

Factsheet: On-Farm Connectivity



On-Farm Connectivity Equipment: An Essential Guide

Enhancing on-farm connectivity requires a suite of equipment designed to ensure robust and reliable communication and data transfer. Below, we delve into the purpose of each piece of equipment and its role in agricultural operations.

Antennas

Purpose: Antennas are crucial for capturing and sending out radio frequency signals. They can significantly improve the range and quality of wireless communications by providing a physical medium through which signals are transmitted and received.

Types and Applications:

- Omni-directional: Broadcast and receive signals in all horizontal directions; ideal for general coverage.
- Directional (Yagi, Parabolic): Concentrate signal in a specific direction, which is perfect for point-to-point connections over long distances.

Practical uses on Farm:

- Extending wireless connectivity range to reach all corners of the farm.
- Connecting with farm equipment and sensors for real-time data transfer.
- Use in vehicles and other mobile plant.

Beacons

Purpose: Beacons are small transmitters that use low-energy Bluetooth technology to send out signals to nearby smart devices. They are primarily used for location-based services, transmitting simple pieces of information like notifications or alerts.

Practical Uses on Farms:

- Monitoring livestock locations.
- Managing asset locations and environmental conditions in real-time.

Radio Transmitters

Purpose: These devices convert information into radio waves and transmit it across distances. They are essential for wireless communication where conventional infrastructure is not available or practical.

Practical Uses on Farms:

- Controlling irrigation systems remotely.
- Communicating with workers across expansive and remote farm areas.





Boosters and Repeaters

Purpose:

- **Boosters:** Enhance the strength of incoming and outgoing signals.
- **Repeaters:** Extend the coverage of a wireless network by receiving and retransmitting signals.

Practical Uses on Farms:

- Maintaining strong mobile signals across all farm areas for consistent communication.
- Extending Wi-Fi networks to outbuildings or remote fields.

Gateways and Routers

- **Gateways:** Act as the intermediary between different networks, allowing them to communicate with each other. In an agricultural context, they often serve as the main point for aggregating data from various sensors and transferring it to the internet.
- **Routers:** Direct data traffic within a network, effectively managing connectivity among multiple devices.

Practical Uses on Farms:

- Gateways can collect and forward data from soil sensors to a central management system.
- Routers enable multiple devices, such as laptops, smartphones, and tablets, to use the same internet connection.

Portable Hotspots

Purpose: Portable hotspots offer on-demand Wi-Fi network access by connecting to cellular networks and creating a private, local wireless network.

Practical Uses on Farms:

- Providing internet access to field workers in areas lacking fixed wireless infrastructure.
- Back-up internet connectivity during outages or in the field.

Installation Tips for Optimal Performance:

- Conduct a site survey to determine the best locations for equipment installation.
- Consider the need for weatherproofing, especially for outdoor equipment.
- Engage with a professional installer if complex setup is required, particularly when aligning directional antennas.





Ongoing Maintenance:

- Clean equipment regularly to avoid dust and debris buildup, which can impede performance.
- Monitor signal strength and bandwidth usage to troubleshoot issues proactively.

For detailed setup guides, troubleshooting tips, or to schedule an on-site consultation, please contact our technical support team at Regional Tech Hub on 1300 081 029 or visit our website at www.regionaltechhub.org.au.

About the Regional Tech Hub

The Regional Tech Hub (RTH) is an Australian Government initiative run by the National Farmers' Federation. Since late 2020, we have helped more than 160,000 people across rural, regional and remote Australia to get connected and stay connected to internet and voice services.

The RTH is proud to work alongside the Australian Government to offer free and independent advice to farmers, fishers and foresters, on their connectivity options as part of the Government's new On-Farm Connectivity Program.

