

# YARDMASTER<sup>®</sup> EFFLUENT MANAGEMENT

HALO *SUPERSMART* | Effluent Monitoring & Control



REID & HARRISON  
**Yardmaster<sup>®</sup>**

ALIGHT SYSTEM  
**SUPERSMART**  
MONITORING & CONTROL  
FOR THE JOB

# Yardmaster®

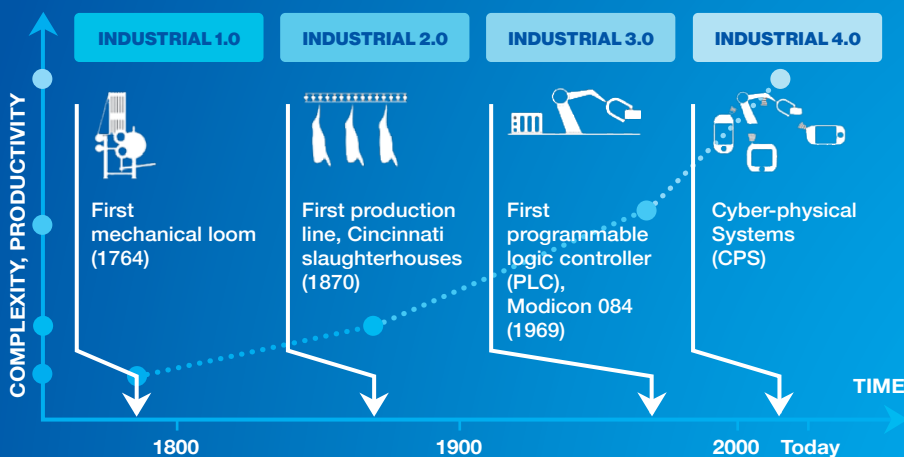
# HALO®

**SUPERSMART** | Effluent Monitoring & Control

## DID YOU KNOW WE ARE GOING THROUGH THE 4TH INDUSTRIAL REVOLUTION?

The first revolution was the development of machinery to improve on manual labour efficiency, the second to set up production lines with multiple items of machinery and the third introduced PLC technology whereby you

could programme instructions to the machinery. The 4th revolution is all about cyber space. The ability to control machinery from smart devices from anywhere and to store data in the cloud.



Tag I.T Technologies and Reid and Harrison formed a collaboration to develop the Yardmaster HALO® Supersmart system. A cloud based system that allows access to users from any connected smart device. A system that monitors and records data whether you need it or not at the time, so you have complete future access. A system that also allows you to easily change settings, parameters and timings, this is a significant development from a PLC system which are typically maintained by a third party. The cloud based technology allows the users to alter system parameters to meet the needs of your farm.

**You are in control.**



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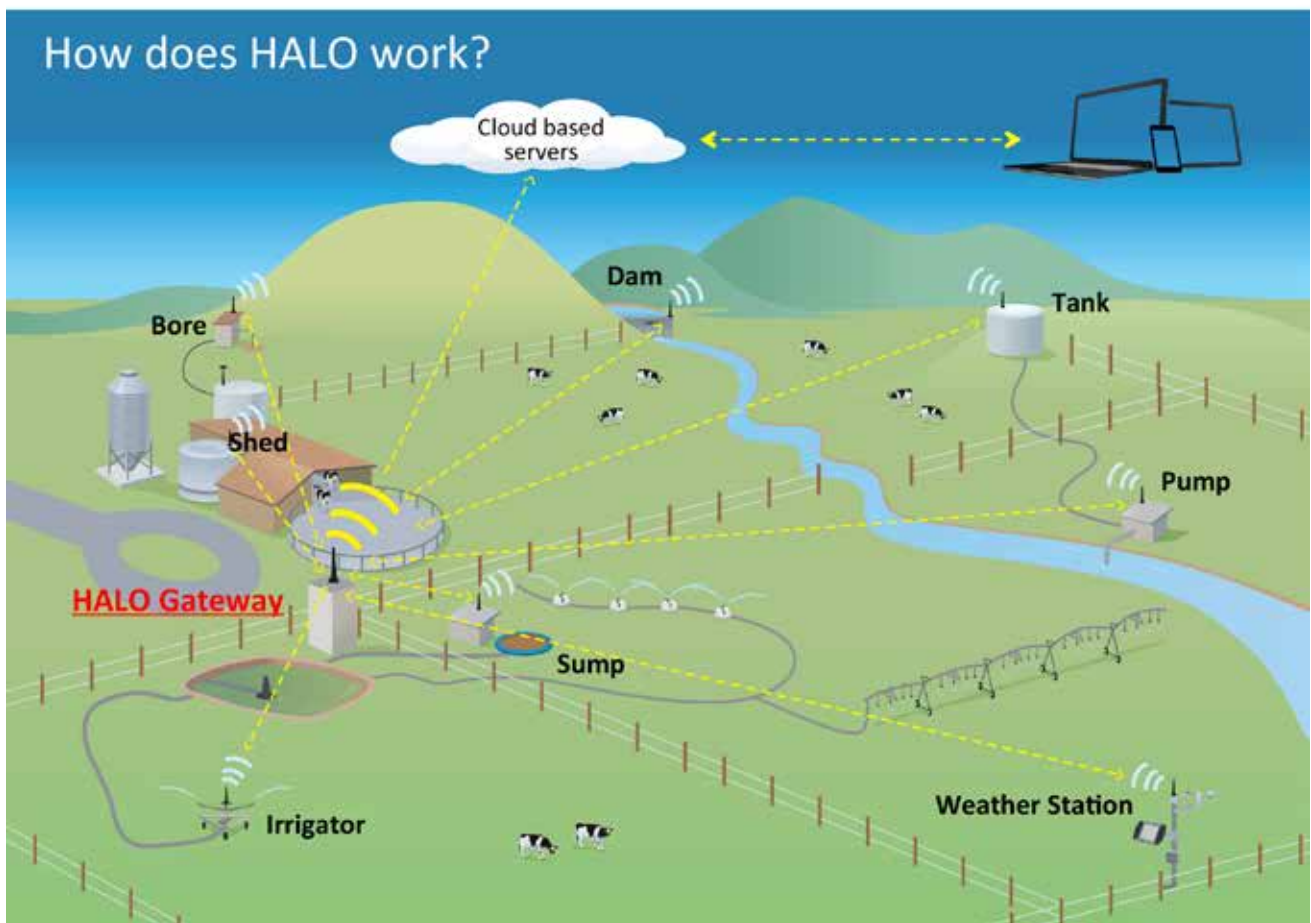
# HOW HALO® WORKS

How the system works is as long as a piece of equipment can have a sensor, the resulting data can be collected and stored. Some sensors are wired direct to the farm Gateway. For locations that are distant from the Gateway the system uses private on-farm radios to manage the data collected from the on-farm sensors, this data is sent to the Gateway on farm. This Gateway device sends on a regular basis, packets of data by using a GSM data connection to the cloud based storage. Inputs can be sent back the same way to send instructions to equipment to start, stop, alter parameters

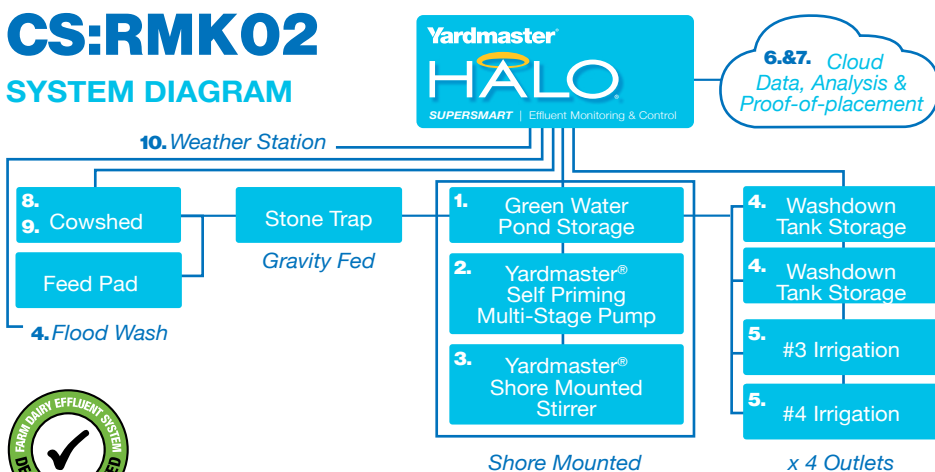
etc. The radio transmission is by line of sight with a range of around 1.5km. Repeaters can be used where line of sight is compromised or more distance is needed.

The signal needed for successful operation of the GSM connection is like texting from your cell phone. Location of the Gateway needs to be considered to optimise this.

The system can be configured to use flow or pressure settings to provide safe guards of performance outside permitted parameters. These parameters are easy for users to alter if permitted by head customer user.



## CS:RMK02 SYSTEM DIAGRAM



### HALO® functionality in CS:RMK02

1. Monitors Pond levels
2. Controls Multi-stage Pump
3. Controls Shore Mounted Stirrer
4. Monitors Flood Tank levels
5. Controls Irrigation & records Data / Proof-of-placement

#### Additional HALO® features include:

6. GEO Fencing

7. GPS Irrigator module

#### Expanded HALO® Modules:

8. Milk Monitoring Module
9. Water Monitoring Module
10. Weather Station module



# STANDARD HALO® SUPERSMART FEATURES

What you get with your Supersmart system is:

PUMP VSD SIZE	STIRRER DOL	EFFLUENT ZONES
11 Kw	7.5 Kw	6
15 Kw	7.5 Kw	6
18.5 Kw	7.5 Kw	6
22 Kw	7.5 Kw	6

The standard specification for the Yardmaster® HALO® Supersmart system, also includes:

- Gateway communication and data capture
- Flow meter
- Pond level sensor
- Pressure sensor
- HALO® dashboard monitoring and control
- Electrical cabinet with legs

The 6 effluent zones have independent settings to enable pre-controlled settings for 6 different duties of the pump and system on the farm.

The Supersmart system has the following spare I/O that may be used for additional sensing requirements.

- x1 Digital Output
- x3 Analogue Inputs



## ADDITIONAL HALO® FEATURES FOR YOUR SUPERSMART SYSTEM

By adding additional Yardmaster® HALO® expansion modules the effluent management system can include:

- **GPS irrigator tracking with wheel sensor kit (data fee applies)**

This provides GPS coordinates of irrigator whereabouts and includes a wheel sensor which will stop the pump if the irrigator stops moving. Geo fencing can also be added for no go zones to ensure the irrigator only operates in areas permitted.

- **Additional hard-wired pond level sensor**

For additional storage monitoring of ponds or sumps

- **Repeater node for radio link**

To increase line of sight from sensors to gateway.

- **Radio node with I/O expansion, 2 slots (data fee applies)**

We can add another I/O module into the cabinet to provide the following for further sensing needs:

- x8 Digital Inputs
- x4 Digital Outputs
- x3 Analogue inputs

Where there is a need to install multiple I/O modules for monitoring, command and control, or to integrate further hardware and control boxes to the main HALO control unit, the solution would be customised to suit.

- **Effluent sump controller (data fee applies)**

- Gateway radio
- I/O expansion module
- Pond level sensor
- Outdoor housing
- Can control up to 2 motors (pump and stirrer)
- Can interface to VSD if required



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# THE HALO<sup>®</sup> DASHBOARD

The HALO system comes with a dashboard, accessed by web connection. This therefore can be viewed from any smart device.

## The dashboard:

- Is password protected
- Is configurable to the user
- Displays only the information and 'tiles' you want the users to see
- Is configurable for alerts and faults. You set the parameters you want notifications on.
- Uses red and green signals to define the system operational status
- Can send notifications by text or e mail.
- Notifications follow an escalation path you set. A non-response will send a message to the next person on the list.
- Shows the system as being shut down for a fault, not starting until the fault is acknowledged.
- Has tracking in place for all warnings and the clearing of these by users.
- Parameters can easily be changed by users including run times, flow rates etc.

The screenshot shows the HALO dashboard interface. At the top, there's a navigation bar with the HALO logo and a 'DASHBOARD' button. Below it, the main area is titled 'YARDMASTER EFFLUENT MANAGEMENT'. The dashboard is composed of several 'tiles' or widgets, each representing a different system component. These include:
 

- CONTROLLER:** Shows 'IN READY' status and 'Many Problems'.
- EFFLUENT FLOW RATE:** Displays a gauge and 'OK' status.
- EFFLUENT PUMP:** Shows 'Stopped' status and various parameters like 'Flow Rate', 'Run Time', and 'Start'.
- EFFLUENT STORAGE:** Shows 'Stopped' status and 'Low Storage'.
- FLOW PUMP:** Shows 'Automatic' status and 'Many Problems'.
- PRESSURE PUMP:** Shows 'Automatic' status and 'Many Problems'.
- ZONE 1 VALVE:** Shows 'Closed' status.
- ZONE SCHEDULER:** Shows 'Stopped' status.
- ZONE 1:** Shows 'Stopped' status and 'High Pressure'.

 To the left of the dashboard, there are icons for a desktop monitor and a smartphone, indicating the system is accessible on multiple devices.

You only see the information and 'tiles' you want the user to see

The screenshot shows the HALO dashboard interface for a weather station. At the top, there's a navigation bar with the HALO logo and a 'WEATHER STATION' button. The main area displays a large chart titled 'Weather Station Data'. The chart shows multiple data series over time, including temperature, humidity, and wind speed. Below the chart, there's a legend and a table of data points.
 

Series Name	Color	Unit	Value
Weather Station Temperature	Blue	°C	18.0
Weather Station Humidity	Red	%	65.0
Weather Station Wind Speed	Green	km/h	12.0
Weather Station Rainfall	Black	mm	0.0
Weather Station Air Pressure	Grey	hPa	1013.0
Weather Station Cloud Cover	White	%	0.0
Weather Station UV Index	Yellow	UVI	0.0
Weather Station Solar Radiation	Orange	W/m²	0.0

 To the left of the dashboard, there are icons for a desktop monitor and a smartphone, indicating the system is accessible on multiple devices.

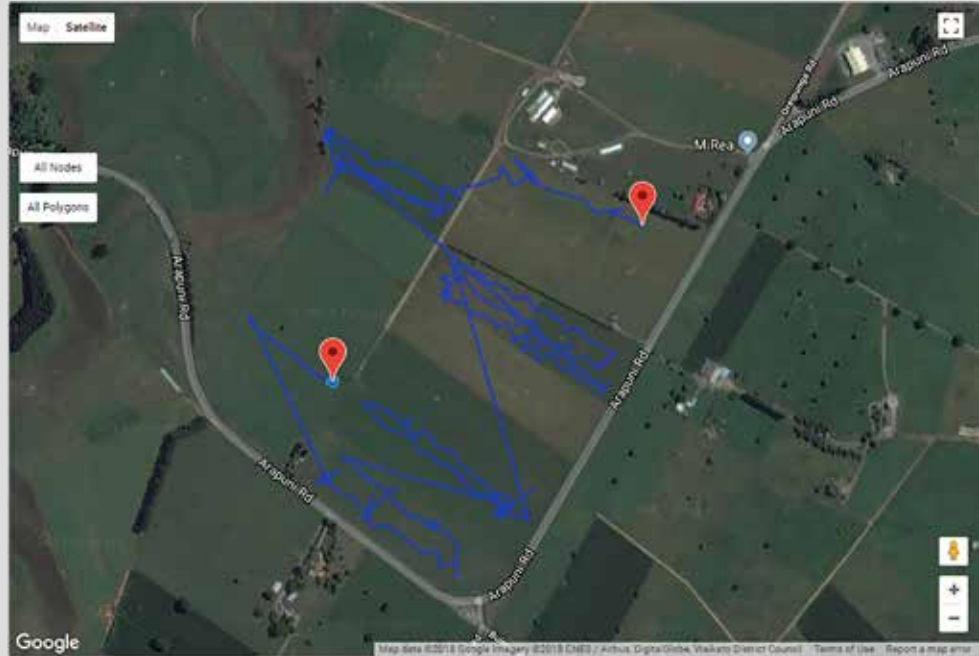
Data can easily be grouped or viewed in charts.

Custom made reports are easily set up to view.

# ADDITIONAL HALO® DASHBOARD FEATURES



**GPS Irrigator Module** provides GPS coordinates of irrigator whereabouts and includes a wheel sensor which will stop the pump if the irrigator stops moving.



Plus you can **Geo-Fence** the farm for no go zones for the irrigator. The system will not let a user use the pump if the irrigator is located outside permitted zones. GEO-Fencing is an extra option available and requires the GPS module.



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# EXPAND SYSTEM TO INCLUDE OTHER HALO® MODULES

HALO® can be expanded to other modules. With your existing Effluent system gateway, you can also link Water, Milk, Weather, Silos and other sensors by a radio link so all information needed is gathered and stored.

## HALO® Water Monitoring

HALO® Water Monitoring Solutions from Tag IT Technologies are designed to allow easy upgrades so that they can grow with your needs and adapt to the challenging technical landscape.

### The HALO® Water Monitoring solution will:

- Monitor conditions such as water level or flow at a local, remote, unattended or inaccessible location
- Send alerts to your cell-phone, smart phone or computer if a condition exceeds limits that you specify
- Report status directly to your cell-phone, smart phone or computer
- On line web site and key information showing graphs and statistics for analysis
- Control equipment by remote command

## HALO® Milk Monitoring

You can choose from 2 solutions. 'Halo Basic' simply monitors your milk vat, while 'Full Halo' is set up to monitor the whole dairy shed.

### Halo Basic'

- Monitor milk vat temperature.
- Get text/email alerts when refrigeration fails, or falls outside of prescribed limits.
- Meet MPI milk temperature regulations.
- Easy to understand online dashboard, accessible via your phone, laptop or tablet.
- Data is recorded and kept for future reference.

### Full Halo'

- Monitor milk vat temperature, vat volume, primary cooler and chiller performance, hot wash temperature, refrigeration status, inlet and outlet valve position
- Info presented on an in-shed display, with on-site alerts and alarms.
- Get text/email alerts when off site or away from shed.
- Meet MPI milk temperature regulations.
- Easy to understand online dashboard, accessible via your phone, laptop or tablet.
- Data is recorded and kept for future reference.

## HALO® Silo Monitoring

Add a HALO® LevAlert to the wall of your silo and get a visual notification when the contents fall below the sensor. Take things a step further and connect your LevAlert to a HALO unit and get text and e-mail alerts whenever the

contents in the silo fall below the device. The HALO® system can also generate an automatic e-mail to your grain supplier letting them know you're ready for another delivery.

## HALO® Weather

If you need accurate local weather information to help you make better decisions about pasture management and effluent spreading then a HALO farm weather station is the answer.

We can set up single or multi site weather stations on your property that give you live, up-to-the-minute data

on exactly what's happening on your farm. Rainfall information, soil moisture levels, ambient and soil temperature information as well as wind direction and speed are all available at your finger tips.

# YARDMASTER<sup>®</sup> PRODUCT RANGE

## EFFLUENT PUMPS

### FOR 'PROCESSED' IRRIGATION



#### Multi-stage Vertical

- IDEAL FOR**
- Floating Frames
  - High efficiency /pressure
  - Green water / small solids



#### Multi-stage Horizontal

- IDEAL FOR**
- Flood feed applications
  - High efficiency /pressure
  - Green water / small solids



#### Self-Priming Multi-stage

- IDEAL FOR**
- Shore Mounting
  - High efficiency /pressure
  - Green water / small solids

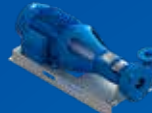


#### Progressive Cavity (PC)

- IDEAL FOR**
- Constant flow
  - High efficiency
  - Green water / small solids

NEW

### FOR IRRIGATION & TRANSFER



#### Horizontal Pump

- IDEAL FOR**
- Flood feed applications
  - High speed Irrigation or transfer pump
  - Green water with solids



#### Vertical Pump

- IDEAL FOR**
- Floating Frames
  - High speed Irrigation or transfer pump
  - Green water with solids



#### Extender Pump

- IDEAL FOR**
- Deep Sumps
  - High speed irrigation or transfer pump
  - Green water with solids

### TRANSFER



#### Trough Pump

- IDEAL FOR**
- Emptying of troughs
  - Water with solids

## EFFLUENT PUMPS

### FOR VOLUME TRANSFER



#### High Volume Pump

- IDEAL FOR**
- Volume transfer
  - Green water with solids



#### Heavy Duty Pump

- IDEAL FOR**
- Volume transfer
  - Liquid with solids
  - Industrial applications



#### PTO Pump

- IDEAL FOR**
- Volume transfer
  - Green water with solids

### SUBMERSIBLE



#### Submersible Pump

- IDEAL FOR**
- Feeding mechanical separators
  - Transfer pump
  - Green water with solids

## STIRRERS

### FOR TANKS, SUMPS & PONDS



#### Vertical Stirrer

- IDEAL FOR**
- Floating Frame mounting
  - Smaller ponds or round tanks



#### Right Angle Stirrer

- IDEAL FOR**
- Floating Frame mounting
  - Large ponds
  - Strong agitation



#### Shore Mounted Stirrer

- IDEAL FOR**
- Shore Mounting
  - Large ponds
  - Safe access

### SUBMERSIBLE



#### Submersible Stirrer

- IDEAL FOR**
- Small sumps or tanks
  - Easy access when fitted with a Yardmaster lifting frame

## SEPARATORS



#### Inclined Screw Separator (YS)

- IDEAL FOR**
- Entry level separator
  - Easiest installation in existing effluent systems
  - Handles most duties
  - May be used as primary separator



#### Rotary Drum Separator (RDS)

- IDEAL FOR**
- Low power requirements
  - Moderate dry solids
  - Low wear & maintenance



#### Static Screen Separator (SS)

- IDEAL FOR**
- No power
  - No moving parts
  - Can be used as primary separator

## EFFLUENT MANAGEMENT



#### Yardmaster HALO SUPERSMART Monitoring & Control

- IDEAL FOR**
- Flow control for varying applications
  - Control of irrigation rates
  - Control by cell phone
  - Flow protection

## ACCESSORIES



- INCLUDING**
- Floating Frames, Lifting Frames & Platforms
  - Trough Pump
  - Inline Cutter & Blades
  - Automatic Greaser
  - Float Control Switch
  - Headworks
  - Wash Down System
  - MORE

