KORALEWSKI
INDUSTRIE - ELEKTRONIK

HealthLab Flash-Master HFM-01

Technical Data

Designation
HealthLab Flash-Master HFM-01,
3D acceleration, barometric pressure,
heart rate, body core temperature

Power Supply / Consumption
internal: 2,0 … 3,0 V DC (2x Type AAA)
measuring without Bluetooth: 55 mA
measuring with Bluetooth: 65 mA
external: 5 V DC via USB interface
/ max 65 mA (*without Satellites*)

Data Capturing
measuring ranges see Channel Index

3-Axis Acceleration Sensor,
Barometric Pressure Sensor
(internal sensors of the Base-Module)

Body Core Temperature
as customer specific feature
via double-temperature sensors
at the Satellite Module

Heart Rate
wireless from appropriate external
measuring sensors, e.g.
the 'Polar WearLink' strap

Digital Interfaces
USB 2.0 (*via HL USB-01 Interface*)
Bluetooth 2.0
RS-485 HeallyBus 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 : 60 x 100 x 20 mm
Weight : 100 g

The HFM-01 HealthLab Flash-Master is the central controlling and storage module of the psycho-physiological monitoring system HealthLab. It consists of a master- and a satellite-module. In the context of measurements with HealthLab the HFM 01 Master controls by means of its Master-Module the functions of the HealthLab measuring satellites, which are connected via System-Bus. It receives the measurement data of the satellites, as well as the 3-D acceleration values of a proband, for storage in its internal memory. By means of its Satellite-Module the HFM-01 captures the body surface temperature or the body core temperature of a proband, depending on the used temperature sensors (NTC- or, as customer specific feature: double-temperature sensors), as well as the probands heart rate using external sensors via radio connection. The HFM-01 stores the captured data and transmits the data to a host computer (Windows), which is provided as control- and evaluation unit.

The modular design of HealthLab Flash Master HFM-01 offers the opportunity to provide the device with an alternate satellite module, and thus with a different as herein described measurement technology of the monitoring system HealthLab, details on request.

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By means of its serial system bus (HealthLab Serial Slave Bus), up to seven Measuring-Satellites (note the current requirement!) of the HealthLab system can be operated simultaneously at the Healthy Master HFM-01. Using this bus, the Master provides the Satellites with energy and controls the data exchange. An unique address (0 ... 26) is assigned to each device. For the Master HFM-01, the address is '0'. 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 'Healthy 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.

Ordering Information:	**Part No.**
HFM-01 Flash-Master	E1689
Accessories:	
TPS-02 Temperature Sensor: (*double-temperature sensor on request*)	E1288
USB-01 USB-Interface: (*with galvanic insulation*)	E1476
VMU-05 USB Connection Cable:	KC0216
AP-5002 Battery Pack: (*alternative variants on request*)	E1690
VSS-03 Candy-Cable (SAT-SAT connection cable)	E1816
VSMS-10 Master / Satellite Connection Cable	E1276

Channel Index

Channel-Designation	Channel No. (Identifier)	Signal	Unit	Measuring Range	Resolution	Sample Rate (Hz)	Gain (default)	Offset
ACC_X	139	acceleration sensor x-axis	G	±6 G	0,003	40	340	2048
ACC_Y	140	acceleration sensor y-axis	G	±6 G	0,003	40	340	2048
ACC_Z	141	acceleration sensor z-axis	G	±6 G	0,003	40	340	2048
ACTG	61	differential total acceleration	G	0 … 10 G	0,003	20	340	0
T_65 [1]	65	temperature sensor [1] (*double sensor inward**)	°C	0 ... +50 ± 0,05	0,01	1	100	0
T_69 [1]	69	temperature sensor [1] (*double sensor outward**)	°C	0 ... +50 ± 0,05	0,01	1	100	0
TC_91 [1]	91	body core temperature [1] * (*DS : TI_65, TO_69*)	°C	0 ... +50 ± 0,05	0,01	1	100	0
HR [2]	227	heart rate	bpm	30 … 300	0,01	-	10	0

[1] *Measuring channel only available with the standard type of the HFM-01 ;*
[2] *Measuring channel available with the 'radio ISM' version and with the standard type of the HFM-01 ;*
** dual temperature sensor as customer specific feature;*

Links on additional Documents:

- Hardware: Master HFM-01 → https://secure.turboj.de/documents/HFM-01.pdf
- Software: Healthy Control → https://secure.turboj.de/documents/Healthy5_en.pdf