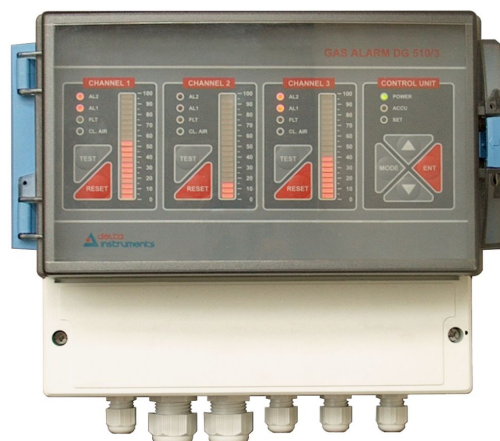


3-CHANNEL GAS-DETECTOR “GAS ALARM DG510/3W”

- 3 independent programmable channels
- 2 alarm levels for each channel
- LED bargraph indication of gas concentration for each channel
- Visual and Audible Signalization of Activated Alarm Levels
- Relay outputs
- Back-up power supply - option



I. GENERAL DESCRIPTION

The 3-channel Gas-detector "GAS ALARM DG510/3" is purposed for signaling anytime, when concentration of flammable and explosion-hazardous and toxic gases exceeds permissible limits. Its application includes mounting in pump units, gas stations, filling stations, dyeing cameras and other areas, where gas-powered equipment is used, or where combustible or toxic vapors and gases are found. The device work with transmitters series DGS510 or other suitable protection. Station to be mounted in areas with normal risk of fire. Each of the channels has two programmable levels - pre-alarm and alarm level. Every channel has a LED bargraph indication visualizing of gas concentration. If the gas concentration for the first channel exceeds the pre-alarm level (AL1) and relay output LL1 are activated. LED AL1 is lighted. The relay output may operate a shut-off valve for stopping the gas flow, switch on a siren or fan, etc. If despite all taken measures the gas concentration exceeds the alarm level (AL2) and relay output HL1 are activated. A local buzzer is switched on if the gas concentration exceeds one of the alarm levels. The pre-alarm and alarm level for each channel can be individually set. Do not allow the pre-alarm level to set values higher than the level ALARM. Safety alarm level AL2 in explosive gases can not be higher than 50% LEL of the lower explosion limits and toxic gases depends on the type of the gases. In case of transmitters or Cable Failure the common 5A/250V SPDT Relay Output is activated, LED “FLT” for the corresponding channel is lighted and the audible alarm is activated.

The optional back-up power supply provides continuous working conditions for the Gas-detector and accumulator charging. Switching to the back-up power supply is automatic in case of central power supply failure. The accumulator must be 12V, 6-8Ah. LED “ACCU” is lighted during the accumulator charging.

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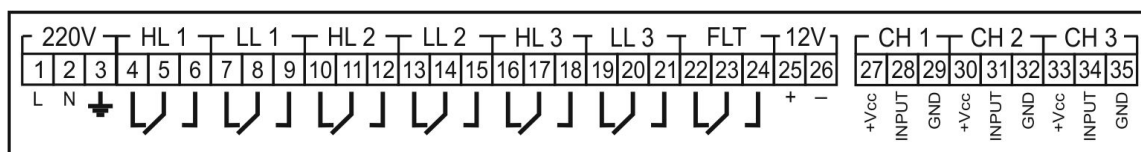
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II. TECHNICAL SPECIFICATIONS

Power supply	230V, 50Hz
Gas detected	methane (natural gas), propane-butane, ammonia, ethylene, organic dissolvent vapors and others
Pre-alarm level /AL1/	programmable
Alarm level /AL2/	programmable
Number of channels	3
Pre-alarm level AL1 output	5A/250V SPDT /LL/ relay output - for each channel
Alarm level AL2 output	5A/250V SPDT /HL/ relay output - for each channel
Output signal for sensor or cable failure	5A/250V SPDT /FLT/ relay output - common to all channels
Alarm	LED and audible
Display	LED bargraph
Ambient temperature	0÷50°C
Back-up power supply	12V - option
Dimensions	213 x 185 x 118 mm
Protection	IP65
Explosion-proof transmitters	Ex II 2G Ex d IIC T6 Gb

CONNECTION DIAGRAM



III. MOUNTING

3.1 The Gas-detector Control Block is to be mounted in areas with normal risk of fire.

ATTENTION! If the alarm level /AL2/ switches off the 230V power supply in the hazardous area please note that the gas-detector must be powered from another line.

IV. CONFIGURATION

4.1. FRONT PANEL DESCRIPTION

The front panel of the gas-detector consists of one control unit used for programming the pre-alarm and alarm levels and two LED bargraphs used for visualization of the measured gas concentration for each gas sensor. The bargraphs visualize the measured concentration. The LEDs indicate the different gas-detector's common and channel-specific states, as listed in Table 1:

TABLE 1

PROMPT	DESCRIPTION
POWER	The transmitters need approximately one minute time for activation after the power supply is connected. Indication for this process is blinking of the “POWER” LED. After the activation is finished and the gas-detector enters its normal operating mode this LED is lighted.
CL. AIR	If there are no present hazardous gases and vapors, the LED ‘Clean Air’ is lighted up. When increasing the concentration of gases "CL. AIR" is turned off and concentration is visualized on the corresponding LED bargraph.
FLT	This LED is lighted and the corresponding relay output “FLT” is activated in case of a cable or sensor failure.
AL1	Shows the state of the pre-alarm level relay output. If this LED is lighted the pre-alarm level relay output (LL) for the corresponding channel is activated. If the audible alarm is deactivated (cut off) “AL1” LED blinks. The relay output is active until the measured gas concentration falls bellow the pre-alarm level.
AL2	Shows the state of the alarm level relay output. If this LED is lighted the alarm level relay output (HL) for the corresponding channel is activated. If the audible alarm is deactivated (cut off) “AL2” LED blinks. The relay output is active until the measured gas concentration falls bellow the alarm level.
SET	This LED is active (blinks) while the alarm levels are programmed.
ACCU	This LED is lighted while the accumulator is charging (when the optional back-up power supply is included).

The LED bargraph is visualized the current value of the measured concentration of the lower limit for the gas. If the concentration is exceeds one of alarm levels (pre-alarm or alarm) the corresponding segment of the bargraph scale starts blinking.

4.2. LOCAL AUDIBLE SIGNALIZATION

The build-in buzzer is activated when the measured gas concentration exceeds the pre-alarm and alarm levels. A short sound every three seconds is heard when the measured gas concentration is above the pre-alarm level AL1. If the gas concentration is above the alarm level AL2 the audible alarm is continuous. The short sound is used also as a confirmation that a button is pressed while working with the keyboard.

4.3. VISUALIZATION OF THE ALARM LEVELS

Press “MODE” while in normal working mode to visualize the alarm levels. On every bargraph the LEDs corresponding to the currently set pre-alarm and alarm levels are lighted. If the measured concentration exceeds the currently set alarm level the corresponding LED is blinking. Press “MODE” to enter the normal working mode.

4.4. RELAY OUTPUT TEST

A special button “TEST” is used for testing the relay outputs and devices connected to them (siren, shut-off valve, etc.). Press and hold “TEST” button on one of the channels to activate the relay outputs corresponding to this channel and the siren (AL1 and AL2 are lighted). The relay outputs return to their normal condition when the button is released.

4.5. DEACTIVATION OF THE AUDIBLE SIGNALIZATION

By any activated alarm level the operator can use the keypad to turn off the sound alarm until the problem is solved. By active alarm state pressing the RESET button turns off the sound signalization until the concentration drops below the set alarm level. After the deactivation of the sound alarm, the corresponding alarm LED starts blinking. The output relays remain open (active) until normalizing the concentration under the set levels.

4.6. DEACTIVATION OF A CHANNEL

The operator may deactivate a channel when there is no need of using it. Press simultaneously "MODE" and "RESET" (corresponding to the channel that you want to activate/deactivate) when in normal working mode. LED "FLT" corresponding to this channel starts blinking. Press the "ENT" button to change the condition of the channel from active to inactive (from inactive to active). LED "FLT" stops blinking. The gas-detector enters its normal working mode without changing the condition of the channel if you press "MODE" instead of "ENT".

Press "MODE" to enter the normal working mode.

LEDs corresponding to a deactivated channel are switched off when the detector is in its normal working mode.

4.7. SETTING OF THE ALARM LEVELS

ATTENTION: The relay outputs are deactivated in this mode. The LEDs are used for visualization of the currently selected mode.

Press simultaneously "MODE" and "ENT" while in normal working mode to enter this mode. The blinking of LEDs AL1 or AL2 is used as an indication for the pre-alarm or alarm level that is being set at the moment.

- Press simultaneously "MODE" and "ENT". LED AL2 of the first channel starts blinking. This is indication that the alarm level for channel one could be set. The LED on the bargraph corresponding to the currently set value of the alarm level is blinking. The LEDs showing the other alarm levels are lighted. Using the ▲ and ▼ buttons change the alarm level to the desired one. Press "ENT" to save the new value. After the new value is saved the LED stops blinking. The alarm level could be set in the following range $AL1 \text{ (pre-alarm level)} < AL2 \text{ (alarm level)} \leq 50\% \text{ LEL}$ for explosive gases and toxic gases depends on the type of the gases.
- Press "MODE" instead of "ENT" to switch to the next alarm level without changing the value of the current one.
- Press "MODE". LED AL1 on channel one starts blinking. The pre-alarm level could be set. Using the ▲ and ▼ buttons change the pre-alarm level to the desired one. The pre-alarm level could be set in the following range $0 < AL1 < AL2$. Press "ENT".
- Press "MODE". LED AL2 on channel two starts blinking. The alarm level could be set. Using the ▲ and ▼ buttons change the alarm level to the desired one. Press "ENT".
- Press "MODE". LED AL1 of the second channel starts blinking. The pre-alarm level could be set. Using the ▲ and ▼ buttons change the pre-alarm level to the desired one. Press "ENT".

- Press “MODE”. LED AL2 on channel three starts blinking. The alarm level could be set. Using the ▲ and ▼ buttons change the alarm level to the desired one. Press “ENT”.
- Press “MODE”. LED AL1 of the third channel starts blinking. The pre-alarm level could be set. Using the ▲ and ▼ buttons change the pre-alarm level to the desired one. Press “ENT”.
- Press “MODE” to enter in normal working mode.

During the setting of the alarm levels “SET” is blinking.

V. OPERATION INSTRUCTIONS

5.1 The Gas-detector should be used only for the purpose given by the producer Delta Instruments Ltd.

5.2 If not stated explicitly, the device is calibrated by the manufacturer and correct installation requires no initial setup.

CAUTION!

It is unacceptable to replace electronic components associated with the correct operation of the gas detector.

VI. REPAIR

Any repair activities, concerning “GAS ALARM DG510/3” Electronic Block have to be carried out only in manufacturer “DELTA INSTRUMENTS” Ltd laboratories.