

GW 702

Gas Warning Device for Chlorine Gas, Chlorine Dioxide and Ozone



EN

02

Operating Manual

Read this operating manual before using the equipment.
To be retained for future reference.

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1. General and Safety Instructions

1.1 General

This operating manual contains basic instructions to be followed during installation, operation and maintenance. It is therefore essential that the Operating Manual be read by the installation technician before installing and commissioning the pump/system, as well as by the relevant operating personnel/operating company of the unit. The Operating Manual must remain accessible at the dosing pump/system for reference at all times. Besides the general safety instructions in this "Safety" section, the special safety instructions in the other sections are also to be followed.

1.2 Identification of safety instructions in the operating manual

This operating manual contains essential safety instructions. Failure to observe this information may endanger other people and the unit. The safety instructions are identified by the following symbols:

WARNING!

Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injury.



CAUTION!

Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.

ATTENTION! or NOTICE!

Failure to comply with this safety instruction may result in damage to the device and endanger its operation.

IMPORTANT!

This refers to additional information to facilitate operation and ensure the smooth running of the equipment.

Notices attached directly to the unit, such as e.g. cable markings must definitely be observed and kept in completely legible condition.



1.3 Personnel qualifications and training

The personnel employed for operation, maintenance, inspection, and installation must be suitably qualified for this work. The responsibilities, areas of competence and personnel supervision must be clearly defined by the operating company. Personnel who do not have the required know-how must be duly trained and instructed. If necessary, this can also be done by the manufacturer/supplier on behalf of the operating company. In addition, the operating company must also ensure that the relevant personnel are fully familiar with and have understood the contents of the operating manual.

1.4 Important safety instructions

Basic safety precautions should always be followed when installing and using this electrical equipment. These include the following:

READ AND FOLLOW ALL INSTRUCTIONS!

WARNING!

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.



WARNING!

Risk of electric shock. Connect the device only to a SCHUKO socket outlet protected by a ground fault circuit interrupter (GFCI). Contact a qualified electrician if you cannot verify that the connector is protected by a GFCI.

Do not bury the cable. Secure the cable to avoid damage by lawn mowers, hedge trimmers and other equipment.



WARNING!

To reduce the risk of electric shock, replace the cable immediately if damaged.

WARNING!

To reduce the risk of electric shock, do not use an extension cable to connect the device to the power supply; use an appropriately located socket.

KEEP THESE INSTRUCTIONS IN A SAFE PLACE!

1.5 Hazards due to failure to follow safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device. Failure to follow the safety instructions may invalidate any damage claims.

Non-compliance with the safety instructions may give rise to the following hazards:

- Failure of major functions of the device.
- Danger to persons due to electrical, mechanical and chemical effects.

1.6 Safety awareness at work

The safety instructions contained in this operating manual must be observed. The operating company is responsible for ensuring compliance with local safety regulations. Any faults that could affect safety must be rectified immediately.

1.7 Safety instructions for the operating company/operator

A safe and ecologically beneficial disposal of process materials as well as replacement parts must be ensured. (Legal requirements must be observed)

Risks from electric power must be excluded (for further details, refer to the VDE¹⁾ regulations and the requirements of the local public utilities as well as section 1.4).

1) VDE = Association of German Electrical Engineers

1.8 Safety instructions for inspection, maintenance and installation work

The operating company must ensure that all maintenance, inspection and installation work is carried out by authorised and duly qualified personnel, who have read and understood this operating manual.

Before carrying out installation and maintenance works, always make sure that the unit is disconnected from power supply. The device must be prevented from being switched on again during the above work. Only in this state may additional modules be mounted or removed and connections be made. Non-compliance can result in damage to the unit and invalidate the warranty. All safety and protective equipment must be reattached and activated immediately after the work has been completed.

1.9 Unauthorised modification and production of spare parts

The device may only be modified or converted in consultation with the manufacturer. If errors and hazards result during operation due to incorrect configuration of the unit, any liability is excluded.

Use only the manufacturer's spare parts and sensors. Otherwise the warranty is invalidated.

2. Before start-up

2.1 Proper intended use

The device is intended for the following purpose only: monitoring and displaying combustible and/or toxic gases as well as oxygen. Operating safety is guaranteed only if the device is used for its intended purpose. All other types of use are prohibited and will invalidate the warranty. The operating conditions described in chapter 5 "Technical Data" must be observed!

2.2 Scope of delivery

IMPORTANT!

Carefully unpack the product and any accompanying accessories, so that no small parts are left inside the packaging. Compare the delivery content with the delivery note immediately. If there are any discrepancies, determine the cause.

The scope of delivery includes:

- Measurement amplifier GW 702
- 1 or 2 sensor elements (depending on version)
- 1 or 2 sensor holders, incl. 10 m cable (depending on version)
- 2 or 4 pipe clamps d25 (depending on version)
- Operating Manual

2.3 Start-up procedure

- Reading the operating manual
- Assembly and installation (section 6)
- Checking the function (see chapter „12 Check function“ on page 22).

2.4 Part numbers

Part No.	Description
23600250	Gas warning device GW 702 for chlorine gas, 1 sensor
23600251	Gas warning device GW 702 for chlorine gas, 2 sensors
23600252	Gas warning device GW 702 for chlorine dioxide, 1 sensor
23600253	Gas warning device GW 702 for chlorine dioxide, 2 sensors
23600254	Gas warning device GW 702 for ozone, 1 sensor
23600255	Gas warning device GW 702 for ozone, 2 sensors



3. Functional range

The gas warning device is a stationary measuring, control and warning device that is in continuous operation and is used to measure toxic gases. It consists of several components that act as a single unit. It is both reliable and easy to assemble and maintain.

The gas warning device is part of the safety system for gas conducting systems and can be used with the following gases:

Measuring gas
Chlorine gas (Cl ₂)
Chlorine dioxide (ClO ₂)
Ozone (O ₃)

Table 3.1: Measuring gas, other gases on request

Case of application: Chlorine Gas

The sensor is installed in the chlorine gas room; at a freely accessible location approx. 30 cm above the floor. Chlorine gas is heavier than air and descends when it escapes. The sensor detects escaped chlorine gas. The changed electrical behaviour of the sensor is registered by the measurement amplifier. On the measurement amplifier this is indicated as chlorine content in the air. If the alarm thresholds set have been exceeded, alarm conditions are displayed or relays switched to notify the relevant persons.

3.1 Measurement amplifier GW 702

The measurement amplifier GW 702 is the central control unit and is installed where it can be accessed by operators. It allows measurements to be checked and alarm thresholds set.

It evaluates the electrical behaviour of the sensor. The digital display shows the gas content of the air in the monitored room.

The configuration of the measurement amplifier is possible without sensor connected.

3.2 Sensor

The sensor consists of

- Sensor holder with 10 m cable
- Sensor element

It has a robust and corrosion-proof housing for industrial applications.

IMPORTANT!

The length of the cable must neither be extended nor shortened.

The sensor is an electronic measuring cell that works according to the electro-chemical principle. The sensor element on the sensor holder can be replaced easily.

3.3 Power supply backup system (accessory)

The backup system is a uninterruptible power supply (battery) that feeds the gas warning device system in the event of a power failure. This supply will keep the device working for approximately 10 hours.



4. Dimensioned drawings

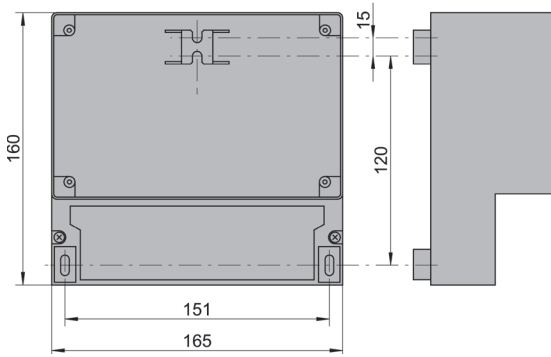


Fig. 4.1: Measurement amplifier GW 702

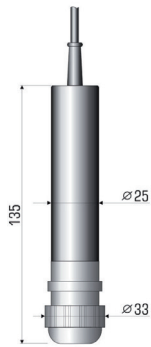


Fig. 4.2: Sensor holder

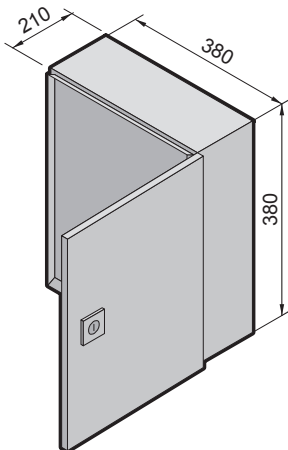


Fig. 4.3: Power supply backup system (accessory)

5. Technical data

Measurement amplifier GW 702			
Supply voltage	230 V AC +6/-10 %, 50/60 Hz alternatively 110 V AC, 50/60 Hz		
Power consumption	10 VA		
Fuse	230 V: T(S) 63 mA, 5 x 20 mm 110 V: T(S) 125 mA, 5 x 20 mm		
Display	LCD display <ul style="list-style-type: none"> • 2 x 16 characters, lit • Display of measured value, switching states of relays, status information of sensor and alarm • Menu language German, English, French and Spanish 		
Controls	Keypad with 5 keys		
Relay	3 contacts, 6 A, 250 V AC, potential-free Max. 550 VA ohmic resistive load (with RC protective circuit, suppression element) <ul style="list-style-type: none"> • Relay 1, fixed assigned sensor 1 and sensor 2 • Relay 2, fixed assigned sensor 1 and sensor 2 • Relay 3 (alarm), freely assignable sensor 1 and / or sensor 2 		
Analogue output	0/4 ... 20 mA, galvanically isolated max. working resistance 500 Ω to be assigned sensor 1 or sensor 2		
Number of sensors	Max. 2		
Alarm thresholds	2 limits, pre-configured, freely adjustable		
	Chlorine (Cl ₂)	Chlorine dioxide (ClO ₂)	Ozone (O ₃)
Limit 1	2 ppm	0.2 ppm	0.2 ppm
Limit 2	9.5 ppm	1 ppm	1 ppm
Digital input	1		
Interface	RS 485 (option)		
Signal generator	-		
Dimensions (W x H x D)	165 x 160 x 80 mm		
Installation	Wall assembly		
Housing material	ABS		
Protection class	IP 65		
Weight	~ 1.0 kg		
Cable entry point	PG connections 3x M12 x 1.5 (cable diameter 3 ... 6 mm) 3x M16 x 1.5 (cable diameter 5 ... 10 mm)		
Connections	Spring terminals for cable up to max. 1.5 mm ²		
Operating temperature	0 ... 50 °C		
Storage temperature	-20 ... +65 °C		
Air humidity	0 ... 90 % rH, non-condensing		

Sensors			
Measuring gas	Chlorine (Cl ₂)	Chlorine dioxide (ClO ₂)	Ozone (O ₃)
Measuring range	0 ... 9.99 ppm	0 ... 1 ppm	0 ... 1 ppm
Measuring principle	Electro-chemical cell. Two or more electrodes arranged in an electrolyte. An electro-chemical reaction takes place at the electrode. The sensor supplies a measuring current, which is proportional to the corresponding gas concentration in the air. In the measurement amplifier this current is calculated with the corresponding sensor slope and displayed as measured value in ppm.		
Reaction time	approx. 30 s		
Dimensions (L x ø)	135 x ø 33 mm		
Housing material	PVC		
Protection class	IP 54 (except for gas inlet)		
Weight	approx. 0.2 kg		
Cable	10 m		
Ambient temperature	-10 ... +40 °C		
Storage temperature	-10 ... +40 °C		
Air humidity	10 ... 90 % rH, non-condensing		
Air pressure	900 ... 1100 hPa		
Service life	2 years, depending on the operating conditions		

Power supply backup system (accessory)	
Override time	max. 10 h
Changeover time	2 ... 6 ms
Power supply	220 / 230 / 240 V AC, 50/60 Hz
Mains output supply	230 V AC $\pm 10\%$, 50/60 ± 1 Hz
Output rated current	2.2 A
Protection	<ul style="list-style-type: none"> • Overload • Full discharge • Short circuit • Overtemperature
Charge time	8 h
Battery	12 V DC, 7 Ah, maintenance-free, 3 ... 5 years service life
Interface	USB, RS 232
Ambient temperature	0 ... 45 °C
Storage temperature	0 ... 45 °C
Air humidity	0 ... 90 % rH, non-condensing
Housing	Steel sheet, powder-coated, lockable
Dimensions (W x H x D)	380 x 380 x 210 mm
Protection class	IP 66
Weight	approx. 18 kg

6. Assembly and Installation

ATTENTION!

Electrical connections must only be performed by specialist personnel in accordance with relevant installation requirements.



ATTENTION!

Make sure the device is de-energised when working on it. The power supply must only be switched on after assembly and electrical connections have been completed.



IMPORTANT!

Note the power supply specified on the rating plate.

IMPORTANT!

Where possible, a continuous cable from sensor to the measuring input should be used. An extension of the cable by plugs or terminal sockets increases the risk of faults caused by contamination, humidity or excessive transition resistances.

ATTENTION!

Input, output and control lines and cables must always be kept separate. In particular, they must be routed away from power circuit lines!



NOTE!

All cables must be routed to protect them from mechanical damage. Strain relief must be provided near the cable entry point.

Stray interference will falsify the measurement. Power supply and measuring lines at close proximity should only cross at a 90° angle. The permissible length of the measuring cables must be adhered to with regard to the sensor used. When measuring ensure that the (plug) connections are clean and dry and that the lines do not become brittle due to sharp buckling. The shielded cables normally used for such measuring lines must be of the quality specified.

6.1 Measurement amplifier GW 702

The electrical installation for the gas warning device must contain a separating device (e.g. an automatic circuit breaker) to ensure reliable separation from the power supply.

The device is designed for a fixed installation connected to a power supply of 230 V /AC. The device corresponds to protection class I in accordance with EN 60335 and must be connected to a protective earth conductor (PE).

When connecting to the relays, note that inductive loads must be dejammed. If this is not possible, the strip relay contact on the device terminal must be protected by an RC protective circuit / suppression element. For DC voltage the relays or contactor coil must be dejammed with a freewheeling diode.

RC protective circuit / suppression element			
	Current	Capacitor C	Resistor R
	< 60 mA	10 nF 260 V	390 Ohm 2 Watt
	< 70 mA	47 nF 260 V	22 Ohm 2 Watt
	< 150 mA	100 nF 260 V	47 Ohm 2 Watt
	< 1 A	220 nF 260 V	47 Ohm 2 Watt

ATTENTION!

The assembly location must be selected so that the device is not subject to any mechanical load or chemical exposure in any way.



- First, remove the terminal cover.
- Prepare three drill holes (max. M5).
- Take into account at the top hole, that you can suspend the device or push it under.
- To suspend it, set the top hole 120 mm above the two lower holes.
- To push it under, the distance must be 135 mm.
- In both cases the screw must protrude at least 3 mm.
- Suspend the device on the top screw or push it underneath.
- Fix it with the two lower screws.
- Re-attach the terminal cover or proceed directly to the connections.

6.2 Sensor

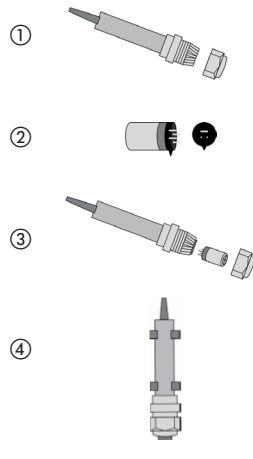
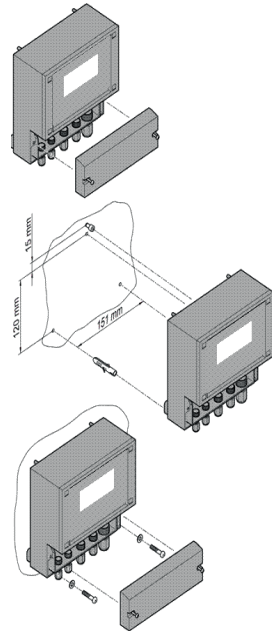
- Up to 2 sensors can be connected to the measurement amplifier GW 702.
- The connection of a sensor takes place by means of the shielded 3-wire cable attached to the sensor holder.

IMPORTANT!

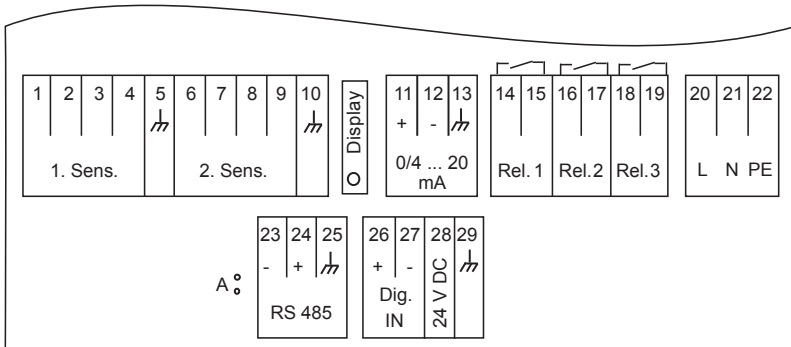
The length of the cable must neither be extended nor shortened.

- All input and output wires and cables must be shielded. The shielding must be applied on one side only.
- The gas inlet of the sensor must be kept clear of dust and contamination.
- The wall mounting is carried out with the sensor opening facing down, close to the ground (at a height of approx. 30 cm).
- During assembly make sure that the sensor remains accessible for maintenance work.
- Keep a minimum distance of 10 cm between the sensor opening and other fixtures.

- ① Unscrew the O-ring of the sensor holder.
- ② Take the sensor element from the separate packaging and remove the transport protection. (shorting jumper).
- ③ Fit the sensor element into the sensor holder without force. Note, that the correct seating position is indicated by a groove. Ensure that the connecting pins are not bent. Check the correct seating of the seal and screw on the union nut again.
- ④ Mount the completed sensor perpendicular with two mounting brackets, with the sensor element facing down, about 30 cm above the ground. Ensure that the sensor is not subjected to any strong wind, heat or direct sunlight and that the sensor element can not get wet at any time.



6.3 Wiring diagram

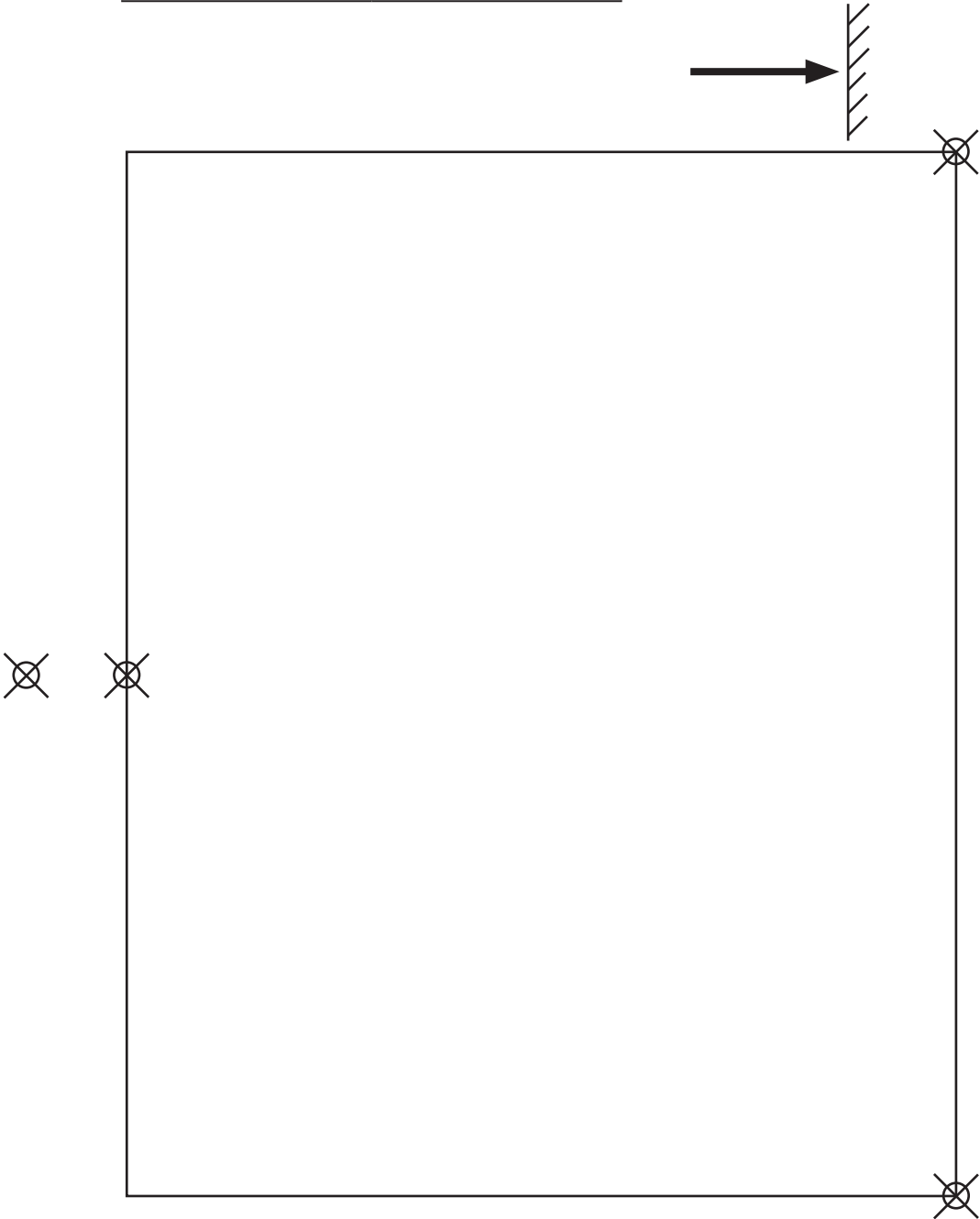


Terminal	Connection	Note	
1	Sensor 1	Shielding	
2		green (GN)	Measuring electrode
3		brown (BN)	Reference electrode
4		white (WH)	Counter electrode
5	GND	Ground	
6	Sensor 2	Shielding	
7		green (GN)	Measuring electrode
8		brown (BN)	Reference electrode
9	white (WH)	Counter electrode	
10	GND	Ground	
Display	Display contrast	Trimmer for adapting the display contrast	
11	Analogue output	+	0/4 ... 20 mA, max. working resistance 500 Ω
12		-	
14 / 15	Relay 1	Make contact (N.O.), configurable	
16 / 17	Relay 2		
18 / 19	Relay 3 (Alarm)		
20 ... 22	Power supply		
23	RS 485 (option)	A (-)	Interface
24		B (+)	
A		Jumper plugged = load resistor activated	
26	Digital input	+	Potential-free
27		-	
28	24 V DC	Output for switch	
29	GND	Ground	

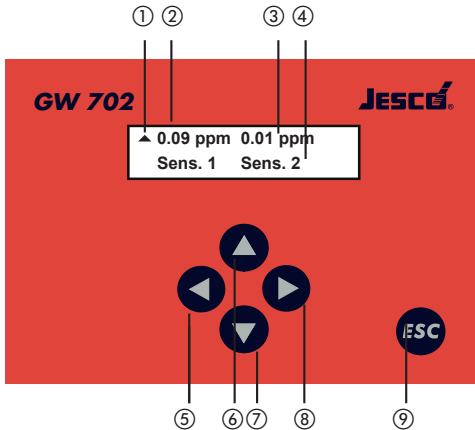
Fig. 6.1: Wiring diagram for measurement amplifier GW 702

6.4 Drill template

	Width x height
Measurement amplifier GW 702	151 x 120 + 15 mm



7. Operation



- ① Orientation aid
- ② Measured value sensor 1
- ③ Measured value sensor 2
- ④ Status display
- ⑤ Key left (◀)
- ⑥ Key up (▲)
- ⑦ Key down (▼)
- ⑧ Key right (▶)
- ⑨ "ESC" key

After switching on, the device first indicates the measured values of sensor 1 and if applicable sensor 2. Any possible alarm messages present are indicated in the second line.

Move in the menu with the help of the operating keys:

With the key ▼ you switch from the display of the measured value to the main menu.

With the keys ▲ and ▼ you scroll up and down.

The key ▶ is used to select a menu or a parameter.

The key ◀ is used to exit a menu and save data.

For better orientation there are various triangles visible in the display. They are intended to serve as orientation aid and specify, in which direction you can move from your respective position.

The "ESC" key brings you back to the measured value display at any time.

7.1 Setting parameters

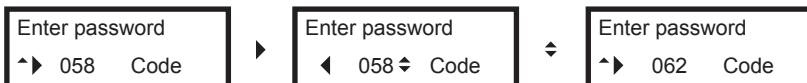
1. When selecting a parameter the current setting is displayed.
2. Switch to the next alternative by pressing the key ▶.
3. When you have paged through all alternatives, with a renewed press of the key ▶ the original setting is displayed again.

Selection of alternatives

Often for a parameter you must only select between various alternatives. For this you only need the key ▶. With that you page from one alternative to the next, until you arrive at the starting point again or have reached the required alternative.

With these parameters, any change becomes effective immediately. You do not need to save the setting extra.

1. Select the parameter by pressing the key ▶.
2. A double triangle appears behind the number and indicates, that the number can now be changed with the keys ▲ and ▼.
3. When you have set the required value, save your setting by pressing the key ◀. The double triangle disappears - the new value is saved.



Setting numerical parameters

Numerical parameters can basically only be changed when a double triangle is visible behind the number. This double triangle first becomes visible when one selects the number with the key ▶.

Change the number with the keys ▲ and ▼. A short key press increases or decreases the last digit by 1. If you keep the key pressed longer, the numerical value begins to run and keeps changing until you release the key.

Save your setting by pressing the key ◀.

The double triangle disappears.

NOTE!

If you do not wish to save, instead of key ◀ press the "ESC" key.



7.2 Menu Overview

To switch from the measured value display to the main menu, press the key ▼. Select menu item with key ▶. Start the menu with key ▶.

Measured value display	Main menu	Basic settings	Service
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Preselect M1 Preselect M2 Enter password Sensor test Basic settings Service	Sensor 1 Sensor 2 Analogue output Language No. of RS 485 Select Alarm	Product Info Analogue Inputs Relay Test Erase Settings

- In the main menu you will find all functions that are used regularly.
- The menu Basic Settings contains the parameters that are set during start-up.
- In the menu Service you will find all functions for service and maintenance.

7.3. Code

Before you can undertake any settings, you must first enter the corresponding password code:

Measured value display ▼ Main menu ▶ Enter password

Code	Access to the parameters in the menus
11	Preselect M1, Preselect M2, Sensor Test
86	Basic Settings, Service
others	no access

7.4 Language

There are various languages available for the device. Code 86 is required for the setting.

Measured value display ▼ Main menu ▶ Basic Settings ▶ Language

Presently the languages German, English, French and Spanish are installed.

8. Configuration

Measured value display	Main menu	Preselect M1 / M2	Sensor Info
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Preselect M1 Preselect M2 Enter password Sensor test Basic settings Service	Sensor Info Limit value 1 Limit value 2 Turn-on delay	Sensor slope nA/ppm
	Basic settings Sensor 1 Sensor 2 Analogue output Language No. of RS 485 Select Alarm	Sensor 1 / 2 Sensors -----	

The GW 702 can be operated with two sensors. When delivered the devices are preset to one or two sensors. If you subsequently connect a second sensor, you must then activate Sensor 2 in the menu Basic Settings.

IMPORTANT!

The gas sensors do not need to be calibrated. For the adaptation the slope is printed on the housing of every sensor. This value is to be set in the main menu.

The function of the sensor is controlled automatically and electronically at specified intervals. In addition a sensor test can be triggered manually at any time.

8.1 Sensors

Selection options for Sensor 1 and Sensor 2:

Selection	Sensor for measuring gas
-----	No sensor connected
Chlorine	Chlorine gas (Cl ₂)
Chlorine dioxide	Chlorine dioxide (ClO ₂)
Ozone	Ozone (O ₃)

- In the menu Basic Settings, select the menu item "Sensor 1". The current sensor type for Sensor 1 is displayed.
- Switch to the next alternative by pressing the key ►. Press the key until you have found the required sensor type.
- Exit the menu item with the key ▲ or ESC.

To set up Sensor 2 proceed as for Sensor 1.

NOTE!

The menu items "Preselect M2" and "Sensor 2" only appear with Sensor 2 activated. The measured value display adapts likewise.



8.2 Sensor Slope

Every sensor element has the sensor slope printed on the label at works. This is to be adapted in the main menu.

1. In the main menu, select the menu item "Preselect M1".
2. Select the menu item "Sensor Info". The current slope of the sensor is displayed.
3. Press the key \blacktriangleright and set the value specified on the sensor element with the help of the keys \blacktriangle and \blacktriangledown . Confirm with the key \blacktriangleleft .

To set up Sensor 2 proceed as for Sensor 1.

8.3 Sensor Test

Measured value display	Main menu	Sensor test	
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Preselect M1 Preselect M2 Enter password Sensor test Basic settings Service	Test Interval h	
	Basic settings	Select Alarm	Alarm Sens.Test
	Sensor 1 Sensor 2 Analogue output Language No. of RS 485 Select Alarm	Alarm Sens.Test Value 1 Sens. 1 Value 2 Sens. 1 Value 1 Sens. 2 Value 2 Sens. 2 Direction	Alarm Sens.Test On

Automatic Sensor Test

The device automatically checks electronically the signal of the sensor. The time interval between two successive tests can be specified in hours in the main menu under "Sensor Test".

All switching functions of the sensor are disabled during the approx. 5 sec. test. In the display the message "Sensor Test" is displayed. If a sensor is electrically faulty or not connected, the error message "Fault Sensor 1" or "Fault Sensor 2" appears.

If you have activated the Alarm Sensor Test in the Basic Settings under "Select Alarm", the alarm relay, relay 3, also switches if the test is unsuccessful.

NOTE!

With a setting of zero hours, "0 h", the function is deactivated.

Manual Sensor Test

In addition a sensor test can be triggered manually at any time.

1. If the device is not in the measured value display, press the key "ESC".
2. Press the key \blacktriangle .
3. Press the key \blacktriangleright to start the sensor test.

NOTE!

The sensor test is not accessible if an alarm is present.



9. Operating Modes

Operating states of the measurement amplifier GW 702.

Power-up phase

The connected sensor can deliver undefined values to the measurement amplifier GWZ 702 directly after the system has powered up. This situation can lead to false alarms. All alarm messages are therefore blocked for approx. 20 seconds after power-up or after a voltage interruption with a start delay.

Data logging

The data logging of the measurement amplifier GW 702 takes place automatically. The status is not indicated in the display. The measured values of the sensors are visible over the menu Service (see section 13).

Sensor test

The device automatically checks electronically the signal of the sensor. The time interval between two successive tests can be specified in hours in the main menu under "Sensor Test". (see section 8.3)

Alarm

Two alarm thresholds can be set, Limit Value 1 and Limit Value 2. When the alarm thresholds are exceeded, instead of the measured value display the display indicates "Erase Alarm, press key ▶".

With key ▶ the alarm is acknowledged manually and the relay is switched.

10. Relays

With three relays external devices can be controlled or information can be forwarded.

- Two limit values / alarm thresholds can be set per sensor.
- On reaching limit value 1, of sensor 1 or sensor 2, relay 1 is switched. This is not self-locking and returns when the level falls below limit 1 again.
- On reaching limit value 2, of sensor 1 or sensor 2, relay 2 is switched. This is self-locking and does not return when the level falls below limit 2 again.
- Relay 3 (Alarm) can be assigned to all four limit values at the same time: Limit value 1 and 2 of sensor 1 and of sensor 2. In the standard setting the limit values 2 of sensor 1 and sensor 2 are switched on.

The limits are pre-set depending on the model, see table 8.1.

NOTE!

CODE 86 is necessary for changes to the parameters and settings.



Limit Value	Chlorine gas	Chlorine dioxide	Ozone
1	2 ppm	0.2 ppm	0.2 ppm
2	9.5 ppm	1 ppm	1 ppm

Tab. 10.1: Preset limit values for each measuring gas

Relay	Limit value	Delay time	Self-locking	Acknowledgement	Use
Relay 1	1	No delay	No	Can be manually acknowledged immediately	Optical signal generator
Relay 2	2		Yes	Can be acknowledged immediately externally via digital input. Can only be acknowledged manually when the level falls below limit 2.	Sprinkler with acknowledgement via door contact.
Relay 3 "Alarm"	-, 1 or 2 (Standard: 2)		No	Can be manually acknowledged immediately	Acoustic signal generator

Tab. 10.2: GW 702 measurement amplifier relays

Example

If relay 2 activates the sprinkler, and a door contact is connected to the digital input, then in case of alarm the sprinkler will be switched off as soon as the maintenance personnel enters the room. The display shows "Door Contact". If limit value 2 is still exceeded when the door is closed, relay 2 switches again.

10.1 Action in the event of an alarm or fault

Limit value 1

When limit value 1 is exceeded there is a minimum gas concentration present. Appropriate action must be taken immediately.

CAUTION!

Repair work may only be started when the concentration has dropped below limit value 1.

Limit value 2

When limit value 1 is exceeded the endangered area and all surrounding rooms must be evacuated. The actions listed in the health and safety regulations and chlorine alarm plans must be taken. If a limit value is exceeded, the message "Limit value exceeded" appears in the display.

Instead of the measured value display, the display indicates "Erase Alarm, press key ▶".

With key ▶ the alarm is acknowledged manually and the relay is switched.

NOTE!

Through the manual acknowledgement only the relay is switched. The alarm message is still displayed until the cause of alarm has been eliminated.



10.2 Configuration

Measured value display	Main menu	Preselect M1/2	Limit value 1/2
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Preselect M1 Preselect M2 Enter password Sensor test Basic settings Service	Sensor Info Limit value 1 Limit value 2 Turn-on delay	Limit value 1 ppm
	Basic settings Sensor 1 Sensor 2 Analogue output Language No. of RS 485 Select Alarm	Select Alarm Alarm Sens.Test Value 1 Sens. 1 Value 2 Sens. 1 Value 1 Sens. 2 Value 2 Sens. 2 Direction	Value 1/2 Sens. 1/2 Value 1 Sens. 1 Off Direction Direction Alarm = Rel On

Limit values

Setting under measured value display ▼ Main menu ▶ Preselect M1/2 ▶ Limit value 1/2

Delay per sensor for limit value 2

Fixed delay time between exceeding the limit value and switching the relay.

Setting under measured value display ▼ Main menu ▶ Preselect M1/2 ▶ Limit value 1/2

Relay 3 ("Alarm") allocation

Setting under measured value display ▼ Main menu ▶ Basic Settings ▶ Select Alarm ▶ Value 1/2 Sens 1/2

Alarm Sensor Test Allocation

Activation of relay 3 with unsuccessful sensor test under Main Menu ▶ Basic Settings ▶ Select Alarm

Direction

You determine with the direction, whether relay 3 is normally open (make contact, N.O.) and closes in case of an alarm or vice versa (break contact, N.C.). In the second case the relay is held active in its normal position. This way an alarm is raised even during a power failure.

10.3 Relay Test

Manual test of the relays under measured value display ▼ Service ▶ Relay Test ▶ Test Rel. 1/2/3

11. Analogue Output and Interface

Measured value display	Basic settings	Analogue output	No. of RS 485
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Sensor 1 Sensor 2 Analogue output Language No. of RS 485 Select Alarm	0/4 mA Select Output Sens. 1 or 2	Bus Address No. 00

11.1 Analogue output

Via the analogue output you can read out the measured values of a sensor, sensor 1 or 2, as 0/4 ... 20 mA signal. With the setting 4 ... 20 mA the resolution is indeed lower, but defective cable connections can be detected immediately.

Measured value display ▾ Main Menu ▶ Basic Settings ▶ Analogue Output

Select between 0 ... 20 mA and 4 ... 20 mA.

Select between Sensor 1 and Sensor 2.

11.2 Interface

The units are optionally available with an RS 485 interface. This is used for service purposes only.

12 Check function

Perform operational checks of the sensor and alarm threshold limits upon commissioning. The operational check involves checking the sensor and the amplifier switch points with the gas used.

Perform the following checks:

- Check the sensor using a sensor test.
- Operational check of the switching steps for alarm activation. For this the sensors are to be impinged on with test gas with a concentration above limit value 2.
- Operational check of the relay contacts.
- Operational check of the optical and acoustic warning devices.

13. Maintenance

Maintenance by a competent person is essential for testing and maintaining the functionality of the system. Maintenance involves inspection, calibration and adjustment as well as a function test of the entire gas measuring system.

ATTENTION!

Regular inspection and functional testing must be carried out on the supplied GW 702 measuring, monitoring and warning system at maximum 6-monthly intervals. National regulations or local standards may also apply.



Proper maintenance is the responsibility of the system's operating company. The results of the maintenance work should be documented if this is not already required by the prevailing regulations.

NOTE!

Prior to carrying out the functional test ensure that steps have been taken to prevent accidental triggering and forwarding of alarms.



Check the alarm relays regularly to ensure that in the event of a fault both the device's indicators and the recording of the higher-level controller (PLC etc.) are working.

Maintenance includes:

- The check of the sensor by means of a sensor test
- Operational check of the switching steps for alarm activation. For this the sensors are to be impinged on with test gas with a concentration above limit value 2.
- Operational check of the relay contacts
- Operational check of the optical and acoustic warning devices.

13.1 Replacing the sensor

The sensor element in the sensor holder is subject to ageing and wear, the extent of which depends largely on the prevailing conditions at the place of application. For this reason the sensor element is excluded from the warranty as a wearing part. The service life of a sensor element is approximately two years. After this time all sensor elements in operation should be replaced.

It is to be ensured when replacing a sensor element, that the new sensor element is suitable for the application and matches the device settings.

When starting up or exchanging the sensor element, the slope specified on the sensor element is to be set in the device (see section 8.2). That also applies, if not the sensor element, but rather the measurement amplifier GW 702 is replaced.

IMPORTANT!

The sensor element must not be used beyond the specified usability date. The sensor elements are to be stored cool and dry until used.



13.2 Calibrating the sensor

ATTENTION!

The sensor is calibrated at works. Any unqualified changes made to the settings will deactivate operation.

The GW 702 gas warning device is factory-calibrated prior to delivery. If calibration is required, it must only be performed by authorised specialist personnel.



13.3 Functional test of the sensor with test gas application

- To test the zero point ambient air is used (free of measuring gas, without flammable substances), otherwise synthetic air.
- Only certified test gases may be used within their shelf life.
- The actual concentration must be known to 2% relative to the bottle value.
- The test gas concentration is in the middle of the measuring range or slightly above the maximum alarm threshold, at any rate below the measuring range limit.
- Test duration: 0.5 to 1.0 l/min via calibration adapter for at least 2 minutes
- Further information: DIN EN 45544-4, BG Chemical information BGI 836 (bulletin T021). In addition there are national regulations for determining maintenance intervals.

13.4 Replacing the fuse

The devices are equipped with an internal fuse that can be replaced if required. A spare fuse is included in the scope of supply. It is located in the terminal cover.

1. To replace the fuse, unscrew and lift up the front of the device. The fuse is located in the lower right area. It is held in place on with a bayonet catch.
2. Turn the catch anticlockwise, until the fuse jumps out.
3. Replace it with the spare fuse and fix it in place by turning the catch clockwise.
4. Replace the front of the device and screw it firmly.

WARNING!

Ensure that the device is de-energised before opening it.



13.5 Display Contrast

For devices in wall-mounted housing the display contrast can be adapted to the actual lighting conditions by means of a potentiometer. The potentiometer is marked in the wiring diagram with "Display".

13.6 Power supply backup system (accessory)

The backup system battery is maintenance-free.

13.7 Disposal

The equipment was manufactured in accordance with the ROHS guideline and the waste electrical equipment legislation. The manufacturer will take care of disposal if the equipment is returned free of charge. It should not be disposed of as domestic waste!

14. Service

Measured value display	Main menu	Service
0.09 ppm 0.01 ppm Sens. 1 Sens. 2	Preselect M1 Preselect M2 Enter password Sensor test Basic Settings Service	Product Info Analogue Inputs Relay Test Erase Settings

Measured value display ▼ Main Menu ▶ Service

In the Service menu you will find information which is especially important for any inquiries, additions, updates or problems.

Product Info

This data enables an unambiguous identification of the device (Hardware and Software).

Analogue Inputs of the Sensors

Here you see which data the device receives from the sensors. This raw data is not influenced by compensations and calibration and provides important information, when problems arise with measurement or device operation.

Relay Test

In the menu Relay Test, every relay can be switched off manually.

1. Select the corresponding relay in the menu Relay Test with the keys ▲ and ▼.
2. To switch the relay, simultaneously press the keys ◀ and ▶. As long as you keep both keys depressed, the relay is switched.

Erase Settings

With this function you can erase all settings performed and restore the original delivery state.

The procedure takes a few seconds. The device then switches back automatically to the measured value display.

15. Spare parts

Part No.	Description
78656	Measurement amplifier GW 702
78657	Sensor holder, incl. 10 m cable
13606	Pipe clamp d 25 PE
Accessories	
23600131	Power supply backup system
78009	External horn
77214	Strobe
77215	Flashing light
Wearing parts	
78658	Sensor element for GW 702, chlorine gas
78659	Sensor element for GW 702, chlorine dioxide
78673	Sensor element for GW 702, ozone

Device revision

This operating manual applies to the following devices:

Device and model	Revision status	Device ID	S/N
GW 702	11/2009	> 8534	> 271B0000203

It contains all the technical information required for installation, start-up and maintenance. Should you have any questions or require further information regarding this operating manual, please contact the manufacturer or its official national representative.

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Warranty claim

Please copy and enclose with the unit.

If the device fails during the warranty period, please clean it and return, accompanied by the completed warranty claim form.

Sender

Company:..... Telephone: Date:

Address:.....

Contact person:

Manufacturer order No.: Date of delivery:

Device type:..... Serial number:.....

Nominal delivery rate/Nominal pressure:.....

Fault details:.....

.....

.....

Type of fault:

1. Mechanical fault

Premature wear

Wearing parts

Breakage/other damage

Corrosion

Damage in transit

2. Electrical fault

Loose connections such as connectors or cables

Controls (e.g. switches / buttons)

Electronics

3. Leaks

Connections

Dosing head

4. No or inadequate operation

Diaphragm defective

Other

Operating conditions of the device

Application site / site description:.....

Accessories used if any:.....

.....

.....

Setup (date):.....

Runtime (approx. number of operating hours):.....

Please indicate the specific features of the installation and enclose a simple sketch showing materials, diameters, lengths and heights.

EU-Konformitätserklärung

Der Unterzeichnete Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, bestätigt, dass die nachfolgend bezeichneten Geräte in der von uns in Verkehr gebrachten Ausführung die Anforderungen der harmonisierten EU-Richtlinien, EU-Sicherheitsstandards und produktspezifischen Standards erfüllen. Bei einer nicht mit uns abgestimmten Änderung der Geräte verliert diese Erklärung ihre Gültigkeit.

(EN) EU Certificate of Conformity

The undersigned Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, hereby certifies that, when leaving our factory, the units indicated below are in accordance with the harmonised EU guidelines, EU standards of safety and product specific standards. This certificate becomes void if the units are modified without our approval.

(FR) Certificat de conformité aux directives européennes

Le constructeur, soussigné: Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, déclare qu'à la sortie de ses usines le matériel neuf désigné ci-dessous était conforme aux prescriptions des directives européennes énoncées ci-après et conforme aux règles de sécurité et autres règles qui lui sont applicables dans le cadre de l'Union européenne. Toute modification portée sur ce produit sans l'accord express de Jesco supprime la validité de ce certificat.

(ES) Declaración de conformidad de la UE

El que suscribe Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, declara que la presente mercancía, objeto de la presente declaración, cumple con todas las normas de la UE, en lo que a normas técnicas, de homologación y de seguridad se refiere, En caso de realizar cualquier modificación en la presente mercancía sin nuestra previa autorización, esta declaración pierde su validez.

(NL) EU-overeenstemmingsverklaring

Ondergetekende Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, bevestigt, dat het volgende genoemde apparaat in de door ons in de handel gebrachte uitvoering voldoet aan de eis van, en in overeenstemming is met de EU-richtlijnen, de EU-veiligheidsstandaard en de voor het product specifieke standaard. Bij een niet met ons afgestemde verandering aan het apparaat verliest deze verklaring haar geldigheid.

(HU) EG (EK)– Egyezőségi nyilatkozat

A Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark ezúton kijelenti, hogy a szóban forgó termék annak tervezése és szerkezeti módja, valamint forgalomba hozott kivitele alapján a vonatkozó alapvető biztonság technikai és egészségügyi követelményeknek és az alábbi felsorolt EG –irányelveknek minden szempontból megfelel. A terméken engedélyünk nélkül végrehajtott módosítások következtében jelen nyilatkozat érvényét veszíti.

(PT) Certificado de conformidade da UE

Os abaixo mencionados Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, por este meio certificam que ao sair da fábrica o aparelho abaixo mencionado está de acordo com as directrizes harmonizadas da UE, padrões de segurança e de produtos específicos. Este certificado ficará nulo se a unidade for modificada sem a nossa aprovação.

Bezeichnung des Gerätes:	Gaswarngerät
Description of the unit:	Gaswarning device
Désignation du matériel:	Decteur de fuite de chlore gazeux
Descripción de la mercancía:	Detector de Gaz cloro
Omschrijving van het apparaat:	Gas-waarschuingsapparaat
A termék megnevezése:	Gáz figyelmeztető készülék
Designação do aparelho:	

Typ / Type / Tipo / Típusjelölés:	EU-Richtlinie / EU directives/ Directives européennes / Normativa UE / EU-richtlijnen / Vonatkozó EG-irányelvek / Directrizes da UE	Harmonisierte Normen / harmonized standards / Normes harmonisées / Estándares acordemente / Toegepaste normeringen / Hatályos normák / Normas harmonizadas
GW 601		EN 50081-1 : 01.92
GW 404		
GW 504	2006/95/EG	EN 50081-2 : 08.93
GW 702	2004/108/EG	

Notes

Notes

