Honeywell

.MSR ELECTRONIC

PolyGard®2 Multi-Gas-Controller MGC2-K
Quick Start Guide

Please read this Quick Start Guide completely before installing the PolyGard®2 Multi-Gas Controller MGC2-K. It contains important information for your safety and correct operation of the PolyGard®2 Multi-Gas Controller MGC2-K.
Visit http://www.honeywellanalytics.com for the PolyGard®2 MGC2-K Multi-Gas Controller manual with full instructions for download.

1   Intended Use

The PolyGard®2 MGC2-K is designed for detection and warning detection of toxic, combustible or dangerous atmosphere in many commercial and industrial applications.
The intended sites are all areas being directly connected to the public low voltage supply, e.g. residential, commercial and industrial ranges as well as small enterprises (according to EN50 082).
The PolyGard®2 Multi Gas Controller MGC2 must not be used in potentially explosive atmospheres. The sensor must only be employed in areas within the environmental conditions specified in the Technical Data.

2   Functional Description

2.1   General

The Multi-Gas-Controller is designed for the connection of max. three analog sensors with 4-20 mA signal and eight Honeywell sensors.
The controller monitors the measured values and activates the alarm relays if the set local alarm thresholds for pre-alarm and main alert have been exceeded or if there are the alarm messages coming from the eight digital sensors via RS-485 communication.
The SIL 2 compliant self-monitoring function in the MGC2 activates the fault message in case of an internal error as well as in case of a fault at the 4-20 mA input / output current signals or if there is a communication error to the digital sensors.
Other options such as three-color status LED, warning buzzer, digital input for acknowledgment or test function ensure proper adaptation to the wide range of applications in gas detection technology.

3   Installation

Electronics can be destroyed by electrostatic discharge (ESD). Therefore, the installation work should be done only by persons connected to ground, e. g. with a wrist strap connected to ground or by standing on a conductive floor (acc. to DIN EN 100015).

3.1   Mounting Instructions

When choosing the mounting site please pay attention to the following:
- Choose mounting location of the sensor according to the local regulations.
- Mount the sensor at a location with minimum vibration and minimum variation in temperature (avoid direct sunlight).
- Avoid locations where water, oil etc. may influence proper operation and where mechanical damage might be possible.
- Provide adequate space around the sensor for maintenance and calibration work.
- Observe possible local instructions.

3.2   Installation Work

Assembly work must only be carried out under gas-free conditions.
Do not drill holes in the housing. Use only the providing know-outs.

- Open housing cover.
- Break out the required pre-embossed knockouts on the housing for cable glands and Sensor Cartridge.
- Cables are introduced from above.
- The MGC2 Controller is fixed to the wall through the four marked mounting points at the back side of the housing. These mounting points are accessible after opening the housing. See figure below.
- The dimensions XX depend on the type and can be read on the back of the housing, it is 115 mm.
- The mounting points are covered by closing the cover at the end of the assembly.
- Close the cover.

Installation of Controller:
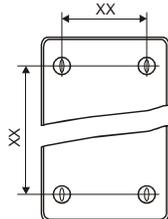
4   Electrical Connection

Assembly work must only be carried out under gas-free conditions!
Consider static electricity instructions (ESD)!

4.1   Wiring

- The technical requirements and regulations for wiring, electrical safety, as well as project specific and environmental and local conditions etc. must be observed when mounting.
- We recommend the following cable types1:

|	Europa	USA / Canada
Power Supply 230 V	NYM-J 3 x 1,5 mm²	14 AWG / 300 V
Alarm message 230 V (also possible together with power supply.)	NYM-J X x 1,5 mm²	14 AWG / 300 V
Signal message, bus connection, warning devices 24 V	J-Y(St)Y 2x2 x 0,8 mm²	min. 300 V
Possibly connected external analog transmitters	J-Y(St)Y 2x2 x 0,8 mm²	min. 300 V

[1] The recommendation does not consider local conditions such as fire protection etc.

- Use copper conductors only for the terminal is only for connection to copper wire.
- Avoid any influence of external interferences by using shielded cables for the bus line, but do not connect the shield.
- Remove the cable isolation as short as possible. It is important to ensure that bare wires, e.g. wire shields do not come into contact with the mounted PCB (risk of short-circuit).
- Low voltage wire and mains connected wire must be fixed separately by cable ties or similar, to secure against looseness.
- Analog sensors are connected directly to the spring type terminals of the module. The correct polarity must be observed.
- The alarm signals are available as potential-free change-over contacts. If required, the voltage supply is available at the terminal L.

The exact position of the terminals for the sensors and alarm relays is shown in the connection diagrams.
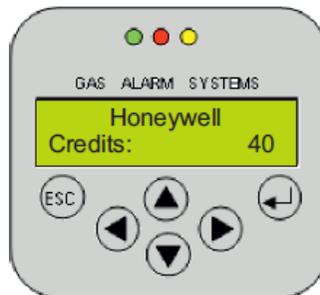
4.2   Wiring Diagrams

Wiring Diagram, Example
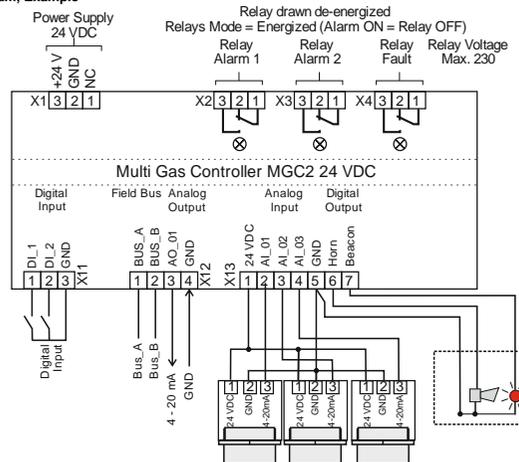
5   Operation

The complete configuration and service are made via operating keys in combination with the LCD display screen. Security is provided via four password levels against unauthorized intervention

Operation is done via 6 buttons

5.1   Function of the Keys and LEDs on the Keypad

(ESC) Exits programming, returns to the previous menu level.

(↵) Enters sub menus, saves parameter settings.

(▲)(▼) Scrolls up & down within a menu, changes a value.

(◄)(►) Changes cursor position.

The status LEDs indicate the operating state.

Green:	Continuous:	= Normal operation
	Flashing:	= Maintenance message
Yellow:	Continuous:	= Failure
	Slowly flashing:	= Warning up
	Fast flashing:	= Special mode

Red: = Alarm
The backlight of the display changes from green to red when an alarm is active.

5.2   Code Levels

All inputs and changes are protected by a four-digit numeric code (= password) against unauthorized intervention according to the regulations of all national and international standards for gas warning systems. The menu windows of status messages and measuring values are visible without entering a code.
The access to a code level is cancelled if no button is pushed within 15 minutes or if there is no data communication between display and basic board.
The code levels are classified in order of priority: Priority 1 has top priority.

Priority 1: (code not changeable)

Code level priority 1 is intended for the service technician of the installer to change parameters and set-points. This password allows working on all settings. For opening the parameter menus, you must first activate the service mode after code release.

Priority 2: (code not changeable)

This functionality isn't available.

Priority 3: (customer password is settable)

Customer password is inactive in delivery state and is activated by entering a value. Same behavior as priority 1 password, only changing the customer password is not possible.

Normally the code is only known by the service technician who has last changed it since it can be changed individually via priority 1.

Priority 4: (password 1234) (code not changeable)

Code level priority 4 allows the operator after activation of the operation mode "Service Mode" to read all parameters as well as all test functions of the alarm relays, analog outputs and LCD.

- Manual test function of the alarm relays (functional test of the connected actuators),

- Manual test function of the analog outputs (functional test of the connected actuators),

- Manual test function of the LCD (functional test of the LCD display and the LEDs).

5.3   Customer Password

Storage of an individual customer password on the display for changing the parameters. See 5.2 Code level Priority 3. Changing the password only via access of the code level 1.

6   Technical Data MGC2

Electrical	
Power supply	24 V DC ± 20 %, reverse-polarity protected 24 V AC ± 15 %
Overvoltage category	I
Power consumption (24 V DC) - Control Board - per sensor (analog) - horn / warning light	max. 60 mA (1,5 VA), without Sensor, max. 85 mA (2,1 VA) max. 40 mA (1,0 VA)
Overvoltage category	I
Alarm relays (3)	240 V AC, 5 A, potential-free, change-over contact (SPDT)
Transistor output (2)	24 V DC / 0.1 A (switching to plus) (only at 24 V DC power supply)
Digital input (2)	Potential-free
Analog input (3)	4 – 20 mA overload and short-circuit proof, input resistance 200 Ω
Analog output signal (1)	Proportional, overload and short-circuit proof, load ≤ 500 Ohm 4 - 20 mA = measuring range 3.0 < 4 mA = underrange > 20 - 21.2 mA = overrange 2.0 mA = fault (not preset)
Ambient conditions	
Temperature range	-25 °C to +50 °C (-13 °F to +122 °F)
Humidity range	15 - 95 % RH not-condensing
Storage temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Serial interface	
Field bus	RS 485 / 19200 Baud
Tool bus	2-Draht / 19200 Baud
Physical	
Housing type C	Polycarbonate
Combustion	UL 94 V2
Housing colour	RAL 7032 (light grey)
Dimension housing (W x H x D) Type C	130 x 130 x 75 mm (5.12 x 5.12 x 2.95 in.)
Weight	ca. 0.6 kg (1.32 lb.)
Protection class (delivery status*)	NEMA 4X (IP 65)
Installation	Wall mounting
Knockouts for cable and sensor entry	Standard 6 x M20/25
Wire connection: Digital input, analog output Power supply, relays	Screw-type terminal min. 0.25 mm2, max. 1.3 mm2 (24 to 16 AWG) Screw-type terminal min. 0.25 mm2, max. 2.5 mm2 (24 to 10 AWG)
Directives	EMC directives 2014/30/EU Low voltage directive 2014/35/EU CE EN 61010-1:2010
Warranty	1 year on device

*If there are changes on the housing it has to be re-evaluated

LCD-Display	
LCD	Two lines, 16 characters each, background highlighted in two colours
Operation	Menu driven via six push-buttons
Power consumption	5 V, 60 mA, 0,3 VA