GOSSEN METRAWATT

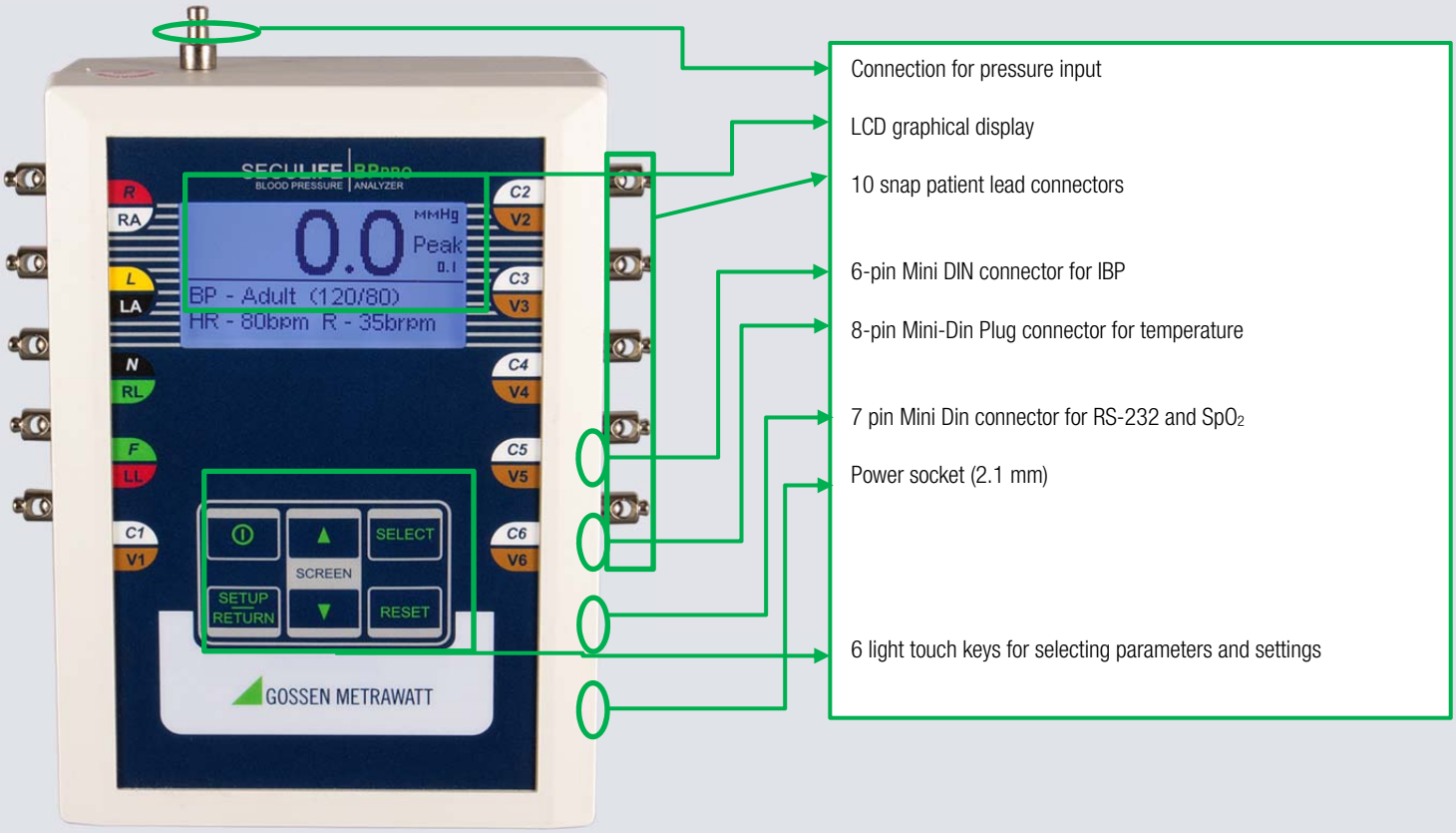
QUICK SETUP GUIDE

SECULIFE BP$_{PRO}$

SECULIFE®

SECU**LIFE** BP$_{PRO}$ is a microprocessor based, high precision, Non-Invasive Blood Pressure (NIBP) simulator. The unit is small, easy to use and has multiple features to fit many different applications. The SECU**LIFE** BP$_{PRO}$ offers invasive blood pressure, temperature, arrhythmias and a leak rate test mode. The graphical display provides multiple screens containing pressure in mmHg, a plot of the overall pressure, or a close-up of the BP waveforms.
SECU**LIFE** BP$_{PRO}$ features 9 basic test modes.

SECU**LIFE** BP$_{PRO}$



Fingersim SET

The FingerSim pulsoximeter-testing system enables the user to test pulsoximeters and sensors with three simulated light absorption conditions. These absorption conditions imitate typical oxygen saturations.

Three FingerSims:

SpO_2 80 %
SpO_2 90 %
SpO_2 97 %

Incl. case, operating instructions and SECU**LIFE** spare holder.

SECU**LIFE** Pulse Oximeter Module

Finger holder
Simulates heart frequency in combination with the basic device

Running a test

The SECU**LIFE** BP$_{PRO}$ includes 9 Basic Test modes and 3 Sub-Test Modes. This section will guide you through each of the tests and their basic operations.

The Main Tests are accessible with a single key. The 

key will scroll through the following tests in a continuous loop:

- Adult 120/80
- Adult 120/80 w/ Pace
- Adult High 190/120
- Adult Low 80/40
- Neonatal 70/40
- Alarm Test
- Arrhythmia Sequence
- Leak Test
- Manometer

Basis Test Modes

NIBP:

The first five test modes deal with various NIBP setups. To run an NIBP simulation, the cuff and monitor are connected to the pressure input. Then the measurement is initiated by the monitor and the SECU**LIFE** BP$_{PRO}$ unit will show the proper waveform based on the cuff pressure provided by the monitor and the selected simulation.

The NIBP output mode can be changed by pressing the 

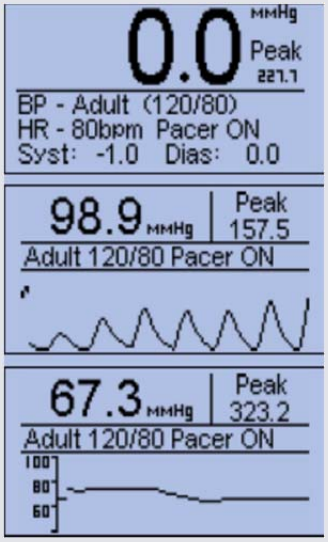
key. Once the desired operating mode is selected, the output will begin when the correct pressure is detected automatically.

Test-Modes

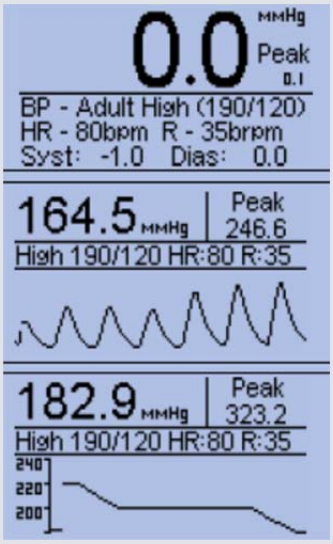
There are 5 selectable NIBP Basic Test Modes: adult, adult w/ pace, adult high, adult low and neonatal. The following displays show examples for the selectable modes:

NOTE: The screens for the first test will have the individual components labeled. The component labels for subsequent tests are the same.

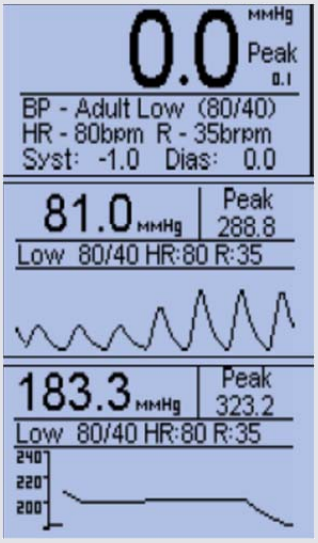
Adult 120/80 with Pace



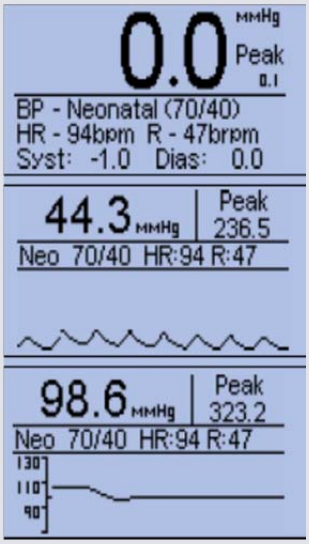
Adult High 120/80



Adult Low 80/40



Neonatal 70/40



Examination of blood pressure simulator

1.) Connection of SECU**LIFE** BP$_{PRO}$ and DUT (monitor) the SECU**LIFE** BP$_{PRO}$ blood simulator is connected between the blood pressure sleeve and the DUT monitor. A T-piece is inserted in order to scan the pressure.

Detail: magnified T-piece

2.) Functional check – blood pressure
In order to test the correct function, the blood pressure values set at the SECU**LIFE** BP$_{PRO}$ (here: 120/80) are compared with the display values of the DUT (here: 123/80).

Detail: SECU**LIFE** BP$_{PRO}$ display

Detail: DUT display (monitor)

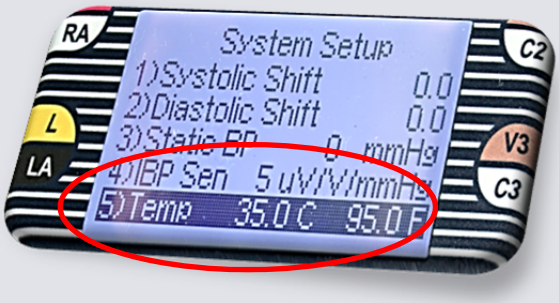
Examination of invasive blood pressure (IBP)

The output circuit is fully isolated and capable of switching between the two standard sensitivities (5µV/V/mmHg and 40 µV/V/mmHg).

1.) Target values
The same specifications apply as for NIBP simulation.

2.) Settings
At the SECU**LIFE** BP_{PRO} Display, it is possible to set the transformer ratio as well as the offset for the monitor.

3.) Before starting the test, some patient monitors may require a zero-balance with the SECU**LIFE** BP_{PRO}.
The IBP simulation will start automatically, as soon as both instruments will be switched back to simulation- respectively to measuring mode.



Detail: SECU**LIFE** BP_{PRO} display

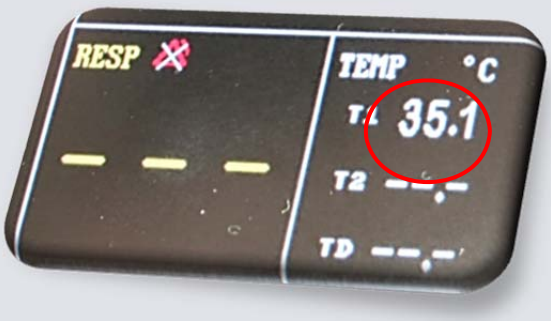
Temperature test

1.) Connection of temperature test cable and SECU**LIFE** BP$_{PRO}$ for measuring the temperature, a standard temperature test cable is connected between SECU**LIFE** BP$_{PRO}$ and the DUT.

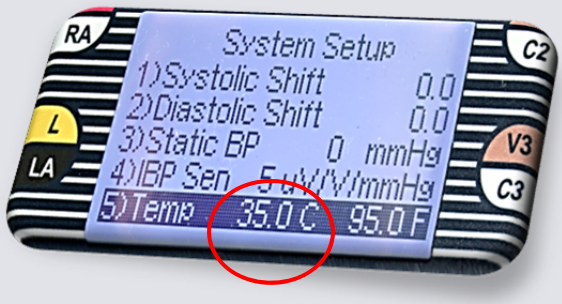
The temperature setting can be selected in the **SETUP** mode.

2.) Function test

The temperature at the SECU**LIFE** BP$_{PRO}$ (here: 35 °C) is compared with that of the DUT (here: 35.1 °C) in order to check the function of the temperature display.



Detail:: DUT (monitor) display



Detail: SECU**LIFE** BP$_{PRO}$ display

Examination of SpO_2 (oxygen saturation)

1.) Connection for SpO_2 measurement
A connection is established between SECU**LIFE** BP_{PRO} and the holder via a 7 pin mini-DIN cable.

2.) Checking the SpO2 function with the "SECU**LIFE** pulse oximeter module". The nominal value of the FingerSim™ (here: 97 %) should approximately correspond to the value displayed at the DUT (here: 98 %).
NOTE: Please observe the calibration date of the FingerSim™.

Detail: DUT display (monitor)

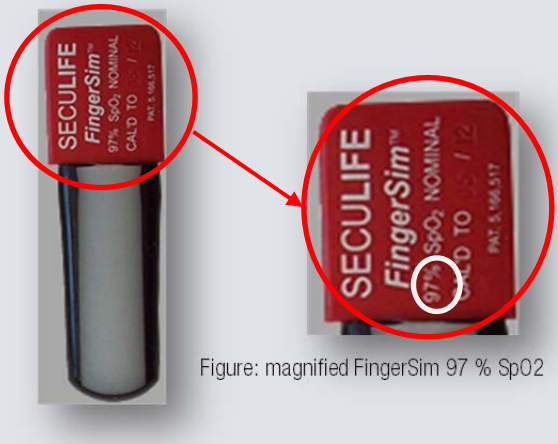
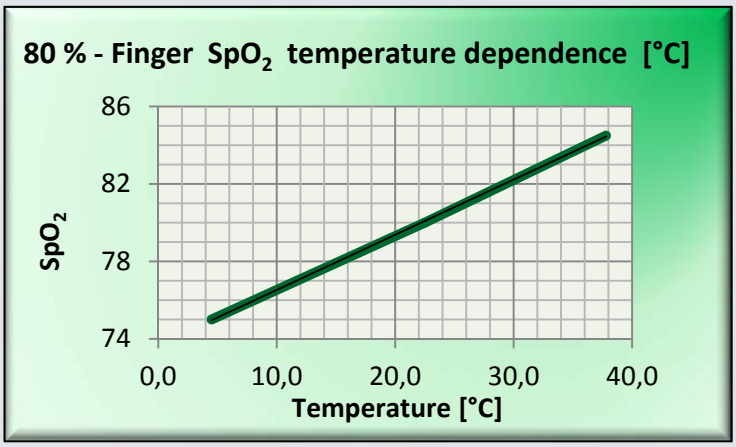
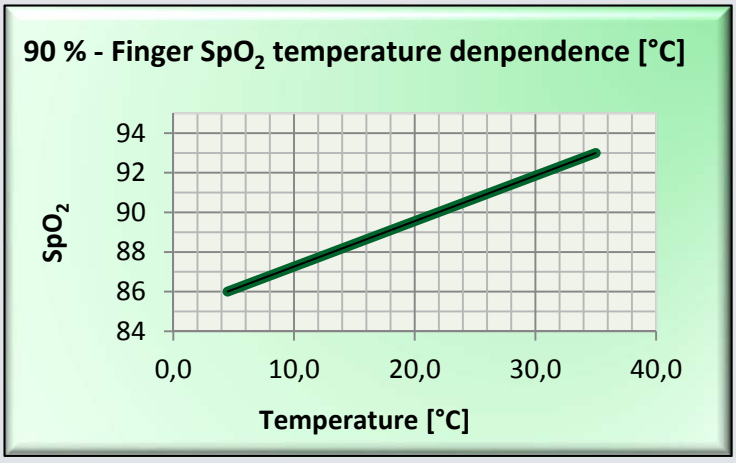


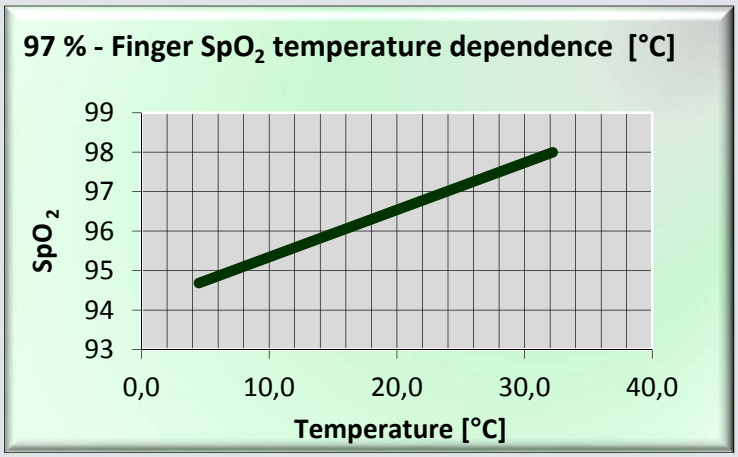
Figure: magnified FingerSim 97 % SpO2

SpO_2 temperature dependence

Changes in the ambient temperature have an impact on the light absorption characteristics of the FingerSim which results in slight temperature induced changes in the simulated SpO_2 values. Each FingerSim has been calibrated at 22.5 °C. If the ambient temperature ranges between 19.7 °C and 25.3 °C, it is not necessary to modify the simulation to be expected. If the ambient temperature is above or below this range, however, the diagrams shown on this page should be used to modify the simulated SpO2 value to be expected.





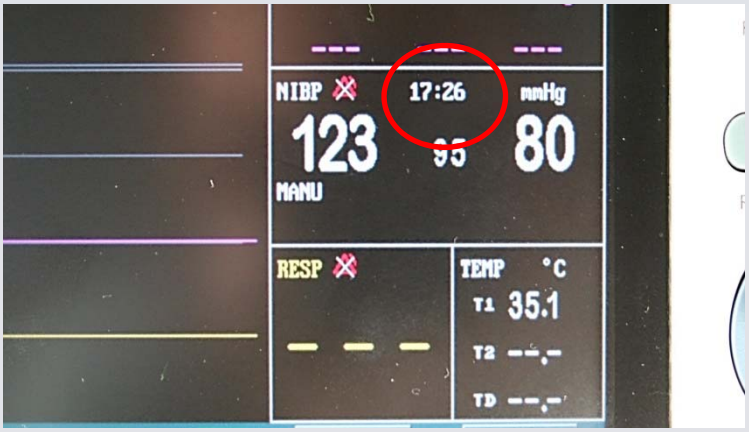


Leakage test

1.) Connection

A connection is established between SECU**LIFE** BP$_{PRO}$ and the pressure sleeve by means of the T-piece. Moreover, for conducting the leakage test, it is necessary to fit the T-piece with a pressure ball. The pressure ball, including discharge value, is connected to the T-piece by means of a Luer Lock tube to this end.

Note:
The pressure may not exceed **500 mmHg!**



2.) Settings

With the **SELECT KEY** you can scroll through the test modes and select the leakage test mode. This function provides a standardized pressure leakage test. The pressure input is connected with the system to be monitored. After that, the system is put under pressure. The leakage test is started by pressing the **RESET KEY.** The device locates the pressure drop and indicates it. Additionally, the time spent since the beginning of the test is indicated. Furthermore, the leakage rate in mmHg per minute is calculated and displayed.

Examination of ECG simulation

1.) Connection of SECU**LIFE** BP$_{PRO}$ with the DUT

The SECU**LIFE** BP$_{PRO}$ and the DUT (monitor) are connected with each other by means of a patient cable including snap lock clips. Take care of the color coding on the housing.

2.) Settings and Examination

Use the **SELECT** key to cycle through the test modes until “arrhythmia sequence” appears. The purpose of this function is to provide a timed sequence of some of the more common arrhythmias.

The 6 selectable heart rhythm disturbances (arrhythmias) of the SECU**LIFE** BP$_{PRO}$ are shown on the DUT display for verification purposes.

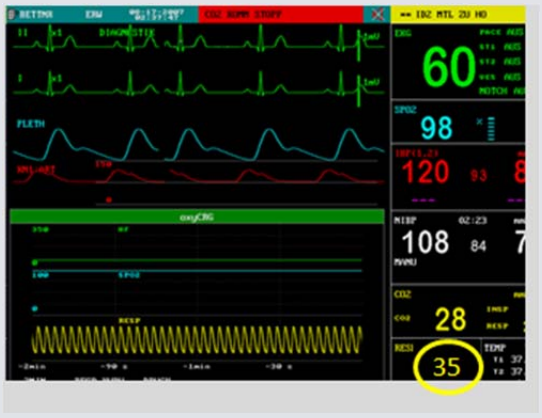
Examination of respiration

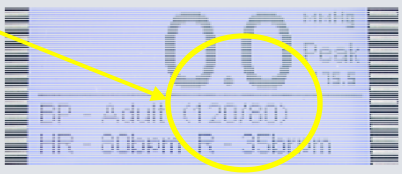
1.) Connection

Establish a connection between SECU**LIFE** BP$_{PRO}$ and the DUT (monitoring) for examining the respiration. The respiration is only issued via the LA-ECG cable. The connection is identical with the ECG simulation.

2.) Function test

To test the function, the value (here: 35 brpm) shown on the display of the DUT (here: 35 brpm) is compared to the value issued by the SECU**LIFE** BP$_{PRO}$ (here: 35 brpm).

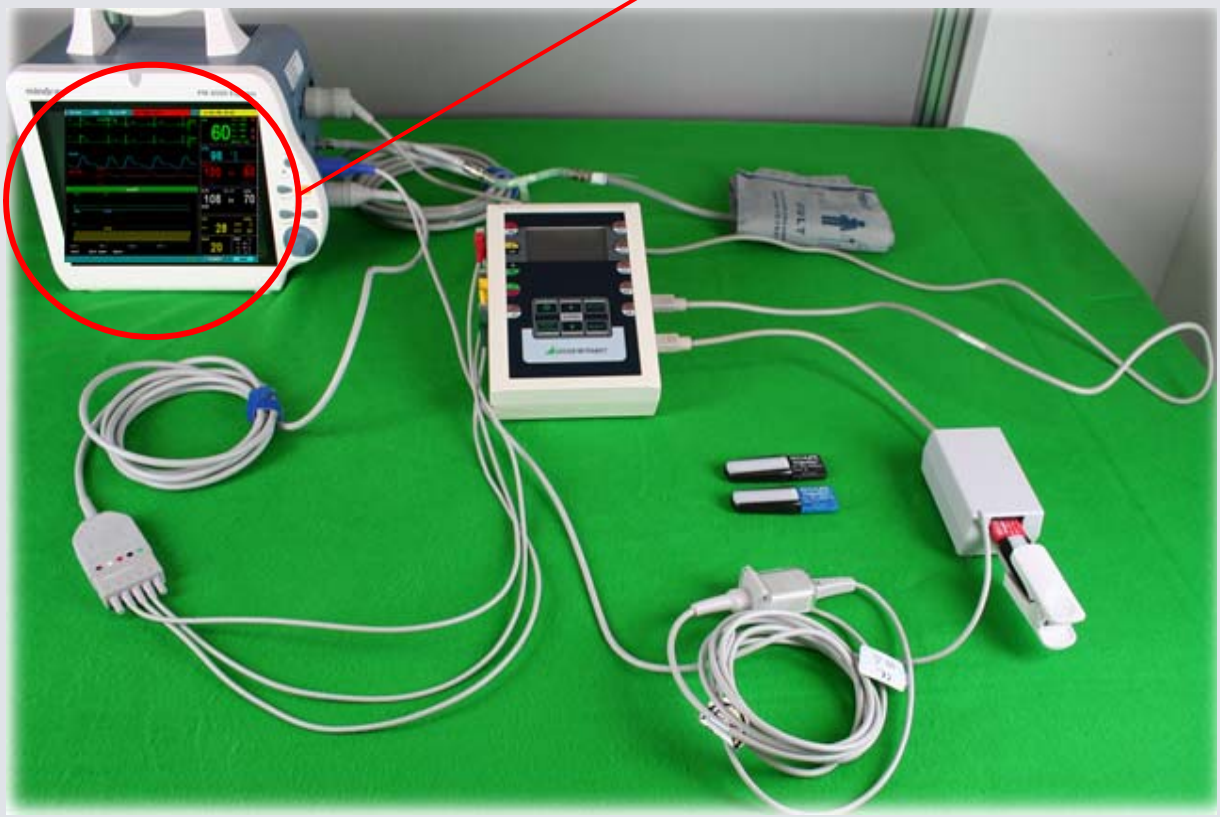




Excerpt: magnified display

General view of overall setup

The entire function tests described before can be performed simultaneously.



GMC INSTRUMENTS

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