



ADDRESSABLE GAS DETECTION mCDG 6000

Purpose

The mCDG 6000 addressable gas detection control panel is designed to detect and signal the leakage of flammable gases and dangerous concentrations of carbon monoxide, after receiving information from gas detectors cooperating with them.

The control panel has 1 detection line and is produced in 3 versions:

- 2 detectors PSG-6000 type,
- 4 detectors PSG-6000 type,
- 8 detectors PSG-6000 type.

It also has 2 potential-free outputs for controlling external devices and 1 universal output that can act as potential output with continuity monitoring or as a control input. The device is additionally equipped with ModBus/RTU protocol which enables integration with the POLON 6000 system via AKC-6000 and a signal output to control the gas shut-off valve.

Made in surface mounting technology, the control panel is equipped with extensive diagnostic and self-monitoring systems, guarantees long-lasting and reliable operation of the dangerous gas concentrations early-warning system.

Functionality

The CDG 6000 gas detection control panel enables:

- control and signal the leakage of combustible gases (CNG, LPG) and dangerous concentration of carbon monoxide (CO),
- detection and signalling of exceeding alarm thresholds of gas concentration,
- automatic closing of the gas shut-off valve,
- automatic activation of outputs to external signalling and control devices,

- monitor of the status of external devices,
- automatic control of internal circuits,
- transmission of information to the superior systems (e.g. via AKC-6000 or ModBus/RTU protocol) about alarm, fault, and status of devices.

The CDG 6000 is equipped with:

- 1 detection line which enables the connection of a maximum of 2, 4 or 8 addressable gas detectors type PSG-6000,
- 2 relay outputs for controlling external signalling and control devices,
- 1 universal output that can function as a potential output with continuity check or as a control input
- 1 output to control the gas shut-off valve,
- output to power external devices or gas detectors with a current load of 0.5 A.

Gas detection control panel CDG 6000 can cooperate with addressable gas detectors PSG-6000:

Detector	Detected gas	External DC power
PSG-6001	CNG (natural gas-methane)	from 9 to 30 V DC
PSG-6002	LPG (propane-butane)	from 9 to 30 V DC
PSG-6003	CO (carbon monoxide)	from 9 to 30 V DC
PSG-6103	CO (carbon monoxide)	loop powered

The PSG-6000 detectors, installed in the addressable detection line of the mCDG 6000 control panel, require additional power supply from an external 12 V (or 24 V) power supply or from the addressable loops 0,5 A/12 V of the mCDG 6000 control panel. It's not applicable to the PSG-6103 detector which is powered only from the control panel detection loop.

Detectors are connected with the mCDG control panel using specially designed detection line. Each detector is assigned with unique address. The control panel may therefore display state of each detector. The detectors line may operate in two modes, as a radial or loop line. In the loop line mode, the line end is connected with the control panel. The system is thus able to operate correctly even with line breakage in one place. The line is also resistant to short circuits. The detectors are equipped with insulators which separate the short circuit in such a way to assure operability of the maximum number of detectors.

The mCDG 6000 control panel can signal three alarm levels related to the relevant gas concentration levels reported by connected detectors. The control panel identifies alarming detectors by providing relevant information on the display. CDG 6000 control panel is equipped with extensive device and connected external devices self-diagnostics system. Summary fault information is presented by FAULT indicator on the device panel. Furthermore, similarly to alarms, the full list of faults is accessible using the device display.

The control panel is equipped with output for activation of cut-off valves. The output generates pulse. The output is fitted with built-in protection that limits the maximum current to 50 mA. Pulse time may be programmed within the range from 0.2 to 1s. The output is equipped with software protection against valve electromagnet damage. The protection limits the possibility of valve activation before the end of the defined pause time.

NOTE

The valve may be properly energized only with a functional battery connected to the control panel. Damaged or discharged battery does not allow for proper control pulse generation.

The alarm and fault information is stored in non-volatile internal memory as event log. The log stores all events with their occurrence date and time (up to 5000 events). The event log content is accessible using „Konfigurator mCDG 6000” configuration application. The mCDG 6000 control panel is configured and programmed using **Konfigurator mCDG 6000** computer application as well.

Design of the control panel

The control panel has a plastic enclosure, adapted to be mounted on the wall. At the bottom of the casing, there are cable glands for power cable, control cables, monitoring lines and detection lines. All electronic components are mounted on a common circuit board. There are manipulation and signalling elements as well as a liquid crystal display at the front of the enclosure.

NOTE

Detailed information for installers and service companies is included in the technical manual.

Technical data

Primary power supply	+10 V to +25 V
Maximum current consumption	3,15 A
Number of detector lines	1
Compatible gas detectors	PSG-6000 and PSG-6100
Max no. of detectors per line	8 / 4 / 2
Current consumption from the detection line / line length (optional)	50 mA / 2 x 45 Ω, 22 mA / 2 x 75 Ω, 20 mA / 2 x 100 Ω
Max resistance between elements	40 Ω
Maximum allowable line capacity	300 nF
Number of relay outputs	2
Load capacity of relay outputs	5 A / 30 V DC, 5 A / 250 V AC
Shut-off valve control output	Control panel supply voltage / 50mA
Control pulse time	0,2 s do 1 s
Universal output in potential output mode:	
Output voltage	Control panel supply voltage
Maximum output current	1,5 A
Output load for powering external devices of detectors	0,5 A
Number of recorded events	5000
Working temperature range	from -5°C up to +40°C
Weight	< 0,25 kg
Dimensions	160 x 100 x 65 mm