



Multi-Control for FieldNET
Operation Manual

P/N 1608739 Rev A (ECN 32745)

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Safety & Service



WARNING

Training; All individuals involved in the installation, operation or maintenance of this equipment must receive and understand training in the safe and proper methods of performing all duties assigned to them at the time of the initial assignment and at least annually thereafter. Safety messages and appropriate response procedures to emergencies or other situations which may arise should be fully understood.

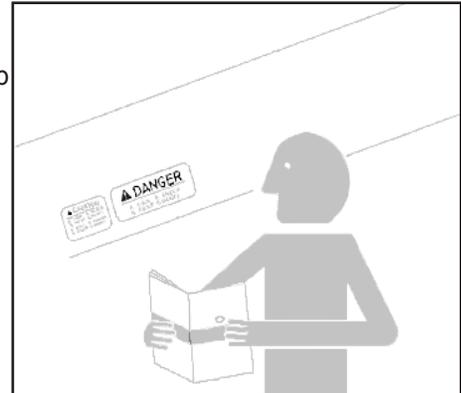


WARNING

Follow Safety Instructions; Carefully read all safety messages in this manual and safety signs on the machinery. Keep safety signs in legible condition. Replace any missing or damaged safety signs.

Learn how to operate the machine and controls properly. Do not allow anyone to operate the machinery without proper instructions.

Keep the machine in proper working condition. Only have the machine serviced by a trained service technician on a routine basis. Unauthorized modifications to the machine may impair the function and/or safety and reduce the life of the machine.



WARNING

Proper Communication; It is important that Web portal operators and personnel in the field communicate with each other when initializing FieldNET systems to ensure a safe work environment.

Requirements for Electrical Service

All Electrical equipment shall be installed by a qualified electrician. As a result, a correct installation will allow the irrigation system to protect itself from overloads and ground faults with minimal downtime, damage and hazard. Refer to ANSI, ASAE Standard S397.2 (latest revision) Electrical Service and Equipment for Irrigation for exact requirements.

Service

For location of the nearest Lindsay Dealer visit:
www.zimmatic.com

Or write:
Service Department
Lindsay Manufacturing LLC
214 East Second Street
Lindsay, NE 68644

Or call:
(800) 829-5300

Section 1 – Setup

Initial Setup

This section contains information about the Multi-Control panel and Wireless Switch Set-Up and Start-Up instructions.

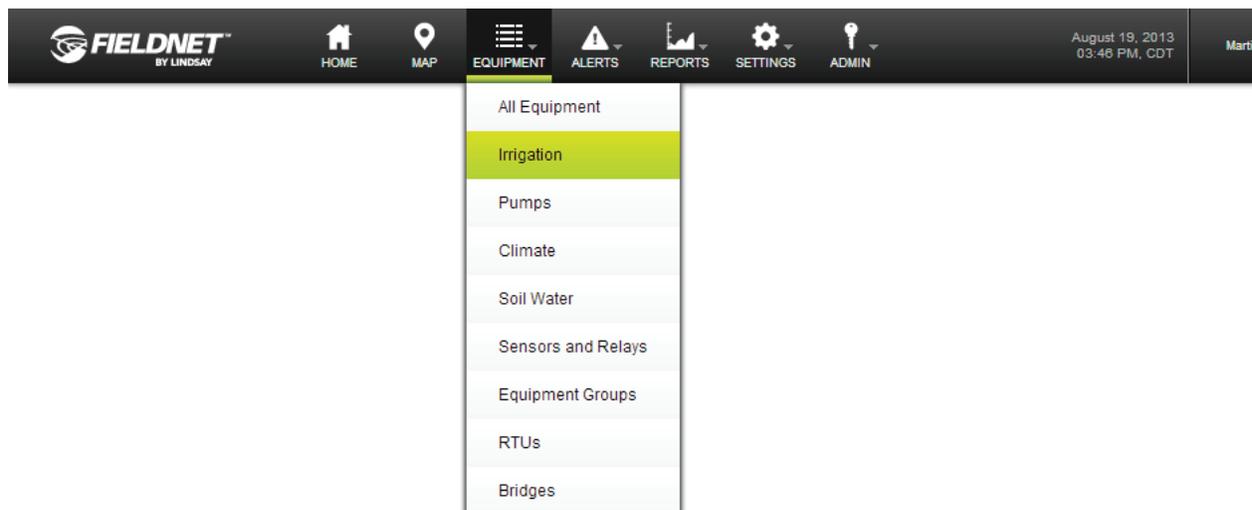
Prior to setting up the Micro-Irrigation System the following tasks are required:

- Dealer has installed the Multi-Control and Wireless Switches.
- Dealer has configured the Multi-Control and Wireless Switches.
- Dealer has installed the RTU.
- Dealer has added the Multi-Control and RTU to FieldNET.

After the above tasks are complete, the Dealer should have the equipment properly set up for use within FieldNET and the Multi-Control will be shown in the Equipment List. Before initial operation, the Multi-Control must set Grower specific settings, notifications and reporting through the FieldNET portal [<https://app.myfieldnet.com/>]. The instructions assume being a Super User of the Account. Contact the local Lindsay Dealer for adding a Super User to the Account if one has not be created.

General Properties

After logging into the FieldNET portal select on the Irrigation link in the Equipment Menu at the top of the page to display the Equipment List limited to Irrigation equipment.



Select on the Edit button of the new Multi-Control to view the General Settings page.

<input type="checkbox"/>	Name	Status	Alert	Group		Last Updated	
<input type="checkbox"/>	S1-13 Drip	 Running				2013-08-19 03:46:53 PM	

Alternatively, select the Properties – General link in the sidebar if viewing the Dashboard.

Equipment Information

Equipment Information

Name

Time Zone

Map Settings

Latitude

Longitude

Review the current settings for any changes.

Setting the Time Zone is important and must be set local to the Multi-Control.

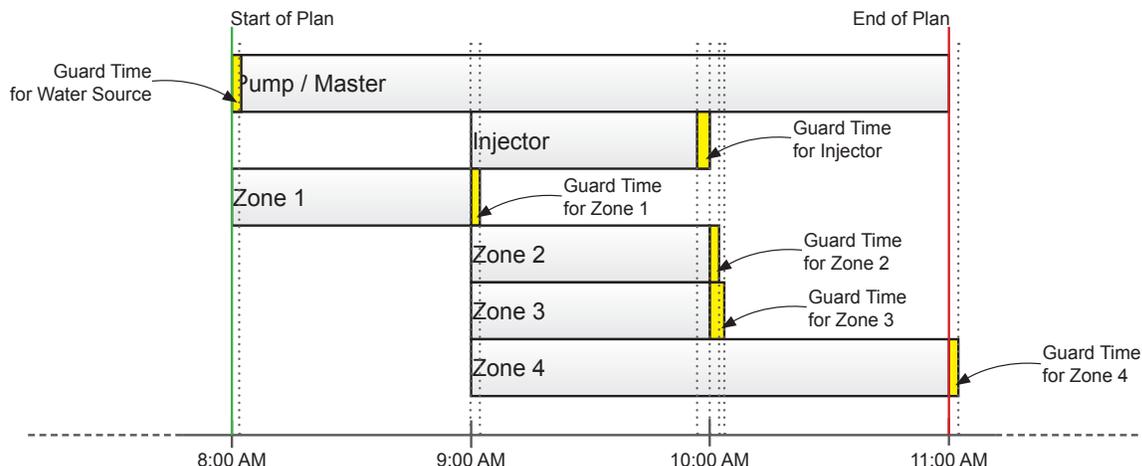
If the precise latitude and longitude of the Multi-Control are available, enter the appropriate decimal degrees. This will add the Multi-Control to the FieldNET Map. The Add to Map feature on the FieldNET Map can be used to enter the latitude and longitude if the exact location is unknown.

Press the Save button to save the settings.

Properties – System

Select the Properties – System link in the sidebar to view the System Settings. Most of the settings will have been programmed by the Lindsay Dealer and should not be adjusted.

Guard Times are used by the system to prevent water hammer, accidental chemigation, and smooth transitions between starting or stopping Zone irrigation.



The Water Source Guard Time is applied at the beginning of startup. The Injector and Zone Guard Times are applied at the end of the Injector and Zone runtimes. The specific component will shut off during Guard Times.

Water Source Setup

Water Source

Configuration

Water Source: Pump Station

I/O Channel: None

Guard Time: sec

System Pressure

Current Pressure: 29 psi

Min Volts: V

Max Volts: V

Pressure at Min Volts: psi

Pressure at Max Volts: psi

Low Alert: psi

High Alert: psi

Delay: sec

System Flow

Current Flow: 1 gpm

K Factor: gal

Designed Capacity: gpm

Irrigation Capacity: gpm

Low Alert: gpm

High Alert: gpm

Flow Disparity Alert: %

Delay: sec

Apply Succeeded

2013-08-12 12:52:25 PM

Poll Apply

The Designed Flow Rate is the designed Water Source capacity that is available for Irrigation, Filtration, and Temperature Protection. The Reserved Flow Rate for Irrigation is meant to reserve allowable capacity for Irrigation in order to run Filtration and Temperature Protection simultaneously. When making Plan Steps, this setting is used to calculate remaining capacity.

Flow Disparity is defined as the \pm percent difference between the total actively irrigating Zone Application Rates over the System Flow. The Zone Application Rates are defined on the Properties – Zones page. For example, if a Plan Step had 3 Zones set to 100 gpm for a total of 300 gpm running at the same time and the System Flow reads 200 gpm, the Flow Disparity would be equal to -33% (200 gpm / 300 gpm). This could indicate a drip tape is plugged or a stuck valve.

Using the same example, if the System Flow reads 500 gpm, the Flow Disparity would be equal to +67% (500 gpm / 300 gpm). This could indicate a leak or a broken pipe.

Select the Poll button to request the current Water Source settings from the Controller. Select the Apply button to save the settings and push the changes to the Multi-Control.

Injector Setup

Injector Settings

Configuration		Injector Flow	
I/O Channel	None	<input type="checkbox"/> Has Injector Flow	
Guard Time	40 sec	K Factor	100 gal
		Low Alert	5 gpm
		High Alert	150 gpm
		Delay	60 sec

Apply Succeeded
2013-08-12 12:53:21 PM

Select the Poll button to request the current Injector settings from the Controller. Review the current settings for any changes.

If an Injector is installed the I/O Channel should be set to the correct I/O Board and Channel. This is typically on Output 2 of the System I/O Board.

If an Injector Flow Meter is installed the Has Injector Flow checkbox should be checked.

Select the Apply button to save the settings and push the changes to the Multi-Control.

Options Setup

Options

Rainfall

Has Rainfall Sensor

Resolution in

Shutdown

Current Accumulation in [Clear](#)

Accumulation in

Time Span hr

Temperature

Has Temperature Sensor

Min Volts V

Max Volts V

Temperature at Min Volts °F

Temperature at Max Volts °F

Low Alert °F

High Alert °F

Auto-Enable Temperature Protection Plan

Above °F

Below °F

pH

Has pH Sensor

Min Volts V

Max Volts V

pH at Min Volts

pH at Max Volts

Low Alert

High Alert

Poll Succeeded
2013-08-14 03:18:24 PM

Select the Poll button to request the current Options settings from the Controller. Review the current settings for any changes.

If a Rainfall Sensor is installed the Has Rainfall Sensor checkbox should be checked.

If a pH Sensor is installed the Has pH Sensor checkbox should be checked.

If a Temperature Sensor is installed the Has Temperature Sensor should be checked. The Auto-Enable Temperature Protection Plan option is available if a Temperature Sensor is installed. This will continuously run the Temperature Protection Plan as long as the Above or Below criteria are met.

Select the Apply button to save the settings and push the changes to the Multi-Control.

System Setup

System Settings

Pressure Shutdown	Flow Shutdown
Low Pressure Shutdown <input type="text"/> bar	Low Flow Shutdown <input type="text"/> L/s
High Pressure Shutdown <input type="text"/> bar	High Flow Shutdown <input type="text"/> L/s
	Flow Disparity Shutdown <input type="text"/> %
Temperature Shutdown	Wireless Switch Shutdown
Low Temperature Shutdown <input type="text"/> °C	<input type="checkbox"/> Ignore Wireless Switch Shutdown
Low Temperature Restart <input type="text"/> °C	
High Temperature Shutdown <input type="text"/> °C	
High Temperature Restart <input type="text"/> °C	

Select the Poll button to request the current System settings from the Controller. Review the current settings for any changes. All of the settings above are used for defining fault shutdown criteria. If implementing Temperature Shutdown capability, a temperature sensor must be installed.

If a Wireless Switch has a Shutdowns condition, it will shutdown the entire system. In order to ignore a Wireless Switch Shutdown and continue running the scheduled plans, check the Ignore Wireless Switch Shutdown checkbox.

NOTE: Ignoring Wireless Switch Shutdown conditions may affect chemigation applications, cause Flow Disparity alerts, and other related side effects.

Select the Apply button to save the settings and push the changes to the Multi-Control.

Filtration Properties

Select the Properties – Filtration link in the sidebar to view the Filtration Settings. Most of the settings will be programmed by the Lindsay Dealer and should not be adjusted.

The number of Filter Flush Valves and the settings generate the Filter Flush Plan, which cycles through each Filter Flush Valve chronologically and executes a back flush for the set Flush Time.

Filter Flush Valves

Filter Flush Valves

Filter Flush Valve 1	0000000A - 3
Filter Flush Valve 2	0000000A - 4
Filter Flush Valve 3	0000000A - 5
Filter Flush Valve 4	0000000A - 6

Filter Flush Valve 26	None
Filter Flush Valve 27	None
Pressure Sustain Valve	0000000A - 2

Poll Succeeded
2013-08-14 04:37:24 PM

Select the Poll button to request the current Filter Flush Valves installed on the Controller. Review the current settings for any changes.

The order of the Filter Flush Plan is determined by assigning the I/O channel to the corresponding Filter Flush Valve. If you have 3 filters, select the I/O channel for Filter Flush Valve 1-3 and set the others to None.

Similarly, set the I/O channel for the Pressure Sustain Valve. The Pressure Sustain Valve creates back pressure during each flush.

Press the Apply button to save the settings and push the changes to the Multi-Control.

Filtration Settings

Filtration Settings

Filter Flush Plan

Backflush Duration sec

Dwell Time sec

Filter Flush Mode

Time Interval

Pressure Differential

Frequency min

Run if Pressure Differential Above bar

Stop if Pressure Differential Below bar

Pressure Differential Delay sec

Max Cycle Retries

Post-Filter Pressure

Has Post-Filter Pressure Sensor

Current Pressure 1.03 bar

Min Volts V

Max Volts V

Pressure at Min Value bar

Pressure at Max Value bar

Low Alert bar

High Alert bar

Delay sec

Select the Poll button to request the current Filtration Settings on the Controller. Review the current settings for any changes.

Choose the method of determining when to execute a Filter Flush Cycle by selecting either a Time Interval or Pressure Differential. The Pressure Differential method requires installing a Post-Filter Pressure Sensor.

Press the Apply button to save the settings and push the changes to the Multi-Control.

Valve Controller Properties

Select the Properties – Valve Controllers link in the sidebar to view the Wireless Switch Settings. This step is for verifying the installed Wireless Switches. There are no settings to change on this screen.

Zone Properties

Select the Properties – Zones link in the sidebar to view the Zone Settings. Most of the settings will be programmed by the Lindsay Dealer and should not be adjusted.

Zone Information

Zone Information

Short Name	Name	Disabled	Application Rate	Area	Duration per 1 in	Guard Time	Max On Time	Valve Controller
1	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 1
2	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 2
3	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 3
4	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 4
27	Touriga Nacior	<input type="checkbox"/>	10 gpm	39921 ft ²	149 min	10 sec	372 min	00000006 - 3
28	Cooling	<input type="checkbox"/>	5 gpm	196858 ft ²	246 min	10 sec	500 min	00000006 - 4

Applying Changes 79%
Poll
Apply

Select the Poll button to request the current Zone settings on the Controller. Review the current settings for any changes.

Each Zone has a name and a short name. The short name is used for displaying a list of Zones on the FieldNET portal and mobile application. A Zone number or an abbreviation or acronym of 3 characters or less is the best practice for short names.

If a Zone is under maintenance and should be temporarily removed from running during a Plan, checking the Disabled checkbox will disable the Zone.

The Application Rate is a requirement for calculating resource availability. The Application Rate is not the emitter or sprinkler rate, but rather the overall flow rate expected for the entire Zone at pressure.

The Area is the area of irrigated land included in the Zone.

The Duration per 1 inch or Duration per 25 mm is the amount of time in minutes that a Zone must irrigate to apply 1 inch or 25 millimeters across the Zone area.

The Guard Time is the amount of time in seconds that a Zone valve remains open after a Plan Step to mitigate water hammer and provide smooth transitions to the next step.

The Max On Time is the amount of time in minutes that a Zone can irrigate to mitigate washout or runoff.

The Valve Controller is a dropdown listing the Valves of available Wireless Switches. Select which Valve Controller and Valve Number is assigned to the Zone.

Select the Add Zone button to add a new Zone to the end of the list. Select the Apply button to save the settings and push the changes to the Multi-Control for distribution to the Wireless Switches.

Alert Properties

Select the Properties – Alerts link in the sidebar to view the Alert Settings.

Equipment Alerts

Equipment Alerts

Alert Name	Alert Type
Chemigating	Level 3 (Low)
Filter Flush Cycle Running	Level 3 (Low)
Flow Delay	Level 2 (Medium)
Flush Hardware Error	Level 2 (Medium)
Hardware Shutdown	Level 1 (High)
Valve Controller Solar Panel Error	Level 1 (High)
Zone Hardware Error	Level 2 (Medium)

Save

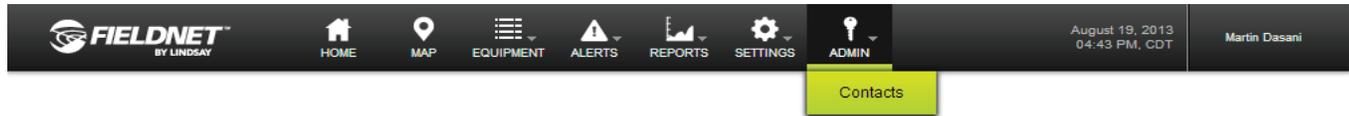
Outside of site-specific needs, it is a best practice to use the default Alert Types.

Press the Save button to save the settings.

Account Contact Access Setup

Select the Contacts link in the Admin Menu at the top of the page to display the Account Contacts.

Super Users have access to all Equipment in the Account. However, Managers and Viewers must be granted access to Equipment.



Select the name or Edit icon of the Contact needing Equipment access.

Select the Properties – Equipment Access link in the sidebar to manage Equipment Access for this Contact.

Name	Username	Account Type	Privilege Level	Last Login	Created	
Phillip Dasani		Customer Account	Manager	2013-08-15 05:25:19 PM		 

Equipment Access - Assigned Equipment

Has Access To

< Add

Remove >

« Add All

Remove All »

Available Devices

S1-13 Drip

Save

Add Equipment access by moving the desired Equipment from the Available Equipment list to the Has Access To list. This can be done with the following methods:

- Double Right-Click on specific Equipment in the Available Equipment list.
- Select the specific Equipment in the Available Equipment list and press the Add button.
 - For selecting multiple Equipment Ctrl- Right-Click on the desired Equipment.
- Select the Add All button to grant access to all Equipment.

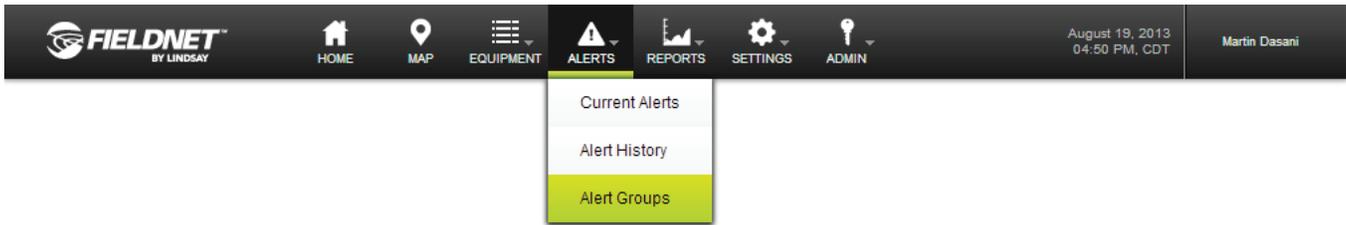
Remove Equipment access by moving the desired Equipment from the Has Access To list to the Available Equipment list. This can be done with the following methods:

- Double Right-Click on specific Equipment in the Has Access To list.
- Select the specific Equipment in the Has Access To list and press on the Remove button.
 - For selecting multiple Equipment Ctrl- Right-Click on the desired Equipment.
- Press the Remove All button to revoke access to all Equipment.

Press the Save button to save the changes.

Alert Notification Setup

Select the Alert Groups link in the Alerts Menu at the top of the page to display the Alert Groups.



Setting up Alert Groups are required in order to send Alert notifications.

Name	Contact	Alert Levels	
Default	Martin Dasani Phillip Dasani	Level 1 Level 2	 

Select the name or Edit icon of an existing Alert Group or select the Add Alert Group button and follow the step-by-step wizard to add a new Alert Group.

Details

Alert Group Name:

Deliver Alert Messages

Equipment All Equipment

<input type="checkbox"/>	Name	Type
<input checked="" type="checkbox"/>	S1-13 Drip	Low Volume Controller

Rules All Rules

No available rules

Communication Deliver all RTU and Bridge alerts

Alert Levels Included

- Level 1
- Level 2
- Level 3

Recipients

Select contacts that should receive alert messages for this Alert Group:

<input checked="" type="checkbox"/>	Name	Text	Email	Voice Callout	
<input checked="" type="checkbox"/>	Martin Dasani	disabled	martin@dasanifarms.com	disabled	Setup
<input checked="" type="checkbox"/>	Phillip Dasani	disabled	dasanip@dasanifarms.com	disabled	Setup

Check each Equipment and Recipient checkbox for setting up Alert notifications. Recipients must have Email or SMS Text Messaging enabled in their profile to receive notifications.

Press the Save button to save the changes.

Section 2– FieldNET Portal

General Integration

FieldNET is an integrated irrigation management platform available on the web or on Apple iOS and Google Android mobile devices.

The FieldNET Portal can be accessed with any browser by visiting <https://app.myfieldnet.com>.

This section will provide an overview of all Multi-Control related pages. Please refer to the FieldNET Operation Manual for an overview of all other sections of the portal.

The Multi-Control is integrated into the following sections of the portal:

- Equipment List
- Equipment Groups
- Map View
- Dashboard and related pages
 - Plans
 - Schedule
 - Logs
 - Tools
 - Reports
- Rules

Icons

The Multi-Control map icons represent the complete Multi-Control system location.



The Multi-Control status icons represent the MC system current operation condition and can be found on dashboards and status columns in equipment lists.



The color codes represent the four conditions signifying proper operation or some system fault. The following describes the color codes.

Blue: The system is in proper irrigation operation.

Orange: The system is in proper chemigation operations (water with chemicals).

Gray: The system has stopped or paused (typical of going into Auto-reverse cycle or Auto-Stop has activated).

Red: Alert. There is a system fault that has caused the machine to stop out of normal operation conditions. A more detailed alert description will be displayed on the equipment list for the particular MC system.

Icons used for the Wireless Switch Valves:



Wireless Switch Valve icons represent specific valves and will display the following three states:

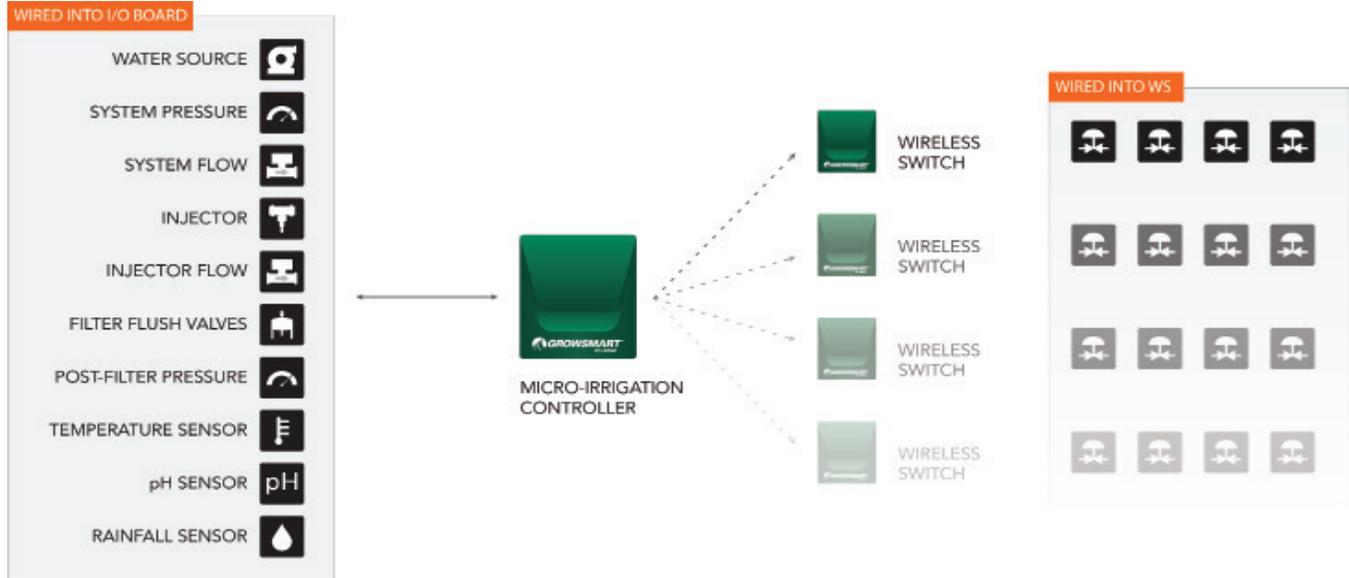
Blue: Proper irrigation operation.

Red: Alert. There is a fault with the valve or its wireless communication and it has stopped. A more detailed description of this alert will be displayed in the Zone tab of the equipment Quick Tray (later in this section).

Gray: Valve is fully operational but has momentarily paused or stopped as commanded in the settings.

Action Feedback

Actions taken throughout FieldNET, such as a Poll or Apply commands, will provide feedback for acknowledging a request and displaying this progress. In most cases the acknowledgement and action is completed within 30 seconds. However, the Multi-Control uses a “sleeping network” where communication to the Wireless Switches are not real-time, but communicated upon a set interval.



Due to this method of communication, FieldNET provides feedback for the Multi-Control receiving the request as well as feedback for distribution to Wireless Switches.

NOTE: Actions for a Multi-Control are not necessarily applied immediately in field and may take longer than 5 minutes depending upon the number of hops and intervals.

Polling

Polling the Multi-Control provides the following standard Polling feedback next to the Poll button:



Applying

Applying settings to the Multi-Control provides the following standard Applying feedback next to the Apply button:

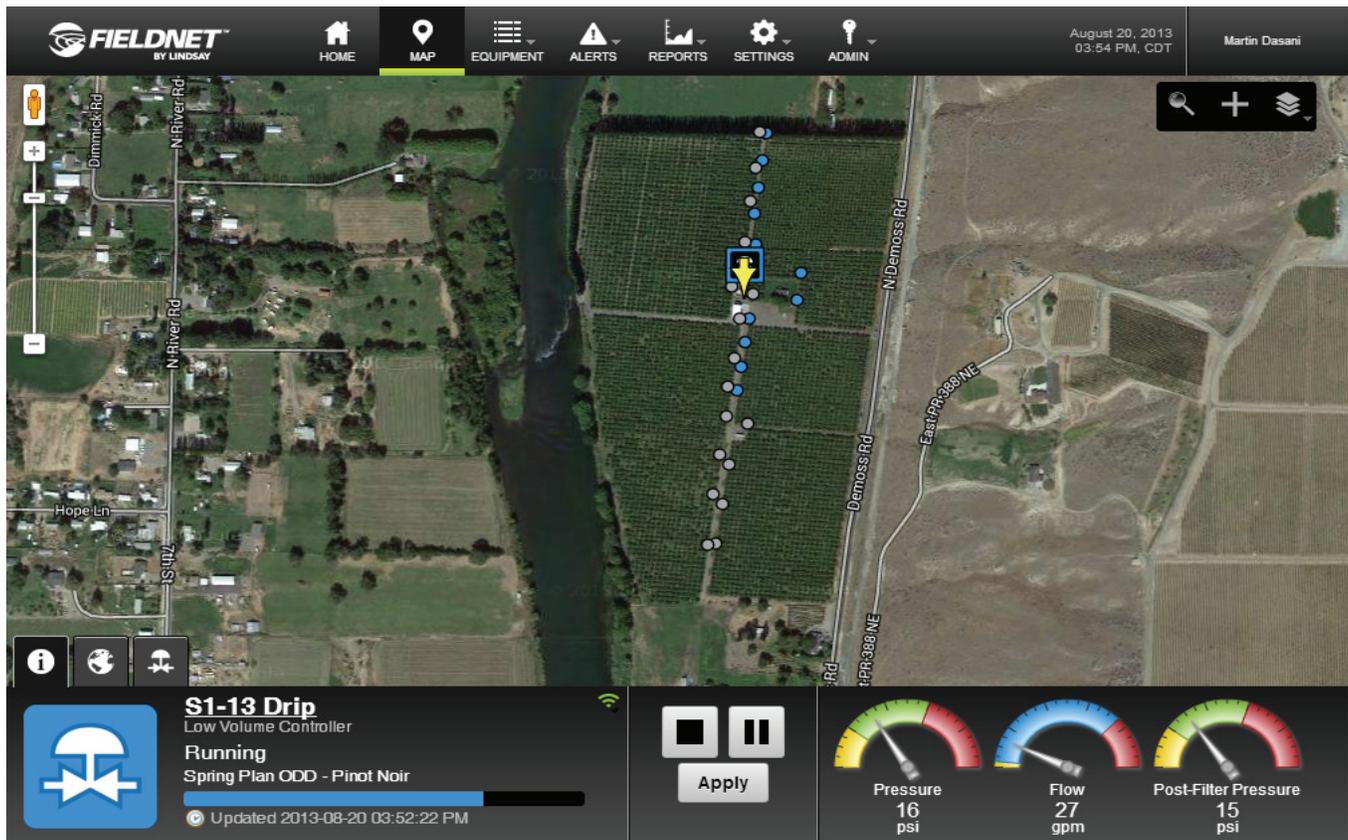


Updating Apply settings to the Wireless Switches will display additional feedback. “Verifying Changes” will display before an “Application Succeeded” feedback and “Verification Failed” will display will display on a verification failure without attempting application.

Applying Changes 0% 	<input type="button" value="Apply"/>
Verifying Changes Waiting	<input type="button" value="Apply"/>
Apply Succeeded May 4, 2012 2:39:41 PM	<input type="button" value="Apply"/>
Verification Failed May 4, 2012 2:39:41 PM	<input type="button" value="Apply"/>
Apply Failed May 4, 2012 2:39:41 PM	<input type="button" value="Apply"/>

Map

The Map is a satellite image with an Equipment Overlay displaying icon markers. Zoom, pan and search functionality make for easier navigation.



If a Multi-Control has been added to the Map, a marker is displayed using the latitude and longitude provided in the Map Tab of the system’s Quick Tray. Generic location markers are displayed until zoomed in when Equipment markers will be displayed.

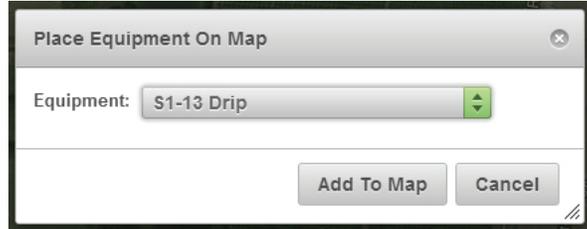
Zone markers will be displayed upon selecting the Multi-Control marker.

Add To Map

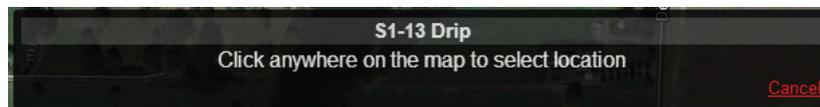
Use the Add To Map Wizard to add equipment to the Map View.

Select the “+” icon in the Map Toolbar to add Equipment to the Map.

In to following dialog box, select the equipment to place on the Map from the Equipment dropdown menu. The dropdown will only list equipment not already placed on the Map.



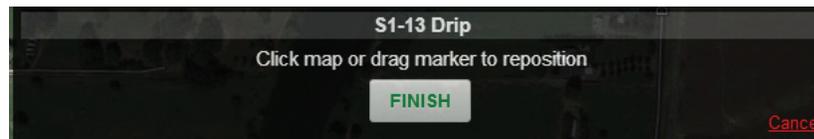
Press the Add To Map button to begin the Add To Map Wizard and follow the instructions provided at the top of the screen.



Select a location on the map. A marker will display, showing the placed equipment. This can be repositioned by selecting on the map or selecting and dragging the marker across the map.

Selecting Cancel will exit the Add To Map Wizard and will not place the equipment on the map or save any changes.

Upon pressing the Finish button, the Add To Map Wizard will close and the position marker is replaced with the Multi-Control marker. Additionally, the Multi-Control is made active and opens the Quick Tray.



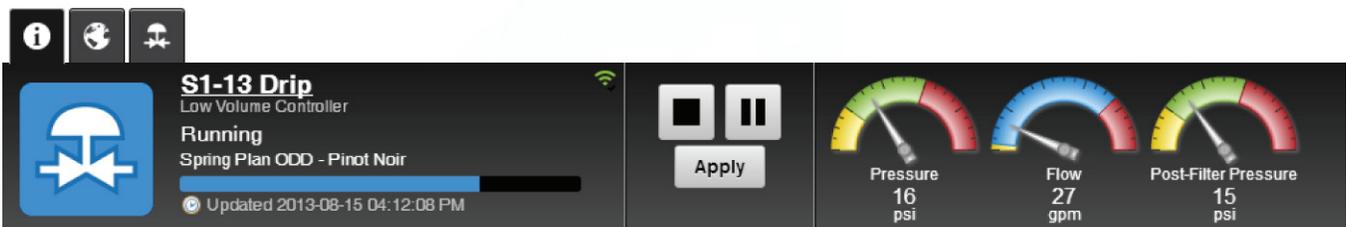
The Add Zone To Map process is explained in the following Quick Tray section.

Quick Tray

The Quick Tray is displayed when selecting an equipment marker on the map. A yellow arrow will appear on top of the marker selected.

Information Tab:

The Quick Tray Information Tab displays operational information relating to the selected equipment.



The Information Tab for the Multi-Control displays the current status of the Multi-Control, a link to the Dashboard, controls, and primary sensor information.

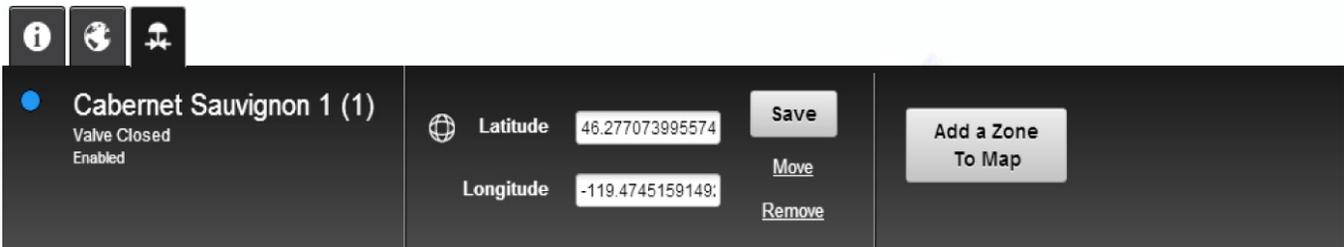
Map Tab:

The Map Tab for the Multi-Control displays the geographic location information with the ability to save changes, remove the Multi-Control from the map, or move the location using the Add To Map Wizard.



Zone Tab:

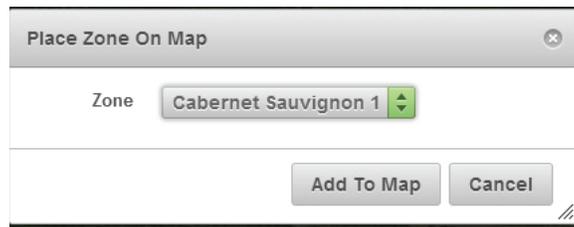
The Zone Tab is specific to the Multi-Control and displays the current status and basic information of an irrigation zone with the ability to save changes to the geographic location, remove the Zone from the map, or move the Zone using the Add Zone to Map Wizard.



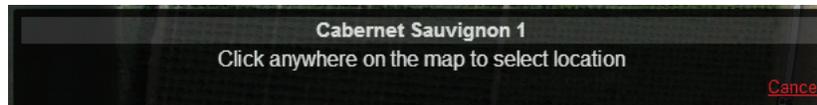
Zone To Map Wizard

Select the Add a Zone To Map button to add a Zone to the Map.

Select the Zone to place on the Map from the Zone dropdown menu list. The dropdown only displays Zones available to the Multi-Control and not currently placed on the map.



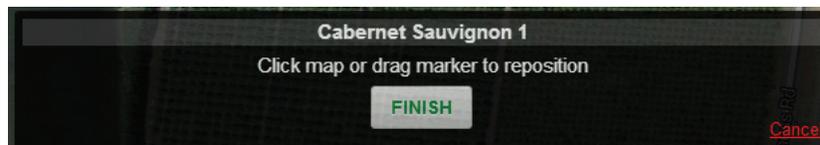
Press the Add to Map button to begin the Add Zone To Map Wizard and follow the instructions provided at the top of the screen.



Select a location on the map. A marker will be displayed, showing the Zone, which can be repositioned by selecting on the map or selecting and dragging the marker.

Pressing Cancel will exit the Add Zone To Map Wizard and not place the Zone on the Map or save changes.

Select the Finish button to close the Add Zone To Map Wizard and replace the position marker with the a Zone marker. Additionally, the Zone is made active and refreshes the Quick Tray Zone Tab.



Where to Locate Multi-Control Systems

Refer to the FieldNET User's Manual (P/N 1600502) for details on navigating and editing within the following categories discussed here.

Multi-Control information can be located within several categories in the Equipment Pulldown menu.

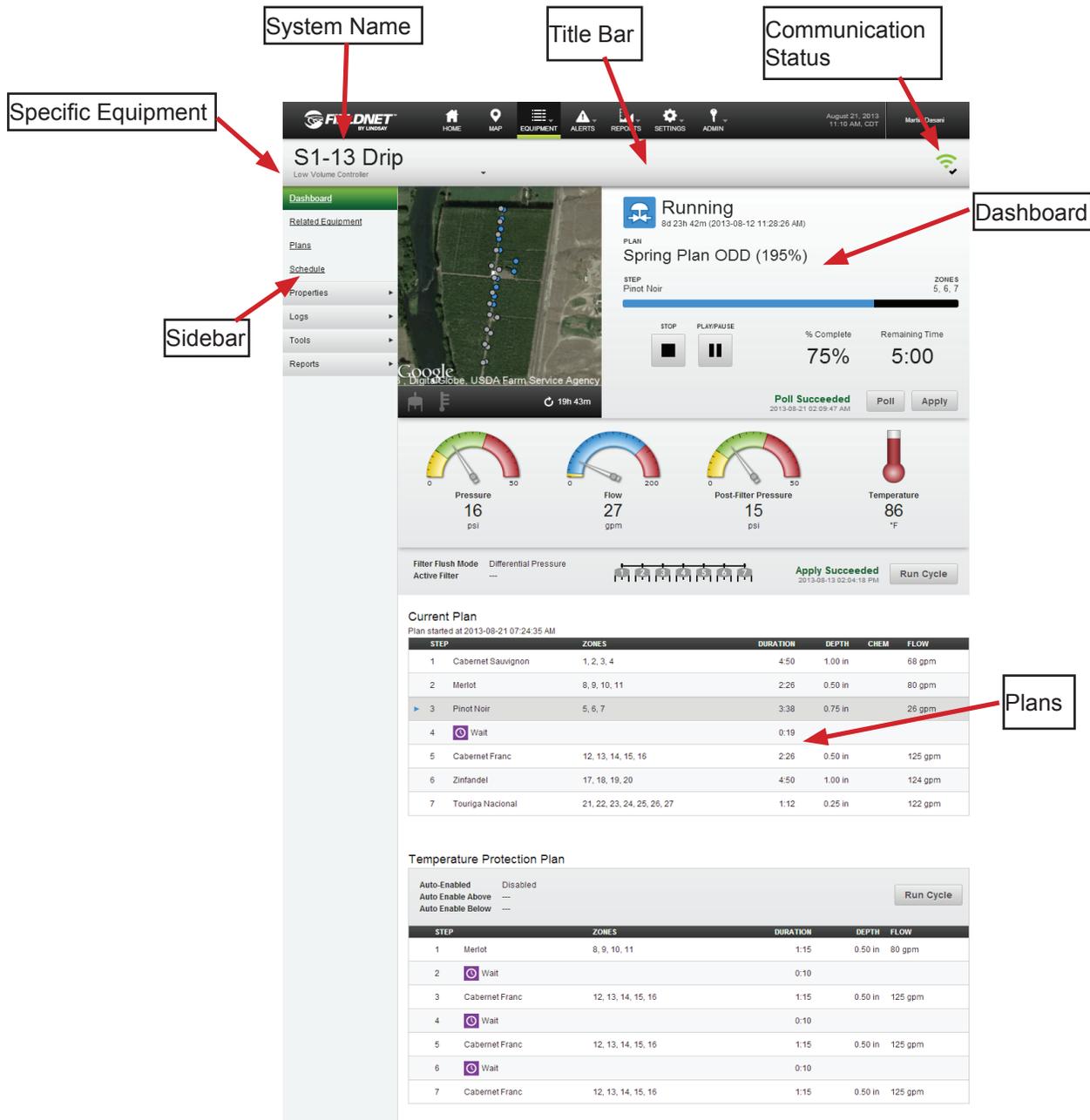
- They can be listed individually under the Irrigation category.
- They can be part of an Equipment Group.
- Communication status and information for the Multi-Control can be found under the RTU and Bridge categories.

Multi-Control on FieldNET

The initial interface for the Multi-Control on FieldNET is the Equipment page. This page is broken down into different sections of information and each is explained in further detail following this overview.

The Equipment Page Consists of the following:

- Title Bar: The name of the system is listed here along with the system RTU status at the right-end of the bar and all individual pieces of equipment within this system build (pivots, pumps, VRI, Multi-Control, etc.) are listed within the pulldown menu found under the system name.
- Sidebar: The sidebar provides additional information and edit functions for the equipment currently displayed.
- Dashboard: The main interface for the equipment. A thumbnail of the equipment on the map, settings, conditions and any customized data is displayed on the dashboard for quick reference of the equipment.
- Plans: Displays the current plan uploaded to FieldNET or in operation.



The screenshot shows the FieldNET interface for a system named 'S1-13 Drip'. The interface is divided into several sections:

- Title Bar:** Contains the system name 'S1-13 Drip', navigation icons (Home, Map, Equipment, Alerts, Reports, Settings, Admin), and the date/time 'August 21, 2013 11:19 AM, CDT'. A 'Mark Disabled' button is also present.
- System Name:** 'S1-13 Drip' is displayed prominently.
- Communication Status:** A signal strength icon is shown in the top right corner.
- Specific Equipment:** The main content area shows 'S1-13 Drip' with a sub-label 'Low Volume Controller'.
- Sidebar:** A vertical menu on the left includes 'Dashboard', 'Related Equipment', 'Plans', 'Schedule', 'Properties', 'Logs', 'Tools', and 'Reports'.
- Dashboard:** The main dashboard area shows a 'Running' status for 'Spring Plan ODD (195%)'. It includes a progress bar for 'Pinot Noir' (75% complete, 5:00 remaining), a 'Poll Succeeded' message, and four gauges for Pressure (16 psi), Flow (27 gpm), Post-Filter Pressure (15 psi), and Temperature (86 °F).
- Plans:** A table titled 'Current Plan' shows the following data:

STEP	ZONES	DURATION	DEPTH	CHEM	FLOW
1	Cabernet Sauvignon	1, 2, 3, 4	4:50	1.00 in	68 gpm
2	Merlot	8, 9, 10, 11	2:26	0.50 in	80 gpm
3	Pinot Noir	5, 6, 7	3:38	0.75 in	26 gpm
4	Wait	0:19			
5	Cabernet Franc	12, 13, 14, 15, 16	2:26	0.50 in	125 gpm
6	Zinfandel	17, 18, 19, 20	4:50	1.00 in	124 gpm
7	Touriga Nacional	21, 22, 23, 24, 25, 26, 27	1:12	0.25 in	122 gpm

Title Bar

The Title bar displays the system name. Systems typically consist of one or more pieces of equipment installed in the field (e.g. Pivots, Laterals, VRI, Pumps, Chemical Injection and Multi-Control to name a few).

If there are multiple pieces of equipment on a system, the system name here will be nothing more than a reference. The actual equipment dashboards will display when the equipment name is selected from the pulldown menu located under the system name.

At the right-end of the Title bar is a small Communication Status Icon. Selecting the communication status icon will display the assigned RTU dashboard. The communication status icon has the following states:

Icon	Tooltip	Description	Online	Subscription Status	Last Request	Powered Off
	RTU is Online	The RTU is online without any recent issues.	Yes	Active	successful	N/A
	RTU is Online with recent issues	The RTU is online, but the last request failed.	Yes	Active	failed	N/A
	RTU is Unexpectedly Offline	The RTU is unexpectedly offline as it has an active subscription but is not connected. This is not applicable for Spectrum Station RTU setups.	No	Active	N/A	No
	RTU is Offline or does not have an active subscription	The RTU is offline due to not having an active subscription or the RTU has sent a powered off packet	No	Expired or Off Season	N/A	Yes

NOTE: A failed request is defined as FieldNET attempting 10 consecutive times to communicate a request (Poll, Apply, etc.) without an acknowledgement from the RTU assuming the RTU is online and has a subscription.

Dashboard

The Dashboard is the main interface for monitoring and controlling the Multi-Control settings.



Map

The map is automatically zoomed into the MC location and shows the status of zones. Located to the bottom left corner of the Map View are notification icons for active Filter Flush and Temperature Protection. When inactive, the icons will be transparent and when active, the icons will highlight.

Notification	Active	Inactive	Criteria
Filter Flush Status			Active whenever Filter Flush is running (Automatic or Manual)
Temperature Protection Status			Active whenever Temperature Protection Plan is running (Automatic or Manual)

The run time of the current irrigation plan is displayed below the map to the right.

Status

The status icon and description for Multi-Control are displayed next to the map. The duration and timestamp indicate how long the Multi-Control has been in the current state and when it started.

The current irrigation plan, plan step, and active zones are displayed above the plan progress bar. Percent Complete and Remaining Time are estimated based on the time elapsed since starting the current plan step and the remaining steps.

Plan actions include Stop, Pause, and Run:

Action	Running	Stopped / Paused	Upon Selecting
Run/Pause Button			This button will be highlighted and will require Apply in order to Start or Pause the Plan
Stop Button			This button will be highlighted and will require Apply in order to Stop the Plan

Stopping the plan puts the Multi-Control into “Off” mode, which does the following:

- Stop Pump Station / Main Valve
- Stop Chemical Injector
- Stops current Plan
- Stops Filter Flush
- Stops Temperature Protection Plan
- Closes all Zone valves

Upon stopping the plan, the Pause button will change to a Run button.

The Multi-Control is in “Auto” mode when the plan is running or paused. Pausing the plan will suspend plan progress. Upon restarting the plan will continue where it left off.

Whenever running a plan after a plan has been stopped, the Multi-Control will go into “Auto” mode and the irrigation plan will skip to the scheduled plan step based on the time of day.

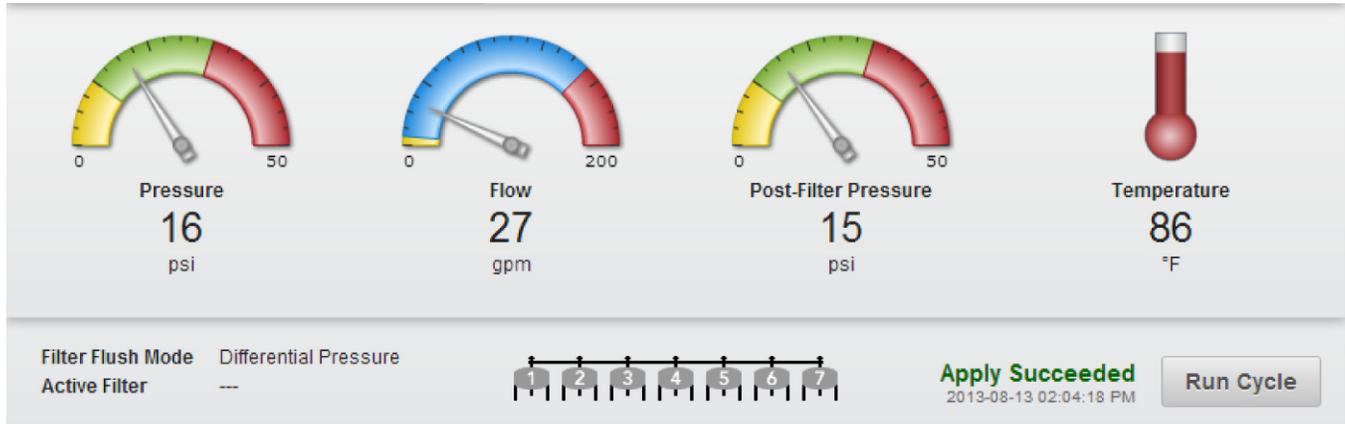
Pressing the Poll button will request Multi-Control status information. Pressing the Apply button will send changes to the Multi-Control. Feedback for these actions is provided next to the buttons. The status information refreshes upon success.

Sensors and Filtration

Sensors provide a clear user interface for monitoring system flow, pressure, temperature, rainfall amounts and pH balance.

The Multi-Control has the following sensors available:

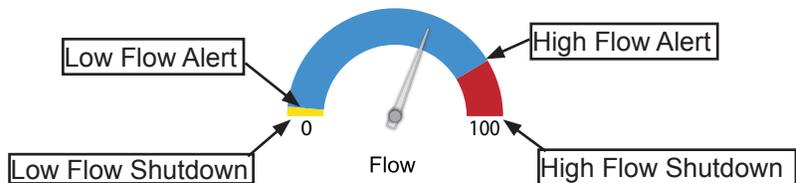
- System Flow
- System Pressure
- Post-Filter Pressure (optional)
- Temperature (optional)
- pH (optional)
- Rainfall (optional)



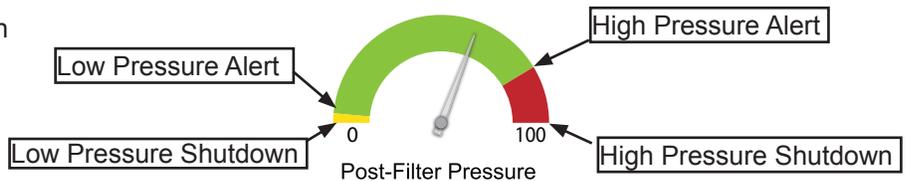
The diagram to the right shows a reference shutdown and alert locations on the sensor dial indicators in order to understand the purpose of alerts and shutdowns.



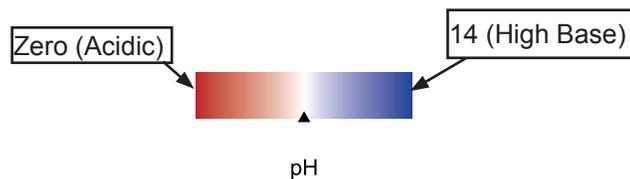
The System Pressure, Flow Rate, Post-Filter Pressure and pH Balance sensors provide warning zones on their UI dial indicators when displayed on the dashboard.



The low and high shutdown settings are typically zero and the sensor's maximum range respectively. When the system reaches shutdown, the system will go into either a low or high pressure/flow fault and shutdown.



The alerts "points" are established to submit warnings to the operator that the system is nearing a shutdown condition and should inspect the system for problems.



The alerts are set up in the Water Source page of the System Properties menu. When established, the dial indicators on the dashboard will show these alert ranges in yellow or red fields.

If the Multi-Control has a filtration system installed and set up (through Properties – Filtration) the Dashboard will display information about Filter Flush cycles.

The Filter Flush Mode can be either a Time Interval or Pressure Differential. A Multi-Control can have up to 27 Filters with 1 Sustaining Pressure Valve.

Basic filtration settings are displayed on the left of the filtration section of the dashboard (see diagram on previous page). If filtration is set up to use a Time Interval, the information includes the Mode and Active Filter. If filtration is set up to use Pressure Differential, the information includes the Mode, Active Filter, and Active Filter Retries.

A graphical representation of the filtration system displays completed and active filters in blue for the current flush cycle. All filters turn gray upon completed cycle.

Select the Run Cycle button to manually initiate a Filter Flush Cycle. Feedback is provided in the space next to the button.

PLANS

Current Plan

If the Multi-Control is in “Auto” mode and a Plan is scheduled the Dashboard will display the current plan start time and a table of Plan Steps and the respective Zones, duration, depth, chemigation (if applicable), and flow.

Current Plan

Plan started at 2013-08-21 07:24:35 AM

STEP	ZONES	DURATION	DEPTH	CHEM	FLOW
1	Cabernet Sauvignon	4:50	1.00 in		68 gpm
2	Merlot	2:26	0.50 in		80 gpm
▶ 3	Pinot Noir	3:38	0.75 in		26 gpm
4	 Wait	0:19			
5	Cabernet Franc	2:26	0.50 in		125 gpm
6	Zinfandel	4:50	1.00 in		124 gpm
7	Touriga Nacional	1:12	0.25 in		122 gpm

The running Plan Step will be highlighted and will display an icon indicating point-in-time progress of the plan. If the plan is paused the pause icon is displayed.

Temperature Protection Plan

If the Temperature Protection Plan has been set up, the Dashboard will display the Temperature Protection Plan (similar to the Current Plan table).

Temperature Protection Plan

Auto-Enabled		Disabled				
Auto Enable Above		---		<input type="button" value="Run Cycle"/>		
Auto Enable Below		---				
STEP		ZONES	DURATION	DEPTH	FLOW	
1	Merlot	8, 9, 10, 11	1:15	0.50 in	80 gpm	
2	 Wait		0:10			
3	Cabernet Franc	12, 13, 14, 15, 16	1:15	0.50 in	125 gpm	
4	 Wait		0:10			
5	Cabernet Franc	12, 13, 14, 15, 16	1:15	0.50 in	125 gpm	
6	 Wait		0:10			
7	Cabernet Franc	12, 13, 14, 15, 16	1:15	0.50 in	125 gpm	

The Temperature Protection Plan (TPP) is a special overlay Plan that runs at the same time as an Irrigation Plan. The plan can be automatically enabled when a Temperature Sensor is installed and will show set point temperatures for activation of the TPP.

The Multi-Control will run the TPP an entire cycle when the trigger is met and keep running until TPP completes its cycle, which will then stop the TPP. If the temperature reading is still above the TPP reset level, the Multi-Control will repeat another cycle. The TPP cycle is not constrained to the day it started and can continue into the next day if a cycle is not complete.

The Temperature Protection Plan can be manually executed for one cycle by clicking on the Run Cycle button.

Sidebar

The Sidebar menu offers additional information and editing of equipment settings. The Dashboard was explained previously and is included as a selection on the sidebar, the other options are explained further.

Related Equipment

The Related Equipment page displays the Equipment Groups which include the Multi-Control. The list includes a equipment name linked to each piece of equipment's respective dashboard, equipment icon, and operating status.

S1 Equipment	
S1-13 Drip	 Running
S1 Current Sensor	 Offline
S1 Flow Meter 1	 Offline
S1 Pump Station	 Alert - PLC Battery Low

To add related equipment for the Multi-Control, add or edit an Equipment Group by selecting on Equipment – Equipment Group and include the Multi-Control to the group.

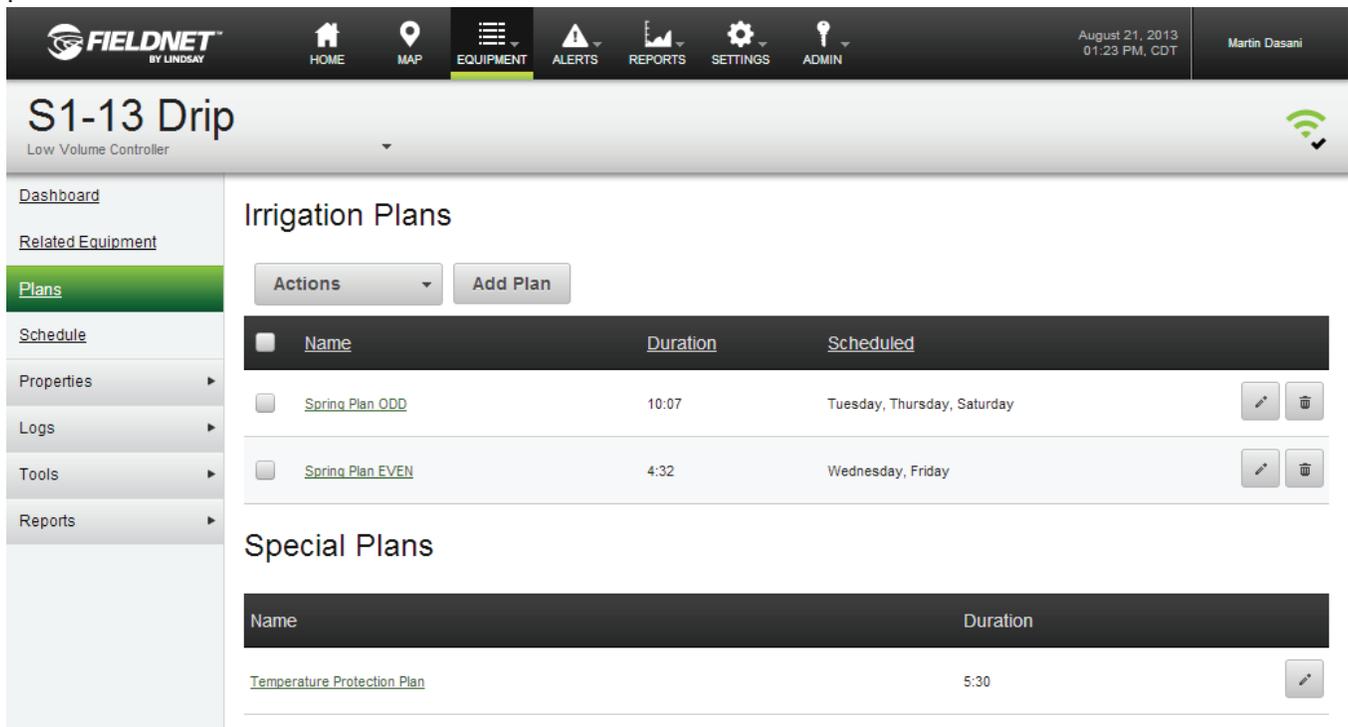
Plans

Plans are a series of irrigation steps, which allow for simultaneously opening (and closing) of multiple Valve Zones for a set duration of time. This provides more precise irrigation control and balance between excessive run-off or insufficient watering amounts.

Plans are sent to the Multi-Control using the Schedule page.

Plan List

The Plan List displays all saved Irrigation Plans as well as Special Plans for a given irrigation system



S1-13 Drip
Low Volume Controller

Irrigation Plans

Actions ▼ Add Plan

<input type="checkbox"/>	Name	Duration	Scheduled		
<input type="checkbox"/>	Spring Plan ODD	10:07	Tuesday, Thursday, Saturday		
<input type="checkbox"/>	Spring Plan EVEN	4:32	Wednesday, Friday		

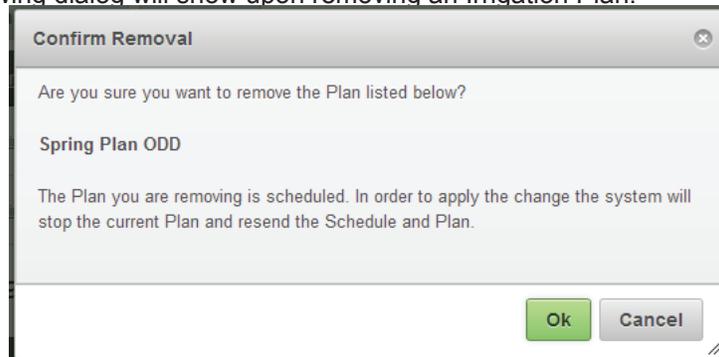
Special Plans

Name	Duration	
Temperature Protection Plan	5:30	

All Plans can be edited by selecting on their name or respective edit button to the right end of the row. Selecting the remove button (next to the edit button) will remove the respective Irrigation Plan. Multiple Irrigation Plans can be selected for mass removal by selecting the check-box, next to the name, and selecting Remove Plans from the Actions drop-down menu.

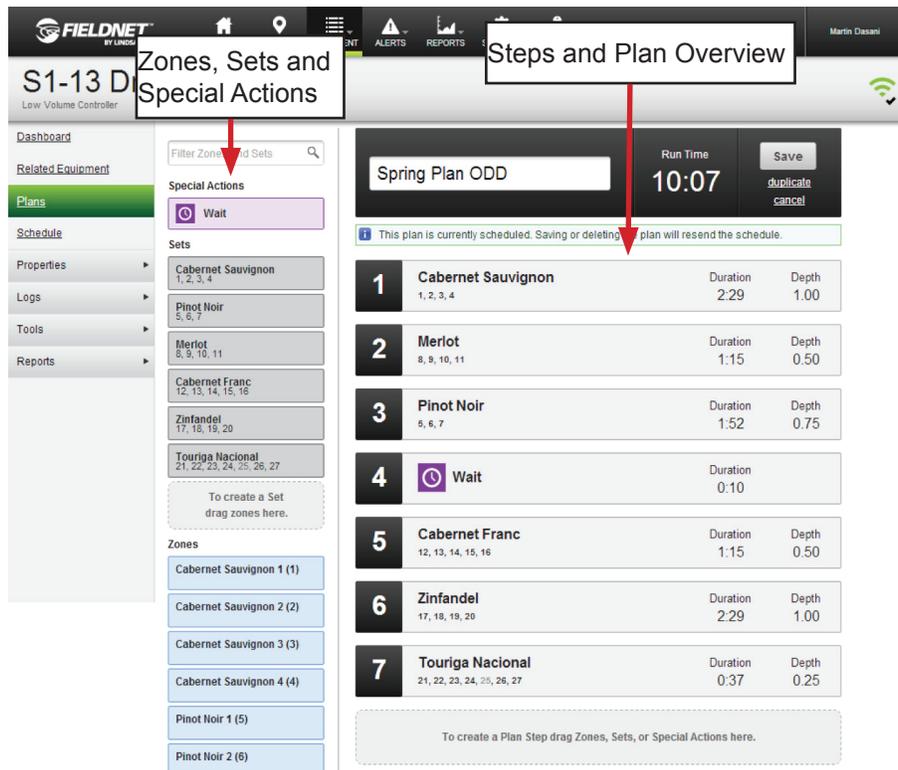
Special Plans are unable to be removed.

Saving or removing scheduled Irrigation Plans or saving Special Plans requires updating the schedule and sending the plans and schedule to the Multi-Control. Removed Irrigation Plans with schedules will have their schedules cleared as well. The following dialog will show upon removing an Irrigation Plan:



Saving or removing Irrigation Plans that are not scheduled provides feedback that the Plan was saved or removed.

Edit Plan



The Edit Plan page is used for creating new or managing saved Irrigation and Special Plans.

The Edit Plan page is split into two major sections: 1) Zones, Sets, and Special Actions and 2) Plan Overview and Steps.

Zones are the named drip fields assigned to a Wireless Switch valve, which are managed through the Properties – Zones page. Zones which have been disabled will be grayed out but can be added to Sets and Plan Step for future use. Disabled Zones in the Plan will not run but they are used for calculating Duration Depth, Capacity Remaining and Validation of the duration.

Sets allow for grouping Zones commonly irrigated at the same time, but do not include any Plan Step information such as irrigation duration. Sets are shared among all Plans and can be a Plan Step. However, making changes to a Set will not update Plans with a Plan Step based on the Set with the changes.

Wait is the only Special Action and allows for temporarily stopping the water and injector for a period of time. It is primarily intended for providing time in the field for manual operations such as changing the chemical tank.

The Zones, Sets, and Special Actions are searchable by case-insensitive name. Phrases separated by spaces will provide results which match all phrases.

The search results will show the Special Actions, Sets, and Zones sections with matching results for each. “No Results” is displayed if no results are found.

Similar to the Map View, an “x” on the far right side of the search field is used to clear the search and reset the search field.

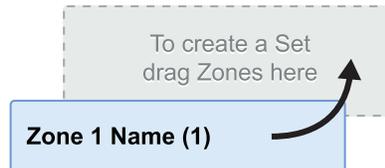
Zones, Sets, and Special Actions are all drag-and-drop items on the FieldNET interface. They can be dragged to any of the following locations on the page:

- Create New Set Area: Located below existing Sets.
- Existing Set
- Create New Plan Step Area: Located below existing Plan Steps.
- Existing Plan Step

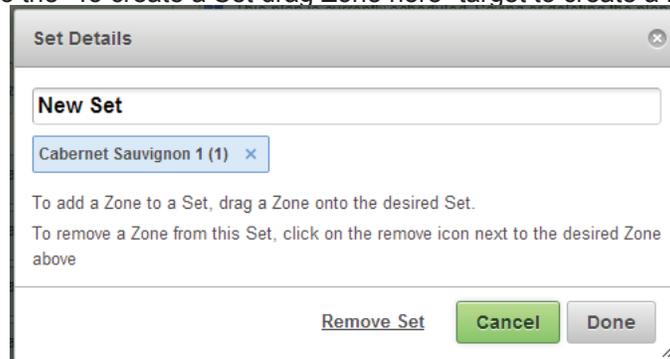
Selecting and dragging a Zone, Set, or Special Action and dropping it onto a target will take the appropriate action. Allowed actions are:

	Create Set	Add To Set	Create Plan Step	Add To Existing Plan Step
Special Actions			✓	
Sets			✓	
Zones	✓	✓	✓	✓

For example, adding a Special Action, such as Wait, to a Plan Step is not allowed. It is a Plan Step by itself and cannot be part of an existing Plan Step.



Select and drag a Zone onto the “To create a Set drag Zone here” target to create a new Set starting with the



selected Zone.

Upon adding a Zone to a Set or double-clicking a Set, the Set Details dialog will display, allowing changes to the name of the Set and remove Zones. Select the Remove Set link to permanently remove the Set. Press the Can-



cel button to ignore any changes and close the dialog. Press the Done button to save changes to the Set.

Add more Zones by dragging other Zones onto an existing Set.

The Plan Overview displays the Plan name, Run Time, and actions. Select the Plan name to change the name of

Spring Plan ODD	Run Time 10:07	<input type="button" value="Save"/> duplicate cancel
-----------------	--------------------------	--

the Plan.

The Run Time is calculated upon making changes to Plan Steps. Select the duplicate link to clone this Plan as a new Plan. Press the Cancel link to ignore any changes and return to the Plan List. Press the Save button to save

i This plan is currently scheduled. Saving or deleting the plan will resend the schedule.

changes to the Plan and Plan Steps.

If the Plan is currently schedule, a notice will be displayed below the Plan Overview to inform the need to resend the Plan and Schedule upon saving changes.

Plan Steps are displayed below the Plan Overview and have a collapsed and expanded view. The collapsed view is for reviewing and sorting Plan Steps. The expanded view is for editing a Plan Step.

1	Cabernet Sauvignon 1, 2, 3, 4	Duration 2:29	Depth 1.00
----------	---	------------------	---------------

Collapsed Plan Step:

1	Cabernet Sauvignon 1, 2, 3, 4	Duration 2:29	Depth 1.00
<input type="button" value="EDIT DETAILS"/>			

Selected Collapsed Plan Step:

1

Cabernet Sauvignon

Cabernet Sauvignon 1 (1) ×

Cabernet Sauvignon 2 (2) ×

Cabernet Sauvignon 3 (3) ×

Cabernet Sauvignon 4 (4) ×

Duration (hh:mm)	Depth (in)	Injector	Duration (hh:mm)	Capacity Remaining (gpm)
2:29	1.00	<input type="checkbox"/>	0:00	132

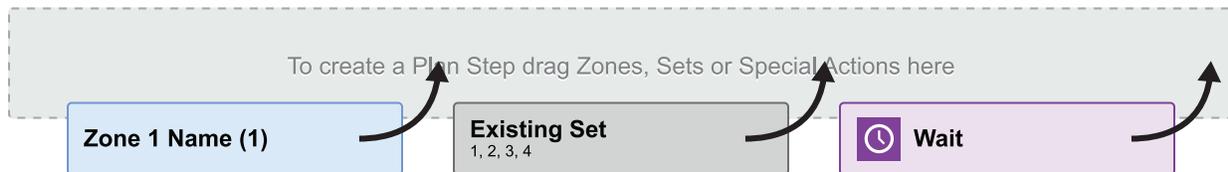
Remove Step

Cancel

Done

Expanded Plan Step:

Expand a Plan Step by selecting a collapsed Plan Step and select the Edit Details button. To reorder the Plan Steps, select the collapsed Plan Step and drag it to the new position and release it. Affected Plan Step numbers will update to reflect the new order.



Select and drag a Zone, Set, or Special Action onto the “To create a Plan Step drag Zones, Sets or Special Actions here” target to create a new Plan Step with the selected item.

1

New Plan Step

Zone 1 Name (1) ×

Duration (hh:mm)	Depth (in)	Injector On	Duration (hh:mm)	Capacity Remaining (gpm)
0:00	0.00	<input checked="" type="checkbox"/>	0:00	60

Remove Step

Cancel

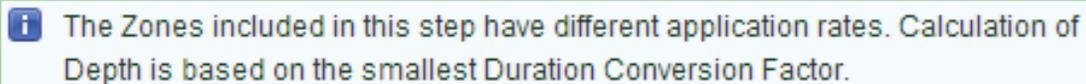
Done

Upon adding a Zone, Set or Special Action to a Plan Step or expanding a Plan Step, the step details are displayed. Select the Plan Step name to change the name of the Plan Step.

Add more Zones by dragging other Zones onto the Plan Set. Press the “x” icon of a Zone to remove it from the Plan Step.

Zone settings are used for calculating Duration Depth, Capacity Remaining and validation of the duration. It is important to have these settings as accurate as possible for plan building and reporting purposes.

Application Duration and Depth affect each other. Entering the Duration will calculate the Depth. Entering the Depth will calculate the Duration. This calculation is based on the “Duration to Apply 1 in” or “Duration to Apply 25 mm” settings of the Zones included in the Plan Step. This setting is also known as Duration Conversion Factor. If the setting is not available for the included Zones the Depth will not be calculated nor will Depth be able to be entered.

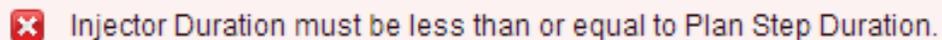


i The Zones included in this step have different application rates. Calculation of Depth is based on the smallest Duration Conversion Factor.

While it is allowable to have Zones in the Plan Step with different Duration Conversion Factors, it is advised to only irrigate Zones with the same setting at the same time. A notice display, explaining that Depth will be calculated based on the Zone with the smallest Duration Conversion Factor. This means when entering the Duration value, some of the Zones will apply less than the Depth displayed. Regardless of the setting, all Zones in the Plan Step will irrigate for the same Duration.

If the Plan Step requires chemigation, select the Injector On checkbox to enable entering the Injector Duration. The Injector Duration must be greater than zero, if enabled, and can be shorter; but not greater than the Plan Step Duration.

If the Injector Duration is greater than the Plan Step Duration, pressing Done will display an error requiring changing the Injector Duration.



x Injector Duration must be less than or equal to Plan Step Duration.

The Capacity Remaining is calculated based on the included Zone “Application Rate” settings and the “Reserved Flow Rate for Irrigation” System Water Source setting.

If the sum of the Zone Application Rates is greater than the Reserved Flow Rate for Irrigation, the Capacity Remaining will be negative and turn to the color red. If not addressed, selecting Done will display an error requiring removing Zones until the Capacity Remaining is greater than or equal to zero.



x The total Required Flow for this Plan Step exceeds the Pump Flow capacity

Select the Remove Step link to permanently remove the Plan Step. Press the Cancel button to ignore any changes and collapse the Plan Step. Press the Done button to collapse the Plan Step.

1	Existing Plan Step 1, 2	Duration 2:29	Depth 1.00 in
Zone 3 Name (3)			

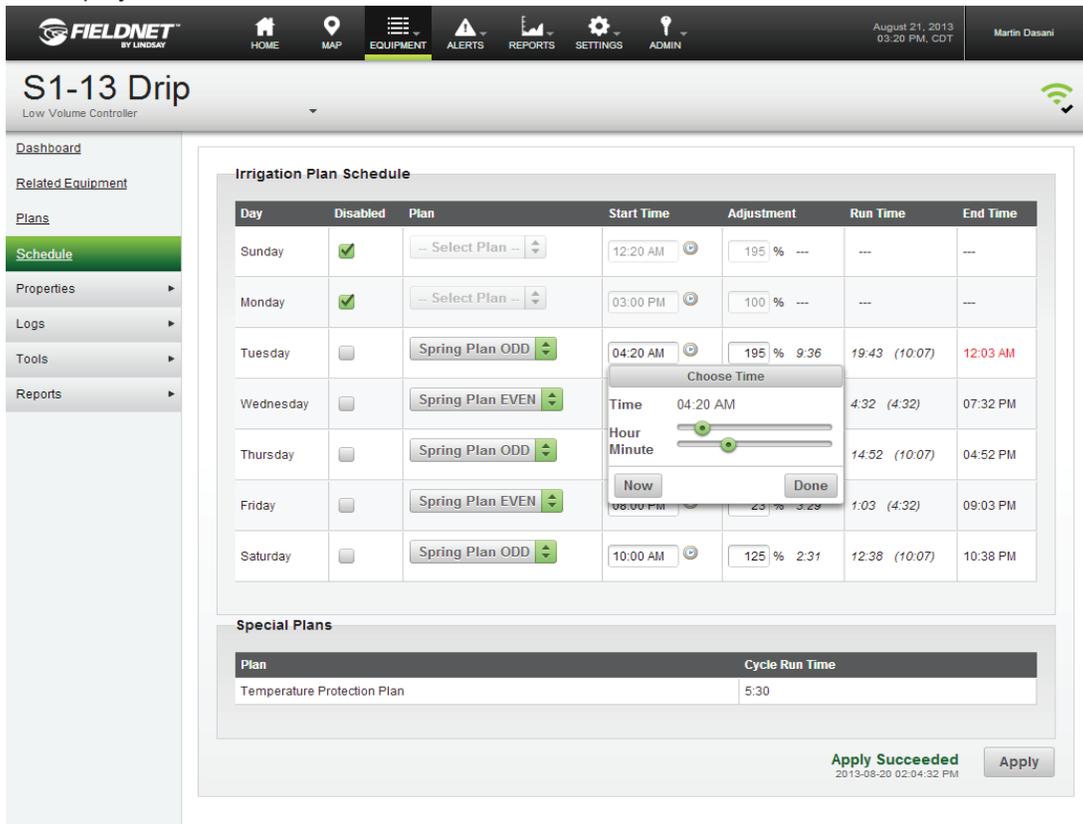
Add more Zones to a Plan Step by selecting and dragging other Zones onto an existing Plan Set. Zones can be added to a collapsed or expanded Plan Step.

Upon pressing the Done button the Plan Run Time will be updated in the Plan Overview.

Changes to Plan Steps are not saved until pressing the Save button in the Plan Overview.

Schedule

The Schedule displays a table of scheduled Plans for the Multi-Control.



Day	Disabled	Plan	Start Time	Adjustment	Run Time	End Time
Sunday	<input checked="" type="checkbox"/>	-- Select Plan --	12:20 AM	195 %	---	---
Monday	<input checked="" type="checkbox"/>	-- Select Plan --	03:00 PM	100 %	---	---
Tuesday	<input type="checkbox"/>	Spring Plan ODD	04:20 AM	195 % 9:36	19:43 (10:07)	12:03 AM
Wednesday	<input type="checkbox"/>	Spring Plan EVEN	04:20 AM	---	4:32 (4:32)	07:32 PM
Thursday	<input type="checkbox"/>	Spring Plan ODD	04:20 AM	---	14:52 (10:07)	04:52 PM
Friday	<input type="checkbox"/>	Spring Plan EVEN	08:00 PM	25 % 3:29	1:03 (4:32)	09:03 PM
Saturday	<input type="checkbox"/>	Spring Plan ODD	10:00 AM	125 % 2:31	12:38 (10:07)	10:38 PM

Plan	Cycle Run Time
Temperature Protection Plan	5:30

Apply Succeeded
2013-08-20 02:04:32 PM

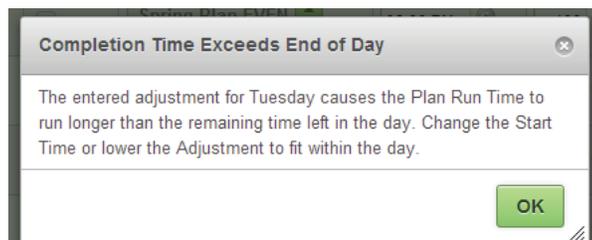
The Irrigation Plans interface is based on days of the week for scheduling different plans each day. The disable checkbox, when checked, prevents any plan use or editing for the selected day.

Schedule a Plan for a day of the week by selecting the desired Plan from the Plan dropdown menu,

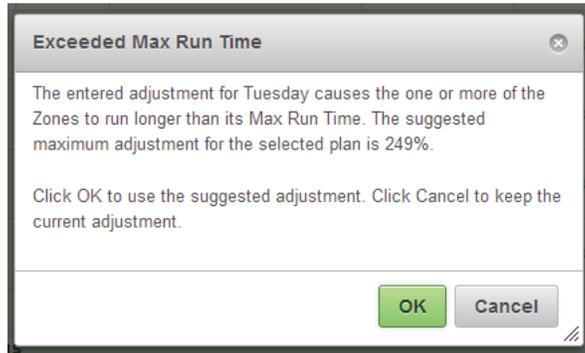
Enter the start time: Type in the hours and minutes into the Start Time field on the Plan Schedule screen or select the clock icon and the “Choose Time” dialog box will appear. Use the sliders on the “Choose Time” menu to set the hours and minutes for the start time on a given day or select Now to default to the current time on the system clock. Select Done when finished setting the start time.

Changes in weather patterns, crop maturity, or other factors can require the need of adjusting the scheduled Run Time. By default, a Plan will run at 100% of the Run Time and can be adjusted from 0% to 250%. Upon changing the Adjustment Percentage, the time difference will display next to the Adjustment Percentage as a positive or negative variable. The Run Time displays the new Run Time compared to the original Plan Run Time (displayed in parentheses). The End Time is based on the Start Time plus the adjusted Run Time.

If the Adjustment Percentage causes the Plan Run Time run beyond midnight, a dialog will display requiring changing the Start Time or the Adjustment Percentage before sending the schedule to the Multi-Control.



While it is allowable to have Zones run longer than its set Max Run Time, if the Adjustment Percentage causes any of the Zones to run longer than the Max Run Time, a dialog will display, suggesting the maximum Adjustment Percentage to avoid overwatering.



Upon pressing the Apply button, the scheduled Irrigation Plans and the Temperature Protection Plan are sent to the Multi-Control for distribution to the Wireless Switches. Feedback is provided next to the button.

Properties – General

Select Properties then General from the sidebar to view the General Properties page. Here the Time Zone and Map location (latitude and longitude from a GPS) can be adjusted.

Equipment Information

Equipment Information

Name:

Time Zone:

Map Settings

Latitude:

Longitude:

The Time Zone must be set local to the Multi-Control. The Time Zone is set to UTC by default.

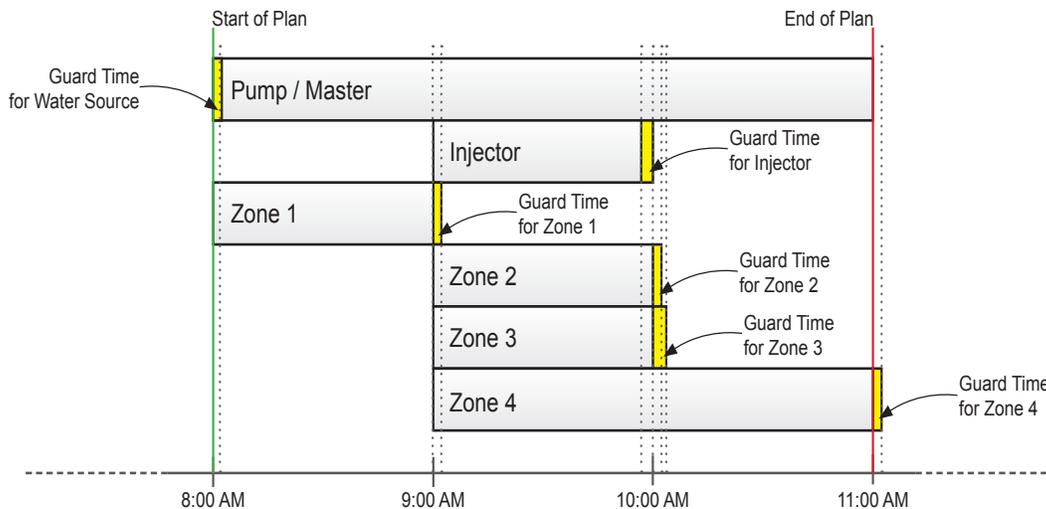
Although the Add to Map feature on the Map is a simpler method, if the precise Latitude and Longitude of the Multi-Control are available, enter the appropriate decimal degrees. This will add or adjust the Multi-Control location on the Map.

Press the Save button to save the settings.

Properties – System

Select Properties then System from the sidebar to view the System Settings and establish “Guard Times”.

Guard Times are used by the system to prevent water hammer, accidental chemigation, and smooth transitions between starting or stopping Zone irrigation.



The Water Source Guard Time is applied at the beginning of startup. The Injector and Zone Guard Times are applied at the end of the Injector and Zone runtimes. The specific component will shut off during Guard Times.

Water Source Setup

Water Source

Configuration

Water Source Pump Station

I/O Channel None

Guard Time sec

System Pressure

Current Pressure 29 psi

Min Volts V

Max Volts V

Pressure at Min Volts psi

Pressure at Max Volts psi

Low Alert psi

High Alert psi

Delay sec

System Flow

Current Flow 1 gpm

K Factor gal

Designed Capacity gpm

Irrigation Capacity gpm

Low Alert gpm

High Alert gpm

Flow Disparity Alert %

Delay sec

Apply Succeeded
2013-08-12 12:52:25 PM

I/O Boards are labeled with a unique 8 character ID (WRID) and each I/O Channel has a number. The Water Source is assigned to a specific I/O Board and Channel.

The Designed Flow Rate is the designed Water Source capacity that is available for Irrigation, Filtration, and Temperature Protection. The Irrigation Capacity for Irrigation is an allowable reserve capacity for Irrigation in order to run Filtration and Temperature Protection simultaneously. When making Plan Steps, this setting is used to calculate Remaining Capacity.

Flow Disparity is defined as the \pm percent difference between the current System Flow over the total actively irrigating Zone Application Rate(s). The Zone Application Rates are defined on the Properties – Zones page.

For example: The Alert is set at 20% disparity; if a Plan Step had 3 Zones set to 100 gpm for a total of 300 gpm running at the same time and the System Flow reads 200 gpm, the Flow Disparity would be equal to -33% (200 gpm / 300 gpm). This would set off the alert.

Press the Poll button to request the current Water Source settings from the Controller. Press the Apply button to save the settings to the Multi-Control.

Water Source Setup Settings		
Field	Description	Values
Configuration		
Water Source	Dropdown: Select the water source that is installed.	Options Pump Station Main Valve
I/O Channel	Dropdown: Select an available I/O Channel on System or Auxiliary I/O Board.	Options I/O Channels available with current assignments
Guard Time	Time in seconds. Amount of time to allow for Zone valves to open before the water source is running.	Unit Default Min Max Disable sec 10 0 600 0
System Pressure		
Current Pressure	Last reading of the System Pressure based on settings.	Unit English Metric psi bar
Min Volts	Minimum Volts the Pressure Transducer will report Typically 0 for a 0-5 V, 1 for 4-20mA.	Unit Default Min Max V 0.000 0.000 12.000
Max Volts	Maximum Volts the Pressure Transducer will report. Typically 5 for a 0-5 V, 5 for 4-20mA.	Unit Default Min Max V 0.000 0.000 12.000
Pressure at Min Volts	Pressure reading at Min Volts. Typically the bottom of the sensor's range.	Unit Default Min Max English Metric psi bar 0.0 0.00 0.0 0.00 145.0 10.00
Pressure at Max Volts	Pressure reading at Max Volts. Typically the top of the sensor's range.	Unit Default Min Max English Metric psi bar 0.0 0.00 0.0 0.00 145.0 10.00

Water Source Setup Settings			
Field	Description	Values	
Low Alert	Low Pressure Alert Threshold. Send an alert when the System Pressure is at or below this setting.		English Metric
		Unit	psi bar
		Default	blank blank
		Min	0.0 0.00
		Max	145.0 10.00
		Disable	blank blank
High Alert	High Pressure Alert Threshold. Send an alert when the System Pressure is at or above this setting.		English Metric
		Unit	psi bar
		Default	blank blank
		Min	0.0 0.00
		Max	145.0 10.00
		Disable	blank blank
Delay	Time in seconds. Amount of time to allow for System Pressure to stabilize upon water source running before checking for alert or shutdown conditions.		
		Unit	sec
		Default	10
		Min	0
		Max	600
		Disable	0
System Flow			
Current Flow	Last reading of the System Flow Based on settings.		English Metric
		Unit	gpm L/s
K Factor	Unit volume per Pulse. Number of gallons or liters per pulse.		English Metric
		Unit	gal L
		Default	0 0
		Min	0 0
		Max	17312 65534
Designed Capacity	Flow rate. Flow Rate capacity of the Water Source for Irrigation, Filtration, and Temperature Protection.		English Metric
		Unit	gpm L/s
		Default	0 0
		Min	0 0
		Max	17312 65534
Irrigation Capacity	Flow Rate capacity reserved specifically for Irrigation only. Remaining capacity is made available for Filtration and Temperature Protection. Must be less than or equal to Designated Flow Rate.		English Metric
		Unit	gpm L/s
		Default	0 0
		Min	0 0
		Max	17312 65534

Water Source Setup Settings																				
Field	Description	Values																		
Low Alert	Low Pressure Alert Threshold Send an alert when the System Flow is at or below this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>gpm</td> <td>L/s</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> <td>0</td> </tr> <tr> <td>Max</td> <td>17312</td> <td>65534</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	gpm	L/s	Default	blank	blank	Min	0	0	Max	17312	65534	Disable	blank	blank
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Unit	gpm	L/s																		
Default	blank	blank																		
Min	0	0																		
Max	17312	65534																		
Disable	blank	blank																		
Flow Disparity Alert	Flow Disparity Alert Threshold Send an alert when the difference between System Flow and the total of the active Zone application rates is greater than or equal to this percentage.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>%</td> </tr> <tr> <td>Default</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>100</td> </tr> <tr> <td>Disable</td> <td>blank</td> </tr> </tbody> </table>	Unit	%	Default	blank	Min	0	Max	100	Disable	blank								
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Delay	Time in seconds. Amount of time to allow for System Flow to stabilize upon system changes before checking for alert or shutdown conditions.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>sec</td> </tr> <tr> <td>Default</td> <td>60</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>600</td> </tr> <tr> <td>Disable</td> <td>0</td> </tr> </tbody> </table>	Unit	sec	Default	60	Min	0	Max	600	Disable	0								
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Disable	0																			

Injector Setup

Injector Settings

Configuration

I/O Channel None ▾

Guard Time 40 sec

Injector Flow

Has Injector Flow

K Factor 100 gal

Low Alert 5 gpm

High Alert 150 gpm

Delay 60 sec

Apply Succeeded
2013-08-12 12:53:21 PM

Poll Apply

Press the Poll button to request the current Injector settings from the Controller. Press the Apply button to save the settings to the Multi-Control.

Injector Setup Settings		
Field	Description	Values
Configuration		
I/O Channel	Dropdown: Select an available I/O Channel on System or Auxiliary I/O Board.	Options I/O Channels available with current assignments
Guard Time	Time in seconds. Amount of time to subtract from the Injector runtime to allow the chemical to flush out.	Unit sec Default 254 Min 0 Max 254 Disable 0
Injector Flow		
Has Injector Flow	Checkbox: Select the checkbox if an Injector Flow Meter is installed.	Options Checked Unchecked
K Factor	Unit volume per Pulse. Number of gallons or liters per pulse	English Metric Unit gal L Default 0 0 Min 0 0 Max 17312 65534

Injector Setup Settings																				
Field	Description	Values																		
Low Alert	Low Pressure Alert Threshold Send an alert when the Injector Flow is at or below this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>gpm</td> <td>L/s</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> <td>0</td> </tr> <tr> <td>Max</td> <td>17312</td> <td>65534</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	gpm	L/s	Default	blank	blank	Min	0	0	Max	17312	65534	Disable	blank	blank
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Options Setup

Options

Rainfall

Has Rainfall Sensor

Resolution in

Shutdown

Current Accumulation in [Clear](#)

Accumulation in

Time Span hr

Temperature

Has Temperature Sensor

Min Volts V

Max Volts V

Temperature at Min Volts °F

Temperature at Max Volts °F

Low Alert °F

High Alert °F

Auto-Enable Temperature Protection Plan

Above °F

Below °F

pH

Has pH Sensor

Min Volts V

Max Volts V

pH at Min Volts

pH at Max Volts

Low Alert

High Alert

Poll Succeeded
2013-05-14 03:18:24 PM

The Auto-Enable Temperature Protection Plan option is available if a Temperature Sensor is installed. This will continuously run the Temperature Protection Plan as long as the Above or Below temperature criteria are met.

A Multi-Control can have either a Temperature Sensor or a pH Sensor installed, but not both.

Select the Poll button to request the current Options settings from the Controller. Select the Apply button to save the settings to the Multi-Control.

Options Setup Settings																	
Field	Description	Values															
Rainfall																	
Has Rainfall Sensor	Checkbox: Select the checkbox if a Rainfall Sensor is installed. If not installed the remaining related fields are disabled.	Options Checked Unchecked															
Resolution	Sensor Resolution. Amount of rainfall accumulated per pulse.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>in</td> <td>mm</td> </tr> <tr> <td>Default</td> <td>0.00</td> <td>0.0</td> </tr> <tr> <td>Min</td> <td>0.00</td> <td>0.0</td> </tr> <tr> <td>Max</td> <td>2.58</td> <td>65.5</td> </tr> </tbody> </table>		English	Metric	Unit	in	mm	Default	0.00	0.0	Min	0.00	0.0	Max	2.58	65.5
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Unit	in	mm															
Default	0.00	0.0															
Min	0.00	0.0															
Max	2.58	65.5															
Current Accumulation	Rainfall Accumulation. Amount of rainfall accumulated over the time specified above. Select the Clear link to reset the accumulated rainfall on the Multi-Control.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>in</td> <td>mm</td> </tr> </tbody> </table>		English	Metric	Unit	in	mm									
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Options Setup Settings																				
Field	Description	Values																		
Accumulation	Rainfall Accumulation. Amount of rainfall accumulated used in combination with Over Time to create a shutdown condition.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>in</td> <td>mm</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> <td>0</td> </tr> <tr> <td>Max</td> <td>393.70</td> <td>10000.0</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	in	mm	Default	blank	blank	Min	0	0	Max	393.70	10000.0	Disable	blank	blank
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Default	blank	blank																		
Min	0	0																		
Max	393.70	10000.0																		
Disable	blank	blank																		
Time Span	Time in hours. Amount of time to accumulate rainfall over to create a shutdown condition.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>hr</td> </tr> <tr> <td>Default</td> <td>24</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>672</td> </tr> <tr> <td>Disable</td> <td>0</td> </tr> </tbody> </table>	Unit	hr	Default	24	Min	0	Max	672	Disable	0								
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Has Temperature Sensor	Checkbox: Select the checkbox if a Temperature Sensor is installed. If not installed the remaining related fields are disabled.	<table border="1"> <tbody> <tr> <td>Options</td> <td>Checked Unchecked</td> </tr> </tbody> </table>	Options	Checked Unchecked																
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Min Volts	Minimum Volts the Temperature Sensor will report. Typically 0 for a 0-5 V, 1 for 4-20mA.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>V</td> </tr> <tr> <td>Default</td> <td>0.000</td> </tr> <tr> <td>Min</td> <td>0.000</td> </tr> <tr> <td>Max</td> <td>12.000</td> </tr> </tbody> </table>	Unit	V	Default	0.000	Min	0.000	Max	12.000										
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Unit	V																			
Default	0.000																			
Min	0.000																			
Max	12.000																			
Temperature at Min Volts	Temperature reading at Volts Minimum. Typically the bottom of the sensor's range.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>185</td> <td>85</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	-40	-40	Min	-40	-40	Max	185	85			
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Min	-40	-40																		
Max	185	85																		
Temperature at Max Volts	Temperature reading at Volts Maximum. Typically the top of the sensor's range.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>185</td> <td>85</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>185</td> <td>85</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	185	85	Min	-40	-40	Max	185	85			
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Options Setup Settings																				
Field	Description	Values																		
Low Alert	Low Temperature Alert Threshold Send an alert when the Temperature is at or below this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>185</td> <td>85</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	blank	blank	Min	-40	-40	Max	185	85	Disable	blank	blank
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Auto-Enable Temperature Protection Plan	Checkbox: Select the checkbox if the Multi-Control should run the Temperature Protection Plan automatically runs based on the Above and Below temperature settings. If not auto-enabling the remaining related fields are disabled.	<table border="1"> <thead> <tr> <th>Options</th> <th>Checked</th> <th>Unchecked</th> </tr> </thead> <tbody> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Options	Checked	Unchecked		<input type="checkbox"/>	<input type="checkbox"/>												
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Above	High Temperature Threshold. The Temperature Protection Plan will cycle if the Temperature is greater than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>185</td> <td>85</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	blank	blank	Min	-40	-40	Max	185	85	Disable	blank	blank
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Max	185	85																		
Disable	blank	blank																		
Below	Low Temperature Threshold. The Temperature Protection Plan will cycle if the Temperature is less than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>185</td> <td>85</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	blank	blank	Min	-40	-40	Max	185	85	Disable	blank	blank
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Options Setup Settings		
Field	Description	Values
Min Volts	Minimum Volts the pH Sensor will report. Typically 0 for a 0-5 V, 1 for 4-20mA.	Unit V Default 0.000 Min 0.000 Max 12.000
Max Volts	Maximum Volts the pH Sensor will report. Typically 5 for a 0-5 V, 5 for 4-20mA.	Unit V Default 0.000 Min 0.000 Max 12.000
pH at Min Volts	pH reading at Volts Minimum. Typically the bottom of the sensor's range.	Unit pH Default 0.0 Min 0.0 Max 14.0
pH at Max Volts	pH reading at Volts Maximum. Typically the top of the sensor's range.	Unit pH Default 14.0 Min 0.0 Max 14.0
Low Alert	Low pH Alert Threshold. Send an alert when the pH is at or below this setting.	Unit pH Default blank Min 0.0 Max 14.0 Disable blank
High Alert	High pH Alert Threshold. Send an alert when the pH is at or above this setting.	Unit pH Default blank Min 0.0 Max 14.0 Disable blank

System Settings

System Settings

<p>Pressure Shutdown</p> <p>Low Pressure Shutdown <input type="text"/> bar</p> <p>High Pressure Shutdown <input type="text"/> bar</p> <p>Temperature Shutdown</p> <p>Low Temperature Shutdown <input type="text"/> °C</p> <p>Low Temperature Restart <input type="text"/> °C</p> <p>High Temperature Shutdown <input type="text"/> °C</p> <p>High Temperature Restart <input type="text"/> °C</p>	<p>Flow Shutdown</p> <p>Low Flow Shutdown <input type="text"/> L/s</p> <p>High Flow Shutdown <input type="text"/> L/s</p> <p>Flow Disparity Shutdown <input type="text"/> %</p> <p>Wireless Switch Shutdown</p> <p><input type="checkbox"/> Ignore Wireless Switch Shutdown</p>
---	---

A Temperature Sensor must be installed for a Temperature Shutdown.

If a Wireless Switch has a Shutdowns condition, it will shutdown the entire system. To ignore a Wireless Switch Shutdown and continue running the scheduled plans, select the Ignore Wireless Switch Shutdown checkbox.

NOTE: Ignoring Wireless Switch Shutdown conditions may affect chemigation applications, cause Flow Disparity alerts, and other related side effects.

Press the Poll button to request the current System settings from the Controller. Press the Apply button to save the settings to the Multi-Control.

System Settings																				
Field	Description	Values																		
Pressure Shutdown																				
Low Pressure Shutdown	Low Pressure Shutdown Threshold. Shutdown the Multi-Control when the System Pressure is less than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>psi</td> <td>bar</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0.0</td> <td>0.00</td> </tr> <tr> <td>Max</td> <td>145.0</td> <td>10.00</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	psi	bar	Default	blank	blank	Min	0.0	0.00	Max	145.0	10.00	Disable	blank	blank
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High Pressure Shutdown	High Pressure Shutdown Threshold. Shutdown the Multi-Control when the System Pressure is greater than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>psi</td> <td>bar</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0.0</td> <td>0.00</td> </tr> <tr> <td>Max</td> <td>145.0</td> <td>10.00</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	psi	bar	Default	blank	blank	Min	0.0	0.00	Max	145.0	10.00	Disable	blank	blank
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Max	145.0	10.00																		
Disable	blank	blank																		
Flow Shutdown																				
Low Flow Shutdown	Low Flow Shutdown Threshold. Shutdown the Multi-Control when the System Flow is less than or equal to this setting	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>gpm</td> <td>L/s</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> <td>0</td> </tr> <tr> <td>Max</td> <td>17312</td> <td>65534</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	gpm	L/s	Default	blank	blank	Min	0	0	Max	17312	65534	Disable	blank	blank
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Max	17312	65534																		
Disable	blank	blank																		
Flow Disparity Shutdown	Flow Disparity Shutdown Threshold. Shutdown the Multi-Control when the difference between System Flow and the total of the active Zone application rates is greater than or equal to this percentage.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>%</td> </tr> <tr> <td>Default</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>100</td> </tr> <tr> <td>Disable</td> <td>blank</td> </tr> </tbody> </table>	Unit	%	Default	blank	Min	0	Max	100	Disable	blank								
Unit	%																			
Default	blank																			
Min	0																			
Max	100																			
Disable	blank																			

System Settings																				
Field	Description	Values																		
Temperature Shutdown																				
Low Temperature Shutdown	Low Temperature Shutdown Threshold. Shutdown the Multi-Control when the Temperature is less than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>212</td> <td>212</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	blank	blank	Min	-40	-40	Max	212	212	Disable	blank	blank
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Default	blank	blank																		
Min	-40	-40																		
Max	212	212																		
Disable	blank	blank																		
Low Temperature Restart	Low Temperature Restart Threshold. Restart the Multi-Control after a shutdown when the Temperature is greater than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>°F</td> <td>°C</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>-40</td> <td>-40</td> </tr> <tr> <td>Max</td> <td>212</td> <td>212</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	°F	°C	Default	blank	blank	Min	-40	-40	Max	212	212	Disable	blank	blank
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Default	blank	blank																		
Min	-40	-40																		
Max	212	212																		
Disable	blank	blank																		
Wireless Switch Shutdown																				
Ignore Wireless Switch Shutdown	Checkbox: Select the checkbox if the Multi-Control should continue irrigating if there is a Wireless Switch Shutdown.	<table border="1"> <thead> <tr> <th>Options</th> </tr> </thead> <tbody> <tr> <td>Checked</td> </tr> <tr> <td>Unchecked</td> </tr> </tbody> </table>	Options	Checked	Unchecked															
Options																				
Checked																				
Unchecked																				

Properties – Filtration

Select Properties then Filtration, in the sidebar, to view the Filtration Settings. Most of the settings will have been entered by the Lindsay Dealer and do not require any adjustment.

The number of Filter Flush Valves and the settings generate the Filter Flush Plan, which cycles through each Filter Flush Valve chronologically and executes a back flush for the set Flush Time.

Filter Flush Valves

Filter Flush Valves

Filter Flush Valve 1	0000000A - 3
Filter Flush Valve 2	0000000A - 4
Filter Flush Valve 3	0000000A - 5
Filter Flush Valve 4	0000000A - 6
Filter Flush Valve 5	0000000A - 7
Filter Flush Valve 6	0000000A - 8
Filter Flush Valve 7	0000000A - 9
Filter Flush Valve 8	0000000A - 10

Filter Flush Valve 23	None
Filter Flush Valve 24	None
Filter Flush Valve 25	None
Filter Flush Valve 26	None
Filter Flush Valve 27	None
Pressure Sustain Valve	0000000A - 2

Poll Succeeded
2013-08-14 04:37:24 PM

I/O Boards are labeled with a unique 8 character ID (WRID) and each I/O Channel has a number. Filter Flush Valves and the Pressure Sustain Valve are assigned to a specific I/O Board and Channel.

The order of the Filter Flush Plan is determined by assigning the I/O channel to the corresponding Filter Flush Valve. If, for instance, there are three filters, select the I/O channel for Filter Flush Valve 1, 2 and 3 and set the others to None.

Then set the I/O channel for the Pressure Sustain Valve. The Pressure Sustain Valve creates back pressure during each flush.

Press the Poll button to request the current Filter Flush Valves installed on the Controller. Press the Apply button to save the settings to the Multi-Control.

Filtration Settings

Filtration Settings

Filter Flush Plan

Backflush Duration sec

Dwell Time sec

Filter Flush Mode

Time Interval

Pressure Differential

Frequency min

Run if Pressure Differential Above bar

Stop if Pressure Differential Below bar

Pressure Differential Delay sec

Max Cycle Retries

Post-Filter Pressure

Has Post-Filter Pressure Sensor

Current Pressure 1.03 bar

Min Volts V

Max Volts V

Pressure at Min Value bar

Pressure at Max Value bar

Low Alert bar

High Alert bar

Delay sec

Choose the method of determining when to execute a Filter Flush Cycle by selecting either a Time Interval or Pressure Differential. The Pressure Differential method requires installing a Post-Filter Pressure Sensor.

Press the Poll button to request the current Filtration Settings on the Controller. Press the Apply button to save the settings to the Multi-Control.

Filtration Settings										
Field	Description	Values								
Filter Flush Valves										
Backflush Duration	Time in seconds. Amount of time to backflush a filter tank.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Unit</td><td>sec</td></tr> <tr><td>Default</td><td>120</td></tr> <tr><td>Min</td><td>0</td></tr> <tr><td>Max</td><td>600</td></tr> </table>	Unit	sec	Default	120	Min	0	Max	600
Unit	sec									
Default	120									
Min	0									
Max	600									
Dwell Time	Time in seconds. Amount of time between backflushing of filter tanks.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Unit</td><td>sec</td></tr> <tr><td>Default</td><td>60</td></tr> <tr><td>Min</td><td>0</td></tr> <tr><td>Max</td><td>600</td></tr> </table>	Unit	sec	Default	60	Min	0	Max	600
Unit	sec									
Default	60									
Min	0									
Max	600									
Time Interval	Radio Button: Select if the Filter Flush Plan is based on a time interval.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Options</td><td>Selected Unselected</td></tr> </table>	Options	Selected Unselected						
Options	Selected Unselected									
Frequency	Time in minutes. Amount of time between Filter Flush Plan cycles based on the Water Source run time.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Unit</td><td>min</td></tr> <tr><td>Default</td><td>360</td></tr> <tr><td>Min</td><td>0</td></tr> <tr><td>Max</td><td>2880</td></tr> </table>	Unit	min	Default	360	Min	0	Max	2880
Unit	min									
Default	360									
Min	0									
Max	2880									

Filtration Settings																	
Field	Description	Values															
Pressure Differential	Radio Button: Select if the Filter Flush Plan is based on a Pressure Differential (System Pressure – Post-Filter Pressure). This option requires having a Post-Filter Pressure Sensor installed.	Options Selected Unselected															
Run if Pressure Differential Above	Run Filter Flush Plan Pressure Differential Threshold. Initiate Filter Flush Plan cycle if Pressure Differential is greater than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>psi</td> <td>bar</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0.0</td> <td>0.00</td> </tr> <tr> <td>Max</td> <td>145.0</td> <td>10.00</td> </tr> </tbody> </table>		English	Metric	Unit	psi	bar	Default	blank	blank	Min	0.0	0.00	Max	145.0	10.00
	English	Metric															
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Default	blank	blank															
Min	0.0	0.00															
Max	145.0	10.00															
Stop if Pressure Below	Stop Filter Flush Plan Pressure Differential Threshold. Do not initiate Filter Flush Plan cycle if Pressure Differential is less than or equal to this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>psi</td> <td>bar</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0.0</td> <td>0.00</td> </tr> <tr> <td>Max</td> <td>145.0</td> <td>10.00</td> </tr> </tbody> </table>		English	Metric	Unit	psi	bar	Default	blank	blank	Min	0.0	0.00	Max	145.0	10.00
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Min	0.0	0.00															
Max	145.0	10.00															
Attempts Before Alerting	Number of tries. Number of contiguous Filter Flush Plan cycles allowed in order to reduce the Pressure Differential to meet the Stop threshold before sending an alert condition and stopping future Filter Flush Plan cycles.	<table border="1"> <tbody> <tr> <td>Default</td> <td>0</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>254</td> </tr> <tr> <td>Disable</td> <td>0</td> </tr> </tbody> </table>	Default	0	Min	0	Max	254	Disable	0							
Default	0																
Min	0																
Max	254																
Disable	0																
Delay	Time in seconds. Amount of time the Pressure Differential is above the Run threshold before initiating Filter Flush Plan cycle.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>sec</td> </tr> <tr> <td>Default</td> <td>30</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>600</td> </tr> <tr> <td>Disable</td> <td>0</td> </tr> </tbody> </table>	Unit	sec	Default	30	Min	0	Max	600	Disable	0					
Unit	sec																
Default	30																
Min	0																
Max	600																
Disable	0																

Filtration Settings		
Field	Description	Values
Post-Filter Pressure		
Has Post-Filter Pressure Sensor	Checkbox: Select the checkbox if a Post-Filter Pressure Sensor is installed. If not installed the remaining related fields are disabled.	Options Checked Unchecked
Current Pressure	Last reading of the Post-Filter Pressure based on settings.	Unit English Metric psi bar
Min Volts	Minimum Volts the Pressure Transducer will report typically 0 for a 0-5 V, 1 for 4-20mA.	Unit Default Min Max V 0.000 0.000 12.000
Max Volts	Maximum Volts the Pressure Transducer will report typically 5 for a 0-5 V, 5 for 4-20mA.	Unit Default Min Max V 0.000 0.000 12.000
Pressure at Min Volts	Pressure reading at Volts Minimum, typically the bottom of the sensor's range.	Unit Default Min Max English Metric psi bar 0.0 0.00 0.0 0.00 145.0 10.00
Pressure at Max Volts	Pressure reading at Volts Maximum, typically the top of the sensor's range.	Unit Default Min Max English Metric psi bar 0.0 0.00 0.0 0.00 145.0 10.00
Low Alert	Low Pressure Alert Threshold. Send an alert when the Post-Filter Pressure is at or below this setting.	Unit Default Min Max Disable English Metric psi bar blank blank 0.0 0.00 145.0 10.00 blank blank

Filtration Settings																				
Field	Description	Values																		
High Alert	High Pressure Alert Threshold. Send an alert when the Post-Filter Pressure is at or above this setting.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>psi</td> <td>bar</td> </tr> <tr> <td>Default</td> <td>blank</td> <td>blank</td> </tr> <tr> <td>Min</td> <td>0.0</td> <td>0.00</td> </tr> <tr> <td>Max</td> <td>145.0</td> <td>10.00</td> </tr> <tr> <td>Disable</td> <td>blank</td> <td>blank</td> </tr> </tbody> </table>		English	Metric	Unit	psi	bar	Default	blank	blank	Min	0.0	0.00	Max	145.0	10.00	Disable	blank	blank
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Unit	psi	bar																		
Default	blank	blank																		
Min	0.0	0.00																		
Max	145.0	10.00																		
Disable	blank	blank																		
Delay	Time in seconds. Amount of time to allow for Post-Filter Pressure to stabilize upon water source running or Filter Flush Plan cycle completing before checking for alert conditions.	<table border="1"> <tbody> <tr> <td>Unit</td> <td>sec</td> </tr> <tr> <td>Default</td> <td>30</td> </tr> <tr> <td>Min</td> <td>0</td> </tr> <tr> <td>Max</td> <td>600</td> </tr> <tr> <td>Disable</td> <td>blank</td> </tr> </tbody> </table>	Unit	sec	Default	30	Min	0	Max	600	Disable	blank								
Unit	sec																			
Default	30																			
Min	0																			
Max	600																			
Disable	blank																			

Properties – Wireless Switches

Select Properties then Wireless Switches in the sidebar to view the Wireless Switches configured for use with the Multi-Control.

Wireless Switches								
UID	Radio	Firmware	Comm Status	Signal Strength	Battery Voltage	Solar Voltage		
00000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
01000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
02000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
03000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
04000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
05000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		
06000000	AA000000BB000000	1.2.33	✓	80%	1.0 V	1.0 V		

Poll Succeeded
2013-11-19 11:57:21 AM

Press the Poll button to request the available Wireless Switches on the Controller.

Each Wireless Switch will have a unique 8 character UID (WRID) for identifying Zones. The Radio column displays the radio address for support purposes. Firmware displays the current version of firmware for the specific Wireless Switch.

The Comm Status and Signal Strength are used to show current communication status. The Comm Status has the following states:

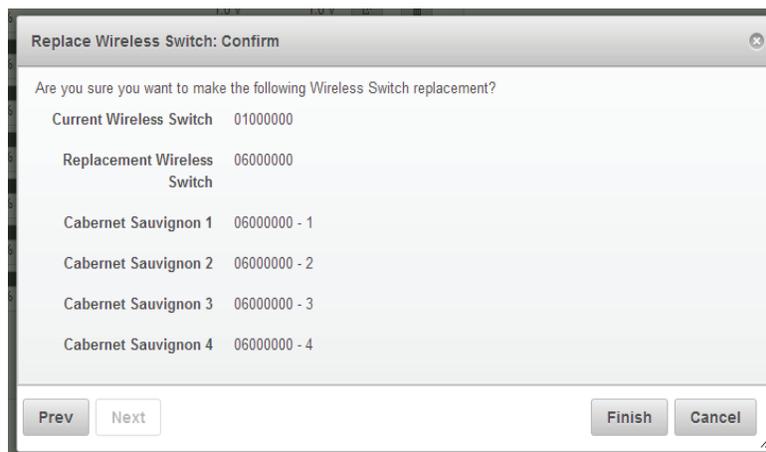
Icon	Description
	Good (> 75% success rate)
	Warning (> 25% to < 75% success rate)
	Fault (< 25% success rate)

In the event a Wireless Switch needs to be replaced, selecting the Replace button will display the Replace Valve Controller wizard. Any unused or new Wireless Switch must be installed prior to replacing a Wireless Switch. Upon completing the wizard, the old Wireless Switch will be unassigned and removed from the Multi-Control.



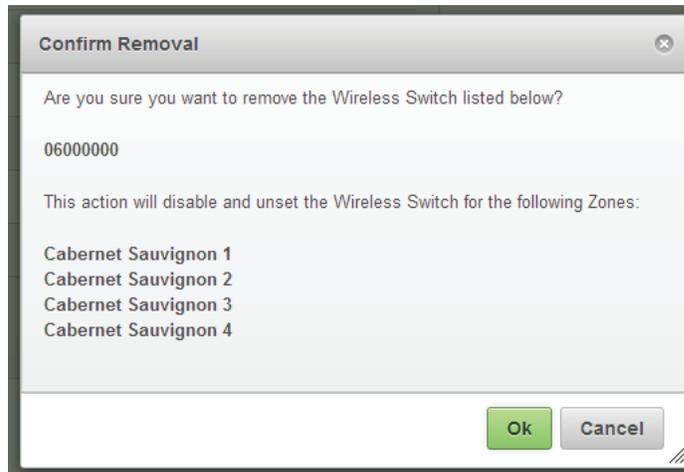
Select the Replacement Valve Controller to the new Wireless Switch.

If the Switch has Zones assigned to it, a list of these Zones and valves will display. Select the correct Zone and valve number from the dropdown menu to establish each Zone and valve. The dropdown will be populated with the available valves from the Replacement Valve Controller. Map the current Zones to the appropriate Wireless Switch and Valves.



Select the Next button to confirm the replacement. Select the Prev (Previous) button to go to the previous step. Select the Cancel button to exit the wizard and ignore any changes. Select the Finish button to proceed with replacing the Wireless Switch.

In the event a Wireless Switch needs to be removed, selecting the Remove button will display the Confirm Removal dialog. Upon proceeding, the old Wireless Switch will be unassigned and removed from the Multi-Control.



A list of the Zones is displayed, if Zones are assigned to the Wireless Switch. Press the Ok button to proceed with removing the Wireless Switch. Select the Cancel button to exit the wizard and ignore any changes. Feedback is provided next to the Poll button for Replace or Remove actions.

Properties – Zones

Select Properties then Zones in the sidebar to view the Zone Settings. Most of the settings will have been entered by the Lindsay Dealer and will not require any editing.

Zone Information

Short Name	Name	Disabled	Application Rate	Area	Duration per 1 in	Guard Time	Max On Time	Valve Controller
1	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 1
2	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 2
3	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 3
4	Cabernet Sauv	<input type="checkbox"/>	17 gpm	61258 ft ²	149 min	10 sec	372 min	00000000 - 4
5	Pinot Noir 1	<input type="checkbox"/>	13 gpm	63750 ft ²	149 min	10 sec	372 min	00000001 - 1
6	Pinot Noir 2	<input type="checkbox"/>	7 gpm	30115 ft ²	149 min	10 sec	372 min	00000001 - 2
7	Pinot Noir 3	<input type="checkbox"/>	6 gpm	30115 ft ²	149 min	10 sec	372 min	00000001 - 3
//								
22	Touriga Nacior	<input type="checkbox"/>	23 gpm	93439 ft ²	149 min	10 sec	372 min	00000005 - 2
23	Touriga Nacior	<input type="checkbox"/>	20 gpm	82736 ft ²	149 min	10 sec	372 min	00000005 - 3
24	Touriga Nacior	<input type="checkbox"/>	17 gpm	72032 ft ²	149 min	10 sec	372 min	00000005 - 4
25	Touriga Nacior	<input checked="" type="checkbox"/>	15 gpm	61329 ft ²	149 min	10 sec	372 min	00000006 - 1
26	Touriga Nacior	<input type="checkbox"/>	12 gpm	50625 ft ²	149 min	10 sec	372 min	00000006 - 2
27	Touriga Nacior	<input type="checkbox"/>	10 gpm	39921 ft ²	149 min	10 sec	372 min	00000006 - 3
28	Cooling	<input type="checkbox"/>	5 gpm	196858 ft ²	246 min	10 sec	500 min	00000006 - 4

Applying Changes 79%  Poll Apply

Each Zone has a full name and a short name. The short name is used for displaying a list of Zones on the FieldNET portal and mobile application. A Zone number or an abbreviation or acronym of three characters or less is the best practice for short names.

If a Zone is under maintenance and should be temporarily removed from running during a Plan, select the Disabled checkbox to disable the Zone.

The Application Rate is a requirement for calculating resource availability. The Application Rate is not the emitter or sprinkler rate, but rather the overall flow rate expected for the entire Zone at pressure.

The Area is the area of irrigated land included in the Zone.

The Duration per 1 inch (25 mm) is the amount of time in minutes that a Zone must irrigate to apply 1 inch or 25 millimeters across the Zone area. This is also known as the Duration Conversion Factor.

The Guard Time is the amount of time in seconds that a Zone valve will remain opened after the ending of a Plan Step if the Zone valve is not included in the next Plan Step.

The Max On Time is the amount of time (in minutes) that a Zone can irrigate without overwatering.

The Valve Controller is a dropdown list of Valves available for the Wireless Switches. Select which Valve Controller and Valve Number is assigned to the Zone. Multiple Zones cannot share the same Valve Controller and Valve Number.

Press the Add Zone button to add a new Zone to the end of the list. Press the Poll button to request the current Zone settings on the Controller. Press the Apply button to save the settings to the Multi-Control for distribution to the remote Wireless Switches.

Zone Information Settings																	
Field	Description	Values															
Zone Information																	
Short Name	Text Field.	Short Name of the Zone. A Zone number or an abbreviation or acronym of three characters or less is the best practice for short names.															
Name	Text Field.	Name of the Zone															
Disabled	Checkbox: Select the checkbox if a Zone is temporarily disabled.	Options Checked Unchecked															
Application Rate	Designed Flow Rate. Overall flow rate expected for the entire Zone at pressure.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>gpm</td> <td>L/s</td> </tr> <tr> <td>Default</td> <td>0</td> <td>0</td> </tr> <tr> <td>Min</td> <td>0</td> <td>0</td> </tr> <tr> <td>Max</td> <td>158503</td> <td>10000</td> </tr> </tbody> </table>		English	Metric	Unit	gpm	L/s	Default	0	0	Min	0	0	Max	158503	10000
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Default	0	0															
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Max	158503	10000															
Area	Area of irrigated land. Area of irrigated land included in the Zone.	<table border="1"> <thead> <tr> <th></th> <th>English</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>Unit</td> <td>ft²</td> <td>m²</td> </tr> <tr> <td>Default</td> <td>0</td> <td>0</td> </tr> <tr> <td>Min</td> <td>1076390</td> <td>100000</td> </tr> <tr> <td>Max</td> <td>0</td> <td>0</td> </tr> </tbody> </table>		English	Metric	Unit	ft ²	m ²	Default	0	0	Min	1076390	100000	Max	0	0
	English	Metric															
Unit	ft ²	m ²															
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Zone Information Settings		
Field	Description	Values
Duration per 1 inch or Duration per 25 mm	Time in minutes. Duration Conversion Factor Amount of time that a Zone must irrigate to apply 1 inch or 25 millimeters across the Zone area.	Unit min Default 0 Min 0 Max 600
Guard Time	Time in seconds. Amount of time to subtract from the Zone runtime to allow for smooth transitions between Plan Steps or Zone changes.	Unit sec Default 60 Min 0 Max 254 Disable 0
Max On Time	Time in minutes. Amount of time Zone can irrigate in a Plan Step to prevent overwatering.	Unit min Default 0 Min 0 Max 65534
I/O Channel	Dropdown.	Dropdown of available Wired or Wireless Switches and Channels

Properties – Alerts

Select Properties then Alerts in the sidebar to view the Alert Settings.

Equipment Alerts

Equipment Alerts

Alert Name	Alert Type
Chemigating	Level 3 (Low) ▼
Filter Flush Cycle Running	Level 3 (Low) ▼
Flow Delay	Level 2 (Medium) ▼
Flush Hardware Error	Level 2 (Medium) ▼
Hardware Shutdown	Level 1 (High) ▼
Hardware Warning	Level 2 (Medium) ▼
//	
Valve Controller Comm Warning	Level 2 (Medium) ▼
Valve Controller Solar Panel Error	Level 1 (High) ▼
Zone Hardware Error	Level 2 (Medium) ▼

Equipment Alerts have three different Alert Types.

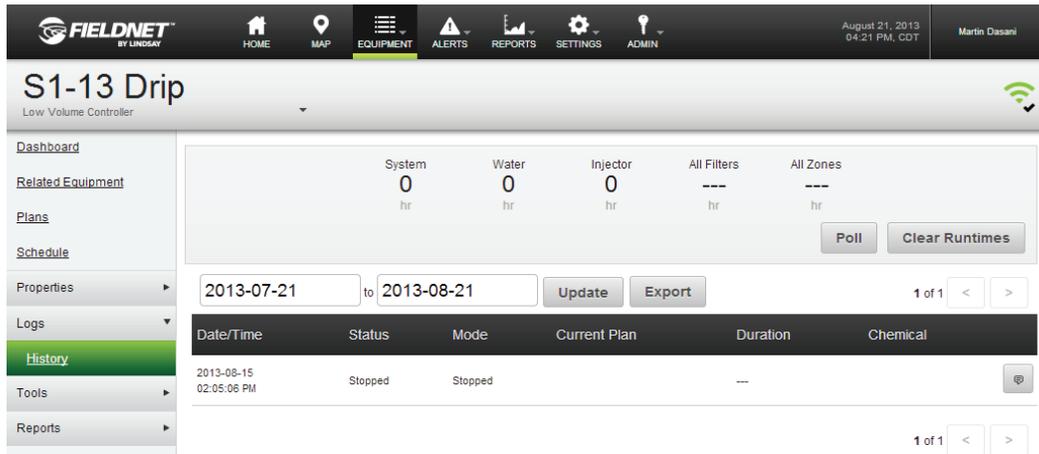
- Level 1 alerts are faults or shutdown conditions and require immediate action to continue operation.
- Level 2 alerts are warnings and should be acted on to prevent a fault or shutdown condition.
- Level 3 alerts are informational notifications and do not require action.

Outside of site-specific needs, it is a best practice to use the default Alert Type settings.

Select the Save button to save the settings.

Event History

Select Logs then History in the sidebar to view the Multi-Control History.



The screenshot shows the FIELDNET interface for the S1-13 Drip controller. The top navigation bar includes Home, Map, Equipment, Alerts, Reports, Settings, and Admin. The main dashboard displays runtime statistics for System, Water, and Injector, all at 0 hours. It also shows All Filters and All Zones. Below the statistics are buttons for Poll and Clear Runtimes. A date range selector is set to 2013-07-21 to 2013-08-21, with Update and Export buttons. The event history table below shows one entry: 2013-08-15 at 02:05:06 PM, with Status 'Stopped' and Mode 'Stopped'. The table has columns for Date/Time, Status, Mode, Current Plan, Duration, and Chemical.

Runtimes are displayed based on the amount of active time. When hours are greater than 1,000 hours the number will be displayed in thousands. For example, if the Multi-Control has been active for 2,340 hours the runtime would display 2.34k hours.

Press the Poll button to request the runtimes on the Controller. Press the Clear Runtimes button to reset all runtimes except for the System.

Multi-Control event history is displayed below the runtimes interface. History can be limited to a specific date range by entering a start and end date then selecting the Update button. Download the history for use in other programs by selecting the Export button, which generates history in a Comma Separated Values (CSV) file format.

Navigate the event history using the pagination buttons above and below the event history table. The Date/Time is when the operational change occurred. Status is the operational change that occurred. Mode is shown as either Auto, Service, or Off.

The name of the running Plan is displayed if it was running during the event.

The Duration is the amount of time between operational changes. The most recent event will not have a Duration as it currently does not have a completed status.

If the Injector was on any point during the status the Chemical column will indicate that it was On.

A journal of notes can be kept for an individual event. Select the note button of the respective event to add a note.

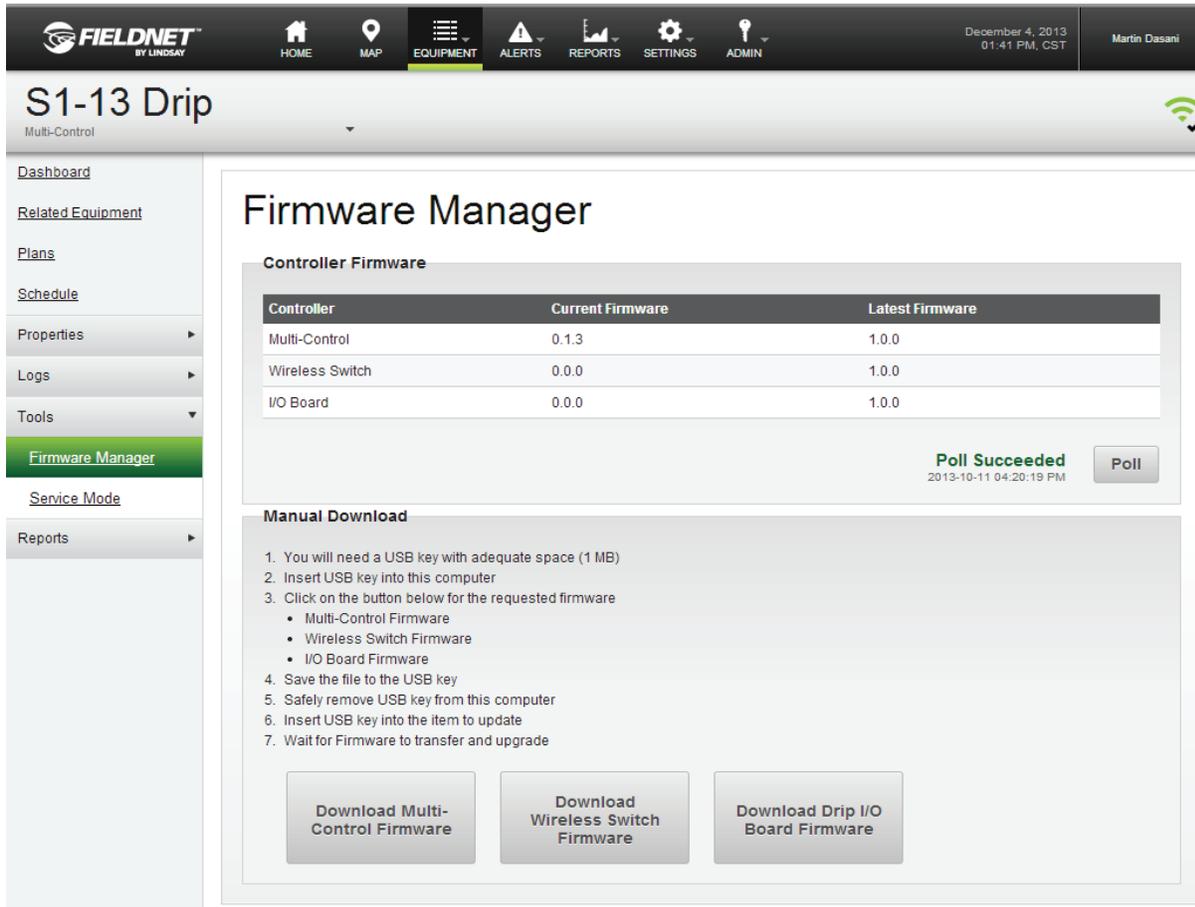


The screenshot shows a 'Note' dialog box with a close button in the top right corner. The 'Description' field contains the text: 'There was a reported energy spike by the co-op'. At the bottom of the dialog are 'Ok' and 'Cancel' buttons.

Enter the note and press the Ok button to save the note and close the dialog. Select the Cancel button to ignore changes and close the dialog.

Tools – Firmware Manager

Select Tools then Firmware Manager in the sidebar to check for firmware updates.



S1-13 Drip
Multi-Control

Firmware Manager

Controller Firmware

Controller	Current Firmware	Latest Firmware
Multi-Control	0.1.3	1.0.0
Wireless Switch	0.0.0	1.0.0
I/O Board	0.0.0	1.0.0

Poll Succeeded
2013-10-11 04:20:19 PM

Manual Download

1. You will need a USB key with adequate space (1 MB)
2. Insert USB key into this computer
3. Click on the button below for the requested firmware
 - Multi-Control Firmware
 - Wireless Switch Firmware
 - I/O Board Firmware
4. Save the file to the USB key
5. Safely remove USB key from this computer
6. Insert USB key into the item to update
7. Wait for Firmware to transfer and upgrade

Press the Poll button to request the firmware versions for on the Controller. If there are multiple firmware versions for a given controller the oldest version is displayed.

The Firmware Manager provides the ability to update firmware for the following hardware:

- Multi-Control
- Wireless Switch
- I/O Board

Firmware can be updated from a downloaded file. Contact the Lindsay Dealer for the latest firmware version.

Tools – Service Mode

Select Tools then Service Mode in the sidebar to operate the Multi-Control in manual mode.

Service Mode

Apply Off To All Controls

System Control

Pump Station / Master Valve

Injector

Filtration Control

Filter Flush Valve 1

Filter Flush Valve 2

Filter Flush Valve 3

Zone Control

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 23

Zone 24

Zone 25

Zone 26

Zone 27

Zone 28

Service Mode provides manual control of these Multi-Control features:

- Pump Station / Main Valve
- Injector
- Specific Filter Flush Valves
- Specific Zone Valves

Each section will display the control and a Button Bar with the options of Off and On. By default, all controls will be set to Off.

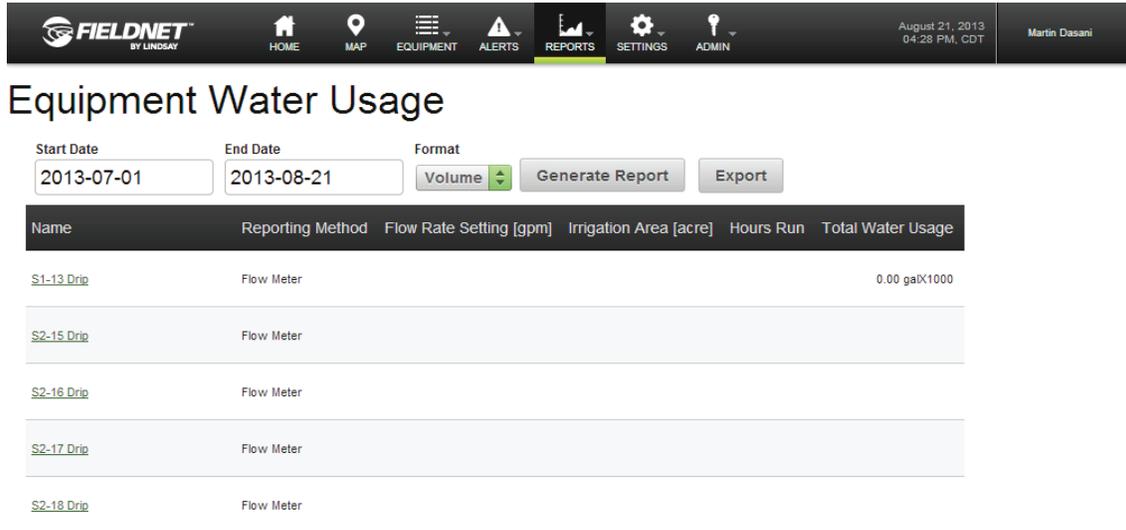
After selecting the items to control select the Apply button to put the system into Service Mode and apply changes. Press the Stop button to put the system into Stop Mode, which will set all controls to Off.

Once the system is in Service Mode the wireless network will remain active until the user presses the Stop button. Service Mode should not be used for extended lengths of time as Wireless Switches will drain the battery after continued radio communication.

Any scheduled plans will need to be restarted after Service Mode.

Water Usage Report

Select Reports then Water Usage in the sidebar to view the Water Usage Report.



Name	Reporting Method	Flow Rate Setting [gpm]	Irrigation Area [acre]	Hours Run	Total Water Usage
S1-13 Drip	Flow Meter				0.00 galX1000
S2-15 Drip	Flow Meter				
S2-16 Drip	Flow Meter				
S2-17 Drip	Flow Meter				
S2-18 Drip	Flow Meter				

The Water Usage Report calculates totals from Equipment which report water usage for a specified date range. Enter a start and end date to limit the reporting period. Select the format of the report and press the Generate Report button to update the report. Download the report for use in other programs by pressing the Export button, which generates the report in a Comma Separated Values (CSV) file format.

There are three formats:

- Volume
- Area Depth
- Depth Applied

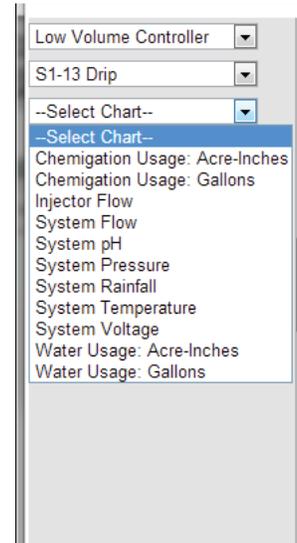
Only Volume and Area Depth apply to Multi-Controls.

General Reports

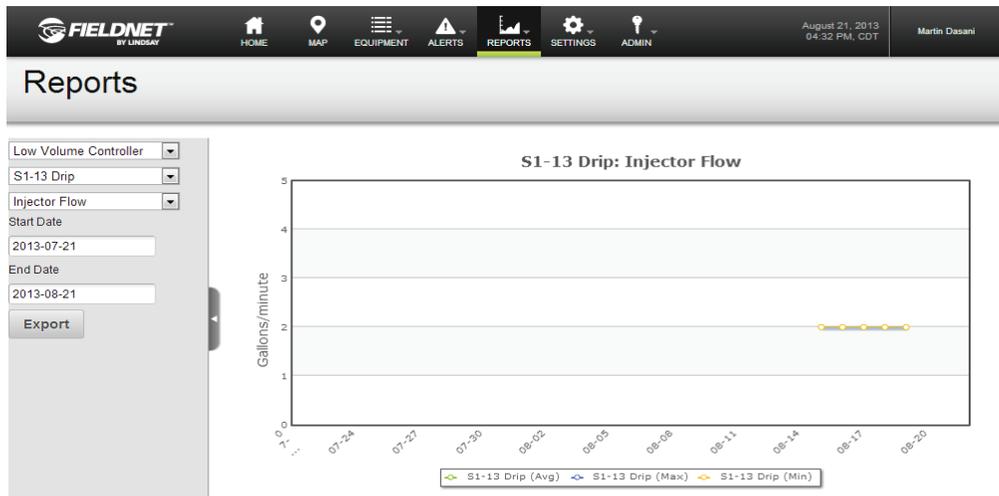
Select Reports then All in the sidebar to view the Equipment Sensors reporting page with the Multi-Control already selected.

The following charts are available for Multi-Control:

- Chemigation Usage: Acre-Inches / Cubic Meters
- Chemigation Usage: Gallons / Liters
- Injector 1 Flow Meter Rate
- System Flow Meter Rate
- System pH
- System Pressure
- System Rainfall Diff
- System Temperature
- System Voltage
- Water Usage: Acre-Inches / Cubic Meters
- Water Usage: Gallons / Liters



The chart will use a month's worth of data ending on the current date, by default. Entering a start and end date will limit the reporting period, any change to the summary criteria will refresh the chart immediately. Download the report for use in other programs by selecting the Export button, which generates the report in a Comma Separated Values (CSV) file format.



Section 3– FieldNET Mobile App.

Introduction

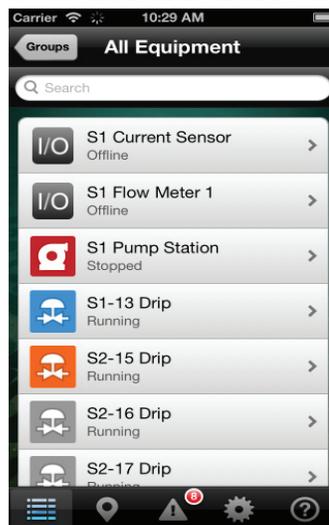
The FieldNET Mobile Application can be found on the Apple App Store for iOS devices and on the Google Play Store for Android.

This section will provide an overview of all Multi-Control for Mobile App related pages.

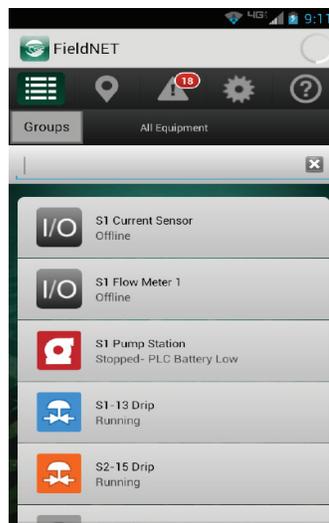
As with other Equipment, the Multi-Control is integrated into the following sections of the portal:

- Equipment List
- Equipment Groups
- Map View
- Dashboard and related pages
- Schedule
- History
- Help

Navigation for Apple iOS devices is located at the bottom of the screen.

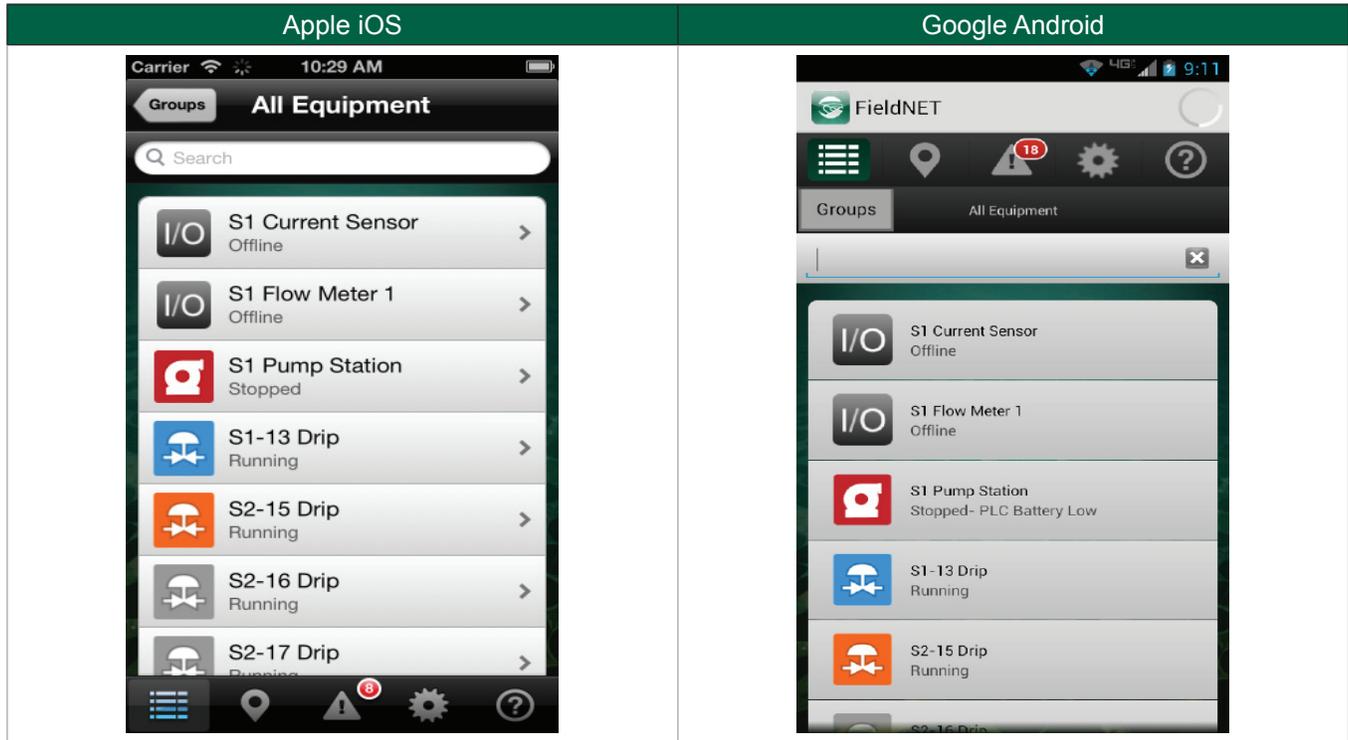


Navigation for Google Android devices can be found at the top of the screen.



Equipment List

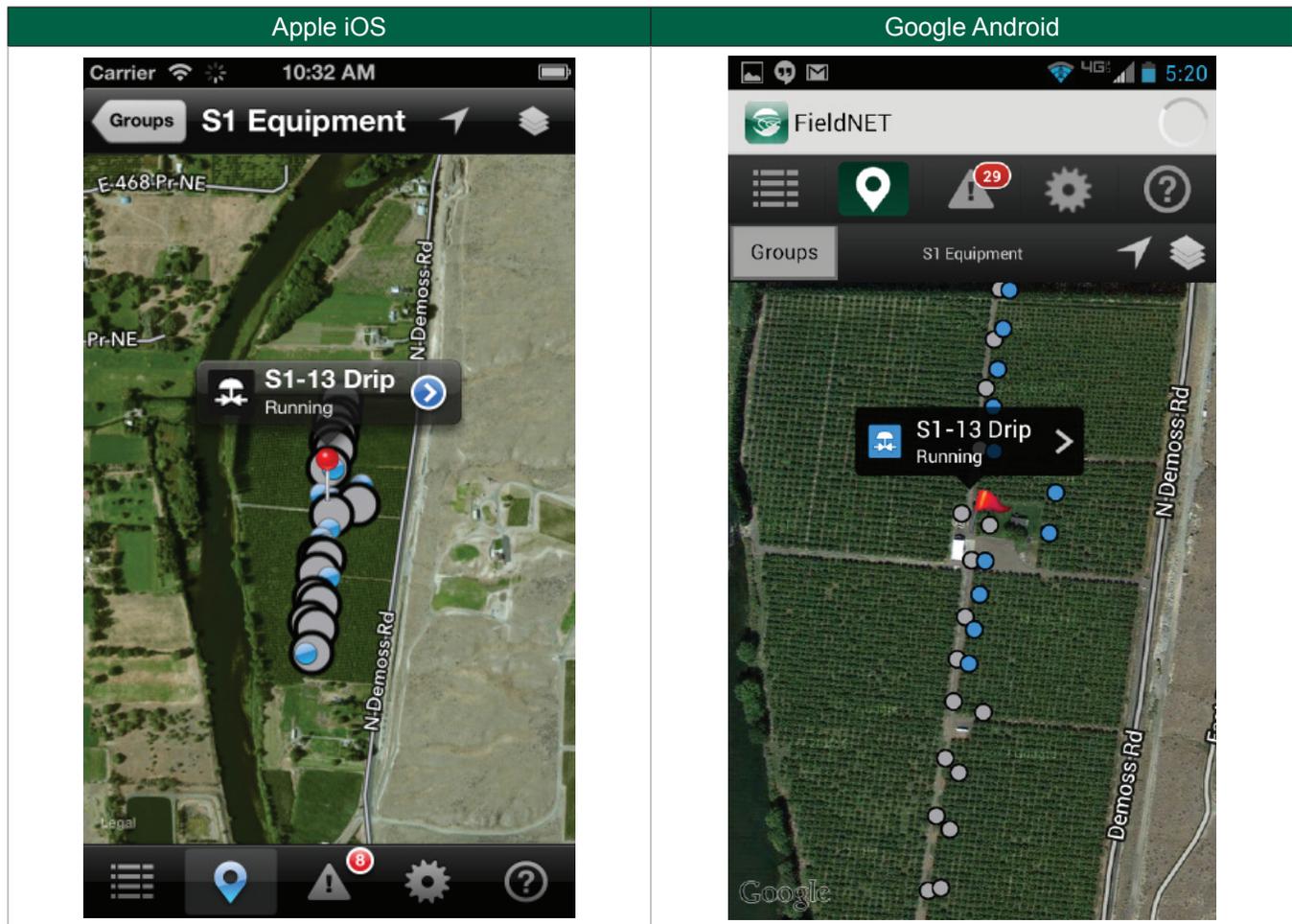
Select the Equipment List icon in the main navigation to display a list of Equipment with current statuses.



Multi-Controls will show the status icon, the name of the controller, and the current status. Select on a Multi-Control to view the Dashboard.

Map View

Select the Map View icon in the main navigation to display a map with Equipment.



The map will display markers—colored pins (iOS) or colored flags (Android)—at the geolocation of Equipment. Selecting a pin will display the name of the Equipment in a balloon. Selecting the balloon will display the respective Dashboard.

Selecting a Multi-Control marker will display Zone markers on the map. Geolocation of the Multi-Control and Zones is managed on the Portal.

Dashboard

Select Equipment from the Equipment List or Map View to display the respective Dashboard.

The Multi-Control Dashboard has the following sections:

- Action Bar
- Menu
- Communication Bar
- Current Status
- Sensors
- Plan Steps
- History

The detail to the right shows the entire scroll-through screen.

Action Bar

The Action Bar is used for navigating and displaying the Dashboard menu. The Action Bar changes depending on the Dashboard mode. When in View mode the Action Bar will display the following:

Apple iOS



Google Android



Selecting the Equipment button (iOS only) or the Back button (Android only) displays the Equipment List. Selecting the Menu button slides the Dashboard to the left and displays the menu. Pressing the Menu Icon again will close the Menu and display the Dashboard. Alternatively, swiping from the right edge to the left will display the menu.

When in Edit mode the Action Bar will display the following:

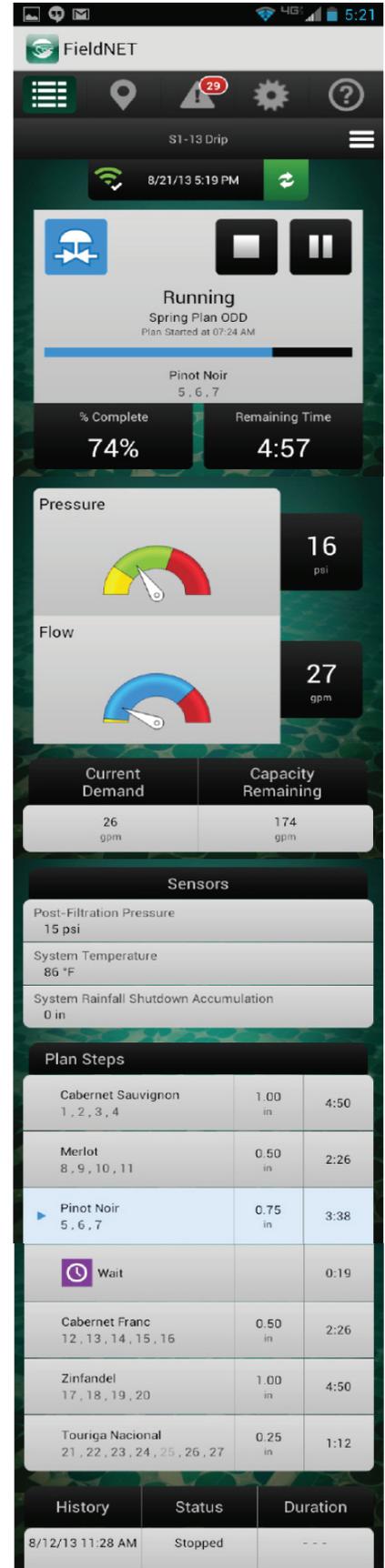
Apple iOS



Google Android

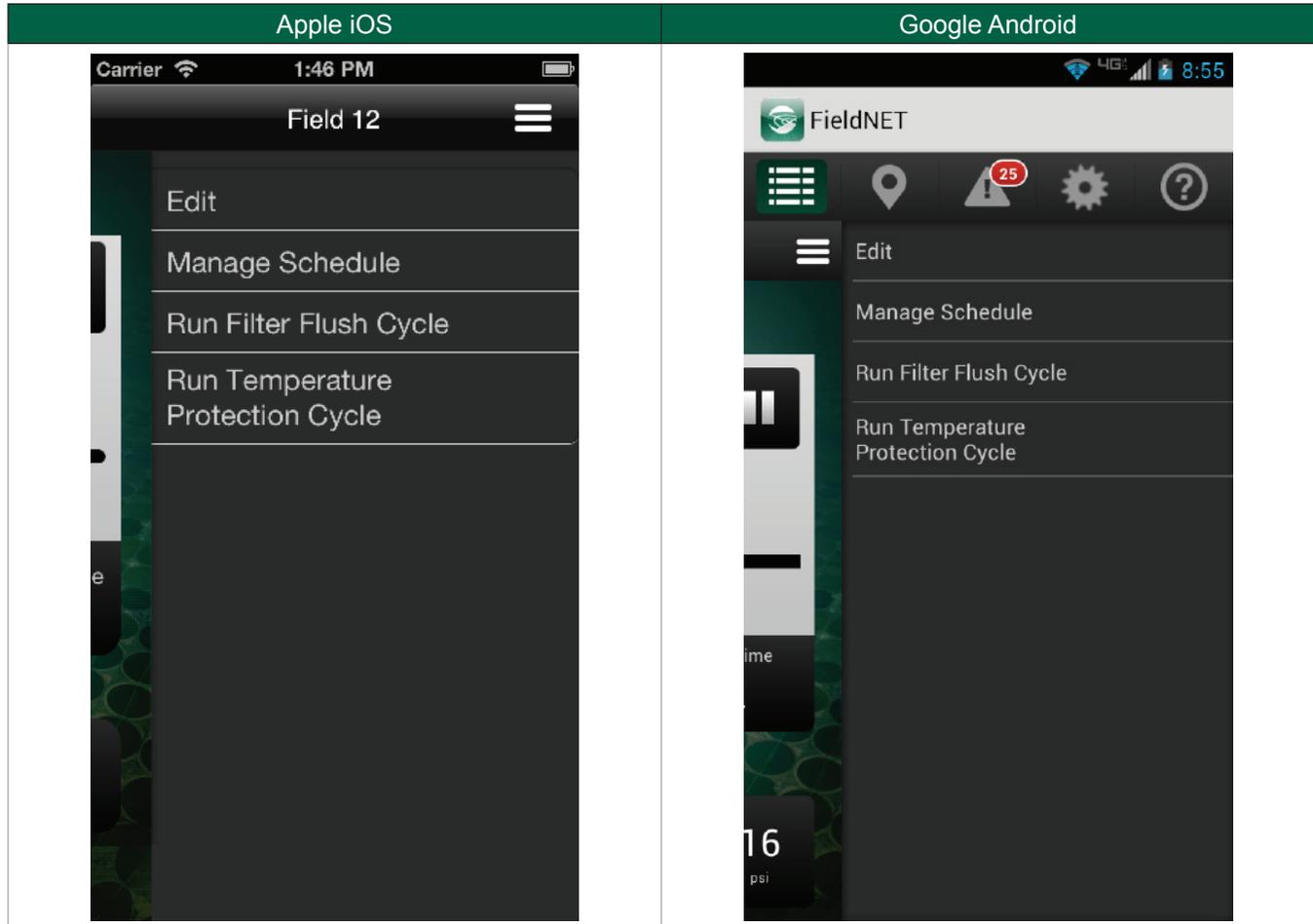


Pressing the Cancel button ignores changes and returns to View mode. Press Save to apply the changes to the Multi-Control and return to View mode.



Menu

The Dashboard Menu provides actions available to the Multi-Control. Selecting the Menu button slides the Dashboard to the left and displays the menu. Select the Menu Icon again to close the Menu and display the Dashboard.



Edit

Selecting Edit will close the Menu and display the Dashboard in Edit mode for making operational changes.

Manage Schedule

Select Manage Schedule to display the Irrigation Schedule.

Run Filter Flush Cycle

If a filtration system is installed, Selecting Run Filter Flush Cycle will invoke the Filter Flush Plan for one cycle. If a filtration system is not installed, the option will not be displayed in the menu.

Run Temperature Protection Cycle

If the Temperature Protection Plan is set up, Select Run Temperature Protection Cycle to run the Temperature Protection Plan for one cycle. If the Temperature Protection Plan does not have any steps, the option will not be displayed in the menu.

Communication Bar

The Communication Bar is used to inform the user about communication health and when the information displayed was last updated.

The Communication Status icon reflects the communication health of the RTU assigned to the Multi-Control. For details regarding the Communication Status icon, refer to Communication Status table found in Section 3 under Multi-Control.

The timestamp is when the last information was received from the Multi-Control.

Press the Poll button to request the current status of the Multi-Control. The icon will spin until complete and information on the Dashboard will be refreshed. The Poll button is disabled in Edit mode.

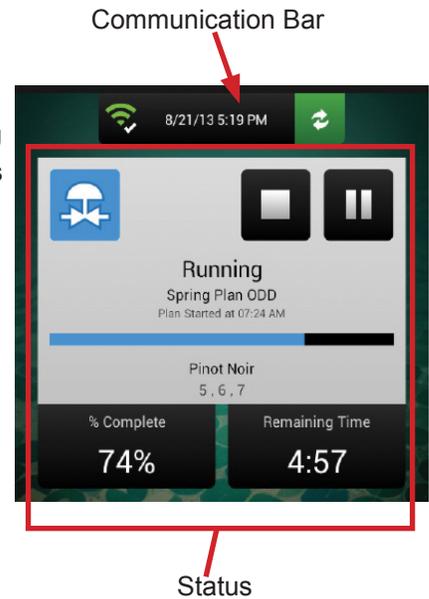
Current Status

The Current Status is used to inform the user of the progress of the Plan and for control of the Plan.

The status icon is displayed at the top left of the screen. Please refer to Section 3 for an explanation of status icons.

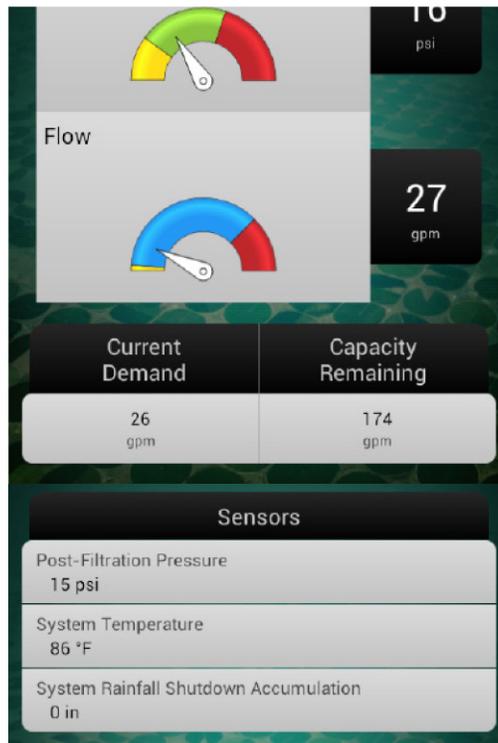
To the right of the screen are action buttons for stopping and running or pausing the Irrigation Plan. These are enabled when selecting the Edit option in the menu. To make an operational change, press the Stop or Run/Resume/ Pause button, which will become highlighted, and press the Save button.

The status is displayed below the status icon and action buttons. The Irrigation Plan, start time, plan progress bar, and current Plan Step are displayed when a Plan is currently running, pending, or complete. Additionally, the percent complete and estimated remaining time are displayed below the status.



Sensors

System Flow and System Pressure readings and gauges are displayed below the Current Status.



The colored sections of the gauge are the same as described in Section 3-FieldNET Portal under Sensors.

Current Demand is the expected volume of water for the Zones currently running. Capacity Remaining is the volume the Water Source is capable of providing minus the Current Demand.

Optional sensors display water demand and sensor readings in a table. Optional sensors include Post-Filter Pressure, Temperature, pH, and Rainfall.

Plan Steps

Plan Steps display the current progress of the Irrigation Plan including what has completed and what is pending within the Irrigation Plan.

Plan Steps		
Cabernet Sauvignon 1, 2, 3, 4	1.00 in	4:50
Merlot 8, 9, 10, 11	0.50 in	2:26
 Pinot Noir 5, 6, 7	0.75 in	3:38
 Wait		0:19
Cabernet Franc 12, 13, 14, 15, 16	0.50 in	2:26
Zinfandel 17, 18, 19, 20	1.00 in	4:50
Touriga Nacional 21, 22, 23, 24, 25, 26, 27	0.25 in	1:12

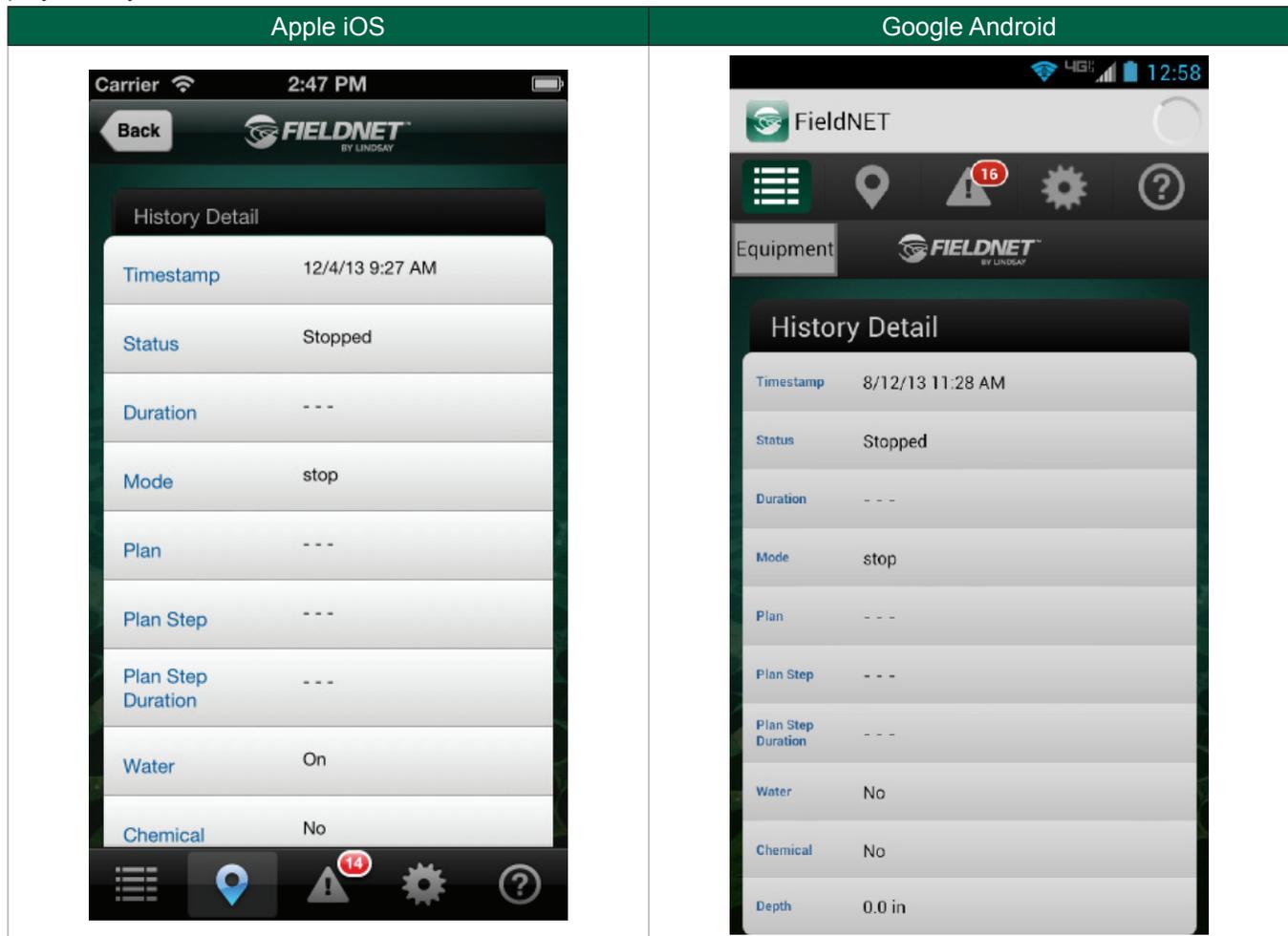
The current Plan Step is highlighted with an icon indicating if the plan is paused or running on that step. Each row displays the Plan Step name and Zones, depth applied, and duration of the Plan Step.

History

The History displays recent Multi-Control Events in a table.

History	Status	Duration
8/12/13 11:28 AM	Stopped	---

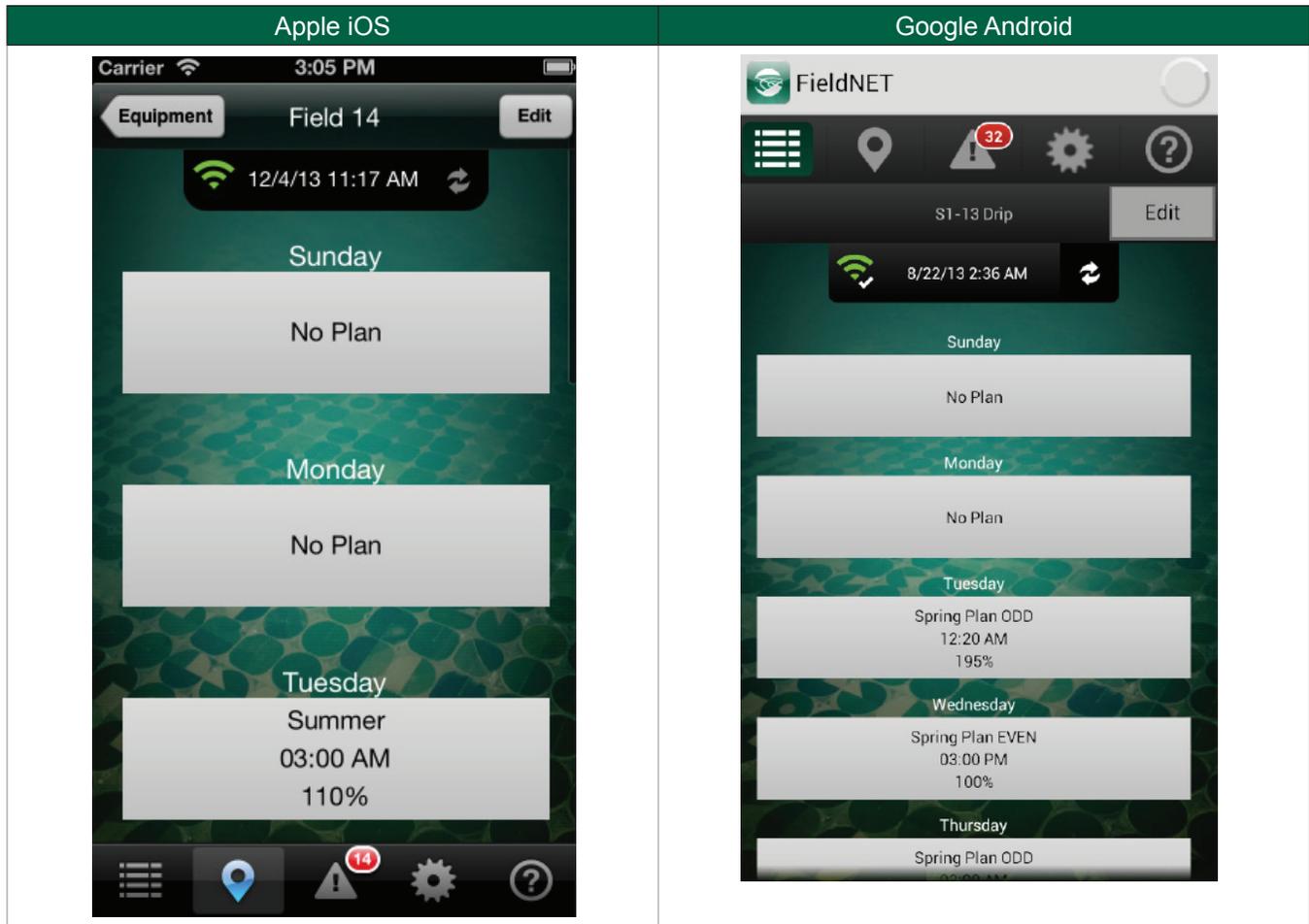
Each row displays the time of the event, the status, and the duration of the event in hours. Select an event to display History Detail.



Press the Equipment button to close History Detail and display the Dashboard.

Manage Schedule

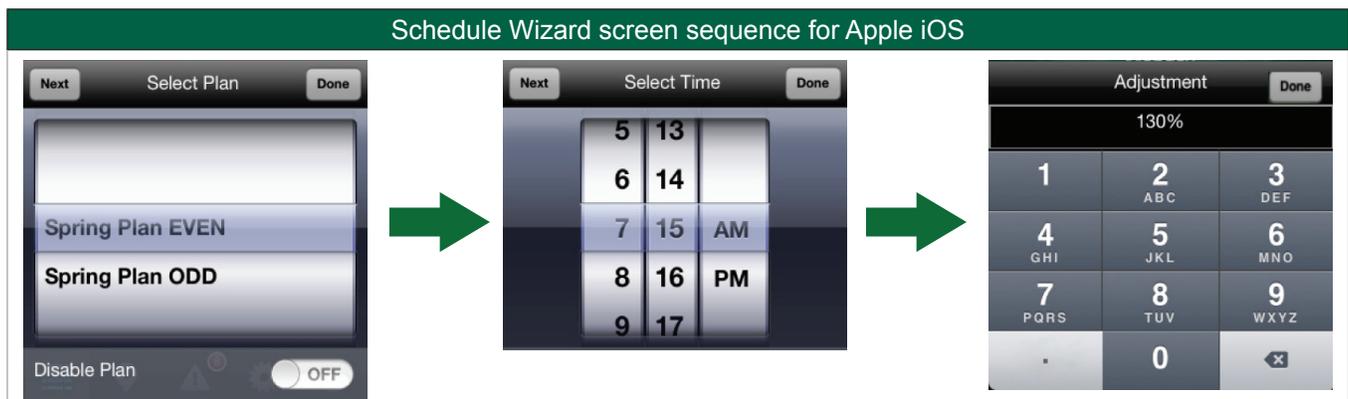
Selecting the Manage Schedule option will display the Schedule screen, which shows the scheduled irrigation plan, start time, and plan adjustment for each day of the week.



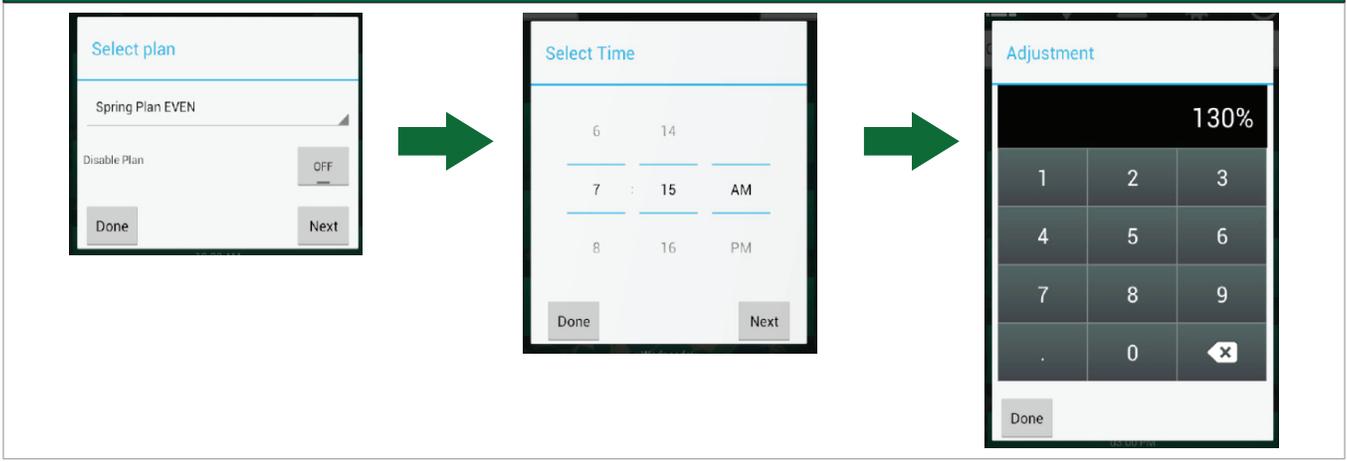
When in View mode the Action Bar will display.

If changes are required on the Schedule, press the Edit button and select the desired day to edit. This will display the schedule wizard.

The schedule wizard is a series of dialog screens that step through parameter editing to the Irrigation Plan, the start time, and rate adjustment screens, by pressing the Next button on each dialog display. Pressing the Done button at any time will close the wizard and return to the Schedule screen (still in Edit mode).

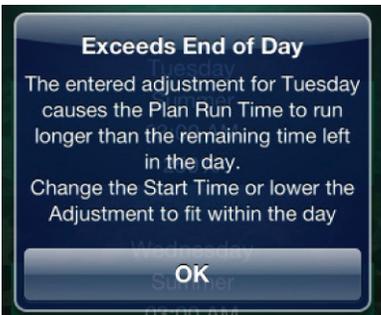
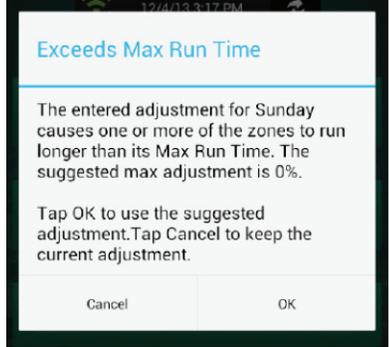


Schedule Wizard screen sequence for Google Android



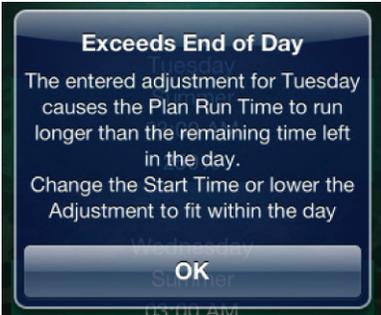
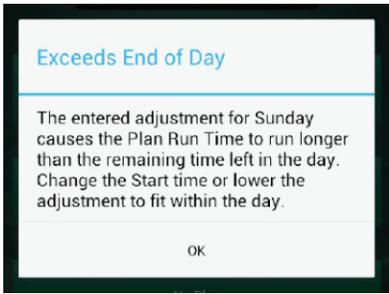
Upon making changes, press Done to return to the Schedule (still in Edit mode).

If the adjusted Plan exceeds a Zone's Max Run Time the following alert will be displayed:

Apple iOS Schedule Error	Google Android Schedule Error
	

Select the OK button to use the suggested adjustment or select Cancel to keep the current adjustment.

If the Plan Run Time exceeds the end of day the following alert will be displayed:

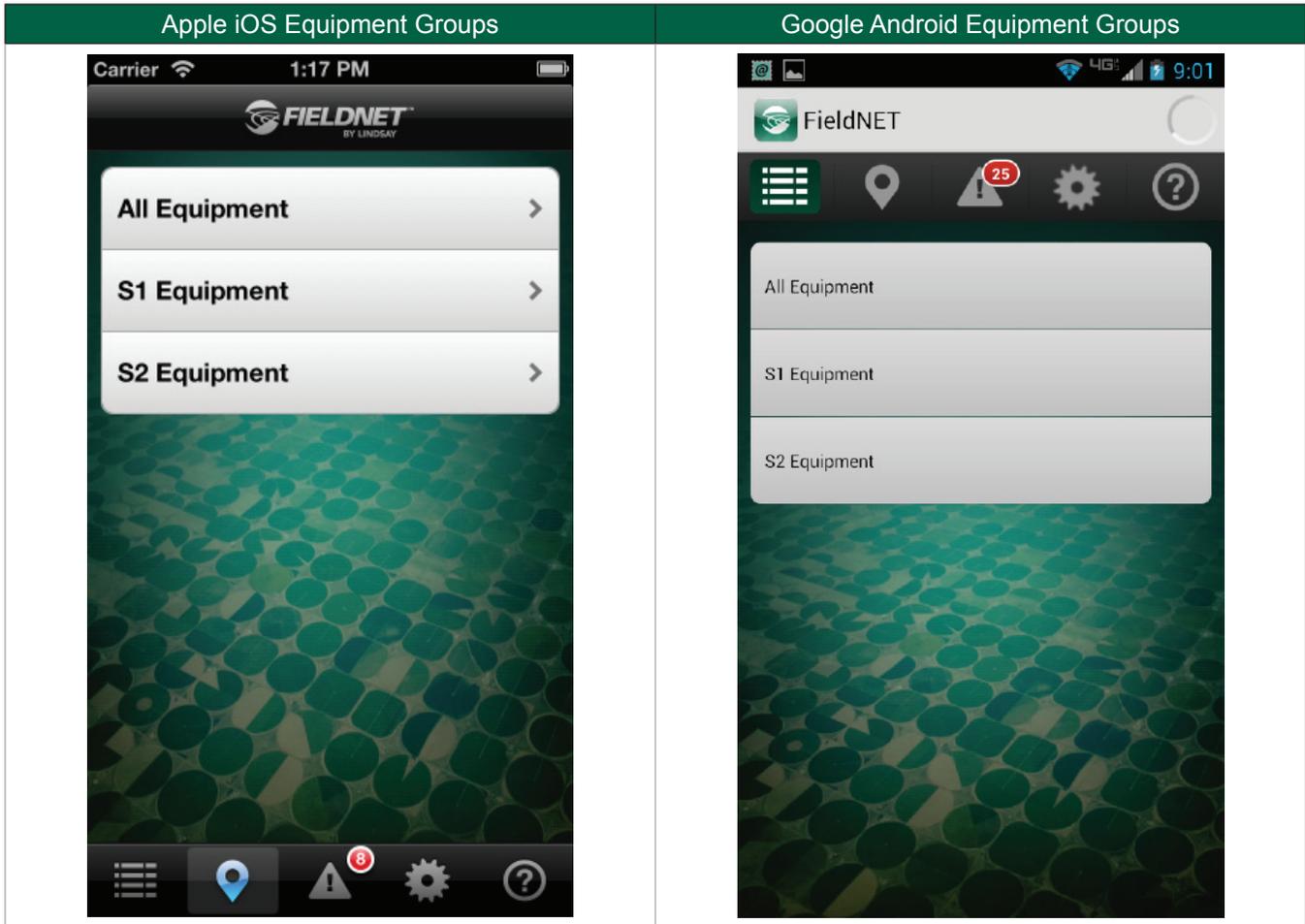
Apple iOS Run Time Error	Google Android Run Time Error
	

Change the start time or decrease the adjustment to fit the scheduled plan within the day.

Select the Back button to ignore unsaved changes and display the Multi-Control Dashboard. Select the Save button to Apply the changes to the Schedule displays the Dashboard.

Equipment Groups

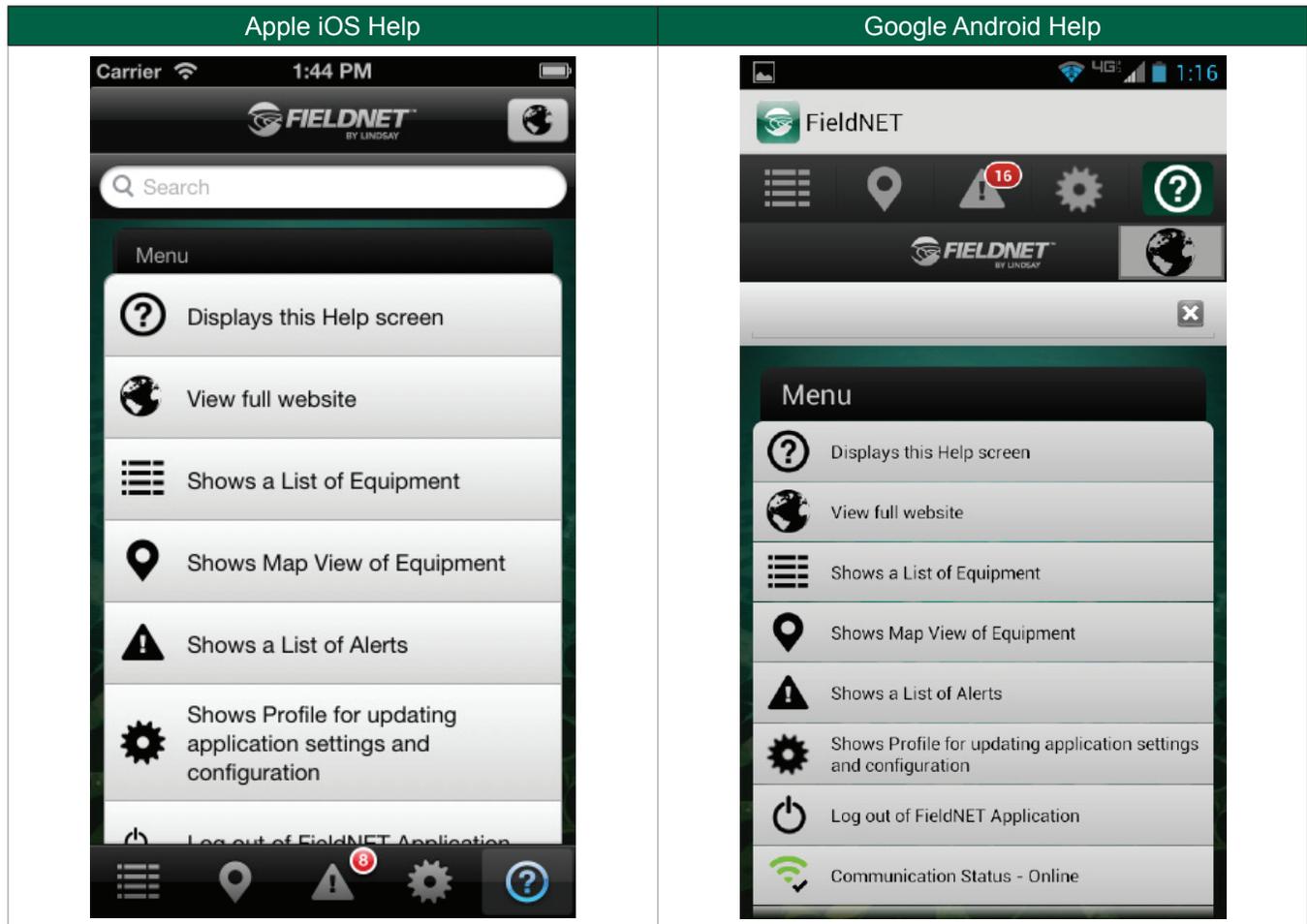
Select the Groups button on the Map View, Equipment List, or Alerts to limit the Equipment displayed. Equipment Groups are managed on the Portal.



Select an Equipment Group to limit the Equipment on the respective view.

Help

Help displays a table of icons for various Equipment and application features and a brief description of each.



Selecting the globe button at the top right will open the Portal website on the mobile device browser.

Section 4– Alerts & Support

For issues regarding Equipment or the FieldNET Portal or Mobile Application, please contact the FieldNET Support Team at 866.MY.FIELD (866-693-4353) or send an email to fieldnet@lindsay.com.

All service should be done by a Lindsay Dealer.

Alerts

ALERT	DEFAULT LEVEL	DESCRIPTION
Filter Hardware Error	2	One of the Filter Flush Valves is reporting a problem which may impact filter flush cycles
Zone Hardware Error	2	One of the Wireless Switch Zone Valves is reporting a problem which may impact irrigation plans or temperature protection
Irrigating	3	The Multi-Control is irrigating
Chemigating	3	The Multi-Control is chemigating
Plan Paused	3	The current plan is paused
High System Flow Shutdown	1	Shut down due to high System Flow
High System Flow Warning	2	System Flow is high
Low System Flow Shutdown	1	Shut down due to low System Flow
Low System Flow Warning	2	System Flow is low
High Flow Disparity Warning	2	System Flow is higher than the total of expected running Zone application rates, which could indicate a leak or a broken pipe
High Flow Disparity Shutdown	1	Shut down due the high Flow Disparity
Low Flow Disparity Warning	2	System Flow is lower than the total of expected running Zone application rates, which could indicate a drip tape is plugged or a stuck valve
Low Flow Disparity Shutdown	1	Shut down due the low Flow Disparity
High System Pressure Shutdown	1	Shut down due the high System Pressure
High System Pressure Warning	2	System Pressure is high
Low System Pressure Shutdown	1	Shut down due the low System Pressure
Low System Pressure Warning	2	System Pressure is low
High Post-Filter Pressure Warning	2	Post-Filter Pressure is high
Low Post-Filter Pressure Warning	2	Post-Filter Pressure is low
High Temperature Shutdown	1	Shut down due the high Temperature
High Temperature Warning	2	Temperature is high
Low Temperature Shutdown	1	Shut down due the low Temperature
Low Temperature Warning	2	Temperature is low
High Injector Flow Shutdown	1	Shut down due to high Injector Flow
High Injector Flow Warning	2	Injector Flow is high
Low Injector Flow Shutdown	1	Shut down due to low Injector Flow
Low Injector Flow Warning	2	Injector Flow is low
High Voltage Shutdown	1	Shut down due to high System Voltage
High Voltage Warning	2	System Voltage is high
Low Voltage Shutdown	1	Shut down due to low System Voltage

ALERT	DEFAULT LEVEL	DESCRIPTION
Low Voltage Warning	2	System Voltage is low
Wireless Switch Battery Shutdown	1	One of the Wireless Switches shut down due to an issue with the battery
Wireless Switch Battery Warning	2	One of the Wireless Switches is reporting an issue with the battery
Wireless Switch Solar Panel Error	1	One of the Wireless Switches shut down due to an issue with the solar panel
Filter Flush Cycle Running	3	A filter flush cycle is running
Max Filter Flush Cycles Warning	2	The Multi-Control has attempted the maximum number of contiguous filter flush cycles to reduce Pressure Differential
Wireless Switch Communication Error	1	One of the Wireless Switches has not communicated after multiple attempts
Stopped	2	The Multi-Control stopped running
Powered Off Normal	3	The Multi-Control powered off
Powered Off While Running Wet	1	The Multi-Control powered off while running
Temperature Protection Plan Running	3	A temperature protection cycle is running
Pressure Startup Delay	2	Temporarily disregarding System Pressure alert and shutdown conditions due to system pressurizing
Flow Delay	2	Temporarily disregarding System Flow alert and shutdown conditions due to changes affecting flow
Injector Flow Delay	2	Temporarily disregarding Injector Flow alert and shutdown conditions due to changes affecting flow
Plan Running	3	The current plan is running
Wireless Switch Communication Warning	2	One of the Wireless Switches has low signal strength or data loss
High Rainfall Shutdown	1	Shut down due to heavy Rainfall
High Rainfall Warning	2	Rainfall accumulation is high
Communication Warning	2	FieldNET can communicate with RTU but not the Multi-Control, which could indicate a loose or cut serial connection
Post-Filter Pressure Delay	3	Temporarily disregarding Post-Filter Pressure alert condition due to system pressurizing
Injector Off for Filter Flush Delay	3	Temporarily stopping chemigation during filter flush cycle
Low pH Shutdown	1	Shut down due to low pH
High pH Shutdown	1	Shut down due to high pH
Low pH Warning	2	pH is low
High pH Warning	2	pH is high
Hardware Shutdown	1	Shut down due to a hardware failure

Date	ECN	Published ECN	Description
8/22/14	32745	32745	Reformatted Manual

