

CE312

High precision multiband infrared Radiometer

The CE312 IR radiometer is the benchmark precision instrument for measurements of spectral luminance in 4 to 6 thermal InfraRed bands.

The solution is composed of a radiometric sensor head (4 or 6 bands), a power supply box with a buffer battery and a software on a computer for data storage, data analysis and visualization of the measured data as well as the computation results.

Thanks to differential measurement principle, it performs highly accurate radiation measurements. It is insensitive to environmental variations (temperature, radiations). The radiometer provides real time spectral luminances and brightness temperatures.

The CE312 is a portable field instrument particularly suitable for thermal ground or atmosphere campaigns in the field measurements and for continuous operation with robotized pointing within an observation network.



Features

- Autonomous: battery + power supply box
- Practical: Real time display of spectral luminances and brightness temperatures
- Multi-tasks: long-term installation / measurement field campaign
- Portable: components are compact, light, easy to move in a hard case
- High precision: 0.1°C
- Large temperature range: -80°C to +60°C

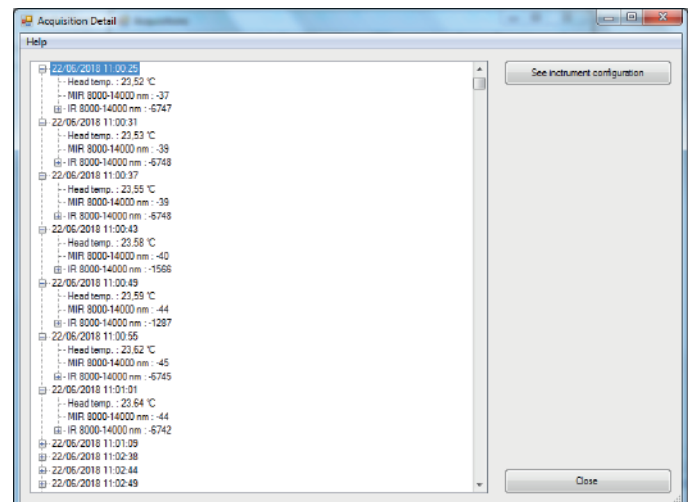
Applications

- Validation of satellite-borne or airborne sensors
- Ground surface characterization
- Atmospheric sciences
- Characterization of coarse aerosols (in synergy with CE318-T photometer)

Software

Software Functions

- Configuration of measurement scenarios (filters, frequencies, self-calibrations...)
- Raw data real time recording on the PC
- Possibility of data export for post-processing



RadioCLIMAT software

Technical specifications

Measurements

Accuracy	0.1°C
Resolution	0.01°C
Response time	1 s
Repeatability	> 99.65%
I FOV	10°
Calibration	Provided with the instrument
Output signal	USB

Optics

Detector type	Silicon thermopile
Detector size	0.6 mm x 0.6 mm
Noise voltage	38 nV Hz ^{-1/2} / W ⁻¹
Responsivity	120 W m ⁻²
Detectivity	1.6 x 10 ⁹ cm Hz ^{1/2} /W ⁻¹
Time constant	12 ms
Filters	Steep pass band filter Out of band Optical density: OD 3

Environmental conditions

Temperature range	From -20°C to +50°C
Target body temperature	From -80°C to +60°C
Humidity range	0-100% RH (non-condensing environment)

Power

Batteries	Recharge via electric power
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IT system

Software	RadioCLIMAT software (Free download at: www.cimel.fr)
OS	Windows 7 or newer

Mechanical Specifications

Head	Ø = 80 x 250 mm Weight / < 1 kg
Measurement cable	3 m link between the head and the interface box
Interface box	With power supply block
Link to PC	See output options

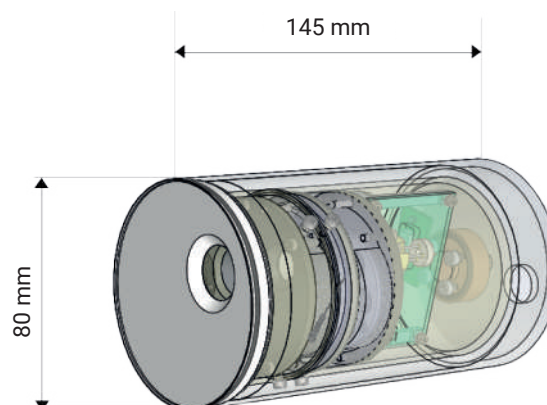
Band Options

Reference	Spectral bands	CWL*	FWHM*
CE312-N1	8 to 14 µm (large band)	-	-
	8.2 to 9.2 µm	8.7	1
	10.3 to 11.3 µm	10.8	1
	11.5 to 12.5 µm	12	1
CE312-N2	Adapted to ASTER	-	-
	8 to 14 µm (large band)	-	-
	8.1 to 8.5 µm	8.3	0.38
	8.5 to 8.9 µm	8.7	0.4
	8.9 to 9.3 µm	9.1	0.4
	10.3 to 11 µm	10.65	0.7
11 to 11.7 µm	11.35	0.7	
Other bands	Consult us		

* CWL = Center wavelength
* FWHM = Full Width at Half Maximum

Output Options

Reference	Connection types	Supply
CE312-MU	Local connection via PC or USB	PC cable or USB
Extension	For current loop only	Extension cable custom-built



CE312 radiometer