

Aquatos Radar

Non-contact water level measurement: millimetre accuracy, no contact with the medium, as an SDI-12 sensor for Aquatos data loggers. Optionally online in combination with the Aquatos Web LTX and operated via Sensormanager.



ILLUSTRATIVE MOUNTING EXAMPLE

 $\leq 2 \text{ mm}$

Typical accuracy · 1 mm resolution

0.05 – 12 m

Measuring range · radar optics approx. 10°

3 echoes

per measurement, each with signal strength in dB

 $< 30 \mu\text{A}$

Sleep current of the sensor version

DESCRIPTION

The **Aquatos Radar Type 0470** measures the distance to the water surface with a **60 GHz radar signal** (pulsed coherent radar, approx. 11 dBm EIRP) and converts it into the water level. A **dielectric radar lens** focuses the beam to approx. 10°, so walls and fittings in shafts or under bridges do not disturb the measurement.

Up to **three reflections** are captured simultaneously, each with **signal strength in dB**. Spurious echoes can thus be identified and suppressed via measuring range, sensitivity and sorting. **Commissioning** is done on site with the **Bluetooth app in the browser**, with a raw scan for alignment and a live plot. Optionally the radar can be combined **online** with the Aquatos Web LTX and operated via the **Sensormanager** web portal.

APPLICATIONS

- Gauging stations on streams, rivers and canals, flood early warning
- Storm overflows and relief structures, also under closed manhole covers
- Retention basins, tanks, waters with ice drift



KEY FEATURES

- **60 GHz radar** · non-contact · typ. $\leq 2 \text{ mm}$
- Measuring range **0.05 to 12 m** · lens approx. 10°
- **Up to 3 echoes** with signal strength in dB
- **SDI-12 V1.3** · sleep current $< 30 \mu\text{A}$
- **Bluetooth app in the browser** · raw scan · live plot
- Optionally online: **Aquatos Web LTX** · **Sensormanager**

Technical data

Aquatos Radar Type 0470 · sensor version (SDI-12) · optional online version with Aquatos Web LTX

PARAMETER	AQUATOS RADAR SENSOR · SDI-12		AQUATOS RADAR ONLINE (OPTIONAL) · WITH AQUATOS WEB LTX
RADAR MEASUREMENT			
Measuring principle	60 GHz radar · pulsed coherent radar · approx. 11 dBm EIRP · radar lens with approx. 10° beam angle		
Measuring range	0.05 to 12 m · start and end distance configurable		
Accuracy / resolution	Typically ≤ 2 mm · resolution 1 mm		
Echo evaluation	Up to 3 distances per measurement with signal strength in dB · sorted by signal strength or distance · adjustable sensitivity		
Level reference	Factory calibrated · offset and factor for water level or gauge datum configurable		
INTERFACES AND OPERATION			
Data output	SDI-12 V1.3 · distance + signal strength, optionally 3 echoes + supply voltage	LTE-M, NB-IoT as fallback · transmission to Sensormanager or your own server · alarm intervals	
Connection	3-wire cable (white = supply, green = data, yellow = GND) · M12×1.5 cable gland	No probe cable · SDI-12 input for up to 24 additional sensors on the Aquatos bus	
On-site configuration	Bluetooth app in the browser (Chrome / Edge on Windows, Chrome on Android, Bluefy on iOS) · raw scan · live plot · setup via QR code · BlueShell (Windows)		
Remote access	Via the connected Aquatos Web LTX	Remote configuration via the Sensormanager web portal · encrypted transmission	
POWER			
Supply	3.6 to 16 V DC from the logger · sleep current < 30 µA · up to 100 mA during measurement	Lithium thionyl chloride D cell (3.6 V / 13 Ah) · tool-free replacement	
Operating life	Depends on the logger and the measuring interval	Several years autonomous, depending on measuring and transmission interval	
MECHANICS AND ENVIRONMENT			
Housing	Plastic housing with radar lens · fully potted electronics · pressure equalisation membrane	Round housing, radar lens in the front · screw cap with seal · internal antenna	
Dimensions	95 × 55 × 40 mm (L × W × H, without cable gland)	Round housing · dimensions on request	
Protection class	IP68 · potted electronics	IP68 (24 h at 1 m immersion depth)	
Operating temperature	−40 °C to +85 °C	−25 °C to +70 °C	
Mounting	Vertically above the water surface on a bridge, wall or bracket · distance to the medium min. 0.05 m, recommended from 0.25 m		
Conformity	CE (RED 2014/53/EU) · RoHS · 60 GHz band usable worldwide		