



# RLS 500

## Applications

Surface water  
Water quantity  
Flood monitoring  
Tide monitoring  
Storm water



## Smart Radar Level Sensor

### Reliable non-contact water level measurements

**Unmatched accuracy with 80 GHz radar technology and smart features like inclination measurement**

**Robust and reliable design to guarantee long sensor lifetime even in the harshest environments**

**Contactless sensor that is easy-to-install and ideal for critical flood monitoring**

**Extremely low power consumption for deployment at remote locations**

**Simple connection to external dataloggers with industry standard communication protocols (SDI-12 and Modbus)**

**Global support for application-specific installation and maintenance guidance**

**Meets United States Geological Survey (USGS) Office of Surface Water (OSW) requirements for accuracy**

#### Reliable and Robust Design for Peace of Mind

Ensure extended sensor lifetime with IP67 housing and a low power, maintenance-free design so you can focus on managing projects without worrying about equipment failure.

#### Trust in Your Data for Confident Decision-Making

Achieve unmatched accuracy and long-term stability by reducing the need for verification measurements, resulting in high-quality data for stakeholders that meet standards.

#### Operational Efficiency to Optimize Resources

Remotely determine device health with smart sensors and metadata, improving maintenance schedules and minimizing unplanned field visits, thus reducing time in the field.

#### Hydrology-Tailored Design for Seamless Integration

Designed by hydrologists for hydrologists, discretely deploy the compact sensor and integrate effortlessly into existing networks, ensuring your historical data record is preserved.

# Technical Specifications

WATER LEVEL	Measuring range	0 ... 30 m; distance to water	0 ... 99 ft; distance to water
	Resolution	0.001 m · 0.1 cm · 1 mm	0.01 ft · 0.1 inch
	Accuracy for 0 ... 30 m	±2 mm	0.007 ft
	Accuracy for average temperature coefficient	< 3 mm/10 K; max. 5 mm	
	Units	m · cm · mm	ft · inch
	Beam angle of antenna	8°	
	Transmission frequency	77 ... 81 GHz	
	Type of radar	FMCW Radar	
	Frequency band	W-band	
	Sampling range	OTT RLS 500:1 Hz, OTT RLS 500 (HF): 1 Hz · 2 Hz · 4 Hz · 8 Hz	
INTERNAL RELATIVE HUMIDITY	Measuring range	0 ... 100 % rH (non-condensing)	
	Resolution	1 % rH	
	Accuracy	typ. ±2 % rH (10 ... 80 % rH) amax. ±3 % rH (0 ... 100 % rH)	
	Units	% rH	
POWER	Supply voltage	5.5 ... 28.8 V DC, typ. 12/24 V DC	
	Power consumption - active	< 4 mA	
	Power consumption - idle	< 250 µA	
COMMUNICATION	Physical Interfaces	SDI-12 and RS-485	
	RS-485 protocols	SDI-12 (V1.4), Modbus RTU	
MEASUREMENT	Measured values	Water level / distance to water	
		Internal relative humidity	
		Sensor orientation	
	Value processing	Mean value over a time period	
		Minimum value within a time interval	
		Maximum value within a time interval	
		Median over a time period	
		Standard deviation over a time period	
ENVIRONMENTAL	Derived parameters	Hydrological discharge (Q)	
	Temperature range, operating	-40 °C ... +70 °C	-40 °F (ice-free) ... +158 °F
	Temperature range, storage	-40 °C ... +80 °C	-40 °F ... +176 °F
	Humidity	0 ... 100 %	
	IP rating	IP 67 flooding without damage for 1 week / 1 m water column (bottom housing)	
DIMENSIONS/WEIGHT	Dimensions (without swivel mount)	134.5 mm x 114.5 mm x 85 mm	5.3 in x 4.5 in x 3.3 in
	Weight (without mounting)	approx. 0.75 kg	approx. 3.1 lbs
MATERIAL	Housing	AlMgSi1, ASA (UV-stabilised ABS)	
	Radom (front plate)	TFM PTFE	
	Mounting	1.4301 (V2A)	
	Cable	PUR	
	Cable connector	M9	
REGULATORY	FCC	This device complies with Part 15 of the FCC Rules	
	CE	This device complies with the essential requirement of the EMC Directive 2014/30/EU	
	IC	This Class B digital device meets all requirements of the Canadian Regulation, ICES-003, Class B Interference -Causing Equipment Regulations.	



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