ToltHawk

PRODUCT DATASHEET · 2026

Remote water monitoring, simplified

Self-contained, solar-powered sensors that report level, flow and alarms over cellular or satellite to a web dashboard — for streams, stormwater, roads, tanks and sewers.

Non-contact 60 GHz radar · **Cellular LTE-M / NB-IoT or Iridium satellite** · **Built-in solar + battery** · **SMS / email alerts**

The ToltHawk device family

Level Transmitter 4.7
SMC104 · SMS104

Radar level sensor for rivers, lakes, dams, ditches and culverts. Cellular or satellite; optional camera (-Cam).

Up to 65 ft nominal range · 12 × 5 in footprint

Early Warning Combo
LVCOMBO110 · -CAM

Ready-to-deploy flood kit: cellular level transmitter, rain gauge and aluminum bracket.

Texas DIR ready

Stormwater Monitor
SMS1015

24×7 monitoring of drains, headwalls, ponds and fire scars. Flags flooding and debris clogging.

Optional camera for visual event verification

Water-Over-Roadway Sign
WORS

Rising water triggers a solar LED “Water Over Roadway” sign to warn drivers.

20 W sign panel · custom messages

Surface Velocity + Level
THSVLV104

Non-contact surface velocity and level for open-channel flow and discharge.

Level + velocity in one unit

Water Storage Tank Monitor
WTT-20

Bolt-on tank level monitor with overflow, low-level and pump-fault alarms.

Ultrasonic standard · pressure transducer option

Lift Station Monitor
LFS-11

Wet-well level, pump status, mains power and flow for sewer lift stations.

Radar level · clamp-on current · thermal camera

Sewer RF Sensor & Gateway
THSEW_101

In-manhole RF sensor reporting to a pole-mounted gateway; sidewall bracket available.

SENSOR_101 · GATEWAY_101

Cellular Weather Station
WEA_107

All-in-one, six-element weather station with its own cellular link.

Standalone or add-on

Stainless Rain Gauge
RB1050 (-RB option)

Stainless-steel tipping bucket with bracket; two-wire hookup to any unit.

Adds rainfall to any level site

Built for the field

One compact unit, mounted over the water on a bridge rail, guardrail or cantilever arm — no in-stream work required.





Level transmitter cantilevered from a bridge, sensing the stream below.

- ✓ **Self-contained.** Radar sensor, battery, data logger, modem and antenna in one housing.
- ✓ **Solar powered.** Built-in panel keeps the battery topped up with minimal sun.
- ✓ **Cellular or satellite.** LTE-M / NB-IoT or Iridium, with alerts by SMS and email.
- ✓ **Optional camera.** Daily photos, hourly during floods, for visual verification.

Early Warning Combo installations



Bridge-rail mount over a creek: rain gauge and level transmitter on one aluminum arm.



Roadside ditch: combo bracketed to a guardrail post, clear of traffic.



Concrete drainage channel: solar-powered unit reporting level and rainfall.

Level Transmitter — Technical Specifications

Applies to the radar level platform used in SMC/SMS level transmitters, Early Warning Combos, SMS1015 and WORS. Specifications per hardware version 4.62.

SENSING	
Sensor	60 GHz multi-target radar, non-contact (120 GHz option)
Range	9 inch – 65 ft (20 m) nominal; extendable to 120 ft at low resolution
Accuracy	1 mm (radar); 10 mm beyond 30 ft
Dead zone	0–9 in
Beam	7° from center
Camera (optional)	Automatic daily photo; hourly photos during flooding

COMMUNICATIONS	
Cellular	NB-IoT, Cat-M1 / LTE-M, 2G, 3G
US carriers	AT&T, T-Mobile, US Cellular + 20 more
International	150+ countries, 2,500+ carriers
Satellite	Iridium, 1626 MHz
LoRa	915 MHz (US, Canada)
Cell antenna	Wide-band, 9 dB gain, 700 MHz LTE bands
Alerts & data	SMS / email alarms; live and historical data on phone or web

POWER	
Battery	12.5 Ah
Solar	1 W built-in panel
External input	Solar PV 6–10 V DC, 2–5 W; micro-USB charger
Run time, no sun	6 months on full charge

PHYSICAL & ENVIRONMENTAL	
Enclosure	ASA plastic
Footprint	12 × 4 in
Operating temperature	−20 °C to 60 °C (−4 °F to 140 °F)
Safe (storage) temperature	−30 °C to 70 °C (−22 °F to 160 °F)
Maintenance	None required for years; minimal sunlight needed

INPUTS & OPTIONS	
Rain gauge	Tipping bucket, steel or ABS
Current sensor	I²C Hall-effect, 1- or 3-phase
Other sensors	7-in-1 weather station, pressure transducer, pump switch, camera
Third-party	SDI-12 and RS-485 sensors

Ranging performance by sensor

Sensor	Type	Min range	Max range	Accuracy	Dead zone
SMST:110	Radar (v4.62)	9 in	65 ft (20 m)	1 mm (10 mm >20 ft)	0–9 in
THFLOW2	Surface Velocity Radar (v2)	3 ft	30 ft (10 m)	5 mm/sec	0–36 in
WL75	Ultrasonic (v3.1)	16 in	24 ft (7.5 m)	10 mm	0–16 in
WL100	Ultrasonic (v3.1)	16 in	32 ft (10 m)	15 mm	0–16 in

Legacy ultrasonic v3.1: 41 kHz, 15° beam, 7.5 Ah battery, 2-month run time; mux extends range to 160 ft.

Other Application Systems

Water-Over-Roadway Sign WORS

System: Level unit + solar LED sign (20 W panel, custom message)

Links: Wired, short-range wireless (10–300 ft) or LTE-M / Iridium

Mounting: Cantilever arm, bridge rail, or bank with pressure transducer

Dashboard: Level, sign status, power, signal, diagnostics

Stormwater Monitor SMS1015

Sites: Drains, headwalls, pavements, ponds, streams, fire scars

Alerts: Level, flood and debris-clogging alerts by SMS/email

Sensing: Non-contact radar; optional camera to verify events

Options: Weather station, pump switch, pressure transducer, SDI-12/RS-485

Water Storage Tank Monitor WTT-20

Install: Bolts onto supplied tank bracket; battery + solar

Sensing: Coated ultrasonic (std); pressure transducer for ground-level install

Alarms: Overflow / low level (user thresholds), pump fault, frequent cycling

Options: Cellular or satellite; pump controller interface

Lift Station Monitor LFS-11

Level: Radar level + laser 3-D imaging to tell instruments from sewage

Pumps: Clamp-on current sensors (1/3-phase), no wire contact; mains-power sensing

Flow: Thermal camera estimates wastewater flow

Alarms: Overflow, power loss, pump fault, frequent cycling; solar or AC

Ordering Information

FLOOD & STREAM EQUIPMENT	
LVCOMBO110-CAM	Early Warning Combo with camera
LVCOMBO110	Early Warning Combo (level transmitter, rain gauge, AL bracket)
SMC104	Cellular Level Transmitter 5.0 (radar)
SMC104-Cam	Cellular Level Transmitter 5.0 with camera
SMS104	Satellite Level Transmitter 5.0
SMS110-Cam	Satellite Level Transmitter 5.0 with camera
THSVLV104	Surface Velocity + Level Sensor
WEA_107	Standalone cellular weather station, 6-element
RB1050 (-RB option)	Stainless tipping-bucket rain gauge with bracket

SEWER EQUIPMENT	
THSEW_SENSOR_101	Sewer RF Sensor
THSEW_GATEWAY_101	Sewer Gateway
—	Sewer sidewall installation bracket; gateway pole mounting kit

DATA SUBSCRIPTIONS	
CELL_REGULAR_5	Cellular
CELL_CAM_6	Cellular with camera
SAT_REG_105	Satellite, 200 uploads per month + 3 events
SAT_REG_106	Satellite, 400 uploads per month + 5 events

Complete sensor systems: every unit includes radar sensor, battery, data logger, modem and antenna. Contact TolthHawk for pricing and Texas DIR cooperative purchasing.