



RAMSES G2

42SXXXXX0



Spectral imaging radiometers for measuring radiance or irradiance in the UV, VIS or UV/VIS range

RAMSES radiometers are spectral imaging radiometers for measuring radiance, irradiance or scalar irradiance in the UV, VIS or UV/VIS range. Due to their low weight and size, as well as very low power consumption, they are especially suitable for portable or autonomous use. The RAMSES radiometer group combines spectral imaging light measurement with maximum flexibility. The modular measuring system reduces the price and many accessories. Special solutions enable a wide range of applications, such as installations on ships, as a handheld device or in autonomous measuring stations and remote locations such as the Arctic or Antarctic.

With the implementation of the G2 extension module, the RAMSES radiometry series now also has the innovative G2 interface and can now be easily configured via a web browser. The internal data logger with 2 GB memory and comparatively low power consumption offers the possibility of self-sufficient measurement operation without a separate controller. The addition of the Modbus RTU protocol to the interface simplifies integration into existing process control systems and external data loggers. In addition to radiance and irradiance, the parameters inclination and pressure can also be queried.

Advantages

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

Applications

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

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Mounting options



Frame 1



Frame 2



Frame 3

Technical specifications

Measurement technology	Detector	High-end miniature spectrometer 256 channels	
Measurement principle		Radiance, irradiance, scalar irradiance	
Parameters		see parameter list	
Measurement range		see parameter list	
Measurement accuracy		see parameter list	
Response time T100		≤ 24 s (burst mode)	
Measurement interval		≤ 12 s (burst mode)	
Housing material		Stainless steel (1.4571 / 1.4404) or titanium (3.7035), POM	
Dimensions without plug (L x Ø)	up to 30 bar	ACC G2 284 mm x 48.5 mm ARC G2 322 mm x 48.5 mm ASC G2 274 mm x 48.5 mm	~ 11.2" x 1.9" ~ 12.7" x 1.9" ~ 10.8" x 1.9"
	Deep sea version	ACC G2 DS 284 mm x 51 mm ARC G2 DS 322 mm x 51 mm	~ 11.2" x 2.0" ~ 12.7" x 2.0"
Weight *	VA	ACC G2 1.45 kg	~ 3.2 lbs
	Ti	ACC G2 1.25 kg	~ 2.8 lbs

* For clarity, only the weight for ACC sensors is listed here. Weight specifications for ARC and ASC are approximately 250 g higher than the values given here.

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Interface	RS-485; Ethernet (TCP/IP)
Data memory	~ 2 GB
Power consumption	typ. 1 W
Power supply	9 - 24 VDC ($\pm 10 \%$)

Maintenance effort	≤ 0.5 h/month typical
Calibration/ maintenance interval	24 months
System compatibility	RS-485 (Modbus RTU)
Warranty	1 year (EU & USA: 2 years)

Max. Pres- sure	with SubConn	30 bar	~ 435 psi
	Deep sea version	200 bar	~ 2900 psi

Degree of protection	IP68
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Sample temperature	+2...+40 °C	~ +36 to +104 °F
Ambient temperature	+2...+40 °C	~ +36 to +104 °F
Storage temperature	-20...+80 °C	~ -4 to +176 °F
Inflow velocity	0.1...10 m/s	~ 0.33 to 33 fps

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Parameter list

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

	ACC-UV	ACC-VIS	ARC-VIS	ASC-VIS
	UV A / UV B Irradiance	VIS Irradiance	VIS radiance	VIS scalar irradiance
Wavelength range [nm]	280...500 nm	320...950		
Typ. saturation [W m ⁻² nm ⁻¹] (IT: 4 ms) **	20 (at 300 nm) 17 (at 360 nm) 18 (at 500 nm)	10 (at 400 nm) 8 (at 500 nm) 14 (at 700 nm)	1 W m ⁻² nm ⁻¹ sr ⁻¹ (at 500 nm)	20 (at 400 nm) 12 (at 500 nm) 15 (at 700 nm)
Typ. NEI *** [μW m ⁻² nm ⁻¹] (IT: 8 s)	0.85 (at 300 nm) 0.75 (at 360 nm) 0.80 (at 500 nm)	0.4 (at 400 nm) 0.4 (at 500 nm) 0.6 (at 700 nm)	0.25 μW m ⁻² nm ⁻¹ sr ⁻¹	0.8 (at 400 nm) 0.6 (at 500 nm) 0.8 (at 700 nm)
Collector	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 from Carl ZEISS AG, Germany; ** Integration time;

*** Noise equivalent irradiance; **** Dependent on wavelength range