

# HealthLab Satellite SAT-09



The HealthLab Measuring Satellite SAT-09 is a measurement module of the psycho-physiological monitoring system HealthLab. In the context of measurements with HealthLab the satellite SAT-09 acquires measuring data on a 2 channel electrogastrogram. Using a serial interface (TTL level), data of an external GPS receiver can be integrated into the HealthLab system.

## Technical Data

### Designation

HealthLab Measuring Satellite SAT-09, Electrogastragraphy

### Voltage Supply

/ Current Consumption

3,3 V DC via Master / 28 mA

### Data Capturing

measuring range see Cannel Index

### Electrogastragraphy

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

### Serial Interface

TTL level 9.600 kbps 8/N/1 for external GPS receiver, protocol: NMEA 0183

### Climatic Conditions

acc. to DIN EN 60204-1 ( 10-2014 )

### Ambient Temperature

operation: -20 ... +55 °C  
transport / storage: -25 ... +60 °C

### Humidity / Altitude

20 ... 90 % RH ( without condensing )  
up to 8.000 m

### Dimensions

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

## Ordering Information:

## Part No

SAT-09 EGG-Satellite:  
(electrogastragraphy, GPS  
via serial interface)

E1162

## Accessories:

EGG-02 EGG Sensor Cable  
GPS-02 GPS Receiver

E1148

E1458

VSS-03 Candy Cable  
(SAT-SAT connection cable)

E1816

VSMS-10 Connection  
Cable Master / Satellite

E1276



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-09, the Address is '9'. 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
EGG1	121	EGG signal 1	mV	$\pm 6,5 \dots \pm 0,12 \text{ mV}$	$3 \dots 0,06 \mu\text{V}$	$0,5 \dots 125$	$300 \dots 16000(700)$	2048
EGG2	122	EGG signal 2	mV	$\pm 6,5 \dots \pm 0,12 \text{ mV}$	$3 \dots 0,06 \mu\text{V}$	$0,5 \dots 125$	$300 \dots 16000(700)$	2048
GLAT	092	GPS latitude	grd	$\pm 90^\circ$	60 mas *	1	60.000	0
GLONG	208	GPS longitude	grd	$\pm 180^\circ$	60 mas *	1	60.000	0
GALT	041	GPS altitude	m	$0 \dots 20.000 \text{ m}$	1 m	1	1	0

GPS - NMEA record 69,71 GPS ASCII strings

\* mas = milliard second ( milli-arcseconds )



*Note:* The psycho-physiological monitoring system HealthLab is manufactured and delivered in configurations according to customer's request. The HealthLab components are not certified for use in the medical field. Therefore they shall be used solely for research purposes in scientific area.

### Links on further documents\*:

- Hardware: Master HFM-01 → <https://secure.turboj.de/documents/HFM-01.pdf>
- Software: Heally Control → [https://secure.turboj.de/documents/Heally5\\_en.pdf](https://secure.turboj.de/documents/Heally5_en.pdf)

