

Toxic CO - NO<sub>2</sub> - NH<sub>3</sub> - H<sub>2</sub>S - Cl<sub>2</sub> - CO<sub>2</sub> -SO<sub>2</sub> & O<sub>2</sub>

## STANDALONE AND STANDALONE RS485 DETECTORS



User and installation manual



# STANDGAS PRO LCD

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## 1. PRESENTATION

STANDGAS PRO LCD is a programmable standalone detector, designed for the detection of toxic gases and oxygen using electrochemical sensor technology and infrared for the detection of CO<sub>2</sub>.

STANDGAS PRO LCD is available for detection of the following gases and ranges, CO 0–300ppm, NO<sub>2</sub> 0–20ppm, NH<sub>3</sub> 0–100ppm, H<sub>2</sub>S 0–100ppm, CO<sub>2</sub> 0–20.000ppm, Cl<sub>2</sub> 0–10ppm and O<sub>2</sub> 0–25%.

A version with RS485 communication compatible with DURGAS control panels is also available. These are especially indicated for use in laboratories and compartmentalized areas that, apart from local operation, need to be controlled and carry out maneuvers, and report remotely on their status.

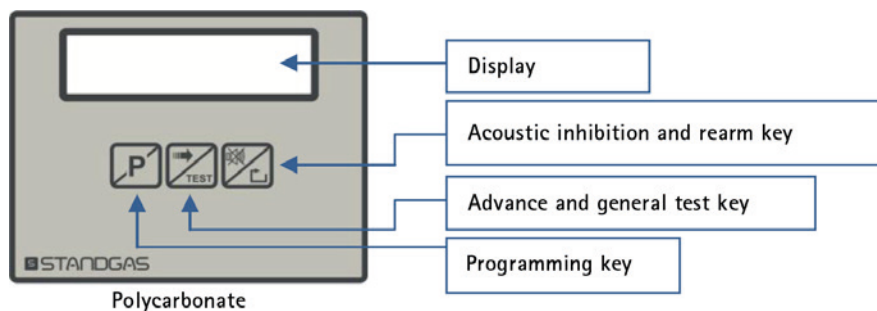
Up to 8 units can be connected per module line, maintaining their compatibility with all other gases.


 RS485 version compatible with V04 and onwards software version of DURGAS.


## 2. SPECIAL FUNCTIONS


- Hardware status automatic testing
- Digital filter based on variable samplings of the averages in sensor values.
- Automatic thermal compensation that supplies a correct answer when faced with temperature variations.
- Other functions only accessible in factory allow it to know the remaining useful life of the sensor, date of manufacture and of last calibration, as well as the serial number.


Equipped with a backlit 16 x 2 line display, and three keys that allow programming and use.





 Do not drill a hole in the detector housing; this will invalidate its IP protection grade and its warranty.

 Do not handle the detector with tension.

 Do not install the detector near heat sources, ovens, radiators, kitchens, etc.

 Do not install the detector near to an air current or outdoors.

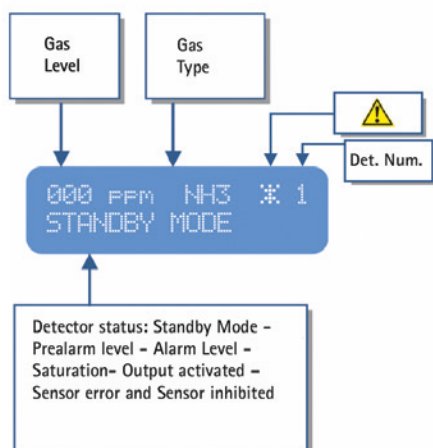
 Install the detector with the gas sensor opening pointing towards the ground and at the required height.

 To guarantee its water tightness use the required cable gland and "hose" type cable with the necessary wires for power supply and maneuvers.

When powered up the detector will automatically connect, showing the following warm-up sequence, showing the intermittent message `SENSOR STARTUP`.

```
STANDGAS LCD V01  
SENSOR STARTUP
```

### 3. DISPLAY INFORMATION, DETECTOR CONNECTED



Illustrated example with ammonia detector.



☒ - Shows up when there is communication from another detector in the line.

☒ - Shows up when the detector is communicating with the module line.

☒ - The detector was initialized connected to a module line but communication has been lost.

☒ - The detector was initialized without connection to a module line and is working in fully standalone mode.

### 4. ADDRESSING PROGRAMMING IN RS485 VERSION USING SW1

Nº DETECTOR	1	2	3
01	ON	ON	ON
02	OFF	ON	ON
03	ON	OFF	ON
04	OFF	OFF	ON
05	ON	ON	OFF
06	OFF	ON	OFF
07	ON	OFF	OFF
08	OFF	OFF	OFF

### 5. DETECTOR PROGRAMMING



Factory default parameters:

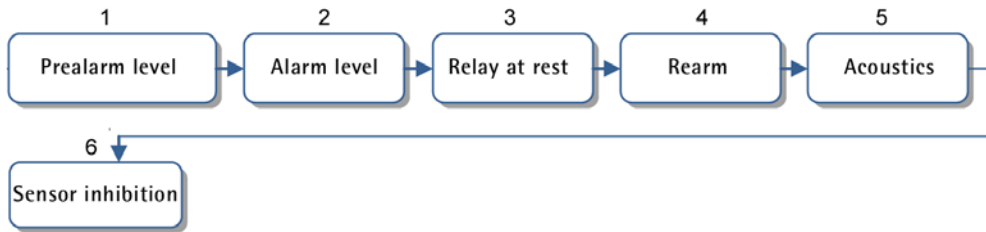
GAS	INSTALLATION HEIGHT	RANGE	PREALARM L.	ALARM L.	RELAY AT REST	REARM	ACOUSTICS	AREA COVERED
CO	1.50/2m. Floor	0-300 ppm	50 ppm	75 ppm	DEACTIVATED	AUTO.	YES	Approx. 200m <sup>2</sup>
NO <sub>2</sub>	40/50cm. Floor	0-20 ppm	3 ppm	5 ppm	DEACTIVATED	AUTO.	YES	Approx. 100m <sup>2</sup>
NH <sub>3</sub>	30/40cm. Ceiling	0-100 ppm	5 ppm	8 ppm	DEACTIVATED	AUTO.	YES	Approx. 75m <sup>2</sup>
H <sub>2</sub> S	1,5m. Floor	0-100 ppm	5 ppm	10 ppm	DEACTIVATED	AUTO.	YES	Approx. 100m <sup>2</sup>
CO <sub>2</sub>	1m. Floor	0-20.000 ppm	5.000ppm	10.000 ppm	DEACTIVATED	AUTO.	YES	Approx. 100m <sup>2</sup>
O <sub>2</sub>	1.70m. Floor	0-25%	19%*	18%*	DEACTIVATED	AUTO.	YES	Approx. 100m <sup>2</sup>
Cl <sub>2</sub>	1m. Floor	0-10 ppm	0.5 ppm	1 ppm	DEACTIVATED	AUTO.	YES	Approx. 100m <sup>2</sup>
SO <sub>2</sub>	30/40cm. Floor	0-20 ppm	2 ppm	5 ppm	DEACTIVATED	AUTO.	YES	Approx. 75m <sup>2</sup>

\* Prealarm and Alarm activate due to lack of oxygen.




Coverage data is illustrative, as it can vary depending on the surrounding environment.

GAS	LCD INTERVALS	PROGRAMMABLE LEVELS
CO	2 ppm	From 2 - 298 ppm
NO <sub>2</sub>	0.2 ppm	From 1 - 19 ppm
NH <sub>3</sub>	1 ppm	From 1 - 98 ppm
H <sub>2</sub> S	1 ppm	From 1 - 98 ppm
CO <sub>2</sub>	200 ppm	From 200 - 19.800 ppm
O <sub>2</sub>	0.25%	From 1 - 24%
Cl <sub>2</sub>	0.1 ppm	From 0.1 - 9.8 ppm
SO <sub>2</sub>	0.2 ppm	From 1 - 19 ppm

If you need to modify any parameter press the  key for three seconds. The following menu will appear each time you press  in the following sequence.





1	Program the desired prealarm level.
2	Program the desired alarm level.
3	Program the relay output state when at rest, (without level detection) ON or OFF.
4	Select the rearm type for the prealarm and alarm, manual or automatic, with a programmable time delay between 0-1-5-10 or 15 minutes.
5	Select if you wish for an acoustic signal with the different states , YES or NO.
6	This option allows you to ignore the sensor status, with the maneuver output staying as programmed. Especially useful in case of sensor malfunction, preventing untimely maneuvers.


Once inside programming mode the sequence to reprogram is ;  to enter the desired menu,  to select or modify a value and  to memorize.

## 6. OPERATION

When it reaches Prealarm level, the display will show a message informing of this condition along with an acoustic signal (if it is activated) and a blinking display.

By pressing the  key the acoustic signal will cease. If  is not pressed, the message and the acoustic signal will disappear when the gas level detected fall below the programmed level.

When Alarm level is reached the display will show an Alarm Level message along with and acoustic signal (if it is activated) and a blinking display. After 3 s, if the Alarm condition remains, the relay output will activate, alternating the Alarm Level message with the Active Relay one. By pressing the  key the acoustic signal will cease. If  is not pressed, the message and the acoustic signal will disappear when the gas level detected fall below the programmed level.

The Active Relay message will stop once the alarm level disappears, be it because the programmed time has passed or because the  key has been pressed, if the rearm is in manual.

The relay will not go into its rest condition if when you press  the alarm level is not below the programmed level.


When the detected level goes above the full scale , the following message will appear on the display.

--- FPM NH3  
Output Activated

The message in the lower line, Output Activated will alternate with SATURATION

Illustrated example with ammonia detector

## 7. SYSTEM TEST

Press  for 3 seconds; first the acoustic signal will activate and following this the relay output will activate for 5 seconds returning then to its initial state.

1° System Test  
Acoustic

2° System Test  
Output Activated

## 8 INHIBIT SENSOR SIGNAL

This option makes it possible to ignore the sensor signal, leaving the output at rest as programmed.

It is especially useful in the case of sensor malfunction, preventing any inopportune actions.

Sen. Deactivated  
PROG. to Exit

Press  for 3 secs. to exit this mode.

Attention: Use this option only if it is confirmed that there is no gas presence in the Environment. Urgently call the system installer or maintainer for its urgent repair.

In the module line of the control panel it will show:

Gr1 - NH3 - AUTO  
001 INH.DET

Illustrated example with ammonia detector

## 9. SYSTEM RESET AND RETURN TO FACTORY CONFIGURATION

To return to factory configuration, with the detector unpowered, press  keeping the key pressed and power the detector.

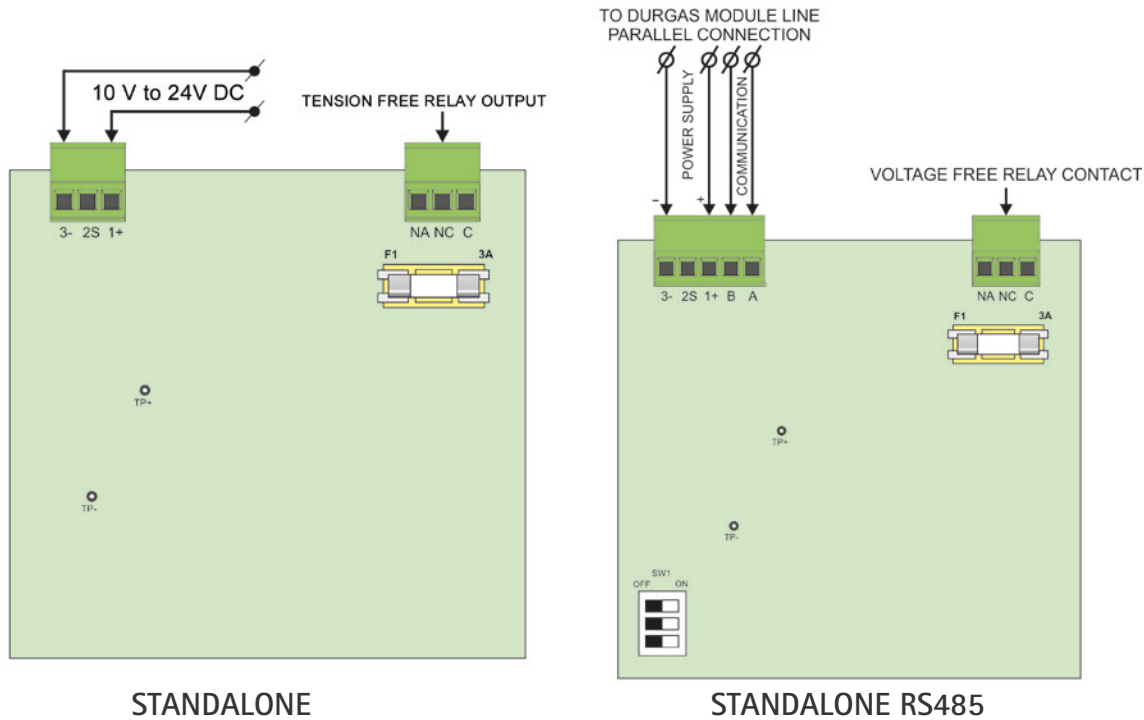
## 10. RECALIBRATION

All detectors manufactured by DURAN ELECTRONICA have been calibrated in factory using pattern gas, therefore it is not necessary or recommended to recalibrate during the initial startup. In this detector family it is not possible to recalibrate the Zero and Gain, because these parameters have previously been memorized in an Eprom memory inside the sensor, so if it became necessary they will have to be sent to the factory.

These detectors incorporate a function for automatic zero adjust. It monitors the zero in relation to the electronics and sensor response. STANDGAS PRO LCD automatically carries out a test every 30 minutes: if the drift is above or under 2% of the full scale, it will readjust to zero; if not the data will be shown as a readout.



## 11. CONNECTIONS



## 12. TECHNICAL CHARACTERISTICS

Technology	Electrochemical/infrared sensor + 12bit microprocessor
Power supply tension	From 10 to 24V DC/ From 10 to 15V, RS485 version
Maximum consumption at 12V DC	43 mA at rest – 73 mA acoustics and relay activated / 3 mA and 30 mA CO <sub>2</sub> 127mA max. V. RS485
Communication	RS485
Gas measurement range	See table on page 6, linear full scale
Resolution	± 1% F.S. toxic - 0.25% O <sub>2</sub> and 1.5% CO <sub>2</sub>
Reproducibility	± 2% F.S.
Annual span drift	± < 1% electrochemical / 0.7% CO <sub>2</sub>
Stabilization time	< 5 minutes – all specifications –
Response time T90	CO, NO <sub>2</sub> SO <sub>2</sub> and NH <sub>3</sub> ≤ 30s / H <sub>2</sub> S ≤ 20s / O <sub>2</sub> ≤ 15s / CO <sub>2</sub> ≤ 15s
Approx. useful life (MTBF)	2 years electrochemical NH <sub>3</sub> , H <sub>2</sub> S, NO <sub>2</sub> , Cl <sub>2</sub> SO <sub>2</sub> and O <sub>2</sub> – 4 years CO and > 6 years CO <sub>2</sub>
Maintenance periods	Annual – recommended –
Environmental conditions	-10°C to +50°C and from 0 to 90% H.R. without condensation
Atmospheric pressure limits	80 to 110 kPa (0.8 to 1.1 bar)
Alarm relay	Commutated output dry contact 3A 250V AC fuse protected
Coverage area	See table on page 6
Material and protection grade	Makrolon & ABS IP65
Cable entry and diameter	Cable glands / 6 -10mm <sup>2</sup>
Dimensions in mm and weight in gr.	120 X 160 X 60 / 350

### NOTE: MODELS WITH RS485 CONNECTION

The default programmed levels are the same as those programmed in factory for each gas in the module lines of the DURGAS control panels.

Different levels may be programmed both in module lines and detectors, taking into account that in that case the prealarm and alarm levels shown in each of their displays will not coincide.

## 13. WARRANTY

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STANDGAS PRO LCD detectors are guaranteed against any manufacturing defect for 1 year after date of purchase of the equipment. If in this period of time an anomaly is detected, make it known to your provider or installer.

The warranty covers the complete repair of the products that the DURAN ELECTRONICA technical service considers as defective, with the aim of returning to normal use. This warranty will be valid so far as the product has been installed by a competent person and following the specifications in this manual. Negligent installation or use will exempt DURAN ELECTRONICA from responsibilities for damages to persons and/or properties and from compliance with the terms of this warranty. In case of improper handling, or of not respecting the conditions, characteristics and observations described in this manual, DURAN ELECTRONICA WILL NOT BE HELD RESPONSIBLE FOR THE DAMAGES THAT MAY BE INCURRED AS A CONSEQUENCE OF THE INCORRECT USE OR INSTALLATION OF THIS PRODUCT.

The warranty does not include: installations, periodic inspections and maintenance, damage caused by improper handling, inappropriate use, negligence, overload, inadequate power supply or equipment neglect, tension deviations, defective installations and all other external causes, repairs or alterations performed by persons not authorized by DURAN ELECTRONICA, nor transportation costs of the equipment.

DURAN ELECTRONICA reserves the right to modify this manual without previous warning.





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