KIMO INSTRUMENTS

DATA SHEET

MP 210

Thermo-anemo-manometer

Interchangeable measurement modules
1 device = several possible ranges and parameters

SMART-2014 system
Wireless and wired probes automatically recognized

Wireless connection
Device/probe wireless connection

Supplied with calibration certificate

Features

- Pressure, air velocity and air flow measurements
- Up to 6 measurements simultaneously
- 2 inputs for Pt100 temperature (from -200 to +600°C)
- Large graphic display

References

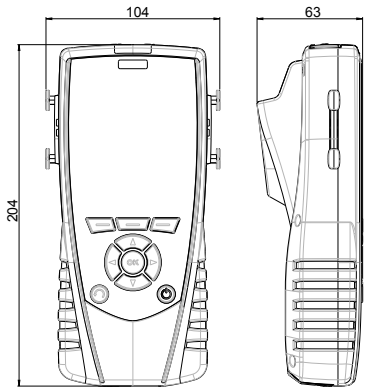
Reference	Description
MP 210	Portable instrument only
MP 210 + pressure module	**MP 210 P:** MP 210 + MPR 500 pressure module (±500 Pa pressure module) **MP 210 M:** MP 210 + MPR 2500 pressure module (±2500 Pa pressure module) **MP 210 G:** MP 210 + MPR 10 000 pressure module (±10 000 Pa pressure module) Modules with 2 pressure connectors Ø6.2 mm made of nickelled brass and 1 thermocouple input.
MP 210 + pressure module	**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 Ø4.6 mm made of nickelled brass and 1 thermocouple input.

The 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.

MP 210 General features

Connections	2 mini-DIN connections SMART-2014 probes and 1 micro-USB port for charging and PC connection
Power supply	Lithium-Ion battery
Battery life	59 hours with pressure module
Storage	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	2014/30/EU EMC; 2014/35/EU Low Voltage; 2011/65/EU RoHS II; 2012/19/EU WEEE
Languages	French, English, Dutch, German, Italian, Portuguese, Swedish, Norwegian, Finn, Danish, Chinese, Japanese

Dimensions (in mm)



Housing features

Matierial	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
Kaypad	Elastomer 4 navigation keys 3 function keys

Operating principle

Piezoresistive 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.

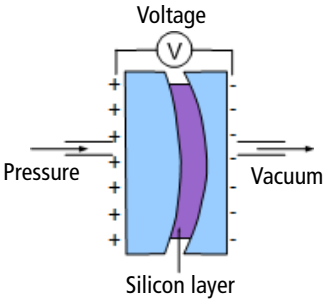
Pitot tube

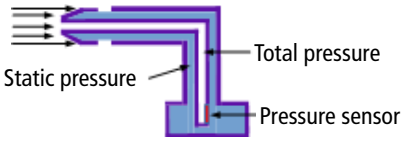
Dynamic pressure is measured by Pitot tube:
Pd = Total pressure **(Pt)** – static pressure **(Ps)**
Velocity is calculated according to Bernoulli simplified formula.

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

Name	Reference
PC software for data recording and processing	Datalogger
Mini-DIN / mini-DIN cable for probe	CSM
Backpack	SAD
Infrared printer	KIMP23
Telescopic extension 1 m lenght, bent at 90° for measuring probe	RTE

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.

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.

Specifications of pressure modules and probes

- Pressure and temperature

Pressure module	Units	Measuring range	Accuracy*	Resolution	Tolerated overpressure
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	Pa, mmH_2O, In WG, mbar, hPa, mmHg, daPa, kPa	From 0 to ±2500 Pa	±0.2% of reading ±2 Pa	From -100 to +100 Pa: 0.1 Pa Beyond: 1 Pa	500 mbar
MPR 10000	Pa, mmH_2O, In WG, mbar, hPa, mmHg, daPa, kPa	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 0 to ±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	Units	Measuring range	Accuracy*	Resolution
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 air flow

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

Probe	Units	Measuring range	Accuracy*	Resolution
Pitot tube	Air velocity: m/s, fpm, km/h, mph	From 3 to 5 m/s From 5.1 to 85 m/s	±0.3 m/s ±0.5% of reading ±0.2 m/s	0.1 m/s
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99 999 m^3/h	±0.2% of reading ±1% FS	1 m^3/h
Debimo blade	Air velocity: m/s, fpm, km/h, mph	From 3 to 20 m/s From 21 to 40 m/s	±0.3 m/s ±1% of reading ±0.1 m/s	0.1 m/s
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99 999 m^3/h	±0.2% of reading ±1% FS	1 m^3/h
Ø14 mm vane probe	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
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99 999 m^3/h	±3% of reading or ±0.03*sheath 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
Ø70 mm vane probe	Air velocity: m/s, fpm, km/h, mph	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
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99999 m^3/h	±3% of reading or ±0.03*sheath 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
Ø100 mm vane probe	Air velocity: m/s, fpm, km/h, mph	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 0.01 m/s
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99 999 m^3/h	±3% of reading or ±0.03*sheath 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
Hot wire probe	Air velocity: m/s, fpm, km/h	From 0.15 to 1 m/s From 0.15 to 3 m/s From 3.1 to 30 m/s	±2% of reading ±0.03 m/s (Specific adjustment and calibration in option) ±3% of reading ±0.03 m/s ±3% of reading ±0.1 m/s	0.01 m/s 0.01 m/s 0.1 m/s
	Air flow: m^3/h, cfm, l/s, m^3/s	From 0 to 99 999 m^3/h	±3% of reading or ±0.03*sheath 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

MPR 500, MPR 2500 and **MPR 10000** pressure modules have 2 pressure connectors Ø6.2 mm made of nickelled brass and 1 thermocouple input.
MPR 500 M and **MPR 2000 M** have 2 pressure threaded connectors Ø4.6 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 air flow:
- 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

*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.

Kits content and options

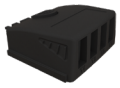
✓ supplied with

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)	Option	✓	Option	Option	Option	Option
Pressure module from 0 to 0 to ±2500 Pa (MPR 2500)	Option	Option	✓	Option	Option	Option
Pressure module from 0 to ±10 000 Pa (MPR 1000)	Option	Option	Option	✓	Option	Option
Pressure module from 0 to ±500 mbar (MPR 500 M)	Option	Option	Option	Option	✓	Option
Pressure module from 0 to ±2000 mbar (MPR 2000 M)	Option	Option	Option	Option	Option	✓
4 thermocouple channels module (M4TC)	Option	Option	Option	Option	Option	Option
Hot wire probe (SFC 300)	Option	Option	Option	Option	Option	Option
Telescopic hot wire probe (SFC 900)	Option	Option	Option	Option	Option	Option
Air velocity measurement probe for laboratory hood (SFC 300 S)	Option	Option	Option	Option	Option	Option
Vane probe 14 mm (SH 14)	Option	Option	Option	Option	Option	Option
Telescopic vane probe 14 mm (SHT 14)	Option	Option	Option	Option	Option	Option
Vane probe 70 mm (SH 70)	Option	Option	Option	Option	Option	Option
Telescopic vane probe 70 mm (SHT 70)	Option	Option	Option	Option	Option	Option
Wireless vane probe 70 mm (SHF 70)	Option	Option	Option	Option	Option	Option
Vane probe 100 mm (SH 100)	Option	Option	Option	Option	Option	Option
Telescopic vane probe 100 mm (SHT 100)	Option	Option	Option	Option	Option	Option
Wireless vane probe 100 mm (SHF 100)	Option	Option	Option	Option	Option	Option
CO / temperature probe (SCO 110)	Option	Option	Option	Option	Option	Option
Gas leak probe (SFG 300)	Option	Option	Option	Option	Option	Option
Tachometry probe (STA)	Option	Option	Option	Option	Option	Option
Thermocouple K, J, N, T and S probe	Option	Option	Option	Option	Option	Option
Pt100 SMART-2014 probe	Option	Option	Option	Option	Option	Option
Wireless Pt100 probe	Option	Option	Option	Option	Option	Option
2x1 m of silicone tube Ø4x7 mm	Option	✓	✓	✓	Option	Option
2x1 m of crystal tube Ø4x6 mm	Option	Option	Option	Option	✓	✓
Stainless steel tip Ø6x100 mm	Option	✓	✓	✓	✓	✓
Calibration certificate	Option	✓	✓	✓	✓	✓
Soft transport case (MTP-210)	✓	✓	✓	✓	✓	✓
Additional battery	Option	Option	Option	Option	Option	Option

Optional probes and modules

L and S Pitot tubes
Measuring ranges from 3 to 85 m/s and from 0 to 99999 m³/h

Debimo blades
Measuring ranges from 3 to 40 m/s and from 0 to 99999 m³/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 m³/h and from -20 to +80°C

Vane probe Ø14 mm*
Measuring ranges from 0 to 25 m/s,
from 0 to 99999 m³/h and from -20 to +80°C

Vane probe Ø70 mm**
Measuring ranges from -5 to 35 m/s,
from 0 to 99999 m³/h and from -20 to +80°C

Ø100 mm vane probe**
Measuring ranges from -5 to 35 m/s,
from 0 to 99999 m³/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 specific datasheet):
ambient / contact / penetration / immersion...

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

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