



# **DYWIDAG Smart Guard - Rapid event detection system for infrastructure safety**

# Next-level event detection built for infrastructure.

**Smarter, faster, built for rail and infrastructure. DYWIDAG Smart Guard delivers instant alerts with visual confirmation to help you act before infrastructure issues escalate.**

In today's fast-paced and unpredictable world, ensuring infrastructure stability and integrity is more critical than ever. Traditional monitoring methods often miss early warning signs, resulting in costly disruptions, safety incidents, and service delays. The increasing impact of climate change, extreme weather, and intense construction activity only heightens this risk.

The DYWIDAG Smart Guard event detection system, developed with our business partner Worldsensing, is engineered to meet these challenges head-on. Designed for asset owners, engineers, and monitoring specialists, it combines high precision wireless tilt sensors, near real-time high quality camera imagery, LoRa Gateways, and our Infrastructure Intelligence platform to detect and verify events in less than 5 seconds in optimal conditions. This isn't just monitoring - it's immediate insight and visual confirmation when it matters most.

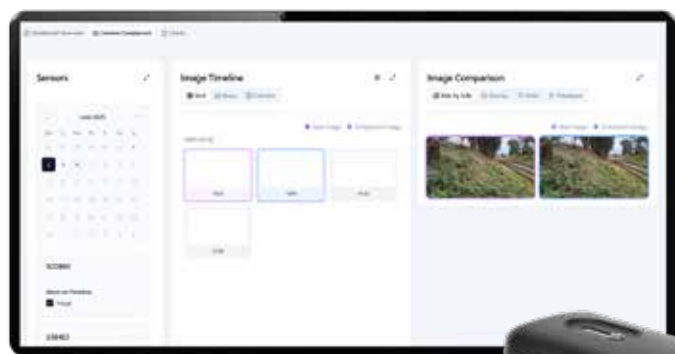
What sets DYWIDAG Smart Guard apart is its advanced event detection system - a significant leap beyond traditional tilt monitoring. Where other systems rely on periodic checks, Smart Guard continuously samples for anomalies and sends alerts the moment thresholds are breached. This ultra-fast, real-time response is critical for rapid decision-making in high-risk environments.

Whether managing a single asset or a wide-area network, Smart Guard's ultra-low latency communication, long battery life, and seamless integration with our Infrastructure Intelligence platform offer a uniquely scalable, proactive solution that allows additional assets within the communications range of the logger to be subsequently added.



## Key Features

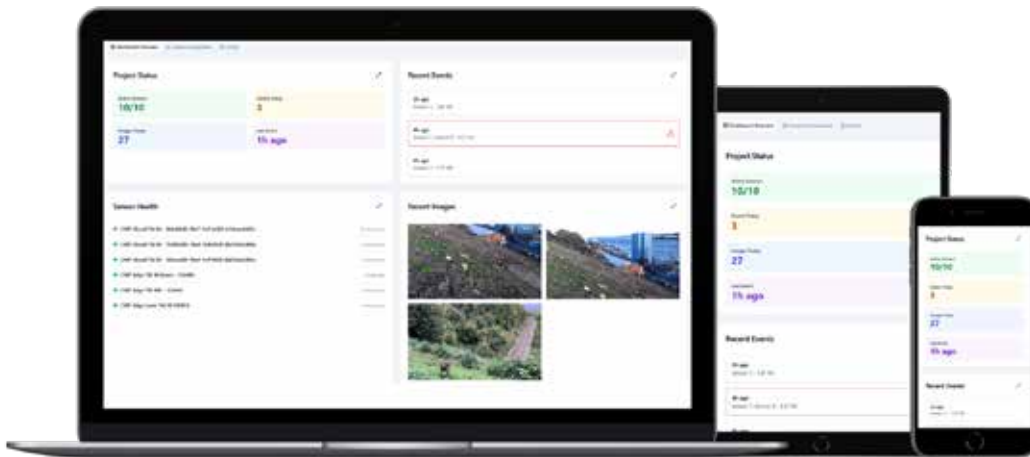
- Wireless tilt monitoring and cameras with near real-time alerts.
- Rapid image capture to confirm critical infrastructure movement.
- Displacement event detection.
- Easy deployment on embankments and cuttings.
- Quick installation, minimal maintenance, long battery life (3.2 years).
- Configurable data sampling intervals.
- Network Rail approved (PA05/07270), IP68 tilt sensors and IP67 cameras.
- Integrated with DYWIDAG's Infrastructure Intelligence platform.
- Fully wireless system with LoRa and 4G communication.
- LoRa Gateways (up to 6km from gateway).
- Scalable for large and distributed monitoring networks.



ADVANCED CAMERA COMPARISON USER INTERFACE



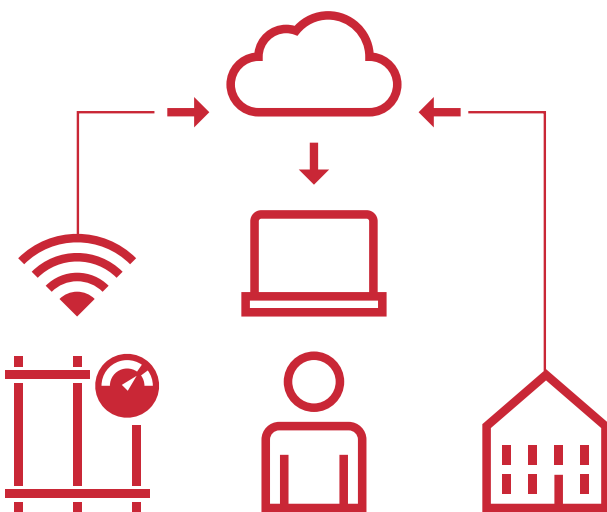
# Smarter decision-making with real-time intelligence.



INSTANT AWARENESS WITH SIDE-BY-SIDE EVENT VISUALISATION

At the heart of the DYWIDAG Smart Guard event detection system is Infrastructure Intelligence - DYWIDAG's cloud-based platform for data acquisition, alerting and visualisation. Infrastructure Intelligence brings together tilt data, event triggers, and near real-time camera imagery within a never been seen before dedicated user interface, allowing comparative manipulation of before and after images to deliver situational awareness in seconds.

In asset management, this means early intervention, confident decision-making and ultimately, reduced downtime all whilst taking boots off the ground.



## Key benefits of Infrastructure Intelligence

- Secure cloud storage and access.
- Multi-user dashboards with project and asset views.
- Visualise tilt data and event images in real time.
- Advanced tools to facilitate image comparison including image overlay, side-by-side and timeline animation.
- Custom alerts and automated reporting.
- Near real-time alerts delivered via SMS and email.
- Interactive dashboards and visual timelines.
- Compare event images with historical baseline for quick analysis.
- Map-based visualisation of all monitored assets.
- Custom threshold settings for specific rail locations or components.
- Supports remote camera triggering for on-demand snapshots.

## DYWIDAG Technical Specification

<b>TILT RANGE</b>	±90°
<b>REPEATABILITY</b>	Normal mode = <0.0003° Alert mode = <0.001°
<b>TILT ACCURACY (±4°)</b>	±0.005
<b>TILT EVENT LATENCY</b>	Less than 5 seconds in optimal conditions
<b>SENSOR TYPE</b>	Tilt calculation from 3-axis MEMS accelerometer
<b>SAMPLING RATE</b>	3.9Hz / 0.25 seconds
<b>REPORTING FREQUENCY</b>	Immediate on event detection. Configurable (5 minutes to 24 hours)
<b>CONNECTIVITY</b>	Sensor connectivity - LoRa up to 6km, Gateway connectivity - Wireless sim card or wired
<b>CAMERA CAPTURE</b>	Triggered by tilt or manual
<b>CAMERA RESOLUTION</b>	1920 x 1080p - Colour (day), B&W with IR (night)
<b>CAMERA GATEWAY</b>	Up to 3 cameras per gateway
<b>POWER</b>	Sensors - 3.2years estimated, Gateways incl camera - mains or solar battery system
<b>ENCLOSURE</b>	Tilt IP68, UV-resistant / Camera IP67
<b>OPERATING TEMPERATURE</b>	Tilt -40°C to +80°C, Camera -40°C to +85°C
<b>MOUNTING</b>	Pole mounted
<b>INTEGRATION</b>	Infrastructure Intelligence and 3rd party platforms
<b>DIMENSIONS</b>	103 mm x 100 mm x 61 mm (Tilt)
<b>WEIGHT</b>	390g (Tilt) excl batteries
<b>SYSTEM ALERTS</b>	SMS, email, dashboard notifications via Infrastructure Intelligence
<b>CERTIFICATION</b>	CE, UK CA, FCC, PA05/07270
<b>MANUFACTURING</b>	UK and EU production

DYWIDAG Ltd  
Datum House  
The Pavilions  
Bridge Hall Lane  
Bury  
Lancashire  
BL9 7NX

Copyright 2025 DYWIDAG. All rights reserved.  
Specifications subject to change without notice.

04523-1-UK-Smart Guard Product Guide-05/2025