

# DURTOX 4-20mA IP65

## TOXIC GAS AND OXYGEN DETECTOR BY ELECTROCHEMICAL TECHNOLOGY

It is manufactured to detect the following gases:

Hydrogen Sulfide (H<sub>2</sub>S), Hydrochloric Acid (HCl), Ammonia (NH<sub>3</sub>), Chlorine (Cl<sub>2</sub>), Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), Formaldehyde (CH<sub>2</sub>O), Carbon Monoxide (CO), Nitrogen Monoxide (NO), Oxygen (O<sub>2</sub>) and Ozone (O<sub>3</sub>).

It is a detector with a 4-20mA format with a 3-wire connection, compatible with the DURGAS control panel manufactured by DURÁN ELECTRÓNICA through an optional 4-20mA-RS485 conversion interface and with any system that has inputs of this type.

Available in two versions: without alarm outputs or with two alarm outputs via relay C, NO, NC. This detector is also manufactured in DURGAS compatible RS485 format.



AVAILABLE GASES	STANDARD RANGE	INSTALLATION HEIGHT	COVERAGE AREA	LEVEL 1/LEVEL 2
Hydrogen Sulfide (H <sub>2</sub> S)	0-100 ppm	1,50m from floor	100 m <sup>2</sup> aprox	20-30 ppm
Hydrochloric Acid (HCl)	0-50 ppm	1m from floor	25 m <sup>2</sup> aprox	10-15 ppm
Amonnia (NH <sub>3</sub> )	0-100 ppm	30 cm from ceiling	75 m <sup>2</sup> aprox	20-30 ppm
Chlorine (Cl <sub>2</sub> )	0-10 ppm	1 m from floor	100 m <sup>2</sup> aprox	2-3 ppm
Sulfur Dioxide (SO <sub>2</sub> )	0-20 ppm	30/40 cm from floor	75 m <sup>2</sup> aprox	4-6 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	0-20 ppm	40/50 cm from floor	100 m <sup>2</sup> apro.	4-6 ppm
Formaldehyde (CH <sub>2</sub> O)	0-5 ppm	1,70m a 2m from floor	25 m <sup>2</sup> apro.	0,5-1 ppm
Carbon Monoxide (CO)	0-300 ppm	1,50m a 2m from floor	200 m <sup>2</sup> aprox	60-90 ppm
Nitrogen Monoxide (NO)	0-100 ppm	1 m from floor	25 m <sup>2</sup> aprox	20-30 ppm
Oxygen (O <sub>2</sub> )	0-25% vol.	1,70m a 2m from floor	100 m <sup>2</sup> aprox	17% - 15%
Ozone (O <sub>3</sub> ).	0-10 ppm	1m from floor	25 m <sup>2</sup> aprox	1-1,5 ppm

 levels 1 and 2 of the models with relay output are programmed at the factory. See other available levels.

### SPECIAL FUNCTIONS:

- ◇ Provided with a 12bit microprocessor that allows total and precise control over sensor status and electronics
- ◇ Thermal compensation that allows a correct response from each of the electrochemical sensors when faced with temperature variations.
- ◇ Self testing hardware.
- ◇ Digital filter based on variable samplings of the sensor's average values.
- ◇ Zero exact automatic adjustment. This special function monitors zero value in relation to sensor response and electronics. The following protocol is used for this: every 30 minutes an automatic test is performed, if drift is ± 2% of the full scale value it will readjust itself to zero, otherwise it will be shown as a reading.
- ◇ Other functions accessible with factory based methodology allow us to check on the sensor's remaining useful life, date of manufacture, date of last calibration and serial number.

### APPLICATIONS:

DURTOX detectors are designed to be used in an environment in which the formation of toxic atmospheres due to gases or vapors is probable, ensuring the highest level of protection, such as in laboratories, cogeneration, pharmaceutical industry, fermentation rooms, climatic chambers, water treatment plants, etc...

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## TECHNICAL CHARACTERISTICS:

Technology	Microprocessor and electrochemical sensor
Power	12 to 24V DC
Maximum consumption aprox	28mA at 24 VDC 2 on outputs 55ma at 12 VDC 2 on outputs
Useful Life	± 3 years in clean air CO and O <sub>2</sub> 2 years other gases, NH <sub>3</sub> , NO <sub>2</sub> , H <sub>2</sub> S, NO, Cl <sub>2</sub> , SO <sub>2</sub>
Resolution	0,5 ppm *CO & HCl, 2 ppm NH <sub>3</sub> , 0,1 ppm *NO <sub>2</sub> , H <sub>2</sub> S, Cl <sub>2</sub> , SO <sub>2</sub> , 0,5 ppm *NO, CH <sub>2</sub> O 2% O <sub>2</sub> , 0,3 ppm O <sub>3</sub> * <b>CO, NO, y NO according to EN-50545</b>
Repeatability	± 2% full scale
Stabilization initial delay	5 minutes -approx-
Response Time T90	CO, SO <sub>2</sub> & NH <sub>3</sub> ≤30s - H <sub>2</sub> S ≤ 20s - O <sub>2</sub> ≤ 15s NO ≤40s - Cl <sub>2</sub> ,O <sub>3</sub> ≤ 60s - NO <sub>2</sub> ≤20s - HCl ≤70s - CH <sub>2</sub> O ≤90s
Temperatura and Humidity ranges	-10°C to +50°C - 20-90% Hr
Working atmospheric pressure	90-110 Kpa
Maximum permitted air velocity	<0.1-0.5m/s (depending on gas)
Maximum loop resistance (4-20mA)	250Ω
Maximum output current (4-20mA)	21.3 mA (Typ)
Loop failure current (4-20mA)	< 2mA
Loop and sensor optical failure indicators	Through local LED (4-20mA)
Alarm outputs	Two voltage-free tension dry contacts C,NO, NC 3A 250V AC protected with fuse (non capacitive)
Housing Material	Makrolon & ABS
Maintenance Periods	1 year -recommended-
Protection Grade	IP65
Cable Type	3 wire hose (3 x 1,5 m <sup>2</sup> ø)
Cable diameter entry	6-10mm <sup>2</sup>
Recommended maximum installation distance	350/400 m
Dimensions (mm) & weight (gr)	125 x 150 x 63 / 300

## OPERATION:

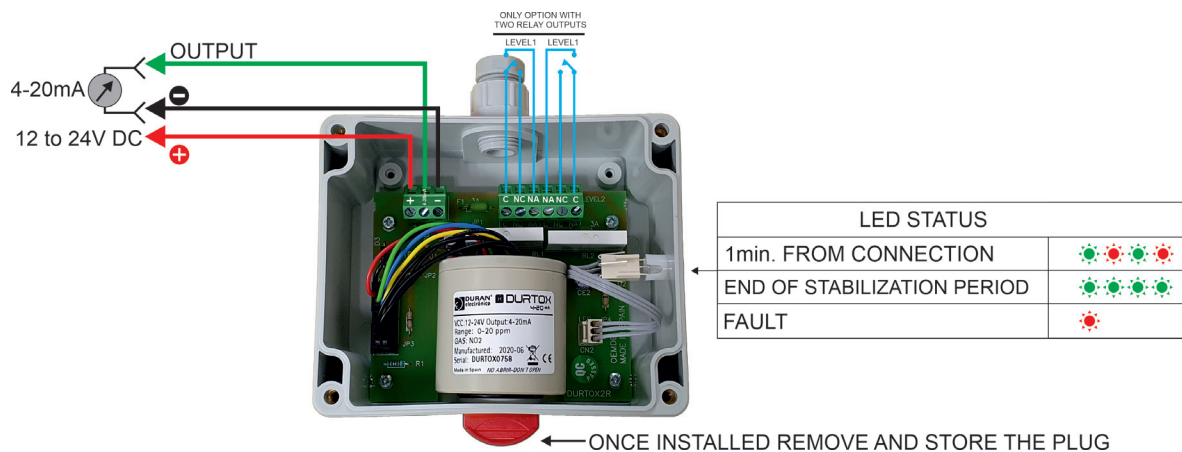
Once powered the stabilization period of 1 min. will start.

During this time output current will be 2mA.

Once the stabilization period is finished, output current will change to 4mA without presence of gas.

The fault LED will turn on in case of an internal fault, or when output current goes above 21mA or under 2mA.

## CONNECTIONS:



## WARRANTY:

**DURTOX** detectors are guaranteed against any manufacturing defect for 1 year from the date of purchase of the equipment. Warranty conditions are included in the installation manual for the detector.

*DURAN ELECTRÓNICA S.L reserves the right to introduce improvements or modifications to this product without prior notice.*