

# DURTOX H<sub>2</sub> RS485

## EARLY DETECTION OF HYDROGEN LEAKS FROM LITHIUM-ION BATTERIES.

The use of lithium-ion batteries is now globally widespread. Fields of application include: Electric vehicles, forklifts, buses, solar panel energy storage, and consumer electronics.

Their technology can make them hazardous products, especially during the charging process, or when exposed to temperatures exceeding 60°C, and they can even produce spontaneous combustions releasing more than 100 toxic and/or explosive gases, such as H<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, among others.

Added to this problem is the difficulty of extinguishing this type of fire when it occurs.

Three risk levels can be determined based on capacity:

**Level 1 - low risk - batteries with a charge level of < 1kWh.**

**Level 2 - medium risk - batteries with charge level between 1-50 kWh.**

**Level 3 - high risk - batteries with a charge level of > 50 kWh.**

Therefore it is essential to detect some of the gases generated in the initial moments of these reactions early, principally H<sub>2</sub>, CO and CO<sub>2</sub>

To try to minimise these risks, DURÁN ELECTRÓNICA has developed equipment for the prompt detection of hydrogen, forming part of the DURTOX family of products.

DURTOX H<sub>2</sub> incorporates an electrochemical cell capable of measuring very small quantities of this gas (from 0 ppm and up to 500ppm). This technology allows us to surpass the speed and precision of others, which detect using pellistors or catalytic pearls, which start to measure as of 200ppm-400ppm and at the same time are more dependent on ambient moisture and temperature, thus allowing the corrective measures required to be advanced and thereby avoid more dangerous situations.



### LOW MAINTENANCE:

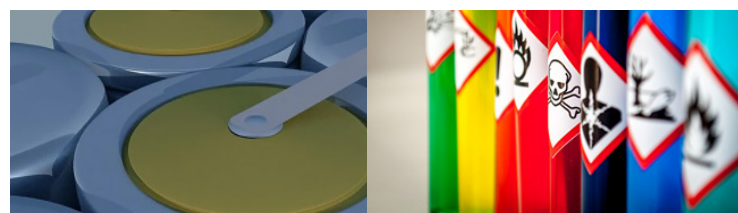
The DURTOX H<sub>2</sub> detectors for toxic gas detection incorporate the latest technologies in electrochemical sensors and control by microprocessors for improved and effective selective detection of the different target gases, thus achieving a low cross sensitivity with other possible gases present in the atmosphere.

The microprocessor continuously controls the general state of the detector, obtaining data such as sensor status, temperature, hardware status, loss of sensor sensitivity through use and the passage of time, making the necessary compensations and automatic reset to zero.

To do this, we use algorithms that monitor the zero adjustment factor in relation to the sensor's sensitivity and ambient temperature every 30 minutes.

If drift is higher or lower than 2% of the scale's total value, zero is automatically readjusted; otherwise, the datum obtained by the microprocessor will be displayed as a normal reading.

The capsules containing the sensors and electronics are pre-calibrated and exchangeable on site also reducing maintenance costs in this way.



## OPTIONS AVAILABLE:

- > DURTOX RS485 communication compatible with DURGAS control units
- > DURTOX RS485 communication compatible with DURGAS control units, 1 alarm output via C-NO-NC potential-free relay
- There are versions in 4-20mA. PLEASE ENQUIRE.

## MAIN CHARACTERISTICS

Supply voltage.	From 10 to 15V, nominal 12V DC.
Approx. consumption	22/25 mA @ 12V
Digital connection.	RS485 four-wire, own protocol.
Detection range.	From 0 to 500ppm linear at full scale
Initial stabilisation time.	95 s for total operation @25°C. 1 h maximum specifications @ 25°C.
Initial start-up delay.	± 60s
T90 Response time	< 60s
Expected useful life	± 2 years
Optical indicators of sensor and loop failures	Through display messages
Optional alarm outputs.	1 Dry contact volt-free C-NC-NA 3A @250V AC fuse-protected (non capacitive)
Protection grade and box material.	IP65, Makrolon + ABS mix.
Recommended cable type.	Sleeve 2x1,5m <sup>2</sup> +2x0,25m <sup>2</sup> Ø, 6 wires version 1 alarm output.
Cable input.	By cable glands PG9 6-10mm <sup>2</sup> .
Temperature range.	-10°C to +50°C
Humidity range.	15% to 90% RH.
Atmospheric pressure range.	800-1100 mbar. (80-110 Kpa).

Characteristics in conditions of 20 °C, 50% RH 1000 mbar (100 Kpa)

## CONNECTION:

