MRU AIR fair since 1984 ®
EMISSION MONITORING SYSTEMS

$O_2$ | CO | $CO_{high}$ | NO | $NO_2$ | $NO_{(x)}$ | $SO_2$ | $H_2S$ | $CO_2$ | HC

# OPTIMA

## Powerful handheld multigas analyzer

# OPTIMA
## the advantages of the new generation

**Further development of a proven concept:**

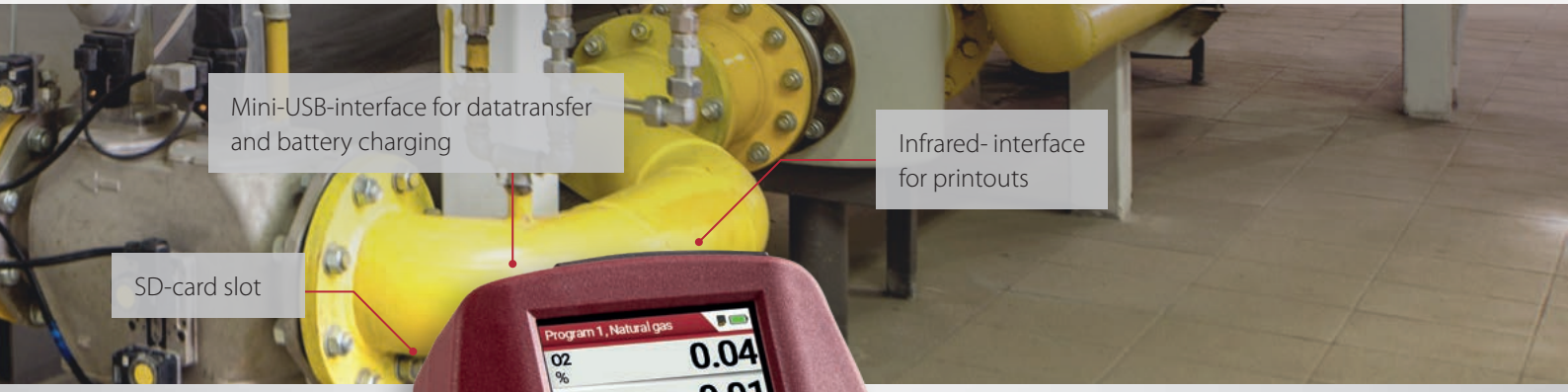
- new, high resolution 4" display for better readability and more informationen
- new menue design with many graphical displays
- illuminated condensate separator with optional water stop
- easy connection of Bluetooth™ printer and MRU4u App

# OPTIMA

## The slim multi talent handheld flue gas analyzer using up to 7 sensors

### Suitable for emission monitoring of combustions and industrial processes

Intuitive software menu and bright colour display will guide you through all measuring programs. Store up to 16.000 data sets directly in the analyser's internal data storage or on micro-SD card, or even use Bluetooth™ for wireless data transfer to notebook or MRU4u data app for smartphone or tablet. Printing via infrared, high speed thermal printer is at the tip of your fingers.



Mini-USB-interface for datatransfer and battery charging

Infrared- interface for printouts

SD-card slot

Bluetooth™ for datatransfer resp. remote control

4" colour TFT display with backlight and zoom function

Illuminated, large volume condensate separator

Logical and intuitive software menu

User- friendly, dirt resistant key pad

Compact enclosure: 110 x 225 x 52 mm (W x H x D), appr. 750 g

Soft, anti-skid side panels

Rugged, fibreglas reinforced enclosure

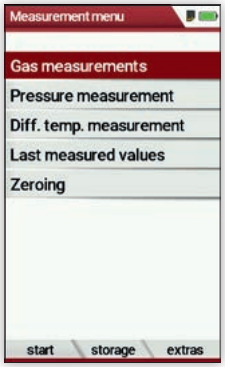
AUX universal auxiliary socket, for connection of HC gas detector, other pressure, temperature external sensors

K-type temperature sockets

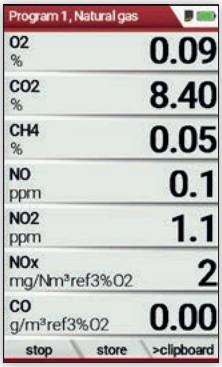
Robust stainless steel gas connectors

# Unit details

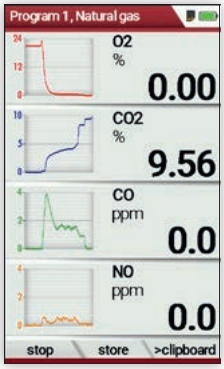
## Important Highlights




Clearly structured basic menue

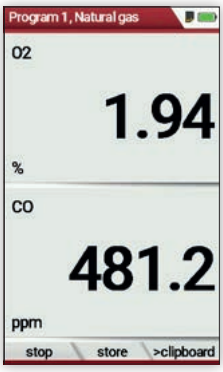



7, optionally 8 measuring results

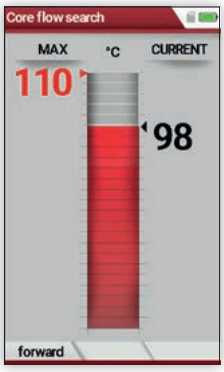



Measuring values, incl. graphical progression curve

Optional gas flow monitoring (e. g. clogged filter)




Display zoom-function




Graphical core flow search

Detector probe for leak detection (with exchangable sensors)

Large selection of probes and hoses for flue gas temperatures up to 1.100°C

Gas flow velocity measurement (m/s) by means of pitot tubes

# Unit details

## Special features at a glance

**Large, illuminated condensate separator**

now available with optional waterstop

**Robust stainless steel gas connectors**

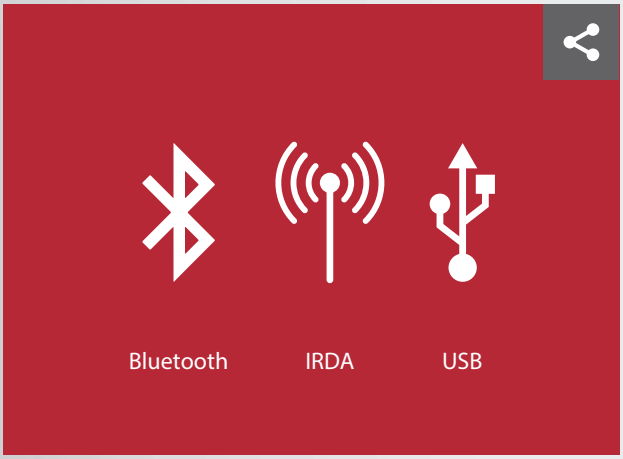
for gas- and pressure hoses

**Hands free operation**

with magnetic power using the 3 magnets from the analyzer's rear side, this one will firmly stick on ferrous surfaces.

**AUX-socket for other transmitters**

AUX universal auxiliary socket, for connection of HC gas detector, other pressure, temperature external sensors




**All important interfaces**

for data transfer and printing as well as wireless connection to MRU4u app.

**Various cases for transportation**

# OPTIMA

## Technical specifications

| Measurement components | Range | Resolution | Accuracy |
|---|---|---|---|
| **Oxygen $O_2$ long life** | 0 ... 25,00 Vol.-% | 0,01 % | ±0,2 Vol.-% abs. |
| **Carbon dioxide $CO_2$ NDIR** | 0 ... 50,00 Vol.-% | 0,01 % | ±0,3 % or 3 % of the measured value ** |
| **Carbonmonoxide CO low*** ** | 0 ... 500 ppm | 0,1 ppm | ±2 ppm or 5 % reading** |
| **Carbonmonoxide CO** | 0 ... 10.000 / 20.000 ppm* | 1 ppm | ±10 ppm or 5 % reading up to 4.000 ppm** or 10 % reading up to 10.000 ppm** |
| **Carbonmonoxide CO very high** | 0 ... 40.000 / 100.000 ppm* | < 9.999 ppm : 1 ppm > 10.000 ppm : 10 ppm | ±0,02 % or 5 % reading up to 4,00 %** or 10 % reading up to 10,00 %** |
| **Nitricmonoxide NO low*** ** | 0 ... 300 ppm | 0,1 ppm | ±2 ppm or 5 % reading** |
| **Nitricmonoxide NO** | 0 ... 1.000 / 5.000 ppm* | 1 ppm | ±5 ppm or 5 % reading up to 1.000 ppm** or 10 % reading up to 5.000 ppm** |
| **Nitric dioxide $NO_2$ low*** ** | 0 ... 100 ppm | 0,1 ppm | ±2 ppm or 5 % reading** |
| **Nitric dioxide $NO_2$** | 0 ... 200 / 1.000 ppm* | 1 ppm | ±5 ppm or 5 % reading up to 200 ppm** or 10 % reading up to 1.000 ppm** |
| **Sulfur dioxide $SO_2$ low*** ** | 0 ... 300 ppm | 0,1 ppm | ±2 ppm or 4 % reading** |
| **Sulfur dioxide $SO_2$** | 0 ... 2.000 / 5.000 ppm | 1 ppm | ±10 ppm or 5 % reading up to 2.000 ppm** or 10 % reading up to 5.000 ppm** |
| **Hydrogen sulfide $H_2S$** | 0 ... 500 / 2.000 ppm | 1 ppm | ± 5 ppm or 5 % reading up to 500 ppm **/ 10 % reading up to 500 ppm ** |
| **Hydrogen sulfide $H_2S$** | 0 ... 2.000 / 5.000 ppm | 1 ppm | ±10 ppm or 10 % reading** |
| **Methane ($CH_4$) NDIR** | 100 ... 40.000 ppm | 10 ppm | ±400 ppm or 5 % reading* |
| **Stack gas temperature T.Gas** | 0 ... 1.100 °C | 0,1 °C | ±2 °C ... < 200 °C or 0.5 % reading up to 200 °C** |
| **Combustion air temperature T.Air** | 0 ... 100 °C | 0,1 °C | ±1 °C |
| **Temperature / Differential temperature T1/T2** | –40 °C ... 1.100 °C (with thermocouple type K) | 0,1 °C | ±2 °C or 0.5 % reading** |
| **Draught** | –100 ... +100 hPa | | ±0,02 hPa or 1 % reading** |
| **Differential pressure** | –300 ... +300 hPa | | ±0,02 hPa or 1 % reading** |

| Calculated values | |
|---|---|
| **Combustion calculations** | based on the large fuel type list like: $CO_2$, excess air, heat losses, combustion efficiency, flue gas dew point, $CO/CO_2$ ratio |
| **Emission calculations** | mg/Nm³, $NO_x$ as mg/m³ $NO_2$ true measurement of $NO_x = NO + NO_2$ including $O_2$ referencing (normalisation) to user settable value |

| General specifications | |
|---|---|
| **Operation temperature** | +5 ... +45 °C, max. 95 % RF, non condensing |
| **Storage temperature** | –20 ... +50 °C |
| **Data storage** | dynamic, up to 16.000 measurements |
| **Interfaces** | mini-USB, SD, Infrared, Bluetooth™ (data transfer to smartphone, tablet or PC) |
| **CO-sensor purge (option)** | using second pump, for sensor protection |
| **Power supply** | high energy Lithium-Ion battery (approx. 15 h operation) |
| **Mains** | wall-plug grid power supply, 100–240 Vac / 50 ... 60 Hz |
| **Protection class** | IP 30 |
| **Certification** | TÜV ByRgG 280, VDI 4206-1, EN 50379 |
| **Weight** | approx. 750 g |
| **Dimensions (W x H x D)** | 113 x 244 x 54 mm |

Data subject to change without notice. | N-63229GB-K14-0M-1225 | * overload for short term measurement only | ** the higher value applies | *** with special software and calibration

**MRU – Competence in gas analysis. Since 1984.**

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