

VARIOTEC® 460 Tracergas

Technical Data Sheet

Series	
Type/model	065 15

Certificates	
Certificate	TÜV 07 ATEX 553353 X - II 2G Ex db eb ib IIB T4 Gb basic device without leather bag for: CH₄, C₃H₈, C₄H₁₀, tracer gas with maximum 5% H₂ in N₂ - II 2G Ex db eb ib IIC T4 Gb basic device with leather bag for: CH₄, C₃H₈, C₄H₁₀, tracer gas, H₂

Device data	
Dimensions (W x D x H)	- approx. 148 x 57 x 205 mm (5.83 x 2.24 x 8.07 in) - approx. 148 x 57 x 253 mm (5.83 x 2.24 x 9.96 in) with supporting bracket
Weight	approx. 1000 g (35 oz), depending on equipment

Features	
Display	monochrome, 320 x 240 pixel
Buzzer	frequency: 2.4 kHz volume: 80 dB (A) / 1 m (3.28 ft)
Signal light	red
Pump	- vacuum: > 250 mbar - volume flow: typically 50 l/h ±20 l/h - pump error (F100) depending on volume flow: ≤ 20 l/h F100 certain > 20 l/h – ≤ 35 l/h F100 possible
Interface	USB
Memory	8 MB
Control	- ON/OFF key 3 function keys - jog dial
Sensors	- TC - SC

Operating conditions*	
Operating temperature	-20 – 40 °C (-4 to 104 °F)
Humidity	5 – 90% r.h., non-condensing
Atmospheric pressure	800 – 1100 hPa
Pressure at gas inlet	max. 100 mbar
Protection rating	IP54
Position of use	any

*Optional sensors can affect the operating conditions of the device.

Storage conditions	
Storage temperature	-25 – 60 °C (-13 – 140 °F) temperatures above 40°C (104 °F) reduce the service life of the batteries.

Power supply	
Power supply	4 cells, type Mignon AA, optionally: • rechargeable batteries: NiMH • disposable batteries: Alkaline
Operating time, typical	at least 8 h
Charging time	approx. 3 h (complete charge), depending on capacity
Charging temperature	0 – 35 °C (32 – 95 °F)
Charging voltage	12 V DC (max. 1 A)

Data transmission	
Communication	USB

Gas types	
Default	• H₂ • tracer gas 95/5 (95% N₂, 5% H₂) or 90/10

Sensors

Note:

probes increase the stated response times.

Hydrogen H ₂	
Type	thermal conductivity sensor
Measuring range	0 – 100% vol.
Resolution	• 0 – 9.9% vol.: 0.1% vol. • 10 – 100% vol.: 1% vol.
Response times	t ₅₀ < 3.1 s t ₉₀ < 6.5 s
Warm-up time	< 30 s
Temperature range	-20 – 40 °C (-4 to 104 °F)
Measuring error	3% of measuring range end value
Interference, known	• all gases with a different thermal conductivity at 20 °C (68 °F): • 100% vol. CH₄ typically 16% vol. • 100% vol. C₃H₈ typically -2% vol.
Lifetime, expected	5 years
Adjustment	test gas concentration: • zero point: hydrocarbon-free, clean air • H₂: 100% vol., utilisable 5 – 100% vol.

Hydrogen H₂	
Type	gas-sensitive semiconductor
Measuring range	0.0 – 10000 ppm (1% vol.)
Resolution	• 0.1 ppm (0.0 – 9.9 ppm) • 2 PPM (10 – 100 ppm) • 20 ppm (100 – 990 ppm) • 0.05% vol. (0.1 – 0.95% vol.) • 0.1% vol. (1.0 – 5.0% vol.)
Response times	10 ppm H ₂ : • t _R < 1.2 s t ₅₀ < 6 s t ₉₀ < 18 s 100 ppm H ₂ : • t _R < 1.0 s t ₅₀ < 7 s t ₉₀ < 15 s t _R ... time until device first reacts following delivery of gas
Warm-up time	up to 5 min
Temperature range	-20 – 40 °C (-4 to 104 °F)
Measuring error	30% (short time)
Interference, known	at 20 °C (68 °F): • 1% vol. CH₄ 50 ppm maximum • 1% vol. C₃H₈ 10 ppm maximum • 40 ppm CO 2 ppm maximum • 1% vol. C₂H₆O (ethanol) 2 ppm maximum • 3500 ppm benzene 10 ppm maximum • water vapour, < 80% r.h. < 1 ppm typical
Lifetime, expected	5 years
Adjustment	test gas concentration: • zero point: hydrogen-free, clean air • H ₂ : ◦ 1 ppm ◦ 10 ppm ◦ 100 ppm ◦ 1000 ppm ◦ 1.0% vol.

Subject to technical changes.