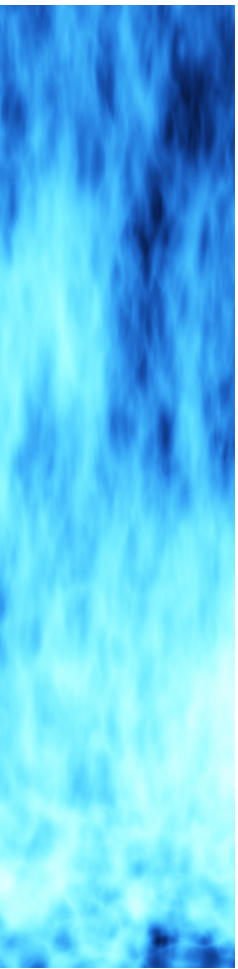


Gas detection and analysis



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Gas leak detection indoors

SNOOPER mini | Versatile gas leak detector
for easy and efficient operation



Device functionality

SEWERIN's **SNOOPER mini** is a sturdy gas leak detector for inspecting accessible gas lines. Overall, gas leak detectors have a decisive advantage over the leak detection sprays that are still commonly used, in that they not only indicate the presence of a leak, but also the concentration at the leak site.

Furthermore, when inspecting older internal home installations, using a gas leak detector is more effective: with leak detection spray there is a risk that the leak site may be accidentally sealed when the hemp sealant becomes wet and thus missed. The damaged spot reliably detected using a gas leak detector is permanently eliminated following repair.

The **SNOOPER mini** is available with sensors for methane and propane and the **SNOOPER mini H₂** model also features a hydrogen sensor, which increases the versatility of the **SNOOPER mini**.

The **SNOOPER mini** can easily detect leaks in water pipes and can be used to test for leaks in pipes, valves and other industrial products with the tracer gas technique.

The increased use of LPG/natural gas vehicles means that obstructed gas lines need to be inspected for leaks, both when being initially fitted and during ongoing technical maintenance. Once again here the **SNOOPER mini** is the versatile device for professionals.

The following models are available:

SNOOPER mini with methane, propane or hydrogen sensor: flexible swan neck (length 22 cm)

SNOOPER mini hand probe with methane sensor: hand probe (spiral cord, handle, flexible swan neck).

Features:

- Replaceable sensor filter
- Very fast start-up time
- Audible signal: concentration-dependent and deactivation option
- Illuminated liquid crystal display
- Low interference from other gases and moisture
- Sturdy housing

Measuring ranges / sensors

Indication of measured values in	Limits	Resolution
ppm	0 – 100 ppm	5 ppm
ppm	> 100 – 2,000 ppm	50 ppm
Percent by volume (1 Vol.-% \triangleq 10,000 ppm)	CH ₄ , C ₃ H ₈ :	0.2 – 2.2 Vol.-%
	H ₂ :	0.2 – 1.0 Vol.-%



Components

- **SNOOPER mini**
- Carrying case
- Charging equipment
- Test sets
- Test gases

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

EX-TEC[®] SNOOPER 4 | Explosion-proof gas leak detector with integrated gas database



Features

The **EX-TEC® SNOOPER 4** benefits from a modular equipment concept. It is available as either a diffusion device or a pump device, making it the ideal solution for all gas leak detection situations. An integrated gas database makes it quick and easy to configure the device for different gases, leading to outstanding detection results.



Ranges of use

- Detecting the smallest leaks in installation lines and at connection points
- Testing room air (house test)

Advantages

- Illuminated display
- Self-test on start-up
- Individual configuration, protected by PIN code
- Adjustable test gas concentration
- User-definable minimum sensitivity (between 1 and 100 ppm)
- Visual and audible signals on reaching certain gas concentrations and to indicate the various operating states of the device
- Explosion protection in accordance with TÜV 09 ATEX 555077 X: Ex II 2 G Ex d e ib **IIB** T4 basic device **without** leather bag for: CH₄, C₃H₈, C₄H₁₀, C₆H₁₄, C₉H₂₀, JFUEL; Ex II 2 G Ex d e ib **IIC** T4 basic device **with** leather bag for: all of the above plus H₂

Sensors / measuring range

Gas database: allows calibration for methane CH₄, propane C₃H₈, butane C₄H₁₀, hexane C₆H₁₄, nonane C₉H₂₀, hydrogen H₂ and kerosene JFUEL

ppm sensor for methane

Measuring range for semiconductor sensor: 0 – 22,000 ppm (2.2 % vol. = 20 % LEL)



Available accessories

- Leather bag, case
- Charging station and charging cable
- Flexible probe, flexible hand probe, telescopic probe, hand sensor
- Testing equipment and test gases

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.



MiniLec[®] 4



MiniLec[®] 4

Measuring instrument for preliminary test, main test and test of working order in accordance with TRGI as well as regulator inspection



test connectors



printer with infrared reception

MiniLec® 4

Features

- ▶ two equipment variants available:
 - ▶ with preliminary test (fully equipped)
 - ▶ without preliminary test
- ▶ operating modes:
 - ▶ test of working order, main test, preliminary test
 - ▶ regulator inspection with static pressure, dynamic pressure, safety shut-off reaction pressure, zero-shut off and inspecting low flow safety shut-off
- ▶ simple handling by three keys
- ▶ instrument firmware divided in:
 - ▶ user menu
 - ▶ function menu for individual instrument configuration (protected by PIN code)
- ▶ infrared interface (IrDA) for
 - ▶ documentation on site (print-out on mobile printer)
 - ▶ data transmission on site to mobile computer
- ▶ instrument firmware available in several languages
- ▶ PC software for comfortable documentation and archiving of data
- ▶ test of working order:
 - ▶ simultaneous display of pressure and flow
- ▶ adjusted for CH₄, C₃H₈, C₄H₁₀, H₂, town gas and air

MiniLec® 4 with infrared transmitter



hoses with different connections



Measuring Ranges

- ▶ **test of working order:**
 - ▶ flow sensor:
 - 0 ... 10 l/h (resolution: 0.1 l/h), accuracy: 0.1 l/h resp. 5 % of measured value
 - ▶ pressure sensor:
 - 0 ... 200 mbar (resolution: 0.1 mbar) accuracy: +/-0,5 % end of measuring range temperature drift: 0,12 mbar/K
- ▶ **main test/regulator inspection:**
 - 0 ... 200 mbar (resolution: 0.1 mbar) accuracy: +/-0,5 % end of measuring range temperature drift: 0,12 mbar/K
- ▶ **preliminary test:**
 - 0 ... 2 bar (resolution: 0.001 bar/1 mbar) accuracy: +/-0,5 % end of measuring range temperature drift: 0,12 mbar/K

Technical Data

operating time:	approx. 20 hours
charging time:	14 hours
power supply:	3 Mignon NiMH accumulators or 3 Mignon primary cells
protection type:	IP 54
operating temperature:	-10 °C ... +40 °C
storage temperature:	-20 °C ... +70 °C
humidity range:	0 ... 90 % r. h., non-condensing
weight:	300 g
dimensions (W x H x D):	60 x 144 x 55 mm

Accessories

charging technique	mobile computer
carrying case	hoses
leather bag	test connectors
mobile printer	test sets

VARIOTEC[®] 460 Tracergas | The specialist for leak detection with tracer gas and hydrogen



VARIOTEC® 460 Tracergas



Rely on precision and safety

The **VARIOTEC® 460 Tracergas** was developed especially for leak detection on underground pipes by using tracer gas. It is characterised by an outstanding price to performance ratio.

- Precise:** The extraordinarily low cross sensitivity of the gas-sensitive semiconductor (SC) with regard to moisture and methane ensures an absolutely sure result and a resolution down to 0.1 ppm H₂.
- Functional:** Thanks to an innovative operating concept, a large display and simple menu structure, device operators can quickly get reliable results.
- Efficient:** In combination with the bell probe D80 you can achieve outstanding reaction times.
- Flexible:** The expanded measuring range of the thermal-conductivity sensor, up to 100 % vol. H₂ easily allows for further measuring tasks.
- Integrated:** Save your measurements and transmit the results using the USB interface on the computer.
- Mobile:** The 4 AA-size rechargeable batteries can be charged in just 3 hours and the operating time is at least 8 hours. As an alternative, you can use disposable batteries.
- Reliable:** Sewerin measuring devices are well known for their quality and durability.

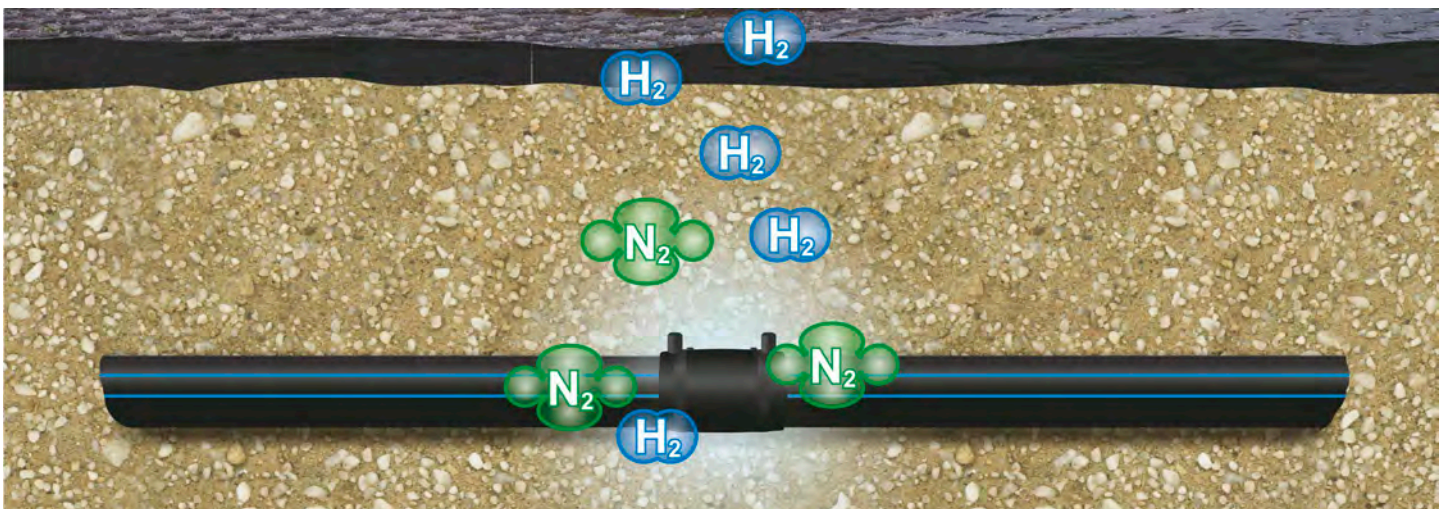
A tried and tested method

Using tracer gas is a tried and tested method of pinpointing leaks. It can be used in gas and water distribution networks, pipelines in buildings, heating systems, pressurised communication cables, gas-filled high voltage power lines and landfill sites sealed with double membrane layers. It can also be used to test for leaks in industrial products such as pipes, pumps, engine blocks and airfoils.

Detecting gas leaks by tracer gas involves feeding a mixture of 95% nitrogen (carrier gas) and 5% hydrogen into the pipelines or other equipment/products being tested. The hydrogen escapes through the leak and is detected by the highly sensitive, specialised sensor.

The low amount of hydrogen (just 5%) means that this method is safe: the gas is incombustible as per ISO 10156 thanks to the use of nitrogen as the carrier gas. It is non-toxic, and therefore also permitted for use in drinking water networks, as well as non-corrosive.

Tracer gas is cheap and easy to obtain from technical gas or welding gas dealers. It is also environmentally-neutral and permeates all cover layers such as asphalt, concrete and other seal coats. Tracer gas always looks for the shortest route from the leak to the surface.



VARIOTEC® 460 Tracergas



Inspection above ground

With the **VARIOTEC® 460 Tracergas** and a bell or carpet probe you can measure the smallest concentrations of gas above a gas pipe laid in the ground, so you can reliably determine the discharge location above a leak on gas or water pipe lines.



Inspections in houses

Detect the smallest traces of gas in buildings and pinpoint the source of the gas, e.g. for leaks in internal, covered pipe systems.



Measuring in bar holes





In combination with a localisation probe you can measure the gas concentration in the ground. In this way, you can exactly pinpoint the suspected leak site.



Gas measurement

Ensure that the lines are either completely filled with or completely emptied of gas when commissioning or decommissioning hydrogen pipelines.

Applications

Application		Measuring range (H ₂)	Sensors
Inspection above ground		0.0 ppm – 5 % vol.	Gas-sensitive semiconductor Thermal conductivity sensor
Measuring in bar holes		0.0 % vol. – 100 % vol.	Thermal conductivity sensor
House		0.0 ppm – 5 % vol.	Gas-sensitive semiconductor Thermal conductivity sensor
Gas measuring		0.0 % vol. – 100 % vol.	Thermal conductivity sensor



Technical data

Dimensions (W x D x H):	approx. 148 x 57 x 205 mm
Weight:	approx. 1000 g
Protection rating:	IP54
Certificate:	TÜV 07 ATEX 553353 X II2G Ex d e ib IIB T4 Gb Basic device without leather bag for: CH ₄ , C ₃ H ₈ , C ₄ H ₁₀ , tracer gas with max. 5 % H ₂ in N ₂ II2G Ex d e ib IIC T4 Gb Basic device with leather bag for: CH ₄ , C ₃ H ₈ , C ₄ H ₁₀ , tracer gas, H ₂
Charging voltage:	12 V DC (max. 1 A)
Operating temperature:	-20 °C – +40 °C
Storage temperature:	-25 °C – +60 °C
Atmospheric pressure:	800 – 1100 hPa
Humidity:	5 – 90 % r.h., non-condensing
Interface:	USB
Memory:	8 MB
Display:	320 x 240 pixels



Accessories that add value

- Bell probe D80, carpet probe, localisation probe
- Carrying case
- Test gas generator PGG H₂ for producing small amounts of hydrogen for function control of the “Inspection above-ground” and “House” application ranges.

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

EX-TEC® GM 4



**Gas warning and gas measuring instrument for proving
toxic and flammable gases, as well as oxygen**

Applications

- Leak detection at pipes
- Monitoring environmental air
- Gas measuring to monitor chemical or biological processes

Features

- Modular instrument concept, basic device without pump (diffusion device) or with built-in pump
- Electro-chemical sensors
- Interchangeable sensors by the operator
- All commercial Mignon accumulators or batteries may be used for power supply
- Large, illuminated LCD
- Self-test when switched-on
- Simple handling by three keys
- Internal data storage (PC evaluation possible)
- Visual and audible alarms
- Adjustable thresholds
- Temperature compensated sensors
- User menu
- Function menu for individual instrument configuration (PIN-Code protected)
- Adjustable test gas concentrations

Sensorics

Gas	Measuring range	Response time t_{90}	Durability expected
CO	0 – 500 ppm	< 30 s	2-3 years
H ₂	0 – 10.000 ppm	< 70 s	1-2 years
H ₂ S	0 – 100 ppm	< 30 s	2-3 years
H ₂ S	0 – 2.000 ppm	< 90 s	2 years
NH ₃	0 – 100 ppm	< 60 s	1-2 years
O ₂	0 – 25 vol.-%	< 30 s	2 years



Technical Data

Operating time:	Typically 50 h diffusion operation Typically 20 h pump operation
Power supply:	NiMH accu, rechargeable or 3 Mignon Alkaline batteries
EX-protection (CENELEC):	EC-type-examination certificate according to ATEX 100a, guideline 94/9/EG
Certificate No.:	TÜV 01 ATEX 1657
Identification 1:	II 2 G Ex e ib IIB T4
without leather bag	
Identification 2:	II 2 G Ex e ib IIC T4
with leather bag	(for hydrogen)
Pump capacity	
Low pressure:	> 150 mbar
Volumetric flow:	Typically 5 – 15 l/h
Protection type:	IP54
Operating temperature:	-20 °C – +40 °C
Storage temperature:	-20 °C – +40 °C
Humidity range:	15 – 90 % r. h., non-condensing
Dimensions (W x H x D):	60 x 144 x 35 mm
Weight:	Approx. 300 g

Accessories

- Gasls (PC evaluation software) for documentation of measurements
- Charging technique for 12 V, 24 V or 100 – 240 V
- Leather bag
- Various probe systems
- Case, test sets and test gases

Please contact us for a detailed quote or more information.

103986 – 06/10 – Subject to technical changes.



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EX-TEC[®] PM 4 | Gas detection, gas warning,
gas concentration measuring instrument
for ppm, LEL and vol.% range applications



Features

- Modular instrument concept.
Basic device without pump (diffusion) or with built-in pump
- Sensor combinations for diverse applications:

Applications	sensors
warning	%LEL
detecting + warning	ppm + %LEL
warning + measuring	%LEL + vol.%
detecting + measuring	ppm + vol.%
detecting + warning + measuring	ppm + %LEL + vol.%

- Large illuminated LCD display
- Self-test when switched-on
- Easy handling
- Visual and audible alarms
- Adjustable alarms for each range
- Temperature compensated sensors
- Easy to follow operator menu
- Function menu for instrument configuration (PIN code protected)
- Operator selectable flammable gas menu (option): methane, propane, butane, hexane, nonane, hydrogen, jet fuel
- Adjustable test gas concentrations



Approvals

- Passive protection:
EC-type-examination certificate in accordance with ATEX 100a, guideline 94/9/EG
Certificate No.: TÜV 09 ATEX 555077 X
Identification: Ex II2G Ex d e ib IIB T4 Gb
- Active protection:
Function safety test in mode "warning" for the following gases: Methane (CH_4), propane (C_3H_8) and Nonane (C_9H_{20})
Certificate No.: BVS 09 ATEX G 002 X

Sensor operation / measuring range

Calibration on methane:

ppm sensor, semi-conductor: 0 – 22.000 ppm
Minimum detection sensitivity 1 ppm

%LEL sensor, catalytic combustion: 0 – 4.4 vol.%
Minimum detection sensitivity 500 ppm

Vol.% sensor, thermal conductivity: 0 – 100 vol.%
Minimum detection sensitivity 1 vol.%

Technical data

Operating time:	typically 8 hours
Power supply:	3 Mignon NiMH accumulators or 3 Mignon Alkaline batteries
Operating temperature:	-20 °C – +40 °C
Storage temperature:	-25 °C – +50 °C
Type of protection:	IP 54
Dimensions (W x H x D):	60 x 144 x 35 mm
Weight:	approx. 300 g

Accessories

- Leather bag
- Various probe systems
- Test case / test sets / test gases

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Gas leak detection outdoors

EX-TEC® HS 680

EX-TEC® HS 660 • 650 • 610

Combination measuring devices
for gas supply with integrated ethane detector



EX-TEC® HS 680

Cutting edge technology for gas supply

Products from the **EX-TEC® HS** family combine ergonomics with cutting edge technology.

Thanks to its innovative design this range offers the user the right instrument for different applications. You can find more details about the appliance configuration opposite.

All appliances from the **EX-TEC® HS** family meet the requirements of DVGW worksheet 465-4 (German Association of Gas and Water Specialists).



Notes

Ergonomics / operation

- Operated by jog dial, function keys and menu navigation
- Large matrix display with backlight
- Power supply via 4 changeable AA-size rechargeable batteries or disposable batteries
- Quick charging in 4 hrs, can also be charged without docking station
- PC communication via USB

Safety

- Explosion protection: TÜV 07 ATEX 553353 X Ex II2G Ex d e ib IIB T4 Gb, IIC when used with carrying bag TG8
- Measuring function: BVS 09 ATEX G 001 X, PFG 08 G 002 X (measuring function **EX-TEC® HS 680, 650** only)

Measuring technology

- Selective infrared sensors for hydrocarbons and carbon dioxide
- Fast and highly-sensitive semiconductive sensor
- Three optional electro-chemical sensors for oxygen and toxic gases
- Gas type setting: methane (standard), propane and butane (optional)
- Optional: ethane analysis to distinguish natural gas/swamp gas without any other accessories

Applications

Application		Measurement ranges	Active principle
Inspection above ground		0 ppm – 10 % vol. CH ₄	Gas-sensitive semiconductor Infrared sensor
Measuring in bar holes		0.0 – 100 % vol. CH ₄ 0 – 30 % vol. CO ₂	Infrared sensor Infrared sensor
Enclosed spaces		0 ppm – 100 % vol. CH ₄	Gas-sensitive semiconductor Infrared sensor
House		0 ppm – 100 % vol. CH ₄	Gas-sensitive semiconductor Infrared sensor
Explosion warning		0 – 100 % lower explosive limit CH ₄	Infrared sensor
Warning ExTox		0 – 100 % lower explosive limit CH ₄ 0 – 5 % vol. CO ₂ 0 – 25 % vol. O ₂ (optional) 0 – 100 ppm H ₂ S (optional) 0 – 500 ppm CO (optional)	Infrared sensor Infrared sensor Electro-chemical sensor Electro-chemical sensor Electro-chemical sensor
Measuring, gas purity		0.0 – 100 % vol. CH ₄	Infrared sensor
Ethane analysis		CH, CH ₄ , C ₂ H ₆ , C ₃ H ₈ (optional)	Gas-sensitive semiconductor / gas chromatograph

EX-TEC® HS 680

Increased safety and efficiency with innovative technology

The **EX-TEC® HS** product family helps the user clearly detect leaks in underground pipes.

To avoid costly and time-consuming pointless excavations, it must be absolutely certain that the gas is actually leaking from a natural gas pipeline. Locating the exact position of the leak also keeps shaft work to a minimum. **EX-TEC® HS** appliances offer new possibilities in this respect.

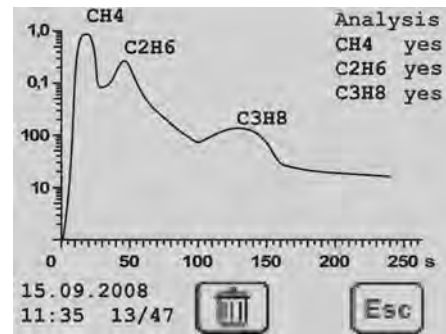
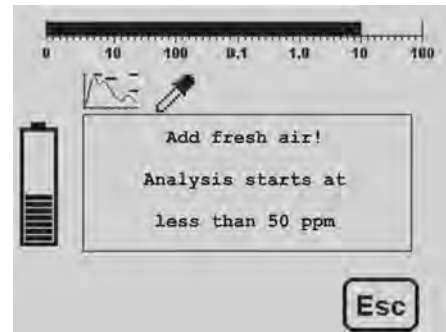
If the gas has dispersed over a wide area, it is often difficult to pinpoint the leak exactly. In many cases the gas gathers under fixed surfaces and spreads over long distances.

The optional oxygen sensor can also display the oxygen minimum at the same time as the methane maximum. This minimum, with its smaller diffusion area, is used to locate complex leaks more precisely.

The integrated ethane detector easily picks up whether the gas is natural gas or swamp gas. The user does not need any extra accessories or specialist knowledge.

The **EX-TEC® HS 680/660** guides the user through the ethane analysis with prompts.

The definitive result can be saved and further processed on the PC using the integrated USB port.



Methane applications

Choosing a model

Model	Inspection above ground 	House 	Explosion warning 	Warning ExTox 	Enclosed spaces 	Measuring in bar holes 	Measuring gas purity 
EX-TEC® HS 680	X	X	X	X	X	X	X
EX-TEC® HS 660	X	X			X	X	X
EX-TEC® HS 650			X	X		X	X
EX-TEC® HS 610						X	X

X = integrated

Additional equipment

Model	Ethane detector	XT O ₂ sensor	XT CO sensor	XT H ₂ S sensor 100 ppm
EX-TEC® HS 680	O	O	O	O
EX-TEC® HS 660	O	O		
EX-TEC® HS 650		O	O	O
EX-TEC® HS 610		O		

O = optional



Technical information

Detectable gases:	Gas database with calibration for methane, carbon dioxide and other gases, e.g. propane, butane
Operating time:	min. 8.0 hrs
Power supply:	4 NiMH batteries, rechargeable or 4 AA-size alkaline batteries
Protection rating:	IP54
Operating temperature:	-10 °C – +40 °C
Storage temperature:	-25 °C – +50 °C
Pressure:	950 hPa to 1100 hPa
Humidity:	15% r.h. to 90% r.h., non-condensing
Dimensions (W x D x H):	148 x 57 x 205 mm 253 mm (incl. supporting bracket)
Weight:	approx. 1000 g

Accessories

- Charging equipment for 12 V=, 24 V= and 230 V~
- Docking station/wall mount
- System case
- Gas detection probes/localisation probes
- Test sets and test gases



System case for network survey

- **EX-TEC® HS 680**
- Docking station TG 8
- AC/DC adapter
- Floating probe
- Flexible hand probe with probe hose
- Localisation probe
- Bell probe

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

LaserGasPatroller LGP 800

Vehicle-based solution for the network
inspection of underground gas pipes
economical – laser-based – fully automatic



LaserGasPatroller LGP 800 – economical – laser-based –

The **LaserGasPatroller** is a vehicle-based solution for the economical network inspection of underground gas pipes. Gas leaks are detected when the laser-based measuring system **LGP 800** is driven over the gas pipes.

The **LGP 800** is operated by the **SeCuRi® SAT** software system. **SeCuRi® SAT** is the world's most sophisticated documentation system for pipe network inspection.

Principle

Natural gas (methane CH_4) is a light gas which escapes from a leak in a gas pipe and diffuses through the soil to the road surface. As the **LaserGasPatroller** drives over the gas pipe, it draws in a sample, which is transferred to the **LGP 800** measuring system and analysed. Leaks are detected and automatically recorded by the **SeCuRi® SAT** software.

Measurement unit – LGP 800

The **LGP 800** measurement unit is built into a very compact 19" metal enclosure. Its space-saving design means that the measurement unit can be mounted anywhere in the vehicle. All components are tested under harsh conditions, particularly in respect of vibration, which is an everyday hazard.

The **LGP 800**'s sensor is based on the principle of Tunable Diode Laser Spectroscopy (TDLS). This method determines the concentration from a measured absorption of the gas in question, for example methane. The source of the radiation is a laser diode, which is why TDLS is classed as a laser spectroscopy technique. The laser measuring cell thus measures methane exclusively. There is no interference from other gases. The **LGP 800** is also optimised with regard to electricity usage. With a maximum power consumption of 20 A, the system can be operated from a standard car battery. This means that electric vehicles can also be used.

With three external outputs, a rotating warning light or a siren, for example, can also be connected via the **SeCuRi® SAT** software.

Gas sample module

With a standard vehicle width the gas sample is drawn in via eight bell probes. The bell probes ensure an optimum detection of natural gas components in the air. A heavy-duty pump in the **LGP 800** efficiently transfers the gas sample to the measuring system.



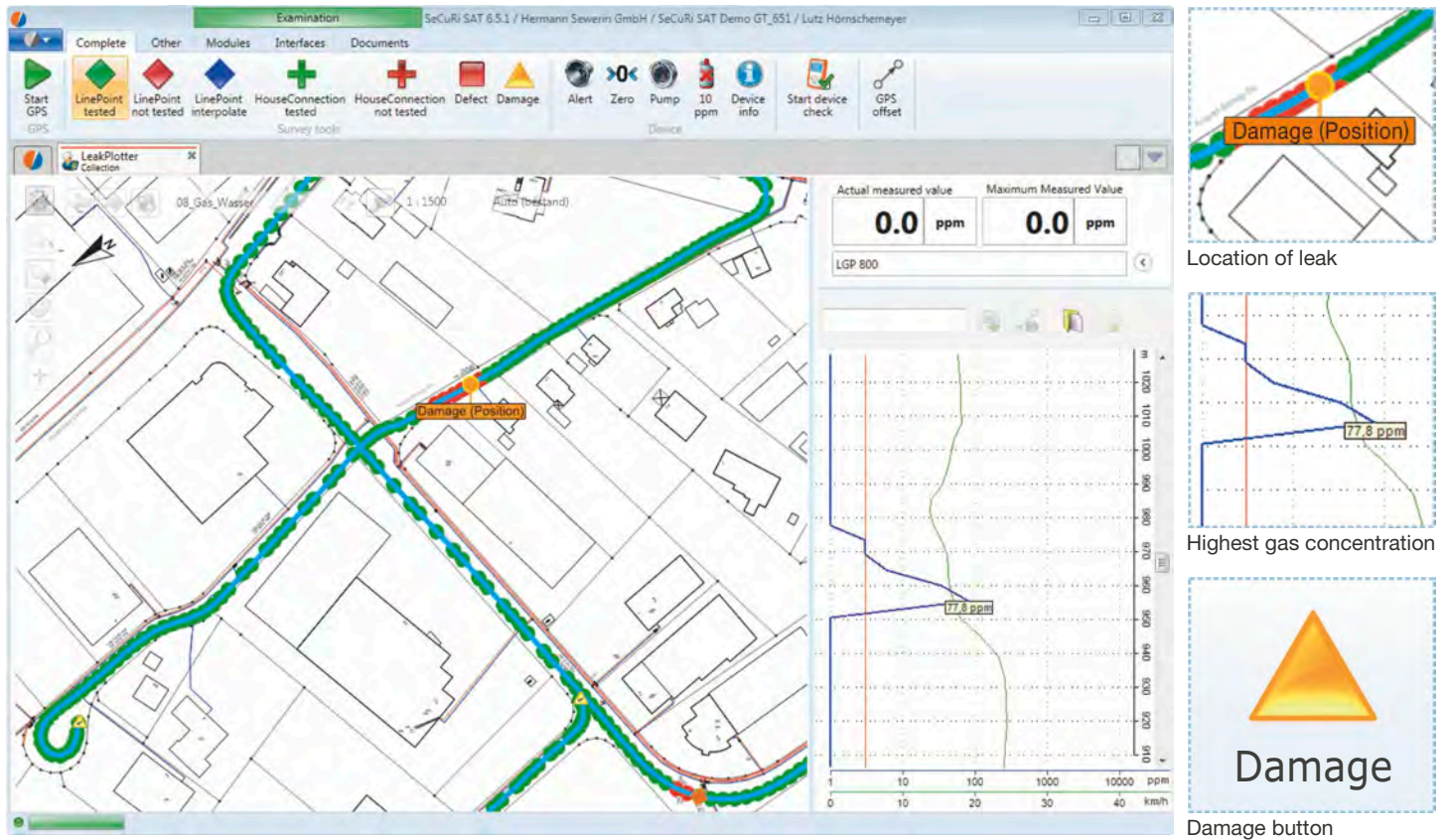
PC control unit – SeCuRi® SAT

The **LGP 800** is connected via Bluetooth to a Windows laptop or tablet PC. The **SeCuRi® SAT** software controls the **LGP 800** and automatically documents the pipe network inspection. All relevant data, including GPS location, time, distance travelled and gas value, is documented once per second and stored in a database. Leaks are recorded as damage. A special damage symbol is automatically displayed on the map at the location of the highest gas concentration. **SeCuRi® SAT** can be operated both with and without existing map material. **SeCuRi® SAT** offers a powerful interface to all GIS systems via DXF and DWG, the most widely-used file exchange formats, for this purpose. However, georeferenced aerial images can also be imported.



- fully automatic

SeCuRi® SAT includes versatile recording tools for documenting advanced tasks in addition to the pipe network inspection. For example, structures or planting encroaching on the course of the pipe network can be recorded by means of the Defect button. The software also includes a powerful print and export function. The recorded data and map material can be exported in KML file format for Google Earth, for example.



GPS system with dead reckoning

The **LGP 800** has an integrated GPS system with dead reckoning support. If the GPS signal is lost because of a high building or tunnel, the position is calculated from the speed, direction and distance travelled. This dead reckoning support ensures that GPS positioning is effective even on streets flanked by tall buildings. Only with this support can full GPS documentation of the pipe network inspection be achieved.

Upgrade

The **Portafid LP Leakplotter** module can be replaced easily and at very low cost with the new **LaserGasPatroller LGP 800**. This means that existing Leakplotter vehicles can continue to be used.

Features


- Selective methane measurement
- Fully compatible with Sewerin **FID Leakplotters** (interchangeable with plug-and-play capability)
- Multilingual
- Interchangeable modules (plug and play) for easy servicing
- Dead reckoning – continuous GPS positioning even in tunnels and street canyons
- Fully automatic device check with up to two different test gases
- Low test gas consumption (gas cans, not gas bottles)
- Fully automatic control via **SeCuRi® SAT** Can be used with or without map material
- All stored data (GPS locations, leaks, etc.) including map material (pipes, land register data) can be exported in KML format, for example (for viewing with Google Earth)
- **LGP 800** + GPS communication (Bluetooth) via just one COM port
- Very compact dimensions
- Very low power consumption, no additional vehicle battery required
- Three external outputs (siren, rotating light, etc.) controllable via **SeCuRi® SAT**



Equipment

SIinterface:	Bluetooth, USB
Processor:	8-bit microcontroller, dual USB host controller
GPS:	with dead reckoning
Sensor:	Laser
Pump:	Suction pump, 14 l/min

Certificates

Certificate:	E13*10R00*10R04*13309*00
Marking:	CE
	 10R-0413309

Technical data

Power supply:	12 V, max. 20 A
Operating temperature:	-10 °C – +50 °C
Storage temperature:	-40 °C – +80 °C
Humidity:	0 – 90 % r.h., non-condensing
Atmospheric pressure:	800 – 1100 hPa
Protection rating:	IP20
Measuring range:	0 – 40,000 ppm in synthetic air
Dimensions (W x D x H):	483 x 356 x 267 mm
Weight:	approx. 10 kg approx. 15 kg with metal enclosure

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

PORTAFID[®] M3 / M3K | Flame ionisation detectors for detecting leaks in gas pipes



Features

The **PORTAFID® M3 / PORTAFID® M3K** portable flame ionisation detector is the perfect tool for surveying gas pipes. It is reliable and highly accurate, resistant to interference from moisture and is hydrocarbon specific. The **PORTAFID® M3** has a 0.1 l fuel gas bottle housed under the detector and the **PORTAFID® M3K** carries a larger 0.4 l fuel bottle in an ergonomic back harness.



Application

Inspecting gas pipes for leaks
 Detecting gas on landfill sites

Advantages

- Automatic ignition on switch-on/manual re-ignition
- Automatic zero point setting
- Linear display from 0 – 10,000 ppm
- Adjustable alarm threshold
- Automatic alarm activation
- Volume flow and flame monitor
- 2-step pressure regulator with high pressure stability
- Fuel gas operating time (**PORTAFID® M3** only) and remaining operating time displayed
- Adjustment options of 10, 100, 1,000 or 10,000 ppm methane

- Measurement values can be output using the RS-232C interface (connection option for PC, GPS and Leakplotter systems)
- Illuminated liquid crystal display
- Analogue and digital measured values displayed
- Automatic and manual measuring range changeover
- Slider for displaying maximum concentration
- 8 hours' operating time (rechargeable battery) with pump running
- Fully charged within 2.5 hours

Operating time:

	Volume	Fuel gas 40 % H ₂ / 60 % N ₂	Fuel gas 100 % H ₂
PORTAFID® M3	0,1 l	5 h	--
PORTAFID® M3K	0,4 l	25 h	50 h

Accessories:

- CEJN and Rectus probe connection included
- Charger for 12, 24 and 230 volts and car charging cable
- Carrying case
- Carpet probe and bell probe
- Testing technique
- Fuel gas bottles
 - 40 % hydrogen H₂ / 60 % nitrogen N₂ (0.1 l and 0.4 l)
 - 100 % hydrogen (0.4 l)



Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

NEW!

DP-IR™ *Detector Pac-Infrared* - Infrared measuring technology for leak survey



The DP-IR™ (Detector Pac-Infrared) uses advanced optical technology to achieve a detection sensitivity of 1 ppm by means of IR-CIPS (Infrared Controlled Interference Polarization Spectrometry).

This rugged and easy to use instrument combines the excellent measuring properties of a flame ionisation detector (FID) with the ease of use of gas-sensitive semiconductor systems.

It does not require any fuel gas and is methane specific. This technology is proving to be an invaluable tool in network survey applications.

Kit Contents

- Detector Pac-Infrared (DP-IR™), measuring instrument with self-testing function
- Carrying strap, detachable wrist strap and padded shoulder strap
- Charger, universal charger 110 – 240 V AC, 50 / 60 Hz
- Operating instructions on CD
- Carrying case, high-quality hard-top case with foam insert
- Telescopic bell probe
- Soil probe
- Replacement filter



Technical Data

Measuring principle:	IR-CIPS (Infrared Controlled Interference Polarization Spectrometer)	
Measuring range:	0 – 10 000 ppm, 0 – 100 % gas	
Sensitivity steps:	0 – 1000 ppm: 1 ppm 1000 – 10 000 ppm: 5 ppm 1 – 100% gas: 0.5 %	
Accuracy:	Better than +/- 0.5 % or +/-10 % of the display value (typical, normal conditions) (% gas with manual operation)	
Alarm modes for detection:	<u>DMD (Digital Methane Detection):</u> Acoustic signal when alarm threshold is exceeded, adjustable between 1 and 9000 ppm <u>Audible gas level indication:</u> Concentration-dependant ticking signal	
Self-test and calibration:	Integrated self test and calibration function. Test gas cell integrated in device.	
Compliant with standards:	EN 61326-1 Grid-bound faults Class B Radiated faults Class B ANSI C63.4 Class B FCC 47 CFR, Part 15 Class B	EN 61326-1 EN 61000-4-2 4 kV/8 kV EN 61000-4-3 3 V/M
Display:	Large, easy to read LCD with backlight (0.75 inch, numeric)	
Operating temperature:	-17 °C – +50 °C (0 – + 122 F) (nominal battery voltage)	
Humidity:	5 – 95 % relative humidity (non-condensing)	
Protection class:	IP54 (protected against water spray and dust)	
Weight:	2.54 kg (5.6 lbs).	
Weight and dimensions of carrying case:	5.90 kg (13 lbs) empty, 9.52 kg (21 lbs filled) approx. 62.2 cm x 53.3 cm x 22.9 cm (24.5 inches x 21 inches x 9 inches)	
Power supply:	Integrated lithium-ion rechargeable battery or external 12 V DC car battery with optional noise filter	
Battery operating life:	8 hours at 0 °C (32 F) with backlight switched off	
Charger:	External universal charger, 110 – 240 V AC, 50 / 60 Hz. 10 hours up to 90 % charge	
Speaker volume:	108 dBs @ Alarm-Port (A-fast)	
Intrinsic safety:	Class 1, Department 1, Group DT3 UL 913 MetLab No. E112840	

Please contact us for a comprehensive quote, including additional technical specifications and information on accessories.
106632 - 2010-11-22 - Subject to change.

VARIOTEC® 480 EX

VARIOTEC® 460 EX • 450 EX • 400 EX
Cost-effective gas detector
for distribution networks



VARIOTEC® 480 EX

The entry into professional gas measurement

The **VARIOTEC® 4x0** range gives network technicians an efficient and cost effective means of carrying out all common measurement tasks in gas distribution networks.

The **VARIOTEC® 4x0** instruments utilise the same accessories and probes as previous generations of Sewerin gas measuring instruments so if you are upgrading there is no need to purchase new ones.

The **480 EX** and **460 EX** can incorporate an optional ethane detector to quickly distinguish between natural and swamp gas.

No more false indications from swamp gas rather than natural gas. All variants, except for the **VARIOTEC® 400 EX**, can have optional oxygen and carbon monoxide sensors fitted.



Features

Operation

- Unique and simple to use operating system, with jog dial, soft keys and easy to follow task orientated menu navigation
- Large matrix display with backlight, clearly showing all gas levels
- Rapid charging in 4 hours – More usage time
- Power supply via 4 AA rechargeable or disposable batteries
- On board data logging with PC communication via USB port
- The carrying handle doubles as a clever display stand, allowing versatile positioning and easy carrying

Efficiency

- Simple, task orientated menu structure means new users are up and running with very little training
- No complicated setup required even after extended periods of disuse
- Cost-effective operation thanks to low capital cost, high up time, low maintenance costs, and paperless inspection regime.

Measuring technologies

- Fast and highly-sensitive semiconductor sensor for measuring very low gas concentrations in the ppm range
- Electrochemical sensors for measuring oxygen and carbon monoxide (optional)
- Integral gas chromatograph to measure ethane. This differentiates between natural gas and swamp gas without any other accessories (optional)

Approvals

- Explosion protection:
TÜV 07 ATEX 553353 X Ex II2G Ex d e ib IIB T4 Gb, IIC when used with the TG8 carrying bag
- Measuring function:
BVS 09 ATEX G 001 X N1, PFG 08 G 002 X N1 (measuring function available for **VARIOTEC® 480 EX**, **450 EX** only)

Applications




Application		Gases measured and ranges	Gas sensor technique
Inspection above ground		0.0 – 10 % vol. CH ₄	Gas-sensitive semiconductor Thermal conductivity sensor*
Measuring in bar holes		0.0 – 100 % vol. CH ₄ 0 – 25 % vol. O ₂ (optional)	Thermal conductivity sensor Electrochemical sensor
Enclosed spaces		0 ppm – 100 % vol. CH ₄	Gas-sensitive semiconductor Thermal conductivity sensor
House		0 ppm – 100 % vol. CH ₄	Gas-sensitive semiconductor Thermal conductivity sensor
Warning ExTox		0 – 100 % LEL CH ₄ 0 – 25 % vol. O ₂ (optional) 0 – 500 ppm CO (optional)	Catalytic combustion sensor Electrochemical sensor Electrochemical sensor
Measuring gas purity		0.0 – 100 % vol. CH ₄	Thermal conductivity sensor
Ethane analysis		CH ₄ , CH ₄ , C ₂ H ₆ , C ₃ H ₈ (optional)	Gas-sensitive semiconductor / gas chromatograph

* depending on model

VARIOTEC® 480 EX

A model for each application

Device selection

Model	Inspection above ground	House	Warning EX	Warning			Enclosed spaces	Measuring in bar holes		Gas purity measurement	Ethane analysis
				ExTox	O ₂	CO			O ₂		
VARIOTEC® 480 EX	X	X	X	X	O	O	X	X	O	X	O
VARIOTEC® 460 EX	X	X					X	X	O	X	O
VARIOTEC® 450 EX			X	X	O	O		X	O	X	
VARIOTEC® 400 EX	X										

X = standard O = optional

Application: Inspection above ground

Measuring low gas concentrations above ground and above gas pipes.

Example: Inspection of underground gas pipes

Application: House

Measuring low gas concentrations in buildings and locating the source of gas leaks.

Example: Leak detection in accessible gas installations

Application: Work area monitoring

(Warning EX and Warning ExTox)
Monitoring and protecting the work environment, property and personnel during work on gas pipes and/or gas installations where there is a risk of explosion.

Example: Work on gas pressure regulating stations, biogas plants, responding to reports of the smell of gas

Application: Enclosed spaces

Measuring gas concentrations in enclosed spaces where there is increased potential of gas build up.

Example: Telephone switch boxes, lamp posts, sewers

Application: Measuring in bar holes

Measuring the gas concentration and determining gas dispersal in the ground, leak classification and location of suspected gas leaks.

Example: Reducing the area of leak search

Application: Gas purity measurement

Proving gas purity / absence of natural gas and or oxygen in gas pipes.

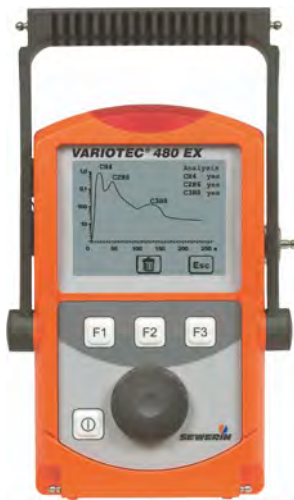
Example: Decommissioning and recommissioning of gas pipes

Application: Ethane analysis

Determining the methane, ethane, and propane components of a gas sample

Example: Distinguishing between natural gas and swamp gas if a leak occurs





Ethane analysis – Natural gas or swamp gas?

The **VARIOTEC® 4x0** product family helps the user pinpoint leaks in underground pipes.

Before making an expensive excavation you need to be sure the gas detected is really emanating from a natural gas pipe and that it is not swamp gas or coming from another gas source.

The optional integrated ethane detector can quickly and easily distinguish between natural gas and swamp gas. There are no accessories or any specialist training required. The user is guided through the ethane analysis process with clear prompts. The result can then be saved and stored on a PC for record keeping.

Oxygen measurement – Get closer to the leak source

If the natural gas has dispersed over a wide area, over a period of time, under a road for example, it is often difficult to pinpoint the precise source of the leak.

The optional oxygen sensor displays the measured oxygen level whilst at the same time the methane sensor shows the natural gas level. At the point where the methane reading is highest and the oxygen level the lowest is the most likely position of the source of the leak.



Accessories

- Charging equipment for 12 V~, 24 V= or 230 V~
- Docking station/wall bracket
- System case
- Testing equipment and test gases
- Flexible hand probe with probe hose
- Localisation probe
- Bell probe

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

RMLD-IS



Revolutionary laser technique to check for gas leaks from a distance of up to 30 m

The SEWERIN **RMLD-IS** (Remote Methane Leak Detector) is the first instrument in a generation of laser leak detectors, allowing the user a completely new method of operation. The **RMLD-IS** provides access to hard-to-reach areas and difficult terrains. Its laser passes through a methane plume and absorbs a specific area of the infrared light, allowing the user to detect the gas leak from a safe distance.

The instrument is exclusively developed for detecting methane gas and shows no cross-sensitivity to other hydrocarbons. The gas concentration is calculated by the amount of infrared light that is absorbed by the gas. For example, if the gas plume has an expansion of 1 m and a concentration of 100 ppm, a value of 100 ppm*m is displayed. If the gas plume of 100 ppm is only 0.5 m wide, the measured value is 50 ppm*m.

The **RMLD-IS** consists of two interactive components, the transceiver and the controller. The transceiver has two lasers; the infrared laser is invisible and is continuously active while the unit is turned on. The spotter laser operates in the clearly visible green frequency range and can be activated on demand.

The **RMLD-IS** includes integrated self-test and adjustment functions that guarantee correct functioning of the device. While in use, the **RMLD-IS** continuously monitors several parameters to ensure that the instrument is functioning correctly. Should any of these parameters exceed the specified operating limits, an audible alarm will sound and a fault/warning error message will be shown on the display.



Delivery contents

- RMLD-IS (transceiver and controller)
- Carrying case with integrated reference gas cell
- Charging adapter
- Headphones
- Carrying strap
- Ergonomic carrying system

Technical Data

Detection method:	TDLAS (Tunable Diode Laser Absorption Spectroscopy)		
Measurement range:	0 – 99.999 ppm*m		
Sensitivity:	5 ppm*m at a distance of 0 – 15 m min. 10 ppm*m at a distance of 15 – 30 m		
Detection range:	30 m (nominal) Actual distances may vary depending on the type of background and other conditions		
Beam size:	Conical beam, width 56 cm at 30 m		
Standards:	EN 61326-1		
	Conducted Emissions	Class A	April 21, 2005
	Radiated Emissions	Class A	April 21, 2005
	FCC 47 CFR Part 15	Class A	April 21, 2005
	ANSI C63.4	Class A	April 21, 2005
	EN 61000-4-2	4/8kV	April 20, 2005
	EN 61000-4-3	10V/m	April 20, 2005
Intrinsic Safety:	Class I, Division 1, Group D; T4 UL 913, MetLab Listing #E112840		
Laser safety (eye protection):	CDRH, ANSI und IEC <ul style="list-style-type: none">• IR-detection laser: Class I• Green spotter laser: Class IIIa: Do not look into the beam or view directly using optical instruments!		
Display:	LC display with backlight (0.75 inch, numeric)		
Operating temperature:	-17 °C – +50 °C		
Humidity:	5 – 95% (non-condensing)		
Housing:	IP54 (protected against water spray and dust)		
Weight of device:	4 kg (transceiver 1.3 kg, controller 2.7 kg)		
Carrying case:	6.4 kg; 86 cm x 24 cm x 36 cm		
Power supply:	Internal lithium-ion rechargeable battery External backup battery pack holding 5 type “C” cells (optional)		
Battery operating life:	8 hours at 0 °C without backlight on (internal battery)		
AC/DC adapter:	External adapter, 100 – 240 V~, 1.6 A, 50 – 60 Hz with charge indicator (max. 8 hours for full charge)		

Please contact us for a comprehensive quote, including additional technical specifications and information on accessories
107304 – 03/2016 – Subject to technical changes.

Landfill and biological gas

Multitec[®] 520 | Versatile multiple gas warning device
for workplace monitoring



Applications

Precautionary measurement of hazardous gases is particularly important for safety when working in pits. To establish if the pit is safe to work in, the floating probe is used to take a measurement at the bottom of the pit before entering. This ensures the safety of all workers.

Device functionality

The **Multitec® 520** provides the ability to measure six gases simultaneously, meaning that this gas warning device can be used practically anywhere.

A large display allows all parameters to be quickly read from a single screen.

The **Multitec® 520** integrates perfectly into the new family of devices from SEWERIN, ensuring compatibility with the comprehensive range of existing accessories.



Features

- Intuitive, menu-driven user interface with jog dial and function keys
- Large transfective display, very good readability in direct sunlight
- Selective infrared sensors for hydrocarbons and carbon dioxide
- Highly durable electro-chemical sensors for oxygen and toxic gases
- Power supply via 4 replaceable AA-size rechargeable batteries or disposable batteries
- Minimum 8 hour battery life in use, rapid charging in 3 hours
- Explosion protection:
TÜV 07 ATEX 553353 X (Ex) II2G Ex d e ib IIB T4 Gb, IIC when used with TG8 carrying bag
- Measuring function: BVS 09 ATEX G 001 X, PFG 08 G 002 X
- Results of functional tests stored electronically in device
- PC communication via USB port and free software for evaluation of measurement results

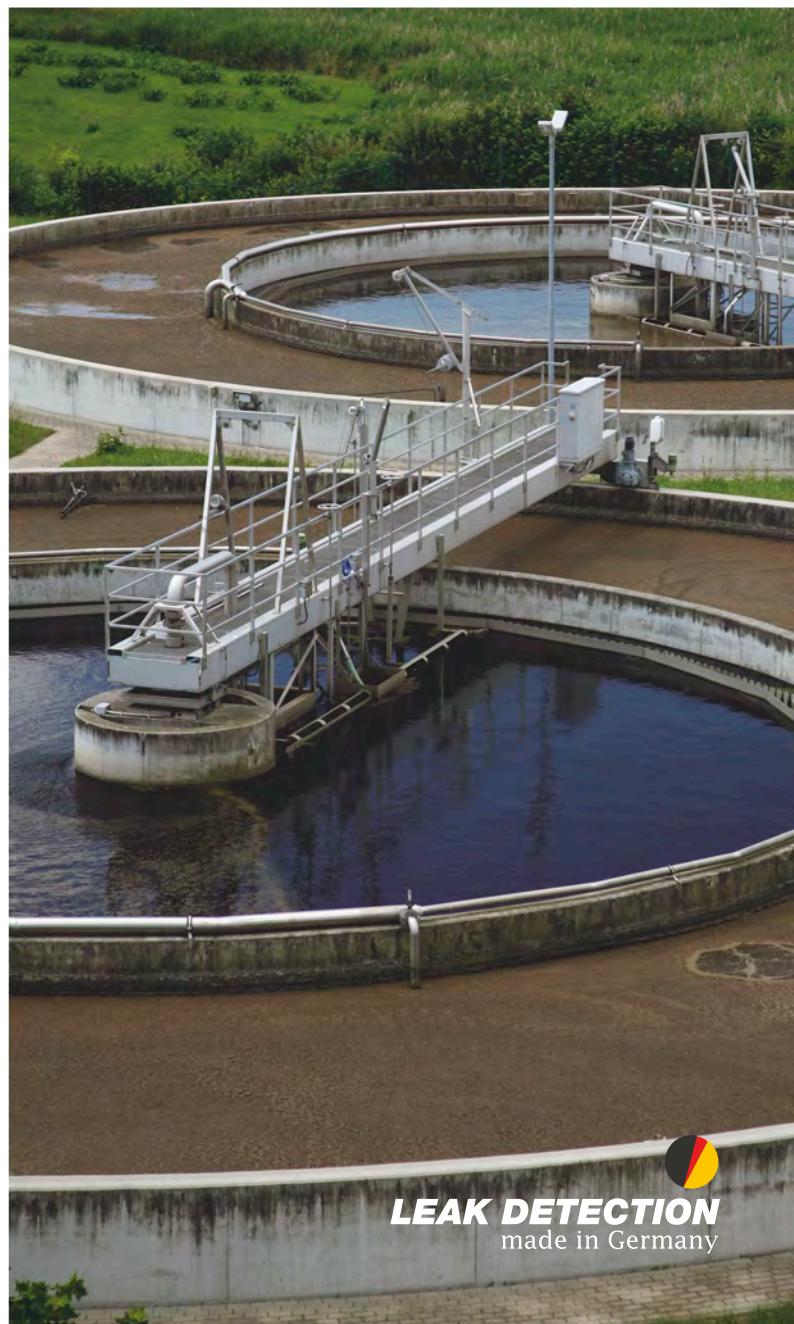
Measuring ranges and sensors

Gas type	Measuring range	Sensor type
Methane	0 – 100 % LEL	Infrared sensor
Carbon dioxide	0.0 – 5 % vol.	Infrared sensor
Oxygen	0.0 – 25 % vol.	Electro-chemical sensor
Carbon monoxide	0 – 500 ppm	Electro-chemical sensor
Hydrogen sulphide	0 – 100 ppm	Electro-chemical sensor
Ammonia	0 – 100 ppm	Electro-chemical sensor

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Multitec[®] 540

Multiple gas measuring device
with infrared sensors –
optimised for biogas and landfill gas



Applications

The **Multitec® 540** is a gas measuring device for analysing gas mixtures that are formed in biological processes. It can measure the concentration of up to five gases simultaneously.

The device is fitted with infrared sensors for measuring methane and carbon dioxide. It can also be fitted with electrochemical sensors.

Device functionality

The use of infrared measuring techniques for methane and carbon dioxide means that there is no possibility of misleading results due to interaction with other gases. This makes it ideal for use in waste disposal sites, sewage plants and biogas plants.

A large display allows all parameters to be displayed simultaneously and quickly read from a single screen.

Measurement data is stored in log files and can be transferred without difficulty to a PC over a USB link.



Features

- Intuitive, menu-driven user interface with jog dial and function keys
- Large transfective display, very good readability in direct sunlight
- Selective infrared sensors for hydrocarbons and carbon dioxide
- Highly durable electro-chemical sensors for oxygen and toxic gases
- Power supply via 4 replaceable AA-size rechargeable batteries or disposable batteries
- Minimum 7 hour battery life in use, rapid charging in 4 hours
- Explosion protection: TÜV 07 ATEX 553353 X Ex II2G Ex d e ib IIB T4 Gb, IIC when used with TG8 carrying bag
- PC communication via USB port
- Supporting bracket for carrying and positioning
- Low weight (1,000 g) for maximum ease of carrying

Measuring ranges and sensors

Gas type	Measuring range	Sensor type
Methane	0.0 – 100% vol.	Infrared sensor
Carbon dioxide	0 – 100% vol.	Infrared sensor
Oxygen	0.0 – 25% vol.	Electro-chemical sensor
Hydrogen sulphide	0 – 2000 ppm	Electro-chemical sensor
Carbon monoxide	0 – 500 ppm	Electro-chemical sensor

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Multitec[®] 545



Multi-gas measuring device with infrared sensors and extended measuring range for hydrogen sulphide

With the **Multitec 545**, up to five gases can be measured simultaneously. The very high H₂S concentrations in wastewater treatment plants and palm oil factories, for example, place special demands on the measuring instrument. With its rugged design and wide H₂S measuring range, the **Multitec 545** is ideal for this use.

The use of infrared measuring techniques for methane and carbon dioxide eliminates the possibility of misleading results due to interaction with other gases. The large screen allows all parameters to be displayed simultaneously and quickly read off at a glance.

Measurement data is stored in log files and can easily be transferred to a PC via a USB connection.

Features

- Intuitive operating concept with jog dial, menu navigation and function keys
- Large-format matrix display with backlight
- Selective infrared sensors for hydrocarbons and carbon dioxide
- EC sensor for hydrogen sulphide with wide measuring range (5000 ppm)
- Rapid charging in 3 hours
- Power supplied from four replaceable AA-size rechargeable or disposable batteries
- Explosion protection: TÜV 07 ATEX 553353 X
 - ⊕ II2G Ex d e ib IIB T4 Gb,
 - ⊕ II2G Ex d e ib IIC T4 Gb when used with carrying bag TG8
- PC communication via USB port
- Supporting bracket for carrying and positioning

Measuring range and sensors

Gas type	Measuring range	Operating principle
Methane	0.0 – 100 % vol.	Infrared sensor
Carbon dioxide	0 – 100 % vol.	Infrared sensor
Hydrogen sulphide	0 – 5000 ppm	Electrochemical sensor
Oxygen	0,0 – 25 % vol.	Electrochemical sensor
Carbon monoxide	0 – 500 ppm	Electrochemical sensor

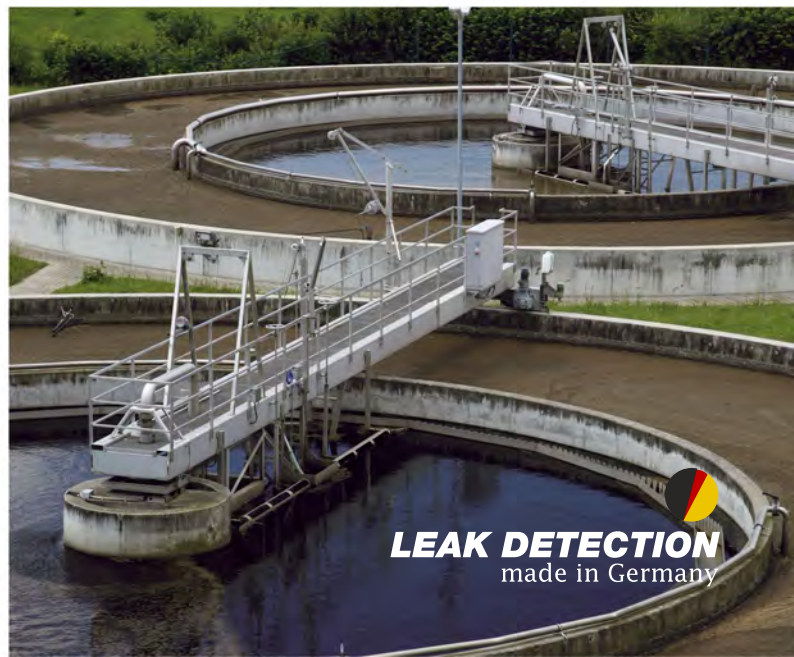
Technical data

Dimensions (W × D × H):	Approx. 148 × 57 × 205 mm Approx. 148 × 57 × 253 mm with supporting bracket
Weight:	Approx. 1.000 g, depending on equipment
Protection rating:	IP54
Power supply:	4 rechargeable (NiMH) or disposable (alkaline) batteries
Operating time:	At least 6 h
Charging time for rechargeable batteries:	Approx. 3 h (complete charge), depending on capacity
Charging voltage:	12 V DC (max. 1 A)
Operating temperature:	-20 °C – +40 °C
Storage temperature:	-25 °C – +60 °C
Pressure:	800 – 1100 hPa
Permissible relative humidity:	5 – 90 % r.h., non-condensing
PC connection:	USB
Memory:	8 MB
Display:	Monochromatic graphic display, 320 × 240 pixels
Pump capacity:	– Vacuum: > 250 mbar – Volume flow: typically 50 l/h ±20 l/h

Please contact us for a comprehensive quote, including additional technical specifications and information on accessories.
107430 – 11/2015 – Subject to technical changes.

Multitec® 560

Combined gas warning and measuring device for monitoring processes and personal safety at landfill sites, sewage treatment facilities and biogas plants



Device concept

The **Multitec® 560** is a combined gas warning and measuring device. When used as a gas warning instrument it reliably and automatically detects gases which are toxic and hazardous to humans. When used as a gas measuring device it records and documents the composition of biological process gases.

The intelligent operator guidance optimally supports the user in his work. For example, the device prevents switching between measuring ranges at critical gas concentrations, thus ensuring maximum safety – for humans and equipment.

Applications

The **Multitec® 560** is ideal for the preventative inspection of the atmosphere in work areas (e.g. engine pits, silage tanks, shaft constructions). It reliably detects explosive and toxic gases to ensure safety at work at all times.

It is essential to record and analyse the gas composition and optimise processes for the profit-oriented production of biogas. The **Multitec® 560** is perfect for these tasks as it uses high-quality infrared measuring technology.



Functionality

The gas warning function (ExTox warning application) records methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide up to the customised alarm values, which means that the **Multitec® 560** can be used virtually anywhere as a gas warning device.

The gas measuring application more or less eliminates erroneous measurement values for methane and carbon dioxide caused by interaction with other gases thanks to the use of infrared measuring technology.

In both applications, the measurement values are displayed simultaneously on the large screen and can be read off at a glance. The measurement data are saved in logs and can be easily transferred to a PC using the USB port for further evaluation.

The **Multitec® 560** integrates perfectly into SEWERIN's extensive product line of gas devices. There is also a comprehensive range of approved test technology accessories available. These allow the user to regularly test and adjust the device himself. The functionality of the device can be verified using test gases. This "function control" can be saved in the device (integrated function control). The device, therefore, already complies with the anticipated future obligations to provide proof, for example, as imposed by plant insurance underwriters for calculating premiums.

Features

- Innovative operating concept with jog dial, menu navigation and function keys
- Large transreflective, i.e. semi-transparent display, excellent readability, even in direct sunlight
- Selective infrared sensors for methane and carbon dioxide
- Highly durable electrochemical sensors for oxygen and toxic gases
- Explosion protection: Ex II2G Ex d e ib IIB T4 Gb Ex II2G Ex d e ib IIC T4 Gb with TG8 carrying bag
- EC type-examination certificate: TÜV 07 ATEX 553353 X
- Measuring function: BVS 09 ATEX G 001 X, PFG 08 G 002 X (applies to ExTox warning application for CH₄, CO₂, O₂, CO, H₂S)
- Minimum eight hour battery life in use, rapid charging in four hours

Measuring ranges / sensors

Application	Measuring ranges	Operating principle
Warning ExTox	0 – 100 % LEL CH ₄	Infrared sensor
	0 – 5 % vol. CO ₂	Infrared sensor
	0 – 25 % vol. O ₂ (optional)	Electrochemical sensor
	0 – 100 ppm H ₂ S (optional)	Electrochemical sensor
	0 – 500 ppm CO (optional)	Electrochemical sensor
Gas measuring	0 – 100 % CH ₄	Infrared sensor
	0 – 100 % vol. CO ₂	Infrared sensor
	0 – 25 % vol. O ₂ (optional)	Electrochemical sensor
	0 – 2000 ppm H ₂ S (optional)	Electrochemical sensor
	0 – 500 ppm CO (optional)	Electrochemical sensor

Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Multitec[®] BioControl system – BioControl 2

The entry-level model
for individual process optimisation



BioControl 2: user-friendly, flexible, efficient

The entry-level model for automated process optimisation

Multitec® BioControl is the ideal system for the continuous automatic measurement and monitoring of the composition of gas: simple, safe and efficient. Be it in a **biogas plant, landfill, wastewater treatment plant** or even a **composting plant** – the unique device combination of a stationary unit and mobile gas measuring device offers a cost-effective and easy switch to process optimisation and control.

The BioControl 2 fulfils the main measuring requirements of all **small to medium-sized plants**: it saves time and money, it is user-friendly and flexibly customisable. For plant manufacturers the BioControl 2 is an option that offers high quality technology at a very reasonable price.

The Multitec® BioControl system consists of the stationary, fixed BioControl 2 device and a mobile gas measuring device. Depending on your unique requirements, you can choose between the Multitec® 540 or the Multitec® 545 mobile measuring device.

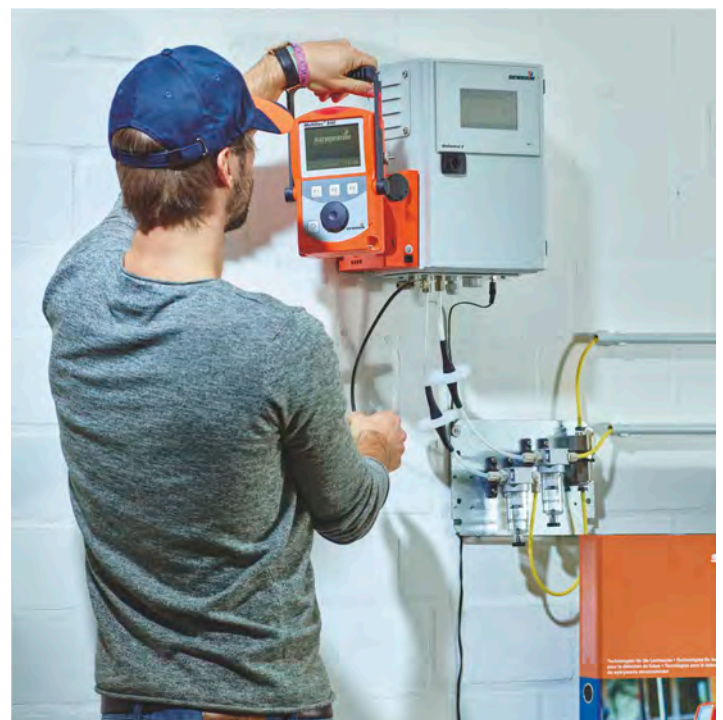
Operating principle

The BioControl 2, with its two fixed measuring inputs, offers all you need to automatically and thus effortlessly measure the exact gas composition in a plant from a stationary position. The system allows reliable data storage and continuous monitoring. For example, the first stationary measurement location can continuously check the gas composition at the motor while the second stationary measurement location checks the raw gas composition. The mobile measuring device, on the other hand, can be easily used for infinite manual measurements at remote parts of the plant at irregular intervals.

Data can be transferred via LAN, or optionally by Profibus module. The alarm relay can be freely configured via the touchscreen.

Advantages of the Multitec® BioControl system

- **Large, state-of-the-art 4.3" colour touchscreen:** easy user-defined settings, language selection
- **Flexible configuration to individual requirements:** measurement locations/cycles, save intervals, limits, alarm thresholds
- **User settings can be restored from first day of use** (saved on USB stick)
- **Safe, reliable measuring results** thanks to self-tests during operation
- **Sturdy and durable:** all relevant components resistant to aggressive gases
- **Autonomous and regular saving of all measurement values and settings** on USB stick; no data loss, no manual protocols, seamless documentation
- **Comprehensive service:** stationary unit largely maintenance-free; fast, first-class support thanks to customer-friendly remote maintenance and diagnostics – anywhere in the world by internet; simple automatic calibration and adjustment using test gas (optional)



Multitec® 540 and Multitec® 545: independent measuring anywhere

The mobile Multitec® 540 and Multitec® 545 gas measuring devices can measure the concentrations of up to five gases simultaneously. This makes them ideal for the precise analysis and monitoring of the gas mixtures produced in biological processes. Equipped with infrared sensors, these devices reliably determine methane and carbon dioxide concentrations without distortion from other gases. The large display shows the values simultaneously and clearly, so that everything can be read off at a glance. The mobile measuring devices can also be fitted with optional electrochemical sensors for calculating oxygen, hydrogen sulphide and carbon monoxide concentrations. The measurement data saved in protocols can be easily sent to a PC by network or USB.



Advantages of the Multitec® 540 | Multitec® 545

- **Certified explosion protection:** TÜV 07 ATEX 553353 X (Ex) II2G Ex d e ib IIB T4 Gb, IIC when devices are used with TG8 carrying bag; this means that the (raw) biogas produced can be analysed in all parts of the plant
- **Easy to service design, minimal downtime, highly efficient:** quick and easy maintenance thanks to longlife built-in sensors; mobile devices easy to post (maintenance by SEWERIN Service or local utility)
- **Very user-friendly** thanks to jog dial, intuitive menu navigation and large function keys
- **Selective infrared sensors** allow distortion-free measurement of the concentrations of hydrocarbons and carbon dioxide
- **Longlife electrochemical sensors** for measuring the concentrations of oxygen and toxic gases; Multitec® 545 expanded H₂S measuring range 5,000 ppm, Multitec® 540 up to 2,000 ppm; device selection according to individual range of application
- **Economical and user-friendly power supply:** four replaceable AA-size rechargeable batteries or disposable batteries
- **Long operating times** of at least 7 hours, quick charging in 4 hours
- **Practical, steady U-shaped grip for carrying and setting up:** comfortable to carry lightweight device (1000 g)
- **Semi-transparent, clear 4.3" matrix display:** with practical backlight, excellent readability, even in direct sunlight
- **Convenient data transfer** to computer by USB port

Advantages at a glance

- ✓ Easy and versatile measuring
- ✓ Saves time and money; maximum safety thanks to continuous automated measurement
- ✓ Extremely user-friendly and customisable configuration
- ✓ Monitor and then optimise processes e.g. by substrate adjustment
- ✓ Reliable component protection according to manufacturer's instructions by way of self-defined alarms
- ✓ Improve gas quality and increase yield

The advantages of the new measuring system speak for themselves. Compared to conventional systems in use, the Multitec® BioControl is the simple, user-friendly and cost-effective solution for optimising the processes in small to medium-sized plants.



Optional accessories

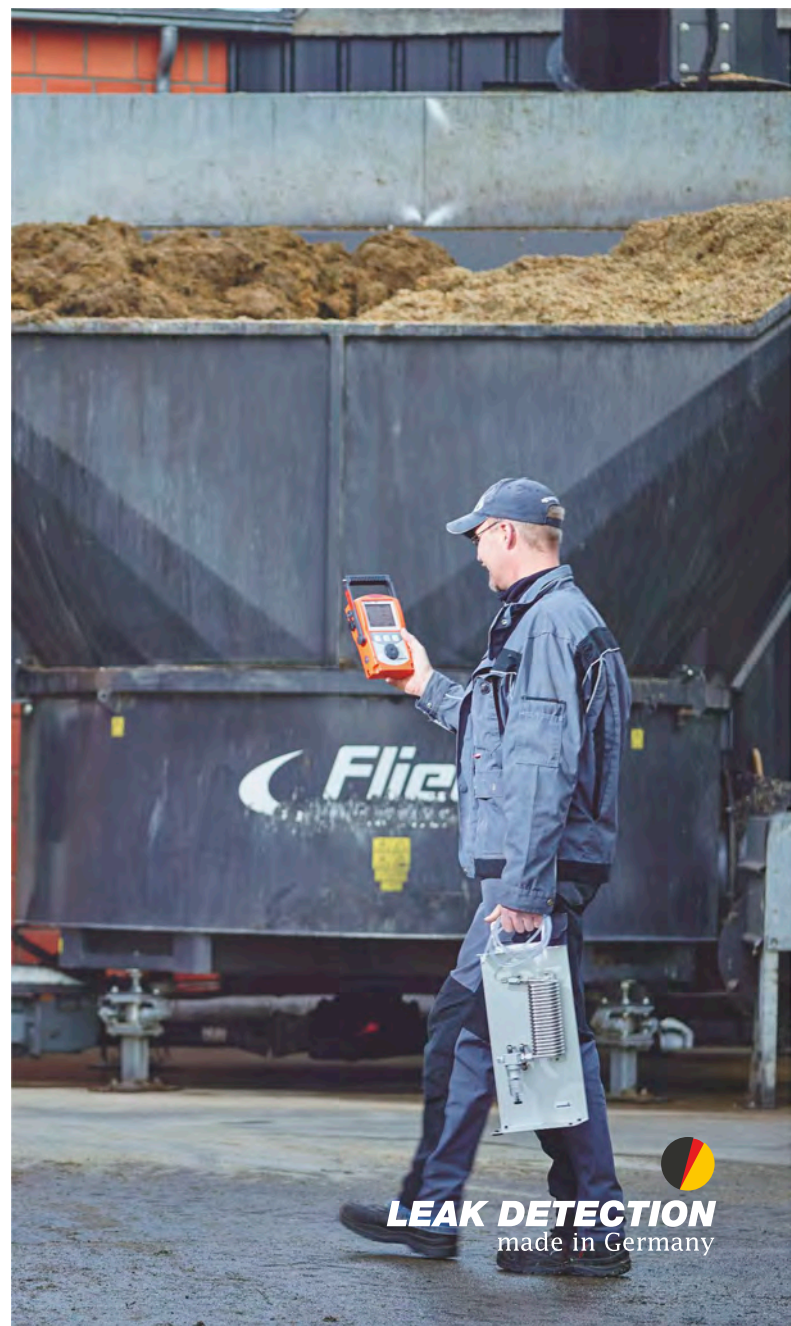
- SPE BioControl
- Bio IR test gas
- Mobile gas cooler



Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Multitec[®] BioControl System – BioControl 4 and 8

The combined measuring device
for professional process monitoring



BioControl 4 and 8: economical – versatile – reliable

The premium system for professional process optimisation

Multitec® BioControl is the professional system for continuously and automatically measuring and monitoring the volume and composition of gas. It is economical, versatile and reliable. Whether in **biogas plants, landfills, sewage treatment plants or composting plants** – the unique combination of a stationary unit and mobile gas measuring device enables comprehensive professional process control and optimisation.

The high-quality BioControl 4 or BioControl 8 base station offers extensive and varied measuring options. Developed specifically to meet the requirements of **medium-sized to large plants**, it stands for process and profit optimisation, maximum reliability and individual flexibility. This premium model is recommended for plant manufacturers with the highest technological demands.

The Multitec® BioControl system comprises the stationary fixed BioControl device and a mobile gas measuring device. Depending on individual requirements, the Multitec® 540 or Multitec® 545 is the most suitable mobile unit. **Up to four or even eight measurement locations** are available depending on the version (BioControl 4 or BioControl 8). This means that the operator can use any of the up to four or eight measurement locations as a fixed measuring instrument. Alternatively, the Multitec® 540 / Multitec® 545 can perform mobile measurements, e.g. directly at the fermenter, secondary fermenter or even remote units in the plant, and save the measurement values in the BioControl.

Operating principle

Depending on the product type (BioControl 4 / BioControl 8), the BioControl can automatically and precisely measure, analyse and continuously monitor gas composition and gas volume at up to eight measurement locations (e.g. fermenter, secondary fermenter, upstream of the motor, upstream/downstream of the desulphuriser). The system reliably saves data and provides complete documentation. When used in combination with ATEX-certified flow rate and temperature transmitters, the BioControl can **continuously calculate temperature and flow data** – even outdoors. The mobile Multitec® 540 measuring device can be used for any number of manual measurements at remote parts of the plant at irregular intervals. The data is recorded and processed automatically. When the Multitec® 540 / Multitec® 545 is replaced in the docking station, this data is displayed in a log and sent by LAN, RS485 or optionally by Profibus module. The alarm relay can be freely configured via the touchscreen.



Advantages of the Multitec® BioControl system

- **Large, state-of-the-art 7" colour touchscreen:** simple user-defined settings, language selection
- **Flexible configuration to individual requirements:** measurement locations/cycles, saving intervals, limits, alarm thresholds
- **User settings can be reproduced from the day of commissioning** (saved on USB stick)
- **Reliable measuring results** by way of self testing during operation
- **Sturdy and durable:** all relevant components resistant to aggressive gases
- **Autonomous and regular saving of all measurement values and settings** to USB stick; no data loss, no manual logging, complete documentation
- **Comprehensive servicing:** stationary unit virtually maintenance-free, rapid first-class support thanks to customer-friendly remote maintenance and diagnostics – anywhere in the world by internet, simple automatic calibration/adjustment by test gas



Multitec® 540 and Multitec® 545: independent measuring anywhere

The mobile Multitec® 540 and Multitec® 545 gas measuring devices can simultaneously measure the concentrations of up to five gases. This makes them ideal for the precise analysis and monitoring of gas mixtures that are produced during biological processes. Equipped with infrared sensors, they can reliably determine the methane and carbon dioxide concentrations without distortion from other gases. The large display shows the values simultaneously and clearly so that you can see everything at a glance. The mobile measuring devices can be fitted with optional electrochemical sensors to calculate oxygen, hydrogen sulphide and carbon monoxide concentrations. The measurement data saved in logs can be conveniently transferred to PC via the USB port. Sewerin provides the necessary software free of charge.



Advantages of the Multitec® 540 | Multitec® 545

- **Certified explosion protection:** TÜV 07 ATEX 553353 X Ex TG8 carrying bag; allows analysis of (raw) biogas produced in all areas of the plant
- **Easy-to-service design, minimal downtime, highly cost-effective:** quick and easy maintenance thanks to durable built-in sensors, mobile devices easy to send by post (maintenance by SEWERIN Maintenance Service available even through local utilities companies)
- **Extremely user-friendly** thanks to jog dial, intuitive menu navigation and large function keys
- **Selective infrared sensors** for distortion-free measurement of hydrocarbon and carbon dioxide concentrations
- **Durable electrochemical sensors** for measuring the concentrations of oxygen and toxic gases; Multitec® 545 extended H₂S measuring range 5,000 ppm, Multitec® 540 up to 2,000 ppm, device selected according to individual application
- **Economical and user-friendly power supply:** four replaceable AA-size rechargeable or disposable batteries
- **Long operating times:** minimum seven hours, rapid charging in four hours
- **Practical, steady bow-shaped handle for carrying and setting up:** easy to carry, lightweight measuring device (approx. 1,000 g)
- **Clear, semi-transparent 4.3" matrix display:** with practical backlight, excellent readability even in direct sunlight
- **Convenient data transfer** to computer via USB port

Advantages at a glance

- ✓ Professional, comprehensive and versatile measuring
- ✓ Several motors and desulphurisers can be monitored simultaneously by at least four measuring points
- ✓ Four analog outputs with customer-specific programming for process control (e.g. motor only starts up as of a certain methane concentration)
- ✓ Flowmeter for determining the exact volume of biogas produced in standard cubic metres (Nm³) and calculating the motor efficiency
- ✓ Save time and money whilst ensuring maximum safety by way of continuous automatic measurement
- ✓ Extremely user-friendly and individual configuration
- ✓ Process monitoring and optimisation (e.g. by substrate adjustment)
- ✓ Successfully improve gas quality and increase yield

The BioControl 4 / BioControl 8 and Multitec[®] 540 / 545 combination is a unique system. Not only does it provide precise information about the gas composition, it also accurately measures and evaluates the volume of gas produced. The efficiency of a biogas plant, landfill, sewage treatment or composting plant can be exactly calculated at any time. For example, when seasonal changes occur in the substrate, you can immediately see how these affect not only the gas quality, but also the volume of gas produced.

The high-quality device combination enables diverse, complex measurements with up to four to eight measurement locations and four 4 - 20 mA output signals. The flexible Multitec[®] 540 / Multitec[®] 545 device is a huge asset. Not only can it be removed from the base unit for servicing, it also allows independent, mobile measurements – simply unique!



Optional accessories

- SPE BioControl
- Bio IR test gas
- Mobile gas cooler
- Flow rate and temperature transmitter



Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.

Various

EX-TEC® OD 4 – Measuring instrument for odorant control

Odorant measuring – simple and economical

Natural gas is – by nature – odourless and for safety reasons it must be provided with odorous substances (odorants tetrahydrothiophene or tertiary butyl-mercaptan).

The odorant content of natural gases has to be tested regularly in accordance with DVGW regulation G 280-1 (A).

The **EX-TEC® OD 4** is the ideal measuring device for complementary/supporting measurements.



Features

- Basic device with built-in pump
- Low release times
- Electrochemical sensors
- All commercial Mignon accumulators or batteries may be used for power supply
- Micro-processor controlled
- Large, illuminated display
- Self-test when switched on
- Simple handling by three keys
- Internal data storage (PC evaluation possible)
- Visual and audible alarms
- Adjustable threshold
- Temperature compensated sensors
- User menu
- Function menu for individual instrument configuration (PIN code-protected)
- Adjustable test gas concentrations

Electrochemical sensors

	Measuring range	Response time t_{90}	Durability expected
THT (Tetrahydrothiophene)	0 – 100 mg/m ³	≈ 210 s	12 – 18 months
TBM (Tertiary butyl-mercaptan)	0 – 100 mg/m ³	≈ 270 s	9 – 12 months

Technical Data

Operating time:	typ. 20 h
Power supply:	NiMH accu, rechargeable or 3 Mignon Alkaline batteries
EX-protection (CENELEC):	EC type examination certificate according to ATEX 100a, guideline 94/9/EG
• Certificate No.:	TÜV 01 ATEX 1657
• Identification	II2G Ex e ib IIB T4 Gb, IIC when used with leather bag
Pump capacity	
• Low pressure	> 150 mbar
• Volumetric flow	typ. 5 – 15 l/h
Protection type:	IP54
Operating temperature:	-10 °C – +40 °C
Storage temperature:	-10 °C – +40 °C
Humidity range:	15 – 95 % r.h., non-condensing
Dimensions (W x H x D):	60 x 144 x 35 mm
Weight	approx. 300 g

Accessories

- Carrying case
- Carrying bag
- Charging technique for 12 V/24 V DC or 100 – 240 V AC
- Connection hoses for various pressure ranges
- Test set and test gases
- GasIS (PC evaluation software) for the documentation of measurements



Please contact us for a comprehensive quotation, including additional technical specifications and information on accessories.
103989 – 05/2013 – Subject to technical changes.

FLIS-EX / FLIS



Clean air in the pit / Entering pits safely

The way into the depth involves great dangers.

Pressure flashing in well pits as well as in ventilation pits can set free high quantities of CO₂.

Concentrations of more than 5 vol. % CO₂ in the air lead to a dimming of consciousness, unconsciousness and even death. Possible danger also arise from nearby and probably defective gas pipelines.

In close spaces natural ventilation is not sufficient. Therefore it is of great importance to provide the pit with clean and fresh air before getting into it. There is an efficient solution for this problem SEWERIN **FLIS**.

Delivery contents

- Exhaust system with connection cable
- Flexible suction hose with suction basket (3.3 m)
- Flexible pressure hose without suction basket (3.3 m)



Accessories

- Spare quiver, hose (3.3 m) with bayonet joint to be used as extension or spare
- Adapter to the mains 230 V~/12 V= to operate the **FLIS** at a power supply of 230 V~

Technical data

Type	FLIS-EX	FLIS
Version:	230 V~ / 50 Hz	12 V=
EX-protection:	TÜV 05 ATEX 2766 EX II2G IIC T4	none
Air capacity with connected pressure and suction hose (3.3 m each):	approx. 3,5 m ³ /min	approx. 2,5 m ³ /min
Motor capacity:	120 W / 0,7 A	55 W / 4,6 A
Sound intensity with connected hoses:	60 db (A) / 1 m	
Weight:	19 kg	15 kg
Dimensions (W x H x D):	500 x 400 x 400 mm	
Cable length:	20 m	
Permissible operation / storage temperature:	-15 °C — +40 °C	
Permissible humidity:	0 — 90 % r.h.	
Permissible ambient pressure:	860 — 1100 hPa	

Please contact us for a comprehensive quote, including additional technical specifications and information on accessories.
101662 – 04/2012 – Subject to technical changes.

Test sets SPE

With regard to operational safety, test technology continues to grow in importance.

The DVGW (German Technical and Scientific Association for Gas and Water) Code of Practice G 465-4 describes the tests required for various device classes.

The Sewerin test sets take these circumstances into account. For example, all test sets have a manometer for displaying can pressure and an improved can connection to make handling easier. An extensive range of accessories, e.g. test gas cans, results in a wide range of applications.



Test set SPE HG

to check and adjust the sensitivity of SEWERIN gas warning instruments within ppm, %LEL and vol.% range

- pre-adjusted test gas flow of 30 l/h
- connection for all SEWERIN test gas cans
- manometer (0 – 16 bar) for the display of test gas can's pressure
- the test head HG4 will be required



Test set SPE VOL

to check and adjust the sensitivity for %LEL and vol.% range and to check pump capacity

- connection for all SEWERIN test gas cans
- manometer (0 - 16 bar) for the display of test gas can's pressure
- flowmeter (0 - 80 l/h)



Test set SPE ppm

to check and adjust the sensitivity with 10 ppm CH₄

- with integrated conditioner to moisten test gases
- manometer (0 - 16 bar) to display test gas can's pressure
- flowmeter (0 - 80 l/h)



Test set SPE OD

to check and adjust the sensor's sensitivity with odorants (THT or TBM)

- manometer (0 - 16 bar) to display test gas can's pressure
- suitable for EX-TEC® OD 4



Test set SPE DUO

to check and adjust the sensitivity and pump capacity

- two connections for simultaneous use of two SEWERIN test gas cans
- first connection for test gas 10 ppm CH₄ with integrated conditioner
- second connection for all other test gases (vol. % and LEL range)
- two manometers (0 - 16 bar) to display the test gas cans' pressures
- flowmeter (0 - 80 l/h)
- wall-mounting possible

Overview and selection chart

	SPE HG	SPE VOL	SPE ppm	SPE OD	SPE DUO
Recommended for the following current devices	SNOOPER 4 PM 4 GM 4 SNOOPER mini	SR2-BIO HS 6xx Multitec 5XX VARIOTEC 4XX VARIOTEC 460 Tracergas	PORTAFID HS 660 / HS 680 VARIOTEC 4XX VARIOTEC 460 Tracergas	OD 4	HS 660 / HS 680 VARIOTEC 4XX
In general for devices that can be tested	Handheld devices and diffusion devices with a pump capacity of ≤ 20 l/h	Pump devices with a pump capacity of > 20 l/h	FID devices and devices with semiconductor sensors with a pump capacity of > 20 l/h	Odor measuring devices	Combination measuring devices with semiconductor sensors with a pump capacity of > 20 l/h
Gas release	Key	Key	Key	Switch	Key
Flowmeter with needle valve	no	yes	yes	no	yes
Manometer	yes	yes	yes	yes	yes - two
Conditioner	no	no	yes	no	yes - one
Device connection	Plug-in connection 5 mm	Plug-in connection 5 mm	Plug-in connection 5 mm	Safe-lock connection 3 mm	Plug-in connection 5 mm
Gas flow	approx. 30 l/h, fixed	0 – 80 l/h, adjustable	0 – 80 l/h, adjustable	approx. 30 l/h, fixed	0 – 80 l/h, adjustable
Part no.	PP01-10201	PP01-90101	PP01-40101	PP01-50100	PP01-60001

Accessories

- Test gas cans
- Test heads and conditioner
- Connections hoses
- Adapters

Please contact us for a comprehensive quote, incl. additional technical specifications and information on accessories.
104144 – 04/13 – Subject to technical changes

EURO-INDEX

Service

Onderhoud en kalibratie van meetinstrumenten

De Nederlandse vestiging van EURO-INDEX beschikt over een bijzonder modern service- en kalibratielaboratorium. Hier worden de meetinstrumenten uit het assortiment preventief onderhouden, gerepareerd, gekalibreerd en indien nodig gejusteerd. Het service- en kalibratielaboratorium van EURO-INDEX is verdeeld in verschillende disciplines, gebaseerd op het soort meetinstrument en de gemeten grootheden.

- Druk
- Gasanalyse
- Temperatuur (inclusief infrarood temperatuurmeting en thermografie)
- Elektrische grootheden
- Gasdetectie
- Luchtsnelheid en luchthoeveelheid

Waarom een kalibratiecertificaat?

Een kalibratiecertificaat vermeldt hoeveel een meetinstrument afwijkt ten opzichte van onze, naar (inter)nationale standaarden herleidbare, kalibratiemiddelen. Bij de meetresultaten op het certificaat wordt tevens vermeld of het meetinstrument voldoet aan de specificaties die door de fabrikant zijn opgegeven.

Zonder kalibratiecertificaat kunt u er vanuit gaan dat de meter voldoet aan de fabrieksspecificaties, maar aantonen kunt u dit niet. Een testcertificaat van de fabrikant is te beknopt om de lineariteit aan te tonen en is niet geregistreerd op naam (wat wel degelijk een vereiste is).



KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie. Veel zaken worden voor u geregeld, zodat u zonder zorgen gebruik kunt maken van uw meetinstrumenten.

- De prijs staat vast voor de levensduur van het instrument (mits de KWS® behandeling volgens herkalibratieadvies periodiek wordt uitgevoerd in het EURO-INDEX kalibratielaboratorium)
- Geen arbeidsloon bij de KWS® behandeling
- Kalibratie voor justage (voorkalibratie) indien mogelijk
- Indien nodig justage en (na)kalibratie
- Reparatie en preventief onderhoud
- Gratis oproep met het advies voor herkalibratie
- Controle op functionaliteit van het instrument
- Vijf jaar historie voor alle gegevens
- 10% korting op onderdelen
- Serienummerregistratie
- Franco retourlevering

RvA accreditatie

Het kalibratielaboratorium van EURO-INDEX beschikt sinds 21 augustus 1997 over een RvA accreditatie naar NEN-EN-ISO/IEC 17025. Deze accreditatie geldt voor verschillende grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105 op www.rva.nl. Test- en meetinstrumenten voor grootheden die deel uitmaken van de gespecificeerde scope, kunnen worden voorzien van een RvA kalibratiecertificaat. De metingen worden uitgevoerd met standaarden waarvan de herleidbaarheid naar (inter)nationale standaarden, ten overstaan van de Raad voor Accreditatie, is aangetoond.

In het Multilateral Agreement zijn de meeste Europese landen overeengekomen elkaars accreditaties te accepteren. Hierdoor is een RvA kalibratiecertificaat internationaal geaccepteerd. Bovendien wordt op een RvA kalibratiecertificaat de meetonzekerheid van de gerapporteerde meetresultaten vermeld.

Verhuur van meetinstrumenten

EURO-INDEX biedt een assortiment meetinstrumenten te huur aan. Na deskundig advies van onze productspecialisten, wordt bepaald welk instrument u nodig heeft voor uw specifieke werkzaamheden. De instrumenten worden compleet met accessoires geleverd, inclusief herleidbaar kalibratiecertificaat.

Wijzigingen voorbehouden EURO-INDEX® VL 15001



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