DEWESoft®

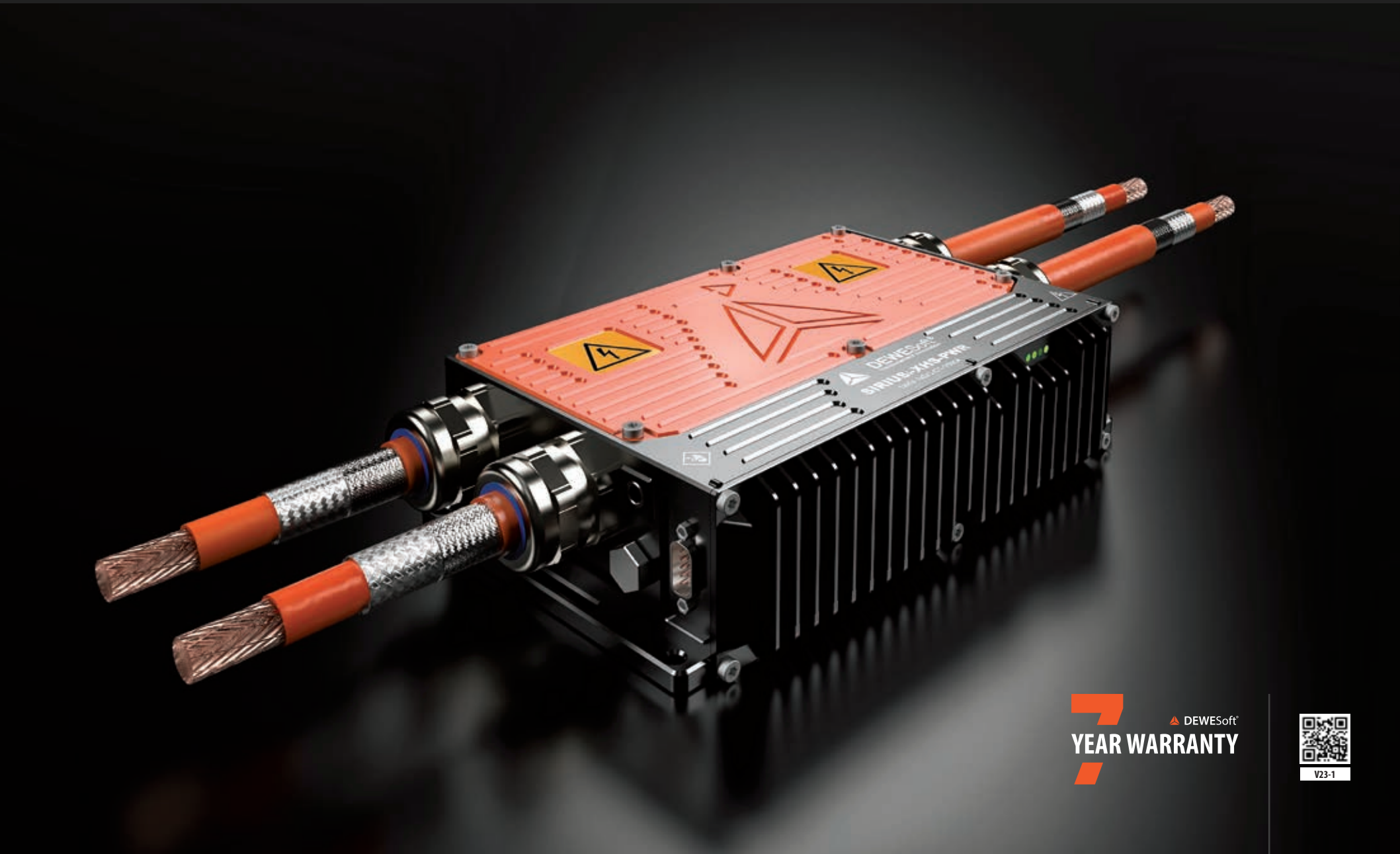
DAQ HARDWARE

# SIRIUS® XHS-PWR

PRODUCT DATASHEET

SIRIUS® XHS-PWR V23-1

DESIGNED FOR IN-VEHICLE DIRECT MEASUREMENT OF CURRENT, VOLTAGE, AND POWER.




7 YEAR WARRANTY

DEWESoft®

V23-1

# SIRIUS® XHS-PWR

## INTRODUCTION

SIRIUS-XHS-PWR is a DAQ device designed for direct in-vehicle measurement of current, voltage, and power having the power lines running through. It features an integrated patented DC-CT current transducer for precise current measurements. Your ideal system for e-mobility applications.

## FUNCTIONALITY

Vehicle electrification is the major trend for driving innovation in the automotive field. This requires intelligent management and smart distribution of in-vehicle electric power. The development of efficient and EMC emission-less electric components, e-motors, inverters, and chargers, is in full swing. Precise measurement and prediction of energy consumption in the vehicle are needed for both development and vehicle operation.

### HYBRID ADC TECHNOLOGY

The SIRIUS-XHS-PWR comes with Hybrid ADC technology capable of doing both high bandwidth transient recording and very high dynamic alias-free acquisition. Software-selectable per channel and able to run simultaneously, with modern interfaces and protocols which allow open and flexible connectivity. As with any Dewesoft device, data can be synchronized with other data acquisition sources, such as vehicle bus interface, GPS, IMU, and video, among others.

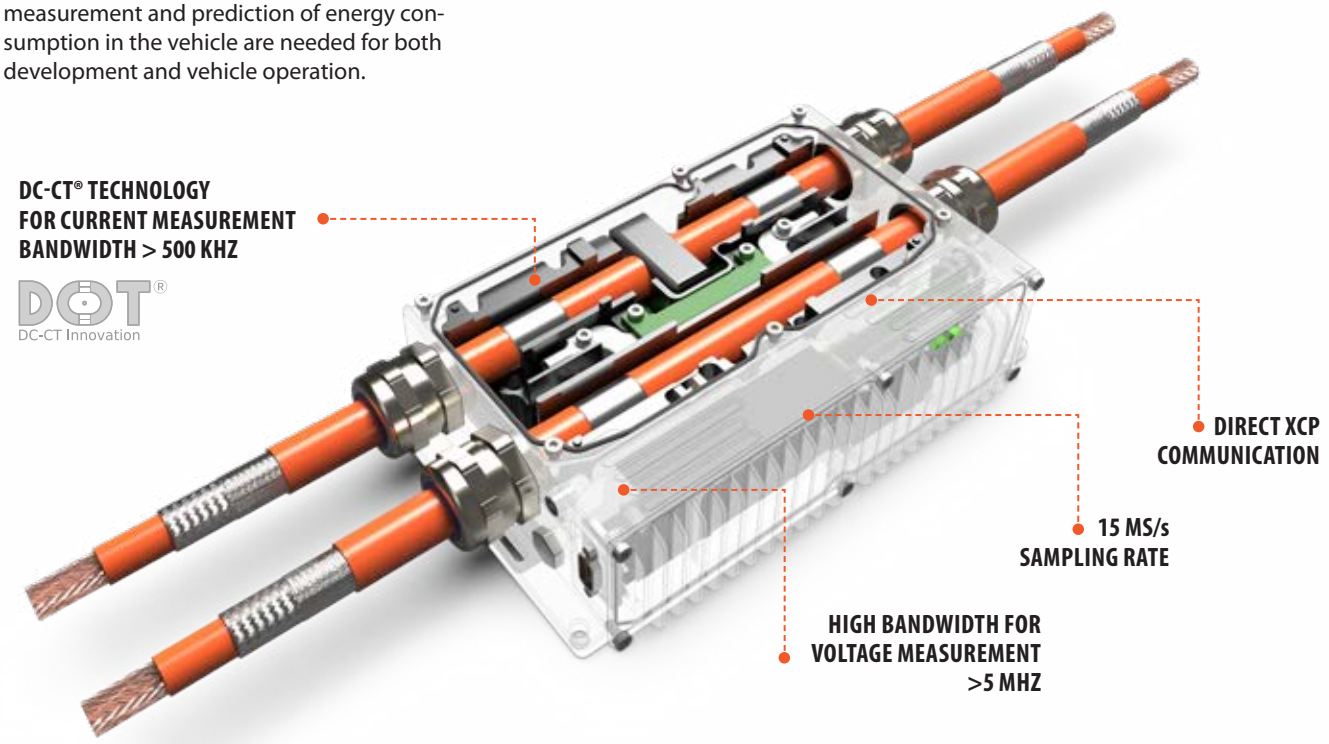
### DC-CT CURRENT TRANSDUCER

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.

### SAFETY AND ISOLATION

Safety first! Data acquisition hardware and signal cables are designed and tested according to the EN 61010-1 safety standard. High channel-to-channel and channel-to-ground isolation prevents damage to the systems from excessive voltage and avoids ground loops.

SIRIUS-XHS-PWR is also IP67 rated for operation in harsh environments and crafted for a wide operating temperature range.




### INTERFACE

The data is transferred to any host using the open OPC UA industry-standard protocol - in parallel the data is available over XCP protocol, allowing connection to ECU calibration software packages.

### CONNECTIVITY

A single cable to connect the power supply, data interface, and synchronization simplifies in-vehicle setup. For testing multiple in-vehicle components more devices can be connected via a 6-port network switch (DS-6xLAN-L1B) providing PTPv2 synchronization.

## APPLICATIONS

### POWERTRAIN EFFICIENCY

From test bench to in-vehicle verification. SIRIUS-XHS-PWR provides safe and precise power measurement from the main high-voltage battery. Additional torque and speed measurement from wheel/axle yield data for overall powertrain efficiency by calculating ratio between output mechanical power and input electrical power.

### REAL-DRIVE TESTING

Perform standardized driving cycles such as WLTP, NEDC, WMTC, etc. and determine driving range and full power analysis.

### TOTAL POWER CONSUMPTION

Use multiple SIRIUS-XHS-PWR devices for total power consumption analysis, not only main battery and power train but also auxiliary systems such as air conditioning and in-car entertainment systems.

### TRANSIENT ANALYSIS

With 5 MHz bandwidth SIRIUS-XHS offers transient analysis and helps identifying unwanted EMI effects using harmonic analysis.

# BENEFITS

## HIGH BANDWIDTH - HIGH FLEXIBILITY

Get the perfect tool for power analysis - sampling rates up to 15 MS/s let you define the total power consumption and analyze transient behaviour. Voltage input provides bandwidth up to 5 MHz while current input has bandwidth higher than 500 kHz.

## HIGH RANGE - SMALL SIZE

Measure up to 2000 A peak currents with top performance in the smallest form factor. High bandwidth, excellent linearity, precision, accuracy, immunity to external magnetic fields, low offsets, extremely low temperature drift are achieved at low power operation.

## SYNCHRONIZATION - ALL SIGNALS ALIGNED

Have all your signals perfectly time aligned with zero phase shift - select some channels to be high bandwidth and some to be alias-free. Multiple devices are synchronized using the PTPv2 synchronization method.

## CONNECTIVITY - ONE CABLE DOES IT

Connect your units with a single cable - wiring inside vehicles can be a challenge: SIRIUS-XHS-PWR provides power supply, data interface and synchronization in just one cable.

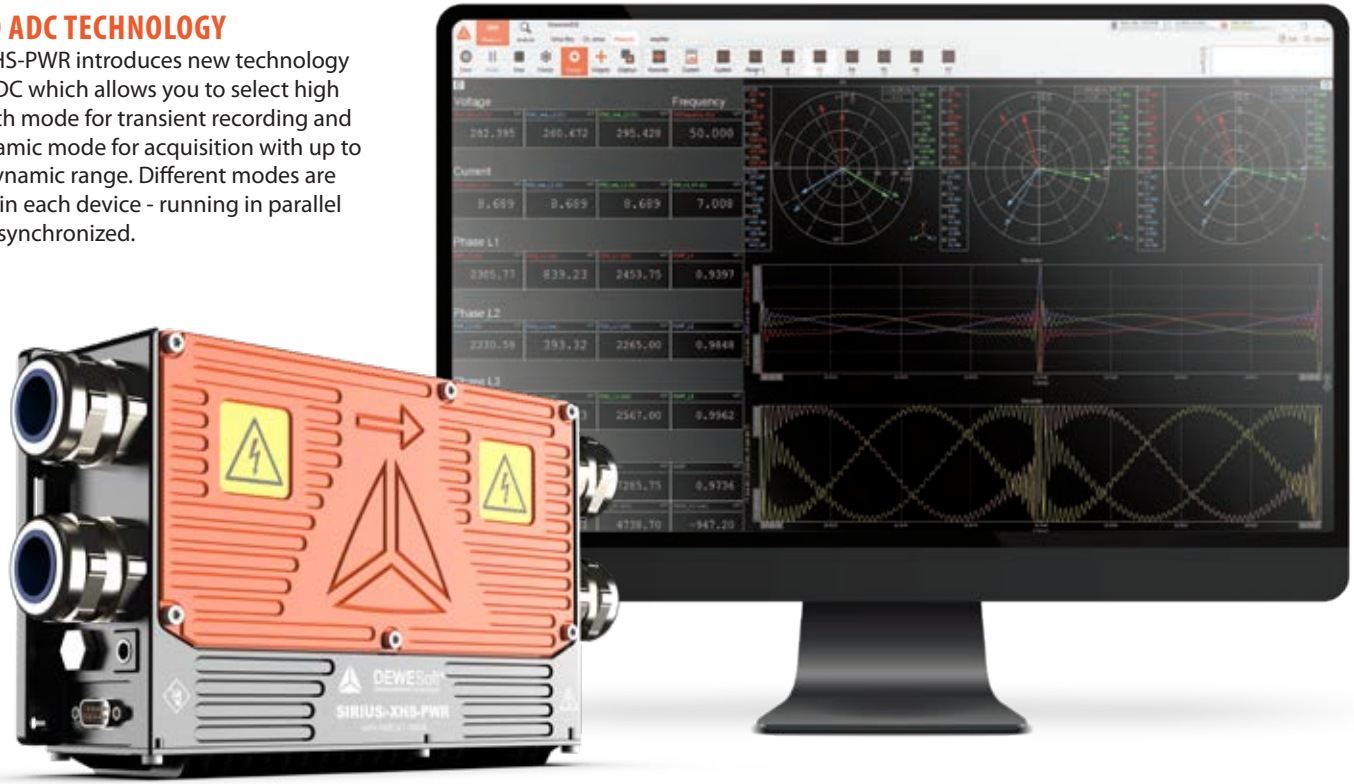
## UNIVERSAL HV HARNESS - YOUR CHOICE

Be free to use almost any high voltage harness. You can apply a wide range of cable sizes and connector types.

# KEY FEATURES

## HYBRID ADC TECHNOLOGY

SIRIUS-XHS-PWR introduces new technology Hybrid ADC which allows you to select high bandwidth mode for transient recording and high dynamic mode for acquisition with up to 150 dB dynamic range. Different modes are available in each device - running in parallel and fully synchronized.




## SAFETY

Designed and tested according to the EN 61010-1 safety standard. Including high voltage interlock and temperature monitoring.

## ISOLATION

Channel to channel and channel to ground isolation CATII 1000 V prevents ground loops and damage to the system from excessive voltage.

## RUGGED

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

## PRECISE CURRENT MEASUREMENTS

Integrated DC-CT transducer offers high accuracy of current measurements acquiring peak values up to 2000 A. This patented innovation presents the technology of indirect current sensing with high bandwidth in the smallest form factor with top performance.

## INTERFACES

SIRIUS-XHS-PWR uses interfaces for simple and reliable integration to other systems, such as Ethernet, OPC UA, and automotive standard XCP protocol and CAN for in-vehicle sensor readout and communication with ECU.

## SOFTWARE

All Dewesoft data acquisition systems are bundled with award-winning DewesoftX Professional DAQ software - advanced and easy-to-use data acquisition and analysis software. The software flexibility will help you unleash the DAQ system to its full potential and give you many advantages. Functionalities like plug-and-play, hardware auto-detection, smart TEDS sensors, advanced storing, and data analysis features will take your measurement and analysis to a whole new level. Each parameter can be visualized in a time recorder, vectorscope, histogram, digital or analog display.

# SPECS

| SIRIUS-XHS-PWR SPECIFICATIONS | | |
|---|---|---|
| | **SIRIUSi-XHS-1xHV-1xDCCT-1000A** | **SIRIUSi-XHS-1xHV-1xDCCT-250A** |
| 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** | | |
| Ranges | ±2000 V, ±1000 V, ±400 V, ±200 V | |
| Input accuracy DC | ±0.03 % of reading ±0.02 % of range | |
| Analog bandwidth (-3 dB) | 5 MHz | |
| **Current Mode** | | |
| Ranges | ±2000 A, ±1000 A, ±400 A, ±200 A | ±500 A, ±250 A, ±100 A, ±50 A |
| Maximum withstand peak current | min. -1700 A, max. 2000 A | min. -500 A, max. 500 A |
| Analogue bandwidth (-3 dB) | > 500 kHz | |
| Primary / Secondary Ratio | 1 : 1680 | |
| Input Accuracy DC | ±0.1 % of reading ±50 ppm of range ±0.05 A | |
| Cable size | 35 mm2 ... 120 mm2 | 6 mm2 |
| **GENERAL SPECIFICATION** | | |
| **Power** | | |
| Power Supply | 9 - 48 V DC<br>PWR + DATA + SYNC (Lemo 1T 8-pin) | |
| Power consumption | Typ. 13 W (Max. 23 W) | Typ. 13 W (Max. 21 W) |
| Environmental | | |
| Operating Temperature | -20 to 70 °C | |
| Storage Temperature | -40 to 85 °C | |
| IP rating | IP67 | |
| Shock & Vibration | EN 60068-2-6:2008 Environmental testing -- Part 2-6: Tests - Test Fc: Vibration (sinusoidal)<br>EN 60068-2-27:2009 Environmental testing -- Part 2-27: Tests - Test Ea and guidance: Shock | |
| Interfaces | | |
| Ethernet | GbE (XCP, OPC UA) incl. IEEE1588v2 synchronization (PTP) (LEMO 1T 8-pin) | |
| CAN | CAN 2.0 (DSUB9) | |
| Synchronization | IEEE1588v2 synchronization (PTP) (LEMO 1T 8-pin), IRIG (D-SUB9) | |
| Additional Specifications | | |
| Dimensions | 245 x 151 x 63 mm | 245 x 109 x 63 mm |
| Weight (incl. cables and connectors) | 4.4 kg (max. 7 kg) | 2.3 kg |

DEWESoft®

**LEARN MORE:**
https://dewesoft.com/products/sirius-xhs-pwr


**HEADQUARTERS**
Gabrsko 11A, 1420 Trbovlje, Slovenia
+386 356 25 300
www.dewesoft.com
support@dewesoft.com
or sales@dewesoft.com


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

**FIND YOUR SALES OFFICE AT:**
dewesoft.com/support/distributors