

	PRODUCT CATEGORY:
	DATA COLLECTION

# RSTAR Affinity Data Logger

The RSTAR Affinity data logger is designed to connect a variety of field analog and digital sensors to the RSTAR Affinity web-based dashboard. Each data logger can be configured to support up to five instruments of varying types.

Instrument and data logger configuration is mediated through secure and authenticated Bluetooth (BLE).

Instrument readings are communicated in real-time by low-power wide area network (LPWAN) through an RSTAR Affinity gateway. LPWAN protocols supported include LoRaWAN for long-range outdoor applications (up to 15 km).

Standalone data logging is supported by the syncing of instrument data by local authenticated download in the RSTAR Affinity Field app.



> FEATURES
Five modules configurable for specific instrumentation signal types.
Compartmentalized design makes maintenance simple.
Self-locating via Bluetooth for easy set-up.
Optional quick connect cable for faster instrument installations.
IP67 rated for perform in -40°C to 60°C temperatures.

> BENEFITS	
✓ <b>Integrated</b>	✓ <b>User-friendly</b>
✓ <b>Flexible</b>	✓ <b>Durable</b>
✓ <b>Secure</b>	

POWER SPECIFICATIONS	
Battery voltage	3.6V
Number of Cells	3 primary battery cells
Battery Cell Size	D
Recommended Battery Cell	Saft LSH20
Battery Nominal Capacity	13.0 Ah @ 20°C per cell
Battery Life Expectancy (Hourly readings)	1 x VW Piezometer @ 20°C = ~10 yrs 100 Segment ShapeArray @ @ 20°C = ~3 yrs

PHYSICAL SPECIFICATIONS	
Dimensions	159 mm (L) x 120 mm (W) x 87 mm (H) (enclosure only) 163 mm (L) x 185 mm (W) X 87 mm (H) (enclosure + wall mounting)
Total Mass	500 g to 550 g
Housing Material	PBT
Ingress Protection Marking	IP67 rated
Mounting Options	Wall, pole, mounting kit available
Antenna Options	External: +3 dBi and +5.8 dBi (N type connector)

GENERAL SPECIFICATIONS	
Temperature Operating Range	From -40°C to 60°C
Lifespan	10-year service life

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BLE (BLUETOOTH LOW ENERGY) RADIO SPECIFICATIONS	
Bluetooth	BT 5.0 single mode
Frequency	2.402 - 2.480 GHz
Raw Data Rates	125 kbps, 500 kbps, 1 Mbps, 2 Mbps
Maximum Transmit Power	+8 dBm
Low Power Listen Mode	Continuous

LORA (LONG RANGE) RADIO SPECIFICATIONS	
Operating Regions	LoRaWAN US915 LoRaWAN EU868 LoRaWAN EU433 LoRaWAN AS923-1/2/3/4 LoRaWAN AU915  <a href="#">Commonly used frequency plans by country</a> Refer to RST for the best frequency for your region.
Protocols	LoRaWAN® 1.0.1
Range	Up to 14 km (at 900 MHz) in open country, depending on frequency and antenna

RS-485 INTERFACE SPECIFICATIONS	
Part ID	IIM-RS-485 Contact RST for full sensor list compatibility
Supply Power	12 VDC up to 300 mA
Protocols Supported	RS485
Serial Data Rate	9600 to 115200 Baud configurable through RSTAR Affinity digital suite
Serial Port	Half-duplex
Protection	1500 VDC isolation on the 12 V 3000 VDC isolation on TTL signals Isolation ICs are EN62368-1 certified

VIBRATING WIRE SPECIFICATIONS		
Part ID	Vibrating Wire + Vibrating wire pair	IIM-VW-VW
	Vibrating Wire + Thermistor pair	IIM-VW-TH
Excitation Voltage	5 V	
Resonant Frequency Measurement Range	300 Hz to 7,000 Hz	
Resonant Frequency Resolution	0.11 Hz (1 part in 65,000)	
Resonant Frequency Accuracy	± 0.7 Hz (0.01% FS)	
Protection	Tran 1500 VDC isolation on the 5V 3000 VDC isolation on TTL signals Isolation ICs are EN62368-1 certified ESD protection to ±2KV silent protection for instrument ports	

THERMISTOR SPECIFICATIONS		
Part ID	Thermistor pair + Thermistor pair	IIM-TH-TH
	Vibrating Wire + Thermistor pair	IIM-VW-TH
Measurement Range	0 Ohm to 196 mOhm	
Measurement Resolution	0.183 Ohm	
Accuracy	± 0.1°C	
Protection	1500 VDC isolation on the 12 V 3000 VDC isolation on TTL signals Isolation ICs are EN62368-1 certified	