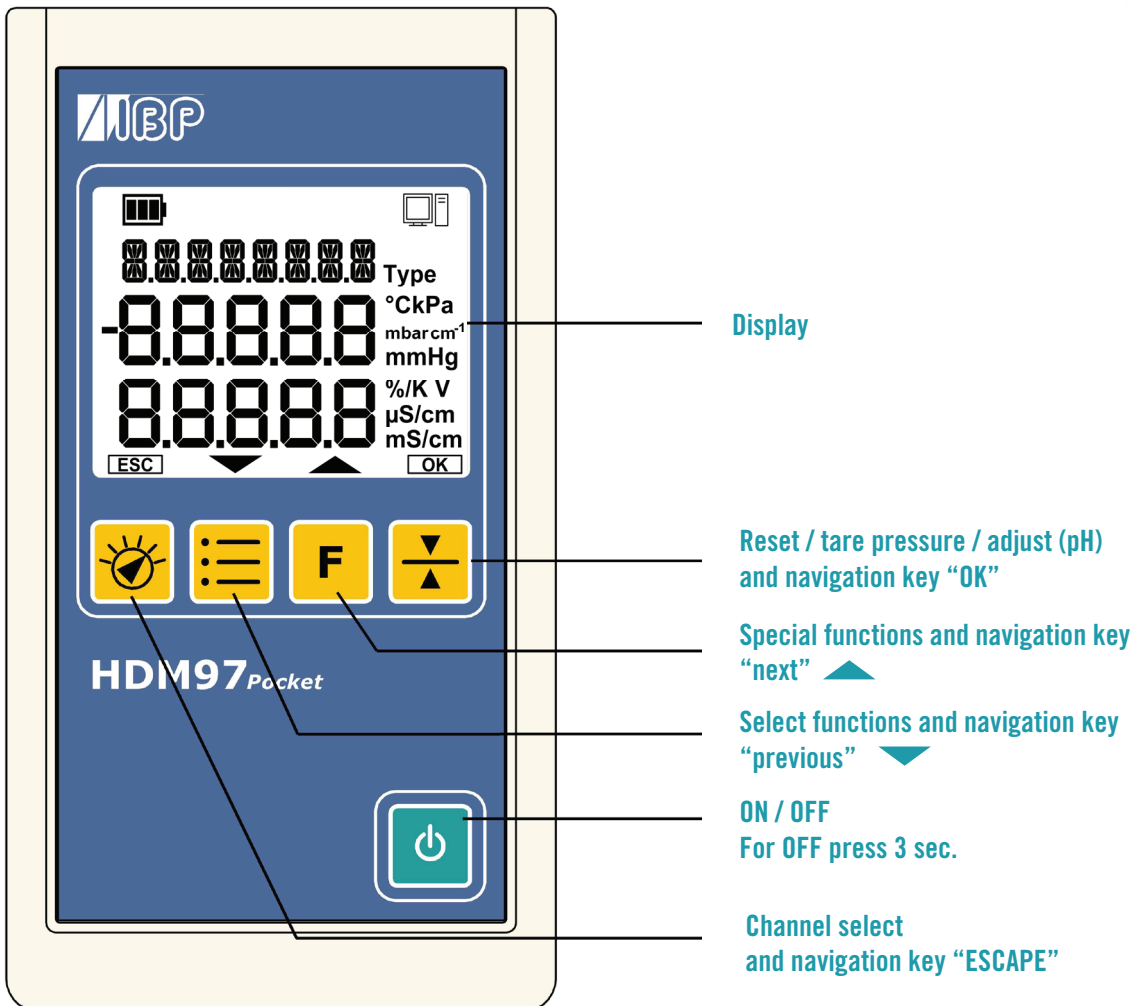


# HDM97Pocket Reference Meter Series

## Safety Instructions and Quick Start Guide

HDM97BL HDM97BH HDM97BN HDM97BO HDM97BP HDM97BQ

This document describes the major functions of the HDM97Pocket instrument series. The complete manual can be found at [http://www.ibpmt.com/medical\\_e/meter\\_documents.shtml](http://www.ibpmt.com/medical_e/meter_documents.shtml) and on the installation CD. For reading the document Adobe® PDF it's necessary to have Adobe® PDF Reader installed. Adobe® Reader for Microsoft® Windows® is included in several language versions on the CD.



# Safety Instructions

For Your and Your Patients Safety Read and Follow Carefully the Safety Instructions Below

- Read the entire manual (not only this guide) carefully before using the HDM97Pocket.
- Keep the instrument away from unauthorized persons.
- Only use the HDM97Pocket as reference instrument to measure Conductivity, Temperature, Pressure, Flow and pH depending to it's equipped features.
- Never use the HDM97Pocket as a replacement of sensors of a medical device.
- Do not use the HDM97Pocket in conjunction with a medical device during a treatment.
- Only use the instrument in a dry environment and do not touch it with wet hands.
- Make sure that no liquids intrude inside the instrument or it's inlets / outlets.
- Always use a clean protection filter for the pressure transducer inlet.
- Prevent every mechanical overstraining of electrical wires. Never buckle or pull the cable of the conductivity probe.
- If the acquired values seem to be not believable, make sure that the HDM97Pocket is not defective.
- Prevent electrostatic discharge on the connectors. This can lead to substantial damage of the instrument. Make sure to be completely discharged before touching the connectors or cables connected to the instrument.
- Adjust the meter only, if you are familiar with the consequences of the adjustment. Consider the hints for reference solutions in the user manual.
- Potentials above 42V against earth ground are dangerous. This potentials can lead to electrical shock and therefore to health hazards. Make sure that none of the connectors has higher voltage than mentioned before.
- The direct connection of earth potential to any connector of the instrument is not applicable for safety purposes and may substantially damage the instrument. Make sure that the medical device itself is properly connected to earth ground according to its instruction manual.
- Make sure that the instrument never heats over 60°C / 140°F. Prevent direct sunlight.
- Never sterilize the instrument using an autoclave. Danger of explosion of the battery!
- Never throw the meter into a fire. Danger of explosion of the battery!
- Never open the meter. There are no serviceable parts inside.
- Never try to replace or repair the internal battery. Handled in the wrong way these part is dangerous. Extreme risk of fire and explosion!

# Access Connectors

**HDM97BL**



Flow

**HDM97BH**



Pressure

**HDM97BN**



Conductivity  
Temperature

**HDM97B0**



Pressure    Conductivity  
Temperature

**HDM97BP**



pH    Pressure    Conductivity  
Temperature

**HDM97BQ**



Flow    Pressure    Conductivity  
Temperature

**HDM97BQ** with Option C (conductivity probe connector)



Flow    Pressure    Conductivity  
Temperature

Depending on the configuration the appliance part consists of a BNC inlet for pH electrode connection, a male connector for pressure transducer inlet, a connector for the flow probe and a directly attached cable which leads to the conductivity / temperature probe or connector for the probe. The appliance part is isolated against the USB-Connector withstanding 4000V AC or 6000V DC for one minute minimum according to ISO EN 60601-1.

## USB CONNECTOR / CHARGING THE BATTERY

The USB connector is mounted on the right side of the instrument. It is implemented as a Mini-USB-A receptacle. The current consumption of the HDM97Pocket (all versions) can be up to 500 mA while charging the battery. The USB connector can be used to charge the battery and communicate with the instrument at the same time. The period for charging an empty battery to 100% is approximately 3 hours.



**ATTENTION: The USB connector is not part of the appliance part.**

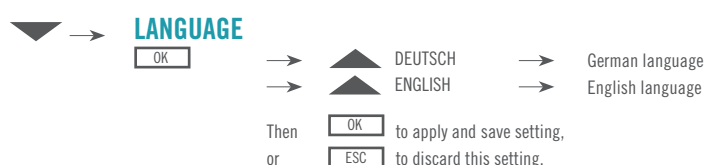
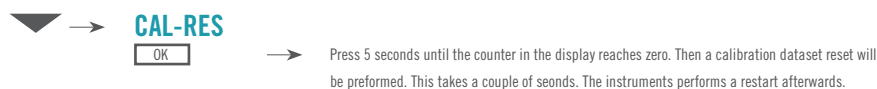
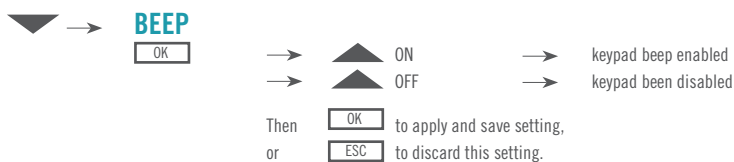
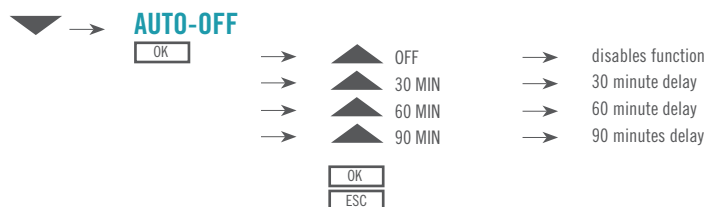
# Basic Settings

## BASIC SETTINGS

After switching on the instrument immediately press “F” key to invoke the basic settings menu. The parameter to change can be selected using the navigation keys down arrow and up arrow. By pressing the navigation key (the “ok” button) you can adjust the value of each parameter.

These parameters are as follows:

Parameter	Meter Versions	Description
AUTO-OFF	All	Set the delay time for the auto power off function or disables it
BEEP	All	Enables / disables the keypad acknowledge beep
CAL-RES	All	Overwrites the user calibration dataset with the device initial calibration dataset
LANGUAGE	All	Selection of display language.
PHT	BM, BH, BO, BP, BQ	Target time adjustment for pressure hold test (PHT)
TIMER	All	Enables / disables the stopwatch function
Flow	BL, BQ	Enables / disables the Flow channel
pH	BP	enables / disables the pH channel
TEMP	BN, BO, BP, BQ	Enables / disables the sole readout of the temperature channel
PR HR-Res	BM, BO, BP, BQ	Enables / disables the high resolution for pressure channel



▼ → **TIMER**  
OK

→ ▲ ON → stopwatch function enabled  
 → ▼ OFF → stopwatch function disabled  
 Then OK to apply and save setting,  
 or ESC to discard this setting.

▼ → **PHT**  
OK

Pressure Hold Test  
 → ▲ increases the value  
 → ▼ lowers the value  
 Then OK to apply and save setting,  
 or ESC to discard this setting.

▼ → **pH**  
OK

Only available with version BP  
 → ▲ ON → pH enabled  
 → ▼ OFF → pH disabled  
 Then OK to apply and save setting,  
 or ESC to discard this setting.

▼ → **FLOW**  
OK

Only available with version BQ  
 → ▲ ON → FLOW enabled  
 → ▼ OFF → FLOW disabled  
 Then OK to apply and save setting,  
 or ESC to discard this setting.

▼ → **TEMP**  
OK

Only available with version BN, BO, BP and BQ  
 → ▲ ON → sole readout of temperature enabled  
 → ▼ OFF → sole readout of temperature disabled  
 OK  
 ESC

▼ → **PR H-RES**  
OK

Only available with version BM, BH, BO, BP and BQ  
 → ▲ ON → sole readout of temperature enabled  
 → ▼ OFF → sole readout of temperature disabled

Attention: The higher resolution does not give a higher measuring accuracy.

Then OK to apply and save setting,  
 or ESC to discard this setting.

▼ → **EXIT**  
OK

→ **SAVE**

A save dialog will appear, if changes have been made.  
 → ▲ ON to apply and save all settings by exiting  
 → ▼ OFF to discard all settings by exiting  
 OK  
 ESC

# Versions

























The HDM97Pocket meters are equipped with up to 5 channels, depending on the version.

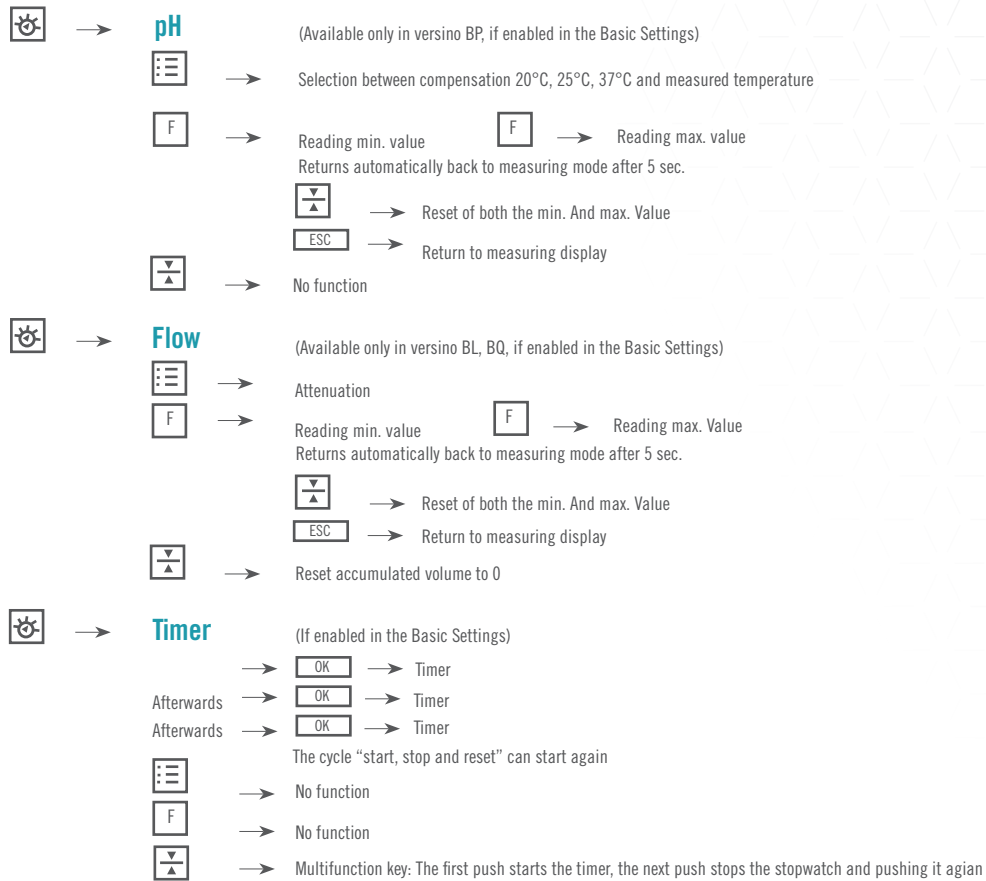
Channel	HDM97BL	HDM97BH	HDM97BN	HDM97BO	HDM97BP	HDM97BQ
Conductivity			X	X	X	X
Temperature			X	X	X	X
Timer			X	X	X	X
Pressure		X		X	X	X
pH					X	
Flow	X					X

## Operating

The functions of the keys are structured hierarchically from left to right.

### Channel Select

-  → **CD/TEMP** (Available in versions BN, BO, BP and BQ)
  -  → Selection of conductivity temperature coefficient
  -  → Reading min. Value       → Reading max. Value  
Returns automatically back to measuring mode after 5 sec.
  -  → Reset of both the min. And max. Value
  -  → Return to measuring mode
  -  → No function
  
-  → **TEMP** (Available in versions bn, bo, bp and bq, if enabled in the basic settings)
  -  → Selection between units °c or °f
  -  → Reading min. Value       → Reading max. Value  
Returns automatically back to measuring mode after 5 sec.
  -  → Reset of both the min. And max. Value
  -  → Return to measuring mode
  -  → No function
  
-  → **PRES** (Only available in versions bm, bh, bo, bp and bq)
  -  → Selection between units mmhg, mbar, kpa and psi
  -  → Pressure drop measurement
  -  → Start countdown timer
  -  → Return to measuring mode
  -  → Reading min. Value       → Reading max. Value  
Returns automatically back to measuring mode after 5 sec.
  -  → Reset of both the min. And max. Value
  -  → Return to measuring display
  -  → Press 3 seconds      → Tare (shown with "zero" in display afterwards)



## Timer Function

The reading of the timer is as follows.

 → **TIMER**      The display changes to MM/SS/DS automatically after 2 seconds

**MM/SS/DS**

**00.00.0**

minutes.seconds.tenthseconds

After 59 minutes and 59.9 seconds the display form changes so that hours, minutes and seconds are being displayed. The tenth second display is not available then. After 9 hours, 59 minutes and 59 seconds the stopwatch stops itself.

**HH/MM/SS**

**0.00.00**

hours.minutes.seconds

# Flow-through Adapter for Conductivity and Temperature Measurement

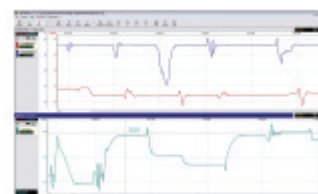
The adapter is suitable for measuring pressure, temperature and conductivity in flow-through mode. With immersion usage of the probe it is suitable for measuring temperature and conductivity concurrently. The preferred orientation of the adapter is vertical. The axial connector must point down (see picture). In flow-through mode the axial connector is to be used as inlet meanwhile the side connector is to be used as outlet. The connection to the pressure transducer inside the HDM97Pocket is accomplished by the lateral connection above the inlet. Before measurement it is necessary to shake the adapter slightly, so that air bubbles trapped inside can pass off through the outlet.

**For immersion usage the probe must be unscrewed from the flow-through adapter. To accomplish that do not turn the upper shank, the probe may be damaged. Only turn the nut as shown in the picture left.**

**Never touch the carbon ring electrode surfaces with your fingers or other objects. Do not buckle the probe cable. The minimum allowed bending radius is 3 cm or 1¼ inches.**

## IBPVIEW DATA ACQUISITION

For details read the user manual HDM97Pocket. Templates for the HDM97Pocket meters are available on the CD "HDM97Pocket".



For complete details on IBP products visit:

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