



RADIX BASE STATIONS

Smart, secure and sustainable off-grid communications masts

Connecting rural communities and streamlining
farming operations with Relay Wireless Broadband and
LoRaWAN technologies.



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DESIGNED BY ENGINEERS
BUILT ON EXPERIENCE



INTRODUCTION

A connected future

At RADIX, we have collaborated with a number of our partners to develop Base Stations, a range of intelligent communications masts capable of connecting even the most rural communities and streamlining farming operations across the UK.

RADIX Base Stations can be deployed anywhere, from retrofitting a network's devices to existing structures in urban settings to installing an entire off-grid network on our professional ground screw foundations in the most rural locations.

As well as the capabilities to provide wireless broadband to businesses and homes, Base Station Networks can be set up to monitor and manage an infinite number of applications and tasks or provide the base to off-grid lighting and security systems.

Connecting rural communities and helping farmers save time and work more efficiently.

RELAY WIRELESS BROADBAND

Connecting rural communities

Relay Base Stations can provide a strong and secure broadband connection to businesses and homes in even the most rural locations.

As Relay Base Stations can provide a like-for-like signal strength from its originating source, you could receive superfast broadband to perform all varieties of online activities:

- Browse the internet
- Work remotely from home
- Stream TV shows and films
- Check email and social media
- Video call family and friends
- And much more...

**Fast and secure broadband,
no matter where you live**





How relay broadband works

Identical to satellite technology bouncing signals around our planet, Relay Base Stations work on the principle of bouncing a source signal to target locations using a series of long-range receivers and transceivers.

Once a broadband source is identified, plans are drawn to connect the locations via the most direct route. In rural locations, it is often impossible to create a linear path due to peaks and valleys or forestry areas. In such instances, signals are routed via Relay Base Stations, which can be installed in off-grid locations without damage to any land, and positioned in the ideal place for sending the signal to the target location.

The Relay Base Station can pick up and send a signal over 5 km in a single 'bounce'. This process can be repeated with minimal loss of signal strength, meaning that a cottage located at the end of a remote glen could receive a strong, secure connection.

**Connecting businesses and homes,
across remote and rural locations**

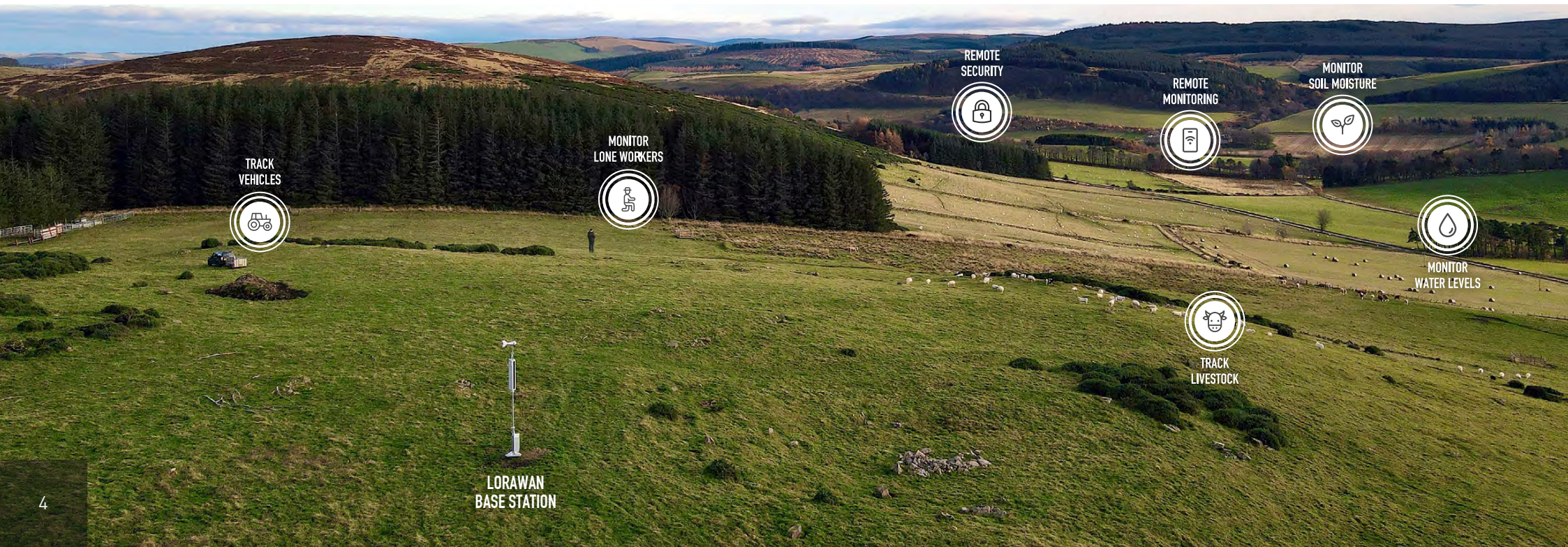
LORAWAN SMART FARMING

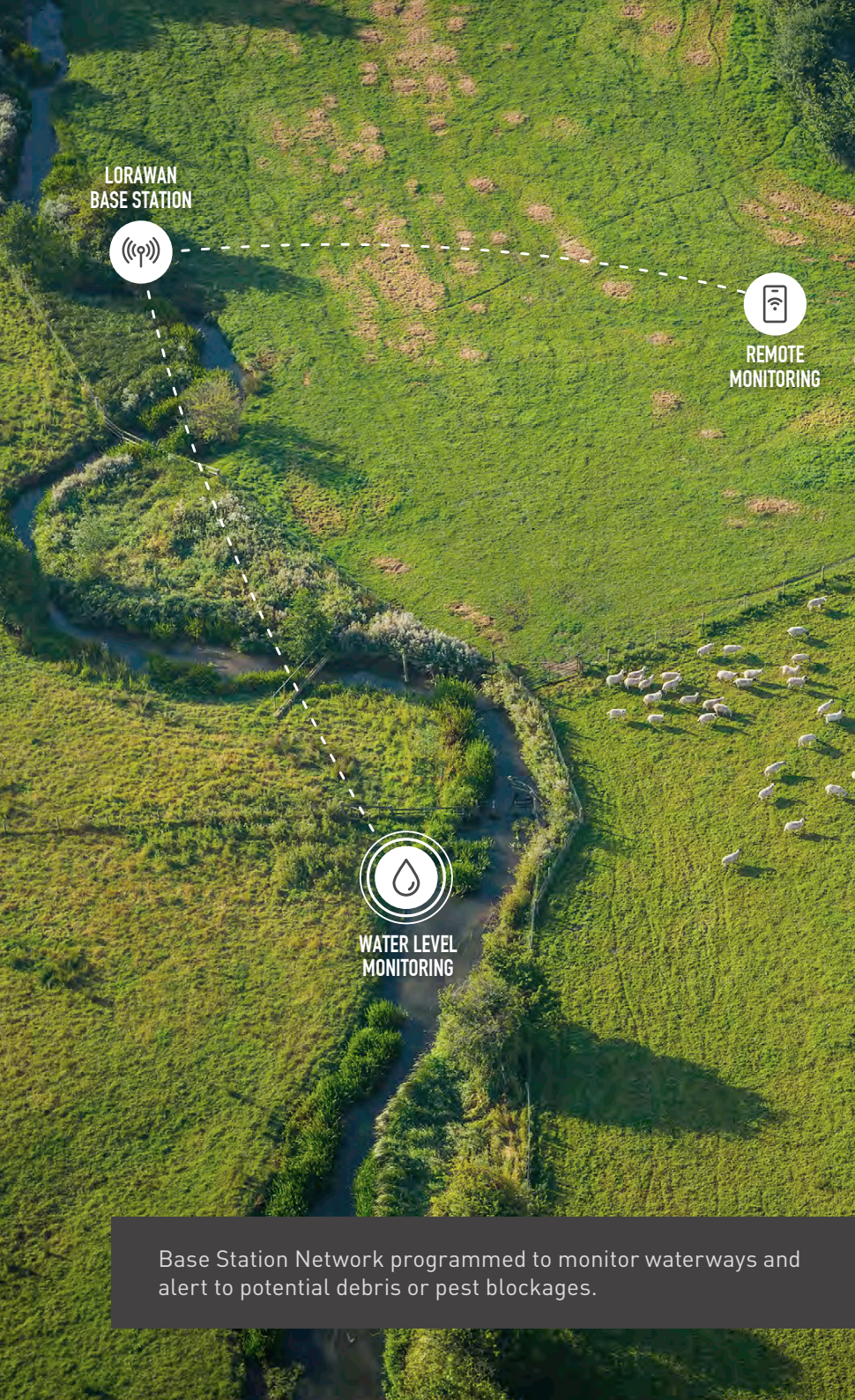
Streamlining operations

LoRaWAN Base Stations create a private and secure long-range, low-power network across your entire estate and properties which can be set up to manage infinite tasks using smart sensor technology. Working with SmartRural, we will design your network to meet the demand of your operations. Monitor soil conditions, water levels, moisture content, temperature, and more; track all assets, livestock, and personnel; manage everything effectively and remotely; streamline your business with automated data processing.

Powered by solar and wind and installed on our sustainable ground screw foundation system, Base Stations can be located even in the most hard-to-access areas, ensuring you have 100% coverage across your entire network.

Base Stations can be installed rapidly in off-grid areas without damaging the environment or disrupting your operations.





LORAWAN
BASE STATION



REMOTE
MONITORING



WATER LEVEL
MONITORING

Base Station Network programmed to monitor waterways and alert to potential debris or pest blockages.

Monitoring made easy

Base Stations take away the guesswork, presenting you with live, empirical data from across your entire network.

Connect any number of smart devices and receive automated alerts or scheduled reports to support you in monitoring your operations more effectively.

Set up your Base Station Network to monitor:

- Agronomy/soil
- Audio
- Battery charge
- Carbon dioxide
- Moisture
- Motion
- Pest control traps
- Power usage
- Temperature
- Water flow/levels
- Water quality
- Weather

As well as our standard monitoring devices, we can work with our partners at SmartRural to design and develop devices for specialist applications and tasks.

Track assets in realtime

Base Stations make it quick and easy to find out exactly where your assets and resources are at all times.

Track livestock, personnel, vehicles and more, locating their position on request or programming your network to alert you to any asset crossing a geofence.

Set up your Base Stations Network to track:

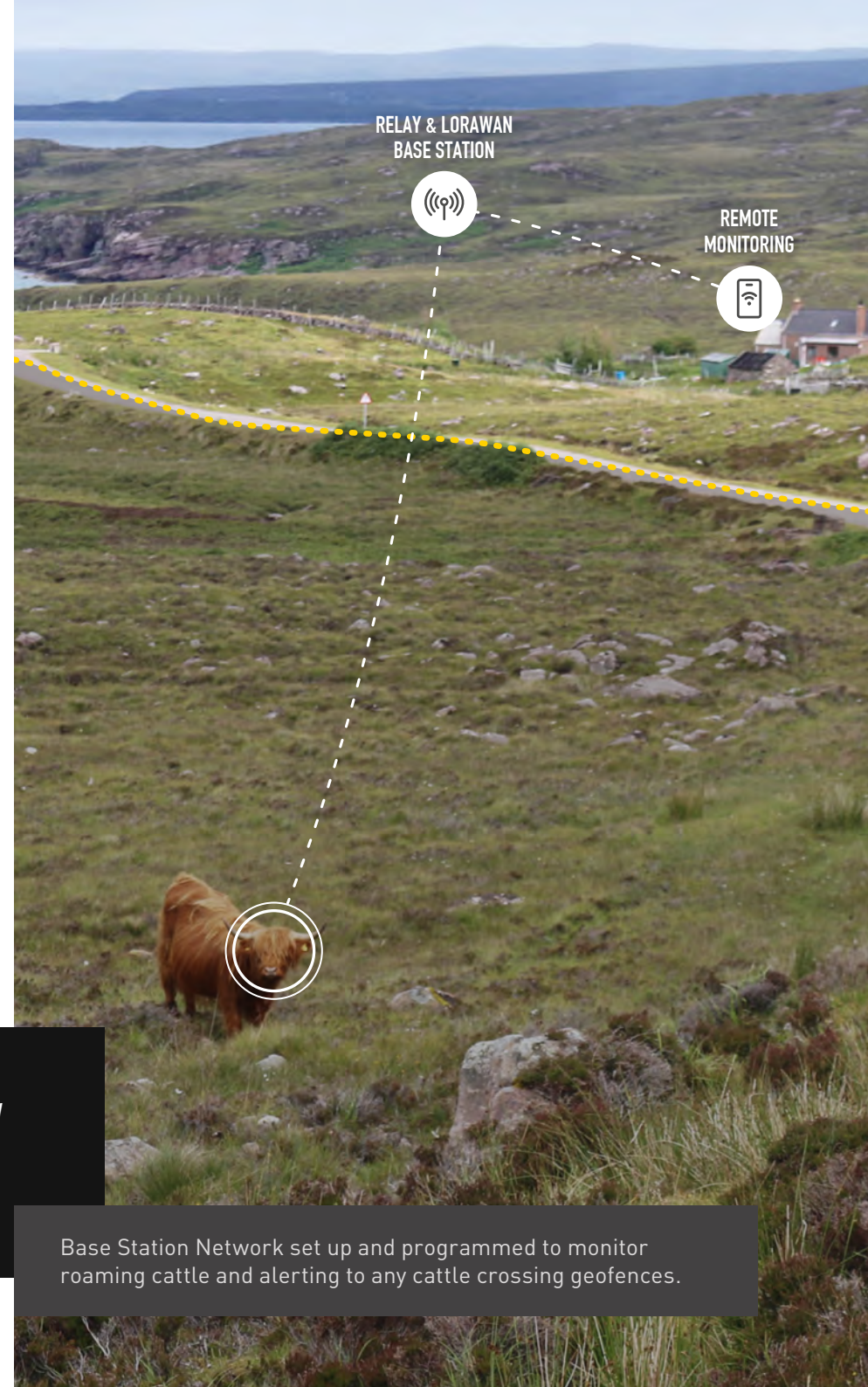
- Animals and livestock
- Machinery
- Personnel
- Vehicles

Bespoke tracking devices can be developed for specific applications and tasks.



The sensor technology has made gathering data so much simpler. It's improving efficiency and helping us take the business towards net zero.

– Neil, Incheoch Farm



Base Station Network set up and programmed to monitor roaming cattle and alerting to any cattle crossing geofences.



Manage operations remotely

Quickly and accurately monitor what is happening across your business in real-time, anywhere in the world.

The smart devices you can connect across your Base Station Network are limitless, each opening up a world of opportunity for monitoring, tracking and managing your assets and operations. Our specialist engineers and technicians will work collaboratively with you to identify your specific business and operational needs.

Each connected device communicates via one secure server – the command centre to your Base Station Network. Start running your operations from anywhere in the world, connecting remotely to your network on a laptop, tablet or phone.

Run your operations securely

from anywhere in the world

You can securely access your Base Station Network remotely across your estate, or from anywhere in the world.

UTILITY STATION

Infinite applications

Base Stations are being deployed with an expanding array of devices to serve an infinite number of applications and sectors across the world.

Engineered to retrofit existing structures or deployed in off-grid areas on ground screw foundations, Base Stations are quickly deployable, readily scalable and easily maintained, all without damage to the environment.

Powered through AC or onboard solar panels and wind turbines, Base Stations can be installed to serve urban and rural areas sustainably, making communities more connected, streamlining business operations, and offering a new way to provide communications and services across all areas.

- Communication masts
- CCTV security
- LED Lighting
- Media and event displays
- Private LAN or WAN
- Roadside signage

The applications are limitless.



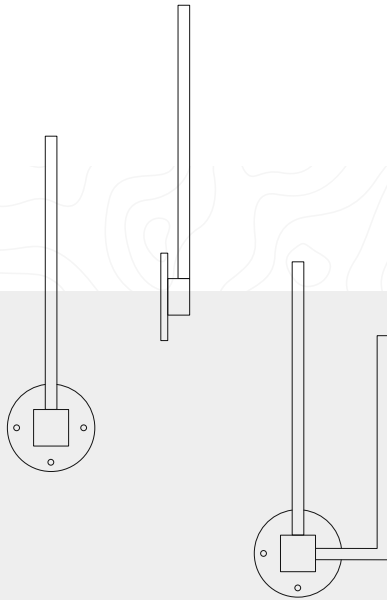
Expanding a Base Station Network to cover a radius of 45Km across an estate with an Off-grid Single Mast Base Station.

DEPLOYMENT VERSATILITY

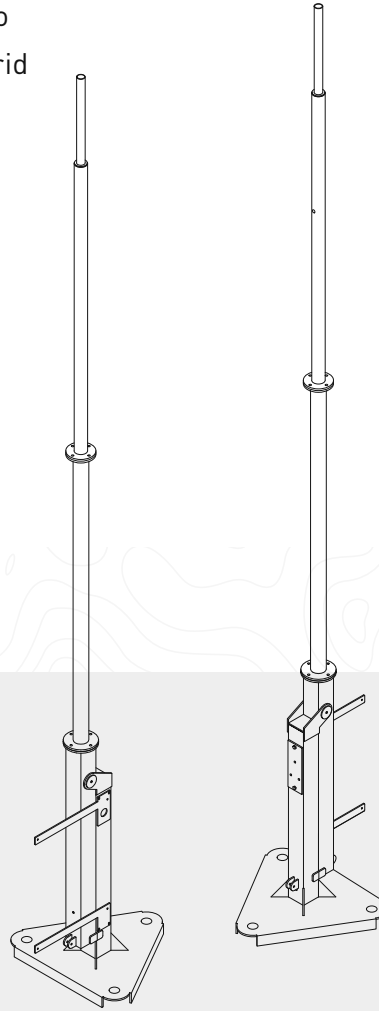
Rural and urban services

Base Stations are engineered to deliver services across urban and rural environments with their ability to retrofit devices to existing buildings and structures or mounting them on off-grid masts deployed on ground screw foundations.

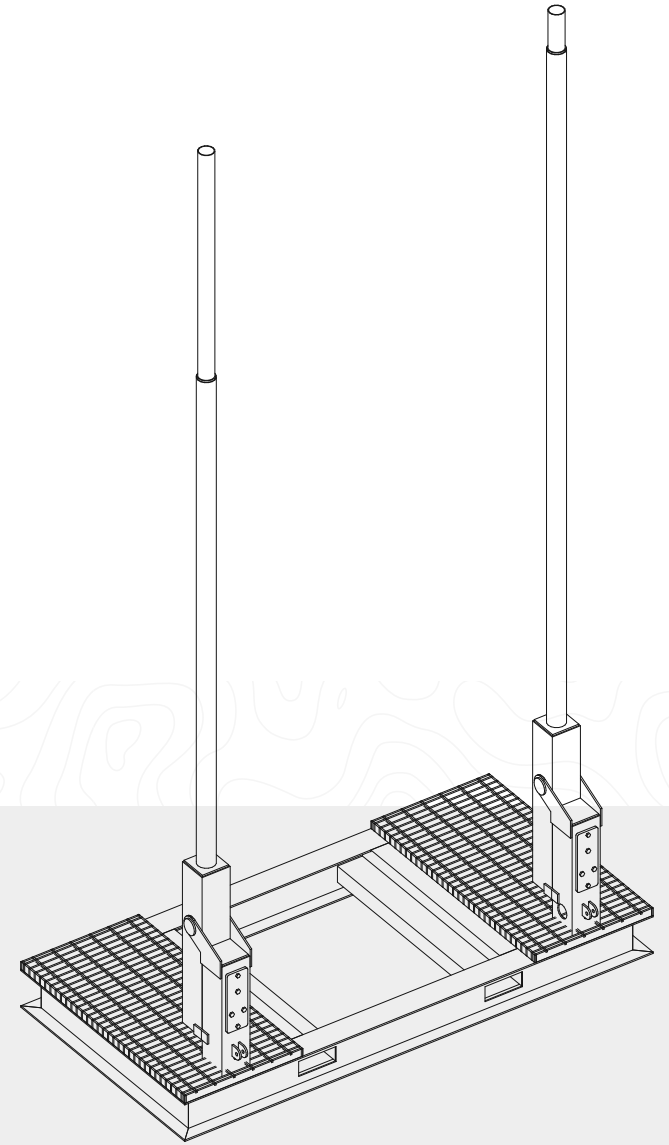
Depending on project requirements, Base Stations can be powered by AC or onboard solar panels and wind turbines.



Retrofit Mast



Off-grid Single Mast



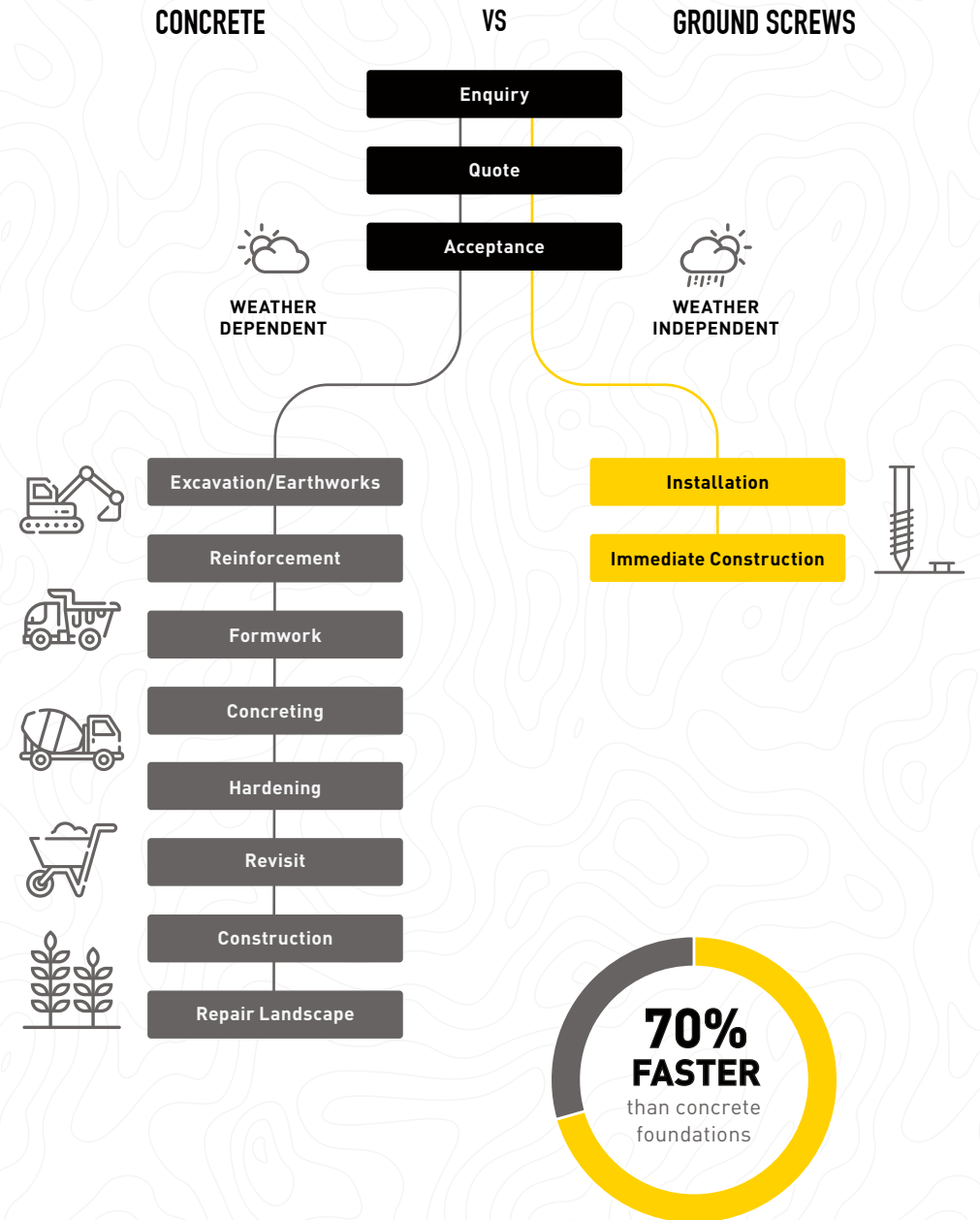
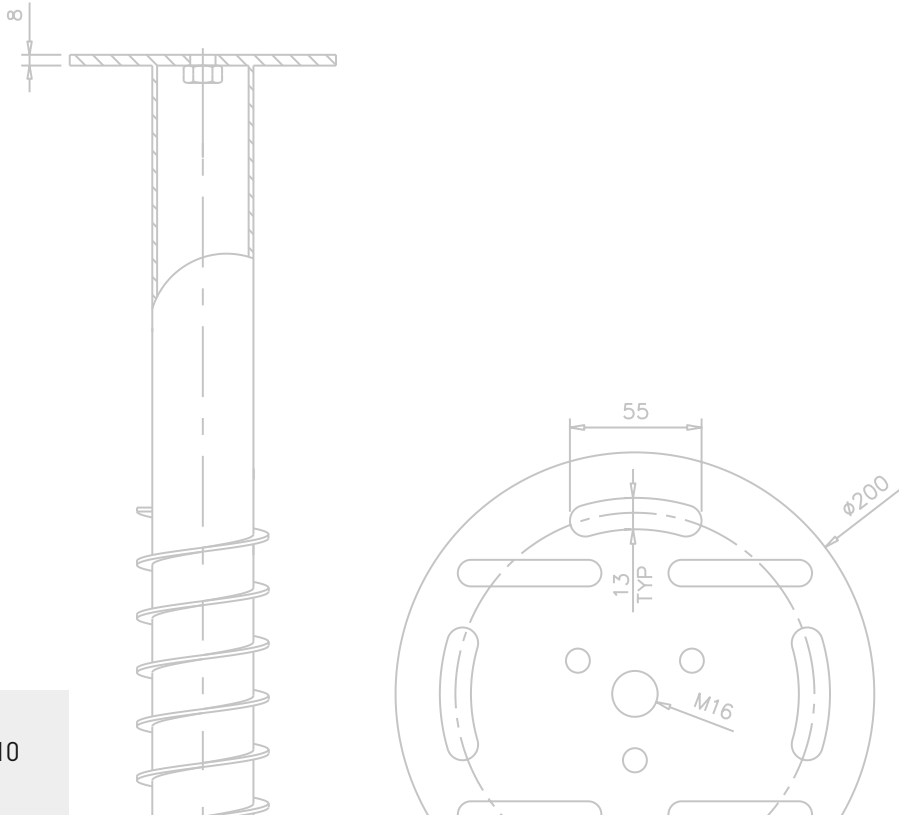
Off-grid Double Mast

Deploy on strong, sustainable foundations

We install Base Stations in remote and off-grid locations on our innovative ground screw foundations, the environmentally-friendly alternative to traditional concrete bases.

Without the need for heavy machinery, ground screws can be transported across hard-to-access areas and deployed on sloping, uneven ground without digging and damaging the landscape.

Unlike concrete, ground screws can be deployed any time of the year, in any weather, and are ready to build on immediately, meaning minimal disruption to your business operations.





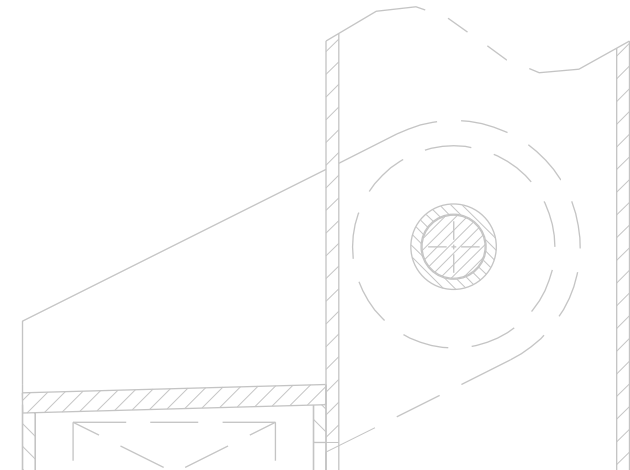
DESIGN, DEPLOYMENT & SUPPORT

A reliable turnkey service

We work collaboratively with our trusted partners to deliver a complete end-to-end service that you can rely on.

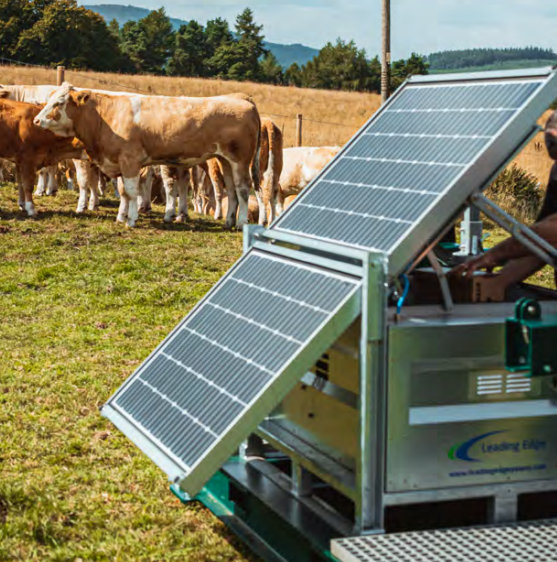
Our team of engineers and technicians will work with you to fully understand your business and its operations and define your Base Station requirements before working on a robust plan.

From the design of your Base Station to its assembly, deployment, and any ongoing maintenance, we're with you every step of the way.



It's been very important having SmartRural there to support us in putting these sensors in place. They've got a lot of experience and helped us overcome the barriers of getting them implemented and set up.

– Elaine, Ednie Farms



Consultation and design

During our project scoping session and site surveys, we will gain a complete understanding of your business, outlining any pain points you frequently experience and what you require from your Base Stations network.

Detailed in a bespoke deployment plan and specification, our team of specialist engineers and technicians will get to work designing your Base Stations network, ensuring complete coverage across your estates and properties, and outlining the devices required to support your everyday tasks seamlessly.

Build and deployment

With your specification agreed, we build each Base Station in our state-of-the-art facilities, with each device and powering module connected and fully tested, ready to be delivered and installed. Following the deployment plan for your project, Base Stations are installed rapidly on ground screw foundations, with minimal damage to the environment or disruption to your business.

We can provide gateway setup and onboarding to TTI instance, leaving you in charge of a fully configured and tested network – that is ready to get to work.

Maintenance and support

Base Stations are engineered to be easily installed and maintained, with their innovative hinge and winch system and secure remote access.

We can provide 4G Roaming Sim Service and complete monitoring of your gateway and network, charged per gateway per month or as an annual package for convenience.

Support and maintenance include remote VPN access, performance monitoring, alerting and OTA software updates.

PARTNERS

Our collaborative approach to innovation

RADIX is the UK's leading innovator and manufacturer that you can trust to deliver the most efficient, sustainable solutions.

Base Stations is our latest innovation.

Working collaboratively with our partners, we first developed Base Stations for the agricultural sector to make it possible to monitor, track and manage assets and livestock effectively.

We combine our groundbreaking foundation systems with IOT technologies to create secure Long Range Wide Area Networks (LoRaWAN) that can be installed anywhere and set up for an infinite number of applications and tasks.

In arable farming, for example, your Base Station could monitor soil conditions and moisture levels and automate irrigation.

The opportunities to streamline and automate operations are endless, with a system that can scale with your business.

- Easy to install and scale
- Economical with low running costs
- Increase efficiency in monitoring and tracking
- Automate processing data and reduce paperwork
- Manage operations on-site and remotely
- Securely encrypted communications
- Helping to connect rural areas

Rapid deployment in hard-to-access and off-grid areas, any time of the year and in any weather, is achieved using our range of professional ground screw foundations.

Building a better future together on the right foundations.

As the UK's largest stockist, supplier and installer of screw pile foundations, we are ready to support you.

- Industry-leading screw pile foundations
- Installation machines and testing equipment
- Robust solar racking systems
- Bespoke base system design and manufacturing
- Specialist screw pile testing and installation

Learn about our efficient and low-carbon solutions and sustainability goals at radixgroup.co.uk/sustainability



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