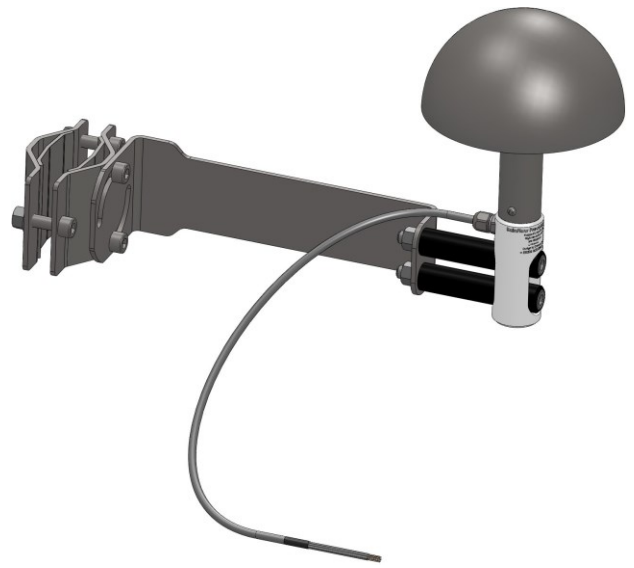


RHD

سنسور تگرگ و باران سنج



RHD یک باران سنج کم هزینه، با دقت بالا و فوق العاده قوی است. این ابزار دارای مصرف برق بسیار کم، بدون نیاز به تعمیر و نگهداری و دارای سنسور آکوستیک کاملاً مهر و موم شده و بدون قطعات متحرک می‌باشد. دستگاه حسگر یک نیمکره فولادی ضد زنگ صیقلی است که توسط یک بازوی فولادی ضد زنگ قوی پشتیبانی می‌شود که تغییرات فشار صوتی را که در اثر برخورد قطرات باران یا تگرگ ایجاد می‌شود، تشخیص می‌دهد RHD. همچنین شامل یک دیسترومتر است که توزیع اندازه قطره را نشان می‌دهد.

دارای خروجی های ولتاژ آنالوگ پیوسته یا پالسی است و از ارتباط SDI-12، سریال RS-232 و Modbus RTU RS485 (با استفاده از آداپتور اختیاری) پشتیبانی می‌کند. پیکربندی کامل سنسور را می‌توان در هر زمان با اتصال رایانه شخصی Plug-and-Play یا از راه دور با استفاده از دستورات سریال سفارشی کرد.

Scope of delivery

Ref.	Description	Quantity
RHD	Rain & Hail sensor	1
-	Mounting arm	1
UDONG	USB dongle	1

Accessories

Art	Accessory
21423	Signal converter 0-10 VDC to 4-20 mA
21431	RS-232-ModbusRTU adapter
-	Extension cable in custom length per meter

Versions

Art	Version
21278	Rain disdrometer and hail detection sensor with mounting kit and 3m signal cable

Specifications

Measurement characteristics

Measuring surface	160 mm outer diameter hemisphere (402 cm ²)
Precipitation detected by the sensor	Liquid (undifferentiated): rain, drizzle/rain, mixed rain/snow, sleet. Solid: hail.
Rain Intensity accuracy	± 15% at 100% duty-cycle (most global precision and accuracy criteria)
Rain DSD	27 classes from ≤ 0.75 mm to ≥ 7.0mm with a detection threshold (minimum detectable diameter) of about 0.5 mm
Measurement accuracy (liquid only)	A spatially distributed flux of controlled drops of a nominal diameter equal to the centre diameter of the class ± 20% produces an output centred in the corresponding class with typically ± 50% of the flux concentrated into the two lateral size-classes.
Hail detection*	Counting of the number of hailstone impacts up to 5 impacts per second and for hailstone diameter detection threshold of 0.5 cm.
Particle velocity	Not measured.

*Note: For more specific hail detection, use the HDI hail disdrometer, variant of the RHD specialized for hail detection.

Voltage ranges and measurement scales

Voltage outputs	Continuous analogue voltage or pulse analog voltage, user selectable +0 to +2.5V or +0 to +5V are available. Pulse threshold, integrator timeout and duration are also user selectable. The continuous analog voltage persists on the outputs so that output voltages can be read at any time.
Rain intensity scaling	Sensitivity @voltage range +2.5V: [10 mV/(mm/h)] i.e. +2.5V corresponds to 250 mm/h
	Sensitivity @voltage range +5V: [20 mV/(mm/h)] i.e. +5V corresponds to 250 mm/h
Hail	Sensitivity @voltage range +2.5V or +5V: 5 hit/s

Power supply

Supply	Ratings
Voltage	6 V to 30 V DC (9.6 V and 16 V DC in case of powering through the SDI-12 terminals)
Current	< 1 mA in stand-by mode and 20 mA max in acquisition mode. For a typical nominal duty-cycle of 10%: 2.1 mA (20 mA for duty-cycle of 100%).

Interfaces

Mode	Description
Analog	Pulse and continuous (and persistent) voltages, 0-2.5V or 0-5V
SDI-12	Yes, V1.3 (distrometer output via extended SDI-12 commands)
RS-232	Yes
Modbus RTU (RS485)	Yes (Note: requires the Modbus adapter accessory)

Physical properties

Material	Stainless steel and aluminium Ematal anodized (breakdown voltage > 40 V/ μ m)
Weight	1.4 kg (without mounting kit)
Dimension (H x W x D)	260 mm x 430 mm x 160 mm (with mounting kit)
Installation	Universal mounting kit provided

Environmental conditions

Temperature range	-40°C to +80°C
Relative humidity	0 to 100%
Protection	IP67, survive to 1 m temporary immersion in salt water
Standards	EN 61326-1: 2013, CE compliant 2014/30/EU, CE compliant