

RAMSES

40SXXX010



Spectral imaging radiometer to measure radiance or irradiance in UV, VIS and UV/VIS

RAMSES radiometers are spectral imaging radiometers to measure radiance, irradiance, or scalar irradiance in the UV, VIS and UV/VIS ranges. Thanks to their ultra small size and weight as well as very low power consumption, they are especially suitable for hand-held and autonomous applications. RAMSES radiometers combine precision hyperspectral light measurements with a maximum of flexibility. The modular system increases cost-effectiveness, while the many accessories and special solutions enable a wide range of applications such as installation on ships, handheld usage or autonomous measurements in remote places, like the Arctic or Antarctica.

Benefits

- Extremely low power consumption
- Environmentally robust
- World market leader

Applications

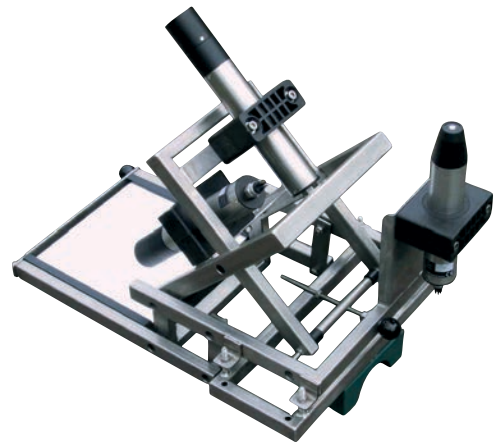
- Water quality
- Field measurements
- Satellite validation
- Biology
- Photosynthesis
- Color measurements
- Climate research



Frame 1



Frame 2



Frame 3

RAMSES PARAMETER LIST

	ACC			ARC	ASC
					
	UV	UV/VIS	VIS	VIS	VIS
Wavelength range* [nm]	280...500	280...720	320...950	320...950	320...950
Detector*	256 channel silicon photo diode array				
Pixel dispersion* [nm/pixel]	2.2	2.2	3.3	3.3	3.3
Wavelength accuracy*	0.2	0.2	0.3	0.3	0.3
Usable channels	100	200	190	190	190

	ACC-UV		ACC-VIS		ARC-VIS	ASC-VIS
	UV A / UV B irradiance		VIS irradiance		VIS radiance	VIS scalar irradiance
Wavelength range*	280...500 nm				320...950 nm	
Typical saturation (IT: 4 ms)**	20 W m ⁻² nm ⁻¹ (at 300 nm) 17 W m ⁻² nm ⁻¹ (at 360 nm) 18 W m ⁻² nm ⁻¹ (at 500 nm)	10 W m ⁻² nm ⁻¹ (at 400 nm) 8 W m ⁻² nm ⁻¹ (at 500 nm) 14 W m ⁻² nm ⁻¹ (at 700 nm)	1 W m ⁻² sr ⁻¹ (at 500 nm)			20 W m ⁻² nm ⁻¹ (at 400 nm) 12 W m ⁻² nm ⁻¹ (at 500 nm) 15 W m ⁻² nm ⁻¹ (at 700 nm)
Typical NEI (IT: 8 s)**	0.85 μW m ⁻² nm ⁻¹ (at 300 nm) 0.75 μW m ⁻² nm ⁻¹ (at 360 nm) 0.80 μW m ⁻² nm ⁻¹ (at 500 nm)	0.4 μW m ⁻² nm ⁻¹ (at 400 nm) 0.4 μW m ⁻² nm ⁻¹ (at 500 nm) 0.6 μW m ⁻² nm ⁻¹ (at 700 nm)	0.25 μW m ⁻² sr ⁻¹			0.8 μW m ⁻² nm ⁻¹ (at 400 nm) 0.6 μW m ⁻² nm ⁻¹ (at 500 nm) 0.8 μW m ⁻² nm ⁻¹ (at 700 nm)
Collector type	cosine response		FOV: 7° in air			Spherical, 2 Pi
Accuracy	Better than 6-10 % ***		Better than 6 % ***			Better than 5 % ***
Integration time	4 ms...8 s					

*) Specifications of Carl ZEISS AG, Germany

**) IT: integration time

***) Depends on wavelength range

Technical Specifications

Measurement technology	detector	High-end miniature spectrometer
		256 Channels
Measurement principle		Radiance or irradiance
Parameter		See parameter list p. 2
Measuring range		See parameter list p. 2
Measurement accuracy		See parameter list p. 2
Data logger		-
T100 response time		≤ 10 s (burst mode)
Measurement interval		≤ 8 s (burst mode)
Housing material		Stainless steel (1.4571/1.4404) or titanium (3.7035)
Dimensions (L x Ø)		260 mm (ACC) / 245 mm (ASC) / 300 mm (ARC) x 48 mm
Weight	stainless steel	0.9 kg
	titanium	0.7 kg
Interface	digital	RS-232 (TriOS)
Power consumption		≤ 0.85 W
Power supply		8...12 VDC (± 3 %)
Maintenance effort		≤ 0.5 h/month (typical)
Calibration/maintenance interval		24 months
System compatibility		RS-232 (TriOS protocol)
Guarantee		1 year (EU: 2 years)
INSTALLATION		
Max. pressure	with SubConn	30 bar
Protection type		IP68
Sample temperature		+2...+40 °C
Ambient temperature		+2...+40 °C
Storage temperature		-20...+80 °C
Inflow velocity		0.1...10 m/s