

EX-TEC[®] SNOOPER H

Operating- Instructions




SEWERIN
Wir sichern Lebensqualität.

GB

102729

Measurable success by Sewerin equipment

You settled on a precision instrument.

A good choice!

Our equipment stands out for guaranteed safety, optimal output and efficiency.

They correspond with the national and international guide-lines.

These operating instructions will help you to handle the instrument quickly and competently.

Please pay close attention to our operating instructions before usage.


In case of further queries our staff is at your disposal at any time.

Yours

Hermann Sewerin GmbH

Robert-Bosch-Straße 3

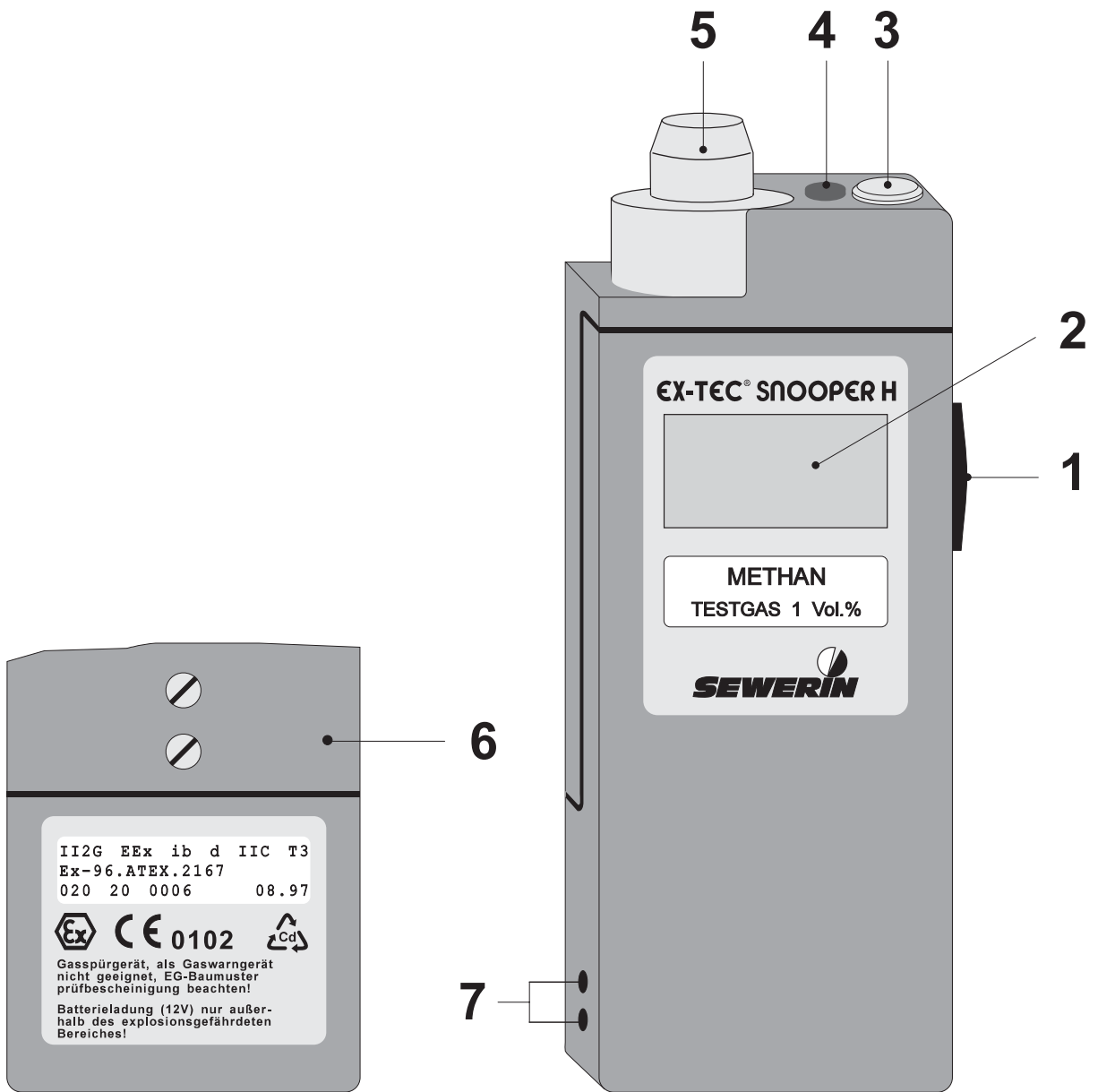
D-33334 Gütersloh

 : +49 - (0) - 52 41/9 34-0

FAX : +49 - (0) - 52 41/9 34-4 44

[http:// www.sewerin.com](http://www.sewerin.com)

Design of the: EX-TEC® SNOOPER H



Notes

EX-TEC[®] SNOOPER H

Operating Instructions pages 3 - 32



102729 - 05/27.11.1998

For your safety *

The law governing technical equipment (the Law on the Safety of Appliances) of 24.06.1968 (BGBl.I, page 717) as amended by the Amendment Law of 13.08.1979 (BGBl.I, page 1432) requires the following matters to be drawn to your attention:

Comply with the Operating Instructions.

Before operating or adjusting the appliance you must be thoroughly familiar with this operating manual. You must comply with it in every respect.

The appliance is designed only for the application described and for industrial (commercial) use.

Liability for Function or Damage

Liability for the functioning of the appliance passes to the owner or operator in all cases in which the appliance has been improperly maintained or repaired by persons not associated with SEWERIN Service or if it has been used for a purpose not in accordance with its designated application.

You should therefore always use original SEWERIN accessories with the **EX-TEC® SNOOPER H.**

Hermann Sewerin GmbH accepts no responsibility for damage due to a failure to comply with the foregoing instructions. The guarantee and liability terms of the Hermann Sewerin GmbH terms of sale and supply are not extended by the foregoing.

We reserve the right to make technical changes in the course of continued development.

HERMANN SEWERIN GMBH

* All references to laws, statutes and norms relate to the legislation of the Federal Republic of Germany.

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1.0 The EX-TEC® SNOOPER H

 **Please fold out the illustration inside the front cover !**

<u>Item</u>	<u>Description</u>	<u>Function</u>
1	detector key	key position: ñ switch detector on ñ manually set zero point ò switch detector off
2	LCD display	display of: l battery capacity l minimum sensitivity l readings l error messages
3	buzzer	acoustic warning
4	alarm lamp	optical warning
5	sensor cap	changing sensors for: l manual probe l swan-neck (large) l swan-neck (small)
6	hole	service button for: l switching off acoustic signal l adjustment mode
7	charging contacts	connection to charging adapter


1.1 Purpose

The **EX-TEC® SNOOPER H** gas detector is intended for the following purposes:

- l leak detection in spaces, shafts or channels
- l inspecting new installations or repairs
- l locating leaks in installation pipes
- l inspecting fittings, flanges, threads or seams

A smell of gas may possibly be due to gas penetration of the building or space via gaps in walls, cable ducts or other routes. These should also be inspected.

If the continuous acoustic signal (item 3) sounds and the measurement-range limit of 1.00 vol.% is displayed (item 2) on entering a space (e.g. a building, shaft, channel or the like), then the following precautionary measures must be taken:

 **Do not operate electrical switches !**
Open windows and doors !
Turn off the gas supply !

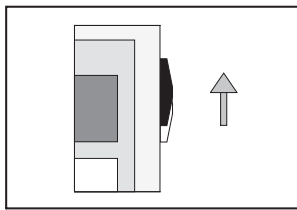
1.2 Tests

The **EX-TEC® SNOOPER H** is explosion-proof in accordance with European norms (CENELEC):

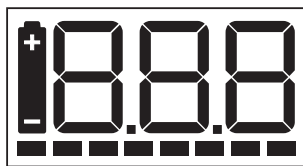
EC prototype test:	PTB 96 ATEX 2167
Certificate:	Ex II 2 G EEx ib d IIC T3
Test institute:	Physikalisch-Technische Bundesanstalt, Braunschweig

2.0 Operation

2.1 Switching on



- 1 push the on/off key (item 1) upwards for approx. 2 seconds.
- 1 the optical and acoustic control signals (items 3 and 4) operate for approx. 2 seconds



- 1 all segments of the LCD display are tested



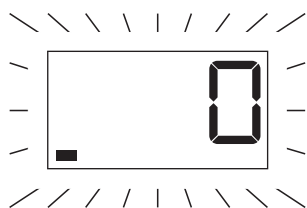
- 1 display of remaining operating time, e.g. 6 hours - one segment per hour



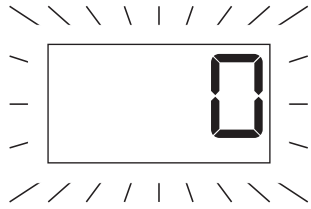
- 1 display of minimum sensitivity
10 ppm or




100 ppm



- 1 start of **sensor warm-up phase** and automatic zero-point adjustment (approx. 2 minutes)
- 1 the zero point and one segment flash
- 1 at the end of the warm-up phase the acoustic signal (item 3) sounds



- 1 start of **optimization phase** (approx. 2 minutes); minimum sensitivity of 10 or 100 ppm is set
- 1 only the zero point still flashes and the acoustic signal (item 3) sounds at brief intervals (approx. every 5 seconds)

 **The gas detector can now be used for leak detection, but its minimum sensitivity has not yet been set.**



- 1 once the zero point stops flashing the optimisation phase is complete

 **The EX-TEC® SNOOPER H is now ready for leak-detection operation.**

2.2 Measuring operation



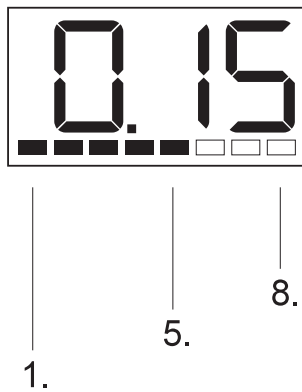
- 1 in the 0 ... 100 ppm range resolution is in steps of 10 ppm
(example: 30 ppm)



- 1 in the 100 ... 1,000 ppm range resolution is in steps of 20 ppm
(example: 120 ppm)



- 1 in the 0.10 ... 1.00 vol.% range resolution is in steps of 500 ppm
(example: 0.15 vol.%)



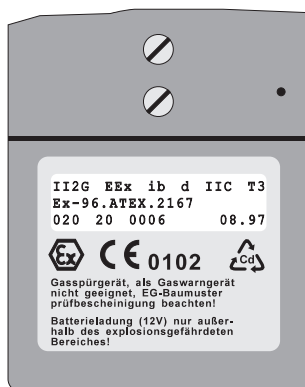
l the digital display is supported by the lower segment display:

- l 1st bar - from 10 ppm
- l 2nd bar - from 100 ppm
- l 3rd bar - from 200 ppm
- l 4th bar - from 500 ppm
- l 5th bar - from 0.10 vol.%
- l 6th bar - from 0.20 vol.%
- l 7th bar - from 0.50 vol.%
- l 8th bar - from 1.00 vol.%

2.3 Concentration-dependent signal

l the frequency of the acoustic signal (item 3) increases as a function of the concentration measured

l this signal can be switched on and off with the service key (item 6) on the back of the detector



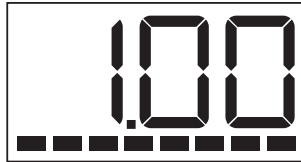
Insert the adjusting pin (supplied) into the hole and press the service key behind it (item 6).

l the acoustic control signal (item 3) sounds and the concentration-dependent signal is switched off

l pressing the service key again switches the signal back on

2.4 Alarms

- 1 a change in the gas concentration is indicated by the LCD display (item 2) and the concentration-dependent signal (item 3)



- 1 the gas detector warns of gas concentrations above 1.00 vol.% by means of the continuous optical and acoustic alarms (items 3 and 4)

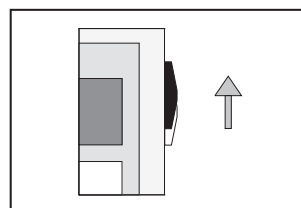
- 1 values exceeding 1.00 vol.% are not displayed



- 1 **To continue leak detection bring the gas detector into fresh air so that the zero point can be re-established.**

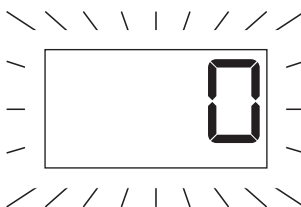
2.5 Manual zero-point adjustment

- 1 this is necessary if the current ambient atmosphere does not permit the automatic establishment of a zero point

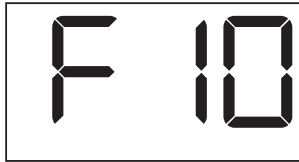


- 1 **With the detector switched on, push the on/off key (item 1) upwards for approx. 2 seconds.**


- 1 the current ambient atmosphere is set as a **new zero point**



- 1 the zero point flashes while this process is under way (approx. 2 minutes)



- 1 if the zero point cannot be set, error message **F10** appears.

 **Repeat the process in a clean ambient atmosphere.**

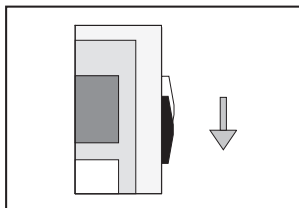
- 1 to prevent the **EX-TEC® SNOOPER H** from becoming too insensitive the zero-point can be manually adjusted up to a maximum of 1,000 ppm

2.6 Battery monitoring



- 1 if the battery's discharge limit is reached in measuring operation the battery symbol appears in the LCD display (item 2)
- 1 simultaneously with the concentration-dependent signal an acoustic warning tone (item 3) sounds for approx. 2 seconds; the detector can now be operated for at least another 15 minutes

2.7 Switching off



- 1 push the on/off key (item 1) downwards for approx. 2 seconds.

- 1 the optical and acoustic control signal (items 3 and 4) operate for approx. 2 seconds



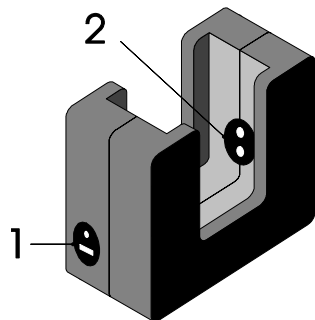
- 1 the remaining operating time is displayed, e.g. 6 hours - one segment per hour

3.0 Charging technique

 **The EX-TEC® SNOOPER H must not be recharged in an explosive gas atmosphere !**

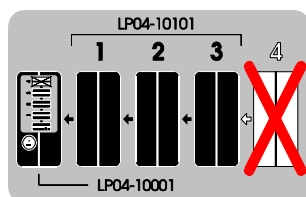
When fully charged the detector has a **maximum** of 8 hours' operating time.

For charging you need the **HS charging adapter** (see illustration), which can be used either in the workshop or in the standby vehicle.



The following items can be connected to the side of the charging adapter:

- l 230 V mains power pack ≈,
- l 12 V= vehicle adapter,
- l 24 V= vehicle adapter.



A maximum of 3 charging adapters with no socket can be connected to the charging adapter with a socket.

The detector has a microprocessor-controlled heuristic operating-hours account.

If the detector is not stored in the charging adapter the NiCd battery will spontaneously discharge.

In order to verify the capacity of the NiCd battery we recommend you to operate the detector until the undervoltage alarm is triggered (the detector automatically switches off), then recharge it. The available battery capacity is now determined.

Charging

Place the **EX-TEC® SNOOPER H** (switched off) in the charging adapter. They are connected via the charging contacts (item 7) and the adapter contacts (item 2 in the illustration on page 14). An acoustic signal sounds to indicate the start of charging.

The charging period required is calculated from the operating hours and a display of the following type appears:



- | the detector has 5 operating hours left (= 5 bars) and will take 3 hours to become fully charged
- | if it is fully charged all the bars are visible and the number display disappears
- | the detector can be left in the charger until it is next needed

Spontaneous discharge

If the detector is not connected to the charger when switched off, the nickel-cadmium battery spontaneously discharges, thus reducing the available operating hours.



Short periods of operation and prolonged disuse may lead in the long term to the so-called "memory effect", in which the display indicates a higher battery capacity than is actually available.

This can be avoided by fully discharging the detector regularly (e.g. once a month), leaving it switched on until it automatically switches off, then recharging it !

4.0 **Inspection, testing and maintenance**

DVGW work sheet G 465/IV requires detectors to be inspected, tested and maintained.

Sensitivity testing

may be necessary several times a day, according to G 465/I, depending on the circumstances - particularly with gas detectors used to monitor mains pipes.

Inspection

must be carried out up to six times a year, depending on frequency of use - and at any rate at least once a year. The following items must be tested:

- l detector condition
- l battery condition
- l intake channel
- l zero point
- l sensitivity (with test gas)

Test report

Test results must be recorded. A specimen form will be found on the last page of this manual.

Servicing and maintenance

DVGW work sheet G 465/IV specifies that servicing and maintenance of the detectors may be carried out only by the following persons:

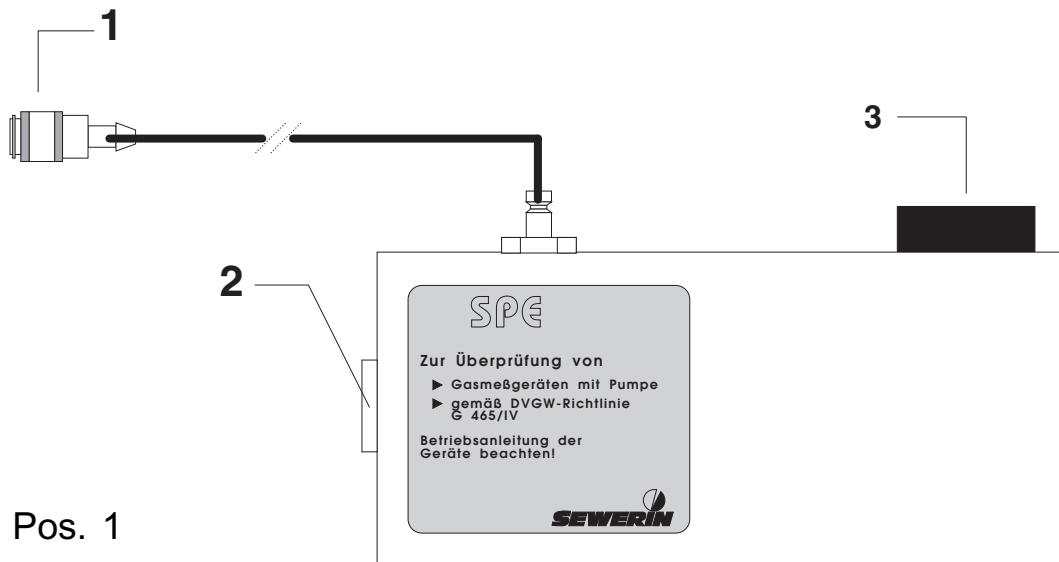
- l the SEWERIN Service Department or
- l an expert authorised by SEWERIN.

Servicing must be carried out at least once a year. The next scheduled date must be entered on the inspection sticker attached to the detector (month/year).

After servicing a certificate must be completed.

4.1 Test Set

The zero point and sensitivity should be tested with the **SPE** test set and a suitable test gas:



SPE test set, used to test:

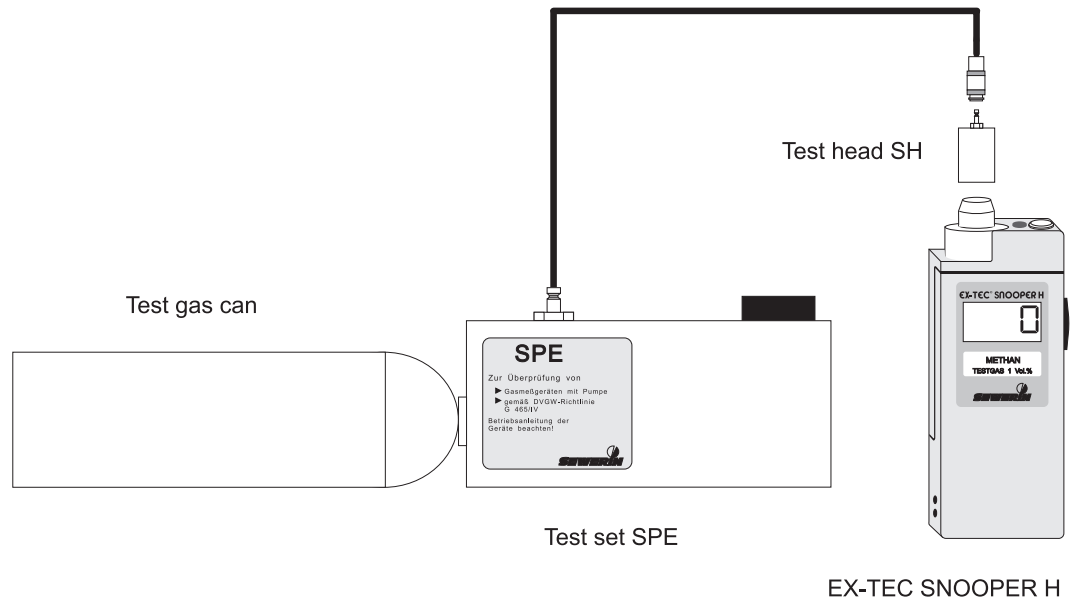
- | zero point
- | sensitivity

and for use with the following test gases:

- methane CH_4 : | 1.00 vol.%
- propane C_3H_8 : | 1.00 vol.%

For detector settings other than methane or propane the correct values can be found inside the cover (on page 2).

4.2 Function testing



Proceed as follows:

- screw the test gas can onto the **SPE** test set as far as it will go
- connect the test head of the **SNOOPER H** or **SNOOPER H small** to the tester hose
- l switch the **EX-TEC® SNOOPER H** on and wait for a stable zero point to be established (warm-up time)
- l place the test head on the detector's sensor head
- l hold down the release button on the tester until the indicated concentration has reached a stable value

Admissible display values with :

- l test gas 1.00 vol.% methane CH_4 : 0.80 ... 1.20 vol.%
- l test gas 1.00 vol.% propane C_3H_8 : 0.80 ... 1.20 vol.%

If display values are outside these tolerances the detector must be recalibrated (section 5.0 Adjustment).

5.0 Adjustment

The **EX-TEC® SNOOPER H** is factory-set with test gas. You can adjust the detector using an appropriate test gas.

To carry out the adjustment you need:

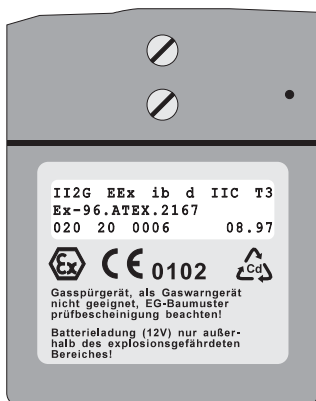
- the **EX-TEC® SNOOPER H**, charged
- the **SPE** test set
- the **SNOOPER H** or **SNOOPER H small** test head
- 1.00 vol.% methane or propane test gas in synthetic air
- the adjusting pin

Carry out the process exactly the same way as function-testing (section 4.2).



For a successful adjustment both steps (adjustment of the zero point and of sensitivity) must be carried out !

Switching on the adjustment mode



- insert the adjusting pin in the opening on the back of the detector (item 6)
- press the service key behind it and simultaneously push the on/off key (item 1) upwards for approx. 2 seconds



- the optical and acoustic control signals (items 3 and 4) operate



- the software version number (e.g. **2.7**) is displayed
- the letters **JUS** are displayed to indicate adjustment mode

Minimum sensitivity



- display of set minimum sensitivity (e.g. **10 PPM**)

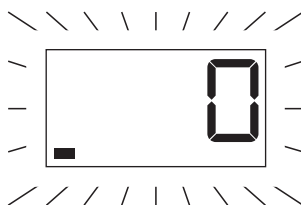
- you can choose minimum sensitivity of either

10 PPM or 100 PPM



- to alter the minimum sensitivity insert the adjusting pin into the opening on the back of the detector (item 6) and press the service key behind it until the required value is set

Zero point adjustment



- start of sensor warm-up phase and **automatic zero point setting** (approx. 2 minutes)

- the zero point and one segment flash

- once the zero point has been automatically set the acoustic signal (item 3) sounds

Adjusting the sensitivity

- place the test head on the detector's sensor head



- the **NOMINAL** value of 1.00 VOL.% is displayed



- hold down the release key on the test set until the indicated concentration (e.g. **TRUE** value of 0.85 VOL.%) has reached a stable value

- the nominal value (3 bars) and true value (1 bar) appear alternately

- use the adjusting pin on the service key (item 6) to clear the attainment of the maximum indicated concentration



Only now may the test-gas feed be interrupted !

- when the adjustment has been completed (zero point and sensitivity) the data are stored and the detector switches automatically to measuring operation

- the concentration-dependent signal sounds once more

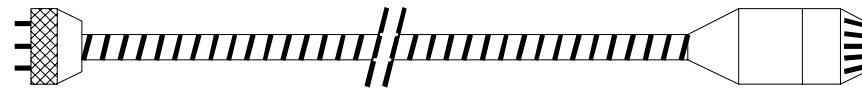
6.0 Changing the sensor system

There are different probe models for the **EX-TEC® SNOOPER H** for various points in the pipework system:

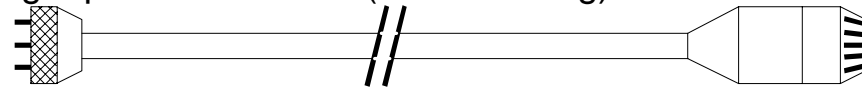
- manual probe with spiral cable



- flexible swan-neck (245 mm long)



- rigid probe extension (525 mm long)



- flexible mini swan-neck with sensor (145 mm long)



The probes can be exchanged or extended in any required combination.

Changing probes or sensors

- switch off the detector and undo the sensor cap (item 5)
- remove the sensor from its base with the extraction tool
- straighten any bent sensor connections with the extraction tool
- replace the sensor in the appropriate probe or base
- replace the sensor cap (item 5)
- replace the probe in the detector (ensuring that the position of the connection pins is correct)
- tighten the clamping nut



We recommend carrying out an adjustment after every change of probe or sensor !

7.0 Technical notes

Sensor lifetime

The lifetime of the sensor may be shortened by the following undesirable influences:

- The sensors are deleteriously affected by gaseous components of silicones, oils and phosphate esters, which irreversibly reduce their sensitivity.
- Pollution of the measuring environment by halogens, burnt neoprene, PVC, trichloroethylene and the like also weakens the sensitivity of the sensors, but in this case it can be regenerated.



Explosion protection is jeopardised if the detector is opened by untrained persons !


Cleaning

Clean the detectors only with a damp cloth. No solvents, benzines or similar substances may be used.

Static charging

Generally speaking electrostatic charging should be avoided. Objects with no electrostatic earth (including, for example, metallic housings with no earth connection) are not protected from charges resulting from dust, vapour flows and the like.

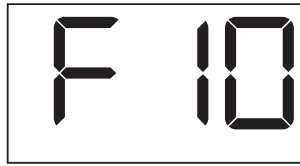
8.0 Technical data

Serial no.	:	$\frac{020}{\text{Type}}$ $\frac{\dots}{\text{Design}}$ $\frac{\dots\dots\dots}{\text{Number}}$
Calibration	:	methane CH ₄ / natural gas, propane C ₃ H ₈
Measuring system	:	semiconductor sensor
Measuring range	:	0 - 1 vol.%
Test gas	:	1 vol.% methane or propane
Ex-protection (CENELEC)		
- test institute	:	Physikalisch-Technische Bundesanstalt, Braunschweig
- Certificate No.	:	Ex-96.ATEX.2167
- Classification	:	 II 2 G EEx ib d IIC T3
Dimensions (W x H x D):		62 x 159 x 33 mm
Weight	:	480 g
Type of protection	:	IP 54
Operating time	:	max. 8 hours
Power supply	:	NiCd battery, rechargeable
Operating temperature	:	- 10°C to + 40°Celsius
Storage temperature	:	- 25°C to + 70°Celsius
Humidity range	:	5 - 90 % relative humidity (non-condensing)
Pressure range	:	900 h Pa to 1100 h Pa

9.0 Accessories

<i>CHARGING TECHNIQUE</i>	charging adapter, 230 V mains power pack, 12 V or 24 V vehicle adapter
<i>PROBE SYSTEMS</i>	manual probe with spiral cable, flexible swan-neck (245 mm long), rigid probe extension (525 mm long), mini swan-neck with sensor (145 mm long),
<i>TEST SET</i>	SPE for mobile use (e.g. in the vehicle) with test-gas bottles
<i>TEST HEADS</i>	in 2 sizes for the probe systems mentioned above
<i>TEST GASES</i>	test gases in various concentrations, in pressurised gas cans or bottles
<i>SYSTEM CASE</i>	with foam lining and compartments for accessories
<i>CARRYING CASE</i>	leather, to attach the detector to your belt
<i>CARRYING STRAP</i>	leather, adjustable, 0.5 ... 1.0 m

10.0 Error messages



- the detectors automatically identify errors and show the error code in the LCD display (item 2)

Error code

cause and remedy

F10	adjustment error, check test gas or repeat adjustment
F10	sensor defective, replace sensor
FXX	component error, contact SEWERIN service



**Should any other error codes occur,
please contact SEWERIN service !**

11.0 Wearing parts

TEST-GAS CAN

1.0 vol.% methane or propane in
synthetic air

Caution!

*The can is pressurised: do not store
at temperatures above 50° C.*

EC-Type Examination Certificate

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB



(1) **EC-Type Examination Certificate**
(Translation)

(2) Equipment or Protective Systems Intended for use in
Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

PTB 96 ATEX 2167



(4) Equipment: Gas analyzer Ex-TEC Snooper H, type 020 ...

(5) Manufacturer: Hermann Sewerin GmbH

(6) Address: Robert-Bosch-Straße 3, D-33334 Gütersloh

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in a confidential report No. PTB Ex 96/2/0328.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
DIN EN 50014:1994-03 DIN EN 50018:1995-03 DIN EN 50020:1996-04

(10) If the sign „X“ is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

II 2 G EEx ib d IIC T3

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 08.01.1997

Dr.-Ing. U. Johannsmeyer
Oberregierungsrat



Sheet 1/2

EC-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

EC-Type Examination Certificate

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

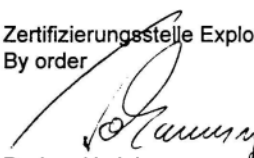


Schedule

- (13)
- (14) **EC-Type Examination Certificate No. PTB 96 ATEX 2167**
- (15) Description of equipment
The apparatus is used for measurement and detection of gas-concentrations.
- (16) Report No. PTB Ex 96/2/0328 (consisting of 3 pages and 20 drawings)
- (17) Special Conditions for safe use
not applicable
- (18) Essential Health and Safety Requirements
not applicable
- (19) Warning lable
The battery may be changed and charged outside of the explosion hazardous area only.

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 08.01.1997


Dr.-Ing. U. Johannsmeyer
Oberregierungsrat



Sheet 2/2

EC-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

Declaration of Conformity EX-TEC® SNOOPER H

Declaration of Conformity

Type of Product:	battery-operated gas-warning device
Product Name:	EX - TEC Snooper H
Fabr.-No.:	020 xx xxx

We hereby confirm that the above product complies with the following norms or standardized directives. In case of any modification of this product which has not been authorized by us, this declaration becomes invalid.

Norm(s):

DIN EN 50 081-1	Generic Emission Standard
DIN EN 50 082-1	Generic Immunity Standard
DIN EN 50 014:1994-03	General Requirements
DIN EN 50 018:1995-03	Flameproof Enclosures -d-
DIN EN 50 020:1996-04	Intrinsic Safety -i-

The Norms EN 50 081/82 are recorded in the Gazette of the EG No. C 44/12 and No. C 90/2 resp.


The unit is in accordance with:

89/336/EWG	EG-Directive: Electromagnetic Compatibility
92/31/EWG	amendment to above
93/68/EWG	amendment to above
94/9/EG	ATEX 100a

Gütersloh, 28.11.1996


Hermann Sewerin GmbH

Sample of Inspection Sheet (Methane-Devices)

TEST REPORT Calibration: Serial Number : (e.g.: 020 20 0001)	EX-TEC® SNOOPER H methane CH4 <div style="border: 1px solid black; width: 100px; height: 15px; margin-top: 5px;"></div>	
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27.11.1998


1.0	Device status										
1.1	- status correct (e.g.: Y / N)										
1.2	- remaining operating hours (e.g.: 5 h)										

2.0	PPM measuring range										
2.1	zero point - fresh air reading										
2.2	test gas 1,00 VOL.% CH4 - display 0,80 ... 1,20 Vol.%										
2.3	optical alarm (e.g.: Y/N)										
2.4	audible alarm (e.g.: Y/N)										

3.0	Observations										
	- housing broken										
	- adjustment, repair										
	- factory inspection										
	- or the like										

4.0	Test										
	- day										
	- month										
	- year										
	- signature										

Sample of Insepection Sheet (Propane-Devices)

<p>TEST REPORT Calibration: Serial Number : (e.g.: 020 20 0001)</p>	<p>EX-TEC® SNOOPER H propane C3H8</p> <div style="border: 1px solid black; width: 100px; height: 15px; margin-top: 5px;"></div>	
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27.11.1998

1.0	Device status										
1.1	- status correct (e.g.: Y / N)										
1.2	- remaining operating hours (e.g.: 5 h)										

2.0	PPM measuring range										
2.1	zero point - fresh air reading										
2.2	test gas 1,00 VOL.% C3H8 - display 0,80 ... 1,20 Vol.%										
2.3	optical alarm (e.g.: Y/N)										
2.4	audible alarm (e.g.: Y/N)										

3.0	Observations										
	- housing broken - adjustment, repair - factory inspection - or the like										

4.0	Test										
	- day										
	- month										
	- year										
	- signature										

Notes

*Hermann Sewerin GmbH
Robert-Bosch-Straße 3 · D-33334 Gütersloh
Telefon +49 - (0) - 52 41/9 34-0 · Telefax +49 - (0) - 52 41/9 34-4 44
<http://www.sewerin.com>*