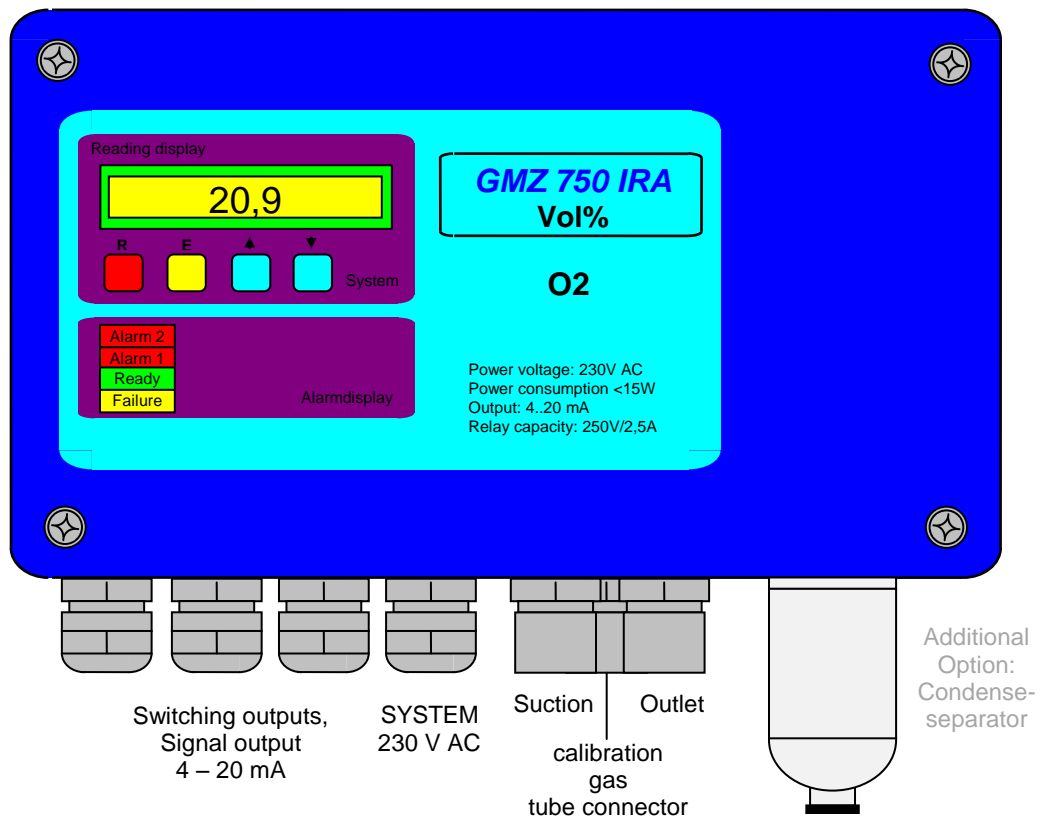


Gas analyzer and control device for oxygene



▼ IMPORTANT!

It is essential to know and adhere to these operating instructions in order to operate the unit.

Liability for function or damage

Liability for the function of the unit passes to the owner in the event that the unit is incorrectly maintained or repaired by persons who are not part of the manufacturer's service staff or if the unit is operated other than according to its designated use.

The manufacturer will not accept any liability for damage caused by failure to adhere to these instructions.


Application

The unit is useful for measuring gas concentrations **in an inert medium** which is drawn in by the internal sample draw pump. **It is not suitable for use with potentially explosive mixtures.**

The measurement reading is displayed on the LCD-Display and the signal can be connected to an evaluation or registration unit as a 4–20 mA signal.

Two programmable switching points within the measuring range make it possible to monitor the gas concentration. Isolated change-over contacts are actuated in the event of an alarm.

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LCD Display

The LCD display shows the reading of the gas concentration. Furthermore are displayed the values of the pressure sensor monitoring the pump function and the temperature of the sensor cell.

LED Alarm Display

Ready status, alarm and fault signal are indicated by LEDs. The green "Ready" LED is lit during normal operation. The ready LED is switched off by malfunction and the yellow "Failure" LED lights up. You can check the "Error" malfunction menu to ascertain the defect.

Alarm and Malfunction Signals

3 internal isolated relay outputs indicate alarms and malfunction. The malfunction signalling relay is activated in normal operation and it is released if there is a fault in the system or if the power supply fails. Two alarm thresholds can be monitored for either a falling or a rising concentration. The alarm relays are activated by alarm condition.

Signal Output

The unit also has an analogue signal output. The measurement reading is converted into a linear 4–20 mA signal for connecting an evaluation or registration unit.

Start-up

Important: When performing the electrical connection and with closing the housing, make sure that no cables will contact the pump during operation.

Calibrate the pump monitoring system during start-up and check the sample draw system for leaks, in particular if the measuring gas contains flammable components.

IMPORTANT: Leaks result in air infiltration which falsifies the measurement results.

IMPORTANT: Admixture with possibly flammable media represents a potential explosion hazard!

Calibration of the Sample Draw Pump Monitoring System

The measuring unit operates by drawing in air. The function of the pump is monitored by a pressure sensor. A malfunction is signalled if the pump fails or if there is a leak.

During start-up, the pressure sensor must be calibrated to the length of hose used. The system is set up with the pressure display set to 0 mbar using the blue potentiometer P1 on the base circuit.

Deviations of +6/-12 mbar due to blockages or leaks then trigger a malfunction signal.

Checking for Leaks

A vacuum gauge is to be connected to the intake tube connection in order to check the system for leaks after the system has been set up. Once the maximum value (approx. 180 mbar) has been reached, the pump is to be blocked by pressing the pump lever. The reading displayed on the vacuum gauge must not fall off towards zero.

If there is a severe loss of vacuum especially look for leakage at the tube connector.

For testing a good connection you can blow gas on the connector f.e. CO₂, N₂ or you can blow your breath to the connector. If the tube is not intubed deep enough and there is a leakage the reading will change.

Operating Temperature

With ambient heat do not rise significant the temperature of the sensor cell higher than the operating temperature of 50°C. The reading will be affected.

In case of need the unit can be rearranged in factory for use in higher tempered ambient air.

Reading

Some influence like shock stress can change the sensor parameters. If your reading is not plausible, a new calibration must be done.

If you wish to have highly accuracy, you must have zero gas and reference gas to calibrate the unit time by time. This will be done automatically if autocalibration-equipment is installed.

This device is equipped with an O₂ auto-calibration function, which allows to correct the measured O₂-Value:

The automatic calibration procedure can be started manually by pressing the start key. Also every time the unit is connected to mains power the automatic calibration procedure starts and the reading is set to 20,9 Vol% as to be measured in fresh air.

In order to put fresh air to the unit, a hose, which ends in the open air must be connected to the calibration gas tube connector.

Operation Menu

Press the left and the right control button for 3 seconds in order to call up the menu for displaying fault text and setting alarm thresholds.

"Service" appears on the display and the current malfunction texts are displayed:

No No malfunction

>P Low pressure in the intake line

<P Excess pressure in the intake line

>T Temperature of the sensors less than -10 °C

<T Temperature of the sensor higher than +50 °C

This is followed by the alarm threshold display:

f.e. alarm 1: 0.80 vol%

the follows the reaction mode:

+/LOE An alarm is triggered by a rising gas concentration;
when the level falls below the threshold, the alarm cancels itself automatically.

-/LOE An alarm is triggered by a falling gas concentration;
when the level exceeds the threshold, the alarm cancels itself automatically.

+/SP An alarm is triggered by a rising gas concentration;
when the level falls below the threshold, the alarm does not cancel itself automatically,
the "R" reset key must be pressed first.

-/SP An alarm is triggered by a falling the concentration;
when the level exceeds the threshold, the alarm does not cancel itself automatically,
the "R" reset key must be pressed first.

To select the options, press the arrow keys and store edited parameters by pressing the Enter key "E". Press the reset key "R" to move to next menu item if you either want to discard changes or only want to view the settings.


You can press the reset key "R" to quit the menu items following until you come to the end of the menu and return to normal operation.

Only a trained service technician should make changes in the menu appearing subsequently to calibrate sensor signal and 4-20 mA output.

MALFUNCTION DISPLAY MENU

Measurement Mode

26.9 °C 1.0 vol%
- 0.01 mbar

R  3 s

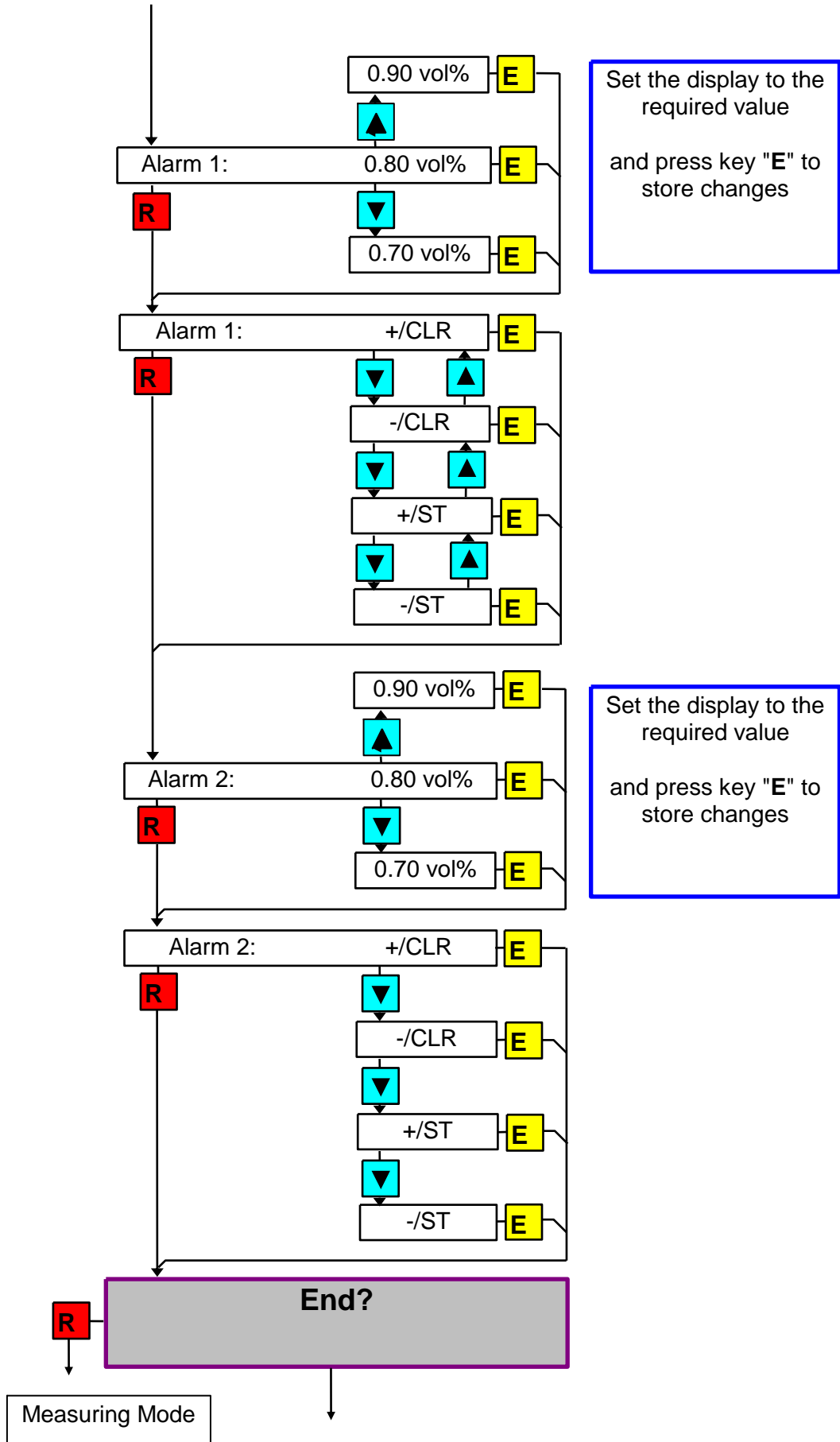
ERRORS
No >P <P >T <T

During 10 seconds:
current fault texts
are displayed

No = No faults
>P = Low pressure (e.g. leak in intake line)
<P = Excess pressure (e.g. blockage in outlet line)
>T = Temperature below permitted operating temperature
(-10 °C)
<T = Temperature above permitted operating temperature
(+50 °C)

Alarm Threshold Setting

OPERATION MENU: ALARM THRESHOLD SETTING



Set the display to the required value and press key "E" to store changes

Set the display to the required value and press key "E" to store changes

OPERATION MENU: CALIBRATION

R ▼ 3 s

Service

Firm.(ware) Reset ? **E**

R

Zero gas:
ADC = 790 **E**

R

21,0 vol% **E**

▲

Test-gas: 21,0 vol%
Gain = 1.0033 **E**

R

▼

20,9 vol% **E**

DAC=817 **E**

▲

mA output 4.00 mA
DAC=816 **E**

R

▼

DAC=815 **E**

DAC=4091 **E**

▲

mA output 20.00 mA
DAC=4090 **E**

R

▼

DAC=4089 **E**

Filter = slow **E**

R

▲

R

End?

Important!
Only specialists are allowed to make settings!

If wished, press "E" to set sensor parameter to original settings and remove calibrations.

With zero gas flowing in the calibration tube connector (0.00 vol%):
Press "E" key to store new zero point or "R" key to exit menu
ADC = mV sensor signal

With test-gas e.g. 20,9 vol% set reading to test-gas value and press "E" key to store new value or "R" key to exit menu

change DAC-value until 4 mA can be measured at the mA clamps.
Press "E" key to store DAC or "R" key to exit menu

Set output signal until 20 mA can be measured.
Press "E" key to store DAC or "R" key to exit menu

Press ▲ to toggle sensor signal filter to fast or slow (T90=3,15min).
Press "E" to store

Measurement Mode

Measurement Mode

Warning Notes

This unit has been constructed and tested in accordance with DIN 5741/VDE 0411 Part 1 – Safety Requirements for Electrical Devices. It has been dispatched from our plant facility in a perfectly safe condition.

To ensure safe operation, the user must adhere strictly to the operating instructions and the following warning notes.

The device is protection class I unit for fixed connection.

Opening covers or removing parts may result in uncovering voltage live parts or connection points.

The unit must be disconnected from all voltage sources before maintenance or repair or replacement of parts, if it is necessary to open the unit.

If calibration, maintenance or repair with the live open unit is necessary, this procedure is only allowed to be performed by an electrician who is familiar with the coupled hazards.

Safe operation is assured only with providing the named specified operating conditions.

The unit must be taken out of operation and it has to be secured to prevent inadvertent operation if it's to be assumed that a safe operation is no longer possible.

A competent routine test according to DIN 57411 Part 1 / VDE 0411 Part 1 must be carried out before the unit is taken back into operation, e.g. sending back the unit to the plant with corresponding instructions.

Examples of situations in which correct, safe operation is no longer assured:

- The unit is damaged.
- The unit does not function correctly (e.g. when exposed to calibration gas).
- The storage or operating temperature was exceeded (e.g. 70 °C).
- Water is pumped into the sample hose

Maintenance

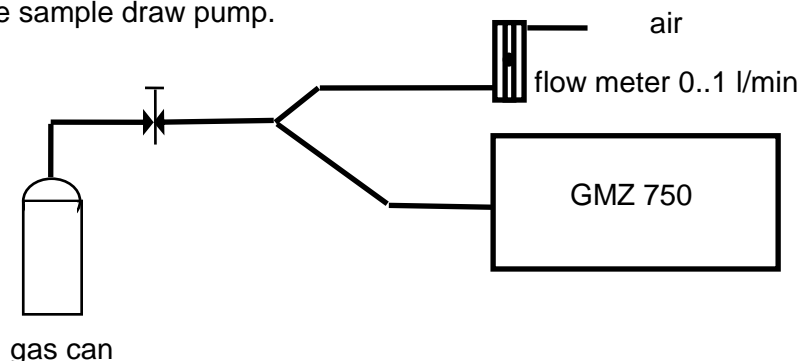
If a condense-separator is installed, it must be observed permanent, and if there is any water in the separator glass, it must be dropped out to avoid damage of the sensor. If the water is pumped into the hose the pump will be stopped by a water-detection circuit. If the water sensor is wet, remove the circuit breaker. Then remove the water and dry the condense-separator and the hose. Start again with power on reset.

An inspection, calibration and change of filters is required at intervals < 6 months in order to maintain the function of the unit.

Calibration

Only a trained service technician should make parameter changes in the calibration menu !

To make a new calibration, expose the probe directly with gas out of a test gas can. In the hose must be inserted a Y-pipe. At that Y-pipe connect the GMZ 750 and a flow meter 0..1 l/min and regulate the gas flow so that a recognizable gas flow comes from this outlet. So it is ensured that gas is available always sufficiently for the sample draw pump.

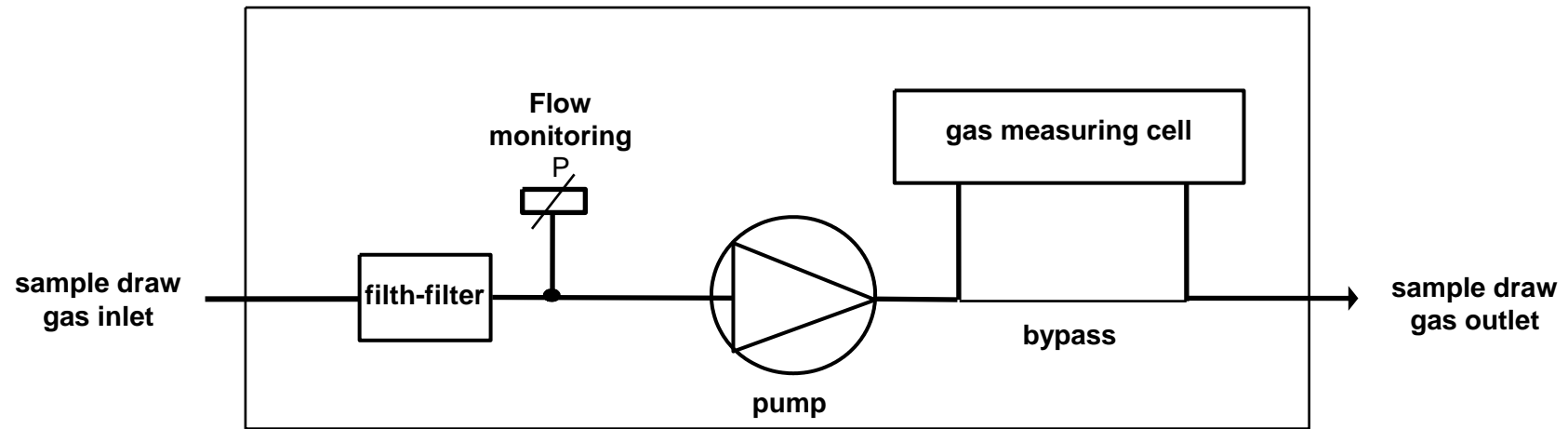


Technical Data

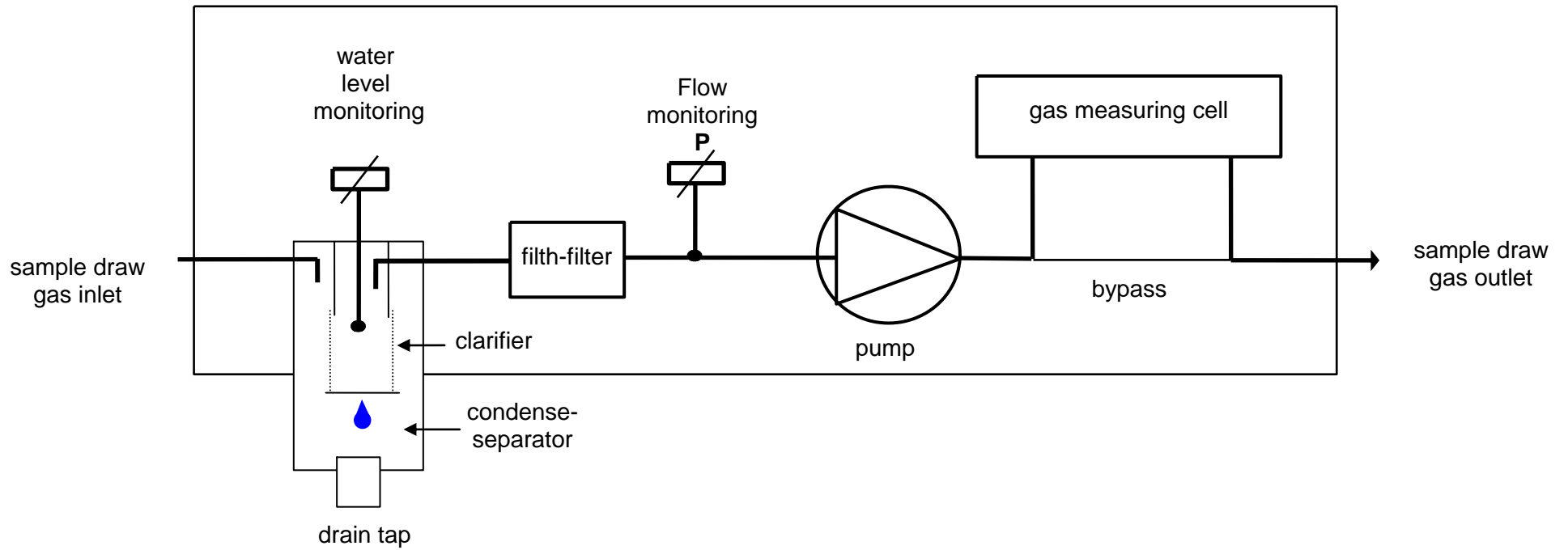
Sensor:	electrochemical cell
Measurement range:	0 – 25 Vol% or other factory settings
Gas inlet:	Measuring gas intake 0.4 – 1.5 l/min
Reading output:	4–20 mA, linear
Response time:	Dependent on the length and diameter of the suction hose: < 20 s without hose connected
Accuracy:	1 % of measurement range
Temperature range:	-10..40 °C
Humidity range:	0 – 95 % relative humidity
Indicators:	LCD 2 x 20 characters: For gas concentration, temperature, pressure LED operating indicator LED malfunction indicator LED alarm indicator
Double-throw Relay outputs:	Alarm 1 Alarm 2 Device malfunction
Calibration:	by parameter menu
Housing:	Sheet metal enclosure 200 x 300 x 80 mm high grade steel or powder coated
Index of protection:	IP54
Protection class:	I, protective earth connection
Power supply:	230 V AC, 15 VA

Subject to technical modifications

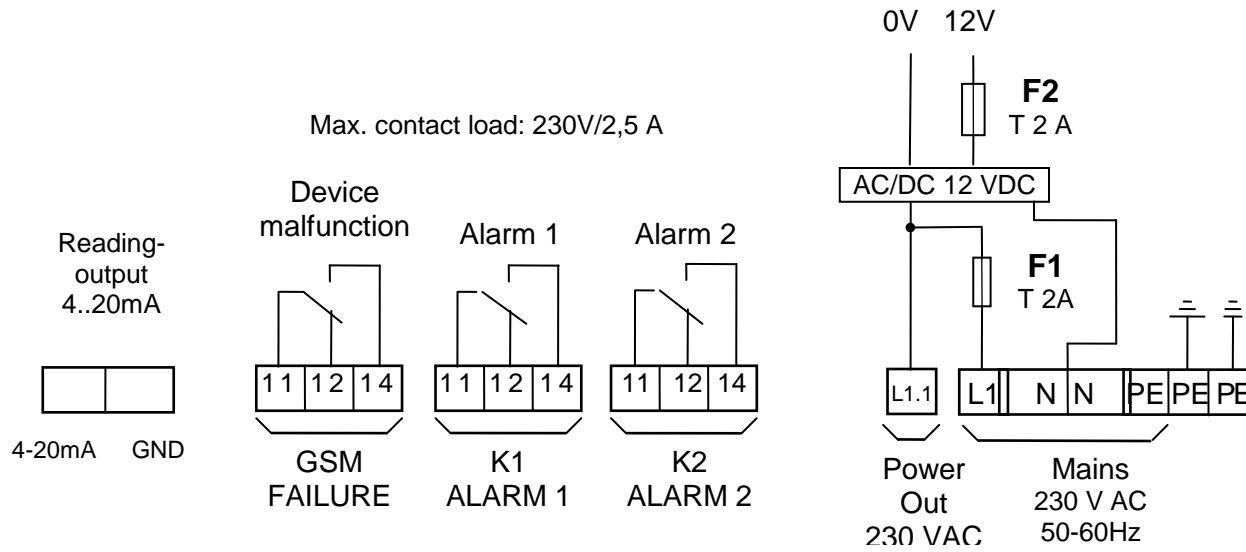
Gas flow diagram GMZ 750



Gas flow diagram GMZ 750 with condense-separator



Terminal Connection Diagram



Connection diagram with plug connectors

