C.A 1886 - C.A 1888
High-Resolution Thermal Cameras

MixVision
From real images to infrared images

For maintenance and building inspections, RayCAm sees everything!

- Thorough analysis with comprehensive parameterization
- Large screen for easier reading
- Temperature up to 600 °C
- Thermal sensitivity from 0.08 °C to less than 0.05 °C
- Matrix up to 384 x 288

CNPP
APPROVAL

Certification granted on the basis
of a single test Available at www.cnpp.com
N° 2010-0020 - N° 2010-0021

Measure up

The **RayCAms**' design and the technologies used to manufacture them provide a wide range of advantages. Their ergonomic design means comfortable measurement even in places where access is difficult:

- **IP 54 leakproofing**
- **excellent legibility thanks to its multidirectional screen**
- **comfortable handling due to its pistol shape**

PERFORMANCE

- automatic detection of hottest/coldest point
- parameter settings affecting measurement:
  - adjustable emissivity
  - adjustment of measurement distance
  - parameters for defining relative humidity and environmental temperature
- parameterizable alarms
- isotherm function
- storage capacity of 1,000 radiometric images organized in 250 folders and back-up on SD card

New functions

- an analytical tool providing a **thermal profile** along a horizontal line,
- the possibility of integrating up to five **Min, Max and Average** analyses on **adjustable areas**,
- **temperature difference** measurements between two tools or in relation to a reference temperature,
- 4 types of isotherms also available as standard features,
- possibility of assigning **different emissivities** according to the analytical tools used.

MixVision

With the **RayCAms**, users can choose the mode for viewing the target: infrared, real or a mix of both with the **"MixVision"** function. This allows you to adjust the transparency (in %) of the infrared image in relation to the real image, thus helping to identify problem areas immediately.

LENS SPECIFICATIONS

The C.A 1886 is delivered with a 20° x 15° lens.
The C.A 1888 is equipped with a 24° x 18° lens.
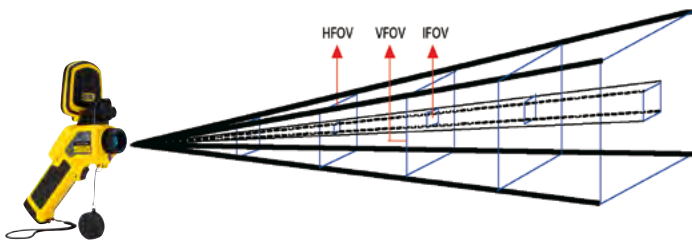
		0.1 m	0.3 m	0.5 m	1 m	2 m	6 m	10 m	30 m	100 m
20° x 15° **2.2 mrad** **10 cm**	HFOV (m)	0.03	0.10	0.17	0.35	0.70	2.11	3.52	10.57	35.26
	VFOV (m)	0.02	0.07	0.13	0.26	0.52	1.57	2.63	7.89	26.33
	IFOV (mm)	0.22	0.66	1.10	2.20	4.40	13.22	22.04	66.12	220.40
	SMO (mm)	0.66	1.98	3.30	6.60	13.20	39.66	66.12	198.36	661.20
24° x 18° **1.3 mrad** **10 cm**	HFOV (m)	0.05	0.15	0.25	0.5	1	3	4.99	14.98	49.92
	VFOV (m)	0.04	0.11	0.19	0.37	0.75	2.25	3.74	11.23	37.44
	IFOV (mm)	0.13	0.39	0.65	1.3	2.6	7.8	13	39	130
	SMO (mm)	0.39	1.17	1.95	3.9	7.8	23.4	39	117	390

- **HFOV** and **VFOV** represent the horizontal and vertical fields of view, respectively.
- **IFOV** corresponds to the camera's spatial resolution, i.e. what a detector sees.
- **SMO** (Smallest Measurable Object): to ensure correct measurement, the target observed must cover at least three detectors, i.e. SMO = 3 IFOV.

ELECTRICAL APPLICATIONS
Circuit-breaker/Generator

- detection of damaged fuses and bad connections
- verification of correct heat diffusion in the generator
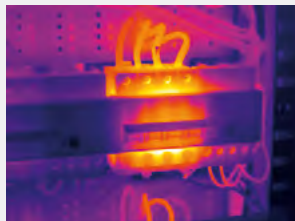
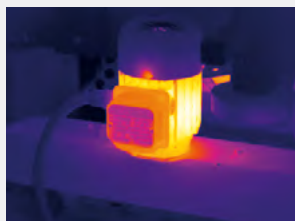## THERMAL APPLICATIONS
Air leaks/energy losses

- energy consumption monitoring / building inspections
- location of losses (heating, insulation, etc.)

MECHANICAL APPLICATIONS
Electric motors

- detection of internal component anomalies or malfunctions to prevent motor overheating
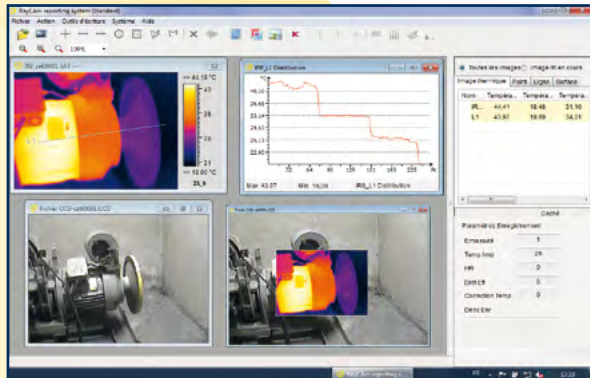
ELECTRONIC APPLICATIONS
Components/printed circuits

- thermal profile and heat diffusion on a PCB
- detection of component overheating

Delivered with the RayCAm Report Standard software

Thermal Image / Real Image / **MixVision**

With the **RayCAm Report Standard**, you can combine your thermogram with a real image. This allows you to identify the fault or dysfunction so that you can make the appropriate corrections!

The **MixVision** function is available as a standard feature on the RayCAms. Users can reinitialize the merge function by modifying the IR/real percentage to suit your requirements and ensure clearly-interpretable reports: this percentage can be adjusted from 0 to 100 %!

ANALYSIS MODE

This new mode can be used to open one or more images, add various analytical tools and obtain a summarized presentation of all the results in a table. This mode is useful for first-level analysis when you simply want a rough idea of the temperature values without saving the analyses.

Choose a different configuration for each analytical tool inserted on your thermogram.

A wide range of possibilities:

- specify a different emissivity from that of the thermogram as a whole
- display a value label next to the tool
- display the Max/Min temperature within an area of analysis

Genuine, accurate analysis

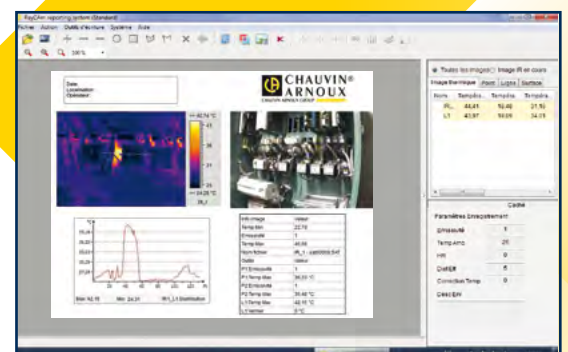If a characteristic on the radiometric image is changed, the other values are automatically recalculated. **RayCAm Report Standard** allows you to define the emissivity of each point in the thermogram, an essential feature when the thermogram contains different materials.
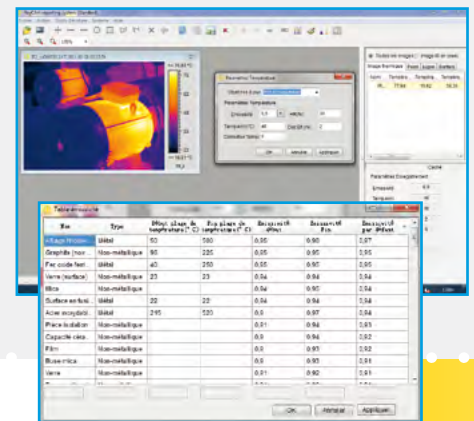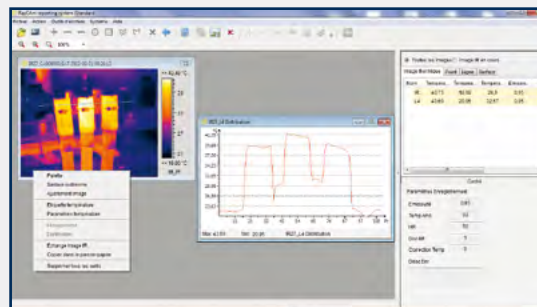
RayCAm Report Standard is the ideal tool for analysing the results and creating **customized reports**. Its interface is so simple that anyone can learn to use it very quickly.

All the analysis functions are accessible via the toolbar. Depending on their requirements, users can position various elements:

- Cursors (automatic display of the temperature at the point selected).
- Thermal profile (automatic display of the Min/Max/Average temperatures of the line).
- A square or circle for area analysis (ideal for Min/Max/Average temperature comparisons between terminals, for example).

- Result tables quickly display all the data/analytical tools on the thermogram automatically.
- The "Max" function automatically indicates the hottest point in the whole thermogram or in a predefined area of analysis.
- Polygons and polylines for more precise analysis of certain areas in the thermogram.
- A barchart for studying the temperature distribution according to several intervals.

TECHNICAL SPECIFICATIONS

	C.A 1886	C.A 1888
DETECTOR SPECIFICATIONS		
Detector	160 x 120	384 x 288
Type	UFPA microbolometer, 8-14 microns	
Frequency	50 Hz*	
Sensitivity (NETD)	0.08 °C at 30 °C	0.05 °C at 30 °C
TEMPERATURE MEASUREMENT		
Standard temp. range	-20 °C to +600 °C	
Temp. range with option	Up 1,500 °C	
Accuracy	±(2 °C or 2 %)	
IMAGE PERFORMANCE		
IR image	Yes	
Field of view	20° x 15°	24° x 18°
Spatial resolution	2.2 mrad	1.1 mrad
Min. focusing distance	10 cm	
Focusing	Manual	
Real image	Yes	
Min. focusing distance	10 cm	
IR-Merge	Complete IR-Merge functions IR image in real image from 0 to 100 %	
Image size	640 x 480 pixels	
OTHER FUNCTIONS		
Emissivity correction	Yes	
Parameter settings	Emissivity (possibility of assigning different emissivity values according to the analytical tools used), environmental temperature, distance, relative humidity.	
Measurement tools	4 cursors: 3 manual cursors + 1 auto. Max/Min detection on adjustable area, isotherm, high/low alarm.	
Comments	Voice annotations (option)	
Storage	1,000 (radiometric format) + 250 folders	
Storage type	2 GB SD Card	
Screen	3.5 inches, multidirectional	
GENERAL		
Battery	Battery life: 3 hrs (continuous use)	
Battery recharging	External battery charger	
Protection	IP 54	

* 9 Hz outside the European Union

A wide range of accessories for measurements in optimum conditions:

- Video cable for display on external screen
- RayCAm Report Standard software for processing the data
- Operation on internal batteries or mains adapter

Accessories available as an option:

- Mains adapter for continuous use
- Bluetooth accessories
- Sun-shade to make the screen easy to read even in bright lighting
- Tripod adapter for hands-free use and operation in a fixed position

Standard state at delivery

C.A 1886 or **C.A 1888:**
delivered in a case with 1 battery charger, 2 batteries, a 2 GB SD Card, 1 SD card reader, 1 video cable, RayCAm Report Standard software and a measurement report.

REFERENCES TO ORDER

C.A 1886 ....P01651260
C.A 1886 - 9 Hz P01651260E
C.A 1886 high temperature 1,000 °C P01651261
C.A 1886 high temperature 1,500 °C P01651262
C.A 1886 Bluetooth P01651263
C.A 1888 ....P01651270
C.A 1888 - 9 Hz P01651270E
C.A 1888 high temperature 1,000 °C P01651271
C.A 1888 high temperature 1,500 °C P01651272
CA 1888 Bluetooth P01651273
Other configurations C.A 1886 ....CA1886-CFG
Other configurations C.A 1888 ....CA1888-CFG

ACCESSORIES AND REPLACEMENT PARTS

Sun-shade.. P01651531
Photo tripod adapter P01651526
Lens cap P01651522
Battery P01296041
Battery charger P01296043
Mains power supply P01651527
In-vehicle battery charger (cigarette lighter) HX0061
Thermography training .... Please contact us

For assistance and ordering

CHAUVIN ARNOUX GROUP