to handle different measurement tasks.

## DISTRIBUTABLE

SIRIUS-SEA EtherCAT® slices can be located up to 100 meters (328 feet) apart from each other, using a single cable that carries data, sync, and power!

Versatile USB and EtherCAT® data acquisition systems. Any signal, any sensor - packed with cutting edge technology.

## USB / ETHERCAT® / ETHERNET INTERFACE

You can connect SIRIUS-SEA DAQ systems via USB or EtherCAT® to any data acquisition computer, or to one of our high-performance data loggers. SIRIUS XHS-SEA offers also Ethernet interface including PTPv2 synchronization

# MODULAR SIRIUS® SBOX



## EtherCAT® INTERFACE

Built-in EtherCAT® interface port for synchronized data acquisition from Dewesoft EtherCAT® DAQ devices.

## 6 USB INTERFACES

SBOX includes four USB3.0 ports and two USB2.0 ports. All USB ports feature screw-lock connectors to prevent accidental disconnection.

Highly reliable SBOX data logger with powerful data processing computer. The perfect companion to your SIRIUS data acquisition system.

## 100 Hz GPS WITH RTK

An optional 10 Hz or 100 Hz GPS receiver with additional RTK support can be built straight into SBOX.

## HIGHLY RELIABLE SSD STORAGE

SBOX provides highly reliable data recording with a typical 180 MB per second write speed to the internal fast SSD. This drive is removable so that you can swap and replace it quickly.

## 3 NETWORK INTERFACES

Two 2.5 Gb LAN ports and a wireless WLAN interface with external antenna ensure maximum connectivity.

## HIGH-PERFORMANCE DATA PROCESSING COMPUTER

With an 8-thread Intel Core CPU and 8 GB of memory, SBOX is a powerhouse computer for worry-free, real-time data recording and processing.

# SIRIUS® R4-SEA BOXED

## POWERFUL AND RELIABLE COMPUTER

R4-SEA DAQ system offers a powerful built-in data processing computer and fast and reliable SSD data logging capabilities for a stand-alone operation or a USB hub for connecting R4-SEA to an external computer.

## HIGH-END SIGNAL CONDITIONING

R4-SEA data acquisition systems are built around SIRIUS DAQ technology and feature the same versatile and powerful amplifiers for prime signal conditioning.

## UP TO 64 ANALOG INPUTS

Systems can be configured with up to 4 SIRIUS DAQ slices for a total of 64 analog inputs for connecting virtually any sensor.

UP TO 4 ISOLATED CAN PORTS

Configure up to 4 high-speed CAN 2.0b channels with 1 Mbit/s data throughput and additional support for CCP, OBDII, J1939, and CAN output.



## ALL INTERFACES

Interfaces for wireless LAN, dual GLAN, 4x USB 3.0, GPS, HDMI and 2x synchronization are available.

**UP TO 32  
COUNTER/ENCODER INPUTS**

The system can be configured with up to 32 counter/encoder inputs, or 96 digital inputs - all equipped with our patented SuperCounter technology.

Compact data acquisition system with up to 64 analog inputs, 32 counter inputs and 32 analog outputs, and a built-in high performance, highly reliable data processing computer and SSD data logger.

## EtherCAT® MASTER PORT

R4-SEA DAQ systems include an EtherCAT® master port with built-in synchronization, for easy connection to and extension of any of our EtherCAT® based DAQ systems - including KRYPTON DAQ modules or SIRIUS hardware.

## 100 Hz GPS WITH RTK

Optional 10 Hz or 100 Hz GPS receiver with additional RTK support can be built straight into the R4 DAO system.



# PORTABLE INSTRUMENT SIRIUS® R1DB-SEA/R2DB-SEA

## ALL INTERFACES

Interfaces for wireless LAN, dual GLAN, 4x USB 3.0, GPS, HDMI, 2x synchronization are available.



## ALL-IN-ONE INSTRUMENT

R1DB-SEA/R2DB-SEA instruments are stand-alone DAQ systems with the built-in touchscreen LED display, keyboard, a powerful data processing computer, SSD data logging capabilities, and internal Li-Ion batteries (R1DB-SEA/R2DB-SEA). A version without batteries is also available (R2D).

## HIGH-END SIGNAL CONDITIONING

R1DB-SEA/R2DB-SEA data acquisition systems are built on solid SIRIUS DAQ technology, and feature the same powerful, world-leading signal conditioning amplifiers. See the SIRIUS product page for more details.

Compact, mobile data acquisition system with a built-in data logger, powerful data processing computer, multi-touch display and internal batteries for maximum portability.

## UP TO 16 COUNTER/ENCODER INPUTS

Up to 16 counter/encoders or 48 digital input channels, all equipped with our patented SuperCounter® technology.

## 100 Hz GPS WITH RTK

An optional 10 Hz or 100 Hz GPS receiver with additional RTK support can be built right into R1DB-SEA/R2DB-SEA DAQ system.

## EtherCAT® MASTER PORT

R1DB-SEA / R2DB-SEA DAQ systems include an Ether-CAT® master port with built-in synchronization, for easy connection to and extension of any of our EtherCAT® based DAQ systems - including KRYPTON DAQ modules or SIRIUS hardware.

## UP TO 32 ANALOG INPUTS

Systems can be configured with one (R1DB-SEA) or two (R2DB-SEA) SIRIUS DAQ slices for a total of 32 analog inputs capable of connecting virtually any sensor.

## UP TO 2 ISOLATED CAN PORTS

Up to 2 high speed CAN 2.0b channels with 1 Mbit/s data throughput with additional support for CCP, OBDII, J1939, and CAN output.

# SIRIUS® R8-SEA PORTABLE INSTRUMENT

## HIGH-END SIGNAL CONDITIONING

R8 data acquisition systems are built around SIRIUS DAQ technology and feature the same versatile and powerful amplifiers for world-leading signal conditioning.



## ALL-IN-ONE INSTRUMENT

R8-SEA instruments are high-channel-count, stand-alone DAQ systems with a built-in powerful data processing computer, SSD data logging capabilities, touch-screen LED display (R8D and R8DB), and internal Li-Ion batteries (R8B/R8DB) for maximum portability.

## UP TO 8 ISOLATED CAN PORTS

Configure up to 8 high-speed CAN 2.0b channels with 1 Mbit/s data throughput with additional support for CCP, OBDII, J1939, and CAN output.

## UP TO 64 COUNTER/ENCODER INPUTS

R8-SEA DAQ system can be configured with up to 64 counter/encoder or 192 digital input channels, all equipped with our patented Super-Counter® technology.

## UP TO 64 ANALOG OUTPUTS

R8-SEA/R8B-SEA can be configured with up to 64 analog outputs and can function as a multi-channel function generator, analog replay, or control device with the output voltage signal of +/- 10V.

High-channel-count data acquisition system with built-in data logger, a powerful data processing computer, touch screen display (R8D-SEA) and internal batteries (R8B-SEA, R8DB-SEA) for maximum portability.

## UP TO 128 ANALOG INPUTS

Systems can be configured with up to eight SIRIUS DAQ slices for a total of 128 analog inputs for virtually any sensor.

## EtherCAT® MASTER PORT

R8 DAQ systems include an EtherCAT® master port with built-in synchronization, for easy connection to and extension of any of our EtherCAT® based DAQ systems - including KRYPTON DAQ modules or SIRIUS hardware.

## ALL INTERFACES

Interfaces for wireless LAN, dual 2.5 Gb LAN, 4x USB 3.0, GPS, HDMI, 2x synchronization are available.

## 100 Hz GPS WITH RTK

Optional 10 Hz or 100 Hz GPS receiver with additional RTK support can be built straight into R8-SEA DAQ system.

# RACK SYSTEM SIRIUS® R8RT-SEA



High-channel-count DAQ system with high-end signal conditioning, a powerful computer, data logger, and real-time data output capability to EtherCAT® real-time controller.

## UP TO 128 ANALOG INPUTS

Systems can be configured with up to eight SIRIUS DAQ slices for a total of 128 analog inputs for virtually any sensor.

## DUAL MODE

The EtherCAT® slave interface can be used to provide real-time data to a 3rd party control system, while the internal bus allows full-speed recording via DewesoftX software in parallel. Finally, the worlds of data acquisition and control have come together in one system!

## DAQ AND CONTROL

The R8RT instrument is an upgrade of our R8-SEA DAQ system. It uses the same DAQ technology, and provides the same data logging and data processing capabilities as the R8. However, the R8RT includes an additional EtherCAT® slave port that can send your real-time data to any 3rd party EtherCAT® master controller.

# SIRIUS® R3 19" RACK SYSTEM



## FULLY SYNCHRONIZED

Every single channel - analog, digital, and CAN - is synchronized with microsecond accuracy.

## 19" RACK MOUNTABLE

The included PC chassis can be mounted in any 19" rack cabinet.

## HIGH-END SIGNAL CONDITIONING

The R3 data acquisition system is built upon SIRIUS DAQ technology, and features the same powerful world-class signal conditioning amplifiers. Check out the SIRIUS product page for more details.

## UP TO 3 ISOLATED CAN PORTS

Up to 3 high-speed CAN 2.0b channels with 1 Mbit/s data throughput, with additional support for CCP, OBDII, J1939, and CAN output.

## DIGITAL/COUNTER/ENCODER INPUTS

Each channel is capable of 3x digital inputs, 1x event counter, encoder, period, pulse-width, duty-cycle. Precise frequency and angle measurement uses patented SuperCounter® technology.

Rack mountable DAQ system built into standard PC computer chassis and integrated SIRIUS data acquisition slices. Ready for simple and inexpensive upgrade of PC components.

## HIGH PERFORMANCE COMPUTER

The PC computer inside is built with standard, off-the-shelf computer components, allowing for easy upgrades of drive, memory, CPU, and other components.

## UP TO 48 ANALOG INPUTS

Systems can be configured with up to eight SIRIUS DAQ slices for a total of 48 analog inputs for virtually any sensor.

## UP TO 24 COUNTER/ENCODER INPUTS

Up to 24 counter/encoder or 72 digital input channels, all equipped with our patented SuperCounter® technology.

# COMPACT SYSTEM SOLUTION SIRIUS® MINI



## UNMATCHED PRICE

SIRIUS MINI ships off-the-shelf with high-quality signal conditioning, award-winning data acquisition software for the best price on the market.

## USB POWERED

SIRIUS MINI does not require any external power supply. It can be powered straight from the USB connection, for example, through a laptop.

Small and highly portable, USB powered data acquisition system ideal for acoustic, vibration, and rotating machinery analysis.

## SMALLEST DAQ

SIRIUS MINI is our smallest, 4-channel data acquisition system. Fits almost anywhere, suitable for acoustic, vibration, and angle measurements.

## COUNTER/ENCODER/DIGITAL INPUTS

The system includes one counter/encoder input which can be used as 3x digital inputs, 1x event counter, encoder, period, pulse-width, duty-cycle. Precise frequency and angle measurement use patented SuperCounter® technology.

## 4 IEPE/VOLTAGE INPUTS

The system includes four high-dynamic analog inputs, dual sigma-delta ADCs with 200 kS/s/ ch sample rate, and up to 160 dB dynamic range.


**SIRIUS® AMPLIFIERS**
**HIGH-DYNAMIC - DualCoreADC® SIRIUS®**

Our DualCoreADC® technology boosts dual 24-bit delta-sigma ADC's with an anti-aliasing filter on each channel, achieving an astonishing 160 dB of dynamic range in the time and frequency domains, with up to 200 kS/s/ch sampling rate per channel. Up to 8 channels per SIRIUS module.

**Counter input:** Most amplifiers can be also ordered with additional counter input featuring event counting, waveform timing, angle, encoder and speed measurements. Each counter has 3 digital inputs and 1 digital output.

	HIGH-DYNAMIC - DualCoreADC® SIRIUS®								
	UNI	STG	STGM	MULTI	ACC	MIC200	CHG	HV	LV
Connectors	DSUB-9, L2B10f	DSUB-9, L2B7f, L2B10f	DSUB-9, L2B7f, L2B10f	DSUB-15, L2B16f	BNC, TNC	L1B7f	BNC, TNC	BANANA	DSUB-9, BNC, BANANA
Counter version	✓	✓	✓	✓	✓	X	✓	X	✓
Channels per slice	8	8	8	8	8	8	8	8	8
Data rate / channel	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT	200 kS/s USB, 20 kS/s EtherCAT
Resolution	24-bit DualCoreADC	24-bit DualCore-ADC	24-bit DualCore-ADC	24-bit DualCore-ADC	24-bit DualCore-ADC	24-bit DualCoreADC	24-bit DualCore-ADC	24-bit DualCore-ADC	24-bit DualCoreADC
Bandwidth	70 kHz	70 kHz	70 kHz	70 kHz	70 kHz	70 kHz	70 kHz	70 kHz	70 kHz
Voltage ranges	±100 V, ±10 V, ±1 V, ±100 mV, ±10 mV	±50 V, ±10 V, ±1 V, ±100 mV, ±10 mV	±10 V, ±1 V, ±100 mV, ±10 mV	±10 V, ±1 V, ±100 mV, ±50 mV	±10 V, ±500 mV	±10 V, ±500 mV	±10 V, ±500 mV	±1200 V, ±50 V	±200 V, ±10 V, ±1 V, ±100 mV
Input coupling	DC, AC 0.3 Hz / 0.16 Hz (1, 3, 5, 10, 20 Hz SW)	DC, AC 1 Hz (3, 10 Hz SW)	DC	DC	DC, AC 0.1 Hz, 1 Hz	AC 0.35 Hz (3, 10 Hz SW)	DC, AC 0.1 Hz, 1 Hz, 10 Hz, 100 Hz	DC	DC, AC 1 Hz (3, 10 Hz SW)
Sensor excitation	0.20 V max. 0.8 W, 0.60 mA max 0.5 W, IEPE 2.20 mA	0.20 V max. 0.8 W, 0.60 mA max 0.5 W	0.15 V max. 44 mA	0..12 V max. 44 mA	IEPE 2, 4, 8, 12, 16, 20 mA	14 V bipolar, 200 V polarization	IEPE 4, 8, 12 mA	X	2..30 V bipolar, 0..24 V unipolar, max. 0.2 A / 2 W
Bridge connection	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3, 4 wire	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3, 4 wire	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	X	X	X	X	Full
Programmable shunt	59.88 kΩ, 175 kΩ bipolar	59.88 kΩ, 175 kΩ bipolar	100 kΩ bipolar	59.88 kΩ	X	X	X	X	X
IEPE input	✓	DSI-ACC	DSI-ACC	DSI-ACC	✓	X	✓	X	DSI-ACC
Resistance	✓	✓	X	X	X	X	X	X	X
Temperature (PTx)	✓	✓	DSI-RTD	DSI-RTD	X	X	X	X	DSI-RTD
Thermocouple	DSI-TH	DSI-TH	DSI-TH	DSI-TH	X	X	X	X	DSI-TH
Current	ext. shunt, DSI	ext. shunt, DSI	ext. shunt, DSI	ext. shunt, DSI	ext. shunt	ext. shunt	ext. shunt	X	ext. shunt, DSI
Potentiometer	✓	✓	✓	✓	X	X	X	X	X
LVDT	DSI-LVDT	DSI-LVDT	DSI-LVDT	DSI-LVDT	X	X	X	X	DSI-LVDT
Charge	DSI-CHG	DSI-CHG	DSI-CHG	DSI-CHG	X	X	100 k, 10 k pC	X	DSI-CHG
TEDS	✓	✓	✓	✓	✓	✓	✓	X	✓
Isolation voltage	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	CAT II 1000 V	1000 V
Power consumption per channel	2 W/ch	2 W/ch	1.3 W/ch	1.3 W/ch	1 W/ch	1.1 W/ch	1.2 W/ch	1 W/ch	1.2 W/ch
Advanced functions	Supports all strain types, IEPE sensors and high input range	Supports all strain types and high input range	Low power, sensor and amplifier balance, bipolar shunt	Analog Output, Low power, sensor and amplifier balance	Sensor error detection, high dynamic range	Supports polarized condenser microphones	Sensor error detection in IEPE and CHG mode (injection)	High voltage, high isolation	High sensor power and multi range

**HIGH-DENSITY HD SIRIUS®**

High-density SIRIUS module with up to 16 channels per SIRIUS slice is the perfect choice for high channel count applications.

**HIGH-SPEED HS SIRIUS®**

1 MHz 16 bit SAR technology with software selectable alias-free filtering is the perfect choice for transient recording. Up to 8 channels per SIRIUS module.

	HIGH-DENSITY HD SIRIUS®			HIGH-SPEED HS SIRIUS®				
	HD-STGS	HD-LV	HD-ACC	HS-HV	HS-LV	HS-ACC	HS-CHG	HS-STG
Connectors	DSUB-9, L1B10f	DSUB-9, BNC	BNC	BANANA	DSUB-9, BNC, BANANA	BNC	BNC, TNC	DSUB-9
Counter version	X	X	X	✓	✓	✓	✓	✓
Isolated version	✓	✓	✓	✓	✓	✓	✓	✓
Differential version	✓	✓	✓	✓	✓	✓	✓	✓
EtherCAT version	✓	✓	✓	✓	✓	✓	✓	✓
Rack version	✓	✓	✓	✓	✓	✓	✓	✓
Fanless version	X	X	X	✓	✓ (see 1)	X	X	X
Channels per slice	16	16	16	8	8	8	8	8
Data rate / channel	200 kS/s USB, 10 kS/s EtherCAT	200 kS/s USB, 10 kS/s EtherCAT	200 kS/s USB, 10 kS/s EtherCAT	1 MS/s	1 MS/s	1 MS/s	1 MS/s	1 MS/s
Resolution	24-bit	24-bit	24-bit	16-bit	16-bit	16-bit	16-bit	16-bit
Bandwidth	70 kHz	71 kHz	72 kHz	2 MHz	1 MHz	500 kHz	500 kHz	1 MHz
Voltage ranges	±10 V, ±1 V, ±100 mV, ±10 mV	±100 V, ±10 V, ±1 V, ±100 mV	±10 V, ±5 V, ±1 V, ±200 mV	±2000 V ... ±20 V	±100 V ... ±50 mV	±10 V ... ±200 mV	±10 V ... ±100 mV	±50 V ... ±20 mV
Input coupling	DC	DC	DC, AC 0.1 Hz, 1 Hz	DC	DC, AC 1 Hz (3, 10 Hz SW)	DC, AC 1 Hz (3, 10 Hz SW)	DC, AC 0.1 Hz, 1 Hz, 10 Hz, 100 Hz	DC, AC 1 Hz (3, 10 Hz SW)
Sensor excitation	0..12 V max. 44 mA	2...30 V bipolar, 0..24 unipolar, max. 0.2 A / 2 W	IEPE 4,8,12 mA	X	2...30 V bipolar, 0..24 V unipolar, max. 0.2 A / 2 W	IEPE 4 mA, 8 mA	IEPE 4, 8, 12 mA	0...20 V max. 0.8 W, 0.60 mA max 0.5 W
Bridge connection	Full, ½, ¼ 350 Ω, ½ 120 Ω 3-wire	Full	X	X	Full	X	X	Full, ½, ¼ 350 Ω, ½ 120 Ω, 3 or 4 wire
Programmable shunt	100 kΩ	X	X	X	X	X	X	59.88 kΩ, 175 kΩ bipolar
IEPE input	DSI-ACC	DSI-ACC	✓	X	DSI-ACC	✓	✓	DSI-ACC
Resistance	X	X	X	X	X	X	X	✓
Temperature (PTx)	DSI-RTD	DSI-RTD	X	X	DSI-RTD	X	X	✓
Thermocouple	DSI-TH	DSI-TH	X	X	DSI-TH	X	X	DSI-TH
Potentiometer	✓	X	X	X	X	X	X	✓
LVDT	DSI-LVDT	DSI-LVDT	X	X	DSI-LVDT	X	X	DSI-LVDT
Charge	DSI-CHG	DSI-CHG	X	X	DSI-CHG	X	1 k ...100 k pC	DSI-CHG
Current	"ext. shunt, DSI"	"ext. shunt, DSI"	ext. shunt	X	ext. shunt, DSI	ext. shunt	ext. shunt	ext. shunt, DSI
TEDS	✓	✓	✓	X	✓	✓	✓	✓
Isolation voltage	500 V in pairs	500 V in pairs	500 V in pairs	CAT II 1000 V	1000 V	1000 V	1000 V	1000 V
Power consumption per channel	1.3 W/pair	1.3 W/pair	1.3 W/pair	1 W/ch	1.2 W/ch	2 W/ch	1.2 W/ch	2 W/ch
Advanced functions	Low power, sensor and amplifier balance	High sensor power and multi range	Sensor error detection	High voltage, high bandwidth, high isolation	High sensor power and multi range	Sensor error detection, high speed	Sensor error detection in IEPE and CHG mode (injection)	High speed, supports all strain types and high input range

(1) Fanless operation only for BNC or Banana version (without excitation)


**SIRIUS®XHS AMPLIFIERS**
**EXTRA-HIGH-SPEED XHS SIRIUS®**

SIRIUS XHS is a high-speed data acquisition system (15 MS/s) with the new Hybrid ADC technology capable of high-bandwidth transient recording and very high-dynamic, alias-free data acquisition.

	EXTRA-HIGH-SPEED XHS SIRIUS®		
	XHS-HV	XHS-LV	XHS-ACC
Connectors	BANANA	DB9, BNC	BNC
Channels per slice		8	
Data rate / channel		15 MS/s	
Resolution		16-bit (24-bit @ 1 MS/s)	
Bandwidth		5 MHz	
Voltage ranges	±2000 V ... ±200 V	±100 V ... ±50 mV	±10 V ... ±200 mV
Input coupling	DC	DC, AC 1 Hz	DC, AC 0.1 Hz, AC 1 Hz
Sensor excitation	-	2.5..30 V bipolar, 2.24 V unipolar, max. 0.2 A / 2 W	IEPE 2 mA, 4 mA, 8 mA, 12 mA, 16 mA, 20 mA
Bridge connection	-	Full	-
Programmable shunt	-	-	-
IEPE input	-	DSI-ACC	✓
Resistance	-	-	-
Temperature (PTx)	-	DSI-RTD	-
Thermocouple	-	DSI-TH	-
Potentiometer	-	-	-
LVDT	-	DSI-LVDT	-
Charge	-	DSI-CHG	-
Current	-	ext. shunt DSI20mA, DSI5A	ext. shunt
TEDS	-	✓	✓
Isolation voltage	CATII 1000 V	1000 V	1000 V
Power consumption per channel	1 W/ch	1.2 W/ch	-
Advanced functions	High voltage, high bandwidth, high isolation	High sensor excitation and multi range	Sensor error detection, high speed

**EXTRA-HIGH-SPEED XHS-PWR SIRIUS®**

SIRIUS-XHS-PWR is a DAQ device designed for direct in-vehicle measurement of current, voltage, and power with up to 15 MS/s sampling rate.

EXTRA-HIGH-SPEED XHS-PWR SIRIUS®	
SIRIUSi-XHS-PWR specifications	SIRIUSi-XHS-PWR-1xHV-1xDC-CT-1000A-UNI
Input types	Voltage, Current (single phase)
ADC Type	Hybrid ADC - alias free up to 2 MS/s, 16-bit up to 15 MS/s
Sampling Rate	Simultaneous 15 MS/s
Filtering	AAF 1 MHz (6th order)
Voltage Mode	±2000 V, ±1000 V, ±400 V, ±200 V
Analog bandwidth (-3 dB)	5 MHz
Working voltage (continuous)	1000 VDC or 1000 VAC
Measuring voltage (max.)	±2000 V (see 1)
Input Accuracy DC	±0.03 % of reading ±0.02 % of range
Input Coupling	DC
Input Impedance	10 MΩ    1 pF
Current Mode	±2000 A, ±1000 A, ±400 A, ±200 A
Analogue bandwidth (-3 dB)	> 500 kHz
Working current (continuous)	±1000 ADC
Measuring current	±2000 ADC
Maximum withstand peak current	min. -1700 A, max. 2000 A (see 2)
Primary / Secondary Ratio	1 : 1680
Input Accuracy (Ip @ 10 Arms)	±0.1 % of reading ±50 ppm of range ±0.05 A
HV harness	120 mm2 95 mm2 70 mm2 50 mm2 35 mm2
Rated DC current	344 A 292 A 245 A 198 A 158 A
Cable gland	M32 M32 M32 M25 M25
General specifications	
Power	
Power Supply	9 - 48 V DC (see 3), PWR + DATA + SYNC (Lemo 1T 8-pin)
Power consumption	Typ. 13 W (Max. 23 W)
Environmental	
Operating Temperature	-20 °C to 70 °C
IP rating	IP67
Interfaces	
Ethernet	GbE (XCP, OPC UA) incl. IEEE1588v2 synchronization (PTP) (LEMO 1T 8-pin)
CAN	CAN 2.0 (DSUB-9)
Additional Specifications	
Grounding	M6 insert
Dimensions	245 x 151 x 63 mm
Weight (incl. cables and connectors)	4.4 kg (max. 7 kg)

# HybridADC SIRIUS® XHS

## SIRIUS® XHS HAS TWO WAYS OF TRANSMITTING DATA TO THE PC:

### Ethernet interface (GLAN)

is intended for distributed data acquisition

### USB 3.0 (type C connector)

is intended for very high-speed transmission.

The system is acquiring the data with a very low CPU load. We are using DMA transfer on the system level to reduce loads. In today's world of open tool chain and intercommunication, devices should be compliant with standard protocols. SIRIUS XHS can serve acquired data via these standard protocols - all in parallel.

## ALIAS FREE MODE

Up to **2 MS/s** data can be acquired with an extremely high dynamic range, similar to our dual **24-bit SIRIUS DualCoreADC** devices. The data is alias-free, so all higher frequencies are fully rejected. Such a mode is perfect for sound, vibration, and general data recording applications. such an acquisition mode is typically found in Sigma-delta ADCs.

By today's standard, you would need two totally separate data acquisition devices for the mentioned measurements and applications. But the new SIRIUS XHS data acquisition system allows you to select per channel, depending on the measurement application, the appropriate mode of ADC operation. Both modes are available also in parallel acquiring two channels at different rates per one input slot.



USB 3.0 (type C) or  
Ethernet (1 GB GLAN)

## HybridADC TECHNOLOGY

Offers everything you ever wanted out of a high-end data acquisition system. High bandwidth and high dynamic mode available in parallel, software selectable per channel.

## HIGH BANDWIDTH MODE

This mode offers more than 5 MHz bandwidth and 15 MS/s sampling rate, SIRIUS XHS can perfectly acquire impulse, step, and square signals without any ringing or overshoot. Such an acquisition mode is perfect for transient recording and power analysis and would usually be found in SAR ADCs.



Data via XCP to:  
ECU calibration software like  
ETAS INCA or Vector CANape

### XCP

starting with version 1.4, XCP became a very powerful interface protocol in the automotive industry for data exchange. In the modern age of e-mobility, the required sampling rates are much higher than ever and 1 GBIT XCP interface allows for data transfers up to 1 MS/s.

in parallel



Data via OPC UA to:  
DewesoftX  
Time-series DB, Cloud, SCADA

### OPC UA

is the industry standard. Actually, it is more than a standard, it is a perfect framework where the device can be described and set up in any system, including SCADA, MES, ERP, mobile devices, and others.



PERFECT SIGNAL CONDITIONING

EXPANDABLE

# ONE HARDWARE.

## DAQ AND CONTROL SYSTEMS

### CAPACITY & COMPATIBILITY

Our devices are capable of storing hundreds of analog and digital channels at full speed while allowing parallel data to be sent out in real-time to any 3rd party EtherCAT® master controller.

### RUGGED AND BUILT TO LAST

Made on our own CNC machines, designed by our mechanical engineers. Proven tough.

### SOFTWARE INCLUDED WITH FREE LIFETIME UPGRADE

Award winning DewesoftX software is included with every instrument. All upgrades to the software are free forever with no hidden licensing costs.

DUAL MODE

# DATA ACQUISITION AND CONTROL DEVICES

## OBSIDIAN® R8

Embedded data acquisition system based on a low power ARM processor with Linux-based open architecture. OBSIDIAN device can act as a standalone data logger, real-time control system, and signal conditioning front-end - all at the same time.



### REMOTE OVERVIEW

Simple indicating system (LED light) or usage of the advanced mobile application provides and easy overview of health and status of the device.

### STAND-ALONE DATA RECORDER

OBSIDIAN can autonomously store analog, digital and positional data from virtually any object for months on either internal storage, removable SDHC card with up to TB capacity or USB-C external disc.

## IOLITE® R8/R8r

SIRIUS form chassis with up to eight slots, dual EtherCAT® interface and redundant power supply - also available in rugged chassis.



### REDUNDANT POWER SUPPLY

Together with dual EtherCAT® interface provides maximum system reliability.

### GREAT SIGNAL CONDITIONING

High-quality IOLITE amplifiers compatible with IOLITE or OBSIDIAN device, offer great signal quality and up to 20 kHz sampling rate.

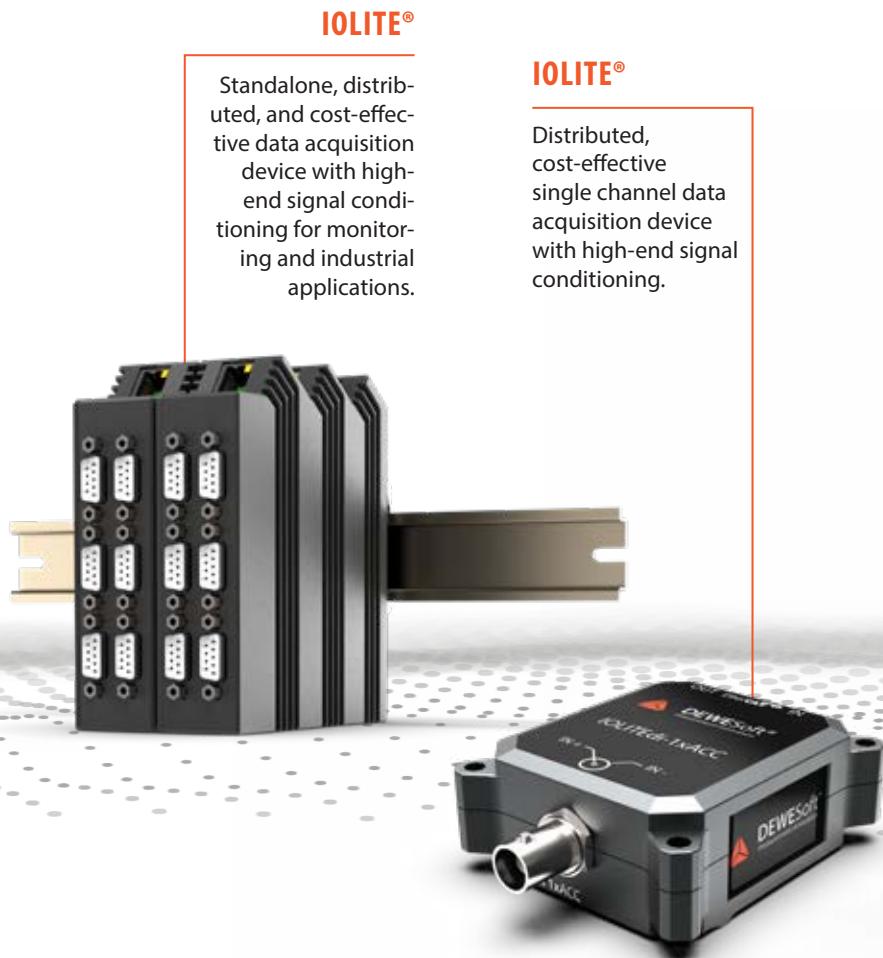
### DUAL EtherCAT®

IOLITE and OBSIDIAN devices use two EtherCAT® buses in parallel. The EtherCAT® primary bus is used for full speed buffered data acquisition to a computer. The EtherCAT® secondary bus is mainly used for real-time data to any 3rd party control system.

## IOLITE® R12

19" rack version with up to twelve slots, dual EtherCAT® interface and redundant power supply.

Our data acquisition devices are capable of storing hundreds of analog and digital channels at full speed while allowing parallel data to be sent out in real-time to any 3rd party EtherCAT® master controller. We have brought the worlds of data acquisition and real-time control closer together - this will save you time and money in a big way.



### IOLITE®

Standalone, distributed, and cost-effective data acquisition device with high-end signal conditioning for monitoring and industrial applications.

### IOLITE®

Distributed, cost-effective single channel data acquisition device with high-end signal conditioning.

### SIRIUS® R8DB/R8rt

Integrated instrument with up to 8 SIRIUS slices, powerful SBOX computer, optional 19" display (R8D) and batteries (R8DB) and real-time EtherCAT® slave interface (R8rt).



### GREAT PRICE/PERFORMANCE

IOLITE and OBSIDIAN offer great price/performance ratio and is suitable for test-bed and industrial applications.

### DEWESEN 7-YEAR WARRANTY

Our warranty covers that the instruments function as promised for a period of 7 years from the day of the delivery.

### WIDE OPERATING TEMPERATURE RANGE

While IOLITE and OBSIDIAN DAQ systems are labelled to run at -10°C.. 50°C, certain configurations can operate in the -40°C .. +85°C temperature range.

### DUAL MODE

The EtherCAT® slave interface can be used to provide real-time data to a 3rd party control system, while the internal bus allows full-speed recording via DewesoftX software in parallel. Finally, the worlds of data acquisition and control have come together in one system!

### MULTIPLE CHASSIS OPTION

IOLITE can be configured in the 19-inch cabinet compatible chassis or in more rugged SIRIUS-like compatible chassis (SIRIUS R8rt, SIRIUS R4rt, SIRIUS R2rt).

 **IOLITE® AMPLIFIER SPECS**

	6xSTG	8xSTGS	8xLV	8xLVe	16xLV	8xLA	8xACC
Connectors	DSUB-9	Terminal block, DSUB-37	BNC, Terminal block	Terminal block, DSUB-37	Terminal block	BNC, Terminal block	BNC
Channels per module	6x	8x	8x	8x	16x	8x	8x
Data rate per channel IOLITE	20 kS/s	20 kS/s	20 kS/s	20 kS/s	20 kS/s	20 kS/s	40 kS/s
Data rate per channel OBSIDIAN	20 kS/s	20 kS/s	20 kS/s	20 kS/s	10 kS/s	20 kS/s	20 kS/s
Resolution	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit
Bandwidth	0.49*fs	0.433*fs	0.49*fs	0.433*fs	0.433*fs	0.49*fs	0.433*fs
Voltage ranges	±50 V, ±10 V, ±1 V, ±100 mV	±1 V, ±100 mV, ±20 mV	±100 V, ±10 V (±10 V, ±1 V on request)	±100 V, ±5 V	±200 V, ±10 V	X	±10 V, ±5 V, ±1 V, ±200 mV
Input coupling	DC, AC 1 Hz	DC	DC	DC	DC	DC	DC, AC 1 Hz, AC 0.1 Hz
Sensor excitation	0..24 V (unipolar), 0..12 V (bipolar), 0..44 mA (current), max. 0.55 W/ch	1 V, 2 V, 5 V		0..24V (unipolar)			2 mA, 4mA, 6 mA
Bridge connection	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3-wire	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3-wire					
Programmable shunt	100 kΩ	100 kΩ					
IEPE input	DSI-ACC						
Resistance	✓						
Temperature (PTx)	DSI-RTD						
Thermocouple	DSI-TH						
Current	20 mA (internal shunt), DSI-5A, DSIi-10A, DSIi-20A					±20 mA, ±2 mA	
Potentiometer	✓	✓		✓			
LVDT	DSI-LVDT						
Charge	DSI-CHG						
TEDS	✓	✓ (except DB37)		✓			✓
Isolation voltage	Differential	Differential	450 V	250 V	250 V	450 V	250V
Isolation arrangement	None	Isolated common GND	Ch-Ch & Ch-GND	Ch-GND	Isolated common GND	Ch-Ch & Ch-GND	Ch-GND
Power consumption per module	Typ. 5.4 W, Max. 11.1 W	Typ. 2.7 W, Max. 5.1 W	Typ. 2.4 W, Max. 3.5 W	Typ. 3.3 W, Max. 4.2 W	Typ. 3.4 W, Max. 4.2 W	Typ. 2.4 W, Max. 3.5 W	Typ. 4.5 W, Max. 6 W
Advanced functions	Supports all strain types, high input range	Supports all strain types, low power consumption	High isolation, high input range	High isolation, high input range	High isolation, high input range	High isolation, high input range	IEPE, supports TEDS, high channel density

<sup>1</sup> Not supported on the OBSIDIAN

# AMPLIFIER SPECS IOLITE®

8xTH	8xTH-HS	8xRTD	8xRTD-HS	32xDI	32xDO <sup>1</sup>	8xDI-4xDO <sup>1</sup>	4xCNT	16xAO
MINI TC	MINI TC	L0B6f, Terminal block	L0B6f, Terminal block	Terminal block	Terminal block	Terminal block	L1B7f	Terminal block
8x	8x	8x	8x	32x	32x	8x digital in, 4x digital out	4x	16x
100 S/s	100 S/s, upgradable to 10 kS/s	100 S/s	100 S/s, upgradable to 10 kS/s	20 kS/s			20 kS/s	20 kS/s
100 S/s	100 S/s	100 S/s	100 S/s,	10 kS/s	not supported	not supported	20 kS/s	20 kS/s
24-bit	24-bit	24-bit	24-bit	digital	digital	digital	100 MHz timebase 5 ppm, 20 ppm max	16-bit
X	0.49*fs (max. 1 kHz)		0.49*fs (max. 1 kHz)				10 MHz	
±1 V, ±100 mV	±1 V, ±100 mV	±1 V, ±100 mV	±1 V, ±100 mV		open collector		TTL (Low: <0.8 V, High > 2 V)	±10 V
DC	DC	DC	DC				5 V, 12 V	
		244 uA / 440 uA	150 uA / 400 uA					
		1 kΩ, 10 kΩ	1 kΩ, 10 kΩ					
		PT100, 200, 500, 1000, 2000	PT100, 200, 500, 1000, 2000					
K, J, T, R, S, N, E, C, B	K, J, T, R, S, N, E, C, B							
1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	
Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Isolated common GND, groups of 8 ch.	Isolated common GND, groups of 8 ch.	Isolated common GND, group of 4/8 ch	Isolated common GND	Isolated common GND
3.2 W	Typ. 2.6 W, Max. 3.4 W	Typ. 2.1 W, Max. 2.7 W	Typ. 3.5 W, Max. 4.3 W	Typ. 1.2 W, Max. 1.9 W	Typ. 1.2 W, Max. 2.0 W	Typ. 1.1 W, Max. 1.8 W	Typ. 1.9 W	Typ. 4.3 W, Max. 7.2 W
High isolation, support of main TC types	High isolation, support of main TC types	High isolation	High isolation	X	Watchdog	High sink current, watchdog	Supercounter technology	X

# ONE HARDWARE.

## RUGGED DAQ SYSTEMS

### RUGGED

Instruments are rugged enough to sustain the harshest environments: water, dust, shock, vibration, and extreme temperature ranges from -40 °C up to 85 °C.

### DISTRIBUTABLE

Devices can be distributed close to the source of data - close to the sensors, down to a single measurement node.

### STANDARD INTERFACE

The EtherCAT® bus can be connected to 3rd party masters, as well as DewesoftX, thanks to the buffered mode.

### SOFTWARE INCLUDED WITH FREE LIFETIME UPGRADE

Award-winning DewesoftX software is included with every instrument. All upgrades to the software are free - FOREVER - and there are never any hidden licensing fees.

H A R S H   E N V I R O N M E N T

# KRYPTON® RUGGED SYSTEMS



## KRYPTON® CPU

Compact, highly portable logger for data recording in harsh environments from -40 to +70 °C operating range.

## KRYPTON®

Ultra rugged and distributable data acquisition devices from -40 to +85 °C operating range.

## KRYPTON® 1 SERIES

Distribute your measurements down to a single channel.

**MADE TO BE EXTREME**  
IP67, dust proof, waterproof, 100 g shock and vibration resistant, wide temperature operating range.

Rugged DAQ system that can be distributed down to a single channel and placed close to sensors. All DAQ systems offer IP67 degree of protection and are thus waterproof, dustproof, shock resistant up to 100 g, and can withstand a temperature range up to -40 °C to 85 °C.

## SINGLE CABLE

With up to 100 m between devices for power, data and synchronization.

## DISTRIBUTABLE DEVICES

Locate your data acquisition hardware close to the sensors.

# RUGGED SYSTEMS SIRIUS® AND SBOX

## SBOXwe

Ultra rugged and powerful data logger from -40 to +50 °C.

## SIRIUS®iwe

High-end signal conditioning in rugged form factor from -40 to +60 °C.



Extremely rugged (IP67 degree of protection) and fully isolated data acquisition system for the most demanding testing in harsh environments. High-precision, high-dynamic, and high-bandwidth for all types of analog signals from IEPE to strain gages.

### DEWESOFT 7-YEAR WARRANTY

Our warranty covers that the instruments function as promised for a period of 7 years from the day of the delivery.

### SIRIUS® DAQ TECHNOLOGY

DualCoreADC®, high dynamic range 160 dB, high isolation, SuperCounter®.

### MADE TO BE IP67 EXTREME

Dust-proof, water-proof, 100 g shock and vibration resistant, wide temperature operating range.

# KRYPTON® WATERPROOF



## UP TO 100 m BETWEEN UNITS

KRYPTON units can be distributed over the large area with distances of up to 100 meters (328 feet) between DAQ nodes.

## DISTRIBUTED DAQ

Distributed measurement hardware that can be located close to sensors. Compared to traditional DAQ systems, this has many advantages such as shorter cable runs and less potential for signal noise. KRYPTON systems can be distributed down to a single channel.

## EtherCAT® DAQ

Protocol with 100Mb/s bus speed is used for data transmission, data synchronization, and power supply. KRYPTONs are connected with a single cable for data, power, and sync.

## RUGGED IP67

These modules are built with tough-as-nails IP67 protection - they're ready to go to work in extreme weather and under the harshest conditions.

Rugged and distributable data acquisition modules. EtherCAT® interface for analog and digital I/O and IP67 degree of protection.

## UP TO 20 kS/s/CH SAMPLING RATE

Most KRYPTON channels in the EtherCAT® line can achieve sampling rates up to 20 kS/s.

## FROM 3 TO 16 CHANNEL UNITS

Modules are available from a 3 channel unit, ranging up to larger 8 and 16 channel modules.

# KRYPTON® WATERPROOF SPECS

	STG	TH	TH-HS	RTD	ACC	LV	LA	DIO	CNT
Connectors	DB9, L2B10f	Thermocouple	Thermocouple	L0B6f	BNC	BNC	BNC	DB25	L1T7f
#ch per module	3x, 6x	8x, 16x	8x, 16x	8x	4x, 8x	4x, 8x	8x	16xDI, 16xDO 8xDI, 8xDO	4xCNT
Data rate / channel	20 kS/s	100 S/s	100 S/s, upgradable to 10 kS/s	100 S/s	20 kS/s	20 kS/s	20 kS/s	40 kS/s	20 kS/s
Resolution	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	digital	100 MHz timebase 5 ppm, 20 ppm max
Bandwidth	0.49*fs	X	0.49*fs (max. 1 kHz)	X	0.49*fs	0.49*fs	0.49*fs	X	10 MHz
Voltage ranges	±10 V, ±1 V, ±100 mV, ±10 mV	±1 V, ±100 mV	±1 V, ±100 mV	±1 V, ±100 mV	±10 V, ±5 V, ±1 V, ±200 mV	±50 V	±20 mA	CMOS compatible	TTL (Low: <0.8 V, High > 2 V)
Input coupling	DC	DC	DC	DC	DC, AC 0.1 Hz, 1 Hz	DC	DC	DC	DC
Sensor excitation	0...15 V max. 0.4 W/ch (45 mA limit)	X	X	X	IEPE 4 mA, 8 mA	-	-	5 V / 300 mA, 12 V / 120 mA, Vsupply / 200 mA"	5 V / 100 mA 12 V / 50 mA
Bridge connection	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	X	X	X	X	X	X	X	X
Programmable shunt	100 kΩ	X	X	X	X	X	X	X	X
IEPE input	DSI-ACC	X	X	X	✓	X	X	X	X
Resistance	X	X	X	10 kΩ	X	X	X	X	X
Temperature (PTx)	DSI-RTD	X	X	PT100, 200, 500, 1000, 2000	X	X	X	X	X
Thermocouple	DSI-TH	K, J, T, R, S, N, E, C, B	K, J, T, R, S, N, E, C, B	X	X	X	X	X	X
Current	ext. shunt DSI-20mA, DSI-5A	X	X	X	ext. shunt	X	X	X	X
Potentiometer	✓	X	X	X	X	X	X	X	X
LVDT	DSI-LVDT	X	X	X	X	X	X	X	X
Charge	DSI-CHG	X	X	X	X	X	X	X	X
TEDS	✓	X	X	X	✓	X	X	X	X
Isolation voltage	Differential	1000 V	1000 V	1000 V	Differential	1000 V	1000 V	250 V	X
Isolation arrangement	None	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	None	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Isolated common GND	Isolated common GND
Power consumption per module	2.4 W (4 W 120 Ω @ 5 V load) 3xSTG; 5.9 W (8.9 W 120 Ω @ 5 V load) 6xSTG	2.5 W (8xTH) 4 W (16xTH)	2.6 W (8xTH-HS) 4.3 W (16xTH-HS)	2.5 W	4.6 W	3.5 W (4xLV) 6.7 W (8xLV)	6.8 W	2 W	2.3W
Advanced functions	Supports all strain types, TEDS support	High isolation, support of main TC types	High isolation, support of main TC types	X	TEDS support	High isolation, high input range	High isolation, 4-20 mA current loop	X	SuperCounter®

## AMPLIFIER SPECS

3xSTG, 6xSTG	Differential universal and strain module
8xTH, 16xTH, 8xTH-HS, 16xTH-HS	Isolated universal thermocouples module
8xRTD	Isolated module for measurements with resistance temperature detectors
4xACC, 8xACC	IEPE accelerometer amplifier
4xLV, 8xLV	Isolated voltage input module

8xLA	Isolated low current amplifier
16xDI, 16xDO, 8xDI-8xDO	Isolated digital input/output module
GPS JUNCTION	Module for synchronization between SIRIUS or KRYPTON EtherCAT® devices to SIRIUS USB device, IRIG-B-DC or GPS
Sync junction	Module used to inject IRIG-B-DC sync signal from USB device to EtherCAT® line
KRYPTON CPU	Rugged data logger

# KRYPTON® 1 WATERPROOF



## UP TO 40 kS/s SAMPLING RATE

UP TO 40 kS/s SAMPLING RATE

Most devices in the KRYPTON 1 product line can achieve sampling rate up to 40 kS/s.

## RUGGED IP67

All KRYPTON modules are rugged with the IP67 degree of protection and ready for testing in extreme weather and harsh environments.

## UP TO 100 m BETWEEN UNITS

KRYPTON units can be distributed over the large area with distances of up to 100 meters (328 feet) between DAQ nodes.

## DISTRIBUTED TO SINGLE CHANNEL

KRYPTON 1 allows distributing DAQ units down to single channel.

Smallest size single channel rugged and distributable data acquisition modules with EtherCAT® interface.

## EtherCAT® DAQ

The EtherCAT® protocol with 100Mb/s bus speed is used for data transmission, data synchronization, and for powering the module. KRYPTON 1 modules are connected with a single cable for data, sync, and power.

# KRYPTON® 1 WATERPROOF SPECS

	AO	DI	DO	ACC	STG	LV	HV	TH-HV	CNT
Connector	BNC	DSUB15HD Male	DSUB15HD Female	BNC	DB9	BNC	Banana jack	K-type Thermocouple LEMO REDEL	LEMO T-type 7pin female
Number of channels per module	1	4	4	1	1	1	1	1	1
Data rate per channel	X	40 kS/s	X	40 kS/s	40 kS/s	40 kS/s	40 kS/s	100 S/s	20 kS/s
Resolution	18 bit	Digital	Digital	24-bit	24-bit	24-bit	24-bit	24-bit	100 MHz timebase 5 ppm, 20 ppm max
Bandwidth	X	X	X	0.49 fs	0.49 fs	0.49 fs	0.49 fs	0.49 fs	10 MHz
Voltage ranges	X	Digital (Low: < 1 V, High: > 2 V)	X	±10 V, ±5 V, ±1 V, ±200 mV	±50 V, ±10 V, ±1 V, ±100 mV	±50 V, ±10 V, ±1 V, ±100 mV	±1000 V	Thermocouple	TTL (Low: <0.8 V, High > 2 V)
Input coupling				DC, AC 0.1 Hz, 1 Hz	DC, AC 1 Hz	DC, AC 1 Hz	DC		
Sensor excitation	±10 V	X	X	IEPE 4 mA, 8 mA	Unipolar 0 - 24 V Bipolar 0 - 12 V	X	X	X	5 V (100 mA max.), 12 V (90 mA max.)
Bridge connection	X	X	X	X	Full, $\frac{1}{2}$ , $\frac{1}{4}$ 350 $\Omega$ , $\frac{1}{4}$ 120 $\Omega$ 3 wire	X	X	X	X
Programmable shunt	X	X	X	X	100 k $\Omega$	X	X	X	X
IEPE input	X	X	X	✓	DSI-ACC	X	X	X	X
Resistance	X	X	X	X	✓	X	X	X	X
Temperature (PTx)	X	X	X	X	DSI-RTD	X	X	X	X
Thermocouple	X	X	X	X	DSI-TH	X	X	K-type	X
Current	X	X	X	X	20mA (internal shunt), DSI-SA, ext. shunt	ext. shunt	X	X	X
Potentiometer	X	X	X	X	✓	X	X	X	X
LVDT	X	X	X	X	DSI-LVDT	X	X	X	X
Charge	X	X	X	X	DSI-CHG	X	X	X	X
TEDS	X	X	X	✓	✓	X	X	X	X
Isolation	None	Galvanic isolation CH, GND	Galvanic isolation CH, GND	125 Vrms Isolation CH, GND	125 Vrms Isolation CH, GND	125 Vrms Isolation CH, GND	CAT III 600 V CAT II 1000 V	CAT III 600 V CAT II 1000 V	None
Power consumption	2 W	1.5 W	2 W	2 W	3 W	1.5 W	1 W	1.3 W	1.2 W

## AMPLIFIER SPECS

4xDI, 4xDO	Four channel digital I/O amplifier
1xAO	Analog output
1xCNT	Single channel SuperCounter® module
1xLV	Isolated low voltage module

1xSTG	Isolated universal and strain amplifier
1xACC	Isolated IEPE accelerometer amplifier
1xHV	Isolated high voltage module
1xTH-HV	Isolated thermocouple module (CATII 1000 V)

# SIRIUS® WATERPROOF



## -40 TO 60 °C

Extreme testing means extreme temperatures. SIRIUS waterproof is ready.

## FULLY SYNCHRONIZED

Each channel, either analog, digital or CAN is synchronized with microsecond accuracy.

## UNIVERSAL ANALOG INPUTS

Universal analog amplifiers can accept voltage and full/half/quarter bridge signals natively as well as IEPE, charge, thermocouples, RTD, current, resistance and LVDT signals with the use of DSI adapters.

## IP67 DEGREE OF PROTECTION

SIRIUS waterproof is designed for testing in extremely harsh environments. The unit is waterproof, dustproof and can withstand shocks up to 100 g.

## 160 dB DYNAMIC RANGE

With our DualCoreADC® technology all analog inputs boost dual 24-bit delta-sigma with an anti-aliasing filter, achieving astonishing 160 dB dynamic range in time and frequency domain with 200 kHz sampling rate per channel.

Extremely rugged, isolated, IP67 rated, data acquisition system with EtherCAT® and USB interface for testing in harsh environment. Fast, precise and distributable!

### Rugged modules configuration examples:

SIRIUSiwe 8xSTGM	8-channel, universal strain gage amplifiers
SIRIUSiwe 6xSTGM, 2xSTGM+	8-channel universal strain gage amplifier with two counter inputs
SIRIUSiwe 16xHD-STGS	16 channel universal strain gage input

## DIGITAL/COUNTER/ENCODER INPUTS

Each channel is capable of 3x digital inputs, 1x event counter, encoder, period, pulse-width, duty-cycle. Precise frequency and angle measurement using patented SuperCounter® technology.

## SENSOR POWER SUPPLY

Each channel provides power for sensor excitation.

## HIGH ISOLATION

High channel-to-channel and channel-to-ground isolation prevents ground loops and damage to the systems from excessive voltage.

# WATERPROOF SBOX®



## -40 TO 50 °C

Extreme testing means extreme temperatures. SBOX waterproof is ready.

## IP67 LEVEL PROTECTION

SBOX waterproof is designed for testing in extremely harsh environments. The unit is waterproof, dustproof, and can withstand shocks up to 100 g.

Extremely rugged, IP67 rated data logger and powerful data processing computer. The perfect companion for your SIRIUS waterproof DAQ system.

## 100 Hz GPS WITH RTK

Optional 10Hz or 100Hz GPS receiver with additional RTK support can be built straight into SBOX waterproof.

## 5 USB PORTS

SBOX includes five USB 2.0 ports. All USB ports feature screw-lock connectors.

## PERFORMANCE COMPUTER

With built-in Intel Core i7 CPU and 4GB memory, SBOX waterproof is also very capable computer for worry-free, real-time data processing.

## EtherCAT® INTERFACE

Built-in EtherCAT® interface port with synchronization for EtherCAT® DAQ devices.

## 3 NETWORK INTERFACES

Two gigabit LAN ports and wireless WLAN interface with external antenna ensure maximum connectivity.

## HIGHLY RELIABLE SSD STORAGE

SBOX waterproof provides highly reliable data recording with typical 180 MB/sec write speeds straight into its fast, reliable solid state drive.

CURRENT SENSORS

MOUNTING PLATES

SIGNAL ADAPTERS

DISPLAYS

ANGLE  
SENSORS

VIDEO CAMERAS



ACCELEROMETERS

B A T T E R Y P A C K S

M I C R O P H O N E S

V E H I C L E I N T E R F A C E S

# ONE HARDWARE.

## ACCESSORIES, SENSORS & MORE

### DSI ADAPTERS

TEDS equipped adapters that convert our D-SUB9 universal signal conditioners into direct IEPE, charge, thermocouple, shunt, voltage, LVDT or RTD inputs.

### DISPLAYS, VIDEO CAMERAS AND BATTERY PACKS

All you need for our data acquisition systems for stand-alone, in-vehicle or remote test and measurement applications.

### GPS AND IMU DEVICES

High accuracy 100Hz GPS receivers and Inertial Measurement Units (IMU) with Real-time Kinematics (RTK) support for the most precise position based test and measurement applications.

### WIDE VARIETY OF SENSORS

Current clamps, transducers, accelerometers, angle sensors, microphones, and more.

A C T U A T O R S

P R E - B U I L T I N S T R U M E N T S

# DSI® ADAPTERS



## DSI-ACC, DSI-ACC-0.16HZ, DSI-ACC-20MA:

Adapters for connecting IEPE sensors.



## DSI-CHG:

Adapter for connecting charge sensors.



## DSI-CHG-DC:

DC coupled adapter for connecting charge sensors with high input range and large time constant.



## DSI-RTD:

Adapter for connecting DSI RTD temperature sensors (Pt100, Pt200, Pt500, Pt1000, Pt2000).



## DSI-TH-K, TH-J, TH-T, TH-C, TH-E, TH-UNI:

Adapter for connecting thermocouples.



## DSI-V-200, DSI-V-20:

Adapter for extending voltage range of amplifiers.



## DSI-20MA, DSI-5A, DSli-10A, DSli-20A:

Adapters for current measurements.



## DSI-LVDT:

Adapter for connecting LVDT sensors.



## DEWESoft 7-YEAR WARRANTY

Our warranty covers that the instruments function as promised for a period of 7 years from the day of the delivery.

TEDS equipped adapters that turn SIRIUS, KRYPTON or IOLITE DSUB9 voltage or strain analog input into a truly universal input supporting a wide variety of signals.

# MOUNTING PLATES



## DS-MOUNT-19-R8X

19" Mounting Kit for SIRIUS R8 systems.



## DS-MOUNT2-K

Top mounting plate for binding KRYPTON DAQ modules to SIRIUS and MINITAURs data acquisition systems, SBOX data loggers and battery packs.



## DS-MOUNT-K2, DS-MOUNT-K3

Mounting plate with click mechanism, for the bottom (DS-MOUNT-K2) or top (DS-MOUNT-K3) of the KRYPTON units.



## DS-MOUNT-DISP12

Mount that fits DS-DISP-12, our 12" multi-touch LED screen DS-DISP-12, on a SIRIUS or SBOX slice.



## VIB-ISO MOUNT

The VIBISO mount provides a vibration-isolated base for SIRIUS waterproof and SBOX waterproof DAQ instruments. Measurement units which are mounted on the Vibiso mount are suspended on rubber dampers which isolate instruments from high-frequency vibrations for extreme conditions.



## DS-MOUNT19

Mounting plate for fitting SIRIUS and SBOX data loggers into a 19" rack cabinet.



## DS-MOUNT

General top mount for SIRIUS data acquisition systems and/or SBOX data loggers. Mount can be used to fit small instruments, such as DS-CAN2, or any accessory that needs to be firmly fixed to the DAQ system.



## DS-MOUNT1

This mount can be used to mount SIRIUS data acquisition systems and SBOX data processing computers to the wall, floor or any other flat surface.