MULTIPOINT PERMEATION CALIBRATOR

CO2 PERMEATION

APPLICATIONS

- ✓ **Calibration impurities in CO2, based on permeation tube**

DESCRIPTION

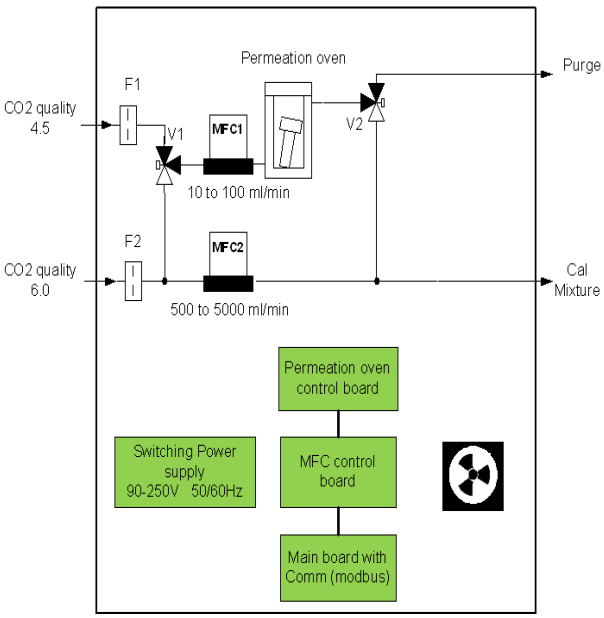
LEMAN-Instruments designed the modular **Multipoint Permeation Calibrator (MPC)** product line, to fit almost any type of application which needs high precision gas mixture based on permeation tubes.

FUNCTIONING PRINCIPLE

In order to keep in equilibrium the permeation tube, the oven's temperature is regulated at +/-0.05°C and is under a constant flow (50 to 80 ml/min) of standard quality (4.5) carrier gas made by MFC1. Between calibrations, the high concentration and low flow mixture is directed through a 3/2 valve (V2) to the purge outlet.
When the calibration is started, MFC1 is then alimented by high purity carrier gas, V1 switched to CO2 6.0; later V2 is also switched on and the high concentration mixture is injected in the carrier gas flow generated by MFC2.
Based on the two calibration curves of MFC1 and MFC2, as well as the tube's permeation rate, the integrated microcontroller adjusts the MFC2'outflow to reach the expected final mixture.
In case of lack of carrier gas, eventual misfunctioning of the oven and before the life time end of permeation tube, the internal controller alarms the host system.

Each instrument is equipped with high performance communication interfaces (RS485, Ethernet, WLAN) to create a very flexible gas network with local or central control.

Multipoint Permeation Calibrator



MULTIPOINT PERMEATION CALIBRATOR

SPECIFICATIONS

Models	**MPC – ST :** for Hydrocarbons, BTEX **MPC – HC** : for SO2, NO2, NH3, HCl, ACETALDEHYDE, COS
Outflows @ 1013/20°C	• 500 to 5000 Nml/min of mixture during calibration • 50 to 80 Nml/min high concentration mixture rest of time
Concentration	▪ From 10 ppb to 500ppb, depending on the permeation tube
Oven's temperature range	Adjustable by software from 35°C to 80°C, to adjust permeation ra
Oven's temperature stability	Better than +/- 0.05°C
Concentration dynamic	10, by carrier gas flow variation (0.5 L/min to 5 L/min)
Precision of concentration	Better than +/- 1% relative
Repeatability	Better than +/- 0.7% relative
Output Pressure	Atmospheric pressure
Input CO2 quality	Inlet 1 : quality 4.5 Inlet 2 : quality 6.0 or better
Input CO2 Pressure	3 to 5 bar relative
CO2 consumption	• 500 to 5000 Nml/min CO2 6.0 during calibration phase • 50 to 80 Nml/min CO2 4.5 rest of time
Control	Through : ■ MODBUS-RTU over RS485, as standard ■ Ethernet 10/100 network (option) ■ WLAN network, with PC, I-Phone, I-Pad (option) ■ Log book download by USB.
Inlet & outlet fittings	Inlets : Stainless steel 1/8" compression Outlets : MPC – ST : Stainless steel 1/4" compression Outlets : MPC – HC : PFA 1/4" compression
Materials in contact with mixture	MPC-ST : Stainless steel MPC-HC: genuine Teflon and PFA
Power supply	Automatic switching from 90VAC to 260VAC, 47 to 63 Hz
Power consumption	max. 60W
Dimensions	W=220mm/8.7ins, H=127mm/5.0ins, D=350mm/13.8ins
Weight (net)	9.5Kg (20.8lbs)

Ed 35/11

ORDERING NUMBERS

Model	Article #
MPC-ST	728210
MPC-HC	728220

Model	Article #
Ethernet Interface option	728181

LEMAN - INSTRUMENTS SAS
Archamps Technopole, 219 rue Laszlo Biro
F – 74160 ARCHAMPS
info@leman-instruments.com
Telephone: +33 4 50 39 49 22
www.leman-instruments.com