KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

New

CE

Thermo-anemo-manometer

MP 210

Calibration CERTIFICATE

KEY POINTS

- Measurement of pressure, air velocity and airflow
- Interchangeable modules
- 2 inputs for Pt100 temperature (from -200 to +600°C)
- Up to 6 measurements simultaneously
- Large graphic display

CONNECTIONS

Interchangeable measurement modules

1 device = several possible ranges and parameters

Wireless connection

Device/probe wireless connection

SMART-2014 system

Wireless and wired probes automatically recognized

REFERENCES

MP 210 : Only portable instrument

MP 210 P : MP 210 + MPR 500 pressure module (±500 Pa pressure module)

MP 210 M : MP 210 + MPR 2500 pressure module (±2500 Pa pressure module)

MP 210 G : MP 210 + MPR 10 000 pressure module (±10000 Pa pressure module)

Modules with 2 pressure connectors Ø 6.2 mm made of nickelled brass and 1 thermocouple input.

MP 210 H : MP 210 + MPR 500 M pressure module (±500 mbar pressure module)

MP 210 HP : MP 210 + MPR 2000 M pressure module (±2000 mbar pressure module)

Modules with 2 pressure threaded connectors Ø 4.6 mm made of nickelled brass and 1 thermocouple input.

The new probes use a mini-DIN cable unique and pluggable that fits on every probes. This cable is supplied with each instrument.
The instruments are supplied in a transport case with a calibration certificate, a charger and a USB cable.

SPECIFICATIONS OF PRESSURE MODULES AND PROBES

PRESSURE

Pressure module	Units	Measuring ranges	Accuracies*	Resolutions	Overpressure allowed
MPR 500	Pa, mmH_2O, In WG, mbar, hPa, mmHg, daPa, kPa	From 0 to ±500 Pa	From -100 to +100 Pa : ±0.2% of reading ±0.8 Pa Beyond : ±0.2% of reading ±1.5 Pa	From -100 to +100 Pa : 0.1 Pa Beyond : 1 Pa	250 mbar
MPR 2500		From 0 to ±2500 Pa	±0.2% of reading ±2 Pa	1 Pa	500 mbar
MPR 10000		From 0 to ±10000 Pa	±0.2% of reading ±10 Pa	1 Pa	1200 mbar
MPR 500 M	mmH_2O, In WG, mbar, hPa, mmHg, daPa, kPa, PSI	From 0to ±500 mbar	±0.2% of reading ±0.5 mbar	0.1 mbar	2 bar
MPR 2000 M	bar, In WG, mbar, hPa, mmHg, kPa, PSI	From 0 to ±2000 mbar	±0.2% of reading ±2 mbar	1 mbar	6 bar

Pressure modules also have a thermocouple connection allowing to connect a K, J, T or S thermocouple probe.

Thermocouple	°C, °F	K : From -200 to +1300°C J : From -100 to +750°C N : From -200 to +1300 °C T : From -200 to +400°C S : From 0 to 1760°C	K, J, T : From -200 to 0 °C : ±0.4°C ±0.3 % of reading From 0 to 1300 °C : ±0.4°C S : ±0.6 °C	0.1 °C 0.1 °C 0.1 °C 0.1 °C 0.1 °C

AIR VELOCITY AND AIRFLOW

Features in air velocity and airflow depend on the type of probe connected on the instrument.

	Units	Measuring ranges	Accuracies*	Resolutions
Pitot tube	Air velocity : m/s, fpm, km/h, mph	From 2 to 5 m/s From 5.1 to 100 m/s	±0.3 m/s ±0.5% of reading ±0.2 m/s	0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999m^3/h	±0.2% of reading ±1% FS	1 m^3/h
Debimo blades	Air velocity : m/s, fpm, km/h, mph	From 4 to 20 m/s From 21 to 100 m/s	±0.3 m/s ±1% of reading ±0.1 m/s	0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999m^3/h	±0.2% of reading ±1% PE	1 m^3/h
Vane probe Ø14 mm	Air velocity : m/s, fpm, km/h	From 0 to 3 m/s From 3.1 to 25 m/s	From 0.8 to 3 m/s : ±3% of reading ±0.1m/s From 3.1 to 25 m/s : ±1% of reading ±0.3 m/s	0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999 m^3/h	±3% of reading ou ±0.03*area surface (cm^2)	1 m^3/h
	Temperature : °C, °F	From -20 to +80°C	±0.4% of reading ±0.3°C	0.1 °C
Vane probe Ø70 mm	Air velocity : m/s, fpm, km/h	From -5 to 3 m/s From 3.1 to 35 m/s	From 0.4 to 3 m/s : ±3% of reading ±0.1m/s From 3.1 to 35 m/s : ±1% of reading ±0.3 m/s	0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999 m^3/h	±3% of reading ou ±0.03*area surface (cm^2)	1 m^3/h
	Temperature : °C, °F	From -20 to +80°C	±0.4% of reading ±0.3°C	0.1 °C
Vane probe Ø100 mm	Air velocity : m/s, fpm, km/h	From -5 to 3 m/s From 3.1 to 35 m/s	From 0.3 to 3 m/s : ±3% of reading ±0.1m/s From 3.1 to 35 m/s : ±1% of reading ±0.3 m/s	0.01 m/s 0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999 m^3/h	±3% of reading or ±0.03*area surface (cm^2)	1 m^3/h
	Temperature : °C, °F	From -20 to +80°C	±0.4% de la lecture ±0.3°C	0.1 °C
Hotwire probe	Air velocity : m/s, fpm, km/h	From 0.15 to 1 m/s	± 2%of reading ± 0.03 m/s (Specific adjustment and calibration in option)	0.01 m/s
		From 0.15 to 3 m/s From 3.1 to 30 m/s	± 3% of reading ± 0.03 m/s ± 3% of reading ± 0.1 m/s	0.01 m/s 0.1 m/s
	Airflow : m^3/h, cfm, l/s, m^3/s	From 0 to 99999 m^3/h	±3% of reading ou ±0.03*area surface (cm^2)	1 m^3/h
	Temperature : °C, °F	From -20 to +80°C	±0.3% of reading ±0.25°C	0.1 °C

*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

MPR 500, **MPR 2500** and **MPR 10000** pressure modules have 2 pressure connectors Ø 6.2 mm made of nickelled brass and 1 thermocouple input.
MPR 500 M and **MPR 2000 M** have 2 pressure threaded connectors Ø 4.6 mm made of nickelled brass and 1 thermocouple input.

MP 210 instruments have the following functions for the measurements of pressure, air velocity and airflow :

PRESSURE
- Automatic autozero with solenoid valve (depending on model)
- Manual autozero (depending on model)
- Pressure integration (0 to 9)
- Point/point average
- Automatic point/point average
- Automatic average

AIR VELOCITY AND AIRFLOW
- Large choice of Pitot tube or Debimo blades or factor for other sensing element
- Selection of section
- Selection of units
- Manual or automatic temperature balancing
- Manual atmospheric pressure balancing
- K factor, K2 factor

TECHNICAL SPECIFICATIONS OF THE MP 210

Connections	2 mini-DIN connections SMART-2014 probes and 1 micro-USB port for charging and PC connection
Power supply	Lithium-Ion battery
Autonomy	59 h with pressure module
Memory capacity	Up to 1000 dataset of 20 000 points
Conditions of use (°C/%RH/m)	From 0 to +50 °C. In non-condensing condition. From 0 to 2000 m.
Storage temperature	From -20 to +80 °C
Auto shut-off	Adjustable from 15 to 120 minutes or Off
Weight	485 g
Operating environment	Neutral gas
European directives	2004/108/EC EMC ; 2006/95/EC Low Voltage ; 2011/65/EU RoHS II ; 2012/19/EU WEEE
Languages	French, English, Dutch, German, Italian, Portuguese, Swedish, Norwegian, Finn, Danish, Chinese, Japanese

AVAILABLE PROBES AND MODULES (OPTIONAL)

L and S Pitot tubes
Measuring ranges from 2 to 100 m/s and from 0 to 99999 m^3/h

Debimo blades
Measuring ranges from 4 to 100 m/s and from 0 to 99999 m^3/h

4 thermocouple channels module (M4TC)
Measuring range from -200 to +1760 °C (according to thermocouple type)

Hotwire probe*
Measuring ranges from 0.15 to 30 m/s, from 0 to 99999 m^3/h and from -20 to +80 °C

Vane probe Ø14 mm*
Measuring ranges from 0 to 25 m/s, from 0 to 99999 m^3/h and from -20 to +80 °C

Vane probe Ø70 mm**
Measuring ranges from -5 to 35 m/s, from 0 to 99999 m^3/h and from -20 to +80 °C

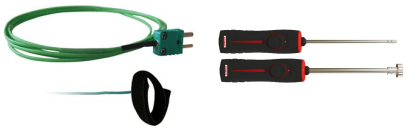
Ø100 mm vane probe**
Measuring ranges from -5 to 35 m/s, from 0 to 99999 m^3/h and from -20 to +80 °C

CO/temperature probe (SCO 110)
Measuring ranges from 0 to 500 ppm and from -20 to +80 °C

Gas leak probe (SFG 300)
Measuring range from 0 to 10 000 ppm

Optical tachometry probe (STA)
Measuring range from 0 to 60 000 tr/min

Contact tachometry probe (STA)
Measuring range from 0 to 20 000 tr/min



Large choice of temperature probes (see related datasheet) : ambient / contact / penetration / immersion...

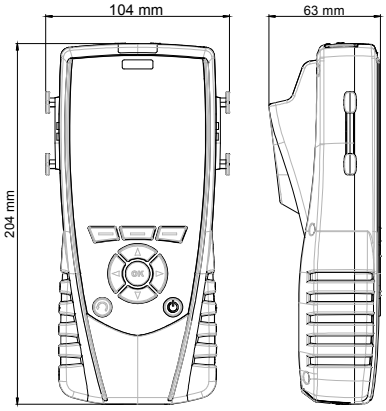
*Also available in telescopic model / **Also available in telescopic model and in wireless model

DELIVERY KITS AND OPTIONS

Description	MP 210	MP 210 P	MP 210 M	MP 210 G	MP 210 H	MP 210 HP
Pressure module from 0 to ±500 Pa (MPR 500)	○	√	○	○	○	○
Pressure module from 0 to 0 to ±2500 Pa (MPR 2500)	○	○	√	○	○	○
Pressure module from 0 to ±10000 Pa (MPR 1000)	○	○	○	√	○	○
Pressure module from 0 to ±500 mbar (MPR 500 M)	○	○	○	○	√	○
Pressure module from 0 to ±2000 mbar (MPR 2000 M)	○	○	○	○	○	√
4 thermocouple channels module (M4TC)	○	○	○	○	○	○
Hot wire probe (SFC 300)	○	○	○	○	○	○
Telescopic hot wire probe (SFC 900)	○	○	○	○	○	○
Vane probe 14 mm (SH 14)	○	○	○	○	○	○
Telescopic vane probe 14 mm (SHT 14)	○	○	○	○	○	○
Vane probe 70 mm (SH 70)	○	○	○	○	○	○
Telescopic vane probe 70 mm (SHT 70)	○	○	○	○	○	○
Wireless vane probe 70 mm (SHF 70)	○	○	○	○	○	○
Vane probe 100 mm (SH 100)	○	○	○	○	○	○
Telescopic vane probe 100 mm (SHT 100)	○	○	○	○	○	○
Wireless vane probe 100 mm (SHF 100)	○	○	○	○	○	○
CO / temperature probe (SCO 110)	○	○	○	○	○	○
Gas leak probe (SFG 300)	○	○	○	○	○	○
Tachometry probe (STA)	○	○	○	○	○	○
Thermocouple K, J, N, T and S probe	○	○	○	○	○	○
Pt100 SMART-2014 probe	○	○	○	○	○	○
Wireless Pt100 probe	○	○	○	○	○	○
2x1 m of silicone tube Ø 4x7 mm	○	√	√	√	○	○
2x1 m of crystal tube Ø 4x6 mm	○	○	○	○	√	√
Stainless steel tip Ø 6x100 mm	○	√	√	√	○	○
Calibration certificate	○	√	√	√	√	√
Transport case	√	√	√	√	√	√
Additional battery	○	○	○	○	○	○

√ : supplied with ○ : optional

FEATURES OF THE HOUSING



Material : ABS/PC and elastomer

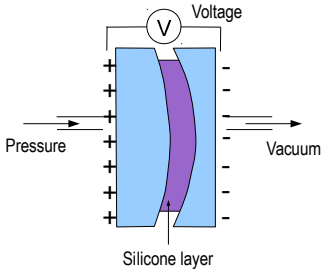
Protection : IP54

Display : LCD 120 x 160 px ;
Dimensions : 58 x 76 mm,
Backlight
Display of 6 measurements including 3 simultaneously

Key pad : elastomer, 10 keys

OPERATING PRINCIPLE

Piezoresistif sensor
Piezoresistif sensor is a diaphragm formed on a silicone substrate, which bends with applied pressure and generates millivoltage or millicurrent proportional to the pressure applied.

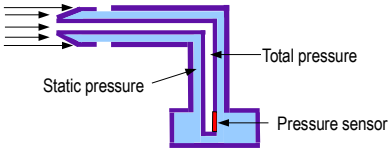


Pitot tube
Dynamic pressure is measured by Pitot tube :
Pd = Total pressure (**Pt**) – static pressure (**Ps**)
Velocity is calculated according to Bernoulli simplified formula.

Formula with temperature correction :

$$V_{m/s} = K \times \sqrt{\frac{574{,}2\ \theta + 156842{,}77}{P_0}} \times \sqrt{\Delta P_{en\ Pa}}$$

Po = Barometric pressure in Pa
θ = Temperature in °C
K = Pitot tube coefficient



ACCESSORIES

Datalogger : PC software for data recording and processing.

CSM : Mini-DIN / mini-DIN cable for probe

SAD : Backpack

RTE : Telescopic extension lenght 1m bent at 90° for measuring probe

KIMP23 : Infrared printer

Only the accessories supplied with the device must be used.

MAINTENANCE

We carry out calibration, adjustment and maintenance of your devices to guarantee a constant level of quality of your measurements. As part of Quality Assurance Standards, we recommend you to carry a yearly checking.

WARRANTY PERIOD

Devices have 1-year guarantee for any manufacturing defect (return to our After-Sales Service required for appraisal).

PRECAUTIONS FOR USE

Please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Once returned to KIMO, required waste collection will be assured in the respect of the environment in accordance with European guidelines relating to WEEE.

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