PolyGard® Gas Controller System DGC-06

DESCRIPTION

Measuring, warning and controlling device series for toxic, combustible and refrigerant gases and vapours.

The gas controller series DGC-06 can monitor and process up to 96 digital (RS 485) PolyGard®II sensors and/or analog (4 to 20 mA) µGard®II Sensors. Four free adjustable alarm thresholds are provided per Sensors. For the alarm messages, up to 32 alarm relays with potential-free changeover contact and up to 16 analog outputs (4 to 20 mA) are available.

The free adjustable parameters and set points enable a very flexible use in the gas measuring technique. Simple and comfortable commissioning, however, is granted by the configuration with default parameters.

Configuration, parameterization and operation are easy to do without special programming knowledge due to the logical, simple menu structure directly at the controller. The DGC-06-EasyConf Software enables the loading, changing and storing of the application parameters via a serial interface.

The DGC-06 series are equipped with a self-monitoring system, with power failure message as well as with a functional control of the registered digital/ analog Sensors according to the requirements of the gas measuring technique.

In addition, the gas controller is available with an uninterruptible power supply supported by a rechargeable battery.

The optional data logger function permits to protocol all measured values, alarms and faults.

APPLICATION

The DGC-06 gas controller series are used for the monitoring and warning of toxic and combustible gases as well as Freon refrigerants within a wide range of the gas measurement technique. Numerous adjustable parameters and set-points permit individual adaptation to many applications.

The DGC-06 gas controller fulfils the functions of monitoring carbon monoxide (CO) in garages, tunnels and cart tracks etc. according to the current EN 50545. Additionally, ammonia (NH_3) refrigerant plants can be monitored according to the requirements EN 378, VBG 20 and the guidelines "safety requirements for ammonia refrigeration systems".

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FEATURES

- For up to max. 96 PolyGard® sensors of the PolyGard®II and µGard®II series
- Sensors can be connected in digital (RS 485) and/or analog (4 to 20 mA) mode.
- For monitoring toxic, combustible or refrigerant gases, temperature and humidity
- Simple and comfortable commissioning by configuration with standard parameters
- Monitoring of the connected warning devices for functionality and discontinuity
- Monitoring of the UPS battery for charge condition and functionality
- Expansion Module with integrated repeater function
- Logical system menu
- Flexible configuration thanks to programmable parameters and set-points
- Four free adjustable alarm thresholds per sensor
- 6 menu languages free adjustable
- Several alarm relays configurable per alarm
- Adaptation of the sensor communication (digital and/or analog) in the menu
- Stored alarms resettable via a digital input
- Temporary locking of sensors possible for the customer
- Alarm release selectable for falling or increasing gas concentrations
- Connector for DGC 06-EasyConf at the controller module
- Max. 32 relays with change-over contact, potential-free, max. 250 VAC, 5A
- Fault relay with change-over contact, potential-free, max. 250 VAC, 5A
- Max. 16 analog outputs, 4 to 20 mA
- Max. 7 EP-05 modules (= 32 analog inputs) connectable
- EN 50545 conform
- Shapely, durable housing
- Option: Housing lockable
- Option: Integrated UPS
- Option: Flashing light at power failure
- Option: Integrated buzzer
- Option: USB port for data logger function, for all measured values and alarms/ faults
- Option: Serial interface with ModBus protocol for the connection to BMS etc.
- Option: Serial interface TLS protocol

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SPECIFICATIONS

Electrical	
Power supply	110/230 VAC 50/60 Hz; 24 VAC/DC -10% + 20%
Power consumption (incl. sensors)	Min. 30 W, 0.15 A Max. 160 W, 0.7 A Depending on type and configuration
Analog input (4 to max. 96)	4 to 20 mA, overload and short-circuit- protected, input resistance 200 Ω
Tension for external analog sensors	24 VDC, max. 50 mA /per sensor
Analog output (max 12) configurable for each input	4 to 20 mA, overload and short-circuit- protected, max. load 500 Ω
Alarm relay (max. 30)	250 VAC, 5 A, potential-free, change-over SPDT
Fault relay (1)	250 VAC, 5 A, potential-free, change-over SPDT
Visualization	
LCD	Two lines, 16 characters each, illuminated
Status LED (4)	Operation – Fault – 1st alarm – ≥ 2nd alarm
Operation	6 push-buttons
Menu language (selectable)	German, English, Dutch, USA, French, Swedish
Interface field bus	
Transceiver	RS 485 / 19200 Baud
Gases	
Gas Sensors PolyGard®II and µGard®II	Toxic, combustible and refrigerant gases
Environmental	
Humidity	15 – 95 % RH non-condensing
Working temperature	- 5 °C to + 40 °C (23 °F to 104 °F)
Storage temperature	0 °C to + 40 °C (32 °F to 104 °F)
Physical	
Enclosure	Plastic housing with view cover
Colour	RAL 7035 (grey)
Protection class	IP 65
Weight	Min. 2.7 kg (4.4 lb) Max. 13 kg (28,7 lb) depending on type
Mounting	Wall mounting
Cable entry	M 16; M 20; M 25
Dimension Type 1 (XS) (W x H x D)	298 x 260 x 140 mm (11.7 x 10.2 x 5.5 in.)
Dimension Type 2 (S) (W x H x D)	298 x 420 x 140 mm (11.7 x 16.5 x 5.5 in.)
Dimension Type 3 (M) (W x H x D)	298 x 570 x 140 mm (11.7 x 22.4 x 5.5 in.)
Dimension Type 4 (L) (W x H x D)	410 x 655 x 140 mm (16.1 x 25.8 x 5.5 in.)
Wire connection: Power supply	Screw type terminal: 2.5 mm^2 (14 AWG)
Output	2 x spring type terminal: min. 0.5, max. 1.5 mm^2 (22 to 16 AWG)
Input	Spring type: 0.5 to 1.5 mm^2 (22 to 16 AWG)
Guidelines	
	EMC – Directive 2004/108/EC; Low voltage directive 2006/95/EC VDI 2053 EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1
Warranty	One year on material

Options	
UPS	
Battery backed supply for controller and sensors	Supply duration 60 minutes, maintenance-free rechargeable batteries with functional monitoring and deep discharge protection
Housing	Plastic housing with view cover
Colour	RAL 7035
Protection class	IP 65
Weight	Min. ca. 3.8 kg (6.6 lb) Max. ca. 7.2 kg (15.4 lb) (depending on type)
Mounting	Wall mounting
Cable entry	M 16; M 20
Dimensions: (W x H x D)	298 x 260 x 140 mm (11.7 x 10.2 x 5.5 in.) 410 x 285 x 140 mm (16.1 x 25.8 x 5.5 in.) (depending on type)
Flashing light at power failure	Battery backed LEDs
Operation duration	10 h (flashing)
Warning buzzer	
Acoustic pressure	85 dB (distance 1000 mm)
Frequency	3.5 kHz
Data Logger	
Function	Storage of measured values, of alarm status and faults with time and date stamp on an USB stick
Log rate	Log rate adjustable from 10 to 10,000 sec.
Data format	Output of the data in standard Excel format
Interface ModBus RTU RS 485	
Function	Transmission of all current and average values, of status alarm relays and analog inputs to external devices in ModBus RTU RS 485 protocol format
Communication module BACnet 05	Technical data, function and protocol see datasheet DB-BAC
Print Communication module PR-05	Technical data, function and protocol see datasheet DBPrint05

	Options
1XXXXXX	Power failure flashing light
X1XXXXX	Warning buzzer
XX1XXXX	Cable entry from below[2]
XX2XXXX	Cable entry from below and above[2]
XXX1XXX	Housing lockable
XXXX1XX	Data Logger function & USB stick
XXXXX1X	Interface ModBus RTU RS 485
XXXXX4X	Interface TLS protocol RS 485
XXXXXX?	Communication module BacNET 05[3]
XXXXXX?	Print communication module PR-05[3]

[2] Standard is from above
[3] Respect place requirement in the housing, number code see data sheet

ORDERING INFORMATION

Special versions[4]

DGC-X6-XX-X-X-0-X-XXXXXXX-XX

[4] Is defined by MSR-E

Number of EP05 modules	Alarm-relays	Analog inputs	Analog outputs	Space unit A	Space unit B
0	04	04	02	0	
1	08	08	04	3	
2	12	12	16	6	
3	16	16	08	9	
4	20	20	10	12	
5	24	24	12	15	
6	28	28	14	18	
7	32	32	16	21	

Option		
	Per LON Coupler	3
	Communic. Module BacNET	1
	Print Module PR 05	1
	UPS	1
	Connector Module	Integrated in GC-06 module
	Repeater Modules	Integrated in EP-06 module

Housing dimension				
1	2	3	4	8
2	8	14	23	---
Max. space unit				

⇑

⇒ Max. space unit = space unit A & space unit B

⇑

Space unit B

[7] Metal housing on request

Field bus / Protocol	
05	RS 485 / DGC06
15	RS 485 / MSR_D_Bus

Number of PolyGard®II µGard®II sensors	Power unit/ UPS [8] 1 Pow.unit 4.5 A	2 Pow.unit 6.5 A	3 UPS 2.2 Ah	4 UPS 7.2 Ah
	Max. current for supply of external devices (mA)[9]			
16	2000	3400	600	3000
32	1000	2700	2.2 Ah UPS not allowed	2400
48	4.5 A power unit not allowed	2000		1700
64		1200		1000
80		500		300
96		0		0

[8] Higher capacity or without power unit – on request
[9] Only for supply of external warning buzzers and warning lights.

WIRING CONFIGURATION

(Example DGC-06)