

The future is here in the form of a single device.

HYBRID ADC
HIGH BANDWIDTH 5MHZ @ 15 MS/s
ALIAS-FREE HIGH DYNAMIC UP TO 1MS/s



NEW WORLD OF APPLICATIONS

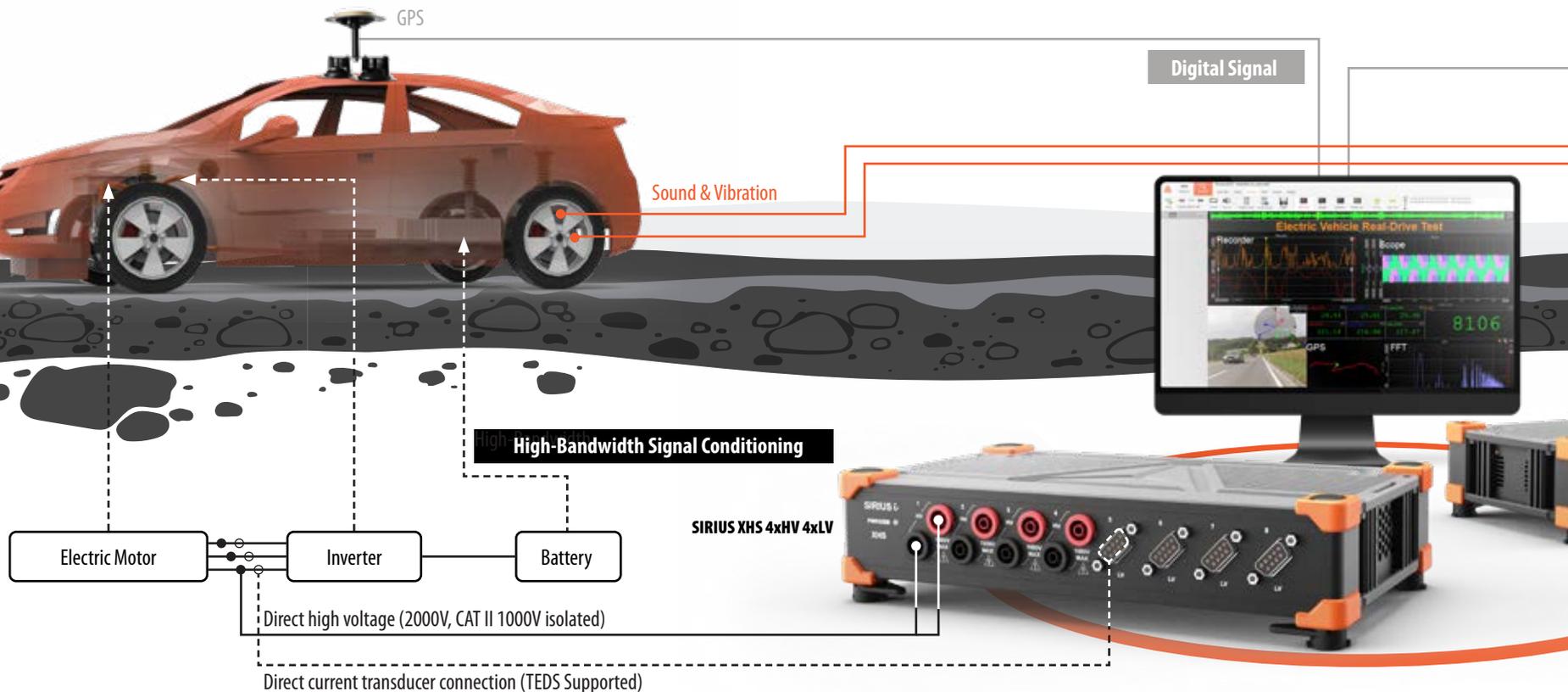
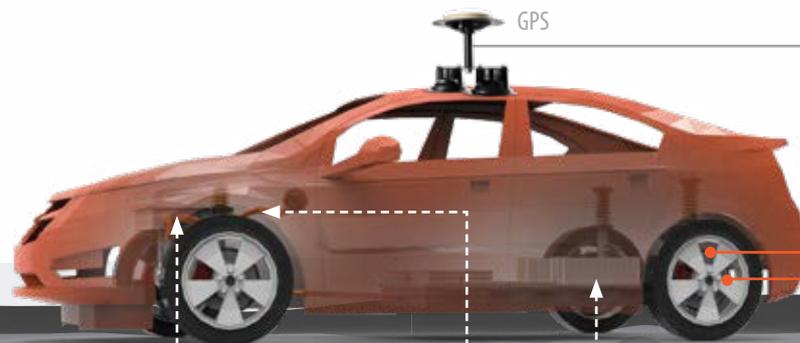
POWER ANALYSIS

The SIRIUS XHS is the perfect next-gen power analyzer and power quality analyzer device with the highest measurement accuracy.

Dewesoft X data acquisition software will automatically calculate and store not only raw data from the voltage and current transducers but also all the power parameters: P, Q, S, Cos ϕ , power factor, P, Q, cos ϕ for each harmonic and other relevant power parameters.

Using the high computational performance capability from the computers GPU, the Dewesoft X Power Module can calculate all the power parameters at full speed up to 15 MS/s sampling rate per channel.

The special SIRIUS XHS-PWR DAQ device is specifically designed for in-vehicle electric power measurements. It features an integrated patented DC-CT current transducer that allows very precise current measurements even in the most demanding applications such as very high current peaks as well as leakage current measurement.

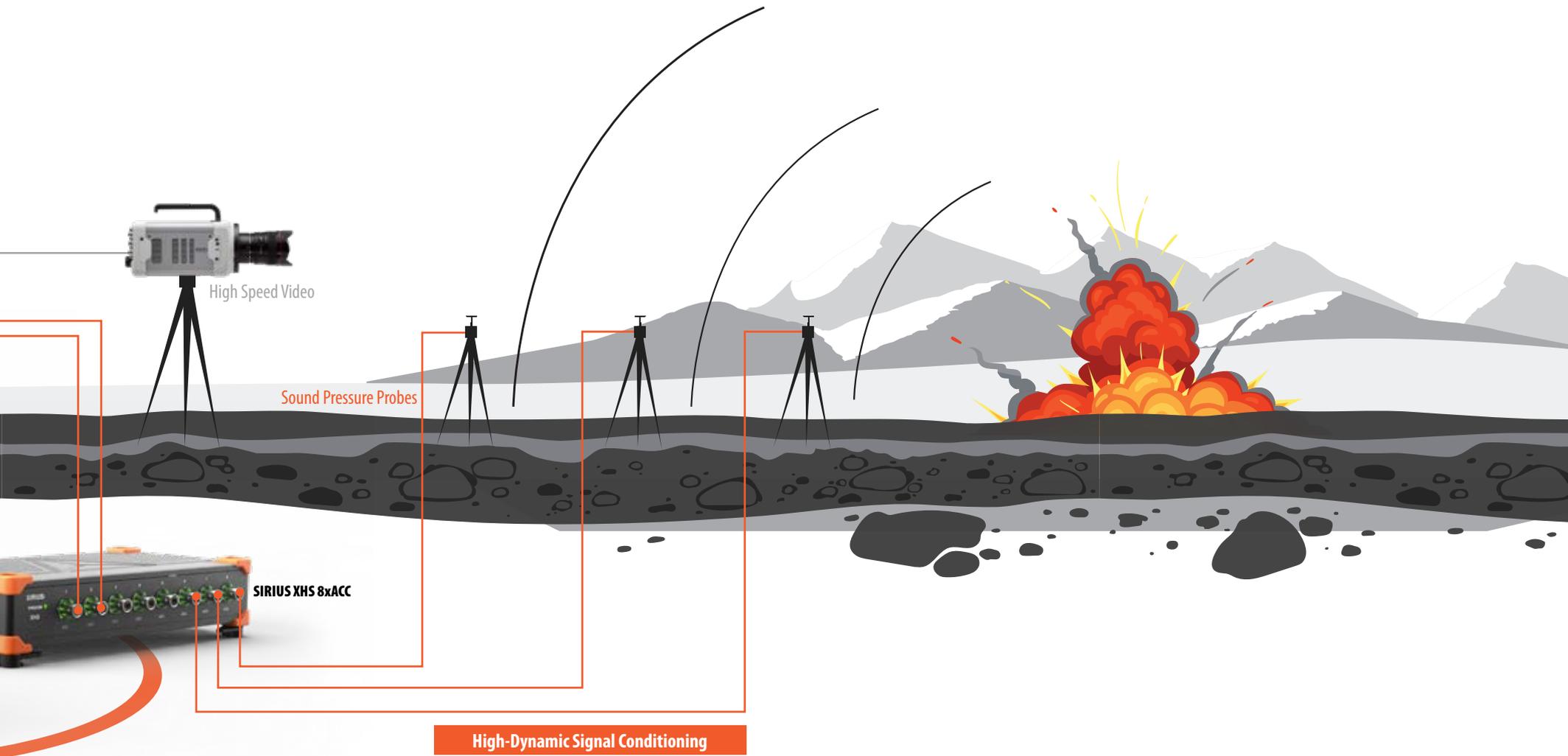


TRANSIENT RECORDING

The ability to record transients with advanced triggering capabilities and a high analog bandwidth ensures that the high-speed transients from voltage, current and pressure probe sensors.

HIGH SPEED DATA RECORDING

With improved performance the DewesoftX software allows for full range data storage. The Dewesoft X software was redesigned to enable GPU computation, this ensures that sampling can be done at full speed (15 MS/s) with no noticeable performance loss on the PC.



TECHNOLOGY AND KEY FEATURES

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

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.

ALIAS FREE MODE

Up to **1 MS/s** data can be acquired with an extremely high dynamic range, similar to our dual **24-bit SIRIUS DualCoreADC** devices. The data is totally 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. In addition we offer ring free filter with no overshoot on impulse signal while still maintaining alias free acquisition.

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.

RING-FREE FILTERS

This type of filter is the perfect choice for time—domain data analysis with no overshoot on impulse signals. The alias free acquisition has an automatic setting that keeps the cut-off frequency 0.2 times of the sampling rate.

HIGH GALVANIC ISOLATION

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



SIRIUS XHS is the first device ever with Hybrid ADC technology capable of doing both high bandwidth transient recording and very high dynamic alias free acquisition - software-selectable per channel. Modern interfaces and protocols allow open and flexible connectivity.

VARIETY OF AMPLIFIERS

High voltage amplifiers that can measure 2 kV peak directly. Low voltage amplifiers for connecting almost any current sensor. ACC amplifiers for connecting high speed accelerometers and pressure sensors. The range of amplifiers available in the XHS range will grow in the future and will also include charge and strain gauge amplifier.

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.

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



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:
Dewesoft X
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.



SMALLEST FORM FACTOR

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

PERFECT SYNCHRONIZATION

Even though users 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.

SOFTWARE INCLUDED WITH FREE LIFETIME UPGRADES

Data acquisition systems come bundled with Dewesoft X data acquisition software - including lifetime free software updates and technical support.

SIRIUS XHS SPECS

SIRIUS XHS data acquisition systems come with high galvanic channel-to-channel and channel-to-ground isolation ($\pm 1000\text{ V}$), and even includes isolated sensor excitation.



SIRIUS XHS HV

Highly isolated CATII 1000 V input. It can directly measure from 200 V to 2000 V peak range at $>5\text{ MHz}$ bandwidth with down to 0.03 % accuracy. This amplifier is perfect for connecting high voltage signals directly.

SIRIUS XHS LV

Highly isolated voltage input. It can directly measure from 0.05 V to 100 V range at $>5\text{ MHz}$ bandwidth, with down to 0.03 % accuracy, and sensor excitation. This amplifier is perfect for a direct connection of low voltage signals and current transducers.



SIRIUS XHS ACC

With very high bandwidth this amplifier can acquire data from pressure probes, accelerometers and microphones with very high dynamic and very high bandwidth.

SYSTEM SPECS			
Power			
Power Supply	9 - 48 V DC		
Power consumption	Typ. 30 W		
Environmental			
Operating Temperature	-10 to 50 °C		
Storage Temperature	-40 to 85 °C		
Humidity	5 to 95 % RH non condensing @ 60 °C		
IP rating	IP20		
Shock & Vibration	Shock (EN 60068-2-27:2009) 75 g, 6 ms, half-sine (25x pos./neg in each axis) Random Vibration (EN 60721-3-2: 1997 - Class 2M2) Sweep sinus Vibration (EN 60068-2-6:2008)		
Interfaces			
Ethernet	1 GbE (XCP, OPC UA) incl. IEEE1588v2 synchronization (PTP) (RJ45)		
USB	USB 3.0 (Type C)		
CAN	CAN 2.0 (DSUB9)		
Sync Input/Output			
Level (Input/Output)	TTL compatible		
Max. Output Current	$\pm 24\text{ mA}$ ($\pm 50\text{ mA}$ for 1 sec)		
Max. Sync-cable length	100 m (Master/Slave), 200 m (IRIG)		
	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	$\pm 2000\text{ V} \dots \pm 200\text{ V}$	$\pm 100\text{ V} \dots \pm 50\text{ mV}$	$\pm 10\text{ V} \dots \pm 200\text{ mV}$
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	-
IEPE input	-	DSI-ACC	✓
Temperature (PTx)	-	DSI-RTD	-
Thermocouple	-	DSI-TH	-
LVDT	-	DSI-LVDT	-
Charge	-	DSI-CHG	-
Current	-	ext. shunt DSI20mA, DSISA	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

System specifications**Power**

Power supply	9 - 54 V DC PoE (RJ45/Lemo 1T 8-pin optional)
Power consumption	Typ. 15 W (Max. 30 W)

Environmental

Operating Temperature	-40 to 70 °C
Storage Temperature	-40 to 85 °C
IP rating	IP67

Interfaces

Ethernet	GbE (XCP, OPC UA) incl. IEEE1588v2 synchronization (PTP) (RJ45/LEMO 1T 8-pin optional)
CAN	CAN 2.0 (DSUB9)
High-Voltage Interlock	YES (chassis covers + cables)

Additional Specifications

Dimensions	245 x 151 x 63 mm
Weight	4.4 kg (max. 7 kg)

Voltage measurement

ADC Type	HybridADC - 24 bit alias free up to 1 MS/sec, 16 bit up to 15 MS/sec
Sampling Rate	Simultaneous 15 MS/sec
Filtering	AAF 1 MHz (6th order)
Analogue bandwidth (-3 dB)	5 MHz
Voltage ranges	±2000 V, ±1000 V, ±400 V, ±200 V
Gain Drift	typ. 40ppm/K (max. 65 ppm/K)
Offset Drift	typ. 0.5 mV/K + 1 ppm of range/K
Gain Linearity	< 0.01 %

Current measurement

ADC Type	HybridADC - 24-bit alias free up to 1 MS/s, 16-bit up to 15 MS/s
Sampling Rate	Simultaneous 15 MS/sec
Filtering	AAF 1 MHz (6th order)
Analogue bandwidth (-3 dB)	>500 kHz
Current ranges	±2000 A, ±1000 A, ±400 A, ±200 A
Maximum withstand peak current	min. -1700 A, max. 2000 A
Gain drift (current)	typ. 40ppm/K (max. 65 ppm/K)
Offset drift	typ. 200 uA/K (max. 500 uA/K)
Linearity error @ 1000 A range	typ. 50 ppm
Hysteresis	typ. 40uA/A

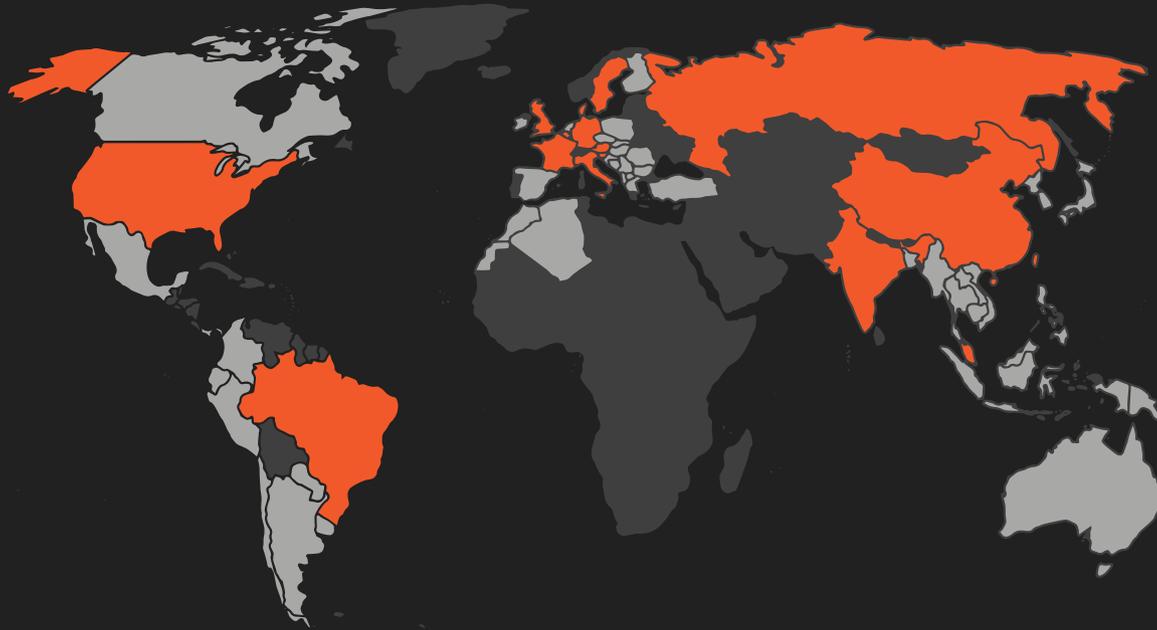
Cable size	95 mm²	70 mm²	50 mm²	35 mm²
Rated DC current	292 A	245 A	198 A	158 A
Rated AC rms current	206 A	173 A	140 A	111 A

SIRIUS XHS-PWR SPECS**SIRIUS XHS-PWR**

An integrated DC-CT current transducer ensures a very precise current measurement. It represents the latest current sensing technology with ranges 250 A and 1000 A, a wide 1 MHz bandwidth, and ultimate performance. Excellent linearity, precision, accuracy, immunity to external magnetic fields, low offsets, and extremely low-temperature drift are achieved at low power consumption.

Comparison table of DC-CT versus other current sensor types:

	Type	Isolated	Range	Bandwidth	Linearity	Accuracy	Temp. drift	Consumption
DC-CT	DC/AC	Yes	High	High	Excellent	Very High	Very Low	Medium
Fluxgate	DC/AC	Yes	High	High	Excellent	Excellent	Low	High
Hall	DC/AC	Yes	High	Medium	Medium	Medium	High	Low-Med
Shunt	DC/AC	No	Medium	Medium	Good	High	Medium	High
Rogowsky	AC	Yes	High	High	Good	Medium	Low	Low
CT	AC	Yes	High	Medium	Medium	Medium	Low	Low



DEWESOFT® WORLDWIDE: SLOVENIA, Austria, Belgium, Brazil, China, Denmark, France, Germany, Hong Kong, India, Italy, Mexico, Russia, Singapore, Sweden, UK, USA and PARTNERS IN MORE THAN 50 COUNTRIES

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