

PermaCal

Multipoint dilution and permeation system

The **PermaCal** has been developed in collaboration with the METAS (Swiss Federal Institute of Metrology). The most complex configuration consists in a double stage dilution and permeation system. The device can be available in a portable or rackable casing. The portable version is equipped with a battery and an internal pump with dryer that will provide flow to the permeation oven during the transport. The oven temperature will also be maintained during this phase. To increase the autonomy during the transport, the device can be connected an external 12V power supply (typically car battery).

A particular attention has been given to the possibility to link all the physical parameter (mass flow controllers, sonic Nozzles, temperature) to the national standards. The PermaCal is the unique device that has a temperature sensor used in the oven that can be extracted and calibrated.

The Oven of the PermaCal has enough place to accept more than 1 permeation tube. A "permeation lift" in the oven makes the change of permeation tube very easy. The permeation chamber is divided in 3 parts to optimize the number of permeation tubes that can be placed in the oven.

The insulation of the oven has been specially designed to reach a temperature stability of 0.015°C. The total uncertainty of the temperature, including the stability and link to the national standard is of 0.03°C.

In order to be used at very low concentration or specially corrosive gases, the critical parts of the device are coated with SilcoNert process.

A touch screen and LCD display make the use of the PermaCal very intuitive and user friendly.

Main applications

- Air Pollution Monitoring
- Calibration of analytical instruments
- Gas analysers and sensors production
- To generate accurate gas standards and mixtures for R&D purpose

Main advantages

- ✓ High accuracy
- ✓ Flexibility
- ✓ Portable or Rack version.
- ✓ Low maintenance
- ✓ Cost savings – Reduce gas cylinders costs
- ✓ Corrosive gases can be used with the optional SilcoNert © coating
- ✓ Ergonomic with LCD display





Specifications

Models:	PermaCal 1	PermaCal 2	PermaCal 3	PermaCal 4	PermaCal 5
General data					
Format	Portable	Portable	Rack	Rack	Rack
Setup	1 oven	1 oven + 1 dilution line	1 oven	2 ovens	3 ovens
Dilution ratio range	Permeation/Dilution 1 step: range of 5x (Air flow from 1L/min to 5L/min)				
Coating	Silconert				
Temperature oven settings	40°C to 80°C				
Temperature stability of permeation tube oven	0,015°C				
Uncertainty of dilution	1 step: 1% relative				
Uncertainty of permeation	1 step: 2% relative @ 35°C*				
Operating temperature	5 to 35°C				
Operating altitude	From sea level to 4000m				
Dimensions	portable casing 27x 44x32 cm (wxDxH)	portable casing 27x 44x32 cm (wxDxH)	Rack 19" 7U, 500mm deep	Rack 19" 7U, 500mm deep	Rack 19" 7U, 500mm deep
Net weight	15 - 40 Kg				
Battery	Internal for transport purposes				
Flow	Through oven for transport purpose				
Gas inlet requirements					
Carrier gas	High grade Zero Air from pressurized cylinders or from Sonimix 3052/3057				
Pressure	1 step: 3+/-0,3 bar rel				
Fittings	By 1/4 "				
Electrical data					
Power supply voltage	230V/50-60Hz 115V/60Hz 100V/50-60Hz				



LNI SWISSGAS

Rivenditore Ufficiale:



xearpro.it/lni-swissgas
info@xearpro.com
 02 9646.0317

XEarPro Srl.

Via delle Primule, 16 - Cogliate (MB), Italia