

On-farm remote water monitoring systems

Remote water monitoring systems are an expanding market in Australian agriculture. Deciding on which system to invest in can be overwhelming, and understanding the basics can make the process easier. Check out the why, what and how.

Why use a remote water monitoring system?

Sustainable water management, meaning efficient and maintainable over the long-term, is crucial in the drying South Australian climate.

Remote water monitoring systems allow landholders to monitor their water resources whether they are on or off the farm and provide a cost-effective alternative to the "water run". They can facilitate early intervention on problems like leaks, blockages, or faulty equipment, preventing water and production losses.

Local trials in the Barossa Valley found that remote water monitoring systems saved time and money primarily through reduced labor costs. Participants also reported reduced stress and anxiety around water levels and supply.

Find the case study online at: https://sadroughthub.com.au/wp-content/uploads/2025/03/SADH-Case-Study-02_water-security_FA_online.pdf

What can water monitoring technology do?

There are five main categories of water monitoring technology.

Within these categories, technologies range from basic telemetry monitoring (automated data collection sent to you) to fully automated systems.

Water flow

Meters which measure water movement through pipelines. These are used to identify pipeline leaks, blockages, inadequate flow rate, or changes to irrigation performance.

Water level

Meters and sensors which measure water levels in tanks, troughs, bores and dams. These can detect changes to water availability before you might notice, and reduce time spent checking water sources.

Water pressure

Sensors which monitor and detect changes to pipeline pressure. These can help identify leaks, blockages, pump issues, pipeline damage, and/or the need for maintenance checks.

Pump performance

Systems which monitor pumps for faults or abnormal conditions. These may monitor starting and stopping, operating pressure, power supply and faults.

Irrigation monitors

Systems which monitor irrigation water usage. These may be used to detect abnormalities or faults, soil moisture levels, and may be used to remotely control irrigation operations.

How do I install a remote water sensing system on my property?

Step 1: Work out your wants and needs.

Some questions to help guide this decision include:

- Which part of your watering system do you spend most of your time checking?
- Which part of your watering system is most likely to experience or cause a fault?
- Which part of the system worries you the most?
- How many monitoring sites do you want to establish?
- Do you want a simple monitoring system, or a complex automated management system?
- How much are you willing to spend?

Step 2: Match your needs to what you have.

Remote water sensing equipment and systems require power and connectivity. What you want, where you are located and your budget will influence the specific system which will best suit you.

Equipment is generally powered by battery or solar power (with a backup battery), though can be powered by mains power or by existing pump/control infrastructure. Think about what your devices would be monitoring and where they would be located.

Data can be transmitted by radio, mobile networks, satellite, Wi-Fi, or a combination of methods. Your property's location will likely dictate which option is available to you. Generally a 3G connection is adequate and in areas with no mobile coverage, satellite, LoRaWAN and Cat-M1 connections can be used.

The National Farmers Federation's *On-Farm Connectivity Guide* is a good starting place to understand different types of connectivity and associated terminologies (e.g. Cloud, gateway, gigabit, LoRaWAN, node and P2P, etc.). You can access the guide here: https://nff.org.au/wp-content/uploads/2022/11/On-Farm_Connectivity_Guide_FINAL_Nov22.pdf

Connected Farms have a series of mini guides explaining different types of connectivity for autonomous and precision agriculture (Wi-Fi, LoRaWAN, Private LTE (4G & 5G).

You can access the guides here: https://www.connectedfarms.co/on-farm-connectivity-guides

Step 3. Find a provider who works for you.

The following table is a comparative list of water monitoring companies/technologies sourced from PIRSA.

Company/technology	Connectivity	Cost (ex. GST)	Ongoing subscription costs (ex. GST)
Agbot *Liquid monitoring*	3G/4G, satellite	$1,490 (tank monitor) $250 (leak detection unit)	$250 p.a. for initial device or $200 per year for multiple devices
Alpha Group Consulting *Tank level monitor and leak detection unit*	3G/4G, satellite	$1,490 (tank monitor) $250 (leak detection unit)	$250 p.a. for initial device or $200 per year for multiple devices
Farmbot *Tank level monitor*	3G/4G, satellite	$1,209	$342 p.a.
Farmo, Water Rat *Trough level monitor*	3G/4G	$599	$135 p.a.
Goanna Ag, Go Tank *Trough level monitor*	Satellite, LoRaWAN	$1,150	$109 p.a.
OneTemp *HOBO – remote tank water level kit*	3G/4G	$3,892	$138 - $418 p.a.*

You may also like to speak with your local retailer, consultant or agronomist for advice on who to approach and source quotes from the ones who interest you.

Here is the full comparison including installation, power source, communication and ROI information: https://pir.sa.gov.au/__data/assets/pdf_file/0009/440559/water-monitoring-comparison.pdf

We're here to help

Not sure where to start or who to talk to? Get in touch with your local Landscape Board. We can assist you to find the right connections.

Contact us

LANDSCAPE SOUTH AUSTRALIA NORTHERN AND YORKE

Northern and Yorke Landscape Board

Email: ny.landscapeboard@sa.gov.au
Phone: 08 8841 3444

www.landscape.sa.gov.au/ny

This fact sheet is funded by the South Australian Drought Hub through the Australian Government's Future Drought Fund.

SOUTH AUSTRALIAN DROUGHT RESILIENCE ADOPTION & INNOVATION HUB

This program received funding from the Australian Government's Future Drought Fund

Australian Government Department of Agriculture, Fisheries and Forestry | Future Drought Fund | SA DROUGHT HUB