

GW 601

Gas Warning Device for Chlorine Gas, Chlorine Dioxide and Ozone



EN

02

Operating instructions

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 wire references, must be observed and kept in a fully 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 cord. 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 non-compliance with the safety instructions

Failure to comply with the safety instructions may endanger not only people, but also the environment and the unit. Failure to follow the safety instructions may invalidate any damage claims.

The following hazards in particular may result:

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

1.6 Safe operation

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

Consumables and replacement parts must be disposed of safely and in an environmentally friendly manner. (Legal requirements must be observed).

Risks from electric current must be excluded (for further details, refer to the VDE¹ regulations and the regulations of the local public utilities).

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 then may additional modules be mounted or removed and connections 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

Modifications and conversions require prior consultation with the manufacturer. Genuine spare parts and accessories authorised by the manufacturer ensure greater safety. No liability can be accepted for any damage resulting from the use of non-Lutz-Jesco parts.

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

2. Before using the equipment

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:

- Gas warning device GW 601
- Transmitter, including sensor
- 5 m cable
- Operating instructions

2.3 Start-up procedure

- Reading the operating manual
- Assembly and installation (section 6)
- Test (section 12)

2.4 Part numbers

Part no.	Description
23600201	GW 601 gas warning device for chlorine gas
23600211	GW 601 gas warning device for chlorine dioxide, 0...1 ppm
23600212	GW 601 gas warning device for chlorine dioxide, 0...2 ppm
23600221	GW 601 gas warning device for ozone, 0...1 ppm
23600222	GW 601 gas warning device for ozone, 0...2 ppm

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:

Transmitter	Measuring gas
CM 601	Chlorine gas (Cl_2)
DM 601	Chlorine dioxide (ClO_2)
OM 601	Ozone (O_3)

Table 3.1: Measuring gas, other gases on request

Chlorine gas application

The CM 601 transmitter 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 electronic system of the CM 601 transmitter records the sensor signal and converts it into an impressed current of 4 – 20 mA which is transmitted to the GW 601 gas warning device. The 4 ... 20 mA signal is evaluated in the gas warning system GW 601 and displayed 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 601

The measurement amplifier GW 601 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.

The gas warning system receives the 4 ... 20 mA signal from the transmitter and evaluates it. The digital display shows the gas content of the air in the monitored room.

The gas warning system can be configured without the transmitter being attached.

3.2 Transmitter

The transmitter consist of

- a sensor block (sensor and sensor guard)
- an evaluation and amplification electronic system (sensor board)

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

The sensor is an electronic measuring cell that works according to the electro-chemical principle. The sensor block in the transmitter is easy to replace.

The transmitter allows for monitoring, calibration and adjustment. The sensor board converts the sensor signal into a 4 ... 20 mA analog signal. The connecting cable supplies power to the sensor circuit board and transmission of the measurements.

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

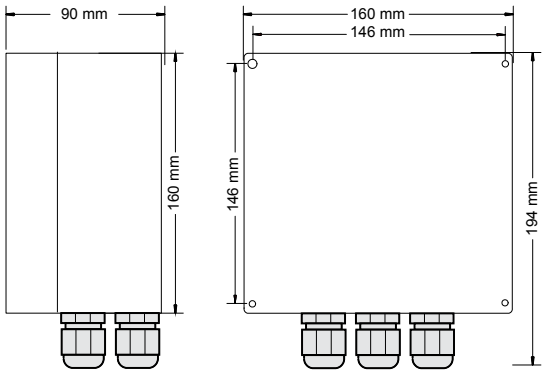


Fig. 4.1: Gas warning device GW 601

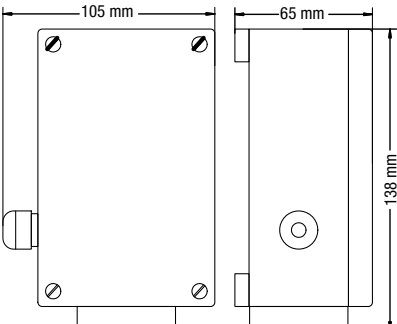


Fig. 4.2: Transmitter

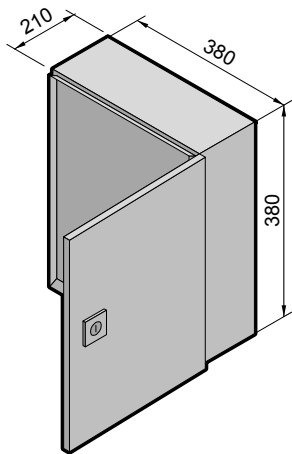


Fig. 4.3: Power supply backup system (accessory)

5. Technical data

Gas warning device GW 601			
Voltage supply	230 V AC 50 Hz		
Power consumption	max. 18 W		
Internal fuse	F 160 mA, 5 x 20 mm		
Display	LCD display: <ul style="list-style-type: none"> • 4 x 20 characters, lit • Displays measurements, messages and alarms • Bar chart to display measuring gas concentration • Menu language German and English LED: <ul style="list-style-type: none"> • Red for alarm 1 • Red for alarm 2 • Green for operation • Orange for fault 		
Controls	Keypad with 4 keys		
Relays	4 changeover contacts, 250 V AC, 5 A, potential-free, programmable self-locking Max. 550 VA ohmic resistive load (with RC protective circuit, suppression element) <ul style="list-style-type: none"> • Alarm 1 • Alarm 2 • Fault • Horn 		
Analogue output	4 ... 20 mA, max. working resistance 500 Ω Corresponds to the measuring signal from the transmitter provided it lies within the 1.5 ... 22.5 mA range.		
No. of transmitters	max. 1		
Alarm thresholds	2 limits, pre-configured, freely adjustable		
	Chlorine (Cl ₂)	Chlorine dioxide (Cl ₂ O)	Ozone (O ₃)
Limit value 1	2 ppm	0.2 ppm	0.2 ppm
Limit value 2	10 ppm	1 ppm	1 ppm
Digital input	-		
Interface	RS 232 / RS 485		
Signal generator	Internal horn		
Additional functions	Alarm blocking in service mode		
Dimensions (W x H x D)	160 x 194 x 90 mm		
Installation	Wall assembly		
Housing material	ABS		
Protection class	IP 54		
Weight	~ 1.0 kg		
Cable entry point	PG connections 1x M20 x 1.5 (cable diameter 7 ... 13 mm) 5x M16 x 1.5 (cable diameter 5 ... 10 mm)		
Connections	Screw-type terminals for cables up to maximum 1.5 mm ²		
Ambient temperature	-10 ... +40 °C		

Storage temperature	-25 ... +60 °C
Air humidity	15 ... 90 % rH, non-condensing

Transmitter			
Measuring gas	Chlorine (Cl ₂)	Chlorine dioxide (Cl ₂ O)	Ozone (O ₃)
Measuring range	0 ... 10 ppm	0 ... 1 ppm or 0 ... 2 ppm	0 ... 1 ppm or 0 ... 2 ppm
Measuring principle	Electro-chemical cell. Two or more electrodes arranged in an electrolyte. An electro-chemical reaction takes place at the electrode. It generates an electrical current which is proportional to the concentration in the measuring gas.		
Power-up phase	60 s constant current of 0.8 mA		
Reaction time	approx. 30 s		
Stabilisation time	60 min (90%), 24 h (99%)		
Supply voltage	24 ± 6 V DC		
Power consumption	40 mA / 1 W		
Measuring signal	4 ... 20 mA, linear, max. working resistance 500 Ω 4 mA = zero point, 20 mA = measuring range limit		
Dimensions (H x W x D)	126 x 82 x 60 mm		
Housing material	Cast aluminium (painted) / PTFE, high frequency shielded		
Protection class	IP 54 (except for gas inlet)		
Weight	approx. 0.5 kg		
Cable entry point	M16 x 1.5 (Cable diameter 59 mm)		
Cable	3-wire, 0.8 mm ² , shielded, core resistance 18 Ω, max. 1000 m		
Ambient temperature	-10 ... +45 °C		
Storage temperature	-20 ... +45 °C		
Air humidity	15 ... 90 % rH, non-condensing		
Air pressure	900 ... 1100 hPa		
Service life	2 years, depending on the operating conditions		
Self-monitoring	If an error is detected during the automatic checks, the output current is set to 1.1 mA. The yellow LED indicates a fault on the GW 601 gas warning device.		

IMPORTANT!

Avoid prolonged operation in dry atmospheres. Permanent exposure to H₂S will damage the sensor.



Power supply backup system (accessory)	
Override time	Max. 10 h
Changeover time	2 ... 6 ms
Voltage 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 • Excess temperature
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 601

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.

When assembling make sure there is clear access to the device.

6.2 Transmitter

- A transmitter can be connected to the GW 601 gas warning device.
- The transmitter is connected via a shielded 3-wire cable.
- 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.
- Wall assembly is with the sensor opening facing down, close to the ground (approx. 30 cm high) with two screws (max. Ø 4 mm) and only with the cover open.
- During assembly make sure that the transmitter is accessible for maintenance work.
- Keep a minimum distance of 10 cm between the sensor opening and other fixtures.

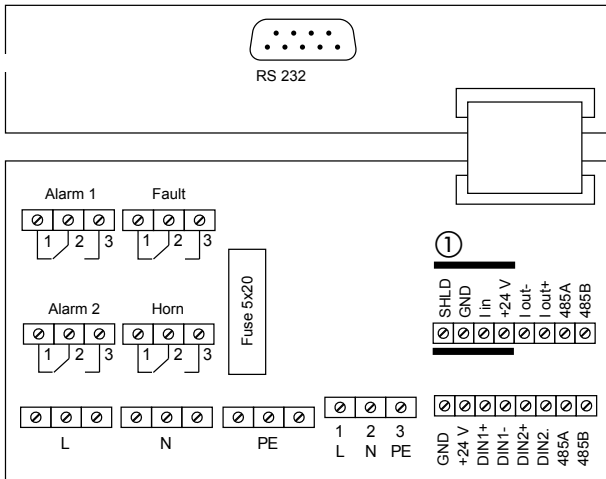
The cables pass through the PG connections into the housing interior. The cable entry point consists of the flange which screws into and is sealed in the basic housing, the clamp/seal assembly and the threaded sleeve. Insert the cable in turn through the threaded sleeve, clamp/seal assembly and the flange. Make sure the clamp/seal assembly is correctly installed. Fasten the cable by screwing the threaded sleeve tightly.

Note

The cable shielding must not be introduced into the transmitter. The grounding terminal in the housing should not be occupied.

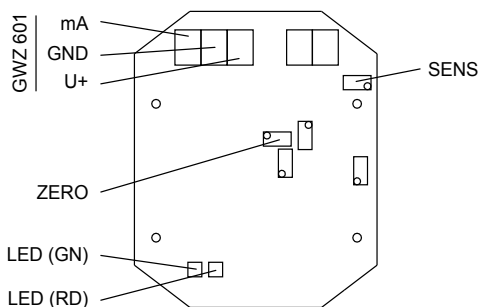
All transmitter terminals are plug-in terminals. Remove the connectors before routing the cables to avoid mechanical damage. Do not plug them back in until you have completed the assembly.

6.3 Connection



Terminal	Connection		Note
Alarm 1	Relay 1		Relay outputs
Alarm 2	Relay 2		
Fault	Relay 3 for fault		
Horn	Relay 4 for signal generator		
L / N / PE	230 V AC		Voltage supply
Fuse	Internal fuse		
SHLD	Shielding		① Connection to transmitter
GND	Ground		
I in	Input	4 to 20 mA	
+24V	Output	24 V DC	
I out -	-		4 ... 20 mA output
I out +	+		
485A	A (-)		RS 485 interface
485B	B (+)		

Fig. 6.1: GW 601 gas warning system wiring diagram, ① Connection to transmitter

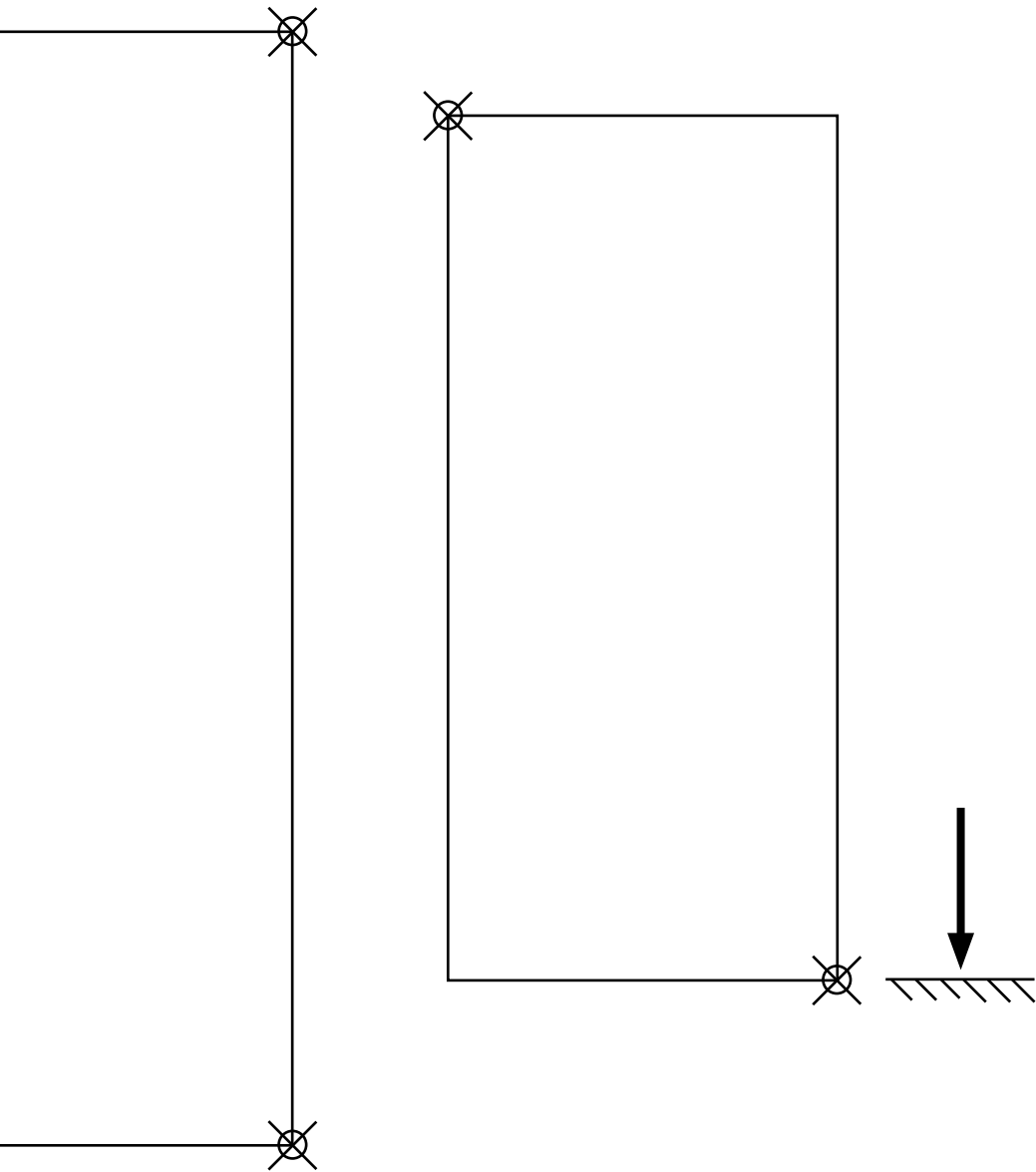


Terminal	Function	Connection	Note
mA	Output	4 to 20 mA	Connection to the gas warning device GW 601
GND	Ground		
U+	Input	24 V DC	
SENS	Calibration potentiometer, see chapter 12.1		
ZERO			
LED (GN)	Fault analysis LED, see chapter 13		
LED (RD)			

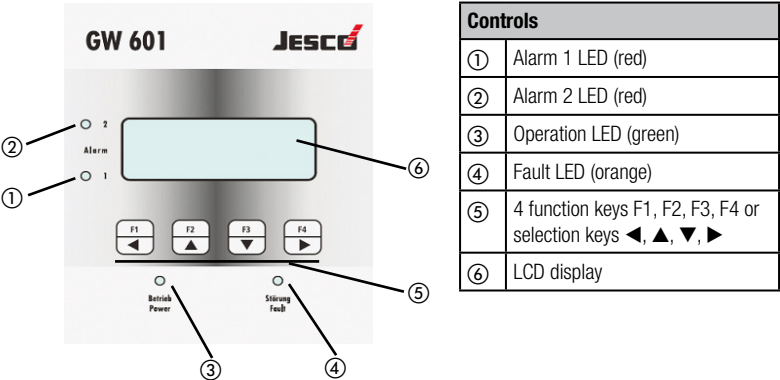
Fig. 6.2: Transmitter wiring diagram

6.4 Drill template

	Width x height
Gas warning device GW 601	146 x 146 mm
Transmitter	52 x 113 ... 116 mm



7. Operation



The selection keys have a repeat function which allows you to automatically repeat the key function when held down for a long period. The functions of F1 to F4 differ depending on the operating mode. They are shown in the bottom line of the graphic display.

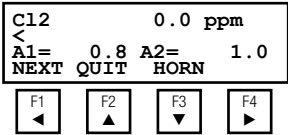


Fig. 7.2: GW 601 display, standard

1. line: Measuring gas or size, current measurement with unit.
2. line: Bar chart presentation of the measurement, 0 to 100%.
3. line: Threshold settings for alarms 1 and 2.
4. line: Assignment of the function keys F1 to F4.

Function keys

Key	Normal mode	Activation / service mode
F1	Jump to menu (NEXT)	
F2	Acknowledge alarms	▲ and ▼, modify figures / scroll through selection
F3	Not assigned	
F4		
		Confirm entry

8. Configuration

IMPORTANT!

Measurement processing continues unchanged during configuration.

The configuration menu runs in a continuous loop. Press function key F1 repeatedly until the desired menu is displayed.

All settings can be viewed but not changed in normal mode. Settings can only be changed in activation / service mode. This can only be achieved by entering a password / key combination.

The changes are only activated once the menu has been exited. If you exit the menu without pressing F4 (SAVE), the most recent settings remain intact.

If no input is made for more than 10 minutes, the GW 601 reacts differently, depending on the operating mode:

- Normal mode: Changes to standard display
- Release: Changes to standard display and normal mode.
- Service operation: no change.

The GW 601 gas warning system contains all the parameter settings needed to adapt the device to the requirements of the application.

IMPORTANT!

In order to make changes, the system must be activated by entering a password / key combination.

Menu	Selection	Function
Password	— (Normal mode)	automatic, F1 (NEXT) key for next menu. Release: Press F3 and F4 simultaneously for approx. 5 seconds. Keep pressing this key combination for approximately five seconds to disable activation.
	OK (Activation)	
	GB D	After activation, press F2 to switch between German (D) and English (GB). GB: German is active, change to English with F2 D: English is active, change to German with F2
Services	OFF ON	In service mode alarm and fault messages are blocked, the relay outputs are inhibited and the operation LED flashes.
Gas	List of gases	Select measuring gas
Dimension	ppm, vol.-%, % UEG, pH, degree	Unit for the measuring range. The unit chosen will be displayed during normal operating mode.
Decimal point	0 0.0	Shown with or without a decimal point for measurement display, measuring range limit and alarm limits.
Range	10.0	Sets the measuring range limit between 0 ... 30000
Alarm 1, alarm 2	0 to the measuring range limit	Sets the two alarm thresholds and the direction of the overrun to trigger the alarm. The alarm threshold limits are arranged in ascending order. The alarms are triggered when the limit is exceeded.
Quit A1, Quit A2	ON OFF	Indicates whether the alarm and the corresponding relay are self-locking (ON) or non-locking (OFF). A non-locking alarm goes out when the alarm condition no longer applies (check the alarm hysteresis). A self-locking alarm must always be reset via manual acknowledgement, by using the F2 (QUIT) function key.

Horn	A1 A2	<p>Indicates whether the horn relay (and the integrated signal generator linked to it) has been assigned to alarm 1 or alarm 2. Both alarms are deactivated for a "---" setting. The horn relay can be acknowledged with the F3 (HORN) function key even if the alarm condition is still present.</p> <p>ATTENTION! <i>The horn relay should only be used for external acoustic signal generators.</i></p> <p>NOTE! <i>The horn is triggered again if the alarm threshold is again exceeded after a subsequent interruption (new event alarm). This also applies if a self-locking alarm has not been acknowledged in the meantime.</i></p>
Relay mode A1, A2, F, H	Closed, Opened	<p>Indicates whether the alarm, fault or relay drops out or applies when the trigger condition is met.</p> <p>Opened: The relay is applied during measuring mode and drops out when the alarm limit is exceeded.</p> <p>Closed: The relay has dropped out during measuring mode and closes when the alarm limit is exceeded.</p> <p>NOTE! <i>For the "Opened" setting an interruption in the power supply to the warning device has the same effect as triggering an alarm or a message.</i></p>
Hyst.	0% to 10%	<p>Sets the alarm hysteresis as a percentage of the value of the corresponding alarm threshold. A non-locking alarm only goes out if it is below the alarm threshold by less than the value of the hysteresis or 2% of the measuring range limit. The larger value applies. This prevents the alarm from being repeatedly triggered as a result of minor measurement fluctuations around the alarm limit.</p>
NPC	0 to 5%	<p>A near point of convergence can be set. The range of values \pm NPC over the measuring range limit is displayed as zero. The adjacent range of up to \pm 2 NPC from the measuring range limit will show a flowing convergence to a linear steady state characteristic. Default setting: 0%, i.e. deactivated.</p> <p>ACTUAL: The current, unconverted value of the transmitter output current at the input of the gas warning device is displayed.</p>
<p>ATTENTION! <i>The following adjustment to the GW 601 gas warning system without a transmitter must only be performed by trained personnel.</i></p>		
Zero	<p>Zero point position. No correction is made for a value of 4,000 mA.</p> <p>ACTUAL: The measurement corrected around ZERO and possibly GAIN is displayed.</p>	
Gain	<p>Amplification correction value. No correction is made for a value of 1,000.</p> <p>ACTUAL VALUE: The corrected measurement around ZERO and possibly GAIN is displayed.</p>	
<p>Adjustment takes place in two stages:</p> <ol style="list-style-type: none">1. If no gas is supplied the zero point is initially changed until the ACTUAL VALUE shown in the display is 0. Note that negative values are represented by "< 0". In case of a correct adjustment, the preceding "<" disappears and precisely "0" is displayed.2. Subsequently, when a test gas is supplied, GAIN is adjusted until the actual value shown in the display corresponds to the setpoint.		

9. Operation

Operating states of the measurement amplifier GW 601.

Power-up phase

The connected transmitter can issue undefined values to the gas warning device GW 601 immediately after the system has started up. This situation can lead to false alarms. All alarm messages are therefore blocked for 120 seconds after the system has been switched on, or after the power supply has been interrupted.

The LEDs begin to blink as soon as power is switched on, and the time remaining until normal operations are resumed is indicated by a decrementing counter. The entire memory is completely tested. This test is subsequently repeated at regular intervals in measuring mode.

After the start-up pause of 120 seconds, the green "Operating" LED burns continuously and the gas warning device is in Detection mode.

Data logging

Automatic data logging is indicated by the continuously lit green "Operation/Power" LED. Signals from the transmitter are now recorded by the GW 601 gas warning device.

Service mode

In service mode, alarm and fault signals are blocked. Service mode is indicated by the flashing operation LED. Service mode can be activated in the configuration menu.

In service mode activation is permanently enabled.

"Alarm"

Two alarm thresholds can be set, limit value 1 and limit value 2. The red LED Alarm 1 or Alarm 2 illuminates if the alarm threshold has been exceeded.

If there is a fault on the GW 601 or the transmitter, the yellow LED lights up.

		Power-up phase	Data logging	Service mode	Alarm
Alarm LED					
Alarm 1, 2	Red	Flashing	Off		On *)
Fault	Yellow				On **)
Operation/ Power	Green		On	Flashing	On
Display					
Measurement	No display	Current measurement			
Bar display					
A1, A2 limits		Current settings			
Relays					
Alarms 1 and 2	No relay switched	Not activated	No relay switched	Activated *)	
Fault		Activated		Not activated **)	
Horn		Not activated		Activated *)	
Integrated signal generator					

*) LEDs and relays switch according to the limit exceeded

**) LEDs and relay switch if there is a fault with the GW 601 gas warning device or transmitter.

10. Relays

Four relays are used to control external devices or forward information.

- Two limits / alarm thresholds can be set up.
- "Alarm 1" relay is switched when limit 1 is reached. This is not self-locking and returns when the level falls below limit 1 again.
- "Alarm 2" and "Horn" relays are switched when limit 2 is reached. They are self-locking and do not return when the level falls below limit 2 again.
- The "Fault" relay switches if there is a fault with the GW 601 gas warning device or transmitter.

The limits are pre-set depending on the model, see table 8.1. Adjustments can be made in the Alarm 1 / Alarm 2 menu.

Limit Value	Chlorine gas	Chlorine dioxide	Ozone
1	2 ppm	0.2 ppm	0.2 ppm
2	10 ppm	1 ppm	1 ppm

Tab 10.1: Preset limit values per measuring gas

Relays	Limit Value	Delay	Self-locking	Acknowledgement	Use
Alarm 1	1	No delay	No	Can be manually acknowledged immediately	Optical signal generator
Alarm 2	2		Yes	Can only be acknowledged manually when the level falls below limit 2.	Sprinkler with acknowledgement via door contact.
Horn				Can be manually acknowledged immediately	Acoustic signal generator

Tab. 10.2: GW 702 measurement amplifier relays

Example

If "Alarm 2" relay activates the sprinkler, and a door contact is connected to the digital input, then in event of an alarm the sprinkler will be switched off as soon as the maintenance personnel enter the room. If level 2 is still exceeded when the door is closed, the "Alarm 2" relay switches again.

10.1 Measures in case of Alarm or Malfunction

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.

10.2 Configuration

Direction

The relays in the GW 601 gas warning device can work according to two different principles. They can be adjusted in the Relay Mode menu.

Operating current principle

The relay is activated when the tripping value is exceeded, i.e. the relay coils apply when the tripping value is exceeded. If there is no power supply, exceeding the tripping value has no effect.

Delivery status for "Alarm 1", "Alarm 2" and "Horn" relays.

Standby current principle

The relay applies when there is no fault in the system. This relay returns to its original position (zero position) when the tripping value is exceeded. Zero power supply therefore operates in the same way as exceeding the tripping value.

Delivery status for Fault relay.

11 Analogue Output and Interface

11.1 Analogue output

You can read the measurements from the transmitter as a 4 ... 20 mA signal via the analogue output. The analogue output corresponds to the measuring signal from the transmitter provided it lies within the 1.5 ... 22.5 mA range.

11.2 Interface

The devices can be optionally fitted with RS 485 and RS 232 interfaces. These are for service purposes only.

12. Maintenance

Regular inspection and functional testing must be carried out on the supplied GW 601 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.

Maintenance includes:

- Functional check of the sensor.
- Change the sensor element if necessary.
- Operational check of the relay contacts.
- Operational check of the optical and acoustic warning devices.
- Check the power supply if necessary.

IMPORTANT:

Make sure that an unintended trigger of the sensor and signal to the alarms is prevented before performing the function test. If the relays are configured in accordance with the closed current principle, deactivation of the power supply triggers an alarm.



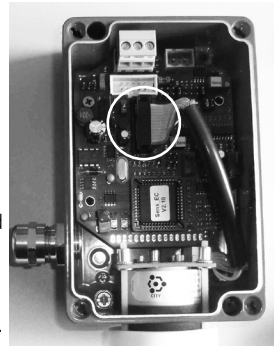
12.1 Changing the sensor

The electronic sensor is a wear part. Usual service life: see section "5. Technical data" on page 8. The following operating conditions shorten the service life:

- A very damp environment
- Prologued contact with gas concentrations significantly above the end of the measuring range.

Perform the following working steps to change:

1. Disconnect the device from the power supply.
2. Open the housing cover.
3. Disconnect the long connector from the circuit board.
4. Remove the three screws with connect the sensor block with the housing. Keep the seals, the white sensor cap and the screws for further use.
5. Pull the sensor block out of the housing.
6. Place a new sensor block in the housing. Ensure that the seals and the sensor cap are installed correctly and tighten the three screws carefully.
7. Reconnect the sensor block with the circuit board.
8. Close the housing and reconnect the device with the power supply.



The device is ready to operate after switching on. The function of the gas warning device is guaranteed without adjustment. Perform a functional check.

12.2 Functional check

The functional check is intended to show that the warning device which reacts to the monitored gas and the warning equipment that monitors the exceedance of the limit values are activated.

Checking the zero point:

Operate the sensor with ambient air (free of measuring gas and flammable substances). The gas warning device must show 0.0 ppm. A correction is possible on the potentiometer ZERO on the circuit board in the sensor housing.

Checking the sensor reaction:

Move the measuring gas in proximity to the sensor. A transportable gas generator is well-suited to this task. Chlorine granulate (calcium hypochlorite) can also be used for chlorine warning devices. The display on the gas warning device must increase and trigger the warning equipment upon exceedance of the limit values. This comprises e.g. warning lamps, an acoustic warning, a neutralisation system and remote indication.

12.3 Adjusting the changeover pressure

Adjustment of the sensor is only required in the following cases:

- The device is not used as a gas warning device but a gas measuring device.
- The potentiometer on the sensor circuit board was adjusted by mistake.

Certified test gas is required to make the adjustment:

- The concentration should lie in the middle of the measuring range or slightly over the upper alarm threshold.
- The concentration must be known with 2% accuracy.
- The expiry date of the test gas may not be exceeded.

Install a multimeter in the 20 mA loop between the sensor and the control centre for display purposes.

Adjustment takes place in two stages:

Zero point adjustment:

Operate the sensor with ambient air (free of measuring gas and flammable substances) or with synthetic air. Adjust the potentiometer ZERO to 4 mA.

Adjusting the slope

Operate the device for min. 2 min. with test gas (0.5 - 1.0 l/min. via test adapter). Adjust the potentiometer SENS to the target value.

Then check the zero point again.

12.4 Replace the fuse

WARNING!

Disconnect from the power supply before opening the device.

The devices are equipped with an internal fuse that can be replaced if required. To replace the fuse, unscrew and lift up the front of the device. The fuse is located next to the "Horn" relay. Value of the fuse, see section "5. Technical data" on page 8.

12.5 Power supply backup system (accessory)

The backup system battery is maintenance-free.

- Interrupt the power supply to perform the functional check.
- The safety system indicates that the device is now operating on battery operation.

The gas warning device should continue to indicate normal operation.

12.6 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!



13. Troubleshooting

WARNING!

If the GW 601 gas warning device indicates a fault that the operating company cannot rectify immediately, appropriate measures must be taken and the maintenance service department notified. Apply warning notices and notify personnel about the situation until the fault is rectified.



Gas warning device GW 601

LEDs on GW 601	Possible reason	Action
"Operation" off	Power supply disconnected	Check the power supply
"Fault" on	Connecting cable disconnected	Check the connecting cable

Transmitter

Current output ($I_{out} \pm 0.1 \text{ mA}$)	Possible reason	LED green (GN) *)	LED red (RD) *)	Action
0 mA	Connecting cable disconnected Power failure	Off	Off	<ul style="list-style-type: none"> • Check electric connection • Repair connecting cable • Check power supply • Repair connecting cable
0.8 mA	Power-up phase	On	Flashing	The condition is automatically rectified after the power-up phase.
1.1 mA	Hardware error		On	Check hardware and repair if necessary.
up to 22 mA	Measuring mode			-
> 22 mA	Connecting cable short-circuit		Off	<ul style="list-style-type: none"> • Check electric connection • Repair connecting cable

*) see Fig. 13.1

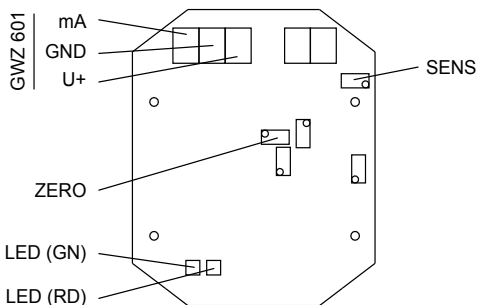


Fig. 13.1: Transmitter board

	Function	
SENS	Potentiometer	Calibration of 4 ... 20 mA signal sensitivity
ZERO		Calibration of 4 ... 20 mA signal zero point
LED (GN)	LED:	Green
LED (RD)		Red

IMPORTANT:

The 4 ... 20 mA current output of the transmitter is also available for diagnostic purposes. To be able to observe the current output, a current measuring instrument must loop in to the 4 & 20 mA line.



14. Spare parts

Part no.	Description
78390	Gas warning device GW 601
78391	CM 601 transmitter, incl. sensor block for chlorine gas
78393	DM 601 transmitter, including sensor block for chlorine dioxide, 0...1 ppm
78388	DM 601 transmitter, including sensor block for chlorine dioxide, 0...2 ppm
78395	OM 601 transmitter, including sensor block for ozone, 0...1 ppm
78387	OM 601 transmitter, including sensor block for ozone, 0...2 ppm
78017	Connecting cable between gas warning device and transmitter (sold by the metre)
Accessories	
23600131	Power supply backup system
78009	External horn
77214	Strobe
77215	Flashing light
Wearing parts	
78392	Sensor block for CM 601, chlorine gas
78394	DM 601 sensor block, chlorine dioxide, 0...1 ppm
On request	DM 601 sensor block, chlorine dioxide, 0...2 ppm
78396	OM 601 sensor block, ozone, 0...1 ppm
On request	OM 601 sensor block, ozone, 0...2 ppm

Device revision

This operating manual applies to the following devices:

Device and model	Revision status
GW 601	09/2000

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 Application

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

Early wear

Wearing part

Breakage/other damage

Corrosion

Damage in transit

2. electrical fault

Connection loose (e.g. plug or cable)

Controls (e.g. switch/button)

Electronics

3. Leaks

Connections

Dosing head

4. No or inadequate operation

Membrane defective

Other

Operating conditions of the device

Application site / site description:.....

Accessories used if any:

.....

.....

Commissioning (date):.....

Running time (approx. 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

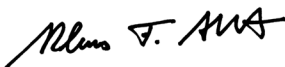
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(PT) Certificado de conformidade da UE

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 chloro
Omschrijving van het apparaat:	Gas-waarschuwingsapparaat
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	2006/95/EG	EN 50081-1 : 01.92
GW 404	2004/108/EG	EN 50081-2 : 08.93
GW 504		
GW 702		



i.V. Dipl. Ing. Klaus Albert
Lutz-Jesco, Wedemark, 01.02.2009

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