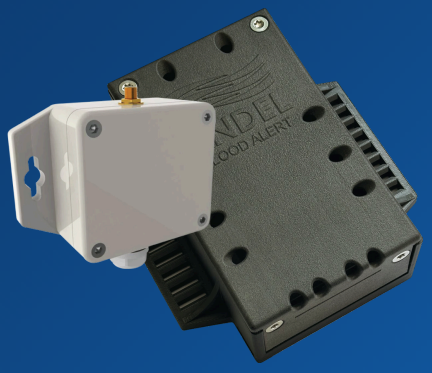
FLOOD DEFENCE

Andel FloodAlert Drain Gulley Sensor

Smart, real-time water level monitoring for blocked or overflowing drainage gulleys



Smart, real-time monitoring for drainage gulleys

The FloodAlert Drain Gulley Sensor is part of Andel's FloodAlert range and provides continuous, 24/7 remote monitoring of roadside and surface drainage gulleys.

Powered by reliable radar technology, the sensor continuously monitors water levels, providing instant alerts of rising levels, blockages or overflow events to support proactive flood risk management. With thousands of miles of roadside drainage across the UK lacking active monitoring, it offers a low-cost solution to reduce emergency call-outs, prevent surface flooding and protect vital infrastructure. Real-time data is available via the cloud-based FloodAlert portal, with automatic alerts sent by email, SMS and WhatsApp for rapid response.

Design and installation

The radar sensor is housed in a compact PA12 Nylon enclosure designed to mount discreetly beneath slotted drainage covers. An integrated bulls-eye spirit level ensures accurate plumb installation.

During fitting, the enclosure is secured to the underside of the gulley cover with heavy-duty ties, positioning the sensor directly above the centre of the gulley pot for optimal performance. For reliable operation, installations should be located where LoRaWAN® network coverage is available, and a minimum read distance of 200mm from the rear of the mounting base must be maintained.

Reliable connectivity

An integrated high-gain dome antenna provides optimum signal strength, supporting reliable connectivity and uninterrupted monitoring.

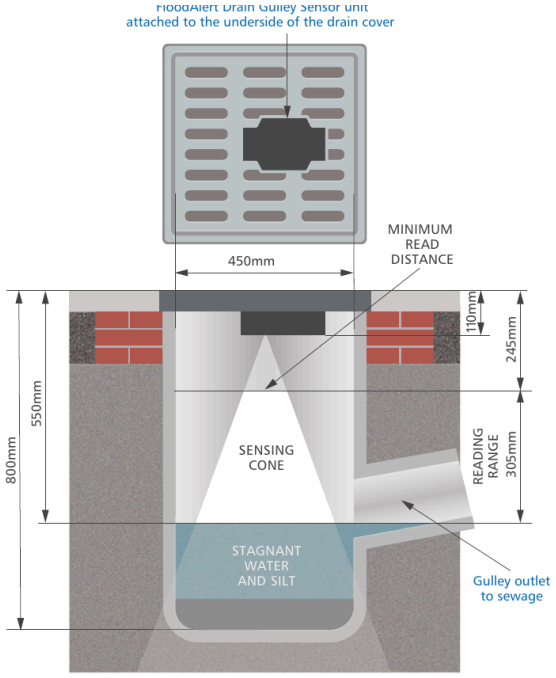
Typical applications

The FloodAlert Drain Gulley Sensor is ideal for a wide range of roadside and urban drainage environments, including:

- Local authority highways and roadside drainage networks
- Industrial estates and business parks
- Retail and commercial sites
- Public and private car parks
- Transport hubs, such as bus and train stations
- Any location where surface water flooding poses a risk to people, property or infrastructure

LoRaWAN® network access

FloodAlert radar sensor units offer flexible connectivity, integrating seamlessly with existing third-party LoRaWAN® networks, a customer's own private network, or a dedicated LoRaWAN® gateway supplied, installed and fully managed by Andel — ensuring reliable data transmission and effortless setup.



Example installation: the sensor unit mounts to the underside of a slotted drain cover and monitors the sensing cone within the gulley pot, with the reading range set between the cover and the stagnant water and silt. Alarm levels are calibrated for each installation; measurements shown are examples only (based on a 450mm drain pot).

Alarm levels — email, SMS and WhatsApp warnings

Alarm levels are pre-set and calibrated within the reading range (sensing cone) for each installation, based on site conditions and a flood risk assessment for that drainage gulley system. Each time an alarm threshold is breached, users can receive email, SMS and WhatsApp warnings of rising water levels.

Web portal

Access real-time and historical water level data and battery performance instantly through any web browser.

Benefits at a glance

- Low-carbon-impact, cost-effective remote gulley monitoring — ideal for local authorities managing extensive drainage networks
- Reduces flooding risk by identifying drainage problems in real time
- Tracks water levels using battery-powered, wireless LoRaWAN® radar sensors
- Easy to install and set up
- Low maintenance
- 24/7 real-time water level data and alerts via cloud-based portal, plus instant email, SMS and WhatsApp alerts
- Communication via a low-power LoRaWAN® network
- Cuts emergency response costs and unplanned maintenance call-outs
- Supports proactive asset management and compliance with flood resilience strategies
- Enclosure constructed from PA12 Nylon — high strength, chemical and impact resistance

TECHNICAL INFORMATION

LORAWAN® SENSOR

Operating temperature: -20°C to +50°C (-4°F to +122°F)

Humidity range: 15% – 95% RH

Altitude range: <2km (<6,000ft) above sea level

Radio standard: Supports LoRaWAN® EU 868 MHz

Transmission rate: 15 min standard, with variable transmission

Sampling rate: 5 min

Dimensions: L 175mm × W 163mm × H 61mm

Radar range: >150mm to 500mm

Radar resolution: 1mm

Signal power: Up to +2dBi with external antenna

Output power: Up to +3dBi with external antenna

Gauge type: Radar

Radar signal diversion: 40°

Accuracy: ±5mm or ±1% of reading

Battery type: 1 × 3.6V Li-$SOCl_2$ size AA

Expected battery life: Typically one year from activation

Water ingress rating: IP67

Radar frequency: 57–64 GHz @ SF7 LoRaWAN® transmission strength

Compatibility: Designed for use with slotted drain gulley covers only