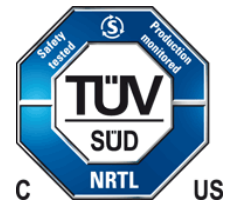
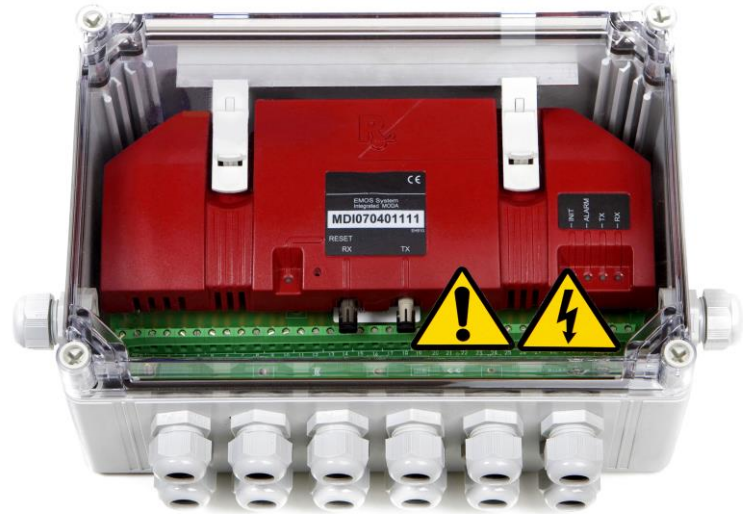


# R2 MODA

## Intelligent Data Acquisition Sensor

- 32 Input Analog to Digital Conversion
- High Data Acquisition Precision
- High Sampling Rate
- Temperature Compensated Measurements
- Noise Filtering Adapted to Rectifier Frequency
- SIL Hardware and Firmware (IEC 61508)
- Built-in Self-Diagnosis Capabilities
- Multiple CPUs
- Modular Design
- Automatic Detection of Disconnected Wires
- Built for Harsh Environments
- ATEX Compliant Version Available



## Cell-Room Safety at its Best

*Designed for the cellroom environment, the MODA incorporates sampling algorithms that synchronize with the fundamental rectifier frequency, removing any unwanted noise. This synchronization provides faster data acquisition when compared to standard filtering and averaging techniques. Without this advanced filtering, overall precision would be reduced by several millivolts.*

*The MODA is designed to be installed directly on the electrolyser, minimizing wire length, reducing noise pickup, and increasing precision. Thermally compensated, the MODA offers an unparalleled precision, within  $\pm 1.5$  mV over the practical operating temperature range found in cell rooms.*

*Equipped with 4 isolated and independent CPUs each sampling 8 analog inputs, the MODA has a sampling rate of 800kHz (1.25  $\mu$ s). This incredible speed ensures the proper detection and protection against all known causes of electrolyser component failure.*

*The speed, accuracy and stability of the MODA puts it in a class of its own. With its SIL2 rating and built-in diagnostic capabilities, the highest safety and reliability is assured during electrolyzer operation.*

## Technical Specifications

General	
Measurement Category:	600V CAT III / 1000V CAT II Measurement Equipment
Supply Input Range:	22 to 70Vdc
Current Consumption:	300mA @ 24Vdc
Electrical Isolation:	2500V between power supply & measurement input channels.
Signal Input:	32 channels with $\pm 5$ Vdc range
Signal Output:	Digital Optical Communication Bus (R2 Protocol)
Analog to Digital Converter:	16-bit Sigma-Delta
Accuracy:	$\pm 1.5$ mV (over temperature)
Scan Rate:	250ms to scan all 32 inputs
Sampling Rate:	800kHz (1.25 $\mu$ s)

Environmental	
Operating Temperature:	-20 to 60°C
Storage Temperature:	-40 to 60°C
Altitude:	2000m max.
Vibrations:	Displacement: 0.75mm Acceleration: 2 m/s <sup>2</sup> Frequency: 1-150 Hz
Shocks:	Acceleration: 50 m/s <sup>2</sup> Duration: 6 ms

Mechanical	
Degree of Protection:	IPX7
Weight:	3 Kg
Dimensions W x H x D (cm)	30 x 20 x 13

Standards	
IEC 61508 Safety Integrity Level (Designed to SIL2 requirements)	
IEC 61010-1:2010 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use	
IEC 61000-6-2, EMC Interference Immunity for Industrial Environments	
IEC 61000-6-4, Emission Standard for Industrial Environments	
IEC 60068-2, Environmental Testing	
IEC 60529:1989+A1: 1999 / EN 60529:1991+A1:2000, Degree of protection provided by enclosures	

Approvals	
cTÜVus	
CB Report	
CE	

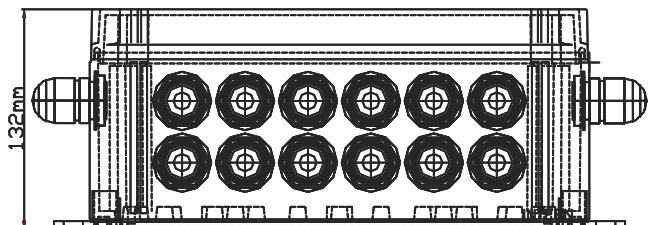
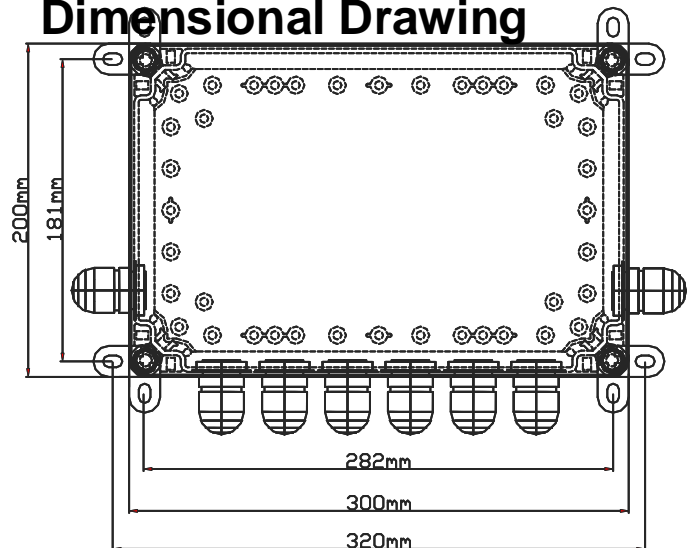
## Ordering Information

Part Number	Description
EH500	MODA Assembly Complete with TFP & Enclosure
EH500-EX	ATEX MODA Assembly Complete with TFP & Enclosure

## Accessories & Spare Parts

Part Number	Description
EH510	MODA Sensor only
EH500-2	Integrated TFP with backplate (Chlorine) no enclosure
EH500-4	Integrated TFP w/ backplate & Enclosure (no Sensor)
EH500-4-EX	ATEX TFP & Enclosure (No Sensor)
EH100	NSGAFOU Wire (per meters)
EH500-7	MODA Hardware Installation Kit
EH125	Fiber Optic Cable (1 pair, Multimode 62.5/125) - No connectors)
EH137	Spare Fuse Kit
EH500-6	Replacement Plastic Screw Kit (4) for MODA Cover
EH180	Double Isolated MODA Power Supply (for 5 units)
EH181	Double Isolated MODA Power Supply (for 6 units)
EH183	Double Isolated MODA Power Supply (for 8 units)

## Dimensional Drawing



## Additional Information

R2's MODA Intelligent Data Acquisition Sensor is part of R2 EMOS SIL2 SAFETY-MAINTENANCE & OPTIMIZATION SYSTEM. Contact R2 for more information.