

Explosives User and installation manual

STANDALONE AND STANDALONE RS485 DETECTORS



STANDGAS PRO LCD

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1. PRESENTATION

STANDGAS PRO LCD is a programmable standalone detector, designed for the detection of explosive gases using catalytic technology (pellistor), with a detection range of 0 to 100% LEL and resistant to silicone vapours.

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.



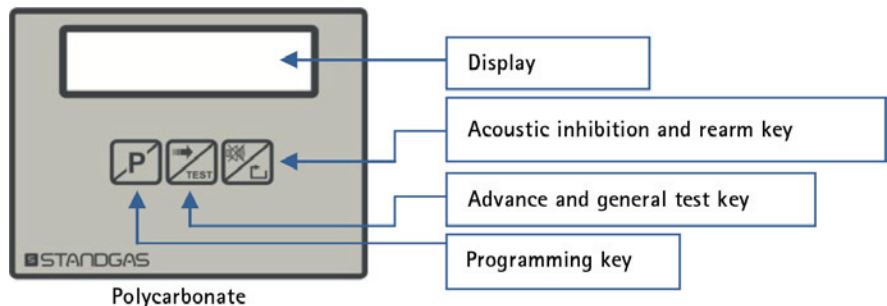
RS485 version compatible with V04 and onwards software version of DURGAS.

STANDGAS PRO LCD is available for the detection of the following gases:








Gas	Installation height
Methane	30 to 40 cm from ceiling
Hydrogen	30 to 40 cm from ceiling
Methanol	100 cm from floor
Ethane	100 cm from floor
Ethanol	100 cm from floor
Ethylene	100 cm from floor
Propane	30 to 40 cm from floor
Propylene	30 to 40 cm from floor
Acetone	30 to 40 cm from floor
Ammonia	30 to 40 cm from ceiling
Cyclohexane	30 to 40 cm from floor
Cyclopentane	30 to 40 cm from floor
Dioxane	30 to 40 cm from floor
Ethyl acetate	30 to 40 cm from floor
Isopropyl alcohol (IPA)	30 to 40 cm from floor
Methyl ethyl ketone	30 to 40 cm from floor
Butane	30 to 40 cm from floor
Hexane	30 to 40 cm from floor
Pentane	30 to 40 cm from floor
Propanol	30 to 40 cm from floor
Propyl alcohol	30 to 40 cm from floor
Butyl acetate	30 to 40 cm from floor
Iso-octane	30 to 40 cm from floor
Heptane	30 to 40 cm from floor
Toluene	30 to 40 cm from floor
Xylene	30 to 40 cm from floor
Benzene	30 to 40 cm from floor
Kerosene	30 to 40 cm from floor
Acetic acid	30 to 40 cm from floor
Decane	30 to 40 cm from floor
Isobutyl alcohol	30 to 40 cm from floor
Nonane	30 to 40 cm from floor
Styrene	30 to 40 cm from floor
Isobutyl methyl ketone	30 to 40 cm from floor

A special version for the detection of ACETYLENE is also available (install at 180 cm. from floor).

It is equipped with a display of 16 x 2 lines of backlit characters, plus three keys that allow programming and use.



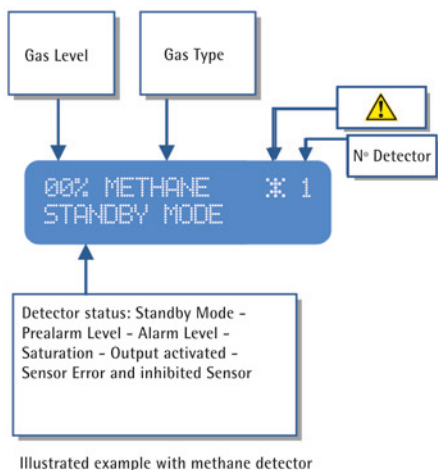
2. PREVIOUS CONSIDERATIONS





-  Do not use lighters to verify functioning, as this might destroy the sensor. To that end use a gas bottle with an adequate concentration.
-  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 use the detector in environments where there is a presence of Hydrogen Sulfide, Fluoride, Methyl Chloride or Trichloroethylene. The presence of any of these can inhibit sensor response or destroy it.
-  Do not install the detector near heat sources, ovens, radiators, kitchens, etc.
-  Install the detector with the gas sensor opening pointing towards the ground and at the required height.
-  Detector functioning might be interfered by certain cleaning products, do not handle and use near them.

The detector will automatically connect when it receives tension, showing the following warm-up sequence.



3. DISPLAY INFORMATION, DETECTOR CONNECTED



-  - 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

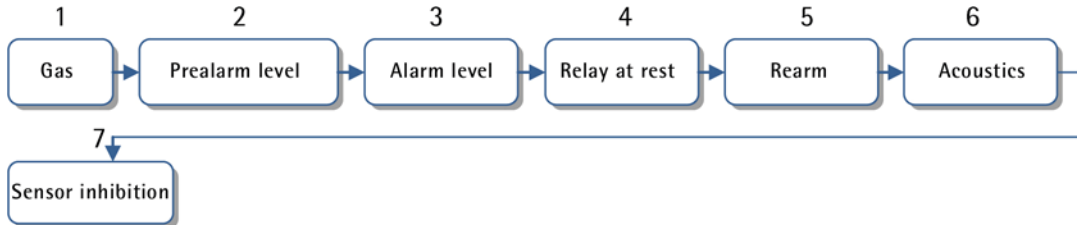
N° DETECTOR	1	2	3
01	ON	ON	ON
02	OFF	ON	ON
03	ON	OFF	ON
04	OFF	OFF	ON
05	ON	ON	OFF
06	OFF	ON	OFF
07	ON	OFF	OFF
08	OFF	OFF	OFF

5. PROGRAMMING OF DETECTOR




Factory default parameters are:

Gas: **Methane** - Prealarm level: **20%** - Alarm level: **40%** - Relay status at rest: **ON**, (activated) - Rearm type: **Manual** - Acoustics: **Yes**.

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





1	Select gas type from amongst those available
2	Program the desired prealarm level, from 5% to 80% of L.E.L in steps of 1%
3	Program the desired alarm level, from 5% to 80% of L.E.L in steps of 1%
4	Program the status of the relay at rest, (without detection level) ON or OFF
5	Select the rearm type for prealarm and alarm, manual or automatic, with a programmable time delay of 0-1-5-10 or 15 minutes
6	Select if you wish to have an acoustic signal with each different status, YES or NO
7	This option allows it to ignore the sensor status, the relay output staying as programmed. Especially useful for cases of sensor malfunction, preventing the cutting of gas flows or other inopportune actions.


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 100% L.E.L. the following message will appear on the display.

--% METHANE
Output Activated

The message in the lower line, Output Activated, alternates with

SATURATION

7. SYSTEM TEST

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

1° System Test
STANDGAS LCD V01

2° System Test
Acoustic

3° 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 cutting the gas flow or other inopportune actions.

Sen. Deactivated
PROG. to Exit

Press for 3 sec.  to exit this mode.

ATTENTION. Use this option only if it is confirmed that there is no gas presence in the Environment. In this case urgently call the system installer or maintainer for its repair.

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 with pattern gas, therefore it is not necessary or recommended a recalibration of the system.

10.1 Zeroing verification

The detector must be functioning for a minimum of 1 hour in an environment which in all certainty there is no presence of the gases to be detected by the detector.

If this condition cannot be complied with, the detector must be subjected to a pure nitrogen concentration with a flow of 0.5L/minute using the optional adaptor Ref. CECALIBR for at least 2 minutes, then proceed as follows:

1. Connect a measuring instrument, in the mV scale, between terminals S+ and S-, you must have a voltage of 000V DC, if necessary adjust using the ZERO potentiometer until said reading is obtained.

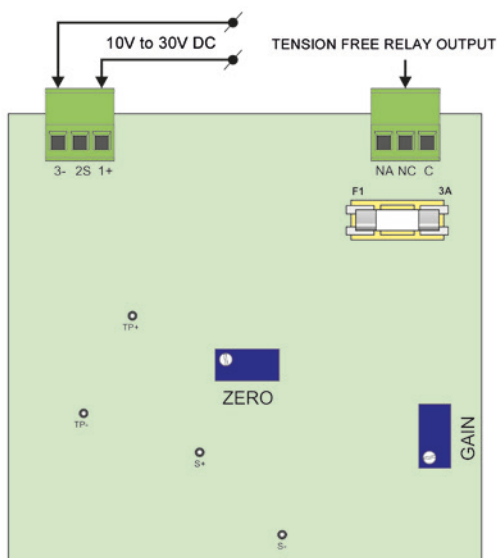
10.2 Calibration with gas

1. Reprogram the detector for Methane detection.

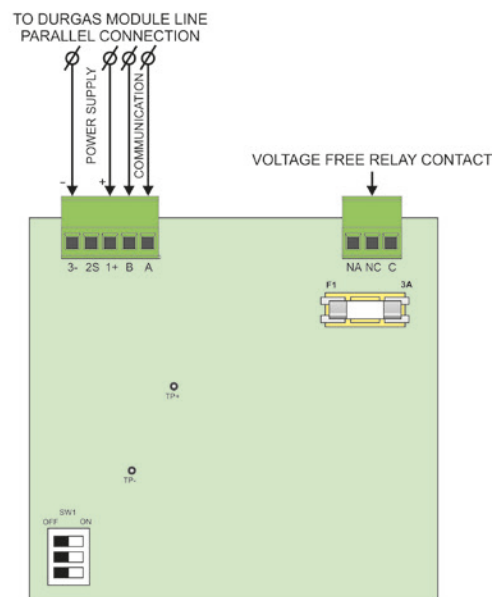
2. Insert the adapter Ref. CECALIBR in the detector and release a precise mixture of methane at 2.5% v/v, equivalent to 50% L.E.L., with a flow of 0.5L/minute and adjust GAIN potentiometer, until the measuring instrument indicates 1.0V, DC between the TP+ and TP- terminals, the display will show 50% L.E.L.

3. When finished remember to reprogram the detector for the required gas.

11. CONNECTIONS



STANDALONE



STANDALONE RS485

12. TECHNICAL CHARACTERISTICS

Technology	Catalytic sensor and microprocessor
Power supply	From 10 to 24V DC / From 10 to 15V (RS485 version)
Maximum consumption at 12V DC	90mA at rest – 130mA, acoustics and relay activated
Communication	RS485
Gas measuring range	0–100% L.E.L (5% vol. Methane) linear full scale
Resolution	± 1% L.E.L at 20°C 50% H.R
Zero drift	± <7mV year
Span drift	± <9% L.E.L year
Stabilization time	< 15 minutes all specifications
Resistance to H ₂ S	Yes (typical 1000 ppm/hour)
Response time T50 / T90	3s./8s. respectively
Useful life	Approx. 3 years, in normal working conditions
Maintenance periods	Annual –recommended–
Environment conditions	-10°C to +50°C and 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	16/30 m ² approx.
Material and protection grade	Makrolon & ABS IP65
Cable entry and diameter	Cable glands /6–10mm ²
Dimensions in mm. and weight in gr.	120x160x60/350

13. WARRANTY

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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