PolyGard® Door Entrance Module DEM-06

Door Entrance Module for DGC-06 Gas Controller Series

User Manual

May, 2018

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Door Entrance Module DEM-06

1 Intended Use

For installation and commissioning it is essential to observe the user manuals for DGC-06 as well as the "Guidelines for wiring and commissioning of the hardware of DGC-06".

The door entrance module DEM-06 is used for warning of gases at the entrance of closed rooms.

The DEM-06 is connected to the field bus of the DGC-06 gas controller. Depending on the configuration, the warning is output as text message / optically / acoustically.

The free adjustable parameters enable a very flexible use in the gas measuring technique. Simple and comfortable commissioning is possible thanks to the configuration with pre-set parameters.

Configuration, parameter settings and operation are done via the logical, easy system menu structure without specific programming knowledge.

The intended sites within the ambient conditions as specified in the Technical Data 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 module DEM-06 must not be used in potentially explosive atmospheres.

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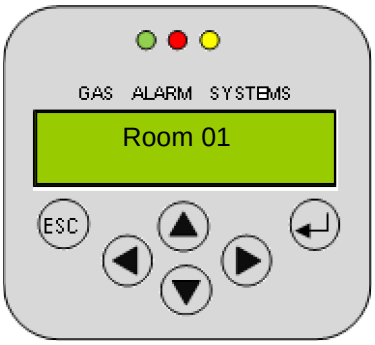
2 Operating Instruction

The complete operation and configuration are made via the keypad in combination with the LC display screen.
The key ESC is also used for acknowledging the external buzzer.



2.1 Function of the Keys and LEDs on the Operator Panel

ESC — Returns to the previous menu level.
Resets internal buzzer.

Enters submenus, saves parameter settings.

Scrolls within a menu, changes values.

Moves the cursor.

The LEDs display the operating state.
Green continuously on: = Operating voltage
Yellow continuously on: = Fault
Red: = Alarm

The background lighting of the display changes from green to red when an alarm is active.

2.2 Setting / Changing Parameters or Set points

Open desired menu window.
Code window opens automatically, if no code level approved.
Save the changed value. Confirm storage (ENTER).

After input of the valid code the cursor jumps on the first position segment to be changed.

Push the cursor onto the position segment, which has to be changed.

Change the parameter / set point with these keys.

ESC — Cancel storage / Exit / or back to previous menu level (ESCAPE function).

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2.3 Code Level

All inputs and changes are protected by a four-digit numeric code (= password) against unauthorised intervention. All menu windows are visible without entering a code.

The release of a code level is cancelled if no button is pushed within 5 minutes.

2.4 Function

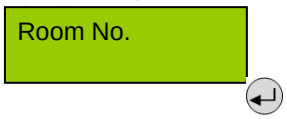
The door module comes not only with three status LEDs (no alarm, alarm and fault), but also with an LC display for displaying text messages about the status of the gas detection system. The status LEDs, text messages, internal buzzer and open collector outputs are activated via the status information of the alarm or signal relays of the GC-06 controller. The door module only needs the assignment of the actuators to the alarm and signal relays of the gas controller.

If a DEM06 is used in master mode together with stand-alone devices, the settings must be made from the point of view of DGC06.

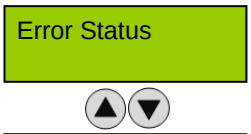
3 Menu Overview

The parameterisation of the DEM-06 is done via the following menu with the levels:

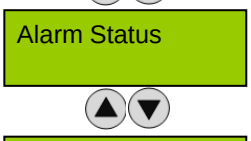
Starting menu:



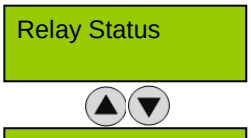
Display of the room no.
If any measured values are released, these are displayed instead of the room no. in a scrolling way. If no single measuring point is released, then the measured values of all addresses available on the bus are scrolled.



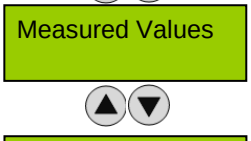
Error status display of the measuring points registered at the DEM-06
See 3.1



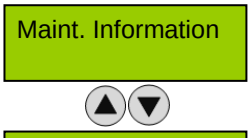
Alarm status display of the measuring points registered at the DEM-06
See 3.2



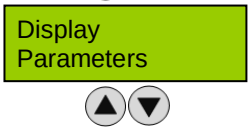
Relay status display of the DGC-06 relays assigned at the DEM-06.
See 3.3



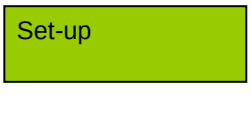
Display of the analog and digital measuring points assigned at the DEM-06
See 3.4



Maintenance information of the connected devices
See 3.5



General display parameters
See 3.6



Assignment of the DEM-06 actuators to the DGC-06 alarm and signal relays
Registration of analog and digital measuring points, input of the texts.
See 3.7

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3.1 Fault Management

A pending error activates the yellow LED (Fault).

Text display of occurred faults of the analog and digital measuring points registered at DEM-06 as well as of alarm and signal relays - without intervention possibility. The fault handling is only possible on the GC 06 controller. If DEM06 is in master mode and connected to stand-alone devices, the fault handling must take place on the local devices.

Error messages only at the DEM-06:

Communication missing: No communication to the DGC-06 field bus

Cause: Defect in the fieldbus wiring

Remedy: Perform wiring according to the "Guidelines for wiring and commissioning of DGC-06 hardware"

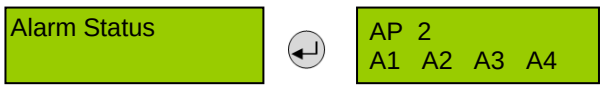
ARXX or SRXX Comm. error: AR or SR was assigned that were not activated in the DGC-06 system.

Cause: Inactive relay assigned

Remedy: Change assignment

3.2 Alarm Status

Display of the currently pending alarms of the analog and digital measuring points registered at the DEM-06. Only those measuring points are displayed, where at least one alarm is active.



Symbol	Description	Function
AP1	Measuring Point No.	Analog measuring point: 1 = 1 – 32, where an alarm is pending
DP1	Measuring Point No.	Digital measuring point: 1 = 1 –96. where an alarm is pending
A1 'A1 "A1	Alarm status	Alarm generated in the DGC-06 Alarm generated in the local device Alarm in latching mode

3.3 Relay Status

Reading of the current status of the DGC-06 relays assigned in the DEM-06 (alarm and signal relays)
The actual status of the relay is displayed here depending on the relay mode (energized <>de-energized)

Symbol	Description	Function
AR 1	DGC-06 Relay	AR 1: Alarm Relay: 1 = 1 - 32 SR 1: Signal Relay: 1 = 1 - 96
ON	Relay status	ON: Relay coil is energized OFF: Relay coil is not energized.

3.4 Menu Measured Values

In this menu, the display shows the current value with gas type and unit for each analog and digital measuring point registered in the menu MP parameters. If the average value is enabled in the DGC-06 system, the display shows the average value (A) to the left of the current value (C) in addition.

Symbol	Description	Function
D 1	Measured value	Digital measuring point 1 = 1 - 96
A 1	Measured value	Analog measuring point 1 = 1 - 32
CO	Gas type	Display of the gas type
ppm	Gas unit	Display of the unit
A	Average value	Arithmetic average of gas concentration
C	Current value	Current value of gas concentration
A!	Alarm	At least one alarm triggered at this measuring point
#	Maint. info	Maintenance of sensor head due
?	ConfigError	MP with incompatible configuration to DGC-06
Comm. error	Fault MP	Communication error, sensor head <> I/O Board
Underrange	Range monitoring	Measuring signal < admissible range (< zero point – 6 %)
Overrange		Measuring signal > admissible range (> full scale value + 6%)
Locked	MP locked	MP was temporarily locked by the operator.
Warm-up	Warm-up time	Warm-up time of the sensor head is active.

3.5 Maintenance Information

The DEM-06 module displays the maintenance information of the measuring points registered at the DEM-06 in the same form as the DGC-06 gas controller.

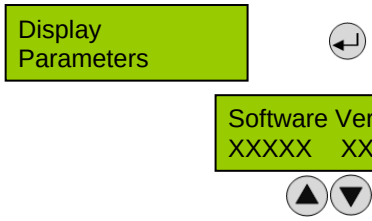
Measuring points where maintenance is due are marked with # in the measured values menu.

For further information, the time in days when the next sensor is due for maintenance is displayed in a separate window. If several sensors are connected, the shortest time is always displayed. In the submenu you can scroll through the display of all the measuring points activated on the DEM-06 in order to determine the sensors, which will have to be serviced soon.

Display of the respective residual terms until due maintenance of all sensors registered at the DEM-06

3.6 Display Parameters

Selection of menu language and display of software version.

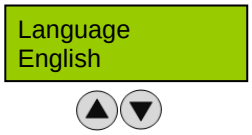


On the left: Display of the DEM-06 software version
On the right: Display of the GC-06 software version

The following menu languages can be selected in the DEM-06:
German, English, USA English, French, Italian

Note:

In the "Info Message" menu, texts must be entered in the selected menu language. There is no automatic adjustment.



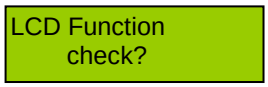
In this menu, the "default" password for the access authorization in the Set-up menu can be replaced by an individual password.

Note:

In the event of a loss of the individual password the access is not possible any longer. A reset to the "standard password" is only possible directly at the manufacturer.

Enter the valid code: "ENTER", then enter new code
ENTER: Code has been changed.

Testing the LCD hardware: For about two seconds, all the LEDs are lit. The backlight is yellow (green and red are activated simultaneously). All points are displayed on the LCD.

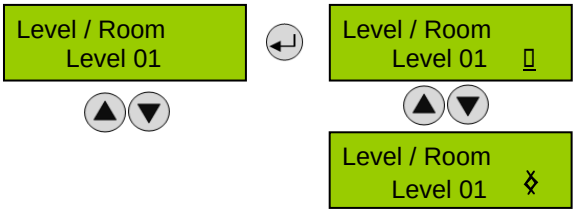


3.7 Set-up

Registration of analog and digital measurement points.
Assignment of the actuators to the alarm and signal relays.
Input of texts.

3.7.1 Level / Room

Allows you to set the text (max. 15 characters) for the area to be monitored. The default is 'Level 01'. The text is displayed in the main menu.



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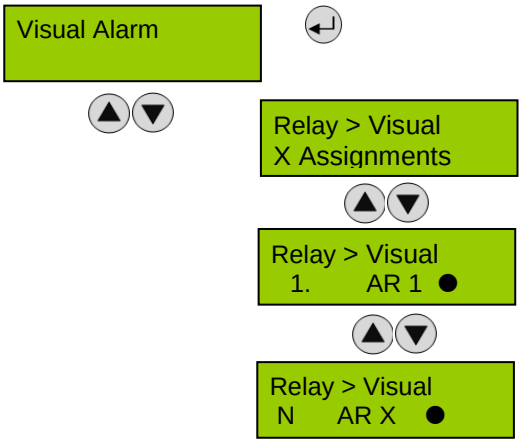
Symbol	Description	Function
▯	Control character: Text input	Input of the text (15 characters) with the direction keys. You can set the following characters: (A-Z); (a-z); (+); (,); (-); (.); (/), (0-9); (!); (?)
⧖	Control character: Shift	Moving the text to the left or right in order to center the text. Activate ⧖, then shift the text with ◀▶

3.7.2 Visual Alarm

Assignment of the red alarm LED to max. 30 alarm / signal relays on the DGC-06 system. The operating mode (energized or de-energized) of the alarm / signal relay must also be adjusted. The display color changes from green to red and the red LED lights up when at least one relay is in the alarm mode.



X = Number of assignments for alarm / signal relays
The appropriate number of menu windows is enabled.

Assign the virtual alarm to the 1st alarm / signal relay.

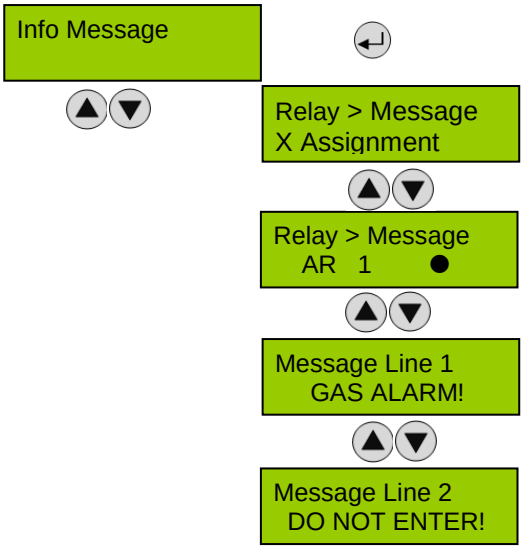
Assign the virtual alarm to the nth alarm / signal relay.

Symbol	Description	Function
AR 1	DGC06 relay	AR 1: Alarm relay 1 = 1 – 32 SR 1: Signal relay 1 = 1 - 96
●	Mode	● DGC-06 relay mode: energized ○ DGC-06 relay mode: de-energized

3.7.3 Info Text

Assignment of the “Info message” to the max. 30 alarm / signal relays of the DGC-06 system. The operation mode (energized or de-energized) of the alarm /signal relays has to be set here as well. The “info message appears only in the display, if at least one relay is in alarm mode.

An Info Message is only displayed if the display is in the Starting menu.



X = Number of assignments for alarm / signal relays
The appropriate number of menu windows is enabled.

Assignment of DGC-06 relay to info message
Assignment see chapter Visual Alarm

Input of info message line 1
Text input: See chapter Level/Room
Default text: GAS ALARM!

Input of info message line 2
Text input: See chapter Level/Room
Default text: DO NOT ENTER!

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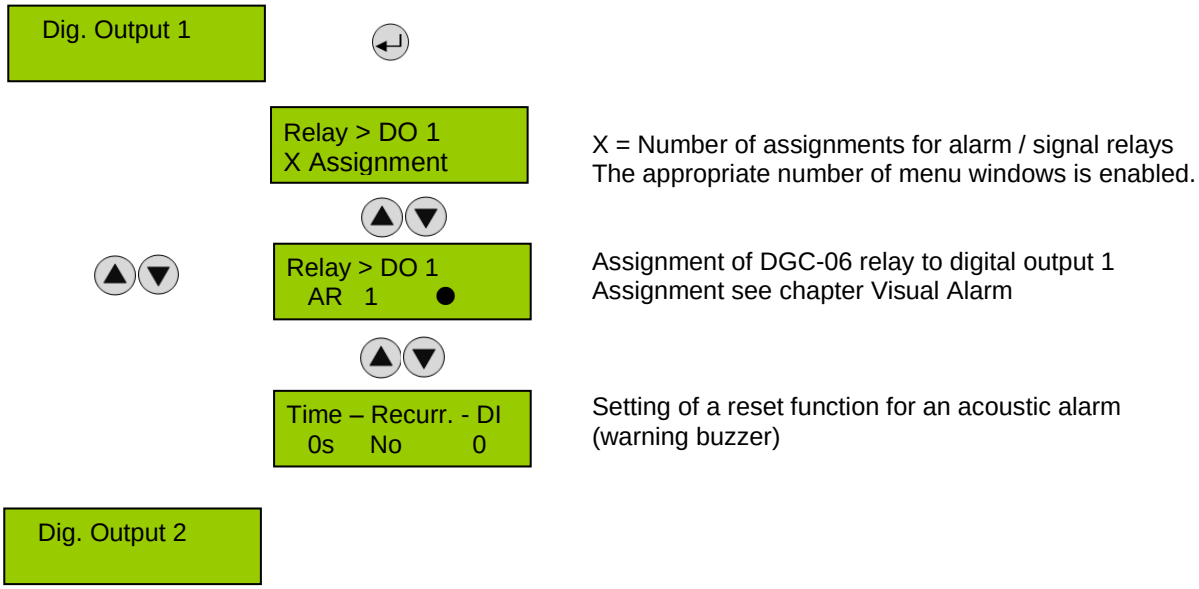
3.7.4 Digital Output 1 and 2

Two open collector outputs are optionally available on the DEM-06 module for activating 24 V DC relays or external 24 V DC warning devices. The assignment and control of these outputs are the same as for the visual alarm or the text message.



Menu guidance and operation identical to digital output 1

3.7.5 Acknowledgement of Digital Output

The reset function is activated if at least one of the two parameters (time or assignment to digital input) is set.

Symbol	Description	Function
Recurrence	Reset mode	No = Reset of the relay after time having run out via DI (external) or by ESC button (only in starting menu) Yes = After reset of the DO, time starts. At the end of the set time, the DO is reactivated (recurrence function).
Time		Enter time for automatic reset function or recurrence function in s 0 = no reset function
DI		Assignment, which digital input will reset the DO. BI X: 1-96; DI X: 1-32, DI 33 = DI of the DEM-06 module

Horn function resettable:

The activated horn can be permanently reset with this function.

The following possibilities to acknowledge are available for the DO as horn relay:

- By pressing the left button (ESC). Only available in starting menu.
- Automatic reset at the end of the preset time (active, if value > 0).
- By an external pushbutton (assignment of the appropriate digital input DI: 1-n).

After successful acknowledgment the horn remains permanently reset until all assigned alarms are inactive. Only then it is triggered anew in case of an alarm.

Acknowledge the DO

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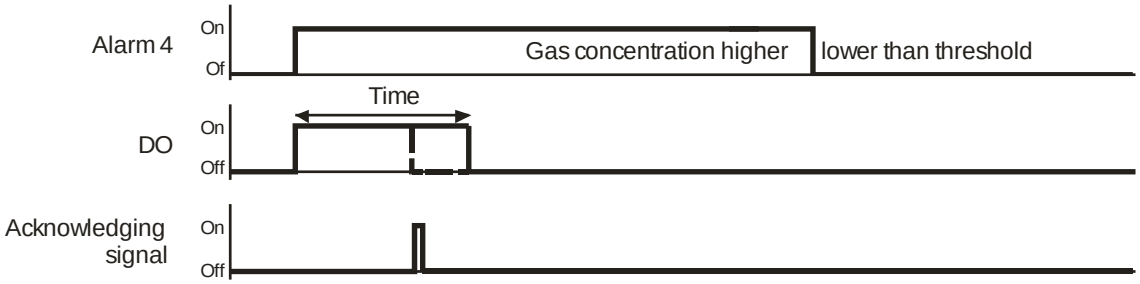
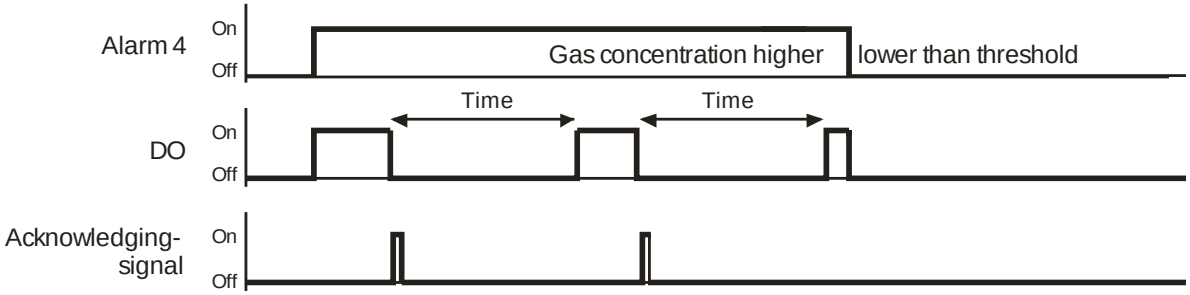


Reset command by timer, external pushbutton or one of the operating keys.

Special horn function: Recurrence

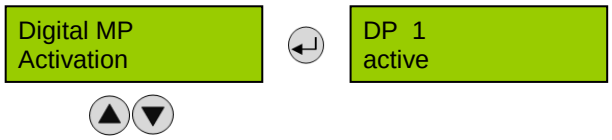
After an alarm has been triggered, the horn will remain active until a reset action is done. After acknowledgment of the DO (by clicking the ESC button or via external input) a timer starts. When this time has run out and the alarm is still acting, the DO is set again. This process is repeated endlessly as long as the associated alarm remains active.



Reset command by timer or one of the operating keys.

3.7.6 Digital MP Parameters

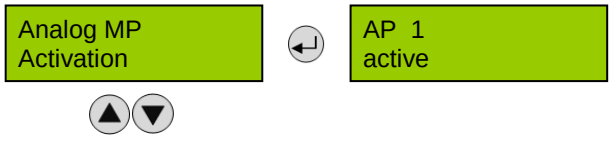
Registration of the digital measuring points the values and messages of which should be displayed in the DEM-06.



Symbol	Description	Function
active	MP Mode	active: DP is registered as active in the DEM-06. inactive: DP is ignored by the DEM-06.

3.7.7 Analog MP Parameters

Registration of the analog measuring points the values and messages of which should be displayed in the DEM-06.



Symbol	Description	Function
active	MP Mode	active: AP is registered as active in the DEM-06. inactive: AP is ignored by the DEM-06.

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4 Mounting/ Electrical Connection

Note: Electronics can be destroyed by electrostatic discharge. Therefore, do not touch the housing without a wrist strap connected to ground or without standing on a conductive floor (acc. to DIN EN100015).

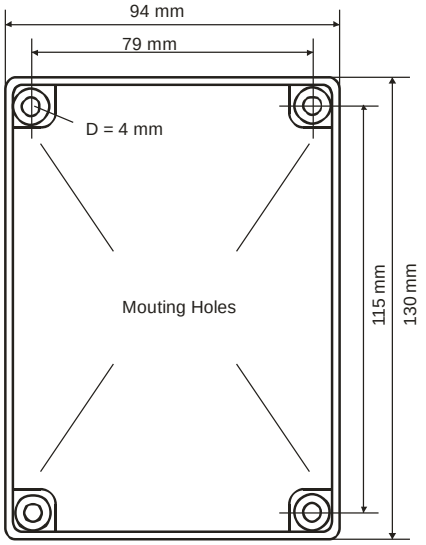
4.1 Mounting Instructions

When choosing the mounting site please pay attention to the following:

- Mount the device well visibly next to the entrance door.
- The recommended mounting height is about 1.6 to 1.8 m (5 to 6 ft.).
- Choose mounting location of the sensor according to the local regulations.

4.2 Installation Work

- The DEM-06 is mounted vertically to the wall at the four mounting points, with the cover hinges always being on the left side. These mounting points are accessible after opening the housing. See illustration.
- When using the pre-embossed attachments on the back, the DEM-06 loses IP 65 protection.
- The dimensions are dependent on the housing type and can be read on the back of the housing.



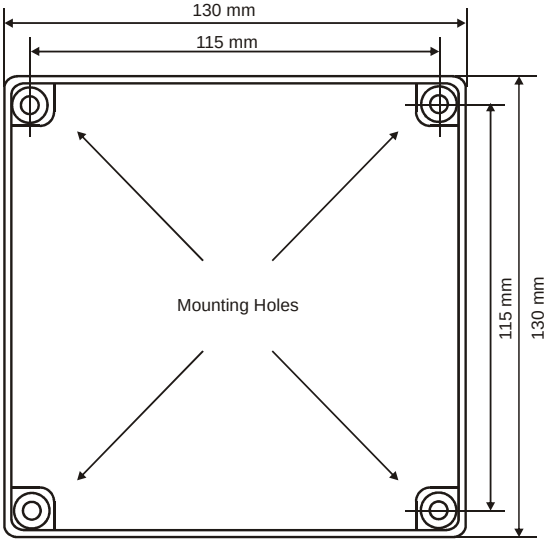


Fig. 01 Standard plastic housing Housing for options

4.3 Electrical Connection

Please observe guidelines concerning electrostatic discharge (ESD)!

Please observe the „Guidelines for wiring and commissioning of the hardware of DGC-06 when wiring and connecting the DEM-06 module.

4.4 Terminal Connection

- Open the cover
- Version Stand Alone:
  Insert cables for operating voltage and field bus, cut them and connect them to X1.
  Connect cables for warning devices and buttons at X2.
- Version Mounting in MSB housing:
  The electrical connection of the operating voltage and the field bus is carried out on the MSB-2 (see MSB2 Instructions for use); the DEM-06 is connected with the prefabricated cable at X12 and at the display connector of the MSB2.

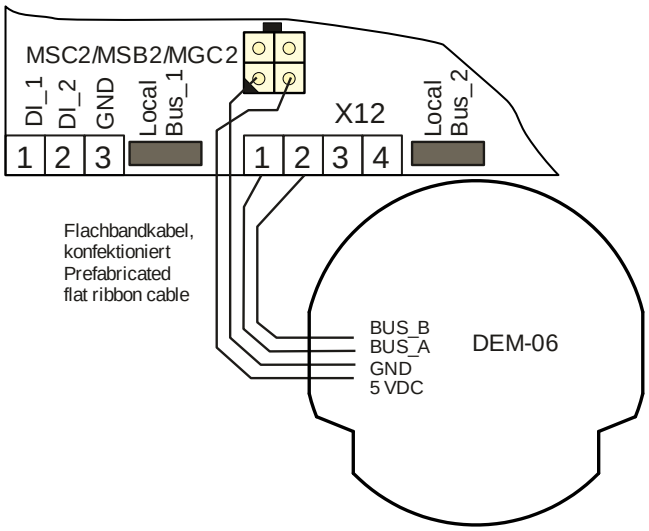
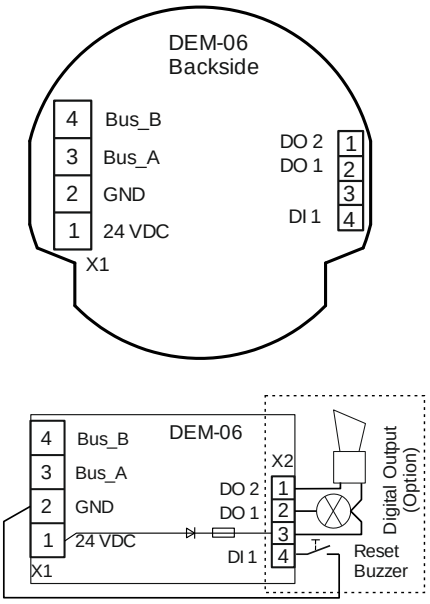


Fig. 02
Connection diagram for version in MSB housing



Connection diagram for version Stand Alone

5 Specifications

Electrical	
Power supply	18 - 28 VDC reverse polarity protected
Power consumption (basic unit w/o options)	40 mA, max. (1.0 VA)
Visualisation	
Display	Two lines, 16 characters each
Status LED (3)	Normal operation- Fault- Alarm
Operation	6 push-buttons – menu-driven
Serial interface	
Transceiver	RS 485 / 19200 Baud
Operating environment	
Humidity	15 – 90 % RH non-condensing
Working temperature	-10 °C to + 50 °C (14 °F to 122 °F)
Storage temperature	5 °C to 30 °C (41 °F to 86 °F)
Pressure range	Atmospheric ± 20 %
Physical	
Enclosure type A (standard) and type C and E (for options)	Polycarbonate
Flammability	UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions (W x H x D) type A type C type E	94 x 130 x 57 mm (3.7 x 5.12 x 2.24 inch.) 130 x 130 x 75 mm (5.12 x 5.12 x 2.95 inch.) 130 x 130 x 99 mm (5.12 x 5.12 x 3.90 inch.)
Weight	Approx. 0.6 kg (1.323 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 1 x M 20
Wire connection	Screw type terminal, min. 0.25, max. 2.5 mm^2 (24 to 14 AWG)
Guidelines	EMC Directive 2014/30/EU Low voltage directive 2014/35/EU Conformity to: EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1
Warranty	1 year on material (without sensor)
Options	
Internal buzzer	
Acoustic pressure	83 dB (A) (distance 200 mm/ 0.6 ft)
Frequency	2300 Hz
Open collector (2)	
Transistor output	24 V DC / 0.1 A, (plus switching)
Digital input (1)	Potential-free contact

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6 Part Disposal

Since August 2005 there are EC-wide directives defined in the EC Directive 2002/96/EC and in national codes concerning the waste electrical and electronic equipment and also regarding this device.

For private households there are special collecting and recycling possibilities. For this device isn't registered for the use in private households, it mustn't be disposed this way. You can send it back to your national sales organisation for disposal. If there are any questions concerning disposal please contact your national sales organisation.

Outside the EC, you have to consider the corresponding directives.

7 Notes and General Information

It is important to read this user manual carefully in order to understand the information and instructions. The PolyGard® DEM-06 gas monitoring, control and alarm system may only be used for applications in accordance to the intended use. The appropriate operating and maintenance instructions and recommendations must be followed.

Due to permanent product developments, MSR-Electronic-GmbH reserves the right to change specifications without notice. The information contained herein is based on data considered to be accurate. However, no guarantee or warranty is expressed or implied concerning the accuracy of these data.

7.1 Intended Product Application

The PolyGard® DEM-06 is designed and manufactured for controlling, for saving energy and keeping OSHA air quality in commercial buildings and manufacturing plants.

7.2 Installers` Responsibilities

It is the installer's responsibility to ensure that all PolyGard® DEM-06 are installed in compliance with all national and local regulations and OSHA requirements. All installations shall be executed only by technicians familiar with proper installation techniques and with codes, standards and proper safety procedures for control installations and the latest edition of the National Electrical Code (ANSI/NFPA70). It is also essential to follow strictly all instructions as provided in the user manual.

7.3 Maintenance

We recommended checking the PolyGard® DEM-06 system regularly. Due to regular maintenance differences in efficiency can easily be corrected.

7.4 Limited Warranty

MSR-Electronic GmbH warrants the PolyGard® DEM-06 against defects in material or workmanship for a period of one (1) year beginning from the date of shipment. Should any evidence of defects in material or workmanship occur during the warranty period, MSR-Electronic GmbH will repair or replace the product at their own discretion, without charge.

This warranty does not apply to units that have been altered, had attempted repair, or been subjected to abuse, accidental or otherwise. The above warranty is in lieu of all other express warranties, obligations or liabilities.

This warranty applies only to the PolyGard® DEM-06. MSR-Electronic GmbH shall not be liable for any incidental or consequential damages arising out of or related to the use of the PolyGard® DEM-06.

Phone: 0049(0)8531/9004-0 Fax: 0049(0)8531/9004-54 Specification subject to change without notice.
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