

## Thermo-hygrometer-air quality HQ 210



### KEY POINTS

- Measurement of hygrometry, temperature, CO<sub>2</sub>, and CO gases and air velocity (depending on model)
- Interchangeable measurement 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

#### HQ210



Only portable instrument

#### HQ 210 STD



HQ210 + SHR 110 probe  
(temperature/hygrometry probe in ABS)

#### HQ 210 P



HQ210 + SCOH 112 probe  
(temperature/hygrometry/CO<sub>2</sub> probe)

#### HQ 210 HT



HQ210 + SHR 300 probe  
(temperature/hygrometry in stainless steel)

#### HQ 210 O



HQ210 + SOM 900 probe  
(omnidirectional probe of draught)

The new probes use a mini-DIN cable unique and pluggable that fits on every probes. Each device is supplied with 2 cables of this type. The instruments are supplied in a transport case with a calibration certificate, a charger and a USB cable.



## SPECIFICATIONS OF THE PROBES

	Units	Measuring ranges	Accuracies*	Resolutions
<b>SHR 110 and SHR 300 hygrometry probes</b>	Relative humidity: %RH	From 0 to 100%RH	<b>Accuracy (Repeatability, linearity, Hysteresis) :</b> $\pm 1.5\%RH$ (from 15°C to 25°C) <b>Factory calibration uncertainty:</b> $\pm 0.88\%RH$ <b>Temperature dependence :</b> $\pm 0.04 \times (T-20)\%RH$ (if $T < 15^\circ C$ or $T > 25^\circ C$ )	0.1%RH
	Absolute humidity <sup>1</sup> : g/m <sup>3</sup>	From 0 to 600 g/m <sup>3</sup>	-	0.1 g/m <sup>3</sup>
	Dewpoint <sup>1</sup> : °C <sub>td</sub> , °F <sub>td</sub>	From -50 to +100°C <sub>td</sub>	$\pm 0.6\%$ of reading $\pm 0.5^\circ C_{td}$	0.1°C <sub>td</sub>
	Wet temperature <sup>1</sup> : °C <sub>tw</sub> , °F <sub>tw</sub>	From -50 to +100°C <sub>tw</sub>	$\pm 0.6\%$ of reading $\pm 0.5^\circ C_{td}$	0.1°C <sub>tw</sub>
	Enthalpy <sup>1</sup> : kJ/kg	From 0 to 10 000 kJ/kg	-	0.1 kJ/kg
	Temperature: °C, °F	From -20 to +80°C (SHR110) From -40 to +180°C (SHR 300)	$\pm 0.3\%$ of reading $\pm 0.25^\circ C$	0.1°C
	Combination ratio <sup>1</sup> : g/kg	From 0 to 10 000 g/kg		0.1 g/kg
<b>Omnidirectional probe of airstream SOM 900</b>	Air velocity: m/s, fpm, km/h	From 0.00 to 5.00 m/s	$\pm 3\%$ of reading $\pm 0.05$ m/s	0.01 m/s
	Relative humidity: %RH	From 0 to 100%RH	<b>Accuracy (Repeatability, linearity, Hysteresis) :</b> $\pm 1.8\%RH$ (from 15°C to 25°C) <b>Factory calibration uncertainty:</b> $\pm 0.88\%RH$ <b>Temperature dependence :</b> $\pm 0.04 \times (T-20)\%RH$ (if $T < 15^\circ C$ or $T > 25^\circ C$ )	0.1%RH
	Temperature: °C, °F	From -20 to +80°C	$\pm 0.3\%$ of reading $\pm 0.25^\circ C$	0.1°C
<b>SCOH 112 CO2/hygrometry/temperature probe</b>	Temp.: °C, °F CO <sub>2</sub> : ppm Hygro.: %HR	From -20 to +80°C From 0 to 5000 ppm From 0 to 100%HR	$\pm 0.3\%$ of reading $\pm 0.25^\circ C$ $\pm 3\%$ of reading $\pm 50$ ppm <b>Accuracy (Repeatability, linearity, Hysteresis) :</b> $\pm 1.8\%RH$ (from 15°C to 25°C) <b>Factory calibration uncertainty:</b> $\pm 0.88\%RH$ <b>Temperature dependence :</b> $\pm 0.04 \times (T-20)\%RH$ (if $T < 15^\circ C$ or $T > 25^\circ C$ )	0.1°C 1 ppm 0.1%RH

HQ 210 instruments can also calculate and display the **WBGT index** that corresponds to a index of composite temperature used to estimate the effect of temperature, humidity and solar radiation on humans.

It is calculated from the following temperatures:

- T<sub>w</sub>= Wet-bulb temperature or natural wet temperature, measurement calculated from the relative humidity of a thermo-hygro probe;
- T<sub>g</sub>= Globe temperature, measured with a globe thermometer, or black globe thermometer, whose sensitive element is in black glass or black-smoke coated in order to run approximatively as a black body to measure the solar radiation. The measurement is realised with a temperature probe placed in a black ball;
- T<sub>a</sub>= Air temperature (measured by a thermometer whose bulb is protected from the solar radiation by a screen). The temperature measurement is realised with a thermo-hygro probe;

HQ 210 instruments have the following functions for the measurement of temperature, hygrometry and air quality:

- **AIR QUALITY PROBES (CO / temperature, CO<sub>2</sub> / temperature, CO<sub>2</sub> / temperature / hygrometry):** Audible alarm (2 setpoints), Selection of units, Hold function, minimum and maximum values
- **THERMOCOUPLE MODULE:** Delta T, Alarm (lower and upper setpoints), Selection of units, Hold function, minimum and maximum values

<sup>1</sup> Calculated value

\*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.

## TECHNICAL SPECIFICATIONS OF THE HQ 210

<b>Connections</b>	2 mini-DIN connections SMART-2014 probes and 1 micro-USB port for charging and PC connection
<b>Power supply</b>	Lithium-Ion battery
<b>Autonomy</b>	57 h with hygrometry probe
<b>Memory capacity</b>	Up to 1000 dataset of 20 000 points
<b>Conditions of use (°C/%RH/m)</b>	From 0 to +50°C. In non-condensing condition. From 0 to 2000 m.
<b>Storage temperature</b>	From -20 to +80°C
<b>Auto shut-off</b>	Adjustable from 15 to 120 minutes or Off
<b>Weight</b>	485 g
<b>Operating environment</b>	Neutral gas
<b>European directives</b>	2014/30/EU EMC; 2014/35/EU Low Voltage; 2011/65/EU RoHS II; 2012/19/EU WEEE
<b>Languages</b>	French, English, Dutch, German, Italian, Portuguese, Swedish, Norwegian, Finn, Danish, Chinese, Japanese

## AVAILABLE PROBES AND MODULES (OPTIONAL)



### Light probe (SLU)

Measuring ranges from 0 to 150 000 lux and from 0 to 13935 fc



### 4 thermocouple channels module (M4TC)

Measuring range from -200 to +1760°C (according to thermocouple type)



### Climatic conditions module (MCC)

Measuring ranges from 0 to +50°C, from 800 to 1100 hPa and from 0 to 100 %RH



### Wireless hygrometry probe (SHRF 110)

Measuring ranges from 0 to 100%RH, from -50 to +100°Ctd and from -20 to +80°C



### High temperature wireless hygrometry probe (SHRF 300)

Measuring ranges from 0 to 100%RH, from -50 to +100°Ctd and from -40 to +180°C



### Black ball (BN)

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

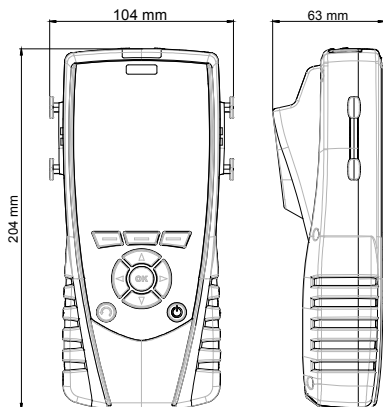


## DELIVERY KITS AND OPTIONS

Description	HQ 210	HQ 210 STD	HQ 210 HT	HQ 210 P	HQ 210 O
Telescopic omnidirectional probe (SOM 900)	○	○	○	○	√
Hygrometry probe in ABS (SHR 110)	○	√	○	○	○
Hygrometry probe in stainless steel (SHR 300)	○	○	√	○	○
CO / temperature probe (SCO 110)	○	○	○	○	○
CO <sub>2</sub> / temperature probe (SCO 112)	○	○	○	○	○
CO <sub>2</sub> / temperature / hygrometry probe (SCOH 112)	○	○	○	√	○
Light probe (SLU)	○	○	○	○	○
Pt100 SMART-2014 probe	○	○	○	○	○
Pt100 wireless probe	○	○	○	○	○
4 thermocouple channels module(M4TC)	○	○	○	○	○
Climatic conditions module (MCC)	○	○	○	○	○
Wireless hygrometry probe in ABS (SHRF 110)	○	○	○	○	○
Wireless hygrometry probe in stainless steel (SHRF 300)	○	○	○	○	○
K, J, N, T and S thermocouple probe	○	○	○	○	○
Calibration certificate	○	√	√	√	√
Transport case	√	√	√	√	√
Additional battery	○	○	○	○	○

√ : supplied with      ○ : optional

## FEATURES OF THE HOUSING



**Material:** ABS/PC and elastomer

**Protection:** IP54

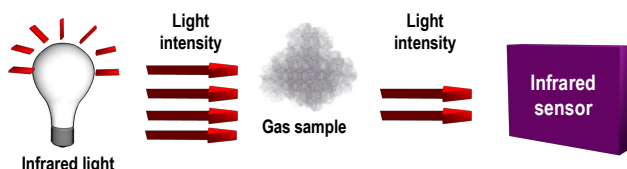
**Display:** LCD 120 x 160 px  
Dimensions: 58 x 76 mm  
Backlight  
Display of 6 measurements including 3 simultaneously

**Keypad:** Elastomer, 10 keys

## OPERATING PRINCIPLE

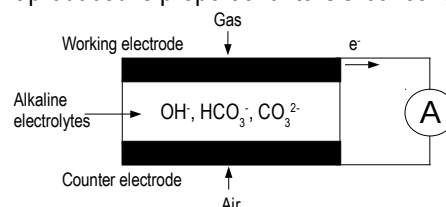
### Non dispersive infrared absorbance

A gas absorbs light at a specific wavelength, some of the intensity emitted by the infrared source absorbed by the gas sample. The amount of light read by the IR sensor is inversely proportional to CO<sub>2</sub> concentration.



### Electrochemical sensor

Electrochemical cell consists of a container, 2 electrodes, connection wires and an electrolyte. Carbon monoxide is oxidised at one electrode to CO<sub>2</sub> whilst oxygen is consumed at the other electrode. The current produced is proportional to CO concentration



## ACCESSORIES



**Datalogger:** PC software for data recording and processing.



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



**SAD:** Backpack



**KIMP23:** Infrared printer



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

**RTR-3500:** wheeled telescopic tripod for radiofrequency probes. 1.20 to 3.50 m length, adjustable at 90°.



**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.

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