FLOOD DEFENCE

Andel FloodAlert Bollard

Smart, realtime, early local flood warning and water level monitoring system

Andel FloodAlert Bollard provides 24/7, local water level monitoring, sending email and SMS alert notifications to users when pre-set alarm levels are breached.

Andel FloodAlert Bollard is a cost-effective, low-carbon impact solution for above and below-ground water level monitoring and flood warning.

Resilient and environmentally friendly

Bollards are constructed from 100% post-industrial recycled plastic waste which would otherwise go to landfill.

Andel FloodAlert Bollard turns the longevity of plastic into an environmentally-friendly, cost-effective and robust solution which is vandal-proof and resistant to weather, UV, chemicals, temperature and moisture.

Ultrasonic LoRaWAN® water level sensors

Each bollard is equipped with a robust, waterproof ultrasonic LoRaWAN® water level sensor unit. The sensor unit is housed in the bollard cap and mounted to a uPVC waveguide, providing continuous and accurate monitoring of the water level below.

Sensor data is wirelessly captured, stored and displayed on the cloud-based Andel FloodAlert Portal, accessible from any internet-enabled device, providing 24/7 realtime and historic water level data.

Bollards are strategically located to provide maximum warning to users so that when a pre-set threshold is breached, SMS and email flood notifications are sent for timely action to be taken to protect people and properties.

The FloodAlert Portal can connect to an unlimited number of sensor units and users.

LoRaWAN® network access

Andel FloodAlert Bollard sensor units can connect to an existing third-party LoRaWAN® network, a customer's own LoRaWAN® network, or a dedicated LoRaWAN® Gateway which can be provided and managed by Andel.

Benefits at a glance:

- Cost-effective, local flood warning system
- Tracks rising water levels using battery-powered, wireless LoRaWAN® sensors
- Easy to install and set up
- Waveguide with a three-stage filter for accurate water level measurement
- Low maintenance, only requires yearly maintenance or after a substantial flood
- Sends text and email alerts to users to allow for timely action to protect people and properties
- Realtime monitoring on a cloud-based portal
- Communicates with an unlimited number of FloodAlert Bollard sensor units and users
- 3 pre-set alert levels per sensor unit
- Communication via a low-power LoRaWAN® network
- Multiple FloodAlert Bollards can provide an overview of local high-risk hotspots and capture data for future modelling
- Bollard constructed from 100% recycled plastic with a 25mm wall thickness
- Sustainable, robust and reliable

ANDEL

Making water sustainable for a cleaner and safer environment.

ES France - Département Bio-tests & Industries
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 90
Fax. 01 47 01 16 22
e-mail : bio@es-france.com
Site Web : www.es-france.com

Two installation options

As rising water enters the bollard through rows of holes, the system sends alert notifications if the water level breaches each of the three pre-set alarm levels.

Wall mounted for waterways

Bollards are securely fastened to existing permanent structures with two 4-inch pipe clips, the bollard hanging slightly above the river bed to prevent blockages.

Rising water freely enters the bollard through a series of holes and enters the waveguide where the sensor monitors and records the water level. Any silt or debris naturally falls out of the open base.

Buried for monitoring rising ground and surface water flooding

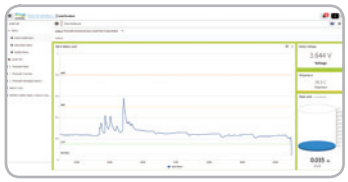
Bollards are buried to a depth of 500mm in porous drainage gravel and secured with concrete in such a way that water can still freely enter and drain. The bollard stands approximately one metre above ground level.

Alarm levels, email and SMS warnings

Following a flood risk and ground condition survey, alarm levels are pre-set and calibrated for each installation. Each time an alarm level threshold is breached, users will receive email and SMS warnings of rising water levels.

Web portal

The web portal is available via any web browser, providing realtime water level data, historical water level data and battery life.



Variable sampling

From rest-mode, when the water level in the bollard breaches the first pre-set threshold, the sensor sends an alert and goes into high-vigilance mode, sending more frequent readings. This continues until the water level drops to 10cm below the low alert threshold.

Additional features

As an optional extra, the FloodAlert Bollard sensor can be enabled to measure internal temperature, internal relative humidity and atmospheric pressure through a breathable IP67 membrane.

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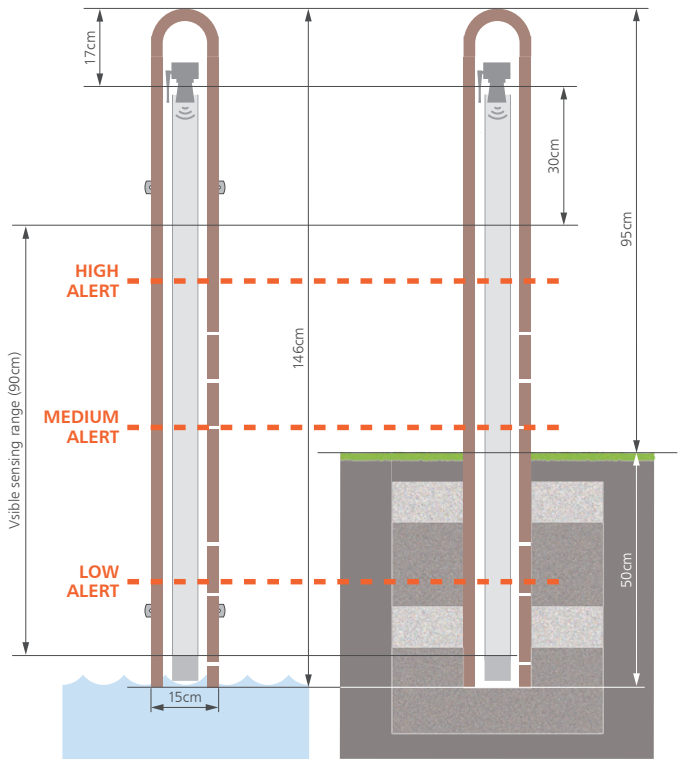

Alert levels are calibrated and pre-set for each individual installation, alert levels indicated above are examples only.

TECHNICAL INFORMATION

LoRaWAN® Sensor

- Operating temperature: -20°C to +50°C (-4°F to +122°F)
- Humidity range: 15% - 95% RH
- Altitude range: <2Km (<6,000') above sea level
- Radio standard: Supports LoRaWAN® 1.0.3 compliant 868MHz bands
- Frequency: EU 863-870MHz band
- Output power: Up to +3dBi with external antenna
- Gauge type: Ultrasonic
- Ultrasonic range: >30cm to 120cm
- Ultrasonic signal diversion: 50°
- Ultrasonic resolution: ±1cm
- Accuracy: ±2%
- Battery type: 1 x 3.6V Li-SOCl2 Size AA
- Expected battery life: Typically one year from activation

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