

2005 thermal regulation

The main aim of the 2005 thermal regulation is to **reduce power consumption by 40 %** by the year 2020. To achieve this aim, **it is necessary to test** air flow, potential leaks, insulation and facilities: in short, all elements likely to cause power loss.

Formerly, with the 2000 thermal regulation, specific features of certain non residential or industrial buildings were not taken into account. **Today**, this distinction is being made in order to **better assess the necessary improvements** for each case.

For example, as well as **significant changes** concerning ventilation in the residential sector, lighting is now also being assessed.

Upgrading the requirements also concerns certain facilities and materials. As early as the design phase, significant changes have been made concerning **heat generation and distribution**.

Concerning ventilation...

Today, with a view to **saving power** and **increasing comfort**, buildings are waterproof and renewal of air is mainly performed via **mechanical ventilation systems**. Testing of the design, installation and implementation of this controlled mechanical ventilation must **comply with regulations** to eliminate accident risks. Poorly designed or installed controlled mechanical ventilation can contribute to the pollution of interior air rather than reducing it, hence the **necessity of regular testing**.

Summertime comfort to limit the use of air conditioning systems

Due to climate warming and the increase of heatwaves, summertime comfort is now taken into account when new buildings are being constructed. In this respect, **strengthening of regulations** is predicted, especially for existing equipment. The concept of summertime comfort requires a closer look at the issues of **compatibility of thermal and acoustic systems**, as well as at the **quality of air in buildings**, especially during pollution peaks.

In order to reduce cooling requirements, **power consuming equipment** in buildings **will have to be optimised** with a view to reducing internal heat.

Another major development will be the **effectiveness** of air conditioning and cooling equipment, which influences consumption and must be improved in terms of power to achieve **a balance between the environment, health and comfort**.

Effective and easy to use, Chauvin Arnoux® measurement instruments have been developed to enable you to make the necessary measurements for compliance with thermal regulations and to validate all your installations in a matter of seconds.

MEASURING THE ENVIRONMENT

Air conditioning, ventilation, noise and lighting, humidity and pollution are all part of our daily environment. In order to minimise their detrimental impact, these aspects of our environment are subject to regulations that are constantly upgraded.

To comply with these regulations, it is necessary to measure the corresponding systems, using measurements called physical measurements.

Handling measurement instruments, interpreting results (charts, diagrams, graphs, etc.): practising **environmental measurement is now an integral part of the work performed by electricians, heating and air conditioning specialists...** Since all of these areas require complex installations, the tradespeople specialised in them are most suited to work on such systems.

To maintain installations and test environmental parameters when new buildings are being erected, **all necessary measurements** can be made **simply and quickly** with **our comprehensive range** of Chauvin Arnoux measurement instruments, for all areas of application.



Immediate and compulsory temperature testing at each stage of the **cold chain**



Checking proper functioning of your **air conditioning** and **ventilation** system



Preventive maintenance of all types of installations
(Industries, hospitals, etc.)



For **industry**, all measurements enabling work environment testing
(noise pollution, carbon monoxide detection, lighting, etc)



Testing of air quality and atmospheric humidity, which are regulated for improved conservation of pieces on exhibit in **museums**.



Testing the preservation of **food products** (superstores, etc.)



Testing all parameters to optimise **storage** (temperature, hygrometry, etc.)



Optimising the quality of **transport** (vehicles, loads, etc.)



Testing comfort parameters in a **restaurant**

FROM INDUSTRIAL...

THERMOGRAPHY

C.A 1884

- Protected multi-directional screen up to 1,000 radiometric images
- Automatic temperature detector
- Max./Min.
- Measurements from as close as 10 cm
- Adjustable emissivity
- Temperature, distance, humidity
- Available with standard, wide-angle and high-temperature lenses



Raycam® Report



Detailed analysis of thermograms
Creation of customized reports



Certificate granted on the basis of a single test
Available at www.cnp.com
N° 2008-0012

A single tool for comprehensive verification: Mea

C.A 1051



- Hot-wire speed: 0 to 30 m/s, $\pm 3\%R \pm 0.03$ m/s
- Rotating-vane speed: 0 to 35 m/s, $\pm 3\%R \pm 0.06$ m/s
- Ambient temperature: -20°C to $+80^{\circ}\text{C}$, $\pm 2\%R \pm 0.1^{\circ}\text{C}$
- Flow: 0 to 65000 m³/h, $\pm 3\%R \pm 10$ m³/h
- Hygrometry: 3 to 98% RH, $\pm 1\%R \pm 1.5\%$ RH
- Temperature (2 K thermocouple inputs): -200°C to $+1300^{\circ}\text{C}$, $\pm 1\%R \pm 1.2^{\circ}\text{C}$
- Pressure: 0 to 1000 mmH₂O, $\pm 5\%R \pm 1$ mmH₂O

THERMO-ANEMOMETERS

C.A 822

Rotating vane thermo-anemometer:

- 0.4 m/s to 30 m/s, $\pm 3\%$ full scale
- -20°C to $+60^{\circ}\text{C}$, $\pm 0.5^{\circ}\text{C}$



C.A 1224

> Measurement on the outputs of heating and air-conditioning installations

Vane thermo-anemometer with dual display

- Speed: 0.25 m/s to 3 m/s and 3.1 m/s to 35 m/s
- Temperature: -20°C to $+80^{\circ}\text{C}$
- Flow: 0 to 99,999 m³/h



C.A 1226

> Measurement in ducts

Hot-wire thermo-anemometer with dual display

- Speed: 0.15 m/s to 3 m/s and 3.1 m/s to 30 m/s
- Temperature: -20°C to $+80^{\circ}\text{C}$
- Flow: 0 to 99,999 m³/h



Inspection of electrical cabinets



CMV testing



Air speed measurement

Measurement of temperature, speed, flow, hygrometry and pressure



C.A 1052

- > **Recording up to 8,000 counts**
- > **Data processing software supplied**
- Hot-wire speed: 0.15 to 30 m/s, $\pm 3\%R + 0.03$ m/s
- Rotating-vane speed: 0.25 to 35 m/s, $\pm 3\%R + 0.1$ m/s
- Ambient temperature: -20 °C to +80 °C
- Flow: 0 to 99 999 m³/h, $\pm 3\%R \pm 0.03$ x duct area (cm²)
- Hygrometry: 3 to 98 % RH, $\pm 1\%R + 1.5\%$ RH
- Temperature (1 K thermocouple input): -200 °C to +1,300 °C, $\pm 0.4\%R + 0.5$ °C
- Pressure: 0 to 1000 mmH₂O, $\pm 0.2\%R + 1$ mmH₂O



Rotation speed measurement



Carbon monoxide level detection



Pressure control

TACHOMETERS



C.A 1725

- Industrial tachometer
- Measure with and without contact: 6 rpm to 99,999 rpm



C.A 1727

- Industrial tachometer
- Measure with and without contact: 6 rpm to 99,999 rpm
 - Measurements: 0 to 99,999 events
 - Memory: 4,000 points
 - TACHOGRAPH software for data recording and analysis



CARBON Monoxide DETECTOR



C.A 895

- > **Beeper indication of possible risk**
- Carbon monoxide detector:
- 0 to 1,000 ppm, $\pm 5\% + 5$ ppm

MANOMETERS



C.A 850

- > **Special for heating**
- Digital manometer, high pressure:
- -6.89 bar to +6.89 bar, 0.3 % full scale



C.A 852

- > **Special for environmental engineering**
- Digital manometer, low pressure:
- -138 mbar to +138 mbar, 0.3 % full scale


...TO DOMESTIC APPLICATIONS

THERMOGRAPHY

C.A 1879

- Large LCD screen
- 1000 images on SD card
- Real and infrared images with the Merge function
- Min./Max.
- Measurements from as close as 50 cm
- Emissivity adjustable
- Text and/or voice comments



 DiaCAm Report software, from image analysis to report creation

THERMOMETERS

C.A 876

> Infrared measurements and by contact

Infrared thermometer:

- D/Ø: 10/1
- Emissivity: 0.1 to 1
- K-type thermocouple
- -40°C to +1,350°C, ± 1% ± 1°C



C.A 865

> Contact measurements

- Pt 100 sensor input
- -50°C to +200 °C, ± 0.5 °C



C.A 863

> Contact measurements

- 2 K-type thermocouple inputs
- -50°C to 1,300°C, ± 0.1% + 1°C



C.A 861

> Contact measurements

- 1 K-type thermocouple input
- -40°C to +1,350°C, ± 0.1% + 1°C



LIGHTMETERS

C.A 811

Lightmeter with remote controlled probe:

- 0 to 20,000 lux, ± 3% + 10 cts (incandescent lamp)



C.A 813

Lightmeter with remote controlled probe:

- 0 to 200,000 lux, ± 3% + 10 cts (incandescent lamp)



Thermal insulation inspection

SOUND LEVEL METERS

C.A 832

Digital sound level meter:

- 35 dB to 130 dB, ± 2 dB




C.A 834

Recording sound level meter:

- 30 dB to 130 dB, ± 1.5 dB
- Recording of up to 32,000 values



 Data processing software



Illuminance measurement



Sound level measurement



C.A. 879

Infrared thermometer:

- D/Ø: 12/1
- -50°C to +550°C,
± 1.5 % ± 2°C
- Emissivity: 0.95



C.A. 1864

> **Adjustable emissivity**

- Infrared thermometer:
- D/Ø: 30/1
 - +50°C to +1,000°C,
± 1.5 % ± 2°C
 - Emissivity: 0.1 to 1



TK 2000

IP65

Contact thermometer:

- 1 K-type thermocouple input
- -50°C to +1,000°C,
± 1.5 % + 0.5°C



C.A. 871

Infrared thermometer:

- D/Ø: 8/1
- -50°C to +538°C,
± 2.5 % ± 2°C
- Emissivity: 0.95



C.A. 1866

> **High distance/spot ratio for greater accuracy**

> **Adjustable emissivity**

- Infrared thermometer:
- D/Ø: 50/1
 - +50°C to +1,000°C,
± 1.5 % ± 2°C
 - Emissivity: 0.1 to 1



TK 2002

IP65

Contact thermometer:

- 2 K-type thermocouple inputs
- -50°C to +1,000°C,
± 1.5 % + 0.5°C



Hygrometry testing



Ventilation duct inspection

THERMO-HYGROMETERS



C.A. 1244

> **Remote controlled probe**
Thermo-hygrometer with dual display:

- 5 % to 95 %RH ±1.8 %RH
- -20 °C to +70 °C,
± 0.4 % R + 0.3°C
- Dewpoint temperature from
-20 °Ctd to +70 °Ctd



C.A. 847

Material humidity indicator:

- 6 % to 100 % humidity



C.A. 846

Thermo-hygrometer:

- 0 to 100 %RH, ± 7.5 %RH
- -20 °C to +60 °C, ± 0.5 °C

Main accessories



Please contact us for details concerning these accessories.

References for ordering

| | | |
|------------------------------------|----------------|------------|
| Tachometer | C.A 1725 | P01174810 |
| | C.A 1727 | P01174830 |
| Lightmeter | C.A 811 | P01172201Z |
| | C.A 813 | P01172401Z |
| Thermo-anemometer | C.A 822 | P01173102 |
| | C.A 1224 | P01173113 |
| | C.A 1226 | P01173114 |
| Sound level meter | C.A 832 | P01185501Z |
| | C.A 834 | P01185502 |
| Thermo-hygrometer | C.A 846 | P01156301Z |
| | C.A 1244 | P01156310 |
| Material humidity indicator | C.A 847 | P01156302Z |
| Manometer | C.A 850 | P01184101 |
| | C.A 852 | P01184102 |
| Multifunction | C.A 1051 | P01175010 |
| | C.A 1052 | P01175020 |
| Thermographic camera | C.A 1884 | P01651228 |
| | C.A 1879 | P01651250 |
| Carbon monoxide detector | C.A 895 | P01651001Z |

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|-------------------------------|---------------|------------|
| Contact thermometer | C.A 861..... | P01650101Z |
| | C.A 863..... | P01650201Z |
| | C.A 865..... | P01650301Z |
| | TK 2000 | P01653100 |
| | TK 2002 | P01653110 |
| No-contact thermometer | C.A 871..... | P01651302Z |
| | C.A 876..... | P01651403Z |
| | C.A 879..... | P01651805Z |
| | C.A 1864..... | P01651813 |
| | C.A 1866..... | P01651814 |

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