

HUBERGTM

METREX2

USER MANUAL



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1.0 GENERAL DESCRIPTION

The METREX2 is a digital gas detection instrument which can be used for systematical survey of natural and town gas networks and for leak detection outside as well as inside of buildings.

Due to its compact design and modest size the METREX2 can be transported easily and the large LCD-display with the instantaneous reading of the gas concentration measured makes it simple to work with this device. Furthermore, a selection of various types of probes makes it possible to use it at points otherwise difficult to reach.

A microprocessor manages all the instrument performances: control of the sensor for the detection of gas concentrations, the functions of the instrument which can be commanded by keyboard, management of alarms, registration of data and serial communication for download on PC of memorized data.

This unit is designed to comply the actual ATEX directive.

METREX2 works with a group of ecological harmless, rechargeable nickel metal hydride batteries which allow - when fully charged - a working autonomy of at least 8 hours under normal working conditions and a constant temperature of 20 °C.

Important: Recharging of batteries and I/O connection must be carried out in safe environments.

The METREX2 has three measuring ranges: PPM (part per million), %Vol (volumetric) and the LEL (Lower Explosive Limit).

The METREX2 has three sensors: one semiconductor sensor, one pellistor pair sensors and one volumetric thermal conductivity pair sensors.

2.0 KEYBOARD AND CONNECTIONS

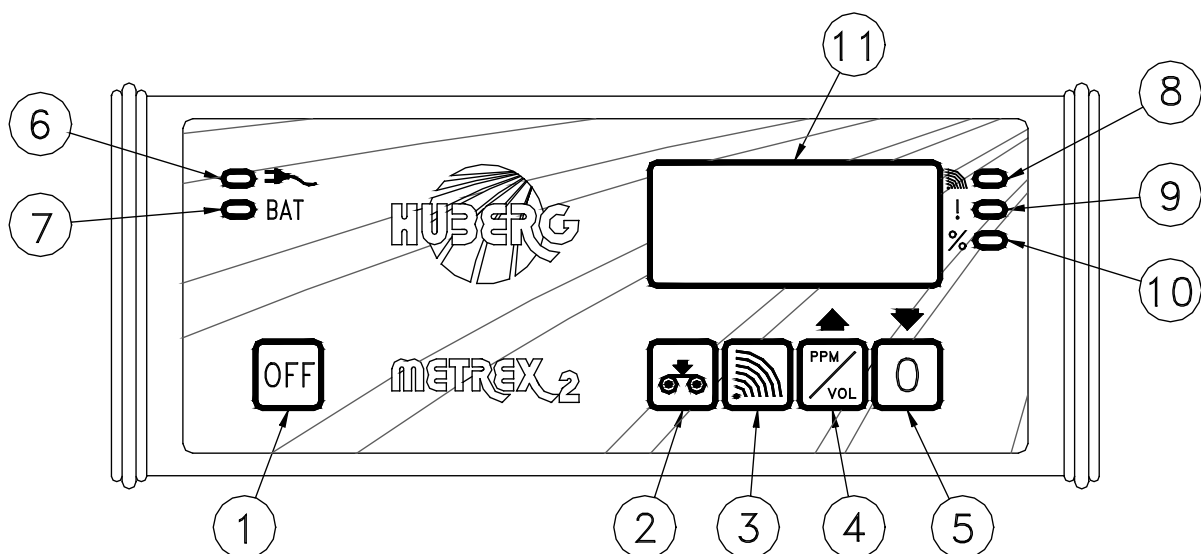


Figure 1

- 1.** Switch OFF button
- 2.** Data recording button
- 3.** Switch ON/OFF acoustic signal button
- 4.** Switch button PPM/VOL/LEL button
- 5.** Auto zeroing button
- 6.** 220 V~ connection LED
- 7.** Battery recharge LED
- 8.** ON/OFF acoustic signal LED
- 9.** Alarm threshold LED
- 10.** % VOL Scale LED
- 11.** Display

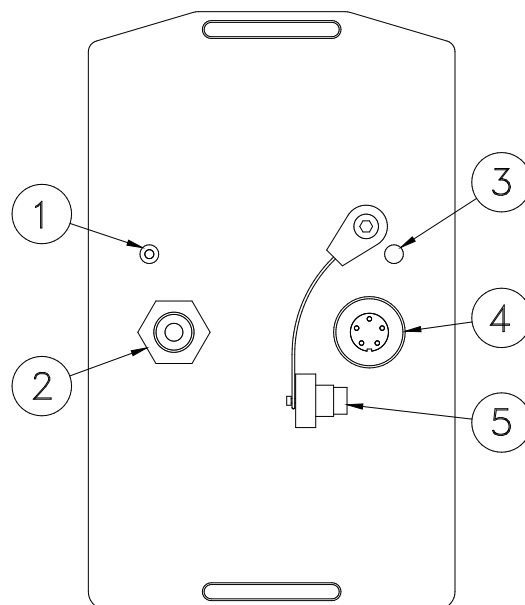


Figure 2

1. Air outlet
2. Quick coupling for probes
3. Buzzer
4. Socket for battery charger/serial port for data download
5. Cover

3.0 INSTRUMENT PERFORMANCE

3.1 How to switch on instrument

In order to switch on the instrument push, for at least three seconds, one of the buttons at the lower part on the right of the keyboard (fig.1 button (2), (3), (4),(5)). When switched on, a serial number of the instrument will be shown on the display (fig.3), followed by an acoustic signal.

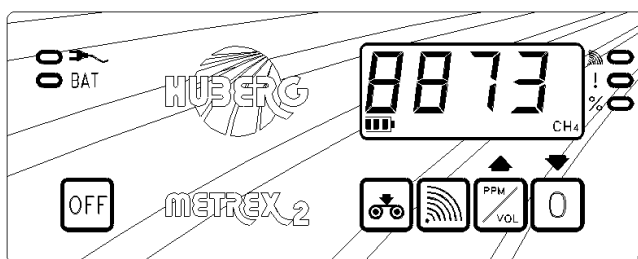


fig. 3

Subsequently the display will show “Px.x” (software version) and “CAL” (calibration in progress, fig.4 and fig.5)

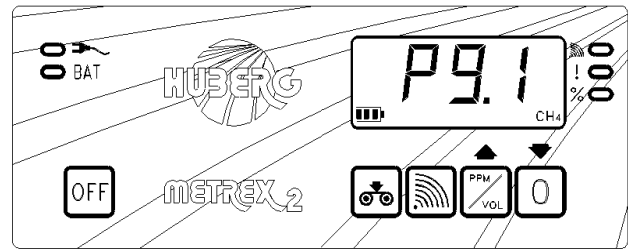


fig. 4

The phase of warming up and auto calibration takes about 1 minutes after switching on the instrument.

When finished, the device automatically changes to the PPM scale.



fig. 5

ATTENTION:

Switching on of the instrument must take place in place free from gas.

3.2 PPM and VOL measuring ranges

The METREX2 has the two measurement scales PPM and VOL%.

After switching the instrument on it starts automatically in the PPM range.

The PPM range visualizes concentrations from 0 to 9900 PPM (parts per million), whereas the volumetric scale measures from 0 to 100%.

A changeover between the two ranges is possible by pressing the PPM/VOL button (4) (fig.1 and fig.7).

If a concentration of 1% VOL occurs while working in the PPM range, the instrument automatically changes over to the volumetric range. Inversely a changeover from the volumetric to the PPM scale is only possible by pushing the PPM/VOL button and is not executed automatically. Furthermore, a changeover from VOL to PPM is only possible if the gas concentration is below 10000 ppm (1%). When the volumetric range is chosen, the corresponding LED (10) (fig.1 and fig.8) is lit.

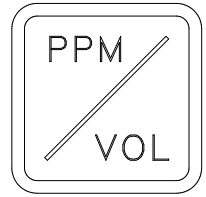


fig. 7



fig. 8

3.3 LEL measuring range

The METREX2 has the LEL scale (fig.10) which is activated by pressing the PPM/VOL button (4) (fig.1 and fig.9) for more than 2 seconds. If the acoustic alarm is activated, a signal tone is emitted. A changeover from the LEL scale is only possible manually. For switching back to the PPM or VOL range the same button has just to be pushed briefly.

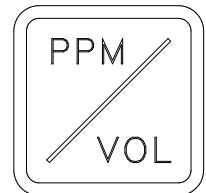


fig. 9

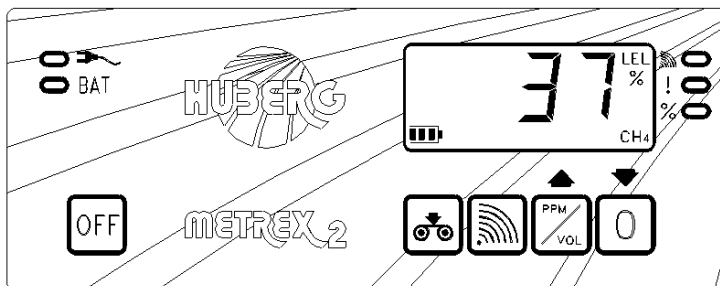


fig. 10

For CH₄, the measuring LEL range (0-100%) corresponds to a range of 0-5% (100% LEL = 5% VOL) of the volumetric scale.

3.4 Alarm



fig. 11 When switching on the METREX2, the acoustic alarm is activated and the LED (fig.11) is lit up.



fig. 12

The user can deactivate and reactivate it by pressing the alarm ON/OFF button (3) (fig.1 e fig.12) according to his requirements.



fig. 13

If the acoustic alarm is deactivated but the concentration measured exceeds the preset alarm limit, in any case the optical alarm LED (9) (fig.1 and fig.13) blinks.



fig. 14

The alarm thresholds are adjustable both in the PPM and in the VOL range. Press button (3) (fig.1 e fig.12) for more than 2 seconds to see the alarm limit actually set. It can be altered by holding this button (3) pressed and additionally pressing the PPM/VOL button (4) (fig.1 and fig.14) for increasing or the zero-button (5) (fig.1 and fig.15) for decreasing the value.

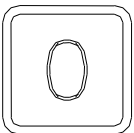


fig. 15

Because also the acoustic alarm is switched on or off with button (3) it is recommended to check the wanted display mode after adjusting the alarm limit.

3.5 Data registration (OPTIONAL)

During the surveys there is the possibility to record up to 500 measurement readings in the internal memory of the METREX2. If the record button (2) (fig.1 e fig.16) is pressed during the normal function of the METREX2, the actual value on the display is 'frozen in'. The displayed value starts blinking and an acoustic signal is given to indicate the special status. Additionally the pump is switched off.

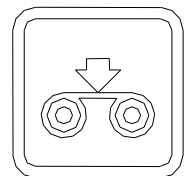
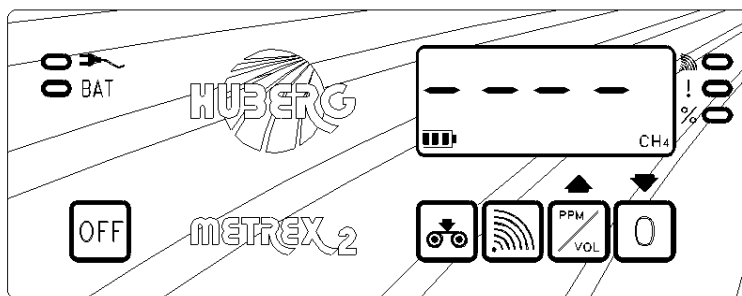


fig. 16

The instrument will stay in this mode until any other button (other than button (2)) is pressed which will restore the normal function. But pressing button (2) again will show the number of the last measurement saved (n 0 for example means that no data storage was done so far). By pressing of button (2) for a third and last time, the new reading will be recorded consecutively in the internal memory and with that the instrument returns to the normal function.

The following procedure makes it possible to show all recorded readings on the display of the instrument, e. g. before transferring the data to a computer. Press the record button (2) two times and the number of the last reading will be displayed. By pressing the buttons (4) or (5) (see fig. 1) all savings can be run through forward or backward. When the wanted record is reached, the value of the reading will be shown by holding the button pressed for min. 2 seconds and as long as the button is held down. To return to the normal function without saving any data press button (3).

To cancel all records connect the METREX2 to the battery charger and to the power supply (recharging mode). Press the buttons (2) and (5) (see fig.1) simultaneously for min. 2 seconds.



The instrument then emits an acoustic signal and shows at the display the writing - - - - (fig.17), to confirm the cancellation.

fig. 17

3.6 Auto zeroing

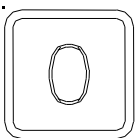


fig. 18

By pressing the zero button (5) (fig.1 e fig.18), the instrument is set to 0 (zero). The zeroing function is executable only at gas concentrations below 1800 ppm.

3.7 Display illumination

To activate or deactivate the background display illumination the buttons (3) and (5) (see fig.1 and fig.19) have to be pressed simultaneously.

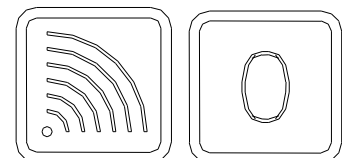


fig. 19

3.8 Recharging of batteries

IMPORTANT

To recharge the batteries solely use the HUBERG battery charger supplied with the METREX2. Make sure that the instrument is switched off, if it is not, do that. Connect the battery charger to 220V power supply and insert the plug into the socket of the METREX2 (4) (see fig. 2). The instrument recognizes the connection and changes to recharging mode automatically, even if the device is switched off. During the recharging procedure the charging voltage is shown on the display (fig. 22).

This procedure must be carried out only in a safe environment



fig. 20



fig. 21

Two LED signs will be lit:

connection to power supply (fig.20) and charging of the batteries (fig.21). The second LED blinks fast during the recharging process and slow, when fully charged. The time needed to recharge the batteries is approx. 10 to 12 hours.

3.9 Battery status visualization

The battery status is always displayed at the bottom left of the screen. The instrument automatically monitors the battery voltage and when the battery is nearly empty, the battery icon appears "empty". The status of "low battery" guarantee the operation of the device for 10 minutes after its appearance. After this period the metrex2 stops and in the display appear STOP (fig. 22) on the screen, the instrument must be recharged via the supplied charger. **The battery charging must be done in a safe area.**

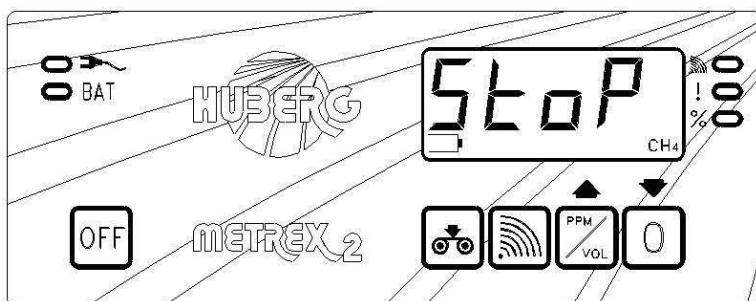


fig. 22

During charging on the display appears Load (Fig. 23). Time to recharge the battery after full discharge is 10-12 hours.

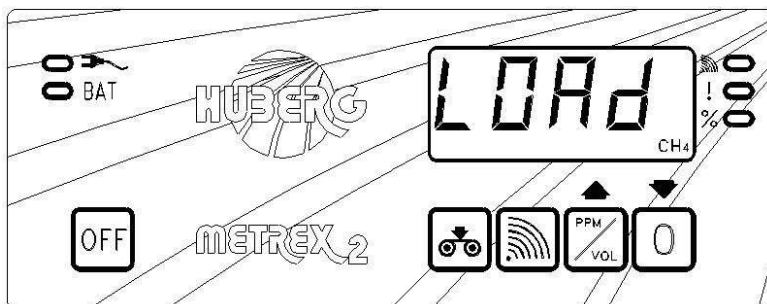


fig. 23

NOTICE: Don't leave the instrument connected to the power supply longer than the time necessary for recharging. If the METREX2 is not or rarely in use, recharge at least every 4 weeks. For the reason of environmental protection, the METREX2 is equipped with rechargeable nickel metal hydride batteries, which do not contain heavy metals harmful for the environment.

4.0 GAS TYPE SELECTION (OPTIONAL)

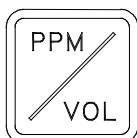


fig.26

In addition to the CH₄ calibration, METREX2 may be optionally provided with GPL and/or City Gas calibrations.

User can switch gas type during the normal operation of the instrument, after self calibration process. Switch gas type holding simultaneously key (4) and (5) (fig.1, fig.26 e fig.27); display will show the new gas type for a while. Metrex 2 is now ready to carry out measures of the new gas.

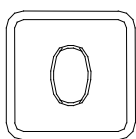


fig.27

When Metrex 2 is turned on, display shows current gas setting with **CH₄**, **C₃H₈** or **Nothing (CIT)**.

WARNING: gas type selection must be done in a gas-free area.

5.0 PUMP BLOCK

METREX2 may be provided with an optional pump blocking features: in event of a continuous flux obstruction (for about 4 seconds), Metrex 2 stops measure and display shows "Poff" (fig.28). To restart the measure, any of the four keys under the display can be pressed (fig.1 keys (2), (3), (4),(5)).

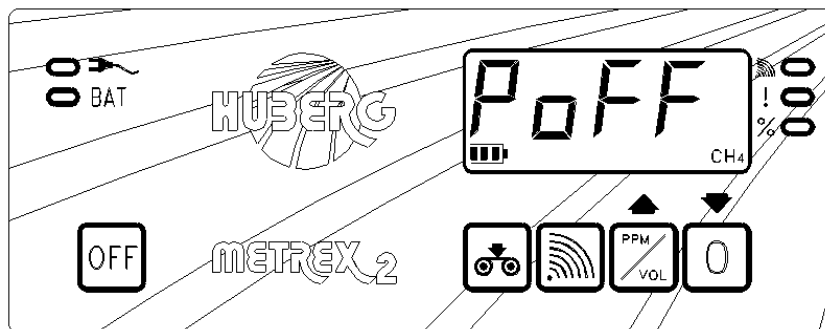


fig.28

6.0 MAINTENANCE AND PERIODICAL CALIBRATION

For a proper, accurate functioning and reliable measurement readings of the METREX2 instrument, QED Environmental Systems recommends sending the equipment to QED Environmental Systems or an authorized service distributor for service and calibration annually.

After checking and adjusting the instrument a certificate of calibration will be issued according and conform to the ISO standard. To check if the METREX2 functions correctly, QED Environmental Systems recommends controlling it with the HANDYGAS instrument regularly, depending on the

frequency of use of the METREX2. For more information see also '8.0 Accessories' and the Technical Datasheet on HANDYGAS.

7.0 WARRANTY

The instrument METREX2 is covered by guarantee against production defects with respect to the legal norms. During this period, QED Environmental Systems provides all repairs of malfunctions due to manufacturing defectives. The guarantee is not valid for damages caused by improper use or handling of the device. The warranty will be terminated if persons not authorized by QED Environmental Systems perform repairs. This guarantee is valid in all countries where QED Environmental Systems and/or an authorized agent are distributing the METREX2. **QED Environmental Systems gives no warranty on the calibration**

IMPORTANT

Please read the instructions carefully before using the instrument to make it work perfectly. No guarantee is valid if the device is not handled according to the instructions written in this manual. QED Environmental Systems is at your disposal for any further information you may want concerning use and maintenance of the instrument.

PLEASE NOTE

QED Environmental Systems is constantly committed to develop and improve its products, thus accepts no liability for technical modifications carried out without notice. For the same reason we take no responsibility for rightness of information and images in this manual.

APPENDIX A – SAFE USE OF THE INSTRUMENT

INTRODUCTION

Portable instrument for gas leak detection of methane. Used to search for leaks in the meters, connections or on the distribution network, and also for personal safety.

INSTALLATION

Suitability of equipment into installation site

In the case of use in areas with danger of explosion must verify that the type of detector is suitable at the classification of the area and at the flammable substances in the system. The essential requirements of security against the risk of explosion in dangerous areas are established by the European Directive 2014/34/EU (in respect of equipment) and 1999/92/CE of 16 December 1999 (as regards facilities). The criteria for classifying areas at risk of explosion are explained in the norm EN60079-10. The technical requirements of electrical installations in dangerous areas are established in the EN60079-14.

In the label on the instrument, in addition to functional data, there is also a referred to the references to the notified responsible for certification.

Other precautions for the usage

The charging of the batteries must be in a safe place with the appropriate external adapter.

Do not open the instrument by unauthorized personnel, the opening of which invalidate the certification.

TESTING AND MAINTENANCE

The checks and maintenance of certified equipment should be performed according to the criteria of the standard EN60079-17.

REPAIR

In the event of malfunction or damage is recommended to send the equipment to QED Environmental Systems or an authorized service distributor who will repair it.

Remarks :

APPENDIX B - IMPORTANT INFORMATION FOR CORRECT DISPOSAL OF THE ELECTRIC AND ELECTRONIC EQUIPMENT



At the end of its working life, the product must not be disposed of as urban waste. It must be taken to a special local authority differentiated waste collection centre or to a dealer providing this service. Disposing of a household appliance separately avoids possible negative consequences for the environment health deriving from inappropriate disposal and enables the constituent materials to be recovered to obtain significant savings in energy and resources. As a reminder of the need to dispose of household appliances separately, product is marked with a crossed-out wheeled dustbin.

For European users

In case of electrical or electronic device disposal, contact retailer or supplier for other information.

Information of disposal in outer EU Countries

That symbol is in use only in the EU. In case of disposal, contact local authority to ask for information.