

# RADSENS-2

## SIGNAL CONDITIONER

LATEST GENERATION OF FIBER OPTIC TESTING SOLUTION FOR HERO AND RADHAZ APPLICATIONS

- Optimized system configuration with scalable design offering **dual channel** fiber optic measurement modules for up to 26 channels per chassis
- Embedded **web server application** providing easier system configuration and control (Independent from computer operating system)
- **EtherCAT®** and Ethernet interfaces
- Improved performances



The new RadSens-2 is the latest fiber optic innovation for assessment of electromagnetic compatibility of EED (Electro-Explosive Device). This new generation of optical sensing solution offers enhanced high-speed and **deterministic synchronized measurements** through improved dual-channel modules. The scalable system offers 3 times more measuring points with a maximum of 26 measurement channels per chassis compared to 8 with the previous generation. The embedded web server application enables easy configuration and control and is now free from computer Operating System.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

**op**Sens Solutions

Enlightenment through smart measurements

# THE RADSENS-2: THE OPTIMAL TESTING SOLUTION FOR HERO/RADHAZ APPLICATIONS

## SMART SOLUTION

The fiber optic sensing solution of the RadSens-2 system provides reliable assessment of **Electromagnetic Environmental Effects** on ordnance. The solution combines the enhanced RadSens-2 signal conditioner with newly integrated functionalities and the OTG-R fiber optic temperature sensor specifically designed for instrumentation of bridge wire type electro-explosive devices.

The RadSens-2 offers improved capabilities with 3 times more channel per chassis, enhanced performances, EtherCAT® and Ethernet interfaces, newly designed web server application, analog outputs, and optional Bluetooth functionalities.

The new design ensures a **true deterministic synchronization** of the multi-channel measurements.



Two channels per module and two analog outputs

RadSens-2 : Dedicated for high-speed temperature measurements

## EtherCAT® CAPABILITY

The EtherCAT® interface and protocol is the ultimate choice for true deterministic synchronisation of high-speed and multi-channel measurements. Opsens Solutions is proud to offer this state-of-the-art real-time industrial fieldbus on Ethernet technology in all rackmount versions of the CoreSens products.

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## MODULAR SOLUTION TAILORED TO YOUR NEEDS

The RadSens-2 is available in multi-module rackmount chassis configuration with up to 13 PSR-2 dual channel measurement modules per chassis (26 channels total) for **great modularity**.

Designed with the HERO needs in mind, the RadSens-2 provides more than real-time temperature measurements. It can automatically convert these temperature measurements in meaningful parameters for HERO testers such as: current (mA), power (mW), and decibel below No-Fire Threshold (dB).

### It is designed to offer an all-in-one testing solution:

- Complete solution ready to use; no need for separate hardware and software
- Unique real-time adaptive filtering for noise removal without signal attenuation or delay
- Modular and improved current source for efficient calibration of instrumented EED
- Built-in calibration tool for precise induced current response measurements
- Open interface for easy integration with existing external data acquisition software
- EED assembly expertise for full turn-key EED instrumentation service

### WEB SERVER APPLICATION



**HazSens:** simple and versatile web server application for easy configuration and data acquisition. No more needs for software installation on remote PC.

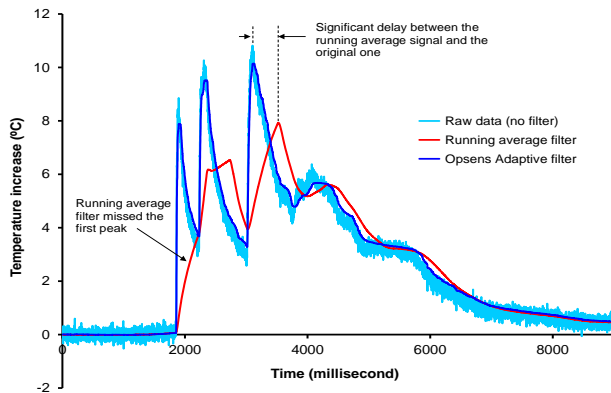


Rackmount multi-chassis

# RADSENS-2 GLOBAL SOLUTION

## ADVANCED FILTERING

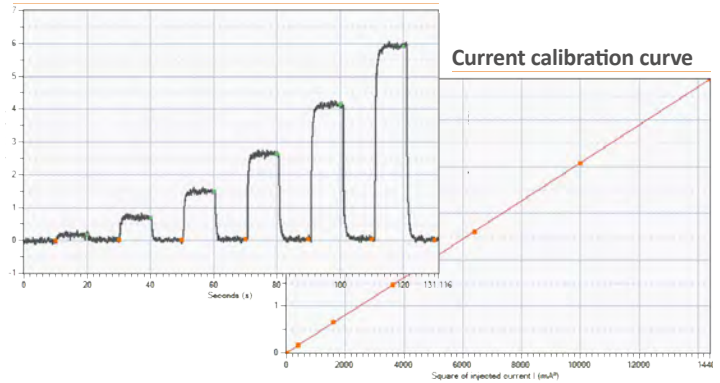
The RadSens-2 comes with a unique and innovative high performance adaptive filter for noise removal. Without any compromise on response time, the filter remains very efficient even for when dealing with fast signal variations and this, with almost no attenuation of the signal high frequency components.



## EASY CALIBRATION

The RadSens-2 offers a built-in automatic calibration feature. No more need to collect and analyze data manually. The EED induced current sensitivity is automatically calculated using the auto-calibration software. The unique feature can reduce calibration time up to 90%.

Temperature variation curve



## RELIABLE FIBER OPTIC SENSORS

Totally immune to Electro-Magnetic Interferences (EMI), the OTG-R temperature sensor has been specially designed for EED instrumentation. With millisecond response time, its compact size makes it perfectly tailored for bridgewire mounting on any kind of Electro-Explosive Devices.

Opsens Solutions' proprietary technology behind the OTG-R eliminates stability issues related to optical fiber movements and manipulations. It provides exceptional reliability and repeatability even when used in environment with high mechanical vibrations.



## INSTRUMENTATION EXPERTISE

Over the years, Opsens Solutions has instrumented more than a hundred different EED models. A key factor for successful instrumentation is the design of the whole assembly. For instance, specially made adaptors are used to mount the sensor and secure a perfect position on the tiny bridgewire. This setup provides the required robustness and repeatability since the instrumented EED has to go through multiple rounds of test over the years.

Opsens Solutions' skill and knowledge of fiber optic sensor packaging ensures best available geometry to fit any special bridgewire design.

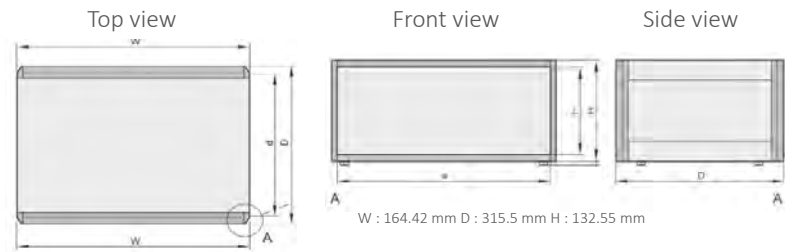


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## RADSENS-2 SPECIFICATIONS

Technology	SemiConductor Band Gap (SCBG)		
Sensors Compatibility	OTG-R		
Number of Module	1 to 13 PSR-2 modules   1 Control interface module RCS-M module		
Number of Channel	2 to 26 channels per chassis   Up to 1,300 channels in multi-chassis configuration		
Sampling Rate	PSR-2 module: up to 1,000 Hz		
Communication Interfaces	EtherCAT® and Ethernet Interface 10/100 Base-T		
Modular current source	Current Range	0-10 mA	10-100 mA
	Resolution	0.0025 mA	0.25 mA
	Accuracy	0.1% ( $\pm$ 0.01 mA)	0.1% ( $\pm$ 0.10 mA)
	Maximum impedance	1000 $\Omega$	100 $\Omega$
100-1000 mA	0.25 mA	0.1% ( $\pm$ 1.00 mA)	10 $\Omega$
Analog Outputs	0-5 V, $\pm$ 5 V, 0-10 V, 0-20mA, 4-20 mA		
Dimensions	19" Rack, 3U (210mm x 115mm x 42mm)		
Weight	Full: 9.4 Kg (0.35 Kg per PSR-2 module)		
Input Voltage and frequency	90 to 260 VAC ; 48 to 62 Hz		
Power Consumption	Full: 70W (5W per PSR-2 module)		
Web Server Application	Embedded		
Local Data Storage	SDHC (32Gb)		
Storage Temperature	-30°C to 65°C		
Ambient Operating Temperature	0°C to 45°C		
Ambient Relative Humidity	Maximum 95% non-condensing		

Mechanical Drawings  
(in mm)



## OTG-R SPECIFICATIONS

Temperature operating range	0 °C to +120 °C (Higher temperature ranges available upon request)
Resolution	< 35 dB below NFT
Response time	< 5 ms
MRI/EMI/RFI susceptibility	Complete immunity
Cable length	1.5 meters standard (Other lengths available)
Optical connector	LCA standard
Sensor diameter	0.15 mm O.D. (Smaller version available upon request)
Cable sheathing	PVC tight buffer (Other option available)
Signal conditioner compatibility	Opsens Solutions GaAs (SCBG) RadSens-2 signal conditioner

Mechanical Drawings  
(in mm)

