RAMSES

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

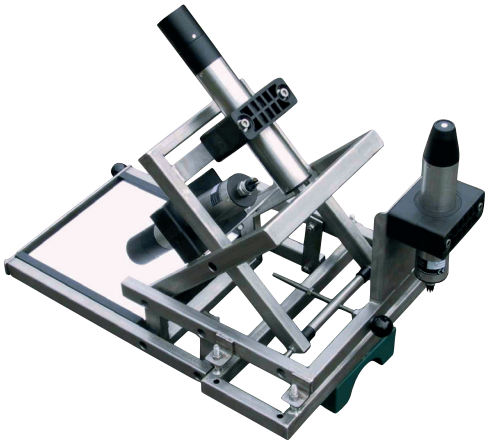
- Extremely low power consumption
- Environmentally robust
- World market leader

Applications

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

Frame 1

Frame 2



Frame 3

Tae Kwang Electronics Corporation

5TH FLR., K-BLDG., 3, SANGAM-RO 41-GIL, GANGDONG-GU, Seoul 05307, Korea
phone:+82 (0)2 479 2703- 4 · fax: +82 (0)2 479 2705 · taekwang@tkec.co.kr · www.tkec.co.kr

Technical Specifications

Measurement technology	detector	High-end miniature spectrometer	
		256 Channels	
Measurement principle		Radiance or irradiance	
Parameter		See parameter list p. 3	
Measuring range		See parameter list p. 3	
Measurement accuracy		See parameter list p. 3	
Data logger		-	
T100 response time		min. 16 s (burst mode)	
Measurement interval		min. 8 s (burst mode)	
Housing material		Stainless steel (1.4571/1.4404) or titanium (3.7035), POM	
Dimensions (L x Ø)		ACC 260 mm x 48 mm	ACC ~ 10.2″ x 1.9″
		ASC 245 mm x 48 mm	ASC ~ 9.6″ x 1.9″
		ARC 300 mm x 48 mm	ARC ~ 11.8″ x 1.9″
Weight	stainless steel	0.9 kg	~ 2 lbs
	titanium	0.7 kg	~ 1.5 lbs
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)	
Warranty		1 year (EU: 2 years)	US: 2 years

INSTALLATION

Max. pressure	with SubConn	30 bar	~ 435 psig
Protection type		IP68	NEMA 6P
Sample temperature		+2...+40 °C	~ +36 °F to +104 °F
Ambient temperature		+2...+40 °C	~ +36 °F to +104 °F
Storage temperature		-20...+80 °C	~ -4 °F to +176 °F
Inflow velocity		0.1...10 m/s	~ 0.33 fps to 33 fps

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} nm^{-1} 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} nm^{-1} 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

Tae Kwang Electronics Corporation
5TH FLR., K-BLDG., 3, SANGAM-RO 41-GIL, GANGDONG-GU, Seoul 05307, Korea
phone:+82 (0)2 479 2703- 4 · fax: +82 (0)2 479 2705 · taekwang@tkec.co.kr · www.tkec.co.kr