Calibration

Each unit is calibrated against our working factory standard which is traceable to the 'NMI' in the Netherlands or the National Physical Laboratory in the United Kingdom.

Calibration certificates

In addition to the normal calibration procedure, each transmitter can be supplied with its own traceable calibration certificate.

Calibration interval time

Under normal ambient conditions (0..50 ºC, 0..70 %RH) and for an accuracy of ± 2 %RH, we recommend an annual calibration.
For an accuracy of ± 5 %RH we recommend calibration every five years.
For environments with airborne chemicals or for high humidity and high temperature conditions we recommend more frequent calibration.

EMC compatibility

The S-904 Climate Chamber is designed to meet the following European standards:

EN 61326 (1997) + A1 (1998) + A2 (2001)
Emission: Class B, Immunity: Industrial
EN 61000-3-2 (1995) + A1 (1998) + A2 (1998)
EN 61000-3-3 (1995)

Limited Warranty

All products manufactured by Sensor Data B.V. are warranted to be free of defects in material and workmanship for one year after delivery. Any product found to be defective for these reasons within this period will be repaired or replaced free of charge in our factory.
We give no other warranties. In no event Sensor Data B.V. shall be liable for any damages or losses, wether direct or indirect. The warranty cannot be transferred or assigned to third parties.

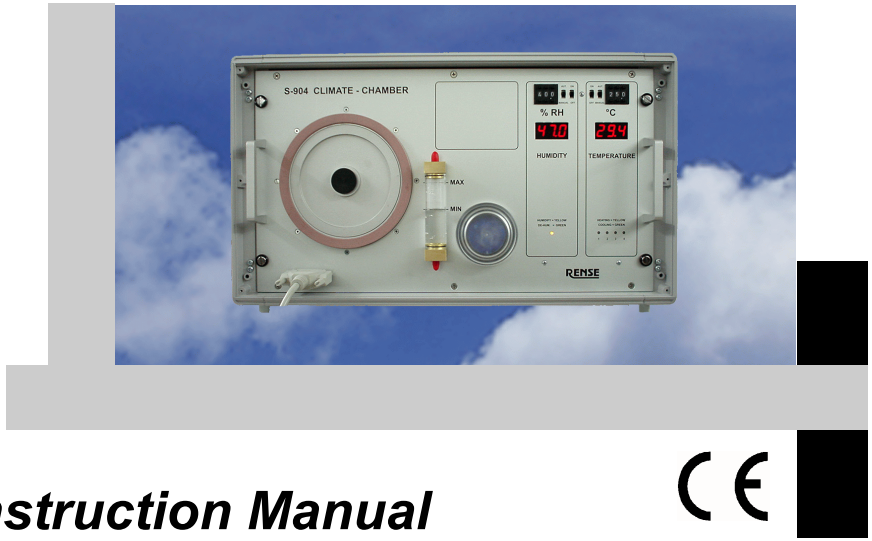
Sensor Data BV
Postbus 1111
NL-2280 CC Rijswijk
THE NETHERLANDS

Phone +31 (0)70 3070736
Fax +31 (0)70 3070938

E-mail info@sensordata.nl
Internet www.sensordata.nl

SENSOR DATA

handelskade 76 2288 bg rijswijk | postbus 1111 2280 cc rijswijk | tel 070 3070736 fax 070 3070938 | info@sensordata.nl www.sensordata.nl



CE

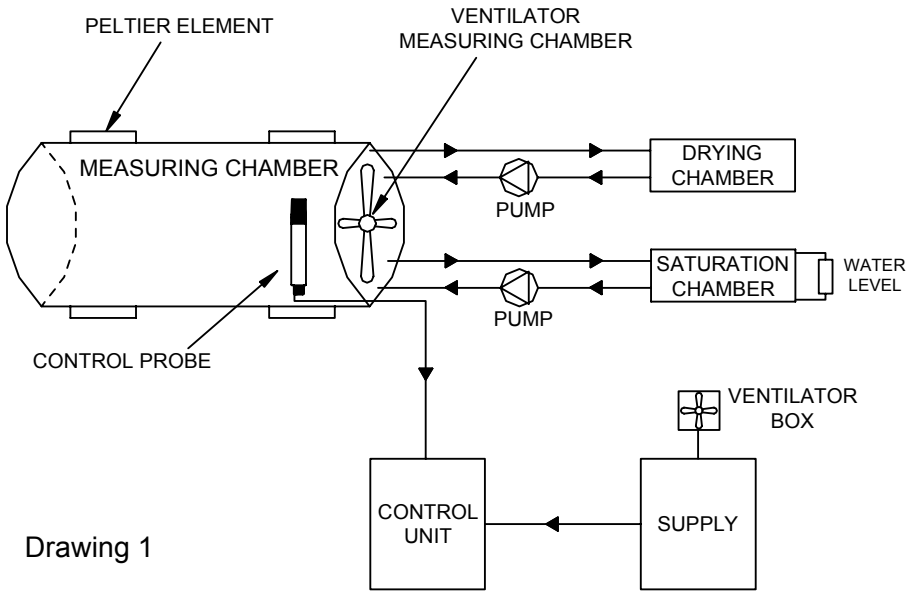
Instruction Manual Climate Chamber S-904

Introduction

The climate chamber consists of a measuring chamber with a very accurate and stable temperature and humidity control system. The temperature and humidity can be controlled by hand with digital potmeters or by a computer with 0..10V signals. There are also output signals for a data logging system.

Working principle

The measuring chamber is a dual wall system with a strong airflow between the walls to guarantee a homogeneous temperature and humidity in the measuring chamber. The outer wall is controlled in temperature at 4 places with separate controllers and high accuracy sensors. The temperature in the inner chamber is measured separate and this signal is used to correct the controllers. The humidity is controlled by a saturation- and a drying- chamber and some pumps.



Drawing 1

Specifications

Technical specifications at 20 ºC ambient temperature typical values.

Temperature	
- range	10..50 ºC min temp. = Ambient temp. -10 ºC
- stability	± 0.1ºC
- change 20→>40ºC	100 ºC/hour
- change 40→>20ºC	40 ºC/hour
- display	0.0 .. 99.9 ºC LED14mm
Rel. Humidity	
- range	10 .. 90 %RH (depending on conditions 5..95 %RH)
- stability	± 0.2 %RH (20 .. 80 %RH)
- accuracy (10..70%RH)	± 1.0 %RH (depending on calibration sensor)
- accuracy (5..90%RH)	± 1.5 %RH (depending on calibration sensor)
- display	0.0 .. 99.9 %RH LED14mm
Dimensions box B x H x D	530 x 300 x 430 mm
Dimensions measuring chamber B x H x D	105 x 105 x 160 mm
Chamber	2 dm³
Weight	20 kg
Supply	85 ... 264 VAC, 47 .. 63 HZ, 150 VA
Fuse	1A T

Maintenance

After some time the colour from the desiccant will change from orange to white by taking up moisture. As you see that on the frontpanel, there is still some time but you have to change the desiccant. You can dry the desiccant in an furnace, at 130 till 140ºC for about 3 hours till it has its original orange colour. If the water level is less than min., you have to fill it with distilled water (NO demiwater). Do not fill till over max., for you get some water in the measuring chamber. In that case the humidity does not go down and you have to dry the measuring chamber.

Starting up and using the climate chamber

Remark: first place the probes careful in the chamber see drawing 3.

If the drying chamber is not filled with desiccant, you have to fill it with the desiccant. See drawing 4. Screw the plastic cover (3) off and take the holder out and screw it open, fill it till just under the top of the inner tube and take care during closing it, and put it back. Fill the water reservoir (2) till between min and max.. Use only distilled water, **no** demi water! Open the water reservoir at the top and close it again. Do **never** fill it higher than max. Before and during measurements check if the level is not lower than min. Use the included bottle with special tip to fill it. Inside the measuring chamber (1) is an 25 pin SUB-D connector. This connector can be used by customer for measurements, see drawing 2. These 15 pins are connected to the connector on the frontpanel (6).

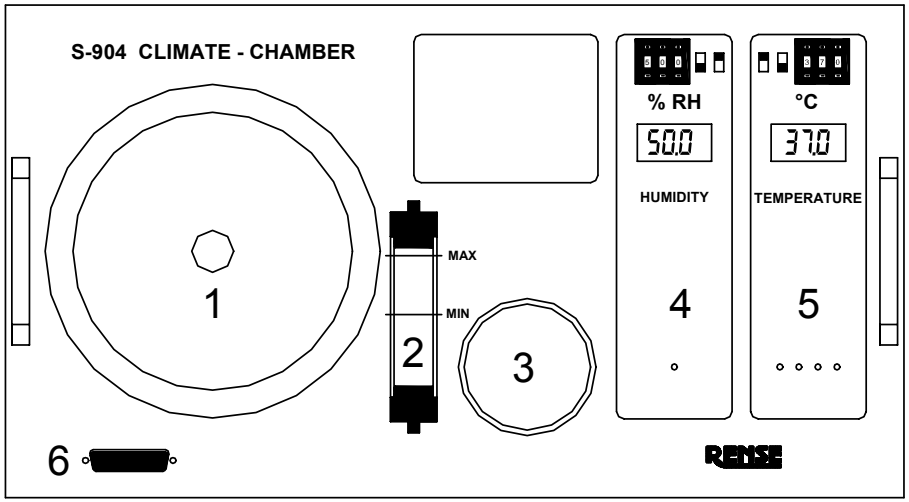
This front connector can also be used to control the humidity and temperature with 0..10V signals from a computer. The switches 1 & 4 (see drawing 5) must stand on AUT. If no computer is connected, the S-904 controls on 50 %RH/20ºC (safety-mode) Pin 24 of the front connector is then 0V. For operation: connect +5V between pin 24(+) and pin 21(GND). Now the unit is ready to accept external inputs.
External inputs: RH-set point (0..10V=>0..100%) between pin 23(+) and pin 21(GND). Temp.-set point (0..10V=>0..100ºC) between pin 10(+) and pin 21(GND). Note: the temperature in the climate chamber is limited at 52 ºC.
Outputs: RH-set point (0..100%=>0..10V) is available between pin 22(+) and pin 21(GND). Temp.-set point (0..100ºC=>0..10V) is available between pin 9(+) and pin 21(GND).

The measuring chamber must not be filled too much for there must be enough airflow. On the frontpanel you find the set points for humidity (4) and temperature (5) as well as the switches, (see drawing 5) for manual or external, automatic control by a computer. Switch 1 for humidity and switch 4 for temperature. Switch 2 is for switching on or off the humidity control system. Switch 3 is for switching on or off the temperature control system.

At the frontpanel is an indication LED for humidify (yellow) and de-humidify (green). There are four LED's at the frontpanel that show heating (yellow) and cooling (green) for the four temperature control sections.

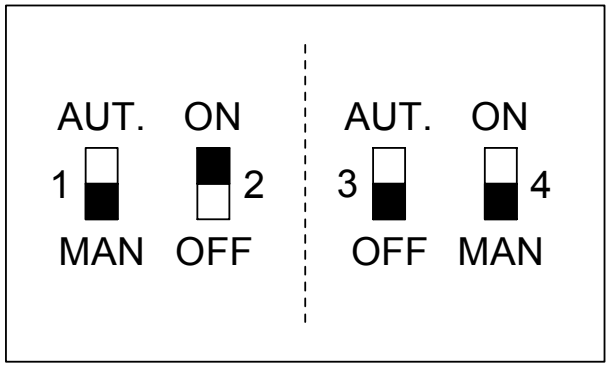
Take care

- Transportation: always remove the water and the probes!
- Do not tilt the unit if there is water in it.
- If not used, open the frontstop so that no condensation in the measuring chamber will happen. Condensation and very high humidity can cause corrosion.



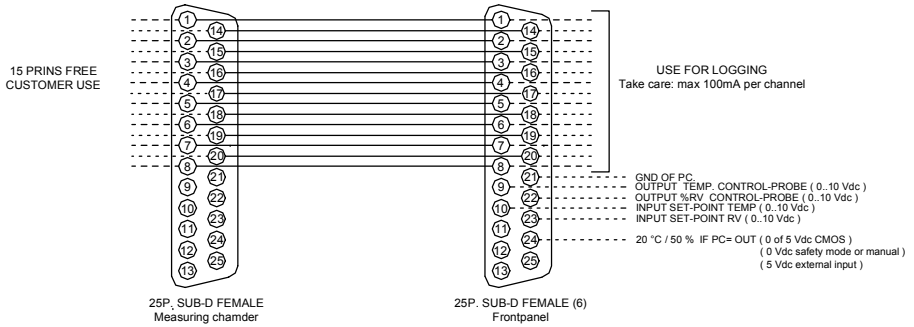
Drawing 4

Drawing 5

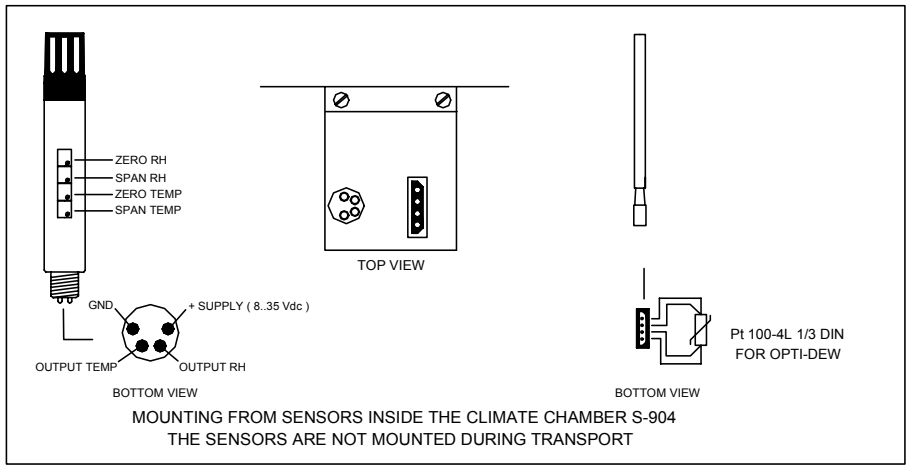


Trouble shooting

problem	**possible solution**
no drying	change desiccant
	water in chamber; dry the chamber
no humidifying	water level too low
no drying and humidifying	switch 2 is off
no heating or cooling	switch 3 is off
no display	fuse on back panel
no external control	switches right position? pin 24 of the front connector must be +5V



Drawing 2



Drawing 3