HealthLab Satellite SAT-02

The HealthLab Measuring Satellite SAT-02.30 is a measurement module of the psycho-physiological monitoring system HealthLab. In the context of measurements with HealthLab the satellite SAT-2.30 acquires the 1-channel electrocardiogram of a proband by ECG sensor cables and the pulse wave, the electrical resistance of the skin and the skin temperature of the proband from a finger sensor. The SAT-02.30 forwards the captured data to a master, from which they are stored and transmitted to a host computer (Windows), which is provided as a monitoring and evaluation unit.

Technical Data

Designation
SAT-02.30 HealthLab Measuring Satellite, ECG, pulse wave, electrical skin resistance (SRL), skin temperature

Power Supply / Consumption
3,3 V DC via Master / 28 mA

Data Capturing
measuring ranges see Channel Index

Electrocardiography
measurement via-sensor cable with 4 mm snap fasteners, 12 Bit

Finger Sensor
pulse wave
IR-transmitter and –receiver λ 950 nm
electrical skin resistance
contact surfaces at finger sensor
skin temperature
resistive temperature measurement (PT-100), 12 Bit

Digital Interfaces
RS-485 from Master / Satellite to Satellite using a four-core shielded cable 460 kbps

Climatic Conditions
acc. to DIN EN 60204-1 (05-2010)

Ambient Temperature
operation: -20 … +60 °C
transport / storage: -25 … +60 °C

Humidity / Altitude
20 … 90 % RH (without condensation)
up to 8.000 m

Dimensions
W / H / D : 46 x 85 x16 mm
weight : 47 g

Ordering Information:	Part No.
SAT-02.30 ECG-Satellite: (ECG / SRL / temperature)	E1375
Accessories:	
EKG-01 Sensor Cable ECG:	E1164
FS2F-04 Finger Sensor:	E1476
VSS-03 Candy-Cable (SAT-SAT connection cable)	E1816
VSMS-10 Master / Satellite Connection Cable	E1276

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DIN EN ISO 9001:2008
Zertifikat: 01 100 000628

The measuring satellites of the HealthLab system can be operated at one Heally Master (e.g. HFM-01) simultaneously with up to six (note the current requirement!) additional satellites via the serial system bus (HealthLab Serial Slave Bus). Using this bus, the Master provides the Satellites with energy and controls the data exchange. An unique address (0 … 26) is assigned to each satellite. By default for the SAT-02.30, the Address is '2'. This slave address is factory preset but can be modified by the manufacturer in case of need. The HealthLab system is designed as a mobile, autarkic measurement system, but may as well stationary be used, with a permanent connection to the host computer.

For the usage of the HealthLab system, the software package 'HealthLab' is available. It includes the module 'Heally Control', which enables the user to configure the system as well as to display data and to perform measurements. For complex psycho-physiological experiments further software modules are available.

Channel Index

Channel-Designation	Channel No. (Identifier)	Signal	Unit	Measuring Range	Resolution	Sample Rate (Hz)	Gain (default)	Offset
ECG01	124	ECG lead	mV	±13 … ±0,25 mV	6 … 0,12 µV	4 … 1000	150 … 8000 (700)	2048
PW1	115	pulse wave from finger sensor	mV	±70 … ±1,2 mV	34 … 0,6 µV	4 … 1000	28 … 1700 (40)	2048
SRL_F	51	skin resistance (finger sensor)	kOhm	1 … 2.100 kΩ	0,01 kΩ	0,4 … 100	100	0
TEMP1	54	finger temperature	°C	15 … 45 °C	0,05 K	0,4 … 100	200	0
RRT	48	cardiac cycle duration	BpM	200 … 3.000 ms	2 ms	-	1	0
HR	227	heart rate	BpM	20 … 300 BpM	0,1 BpM	-	10	0
PTT	49	pulse transit time (only when ECG lead ECG1 is activated)	ms	50 … 1.000 ms	2 ms	-	1	0

Links on additional documents:

- Hardware: Master HFM-01 → https://secure.turboj.de/documents/HFM-01.pdf
- Software: Heally Control → https://secure.turboj.de/documents/Heally5_en.pdf