

## Technical data sheet

### VARIOTEC<sup>®</sup> 480 EX

Device data	
Dimensions (W x D x H)	approx. 148 x 57 x 205 mm approx. 148 x 57 x 253 mm with supporting bracket
Weight	approx. 1000 g, depending on equipment

Certificates	
Certificate	TÜV 07 ATEX 553353 X II2G Ex d e ib IIB T4 Gb basic device without leather bag for: CH <sub>4</sub> , C <sub>3</sub> H <sub>8</sub> , C <sub>4</sub> H <sub>10</sub> , C <sub>9</sub> H <sub>20</sub> , CO II2G Ex d e ib IIC T4 Gb basic device with leather bag for: CH <sub>4</sub> , C <sub>3</sub> H <sub>8</sub> , C <sub>4</sub> H <sub>10</sub> , C <sub>9</sub> H <sub>20</sub> , CO, H <sub>2</sub> BVS 09 ATEX G 001 X, PFG 08 G 002 X (applies to Warning LEL and Warning ExTox applications for CH <sub>4</sub> , C <sub>3</sub> H <sub>8</sub> , O <sub>2</sub> , CO).

Device elements	
Display	monochromatic graphic display, 320 x 240 pixels
Buzzer	frequency 2.4 kHz, volume 80 db (A) / 1 m
Signal light	red
Pump capacity	vacuum > 250 mbar, volume flow approx. 50 l/h
Interface	USB
Memory	8 MB
Operation	ON/OFF key, 3 function keys, jog dial

Operating conditions	
Operating temperature	-20 °C – +40 °C
Storage temperature	-25 °C – +60 °C (temperatures above 40 °C reduce the lifetime of the sensors)
Humidity	5 – 90 % r.h., non-condensing
Atmospheric pressure	800 – 1100 hPa
Protection rating	IP54

<b>Power supply</b>	
Power supply	NiMH rechargeable or disposable alkaline batteries, type Mignon (AA)
Operating time, typical	at least 8 h
Charging time	approx. 3 h (complete charge) depending on capacity
Charging voltage	12 V DC, max. 1 A

<b>Data transmission</b>	
Communication	USB

<b>Gas types</b>	
Standard	methane
Optional	propane C <sub>3</sub> H <sub>8</sub> (ppm / % LEL / % vol.) butane C <sub>4</sub> H <sub>10</sub> (ppm / % LEL)

<b>Catalytic combustion sensor C<sub>x</sub>H<sub>y</sub> LEL range</b>	
Measuring range	0 – 4.4 % vol. (CH <sub>4</sub> ), 0 – 100 % LEL
Resolution	0.05 % vol.
Response times	t <sub>50</sub> < 5 s, t <sub>90</sub> < 14 s (CH <sub>4</sub> ) t <sub>50</sub> < 6 s, t <sub>90</sub> < 11 s (C <sub>4</sub> H <sub>10</sub> )
Measuring error	±1 % LEL CH <sub>4</sub> (short-term stability as per EN 60079-29-1) ±4 % LEL CH <sub>4</sub> (long-term stability as per EN 60079-29-1) ±1 % LEL C <sub>3</sub> H <sub>8</sub> (short-term stability as per EN 60079-29-1) ±2 % LEL C <sub>3</sub> H <sub>8</sub> (long-term stability as per EN 60079-29-1)
Interference	all flammable gases
Lifetime, expected	5 years

<b>Thermal conductivity sensor C<sub>x</sub>H<sub>y</sub> % vol. range</b>	
Measuring range	0 – 100 % vol. (CH <sub>4</sub> )
Resolution	1 % vol.
Response times	t <sub>50</sub> < 9 s, t <sub>90</sub> < 17 s (CH <sub>4</sub> ) t <sub>50</sub> < 11 s, t <sub>90</sub> < 22 s (C <sub>4</sub> H <sub>10</sub> )
Measuring error	3 % (as per EN 60079-29-1)
Interference	all gases with a different thermal conductivity
Lifetime, expected	5 years

<b>Semiconductor sensor ppm range</b>	
Measuring range	0 – 10000 ppm (CH <sub>4</sub> )
Resolution	1 ppm / 2 ppm / 20 ppm / 200 ppm
Response times	t <sub>90</sub> < 7 s
Warm-up time	approx. 1 min
Measuring error	30 %
Interference	all flammable gases
Lifetime, expected	5 years

<b>Electrochemical sensor oxygen O<sub>2</sub></b>	
Measuring range	0 – 25 % vol.
Resolution	0.1 % vol.
Response times	t <sub>90</sub> < 15 s
Warm-up time	approx. 1 min
Measuring error	±3 % or ±0.3 % vol. (±3 digits)
Lifetime, expected	36 months

<b>Electrochemical sensor carbon monoxide CO</b>	
Measuring range	0 – 500 ppm
Resolution	1 ppm
Response times	t <sub>90</sub> < 30 s
Warm-up time	approx. 1 min
Measuring error	±10 % or ±3 ppm (±3 digits) ±5 ppm (long-term stability as per EN 45544)
Interference	H <sub>2</sub> , NO
Lifetime, expected	36 months

<b>Gas chromatograph CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub></b>	
Measuring range	0 – 12000 ppm
Resolution	1 ppm
Warm-up time	approx. 1 min
Measuring error	±30 %
Separating capacity	25 ppm
Measurement time	4 min
Lifetime, expected	5 years

106910 – 06-06-2012 – Subject to technical changes.