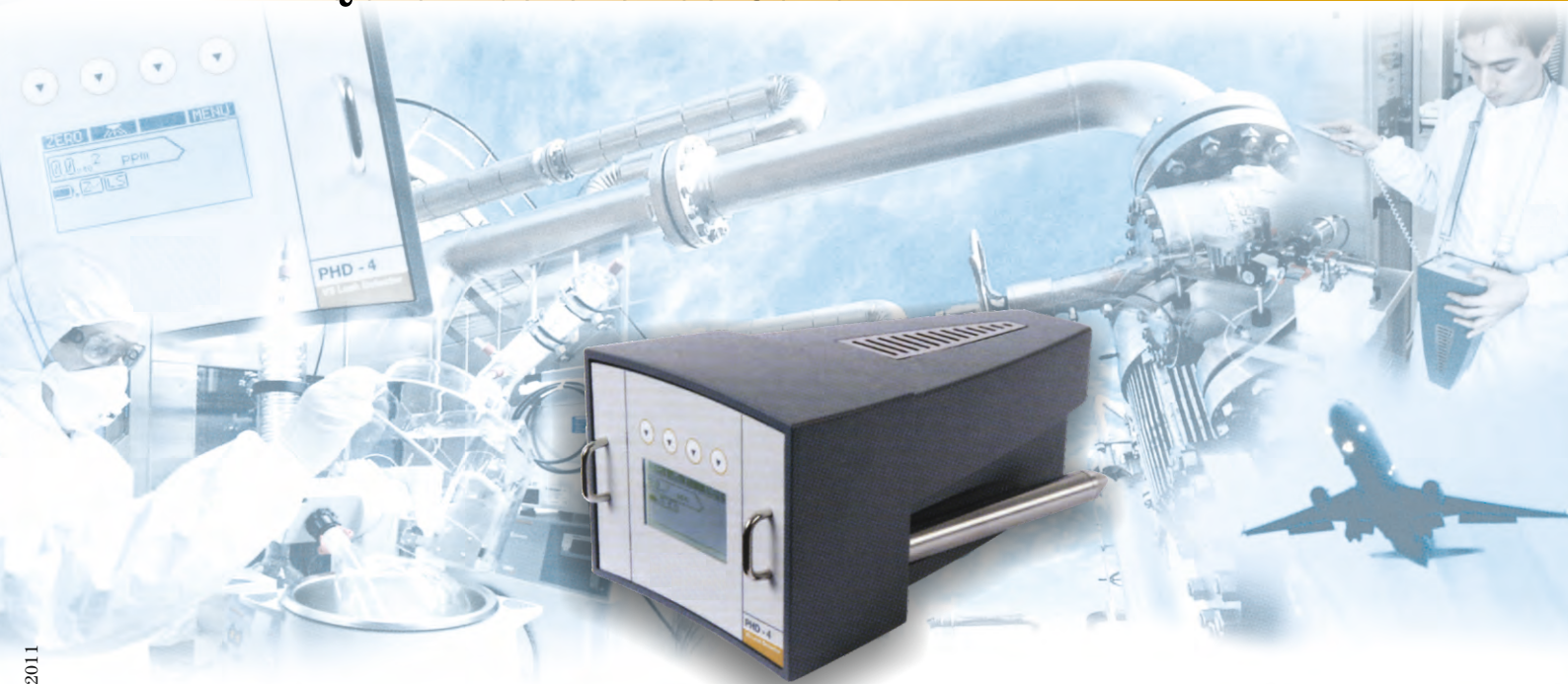
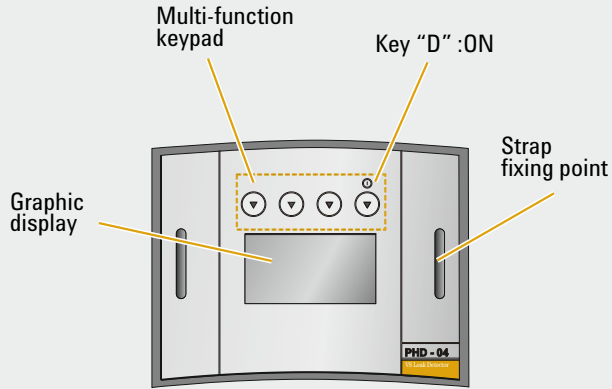


PHD-4 Portable Helium Detector

Quick Reference Card



FRONT PANEL DISPLAY

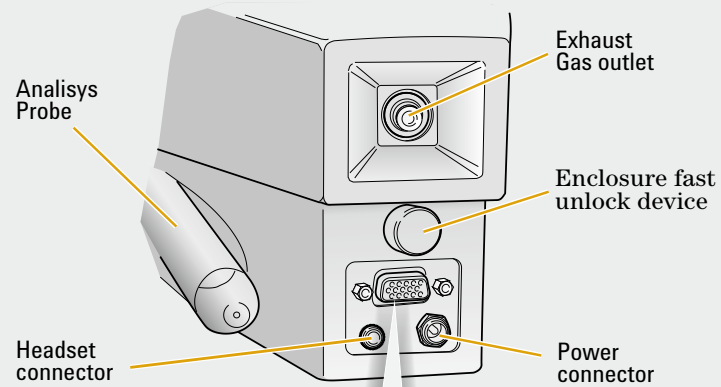


Use only Agilent-provided power supply with a ground connection.
(90 - 240 Vac 50/60 Hz)

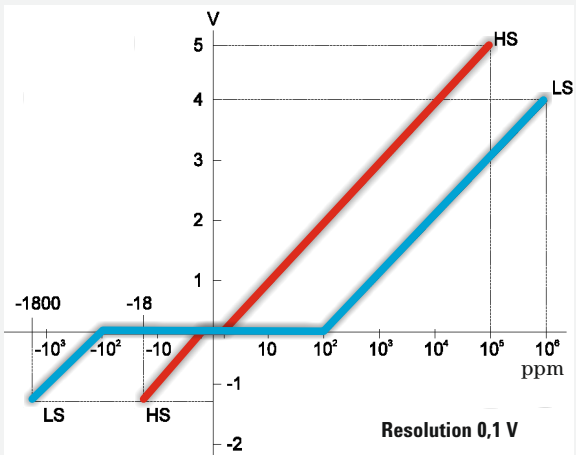
START UP

- Press (and hold down 3 sec) the "D" key.
Self test will start giving following results:
 - **V**: Test OK.
 - **!**: Test fail.
 - **R**: Test must be repeated.
 - **PS**: No battery or battery fail.

I/O - RS232 INTERFACE



Pin number	Signal
1	Analog out (+)
2	RS232 TX
3	RS232 RX
4	Remote IN
5	RS232 GND
6	Analog out (-)
11	Relay 1 N.O.
12	Relay 2 N.O.
13	Relay 3 N.O.
14	Relay 4 N.O.
15	Relay common

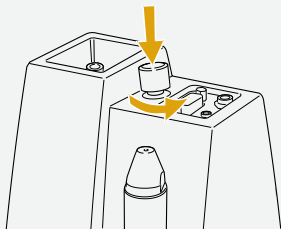


PIN 1-6 ANALOG VOLTAGE

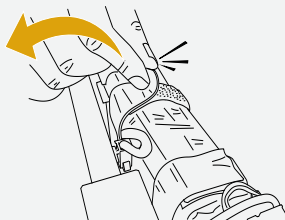
TECHNICAL DATA

Minimum detectable He concentration	2 PPM	
Minimum detectable He leak rate	5x10 ⁻⁶ mbar l/s	
Operating conditions - temperature - humidity	+5 °C to +35 °C 90 % RH (non cond.)	
Battery operative range	4 h	
Battery auto discharging	0.1% max. / day +20 °C	
Battery life	> 500 charge/discharge cycles (IEC standards)	
Relay contacts data:	24 Vac/cc 1 A (resistive load) 0.3 A (inductive load)	
Protection set-point levels	Low sens.	High sens.
MINIMUM VALUE	200 PPM	2 PPM
DEFAULT VALUE	400 PPM	100 PPM
MAXIMUM VALUE	600 PPM	250 PPM

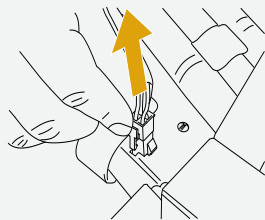
Battery Pack: Removal and Replacement



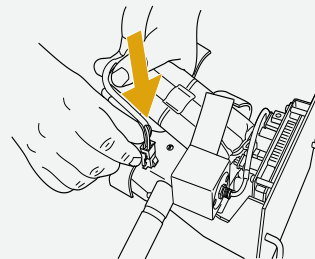
Click and rotate. The enclosure will be released



Release discharged battery



Unplug discharged battery connector

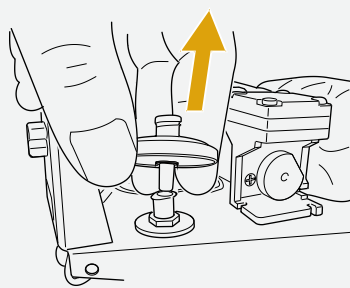


Connect new battery connector and fasten it

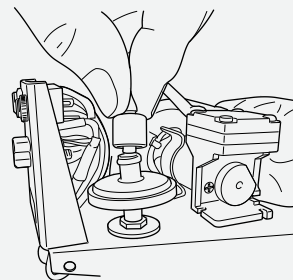
Internal Filter: Removal and Replacement



Holding Filter cartridge turn fitting on the top by 1/4 of turn

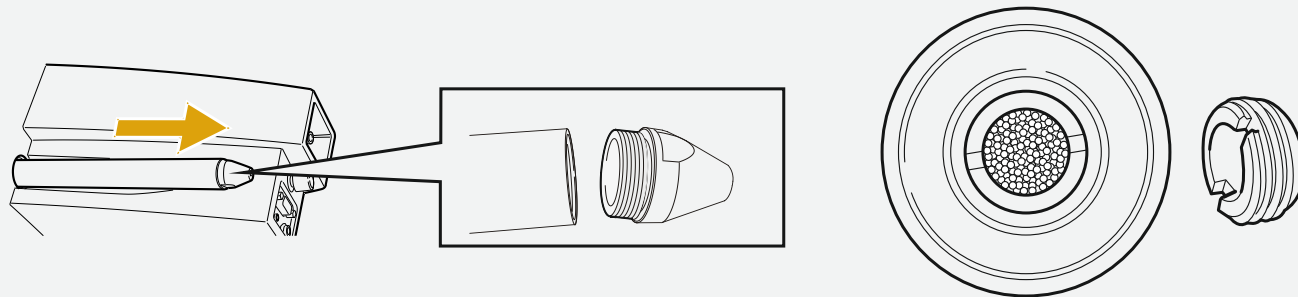


Remove saturated filter



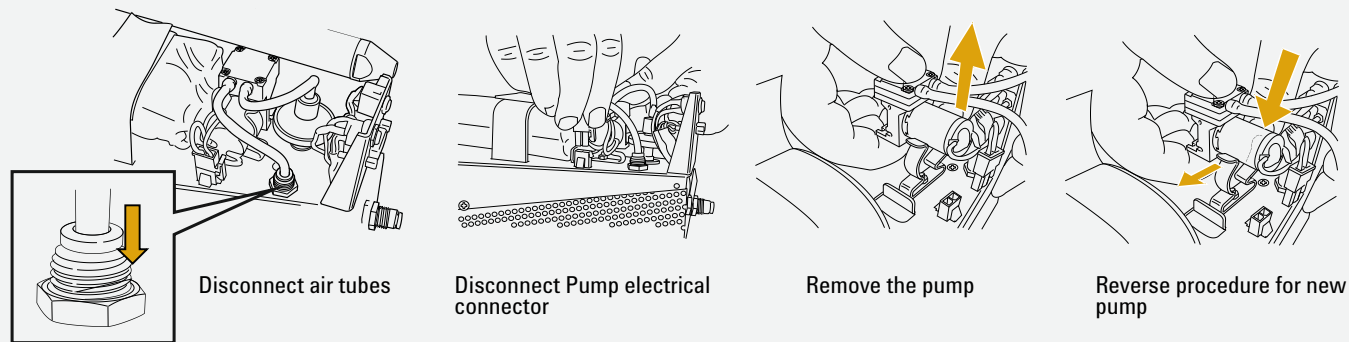
Position new filter and lock sampling line fitting

Sintered Filter: Maintenance



Clean filter with grease remover and dry with compressed air

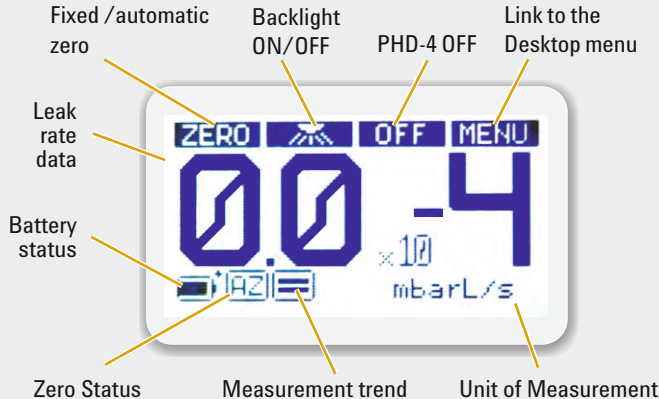
Sampling Pump: Removal and Replacement



USER INTERFACE

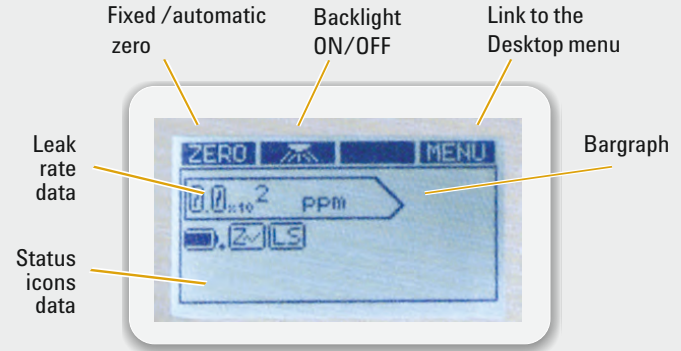
Large Size Measurement screen Page

ENABLING: Menù SETUP/☐ LARGE SCREEN ON
ACTIVATION: Automatic (5 sec delay)
DEACTIVATION: Temporary (Button“OFF” or “MENU”)
INFORMATION:



Complete measurement screen page

ACTIVATION: Default at startup
INFORMATION:



Status icons

Icon	Function	Icon	Function
	High sensitivity activated		Automatic zero activated
	Set-point activated		Fixed zero activated
	Back-flow valve enabled		Low sensitivity activated

Options

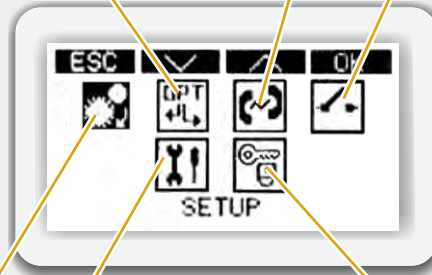
- **Language**
 - English
 - Italiano
 - French
 - Deutsch
- **Unit of Measure**
 - PPM
 - mbarL/sec
 - cm³/sec
 - cm³/min
 - TorrL/sec
 - PaL/sec
 - Pam³/sec
 - SCF/year
 - Kg/h R12
 - g/year R12
- **Helium**
 - Mix value displaying
 - Auto setting

Set-up

- High Sensitivity On
- Pump On
- Audio On
- BackLight On
- Large screen On
- Switch-off!

Communications

- **Remote control**
 - Analog control
 - RS232 control
- **Baud rate**
 - 1200
 - 2400
 - 4800
 - 9600
 - 19200



Maintenance

- **Sensor Clean-up**¹
- **Battery**
 - Battery maintenance²
 - Charge level
- **Reading adjustment**
- **PHD-4 Info**³
 - Part number
 - Serial number
 - Firmware release
 - Working time

Set-point

- **Set-point 1**
 - Threshold
 - Enable Sp1
- **Set-point 2**
 - Threshold
 - Enable Sp2
- **Set-point 3**
 - Threshold
 - Enable Sp3
- **Set-point 4**
 - Threshold
 - Enable Sp4
- **Safety Set-point**
 - Threshold
 - Enable Safety SP
 - Safety actions
 - Backflow valve
 - Heater OFF

Locking

- Enable protection
- Change User password

1 Sensor routine maintenance: sensor cleaning

2 Battery routine maintenance: memory effect resetting

3 To access your unit data

NOTE

Operative suggestions to get **SHORT RECOVERY TIME** and **LONG PHD-4 LIFETIME**:

PHD-4 SETTING:

- Begin Leak Checking with **LOW SENS**
- Always use **SAFETY SET-POINT**

CHECKING METHOD:

- Use low He concentr. in tracer gas (e.i. 5%He/N₂)
- Use low tracer gas pressure (e.i. 0.5 Bar)
- Avoid overflow of He
- Avoid sniffing oil, dust or water

GENERAL:

- Periodically perform **SAMPLING AUTOADJ.** and **BATTERY CARE**

NOTE

Operative suggestions to perform a **GOOD LEAK CHECK**:

- Limit background of He
- Sweep slowly on suspected areas starting from lower parts
- If He background is variable use **AZ mode**
- Operate in environments with stable room temperature
- Periodically maintain filtering system
- Periodically check Reading precision



The PHD-4 is complete with a rechargeable battery and related Power Supply. Always recharge the battery in a safe area.



Do not use the PHD-4 in environments containing potentially flammable gases or vapors. If the PHD-4 is used in combination with sampling safety devices (only if marked EEX ia IIAT4), the PHD-4 must be positioned outside the area with a risk of explosion.



Do not cover or obstruct the ventilation slots on the top part of the PHD-4 and the rear discharge duct.