

DUST SUPPRESSION CANNON CONTROL SOLUTION

Features & Benefits



Comply with site regulations
and avoid breach notifications.



Flexible & Wireless

Reduce deployment & maintenance cost of wired control infrastructure.



Save time & money

Schedule more efficiently and reduce unnecessary water use.

Control dust suppression remotely

Program each dust suppression cannon directly from your mobile device or laptop and make changes whenever and wherever you need to.



Easy to use

Easily create and manage your dust suppression programs and make changes as site conditions change. Dynamically respond to weather and operational needs.

Predictive maintenance

Respond proactively to system issues and target maintenance with your system.



Long-range coverage

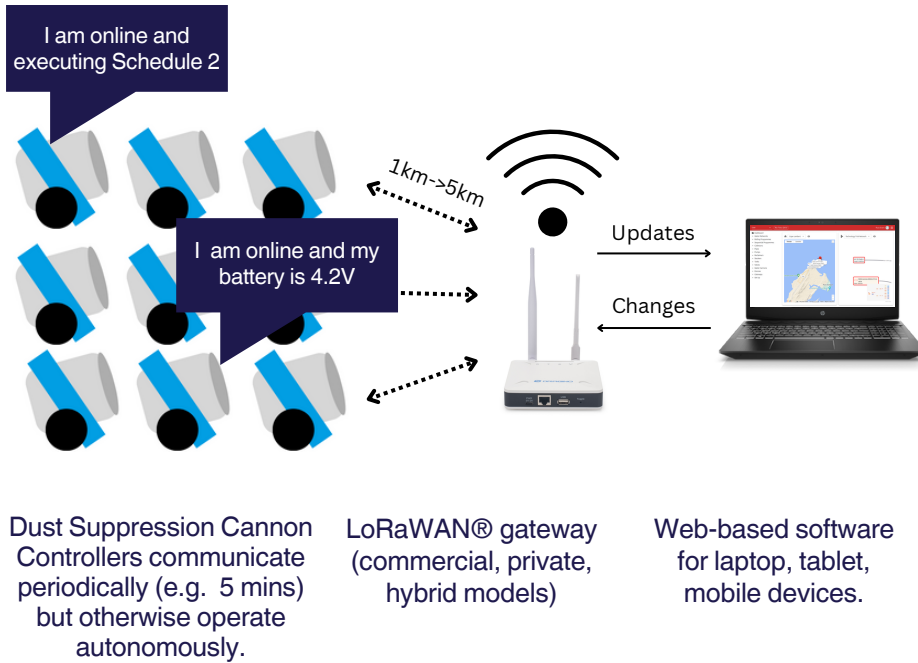
5km line of sight. Perfect for small and large sites. Utilising LoRaWAN® communication means cellphone coverage is not required for each device.

Long life power source

Solar powered devices will operate for >7 years before requiring a battery change.



Dust Suppression Solution Overview



A full end to end solution

Dust Suppression Control Device

- LoRaWAN® communication (Class A)
- Solar power recharge
- Provisioned and ready to install

Software Backend

- Scalable cloud solution
- Mobile and web access
- Device and programme control
- Can integrate with enterprise systems
- Extends to help manage other parts of your business

Network

- LoRaWAN® AS923/EU868/ US915
- Includes base-station (gateway) options, with Ethernet, Wi-Fi, or cellular backhaul capabilities
- Implementation assistance

Operations & Support

- A range of support packages

One integrated solution to support monitoring and management of plant.

The DustSuppression Cannon Control Solution is a stand-alone module on an extendable platform that enables you to measure, monitor, report on & control assets in your quarry, mining site, civil or industrial operation. The solution can be used to support water infrastructure, de-watering, and the control of other assets in mines, quarries, forests, ports, mills, and plants. As we expand the platform, additional modules will provide enhanced control over equipment, processes, and environmental factors.

Controller Overview

The Dust Suppression Cannon Controller is designed to control a dust suppression cannon remotely by powering a Magnetic Latch Solenoid on and off. Commands are sent using the LoRaWAN® communication protocol.

The Controller has these features:

- Maintain up to 5 Schedules, which include Start Time, Duration, Day of Week
- Supports on-demand, rolling & sequential schedules
- Range of error messages, predictive maintenance and performance reports
- Long-life battery with continuous solar charging

The Controller is configurable and reports its state and operation over the LoRaWAN® network. It is otherwise autonomous and will operate independently once enabled.



Dust Suppression Cannon Controller Overview

- Behaviour**
- A device can hold up to 5 schedules at any time (on-demand or sequential scheduling) or one rolling (cyclical) schedule
 - A Schedule is: Start time (UTC), duration (mins), sequence, gap between windows & cycles
 - Regular message updates:
 - Controller status: I am alive; My battery level is...
 - Schedule ID's currently applied
 - Operational status: cannon in operation, on standby
 - Errors/maintenance — solenoid disconnected, solenoid not fired
 - Downlink commands
 - Apply, enable, disable Program
 - Turn on now/ Turn off now (on next uplink)
 - LoRaWAN® link control e.g. message frequency
 - Is autonomous and will operate continuously without connection
 - NB - LoRaWAN® connectivity and system control speed is governed by uplink/ downlink configuration
- Enclosure**
- 100mm x 155mm x 35mm
 - IP67 tested
 - ASA plastic for UV protection
 - -30 - +60 Celsius
 - Supplied with pigtail for wiring to solenoid
- Power**
- 7- 10 years battery life
 - LiPo rechargeable with a small solar panel (battery supplied)
 - 9-24v boost circuit for solenoid (configurable)
- Frequency & Class**
- AS923/EU868/US915 (can be easily adapted for other LoRaWAN® geographies)
 - Class A device (transmit times configurable)
- Range**
- 5km 'line of sight' Base station and topography dependent



Navigating the Dust Suppression Cannon Control System



Programme Name	Start Now	Start Soon	Device Status	End Time	Stop Now
SP 3.1 (1 cycle)	Start in 4 minutes	5	Start in 5 minutes	0 / 3 disabled	Emergency Stop
SP 3.1 (2 cycle)	Start in 4 minutes	5	Start in 5 minutes	0 / 3 disabled	Emergency Stop
SP 3.1 (3 cycle)	Start in 4 minutes	5	Start in 5 minutes	0 / 3 disabled	Emergency Stop
SP 3.4 (1 cycle)	Start in 4 minutes	5	Start in 5 minutes	0 / 3 disabled	Emergency Stop

1. Dashboard

View dust suppression cannons on the map by site and group. Summary and individual views of cannon status in the selected group/site.

Activate cannons individually or in groups based on available programs.

2. Water Networks

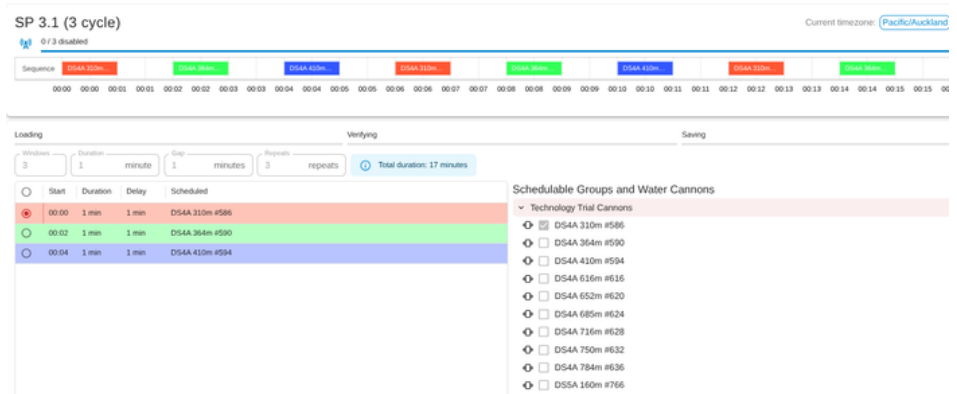
Create, view and maintain groups of cannons by sites. Groups can be created to support hydro or geographical plans.

3. Dust Suppression Cannons

View and maintain your dust suppression cannons by group and/or status, and command them individually or together.

4. Programs

Create, apply, modify or delete the control programs. The programs are applied by group (geographic or hydro). Programs can be paused and restarted.



5. Notifications

Receive error and maintenance messages in real-time. Easy field installation, testing and management via mobile phone.

The Dust Suppression Cannon Control Solution software is cloud-based and designed to work on large and tablet/mobile views. Some features are not available on mobile form factors.