English

Instruction and operation manual

S 505

Dew point meter (portable)

Dear Customer,

thank you for choosing our product.

The operating instructions must be read in full and carefully observed before starting up the device. The manufacturer cannot be held liable for any damage which occurs as a result of non-observance or non-compliance with this manual.

Should the device be tampered with in any manner other than a procedure which is described and specified in the manual, the warranty is cancelled and the manufacturer is exempt from liability.

The device is destined exclusively for the described application.

CS-iTEC offers no guarantee for the suitability for any other purpose. CS-iTEC is also not liable for consequential damage resulting from the delivery, capability or use of this device.

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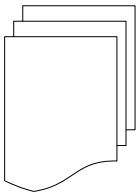
1. Safety instructions



Please check if this instruction manual accords to the product type.

Please observe all notes and instructions indicated in this manual. It contains essential information which have to be observed before and during installation, operation and maintenance. Therefore this instruction manual has to be read carefully by the technician as well as by the responsible user / qualified personnel.

This instruction manual has to be available at the operation site of the dew point meter at any time. In case of any obscurities or questions, regarding this manual or the product, please contact the manufacturer.

WARNING!

Compressed air!

Any contact with quickly escaping air or bursting parts of the compressed air system can lead to serious injuries or even death!

- Only use pressure tight installation material.
- Avoid that persons get hit escaping air or bursting parts of the instrument.
- The system must be pressureless during maintenance work.

WARNING!

Voltage used for supply!

Any contact with energized parts of the product, may lead to a electrical shock which can lead to serious injuries or even death!

- Consider all regulations for electrical installations.
- The system must be disconnected from any power supply during maintenance work.
- Any electrical work on the system is only allowed by authorized qualified personal.

WARNING!

Permitted operating parameters!

Observe the permitted operating parameters, any operation exceeding this parameters can lead to malfunctions and may lead to damage on the instrument or the system.

- Do not exceed the permitted operating parameters.
- Make sure the product is operated in its permitted limitations.
- Do not exceed or undercut the permitted storage and operation temperature and pressure.
- The product should be maintained and calibrated frequently, at least annually.

General safety instructions

- It is not allowed to use the product in explosive areas.
- Please observe the national regulations before/during installation and operation.

Remarks

- It is not allowed to disassemble the product.
- Always use spanner to mount the product properly.

ATTENTION!

Measurement values can be affected by malfunction!

The product must be installed properly and frequently maintained, otherwise it may lead to wrong measurement values, which can lead to wrong results.

Storage and transportation

- Make sure that the transportation temperature of the dew point meter is between -30°C... 70°C.
- For transportation it is recommended to use the packaging which comes with the sensor.
- Please make sure that the storage temperature of the sensor is between -40°C... 65°C.
- Avoid direct UV and solar radiation during storage.

- For the storage the humidity has to be <90%, no condensation.

2. Application

The S 505 is a dew point meter which is designed to monitor the dew point in industrial application within the permissible operating parameters. These parameters can be found in the technical data section.

The S 505 can measure and display the following values:

- Dew point of the compressed air or gas.
- Temperature of the compressed air or gas.
- Pressure of the compressed air or gas.

The default factory settings are: dew point in °Ctd. temperature in °C, and pressure in bar.

The S 505 dew point meter is not developed to be used in explosive areas. For the use in explosive areas please contact the manufacturer.

The S 505 dew point meter is mainly used in compressed air systems in industrial environment.

3. Features

- Measures dew point, temperature and pressure.
- 3 sensor solution available:
  - Sensor A: -100°Ctd ... -30°Ctd for trace moisture applications
  - Sensor B: -50°Ctd ... 50°Ctd for standard applications.
  - Sensor A+B: covering the full range of dew point measurement.
- Fast response time.
- Modern colour touch screen interface.
- Data logger, USB interface, bluetooth connection to portable printer.
- Measuring / parking chamber for fast sensor response.
- Application software included.

4. Technical Data

4.1 General

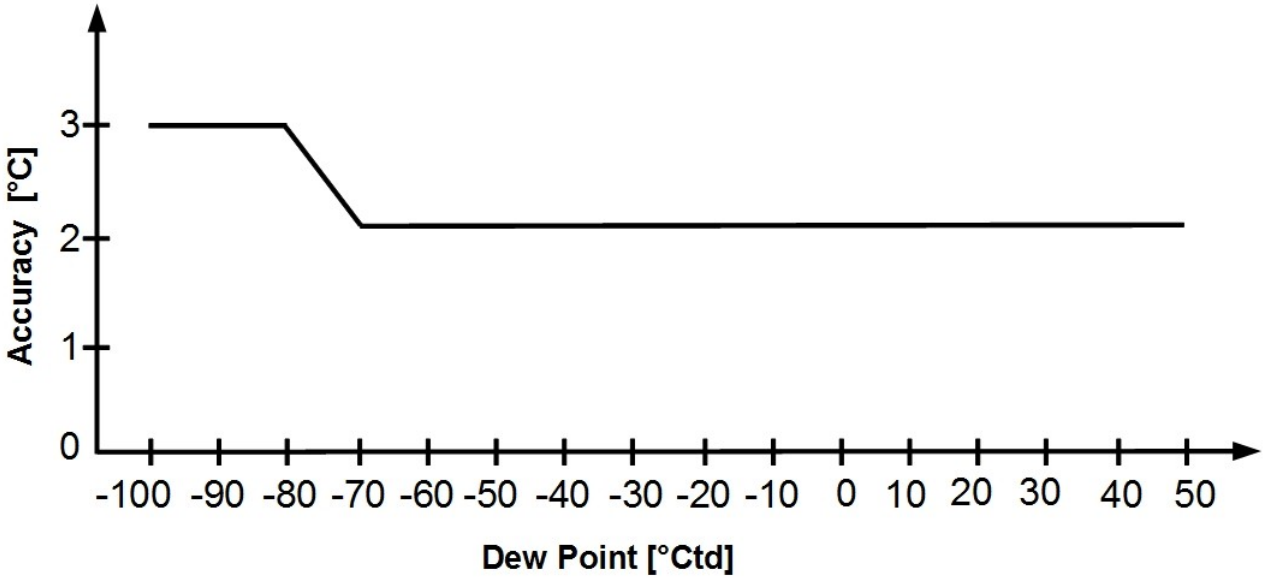
CE	
Parameters	Standard unit dew point: °Ctd Standard unit temperature: °C other units: °F, K Standard unit humidity: % Standard unit pressure: bar
Principle of measurement	Capacitive method, Oscillating crystal
Sensor	Sensor A: QCM technology Sensor B: polymer
Measuring medium	Non-corrosive gases
Measuring range	Sensor A: -100°Ctd ... -30°Ctd Sensor B: -50°Ctd ... 50°Ctd Pressure: -0.1... 1.5 MPa Temperature: -30°C... 50°C
Operating temperature	0°C... 50°C
Operating pressure	-0.1... 1.6 MPa
Humidity of the meas. medium	< 90%, no condensation
Casing material	PC + ABS
Charging time	7 h (if switched on), 4 h (if switched off)
Protection class	IP65
Dimensions	See dimensional drawing on the next page
Display	2.8” colour graphic display
Weight	0.7 kg (with measuring chamber), 0.45 kg (without measuring chamber)

4.2 Electrical Data

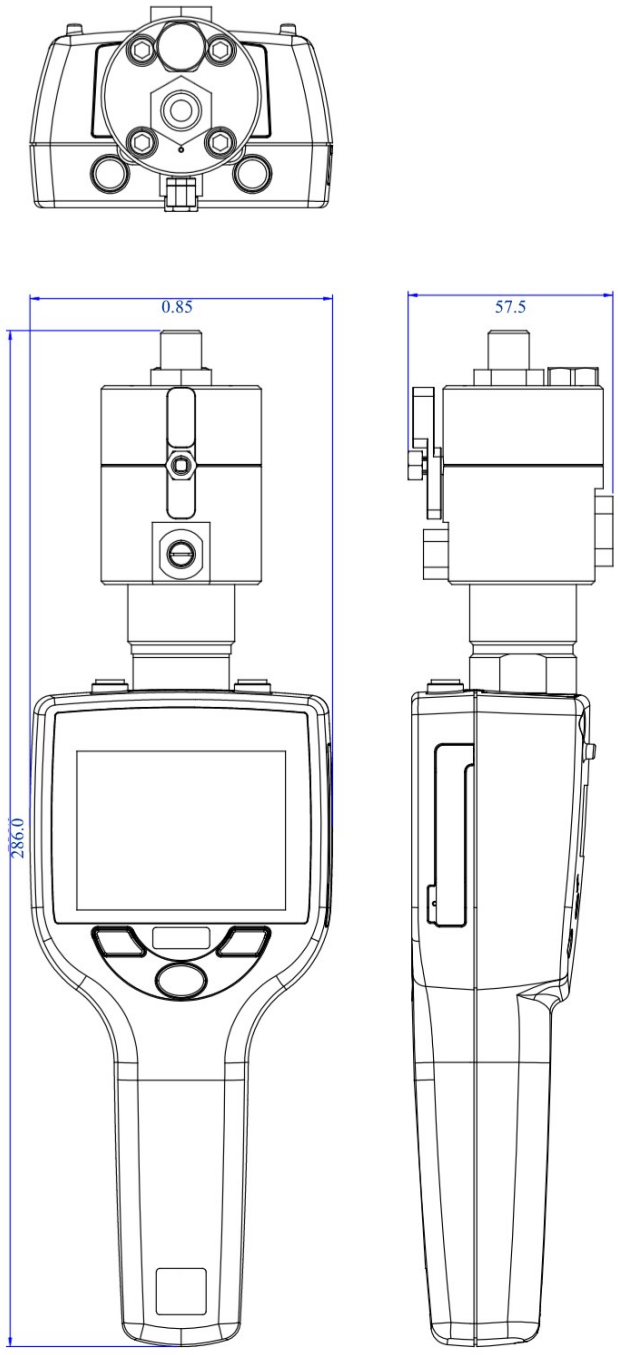
Power supply	USB charger: 5 V, 2 A

4.3 Accuracy

Accuracy	Dew point: ± 2°Ctd @ -50°C Temperature:± 0.3°C Pressure:± 0.005 MPa
Repeatability	± 0.5°C
Stated accuracy at	Ambient process temperature of 23°C ± 3°C and ambient humidity of < 90%, no condensation



5. Dimensional drawing



6. Installation

Please make sure that all components listed below are included in your package.

Qty	Description	Item No.
1	Handheld meter with data logger and S4M-S software	P560 0505

1	Sensor unit with ordered option (sensor unit A or sensor unit B or sensor unit A+B)	S699 0502 / S699 0503
1	Parking / Measuring chamber	A699 3500
1	Teflon hose with quick connector	A554 0003
1	USB charger with USB cable	A554 0018
1	Transport case	A554 0019
1	Calibration certificate	No P/N
1	Instruction manual	No P/N

6.1 Installation Procedure

The following steps explain the procedure of an appropriate installation.

1. Define the proper sensor module which is used for the measurement. This depends on the expected measurement value.
   - Use the sensor module A for expected dew point below -50 °Ctd.
   - Use the sensor module B for expected dew point above -50°Ctd.

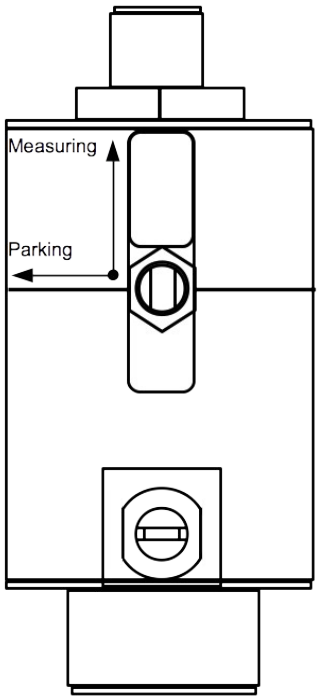
2. To change the sensor modules just open the 2 screws at the back of the instrument

3. pull the sensor module out. It is recommended to place the protection cap onto the unused sensor module for storage.

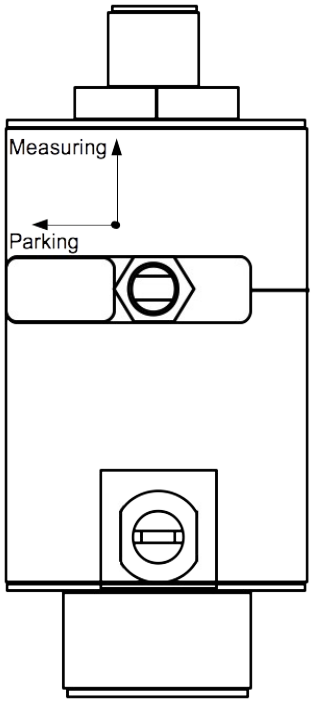
Remark

The parking measuring chamber is mounted permanently on the sensor head to keep the sensor try. For measuring the handle on the chamber has to be turned into measuring position.
After finishing the measurement, please return to the park position.

Measuring position



Parking position



WARNING!

Do not remove or touch the sinter cap !

The sinter cap protects the sensor element from dust and particles. Wrong handling may effect or even destroy the sensitive sensor element!

4. Connect the teflon hose with the measuring chamber. The hose is connected to the 6 mm connector at the chamber.

5. Connect the tip of the teflon hose with a quick connector. The teflon hose with quick connector is used to connect the measuring chamber to the process.

Remark

- Please ensure that the teflon hose remains dry and clean. Wet and contaminated hoses can effect the measurement and should be

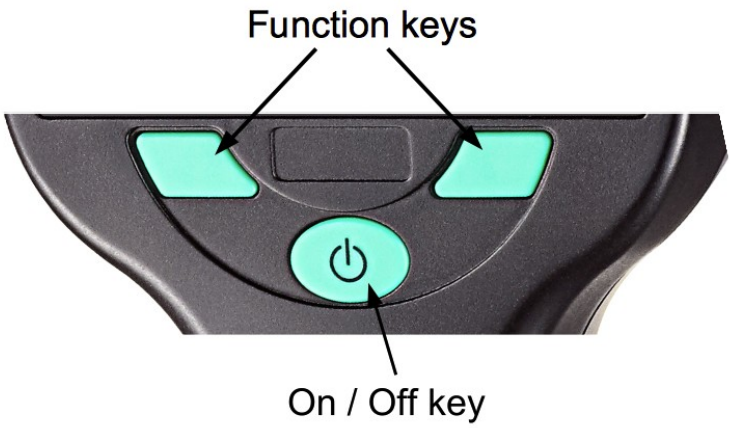
exchanged.

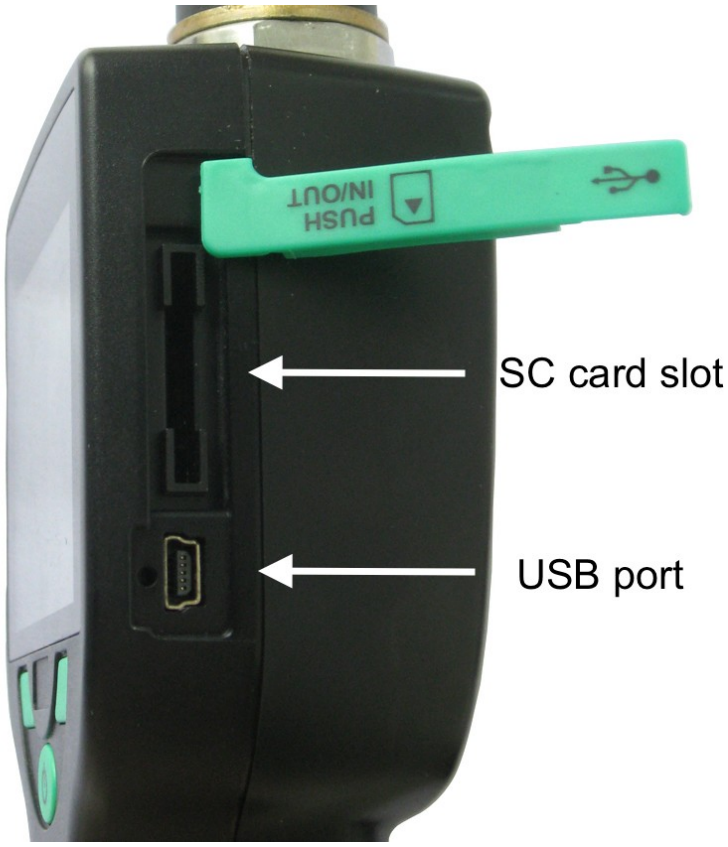
6.2 Electrical connection

Please recharge the dew point meter if the battery is empty. For this use the charger which is included in your delivered package.

7. Operation

7.1 Buttons and connectors





7.2 Symbols on screen

The symbol shows the battery status in % of available energy.

The calibration is experted. It is recommended to re-calibrate the sensor unit. For this pleas contact the manufacturer.

General error indication. Please note down the error code and contact the manufacturer.

Bluetooth is active and ready to connect.

USB connection is established.

A connection to the printer is established.

The data logger is active.

The SD card is inserted

7.3 Main screen

7.4 Basic operation

The operation is easy and similar. Please try the functions through the touch screen and experience the features of this production.

On the left side of the screen the menu is shown. It includes the follow menu items:

- Settings
- Logger
- Files
- Print
- Bluetooth
- Calibration
- Service

7.5 Data logger

Description of the function:

Start / Stop	Start and stop of the logger.
Sample rate	Set the time interval the samples will be recorded. For example 10 sec: The logger will record the measured values every 10 seconds.
Average	For long sampling rates, the user can choose to record the average value instead of the present value.
Logger status	Status information about the logger.
Tester name	User input for additional information about the person performing the measurement.
Location	A location description can either be selected from a list or entered.
Company name	Company name and address that should appear on print (usually the customer).

Tester name, location and company names can be entered or modified by selecting one entry and keep it pressed for 2 seconds. A window will pop-up where you can choose between edit, new, delete and chancel.

The S 505 has two different logger functions. One is the continues logging with sampling rate and the other one is a single value logging, where the user just stores the current values on the screen in a file. For this purpose the “Save” button on the main screen has to be used.

7.6 File menu

The file menu is used to view all recorded data. We distinguish between two data files:

- Single record data file (can be printed with HDT 312).
- Multiple record data file (can be analysed with CSM-s).

7.7 Print menu

The print menu looks very much the same as the file menu but it will list only single recording files. Only this files can be printed with the wireless printer.

7.8 Bluetooth menu

The BT menu is used to establish the connection with the portable printer or the PC. In order to establish a connection The S 505 and the printer need to be paired.

1. Switch on the portable printer and check the small screen on the printer.

2. If a symbol that looks like a lock is shown, it indicates that this printer has been paired already with another device.
3. Remove the lock by pressing the setting button on the printer until “BT clear binding” is shown.
4. Press the “paper feed” button.
5. Now select on S 505 the menu “Bluetooth” and tick “Connect to printer”.
6. After a few seconds the spinning wheels on the screen should disappear and the printer symbol should be shown at the top of the screen.

8. Application software

The S 505 can be used in combination with S4M-S data acquisition and monitoring software. The following software is available as download from the web page of the manufacturer.

8.1 S4M-S

After download and installation the S 505 connect via USB to the computer. Do following settings in S4M-S:

- Select “Online” to show current measurement values.
- Select “Download Data” to download recorded data from S 505 to PC.
- Select “File List” to open a data file for analysing.
- Follow the instructions in Help File for more details.

Remark

The S4M-S requires a registration through the purchase of a serial number, which is not included in the set.

8.2 S4C-Handheld

Configuration software for the S 505. Through this software user data, which can be assigned to data logging files, can be managed. Following data can be managed and downloaded to the S 505 and finally printed on the portable printer:

- Location names and descriptions.
- Tester name: Identification who performed the measurment.

- Customer name and address.
- Service company name and address.
- Service company logo.
- Firmware update in S 505: please download the latest firmware from our web page.

Remark

The full set of software is included on the SD card of S 505; S4M-S, S4C-Handheld, instruction manual S 505 as pdf.

9. Optional extra accessories

9.1 Portable bluetooth printer HDT 312

With the optional bluetooth printer it is possible to create a printout showing the measured values, location and date / time. It is also possible to order the paper roll for the printer additional (contains 3 rolls).

Principle	:	Thermal	Charging time	:	2.5 h
Printing speed	:	60 mm/s	Stand by time	:	120 h
Density	:	203 dpi	Charger	:	12 VDC / 1 A
Width	:	58 mm paper roll, 48mm print area	Transmission Distance BT	:	5 m

Setting button:
Scroll through the menu.

On / Off button:
Press for 2 seconds.

Paper feed / select button:
In menu mode, the selection is confirmed.

Menu selection	**Default setting**
Printing quality	High
Printing grade	3
Auto feed	No
Mark detect mode	0
Self test	Select it for self test
BT clear binding	Select it to break the pairing
Auto off time	30 m
Language	English / Chinese

9.2 Parking measuring chamber by-pass type

This chamber can be used in applications where the measured gas is by-passed through the chamber. For more information please contact your retailer or the manufacturer.

9.3 SD card 4G

The data logger can record as many as 100 million values which are stored on a SD card (optional).

- Memory size: 4G
- Number of files: max. 512 files
- Medium: SD card

10. Calibration

It is recommended to calibrate respectively adjust the sensor annually. For this please contact the manufacturer. Please check the date of the last calibration in the attached calibration certificate.

If the instrument has a slight drift due to ageing, temperature or other effects a dew point and pressure calibration can be performed.

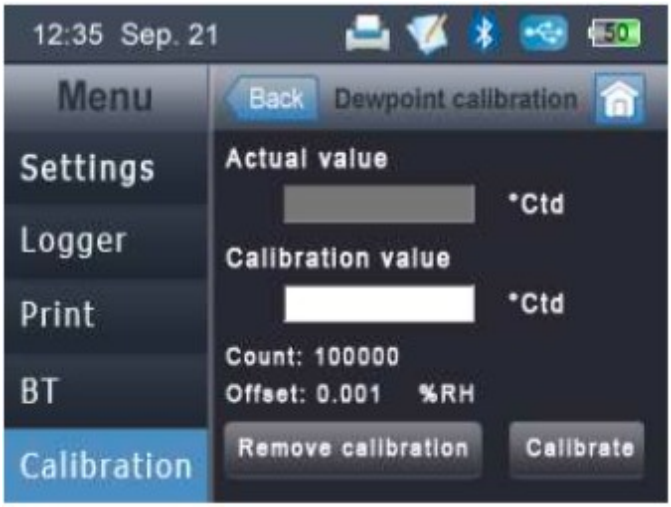
10.1 Dew point calibration

Performing a dew point calibration is critical and the following considerations should be taken:

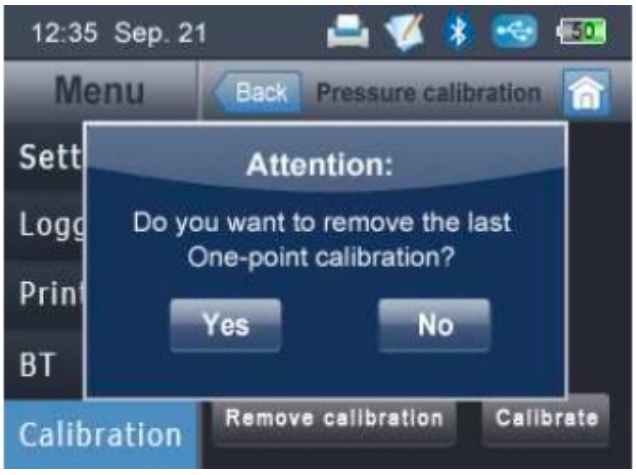
- Perform dew point calibration at the working point. Foe example if you measure around -40°Ctd do the calibration at that point.
- Do not perform calibration at too high dew points, as it will cause big errors at low dew points!
- We recommend calibration between -40°Ctd and -55°Ctd.

- Use highly precise reference measuring instruments.
- Maintain conditioning time of about 1 hour minimum.

Please use the calibration function and select “dew point calibration”. Follow the steps on the screen.



If there is any doubt about correct calibration process and result, the calibration can be removes at any time. Please follow the instruction on the screen.



10.2 Pressure calibration

If the instrument is not showing 0 pressure at ambient condition, it is recommended to perform a fast zero calibration. For that purpose please use the calibration function and select “pressure calibration”. Follow the steps on the screen.

11. Maintenance

To clean the sensor and its accessories it is recommended to use moist cloth only.

ATTENTION!

Do not use isopropyl alcohol to clean the sensor and its accessories !

12. Disposal or waste

Electronic devices are recyclable material and do not belong in the household waste.
The sensor, the accessories and its packings must be disposed according to your local statutory requirements. The dispose can also be carried by the manufacturer of the product, for this please contact the manufacturer.

13. Warranty

CS-iTEC provides a warranty for this product of 24 months covering the material and workmanship under the stated operating conditions from the date of delivery. Please report any findings immediately and within the warranty time. If faults occurring during the warranty time CS-iTEC will repair or replace the defective unit, without charge for labour and material costs but there is a charge for other service such as transport and packing costs.
Excluded from this warranty is:

- Damage caused by:

- Improper use and non-adherence to the instruction manual.
- Use of unsuitable accessories.
- External influences (e.g. damage caused by vibration, damage during transportation, excess heat or moisture).

The warranty is cancelled:

- If the user opens the measurement instrument without a direct request written in this instruction manual.
- If repairs or modifications are undertaken by third parties or unauthorised persons.
- If the serial number has been changed, damaged or removed.

Other claims, especially those for damage occurring outside the instrument are not included unless responsibility is legally binding.

Warranty repairs do not extend the period of warranty.

ATTENTION!

Batteries have a reduced warranty time of 12 month.

SUTO iTEC GmbH
Werkstr. 2
79426 Buggingen
Germany

Tel: +49 (0) 7631 936889-0
Fax: +49 (0) 7631 936889-19
Email: sales@suto-itec.com
Website: http://www.suto-itec.com

CS-iTEC Co., Ltd.
Room 10, 6/F, Block B, Cambridge Plaza
188 San Wan Road, Sheung Shui, N.T.
Hong Kong

Tel: +86 (0) 755 8619 3164
Fax: +86 (0) 755 8619 3165
Email: sales@cs-itec.asia
Website: http://www.cs-itec.com