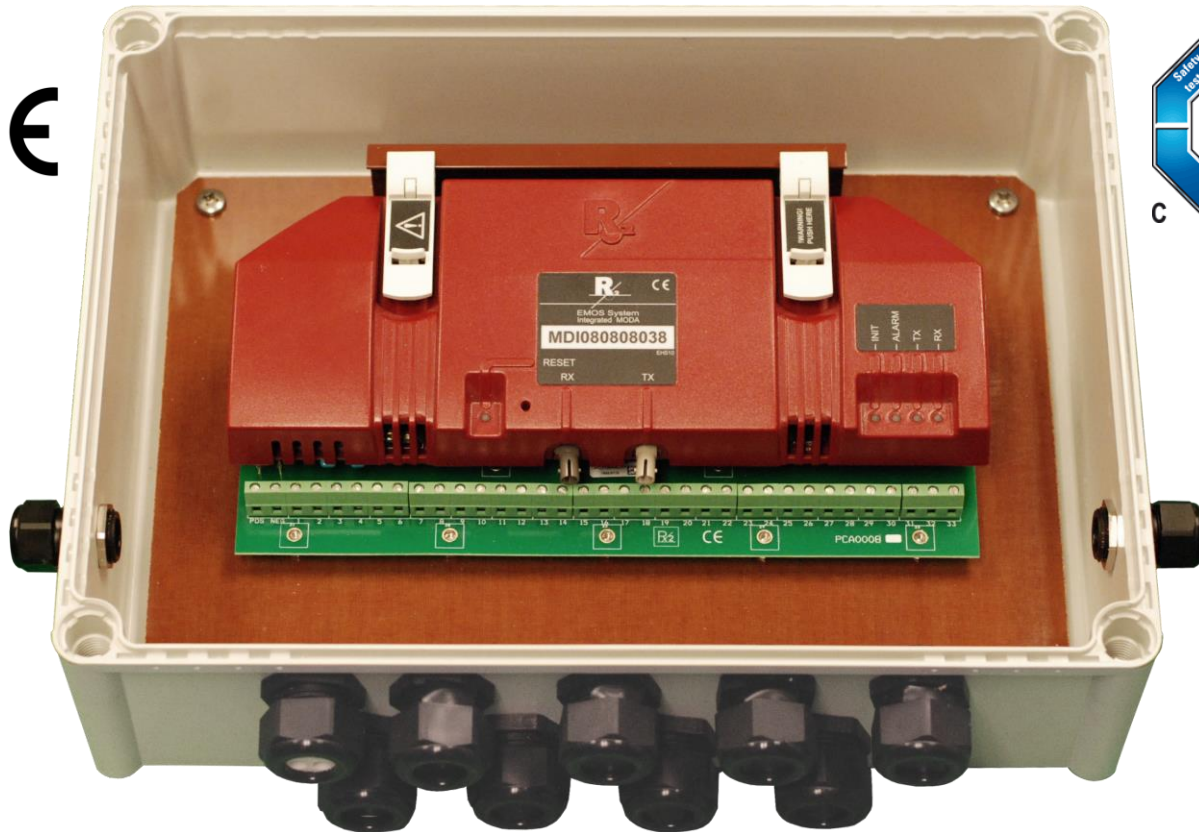# R2 ATEX MODA

Intelligent Data Acquisition Sensor for Potentially Explosive Atmospheres

KEY FEATURES

- ATEX compliant (IEC 60079-7:2015)
- High sampling rate
- Noise filtering adapted to rectifier frequency
- Temperature compensated measurements
- 32 input analog to digital conversion
- SIL hardware and firmware (IEC 61508)

KEY BENEFITS

- Suitable for installation in zones rated for potentially explosive atmospheres
- Very accurate voltage measurement
- Protection against electrolyser component failures
- Increased plant safety

www.R2.ca

R2 | MORE THAN JUST MONITORING

Cell-Room Safety at its Best

Designed for the cell-room environment, the ATEX MODA is R2's intelligent data acquisition sensor that accurately measures cell voltage. 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, increasing overall precision.

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

ATEX Compliance

The "IEC 60079-7:2015 Explosive Atmospheres, Equipment protection by increased safety "e" was used to determine compliance to the EU ATEX directive. The equipment is adequate for use in the following conditions:

- Zone 2: Flammable atmosphere unlikely to be present except for short periods of time as a result of process fault condition

- Temperature Class T6: Surface temperature not to exceed 85°C

- Explosion Group IIC: Hydrogen hazard

Enhanced Protection Against Electrolyser Component Failures

The ATEX MODA ensures the proper detection and protection against all known causes of electrolyser component failure. The speed, accuracy and stability of the ATEX 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 70V DC
Current Consumption	300mA @ 24V DC
Electrical Isolation	2500V between power supply & measurement input channels.
Signal Input	32 channels with ± 5V DC range
Signal Output	Digital Optical Communication Bus (R2 Protocol)
Analog to Digital Converter	16-bit Sigma-Delta
Accuracy	± 1.5mV (over temperature)
Scan Rate	250ms to scan all 32 inputs
Sampling Rate	800kHz (1.25µs)

R2 | MORE THAN JUST MONITORING

Technical Specifications (continued)

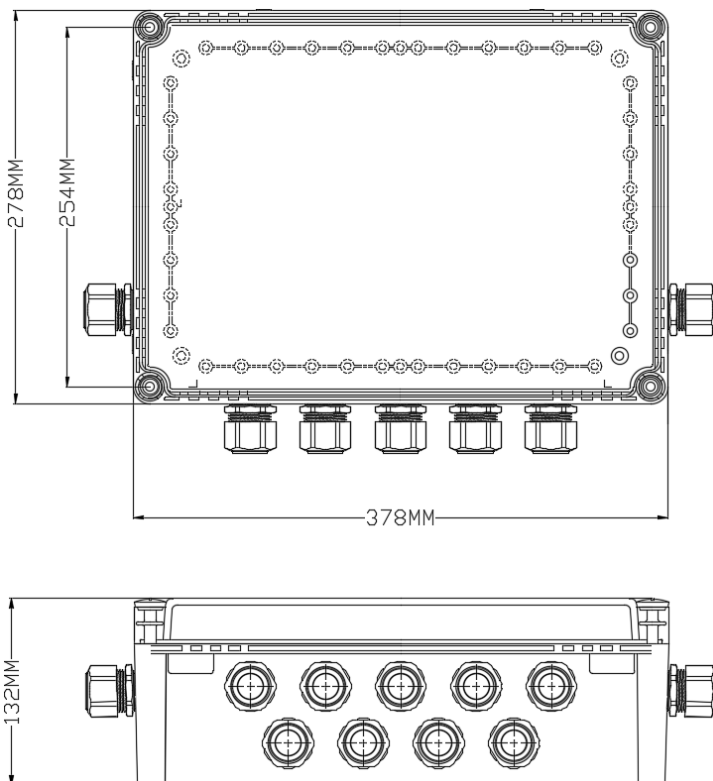| Environmental	
Operating Temperature	-20 to 60℃
Storage Temperature	-40 to 60℃
Ambient Operating Pressure	80 kPa to 110 kPa
Atmosphere Type	Air with normal oxygen content (21% v/v)
Humidity	5 to 95% non-condensing
Altitude	2000m max.
Vibrations	Displacement: 0.75mm Acceleration: 2 m/s^2 Frequency: 1-150 Hz
Shocks	Acceleration: 50 m/s^2 Duration: 6 ms

Approvals
cTÜVus
CB Report
CE

Mechanical	
Degree of Protection	IPX7
Weight	2.5 Kg
Dimensions W x H x D (cm)	38 x 28 x 13

Standards
IEC 60079-7:2015 Explosive Atmospheres, Equipment protection by increased safety "e".
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

Markings
⟨Ex⟩ II 3 G Ex ec IIC T6 Gc

Dimensional Drawing

Ordering Information

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

Accessories & Spare Parts

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

World Trade Center, 380 Saint-Antoine Street West, Suite 2000, Montreal, Quebec, Canada H2Y 3X7
T: +1.514.987.1303 F: +1.514.987.1305 Toll free in North America: +1.888.720.0072
info@R2.ca www.R2.ca

MKD0074 Rev 1.1 – August 2020   Page 3/3