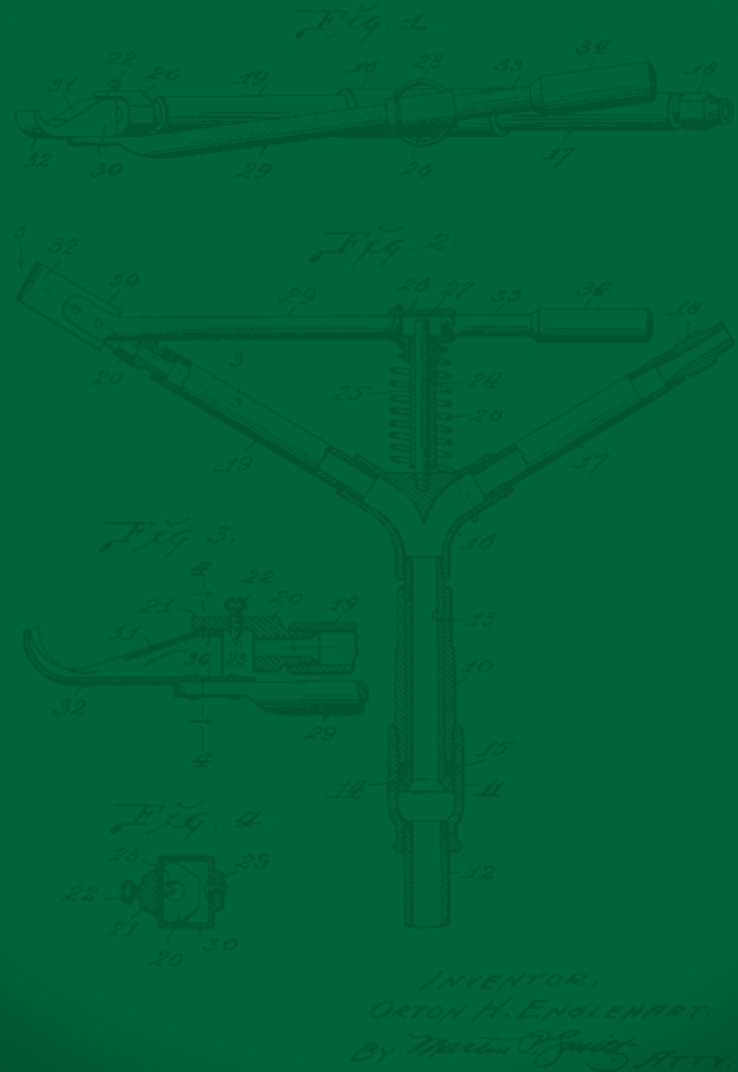


April 16, 1935.

O. H. ENGLEHART  
WATER SPRINKLER  
Filed Dec. 18, 1933

1,997,901



# IQ4 Diagnostics

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Using Diagnostics in IQ4

# Overview

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IQ4 Diagnostics allows users to initiate and view diagnostic results without visiting the controller. Each IQ4 controller type has a different set of diagnostics depending on the controller capabilities.

Diagnostic tools are available through the Manual Ops tab in IQ4. It is best practice to connect to a controller first before using diagnostic tools to obtain best results.

This training will cover each controller type and the diagnostic tools for each.

Learned Flow is a common feature across all controllers. It is part of the Manual Ops page



# **ESP-LXME2 Diagnostics**

Diagnostics for ESP-LXME/ESP-LXME2 Controllers



# ESP-LXME2 - Diagnostics Tool Tab

The screenshot displays the Rain Bird ESP-LXME2 Diagnostics Tool Tab. The top navigation bar includes 'ACTIVITY', 'CONTROLLERS', 'PROGRAMS', 'REPORTS', and 'SYSTEM SETUP'. The main navigation menu has 'Manual Ops', 'Programs', 'Dryrun™', 'Stations', 'Master Valves', 'Sensors', and 'Clients'. The 'Diagnostics' tab is highlighted in green. The left sidebar shows 'Controller Settings' with a flow meter and weather information for Oro Valley, Arizona. The main content area features two tables: 'Weather Sensor Status' and 'Master Valve Status'.

**Controller Settings**

Flow: 0 / 10  
 Actual Flow Rate: --  
 Expected Flow Rate: 0 gal/min

Name: ESP-LXME2 Server Controller  
 Controller Type: IQNet Type LXME2 IQNet™ Server  
 SIM Expires: -

Oro Valley, Arizona United States of America  
 Tue 03/29/2022 - 6:18 AM

Heavy Rain 53°F  
 96% High 55° - Low 50°

Wed ☀️ 67°F  
 Thu ☀️ 72°F

**Weather Sensor Status** (Last Updated: 03/29/2022 6:17 AM)

Name	Status
Local	Monitoring

**Master Valve Status** (Last Updated: 03/29/2022 6:17 AM)

Name	Type	Status	MV Water Window
Master Valve 001	NCMV	Closed	No
Master Valve 002	Pump	Off	No

Rain Bird Dashboard > Controllers > ESP-LXME2 Server Controller

# ESP-LXME2 - Diagnostics Tool Tab

- Select the Diagnostics tab after connecting to the controller on the Manual Ops -> Irrigation Queue tab
- Displayed:
  - Local Sensor status – Monitoring or Preventing
  - Manual Valve status – Master Valve Type, Open/Closed/On/Off status and Master Valve Water Window status

Weather Sensor Status (Last Updated: 03/29/2022 6:17 AM)	
Name	Status
Local	Monitoring

Master Valve Status (Last Updated: 03/29/2022 6:17 AM)			
Name	Type	Status	MV Water Window
Master Valve 001	NCMV	Closed	No
Master Valve 002	Pump	Off	No

# ESP-LXME2 - Diagnostics Tool Tab

- Test All – click this button to run a timed test of all stations (i.e., for a 2-minute walk through of all stations)

The screenshot displays the ESP-LXME2 Diagnostics Tool Tab interface. At the top, there are three icons: a yellow circle with an 'i', a white triangle with an exclamation mark, and a clipboard icon, labeled 'Status', 'Raster Test', and 'Test All' respectively. Below these are two main panels: 'Weather Sensor Status' and 'Master Valve Status', both with a timestamp '(Last Updated: 03/29/2022 6:17 AM)'. The 'Weather Sensor Status' panel contains a table with columns 'Name' and 'Status', showing a single entry 'Local' with status 'Monitoring'. The 'Master Valve Status' panel contains a table with columns 'Name', 'Type', 'Status', and 'MV Water Window', showing two entries: 'Master Valve 001' with 'NCMV' type, 'Closed' status, and 'No' window; and another entry with 'Off' status and 'No' window. A 'Test Time' dialog box is overlaid in the center, featuring a green header, a 'Minutes' label, a numeric input field with '2', and minus/plus buttons. At the bottom of the dialog are 'CANCEL' and 'OK' buttons.

Name	Status
Local	Monitoring

Name	Type	Status	MV Water Window
Master Valve 001	NCMV	Closed	No
		Off	No

**Test Time**

Minutes

— 2 +

CANCEL OK

# ESP-LXME2 - Diagnostics Tool Tab

- RASTER Test\* – click this button to run a RASTER test of all stations
    - All irrigation will be stopped, each station will be checked for continuity and results displayed
- \* RASTER = **R**apid **S**tation **T**est **R**outine

Status Raster Test Test All

Raster Test: 15% Complete.

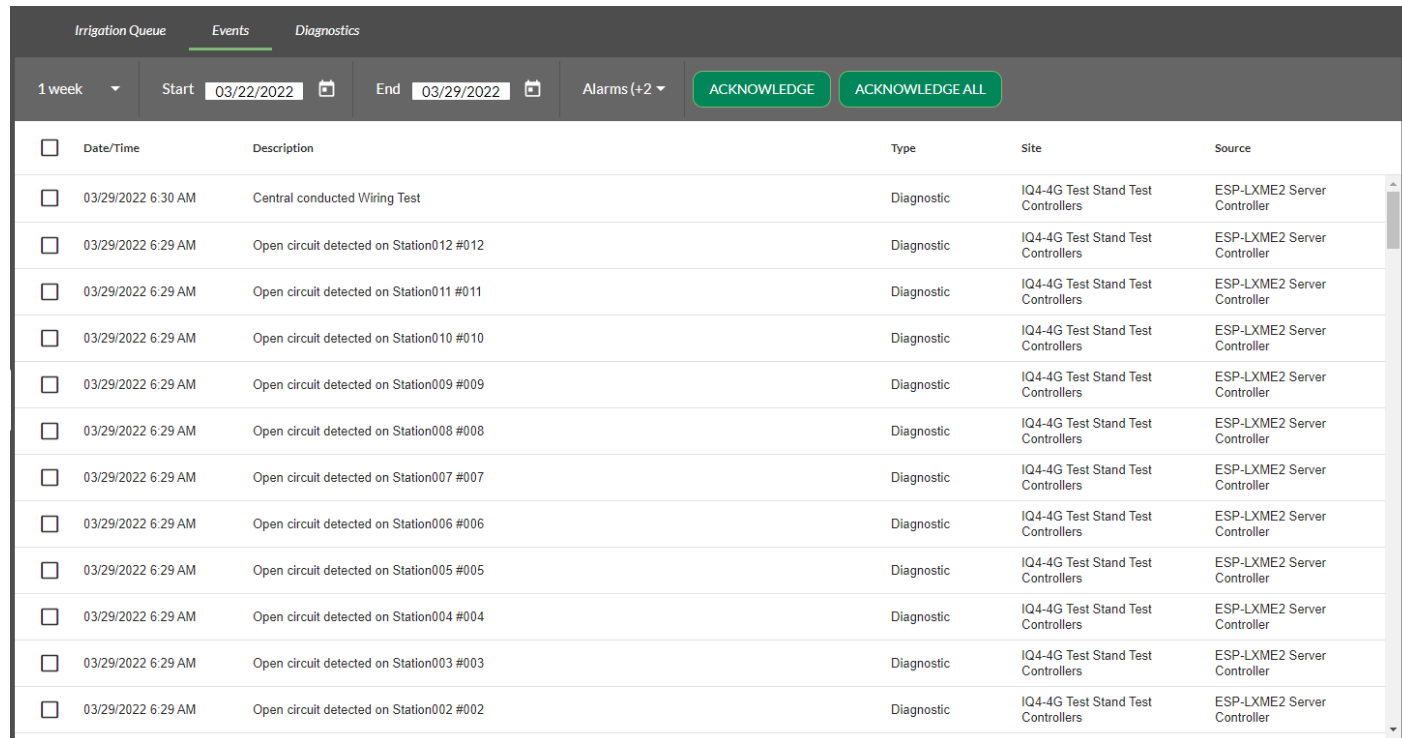
Weather Sensor Status (Last Updated: 03/29/2022 6:17 AM)	
Name	Status
Local	Monitoring

Master Valve Status (Last Updated: 03/29/2022 6:17 AM)			
Name	Type	Status	MV Water Window
Master Valve 001	NCMV	Closed	No
Master Valve 002	Pump	Off	No

IQ4-4G Test Stand Test Controllers - ESP-LXME2 Server Controller  
Raster Test complete - View Event Logs for results

# ESP-LXME2 - Diagnostics Tool Tab

- RASTER Test results
  - Click on Logs
  - Results will be displayed in the Events log -> Diagnostics selection 2 to 15 minutes after the test is complete



The screenshot displays the 'Diagnostics' tab in the ESP-LXME2 interface. At the top, there are navigation tabs for 'Irrigation Queue', 'Events', and 'Diagnostics'. Below these, a filter bar shows a '1 week' dropdown, 'Start' and 'End' date pickers (03/22/2022 and 03/29/2022), and an 'Alarms (+2)' indicator. Two green buttons, 'ACKNOWLEDGE' and 'ACKNOWLEDGE ALL', are visible. The main area contains a table with the following columns: Date/Time, Description, Type, Site, and Source. The table lists 12 diagnostic events, all occurring on 03/29/2022 at 6:29 AM. The first event is a 'Central conducted Wiring Test', and the subsequent 11 events are 'Open circuit detected on Station' followed by station numbers 012 through 002. All events are categorized as 'Diagnostic' and originate from 'IQ4-4G Test Stand Test Controllers' at the 'ESP-LXME2 Server Controller' site.

<input type="checkbox"/>	Date/Time	Description	Type	Site	Source
<input type="checkbox"/>	03/29/2022 6:30 AM	Central conducted Wiring Test	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station012 #012	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station011 #011	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station010 #010	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station009 #009	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station008 #008	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station007 #007	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station006 #006	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station005 #005	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station004 #004	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station003 #003	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller
<input type="checkbox"/>	03/29/2022 6:29 AM	Open circuit detected on Station002 #002	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXME2 Server Controller





# ESP-LXD Diagnostics

Diagnostics for ESP-LXD Controllers



# ESP-LXD - Diagnostics Tool Tab

**Controller Settings**

Name: ESP-LXD Client Controller for ESP-LXME2 (1)

Controller Type: IQNet Type LXD, IQNet™ Client

SIM Expires: -

Oro Valley, Arizona United States of America  
Tue 03/29/2022 - 7:03 AM

Heavy Rain 96%  
56°F  
High 55° - Low 50°

Wed	☀	67°F
Thu	☀	72°F
Fri	☀	76°F

**Weather Sensor Status** (Last Updated: 03/29/2022 7:03 AM)

Name	Status
Local Sensor	Monitoring
Weather 1	Monitoring
Weather 2	Inactive
Weather 3	Inactive

**Master Valve Status** (Last Updated: 03/29/2022 7:03 AM)

Name	Type	Status	MV Water Window
Master Valve 001	Normally Closed	Closed	No
Master Valve 002	Normally Closed	Closed	No
Master Valve 003	Normally Closed	Closed	No
Master Valve 004	Normally Closed	Closed	No
Master Valve 005	Normally Closed	Closed	No

**Line Survey** (Last Updated: 03/29/2022 7:03 AM)

	A	B
Voltage 1	15.8	15.6
Voltage 2	-20.5	-20.5
Milliamps	22	23
Temperature	OK	
Current	OK	
Overload	OK	

Rain Bird Dashboard > Controllers > ESP-LXD Client Controller for ESP-LXME2 (1)

# ESP-LXD - Diagnostics Tool Tab

- Select the Diagnostics tab after connecting to the controller on the Manual Ops -> Irrigation Queue tab
- Displayed:
  - Local Sensor status – Monitoring or Preventing
  - Manual Valve status – Master Valve Type, Open/Closed status and Master Valve Water Window status
  - Line Survey results – Voltage, Current and Conditions

The screenshot displays the Diagnostics Tool Tab interface with a navigation bar at the top containing icons for Status, Test All, Short Finding, Decoder Test, and Ping Decoders. Below the navigation bar are three data panels, each with a title and a timestamp: "Weather Sensor Status (Last Updated: 03/29/2022 7:03 AM)", "Master Valve Status (Last Updated: 03/29/2022 7:03 AM)", and "Line Survey (Last Updated: 03/29/2022 7:03 AM)".

Name	Status
Local Sensor	Monitoring
Weather 1	Monitoring
Weather 2	Inactive
Weather 3	Inactive

Name	Type	Status	MV Water Window
Master Valve 001	Normally Closed	Closed	No
Master Valve 002	Normally Closed	Closed	No
Master Valve 003	Normally Closed	Closed	No
Master Valve 004	Normally Closed	Closed	No
Master Valve 005	Normally Closed	Closed	No

	A	B
Voltage 1	15.8	15.6
Voltage 2	-20.5	-20.5
Milliamps	22	23
Temperature	OK	
Current	OK	
Overload	OK	

# ESP-LXD - Diagnostics Tool Tab

- Test All – click this button to run a timed test of all stations (i.e., for a 2-minute walk through of all stations)

The screenshot displays the ESP-LXD Diagnostics Tool Tab interface. At the top, there is a navigation bar with icons for Status, Test All, Short Finding, Decoder Test, and Ping Decoders. Below this, the interface is divided into three main sections: Weather Sensor Status, Master Valve Status, and Line Survey. A 'Test Time' dialog box is overlaid on the Master Valve Status section, allowing the user to set a test duration in minutes. The dialog box shows a current value of 2 minutes, with minus and plus buttons for adjustment, and CANCEL and OK buttons at the bottom.

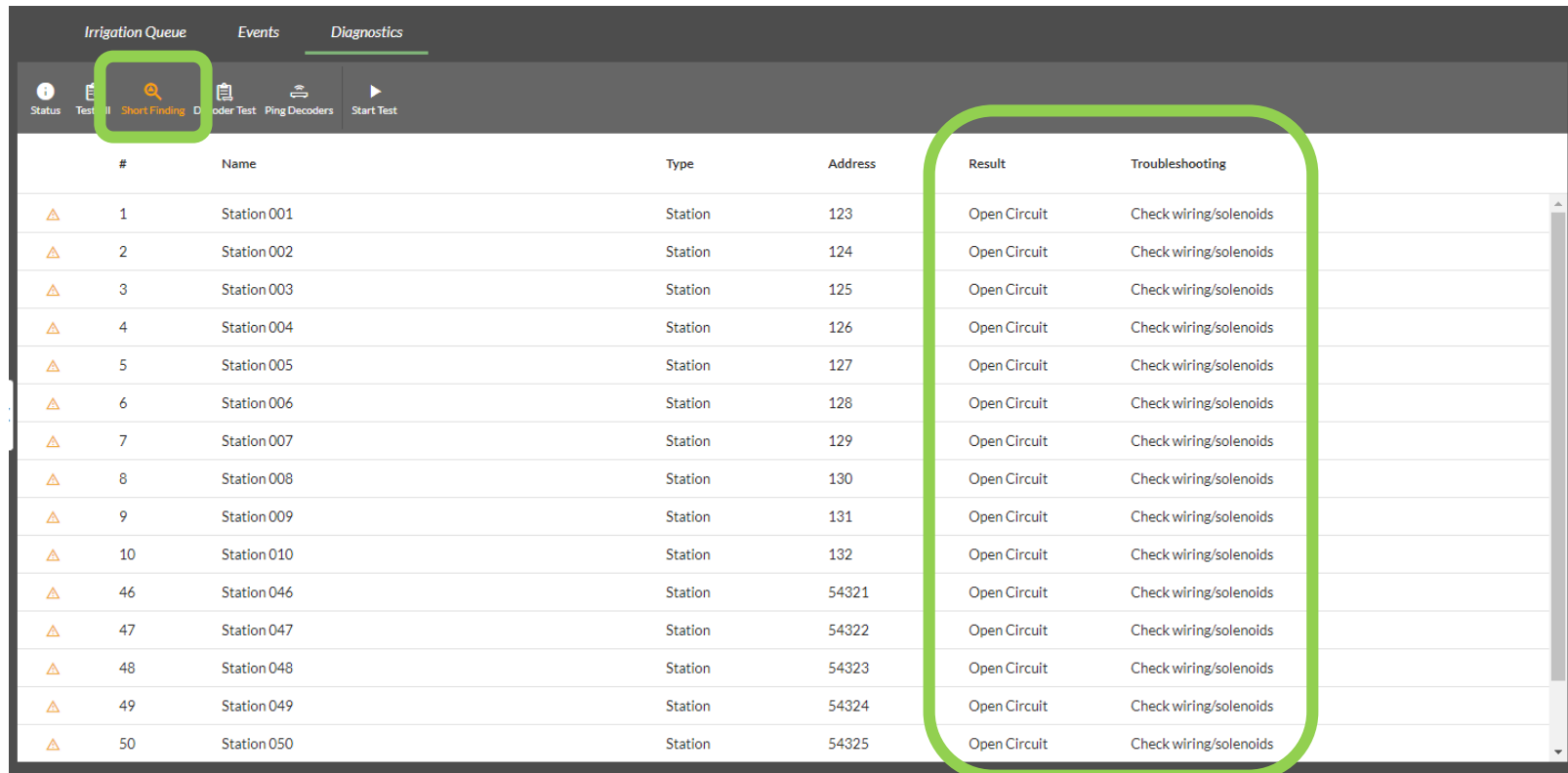
Name	Status
Local Sensor	Monitoring
Weather 1	Monitoring
Weather 2	Inactive
Weather 3	Inactive

Name	Status	MV Water Window
ally Closed	Closed	No
ally Closed	Closed	No
ally Closed	Closed	No
ally Closed	Closed	No
ally Closed	Closed	No

	A	B
Voltage 1	15.8	15.6
Voltage 2	-20.5	-20.5
Milliamps	22	23
Temperature	OK	
Current	OK	
Overload	OK	

# ESP-LXD - Diagnostics Tool Tab

- Short Finding Test – click this button to run a Short Finding test of all stations
  - All irrigation will be stopped, each station will be checked for continuity and results displayed



#	Name	Type	Address	Result	Troubleshooting
1	Station 001	Station	123	Open Circuit	Check wiring/solenoids
2	Station 002	Station	124	Open Circuit	Check wiring/solenoids
3	Station 003	Station	125	Open Circuit	Check wiring/solenoids
4	Station 004	Station	126	Open Circuit	Check wiring/solenoids
5	Station 005	Station	127	Open Circuit	Check wiring/solenoids
6	Station 006	Station	128	Open Circuit	Check wiring/solenoids
7	Station 007	Station	129	Open Circuit	Check wiring/solenoids
8	Station 008	Station	130	Open Circuit	Check wiring/solenoids
9	Station 009	Station	131	Open Circuit	Check wiring/solenoids
10	Station 010	Station	132	Open Circuit	Check wiring/solenoids
46	Station 046	Station	54321	Open Circuit	Check wiring/solenoids
47	Station 047	Station	54322	Open Circuit	Check wiring/solenoids
48	Station 048	Station	54323	Open Circuit	Check wiring/solenoids
49	Station 049	Station	54324	Open Circuit	Check wiring/solenoids
50	Station 050	Station	54325	Open Circuit	Check wiring/solenoids

# ESP-LXD - Diagnostics Tool Tab

- Decoder Test
  - Decoder Test will check continuity of all decoders and display results

The screenshot shows the 'Diagnostics' tab in the ESP-LXD interface. The 'Decoder Test' button is highlighted with a green box. A confirmation dialog box is overlaid on the table, stating: 'Decoder Test' followed by an information icon and the text: 'The Decoder Test request was successfully submitted. Periodically check the Event Log page and retrieve the Logs to get updates as the test progresses.' Below the text is an 'OK' button. The table below the dialog has the following columns: #, Name, Type, Address, Result, and Troubleshooting.

#	Name	Type	Address	Result	Troubleshooting
1				Circuit	Check wiring/solenoids
2				Circuit	Check wiring/solenoids
3				Circuit	Check wiring/solenoids
4				Circuit	Check wiring/solenoids
5				Circuit	Check wiring/solenoids
6				Circuit	Check wiring/solenoids
7				Circuit	Check wiring/solenoids
8	Station 008	Station	130	Open Circuit	Check wiring/solenoids
9	Station 009	Station	131	Open Circuit	Check wiring/solenoids
10	Station 010	Station	132	Open Circuit	Check wiring/solenoids
46	Station 046	Station	54321	Open Circuit	Check wiring/solenoids
47	Station 047	Station	54322	Open Circuit	Check wiring/solenoids
48	Station 048	Station	54323	Open Circuit	Check wiring/solenoids
49	Station 049	Station	54324	Open Circuit	Check wiring/solenoids
50	Station 050	Station	54325	Open Circuit	Check wiring/solenoids

# ESP-LXD - Diagnostics Tool Tab

- Decoder Test
  - Click on Logs
  - Results will be displayed in the Events Log -> Diagnostics selection 2 to 15 minutes after the test is complete

The screenshot displays the 'Diagnostics' tab in the ESP-LXD interface. At the top, there are navigation tabs for 'Irrigation Queue', 'Events', and 'Diagnostics'. Below these, a filter bar includes a '1 week' dropdown, 'Start' and 'End' date pickers (set to 03/22/2022 and 03/29/2022), and an 'Alarms (+2)' dropdown. Two buttons, 'ACKNOWLEDGE' and 'ACKNOWLEDGE ALL', are visible. The main area contains a table with the following columns: Date/Time, Description, Type, Site, and Source. The table lists ten diagnostic events, all of which are 'Open circuit detected' on various stations (Station050 to Station005) on 03/28/2022 at approximately 8:48-8:50 AM. Each event is categorized as 'Diagnostic' and originates from 'IQ4-4G Test Stand Test Controllers' at the 'ESP-LXD Client Controller for ESP-LXME2 (1)' site.

<input type="checkbox"/>	Date/Time	Description	Type	Site	Source
<input type="checkbox"/>	03/28/2022 8:50 AM	Open circuit detected on Station050 #050	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station049 #049	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station048 #048	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station047 #047	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station046 #046	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station010 #010	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station009 #009	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:49 AM	Open circuit detected on Station008 #008	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:48 AM	Open circuit detected on Station007 #007	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:48 AM	Open circuit detected on Station006 #006	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)
<input type="checkbox"/>	03/28/2022 8:48 AM	Open circuit detected on Station005 #005	Diagnostic	IQ4-4G Test Stand Test Controllers	ESP-LXD Client Controller for ESP-LXME2 (1)

# ESP-LXD - Diagnostics Tool Tab

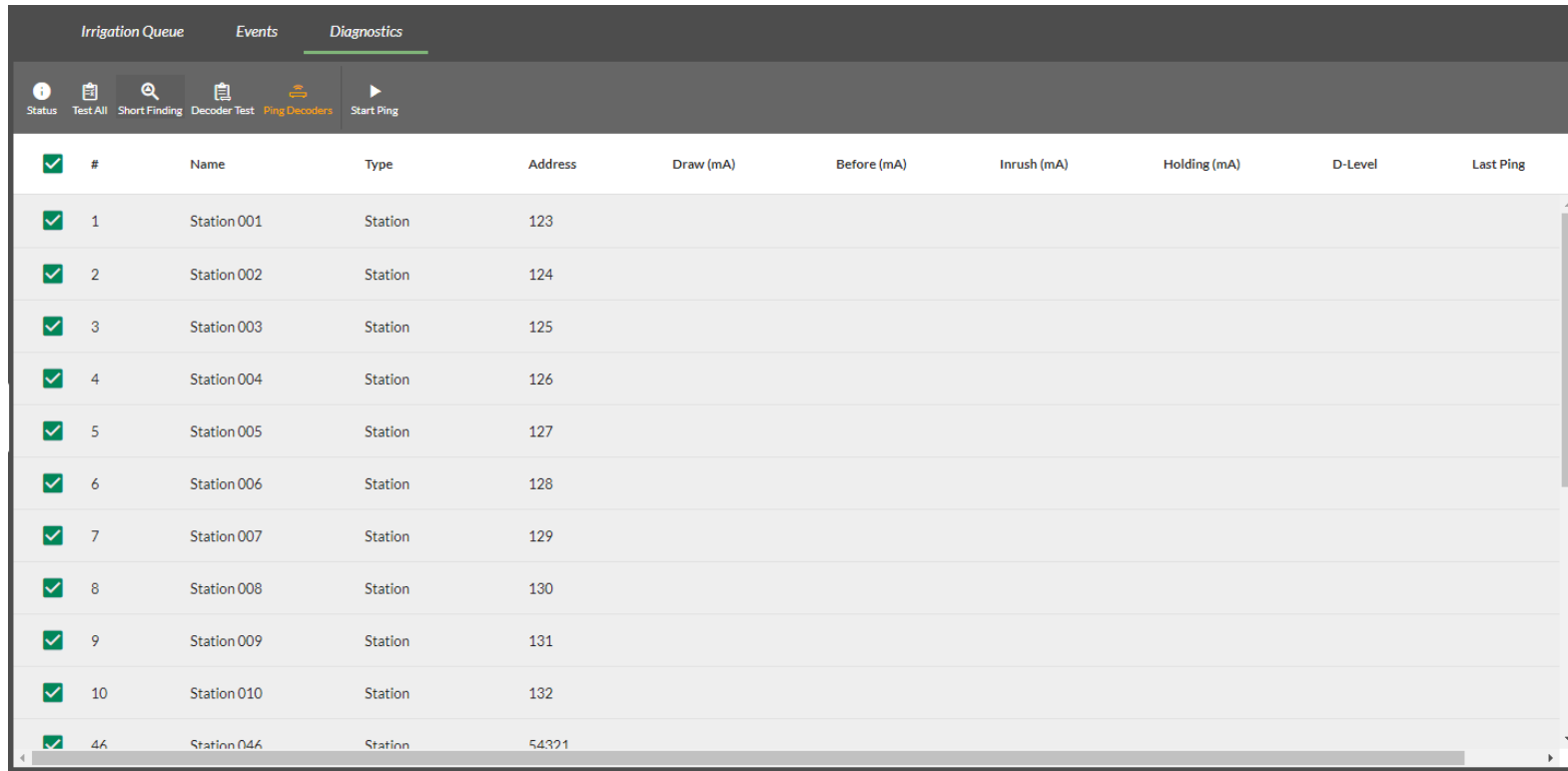
- Ping Test
  - Ping Test will stop irrigation, check continuity of selected decoders and display results

<input type="checkbox"/>	#	Name	Type	Address	Draw (mA)	Before (mA)	Inrush (mA)	Holding (mA)	D-Level	Last Ping
<input type="checkbox"/>	1	Station 001	Station	123						
<input type="checkbox"/>	2	Station 002	Station	124						
<input type="checkbox"/>	3	Station 003	Station	125						
<input type="checkbox"/>	4	Station 004	Station	126						
<input type="checkbox"/>	5	Station 005	Station	127						
<input type="checkbox"/>	6	Station 006	Station	128						
<input type="checkbox"/>	7	Station 007	Station	129						
<input type="checkbox"/>	8	Station 008	Station	130						
<input type="checkbox"/>	9	Station 009	Station	131						
<input type="checkbox"/>	10	Station 010	Station	132						
<input type="checkbox"/>	46	Station 046	Station	54321						



# ESP-LXD - Diagnostics Tool Tab

- Ping Test
  - Select the Stations (decoders) that are to be tested
  - Click on Start Ping

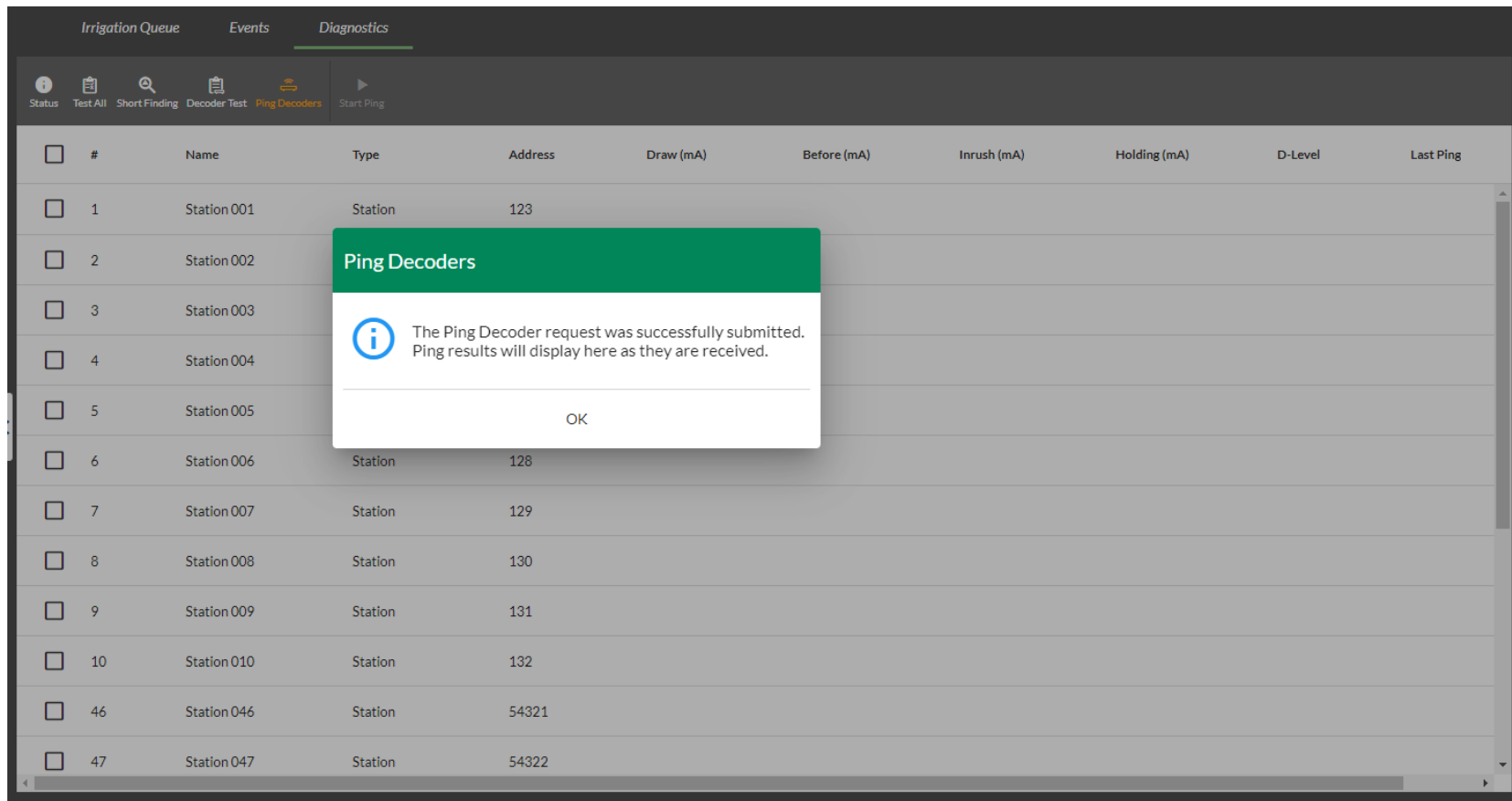


The screenshot displays the 'Diagnostics' tab in the ESP-LXD interface. The top navigation bar includes 'Irrigation Queue', 'Events', and 'Diagnostics'. Below the navigation bar, there is a toolbar with icons for 'Status', 'Test All', 'Short Finding', 'Decoder Test', 'Ping Decoders', and 'Start Ping'. The main area contains a table with the following columns: #, Name, Type, Address, Draw (mA), Before (mA), Inrush (mA), Holding (mA), D-Level, and Last Ping. The table lists 10 stations, each with a green checkmark in the first column, indicating they are selected for testing.

<input checked="" type="checkbox"/>	#	Name	Type	Address	Draw (mA)	Before (mA)	Inrush (mA)	Holding (mA)	D-Level	Last Ping
<input checked="" type="checkbox"/>	1	Station 001	Station	123						
<input checked="" type="checkbox"/>	2	Station 002	Station	124						
<input checked="" type="checkbox"/>	3	Station 003	Station	125						
<input checked="" type="checkbox"/>	4	Station 004	Station	126						
<input checked="" type="checkbox"/>	5	Station 005	Station	127						
<input checked="" type="checkbox"/>	6	Station 006	Station	128						
<input checked="" type="checkbox"/>	7	Station 007	Station	129						
<input checked="" type="checkbox"/>	8	Station 008	Station	130						
<input checked="" type="checkbox"/>	9	Station 009	Station	131						
<input checked="" type="checkbox"/>	10	Station 010	Station	132						
<input checked="" type="checkbox"/>	46	Station 046	Station	54321						

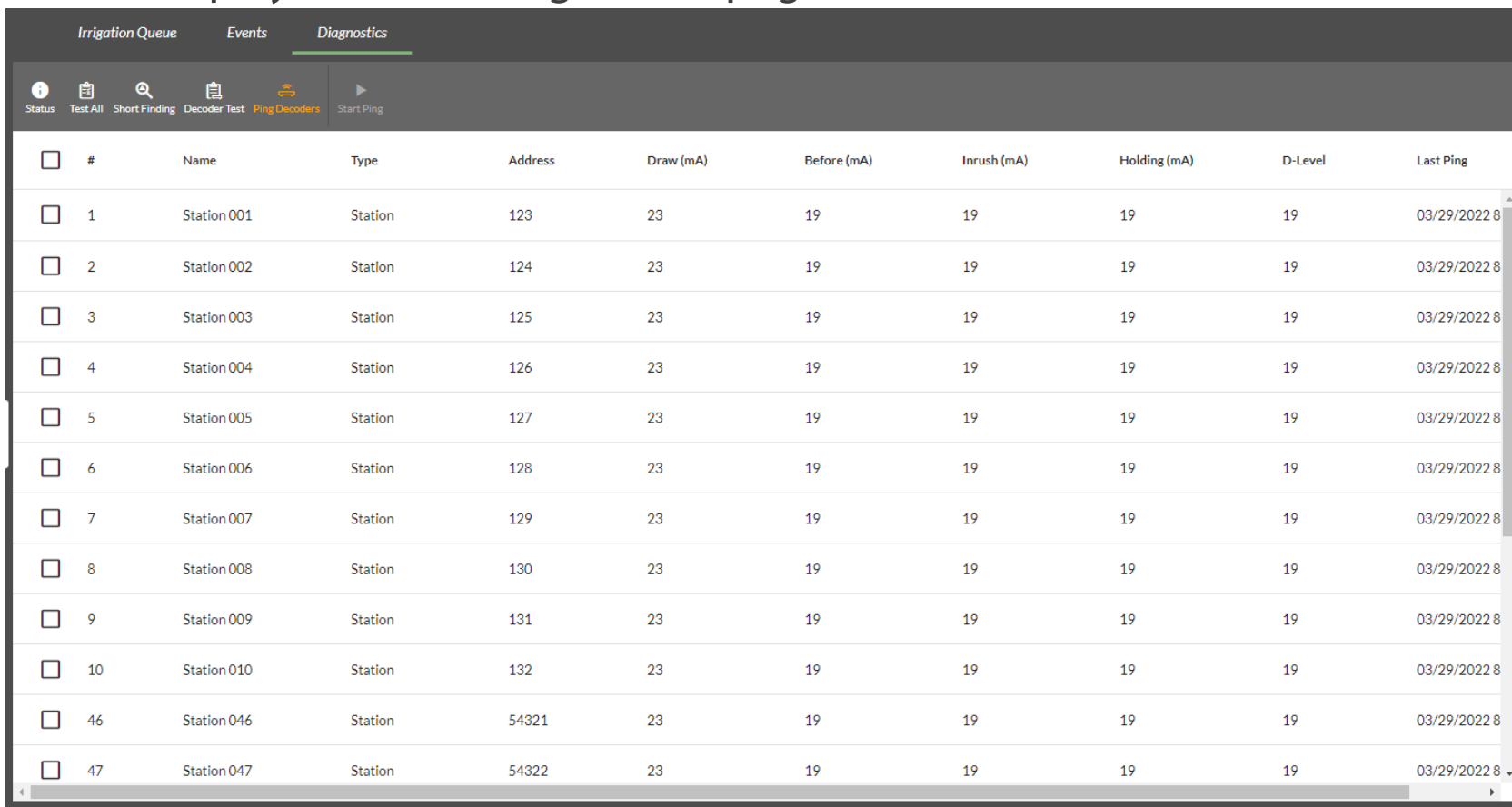
# ESP-LXD - Diagnostics Tool Tab

- Ping Test
  - Results will be displayed in the Diagnostics page 2 to 15 minutes after the test is complete



# ESP-LXD - Diagnostics Tool Tab

- Ping Test
  - Results will be displayed in the Diagnostics page 2 to 15 minutes after the test is complete



The screenshot shows the 'Diagnostics' tab in a software interface. At the top, there are navigation tabs: 'Irrigation Queue', 'Events', and 'Diagnostics'. Below these are several icons: 'Status', 'Test All', 'Short Finding', 'Decoder Test', 'Ping Decoders', and 'Start Ping'. The main area contains a table with the following columns: #, Name, Type, Address, Draw (mA), Before (mA), Inrush (mA), Holding (mA), D-Level, and Last Ping. The table lists 14 stations, all of which are 'Station' type. The 'Last Ping' column shows dates from 03/29/2022 8:00 to 03/29/2022 8:00.

<input type="checkbox"/>	#	Name	Type	Address	Draw (mA)	Before (mA)	Inrush (mA)	Holding (mA)	D-Level	Last Ping
<input type="checkbox"/>	1	Station 001	Station	123	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	2	Station 002	Station	124	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	3	Station 003	Station	125	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	4	Station 004	Station	126	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	5	Station 005	Station	127	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	6	Station 006	Station	128	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	7	Station 007	Station	129	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	8	Station 008	Station	130	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	9	Station 009	Station	131	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	10	Station 010	Station	132	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	46	Station 046	Station	54321	23	19	19	19	19	03/29/2022 8
<input type="checkbox"/>	47	Station 047	Station	54322	23	19	19	19	19	03/29/2022 8



# ESP-LXIVM Diagnostics

Diagnostics for ESP-LXIVM/LXIVM Pro Controllers



# ESP-LXIVM - Diagnostics Tool Tab

The screenshot displays the iQ4 irrigation control software interface. At the top, a green navigation bar contains the iQ4 logo and menu items: ACTIVITY, CONTROLLERS, PROGRAMS, REPORTS, and SYSTEM SETUP. On the right side of this bar are several status indicators: a refresh icon with '56', a triangle icon with '16', a circle with a slash icon with '0', a plus icon with '11', a circle with a dot icon with '1', and a notification bell icon with '86' and a user profile icon.

Below the navigation bar, a breadcrumb trail shows: ESP-LXIVM Pro Client -ESP-LXME2 Ser... Manual Ops Programs Dryrun™ Stations Master Valves Sensors. The 'Diagnostics' tab is highlighted with a green box.

On the left side, there is a 'Controller Settings' panel. It displays the following information:  
Name: ESP-LXIVM Pro Client -ESP-LXME2 Server (1)  
Controller Type: LX-IVM Pro  
IQNet Type: IQNet™ Client  
SIM Expires: -  
Location: Oro Valley, Arizona United States of America  
Time: Tue 03/29/2022 - 8:12 AM  
Weather: Heavy Rain (96% probability), 56°F, High 55° - Low 50°  
Forecast:  
Wed ☀️ 67°F  
Thu ☀️ 72°F  
Fri ☀️ 76°F  
Sat ☀️ 79°F

The main content area shows the 'Diagnostics' tool. It has a sub-header 'Controller Output (Last Updated: 03/29/2022 8:07 AM)' and displays the following data:  
Current: 5 mA (expected: 1 - 400 mA)  
Voltage: 0.25 V (expected over 23 V)

# ESP-LXIVM - Diagnostics Tool Tab

- Select the Diagnostics tab after connecting to the controller on the Manual Ops -> Irrigation Queue tab
- Displayed:
  - Controller Output – Voltage, Current and expectations

The screenshot shows the 'Diagnostics' tab selected in a web interface. The navigation bar includes 'Irrigation Queue', 'Events', and 'Diagnostics'. Below the navigation bar, there are five icons: Status, Test All, Device Status, Ping Test, and Short Report. The main content area displays 'Controller Output' with a timestamp '(Last Updated: 03/29/2022 8:07 AM)'. The output is presented in a table format:

Current	5 mA (expected: 1 - 400 mA)
Voltage	0.25 V (expected over 23 V)

# ESP-LXIVM - Diagnostics Tool Tab

- Test All – click this button to run a timed test of all stations (i.e., for a 2-minute walk through of all stations)

The screenshot displays the 'Diagnostics' tab in the ESP-LXIVM interface. The top navigation bar includes 'Irrigation Queue', 'Events', and 'Diagnostics'. Below the navigation bar, there are icons for 'Status', 'Test All', 'Device Status', 'Ping Test', and 'Short Report'. The main content area shows 'Controller Output' (Last Updated: 03/29/2022 8:07 AM) with the following data:

Current	5 mA (expected: 1 - 400 mA)
Voltage	0.25 V (expected over 23 V)

A 'Test Time' dialog box is open, showing a numeric input field for 'Minutes' with the value '2'. The dialog box has a green header and 'CANCEL' and 'OK' buttons at the bottom.

# ESP-LXIVM - Diagnostics Tool Tab

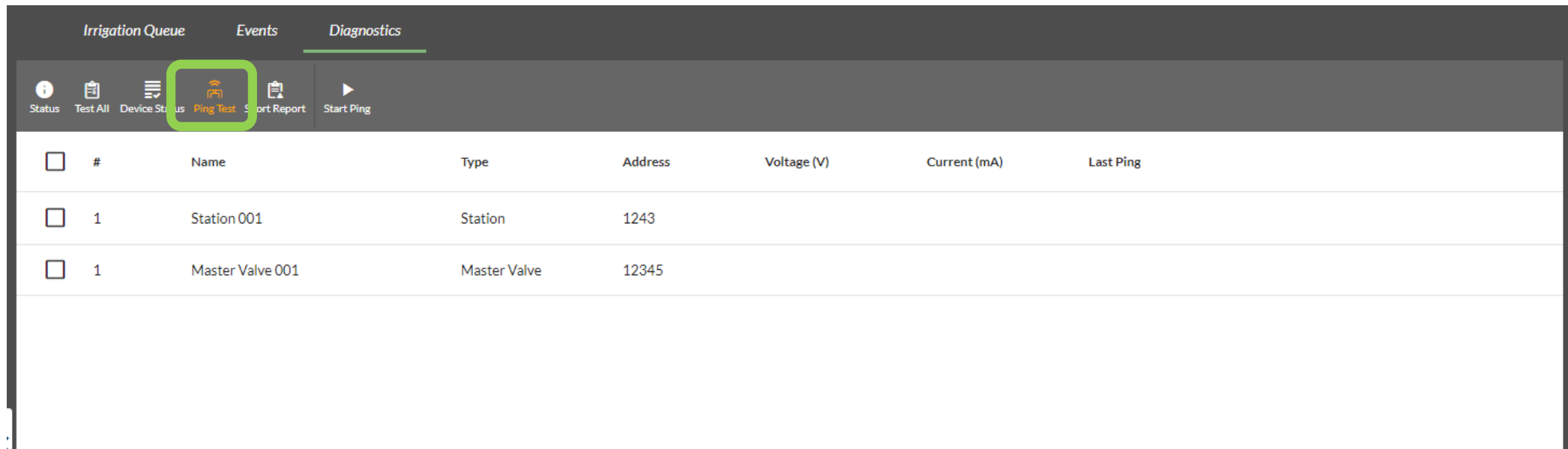
- Device Status - click this button to display a list of all stations responding and all stations not responding
  - All irrigation will be stopped, each station will be checked for continuity and results displayed

#	Name	Address	Status	Last Response
1	Station 001	1243	Responding	03/29/2022 8:51 AM
2	Station 002	0	Not Responding	03/29/2022 8:51 AM
3	Station 003	0	Not Responding	03/29/2022 8:51 AM
4	Station 004	0	Not Responding	03/29/2022 8:51 AM
5	Station 005	0	Not Responding	03/29/2022 8:51 AM
6	Station 006	0	Not Responding	03/29/2022 8:51 AM
7	Station 007	0	Not Responding	03/29/2022 8:51 AM
8	Station 008	0	Not Responding	03/29/2022 8:51 AM
9	Station 009	0	Not Responding	03/29/2022 8:51 AM
10	Station 010	0	Not Responding	03/29/2022 8:51 AM
1	Master Valve 001	12345	Responding	03/29/2022 8:51 AM
1	Flow Sensor 01	0	Responding	03/29/2022 8:51 AM



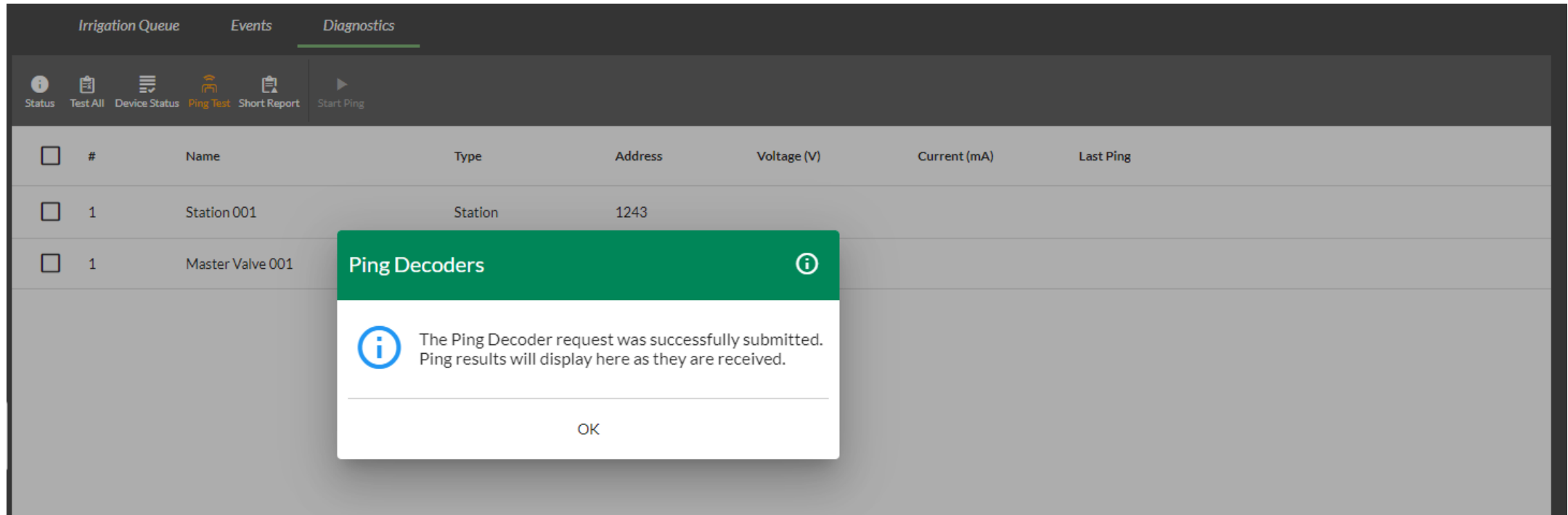
# ESP-LXIVM - Diagnostics Tool Tab

- Ping Test
  - Ping Test will stop irrigation, check continuity of selected decoders and display results



# ESP-LXIVM - Diagnostics Tool Tab

- Ping Test
  - Select the Stations (decoders) that are to be tested
  - Click on Start Ping



The screenshot displays the 'Diagnostics' tab in the ESP-LXIVM interface. The top navigation bar includes 'Irrigation Queue', 'Events', and 'Diagnostics'. Below this, a toolbar contains icons for 'Status', 'Test All', 'Device Status', 'Ping Test', 'Short Report', and 'Start Ping'. A table lists stations with columns for '#', 'Name', 'Type', 'Address', 'Voltage (V)', 'Current (mA)', and 'Last Ping'. The table contains two rows: 'Station 001' and 'Master Valve 001'. A green notification box titled 'Ping Decoders' is overlaid on the table, containing an information icon and the text: 'The Ping Decoder request was successfully submitted. Ping results will display here as they are received.' Below the text is an 'OK' button.

#	Name	Type	Address	Voltage (V)	Current (mA)	Last Ping
<input type="checkbox"/>	1	Station 001	Station	1243		
<input type="checkbox"/>	1	Master Valve 001				

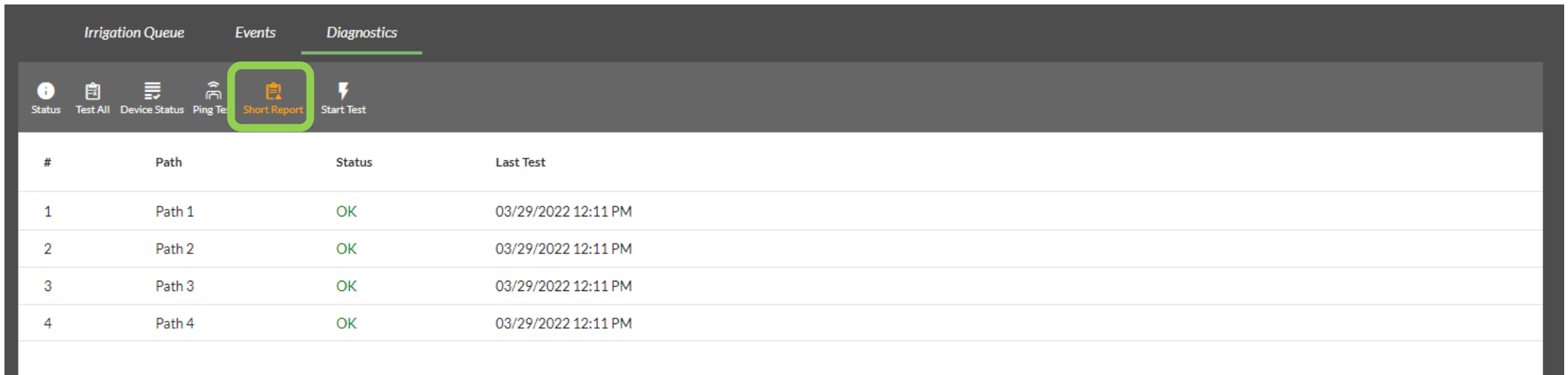
# ESP-LXIVM - Diagnostics Tool Tab

- Ping Test
  - Results will be displayed in the Diagnostics page 2 to 15 minutes after the test is complete

<input type="checkbox"/>	#	Name	Type	Address	Voltage (V)	Current (mA)	Last Ping
<input type="checkbox"/>	1	Station 001	Station	12657	0.375	6	03-29-2022 11:59 AM
<input type="checkbox"/>	2	Station 002	Station	12345	0	6	03-29-2022 11:59 AM
<input type="checkbox"/>	3	Station 003	Station	12341	0	8	03-29-2022 12:00 PM

# ESP-LXIVM - Diagnostics Tool Tab

- Short Report
  - Short Report will check continuity of all 2-wire paths and display results



The screenshot displays the 'Diagnostics' tab of the ESP-LXIVM interface. The navigation bar includes 'Irrigation Queue', 'Events', and 'Diagnostics'. The 'Short Report' button is highlighted with a green box. Below the navigation bar is a table with the following data:

#	Path	Status	Last Test
1	Path 1	OK	03/29/2022 12:11 PM
2	Path 2	OK	03/29/2022 12:11 PM
3	Path 3	OK	03/29/2022 12:11 PM
4	Path 4	OK	03/29/2022 12:11 PM




# Learned Flow

Learned Flow Feature for all ESP-LX Controllers



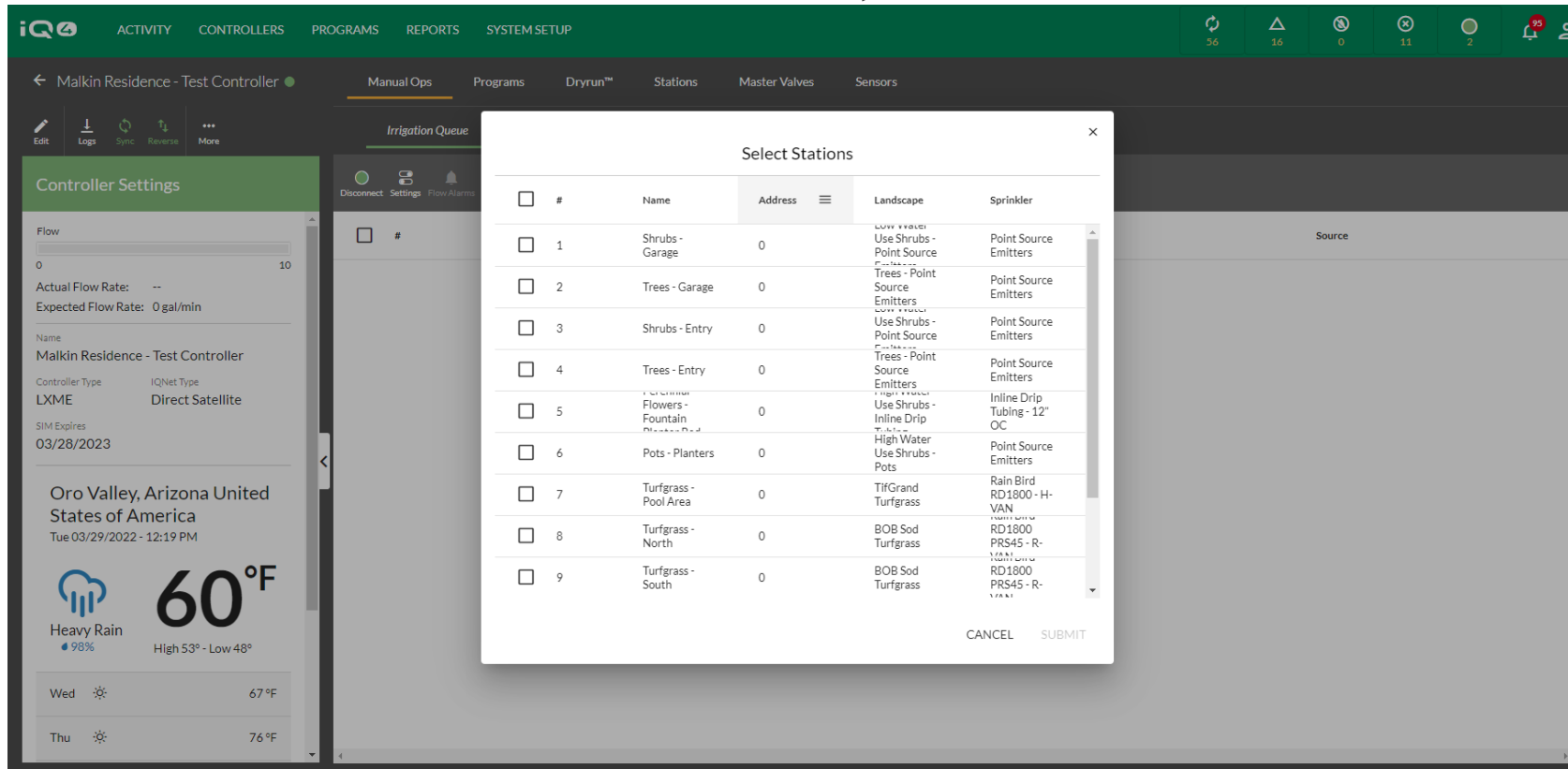
# Learned Flow Feature – Irrigation Queue Tab

The screenshot displays the Rain Bird iQ4 irrigation control interface. The top navigation bar includes 'ACTIVITY', 'CONTROLLERS', 'PROGRAMS', 'REPORTS', and 'SYSTEM SETUP'. The main header shows 'Malkin Residence - Test Controller' with sub-tabs for 'Manual Ops', 'Programs', 'Dryrun™', 'Stations', 'Master Valves', and 'Sensors'. The 'Irrigation Queue' sub-tab is active, and the 'Learn Flow' button is highlighted with a green box. The interface also shows 'Controller Settings' on the left, including flow rate controls, controller name, and weather information for Oro Valley, Arizona.


#	Station Name	Status	Program	Source
 No data to display.				

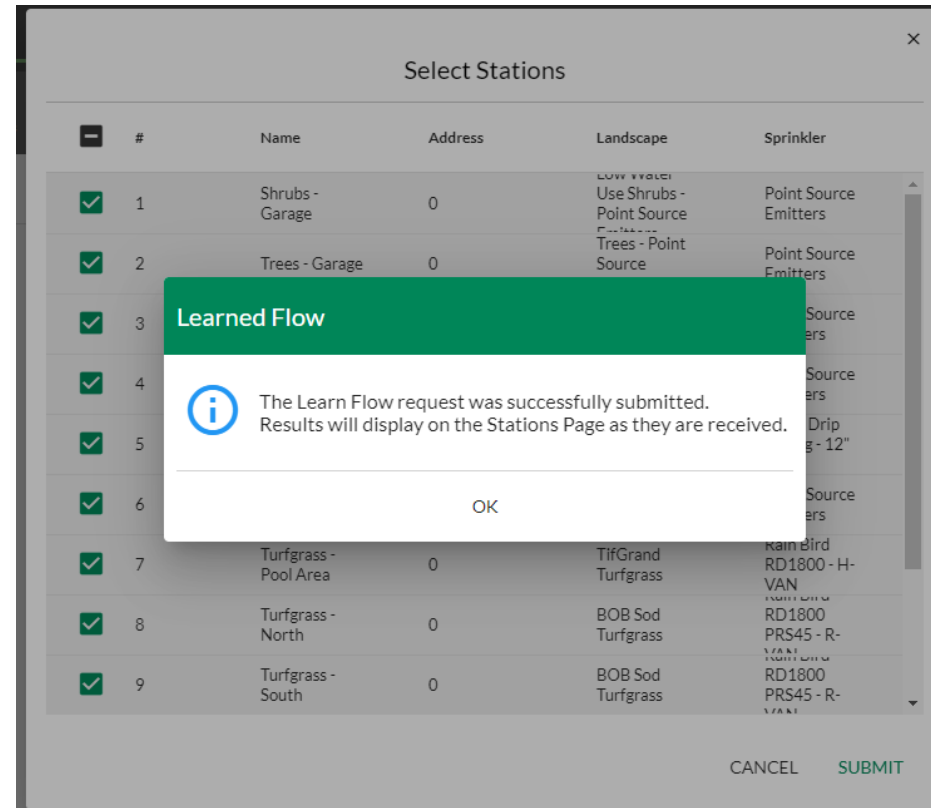
# Learned Flow Feature - Irrigation Queue Tab

- Learned Flow
  - Learned Flow will run each selected station for 2 to 4 minutes to determine the average flow. These values are saved into the controller data and relayed to IQ4



# Learned Flow Feature - Irrigation Queue Tab

- Learned Flow
  - The Learned Flow results will be displayed on the Stations page with a  12.59 gpm

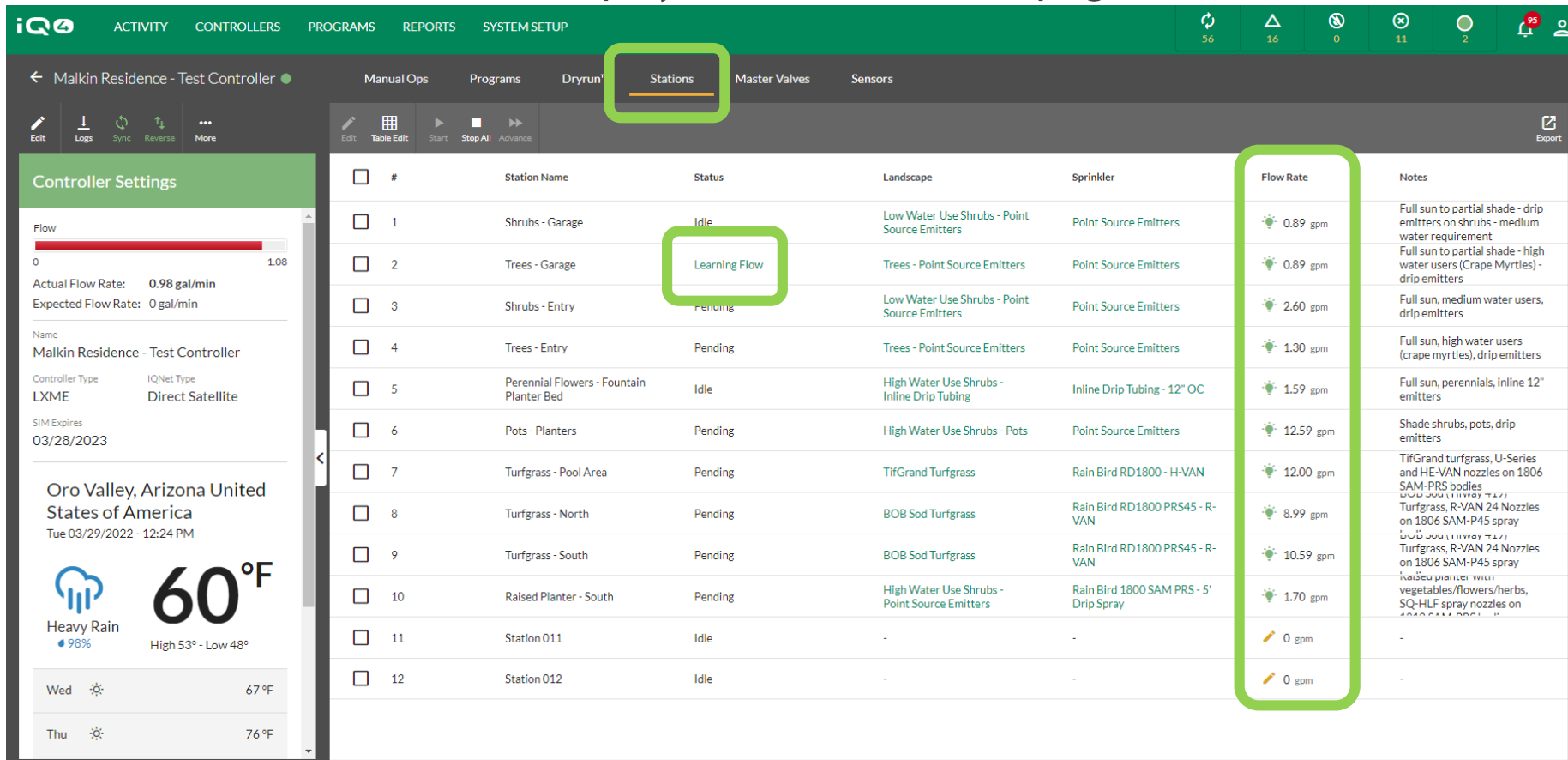




# Learned Flow Feature - Irrigation Queue Tab

- Learned Flow

- The Learned Flow results will be displayed on the Stations page with a  12.59 gpm



The screenshot displays the iQ4 irrigation control interface. The top navigation bar includes 'ACTIVITY', 'CONTROLLERS', 'PROGRAMS', 'REPORTS', and 'SYSTEM SETUP'. The main interface is titled 'Malkin Residence - Test Controller' and features a 'Stations' tab highlighted with a green box. Below the navigation, there are controls for 'Manual Ops', 'Programs', 'Dryrun', 'Master Valves', and 'Sensors'. A 'Controller Settings' panel on the left shows 'Actual Flow Rate: 0.98 gal/min' and 'Expected Flow Rate: 0 gal/min'. The main table lists 12 stations with columns for '#', 'Station Name', 'Status', 'Landscape', 'Sprinkler', 'Flow Rate', and 'Notes'. The 'Flow Rate' column is highlighted with a green box, showing values such as 0.89 gpm, 2.60 gpm, 1.30 gpm, 1.59 gpm, 12.59 gpm, 12.00 gpm, 8.99 gpm, 10.59 gpm, 1.70 gpm, and 0 gpm. The 'Status' column for station 2 is highlighted with a green box, showing 'Learning Flow'.

#	Station Name	Status	Landscape	Sprinkler	Flow Rate	Notes
1	Shrubs - Garage	Idle	Low Water Use Shrubs - Point Source Emitters	Point Source Emitters	0.89 gpm	Full sun to partial shade - drip emitters on shrubs - medium water requirement
2	Trees - Garage	Learning Flow	Trees - Point Source Emitters	Point Source Emitters	0.89 gpm	Full sun to partial shade - high water users (Crape Myrtles) - drip emitters
3	Shrubs - Entry	Pending	Low Water Use Shrubs - Point Source Emitters	Point Source Emitters	2.60 gpm	Full sun, medium water users, drip emitters
4	Trees - Entry	Pending	Trees - Point Source Emitters	Point Source Emitters	1.30 gpm	Full sun, high water users (crape myrtles), drip emitters
5	Perennial Flowers - Fountain Planter Bed	Idle	High Water Use Shrubs - Inline Drip Tubing	Inline Drip Tubing - 12" OC	1.59 gpm	Full sun, perennials, inline 12" emitters
6	Pots - Planters	Pending	High Water Use Shrubs - Pots	Point Source Emitters	12.59 gpm	Shade shrubs, pots, drip emitters
7	Turfgrass - Pool Area	Pending	TifGrand Turfgrass	Rain Bird RD1800 - H-VAN	12.00 gpm	TifGrand turfgrass, U-Series and HE-VAN nozzles on 1806 SAM-PRS bodies
8	Turfgrass - North	Pending	BOB Sod Turfgrass	Rain Bird RD1800 PRS45 - R-VAN	8.99 gpm	Turfgrass, R-VAN 24 Nozzles on 1804 SAM-P45 spray
9	Turfgrass - South	Pending	BOB Sod Turfgrass	Rain Bird RD1800 PRS45 - R-VAN	10.59 gpm	Turfgrass, R-VAN 24 Nozzles on 1804 SAM-P45 spray
10	Raised Planter - South	Pending	High Water Use Shrubs - Point Source Emitters	Rain Bird 1800 SAM PRS - 5' Drip Spray	1.70 gpm	High water users, vegetables/flowers/herbs, SQ-HLF spray nozzles on
11	Station 011	Idle	-	-	0 gpm	-
12	Station 012	Idle	-	-	0 gpm	-

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