



ESP-LXD Controller Troubleshooting Guide



For product manuals, instructional videos and FAQs, please visit:

www.rainbird.com/esplxseries



For free professional support for programming and troubleshooting, please call: **1-866-544-1406**

Local Rain Bird Contact Information

Distributor Manager:

Email:

Phone:

Area Specification Manager

Public Agency Manager:

Email:

Phone:

Contractor Account Mgr:

Email:

Phone:

Water Conservation Mgr:

Email:

Phone:

Contents

Local Rain Bird Contact Information.....	2
Useful Tools	4
Controller Features	6
Front Panel.....	6
Setup Wizards	7
Test All Stations/Check System.....	7
Cabinet Components	8
Basic Programming	9
Troubleshooting.....	10
Getting Started.....	10
Alarm: No Water Days, No Run Times,	11
Short Finding Mode.....	12
System Amperage Calculation	16
Duplicate Decoder Address	17
Manual Short Finding Mode	18
Flow Alarms.....	20
Decoder Test.....	22
Decoder Ping Test	25

Useful Tools

- **Milliamp Meter**
Recommended Model: Armada Pro 93
- **As-Built Drawing**
Don't have it, make it using a cable locator
- **Wire Stripper**
For video showing proper wire splice instructions and other installation tips, please visit: www.rainbird.com/landscape/products/controllers/ESP-LXD.htm
- **LXD Troubleshooting Tools**
Like the one you are holding in your hands



Milliamp
Meter

We recommend using:

- **Rain Bird MAXI Cable** as your 2-Wire communications cable.
- **Rain Bird DBR/Y splice kits** for ALL electrical wiring connections.



Wire
Stripper

! **NOTE:** If installing or repairing communications wiring for IQ Software, do not install the communications cables in the same conduit as the 2-Wire path wiring.



NOTE: Rain Bird HV, DV, and JTV Series residential valves are not compatible with ESP-LXD decoders.

Use only Rain Bird commercial series valves for ESP-LXD installations:

- **PGA Series**
www.rainbird.com/landscape/products/valves/PGA-series.htm
- **PEB Series**
www.rainbird.com/landscape/products/valves/PEB_PESBseries.htm
- **EFB-CP Series**
www.rainbird.com/landscape/products/valves/EFB-CP.htm
- **BPE Series**
www.rainbird.com/landscape/products/valves/BPES.htm

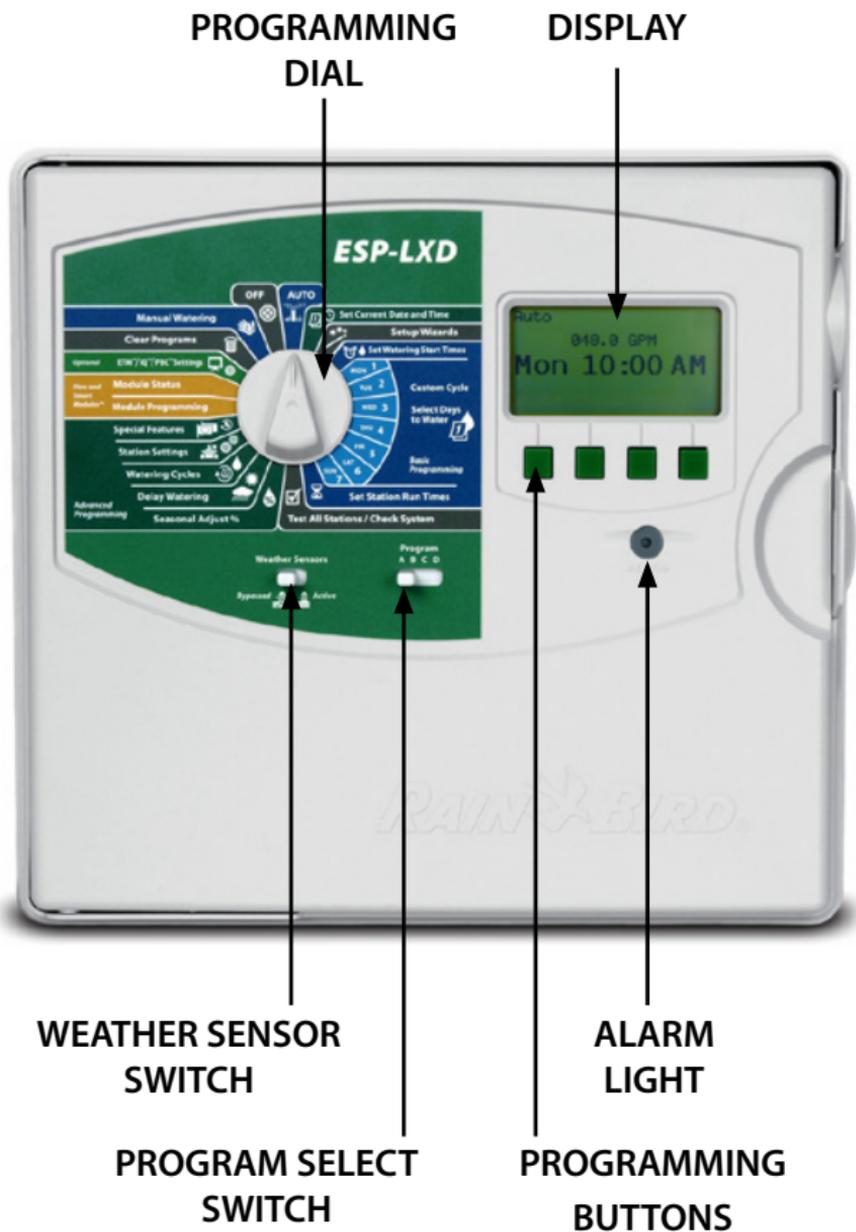
A list of ESP-LXD Controller Troubleshooting Videos can be found here:

[ESP-LXD Controller Troubleshooting](#)

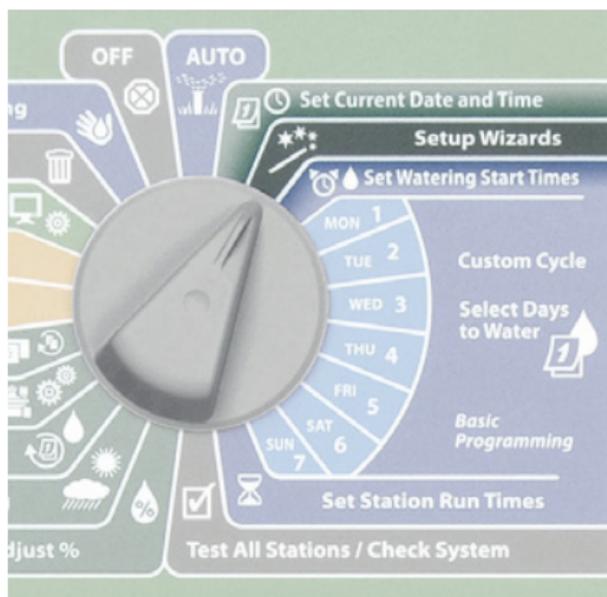
www.youtube.com/playlist?list=PLKH-77cPRcpcnuhsym3t_NbUjAqLu1G-9He

Controller Features

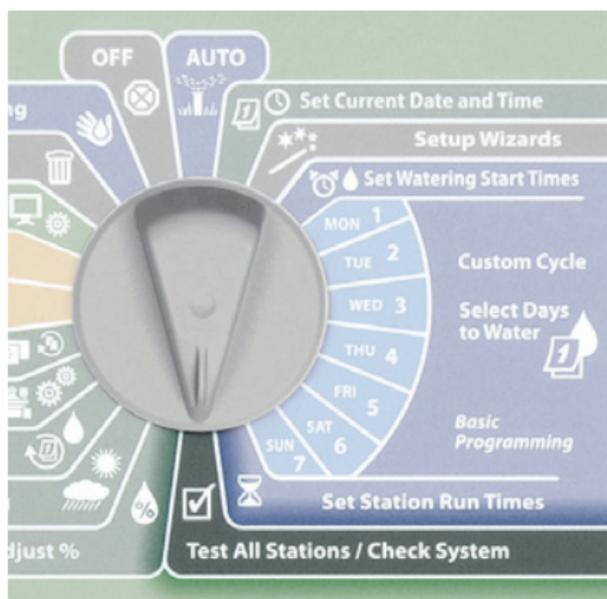
Front Panel



Setup Wizards



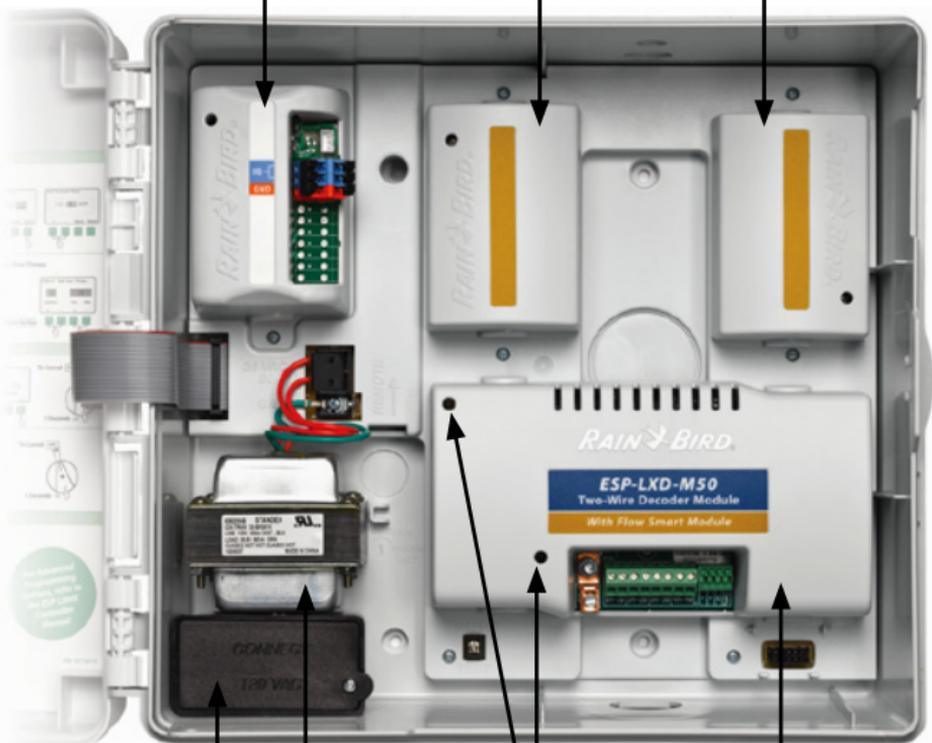
Test All Stations/Check System



Cabinet Components

OPTIONAL IQ
MODULE

STATION EXPANSION
MODULES



JUNCTION
BOX

INDICATOR
LIGHTS

TRANSFORMER

BASE STATION
MODULE

Basic Programming

The ESP-LXD Controller offers Setup Wizards to help get you started and guide you through each step of the installation and hardware setup process.

It's most effective to use the Setup Wizards in the order in which they appear on the screen, as follows:

1. Valve Types
2. Master Valves
3. Weather Sensors (if present)
4. Station Setup
5. Flow Sensors (if present).

For more information see the **Installation, Programming & Operation Guide**

that came with the ESP-LXD Controller.

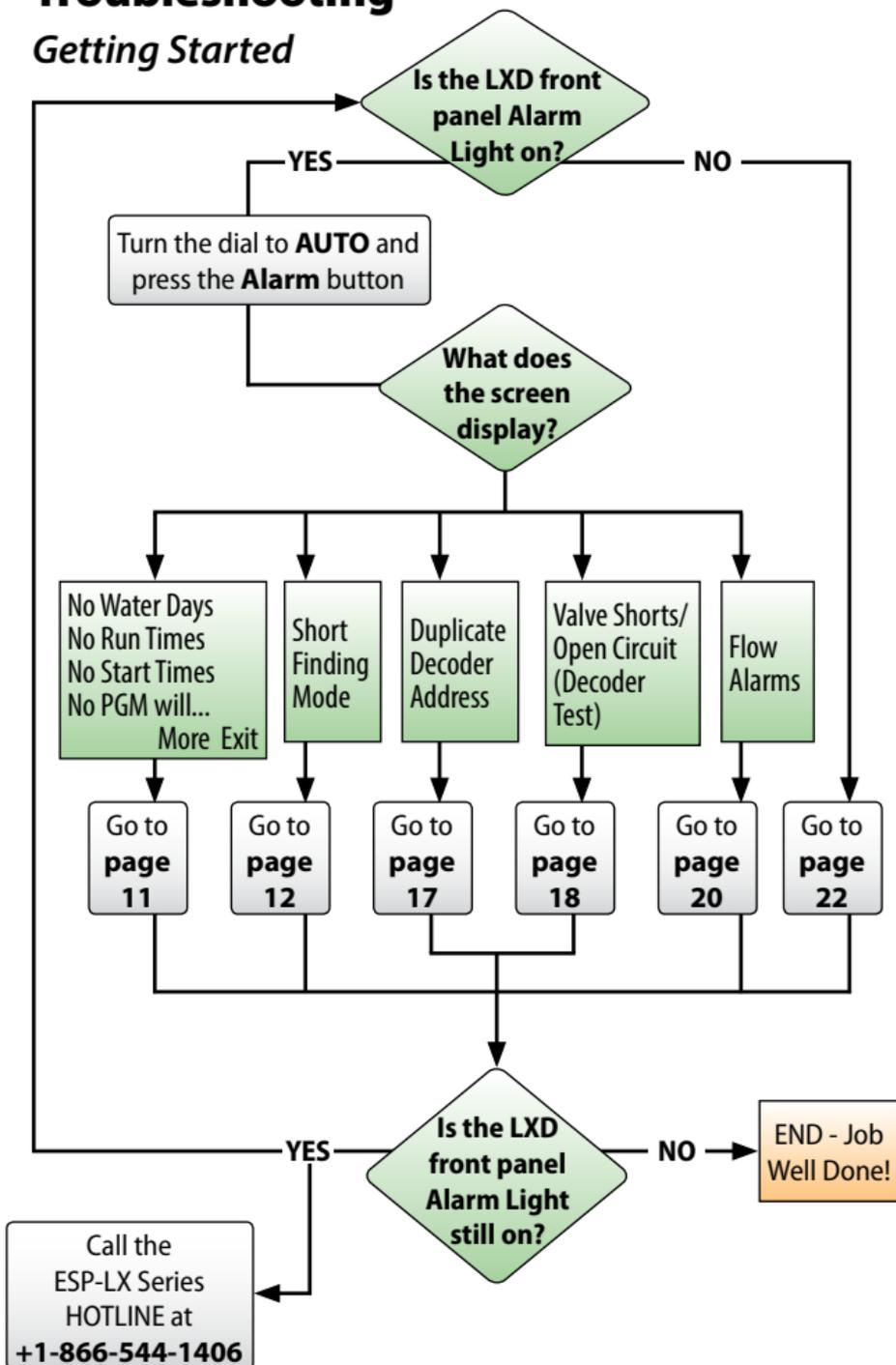


Or else download the Programming Guide at:

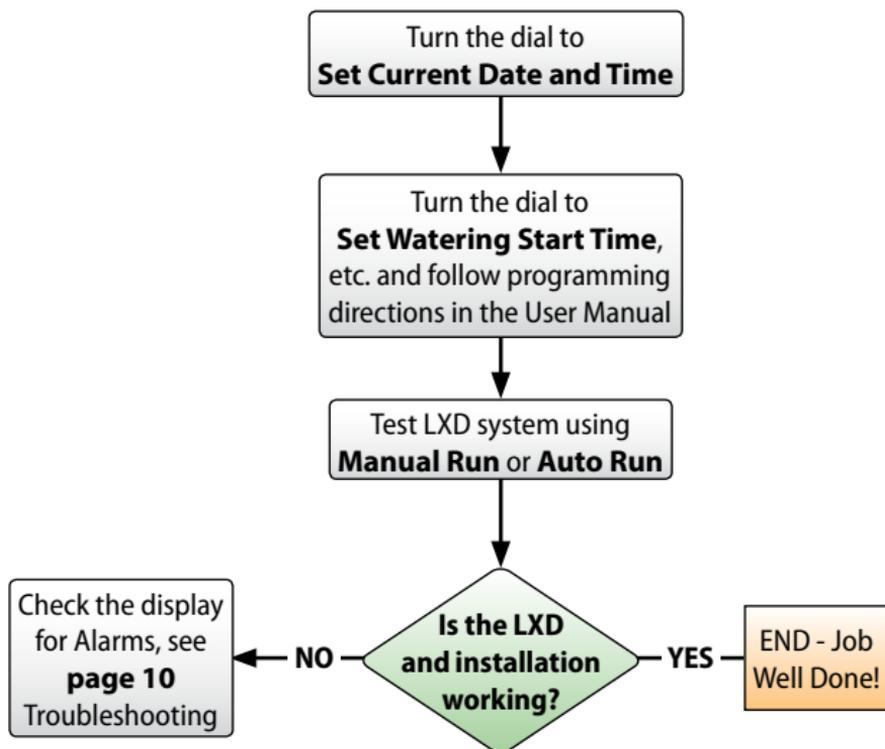
www.rainbird.com/esplxseries

Troubleshooting

Getting Started



Alarm: No Water Days, No Run Times, ...



Short Finding Mode

The controller has automatically entered Short Finding Mode to protect itself against a short on the 2-wire path

Turn the dial to **Test All Stations / Check Systems**

Press the **Down Arrow** button to select **2-wire Diagnostic**, then press **Next**

Press the **Down Arrow** button to select **Line Survey**, then press **Next**

The Line Survey screen is displayed

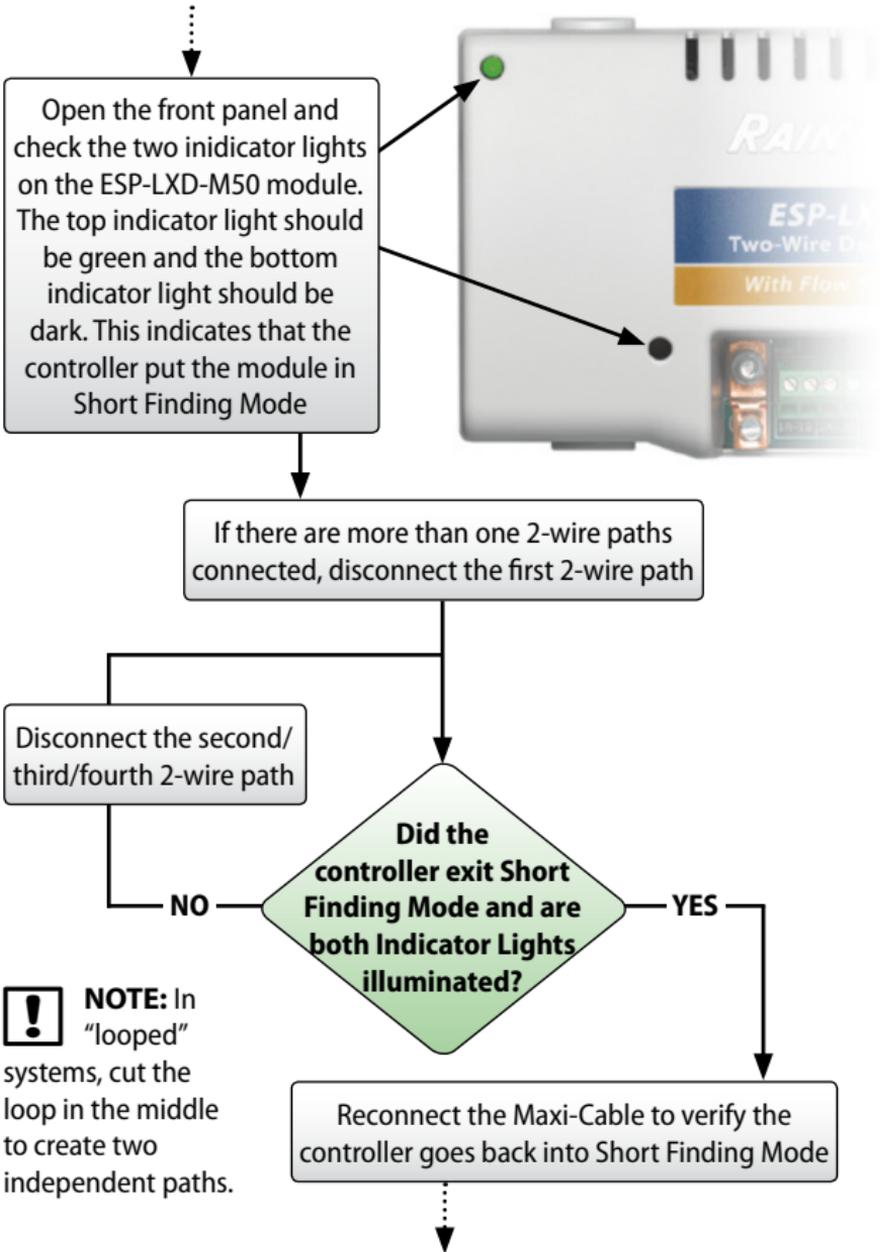
Line Survey	A	B
Voltage1	15.0	15.0
Voltage2	-20.1	-20.3
Milliamps	215	214
Temp	Current	Overload
OK	Not OK	Not OK
Back		

! **NOTE:** The Voltage1 reading for a normal healthy system is typically in the +14.0 to +16.0 range for both A and B. The Voltage 2 reading is typically in the -20.0 to -21.0 range for both A and B. The Voltage1 and Voltage2 readings should be approx. equal for A and B. Milliampereage (mA) varies with the number of decoders installed and should be approx. equal to the amperage calculations detailed on **page 16**.

The display reads Temp OK, Current Not OK and Overload Not OK. This indicates a dead short in the 2-wire path. Temp could also show Not OK.

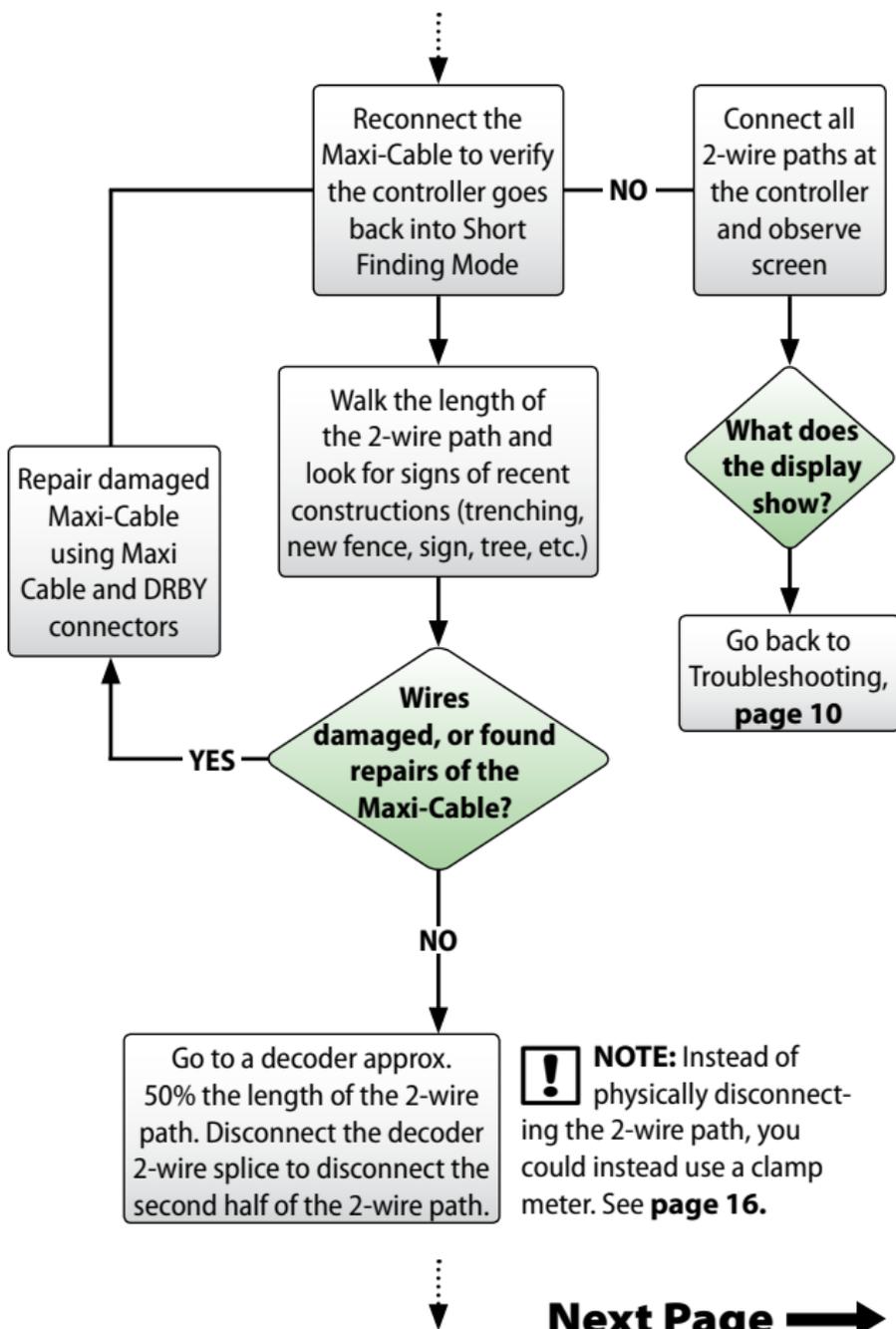
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Short Finding Mode cont.

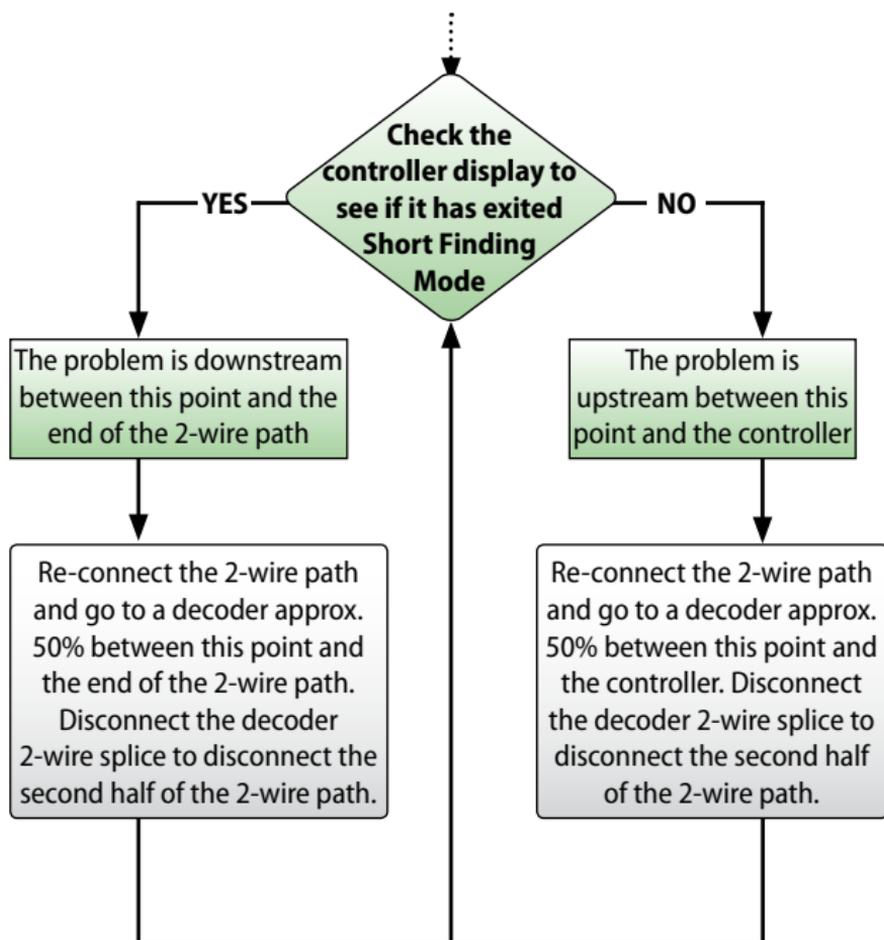


Next Page →

Short Finding Mode cont.



Short Finding Mode cont.



For video instructions on **Automatic Short Finding Mode**, please visit:

<https://youtu.be/khFodRFUOXs>

Next Page →

Short Finding Mode cont.

Alternatively, if you have a clamp meter you can also measure the amperage:

 **NOTE:** Before measuring the amperage, calculate the approximate current that the 2-wire path is consuming.

System Amperage Calculation

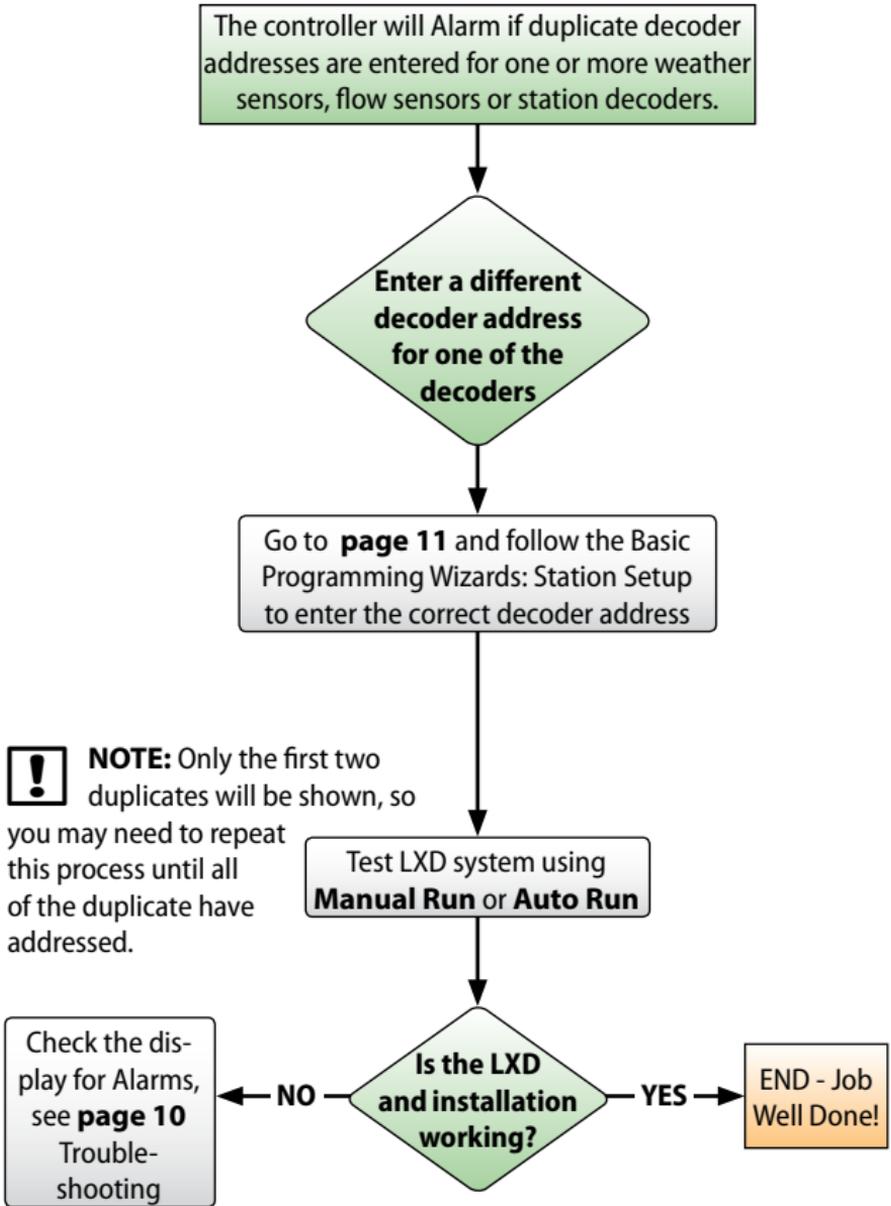
Quantity of single address station decoders	X	0.5 mA
+ Quantity of multiple address decoders	X	1.0 mA
+ Quantity of active decoders	X	17.5 mA
+ Quantity of other SD210 decoders	X	8.0 mA
<hr/>		
= Approximate total system amperage in mA		

* Single address station decoders include the FD-101 and FD-102 decoders

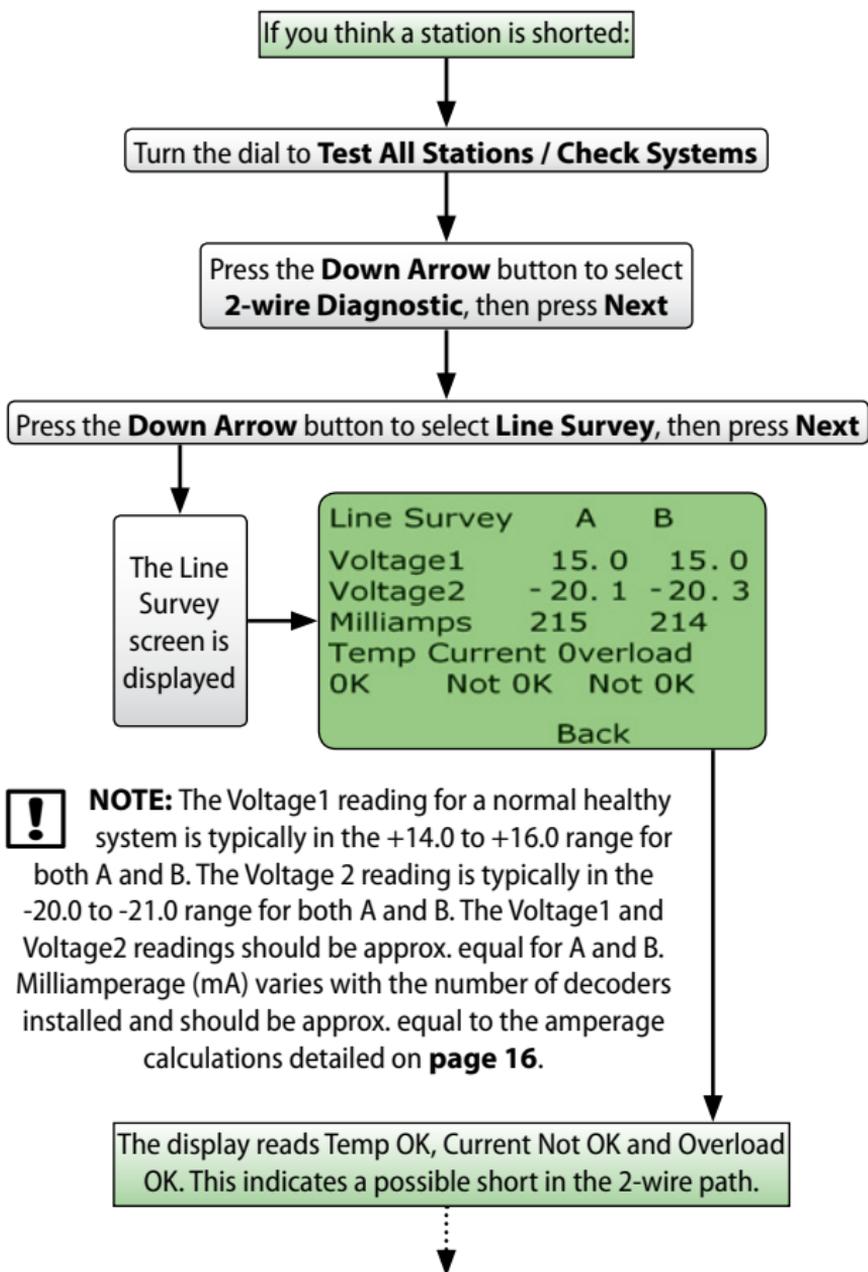
** Multiple address station decoders include the FD-202, FD-401 and FD-601 decoders

For video instructions on **Locating a Short on the Two-Wire Path**, please visit:
<https://youtu.be/6qDx-0K0aC0>

Duplicate Decoder Address

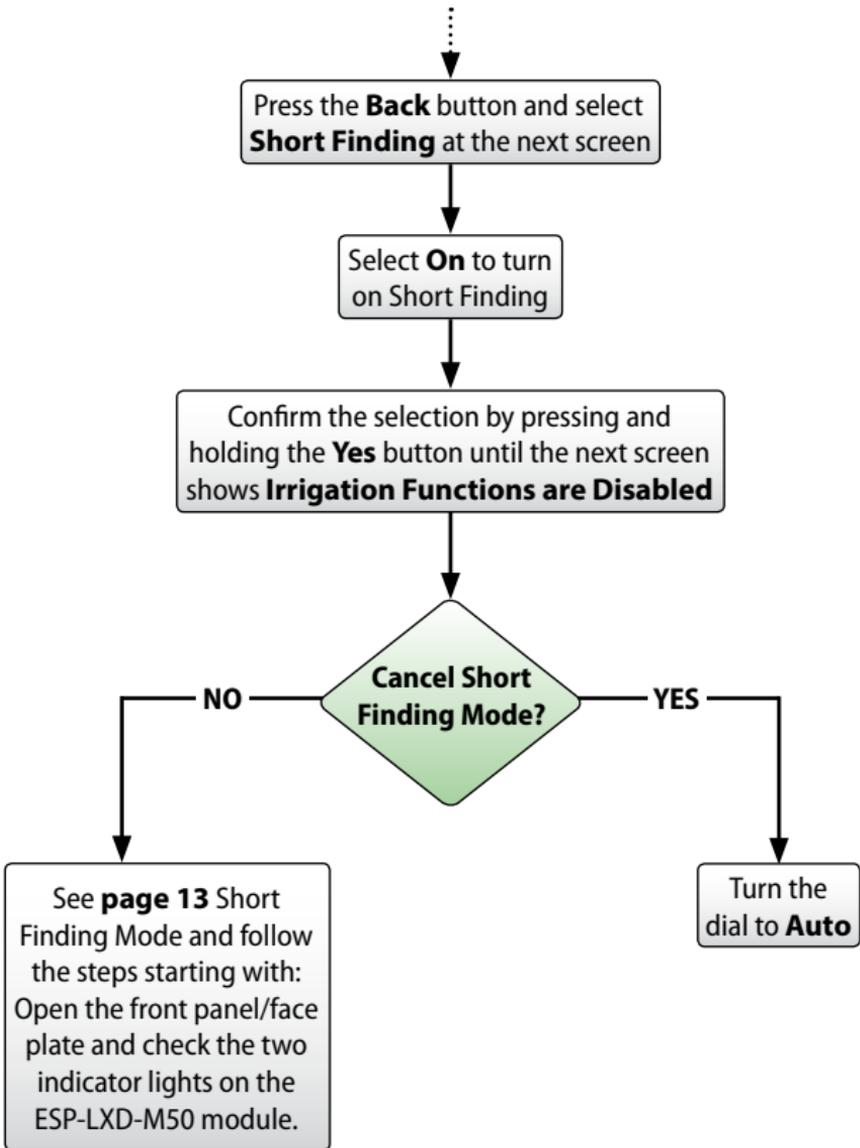


Manual Short Finding Mode



Next Page →

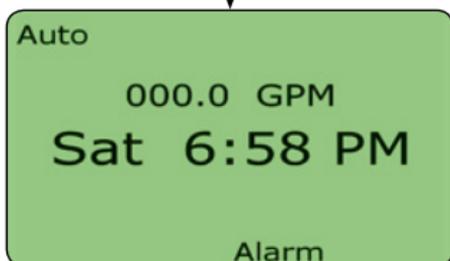
Manual Short Finding Mode cont.



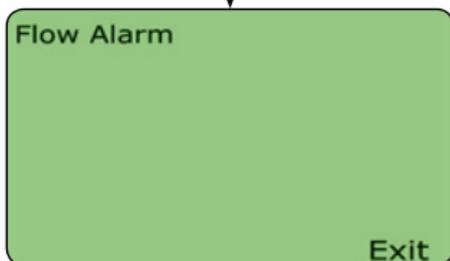
For video instructions on **Manually Putting ESP-LXD Into Short Finding Mode**, please visit:
<https://youtu.be/BT8UgNxbSCU>

Flow Alarms

The display shows the following:



Press the **Alarm** button



Press the **Exit** button

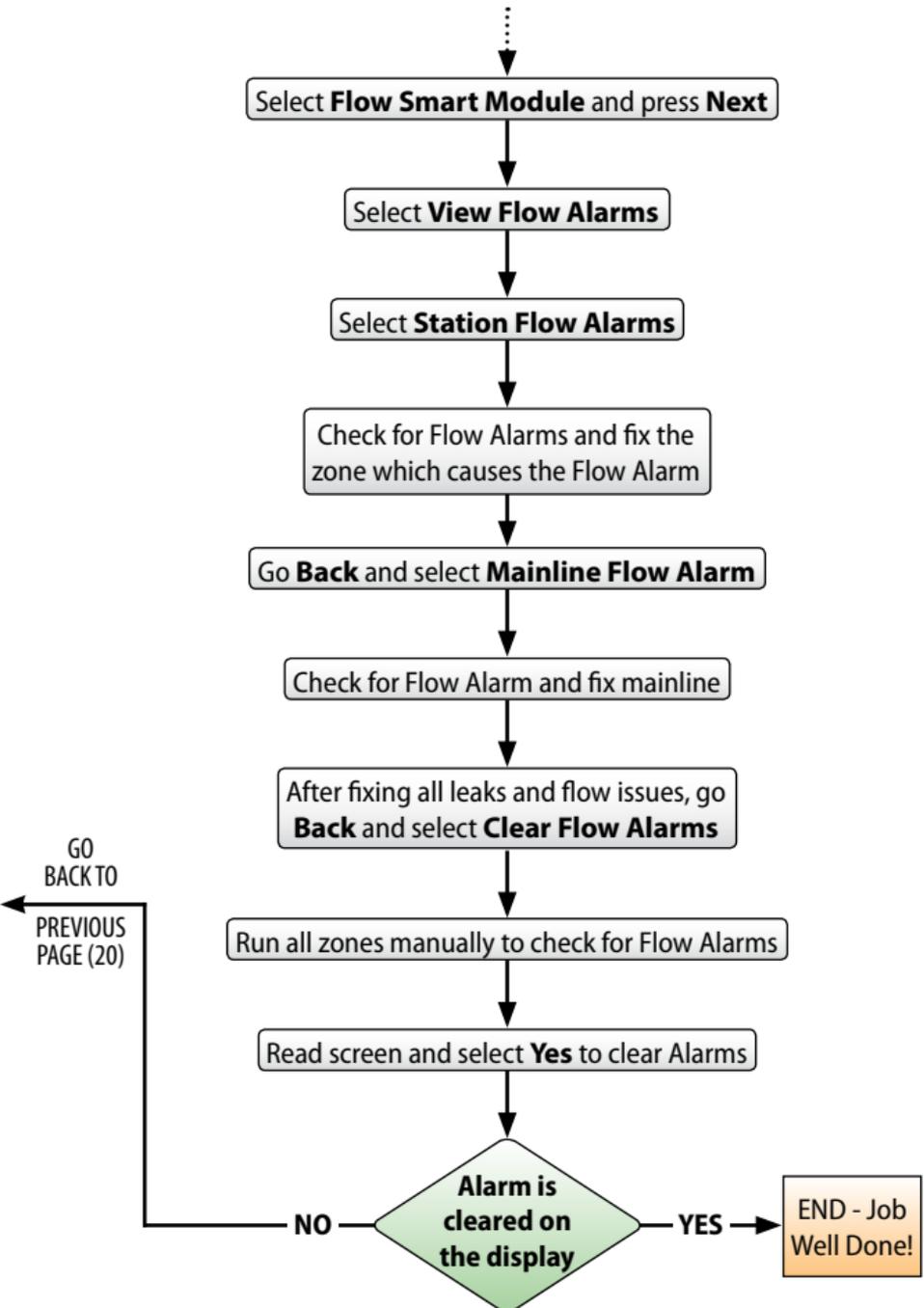
Turn the dial to **Module Status**

CONTINUED
FROM NEXT
PAGE (21)

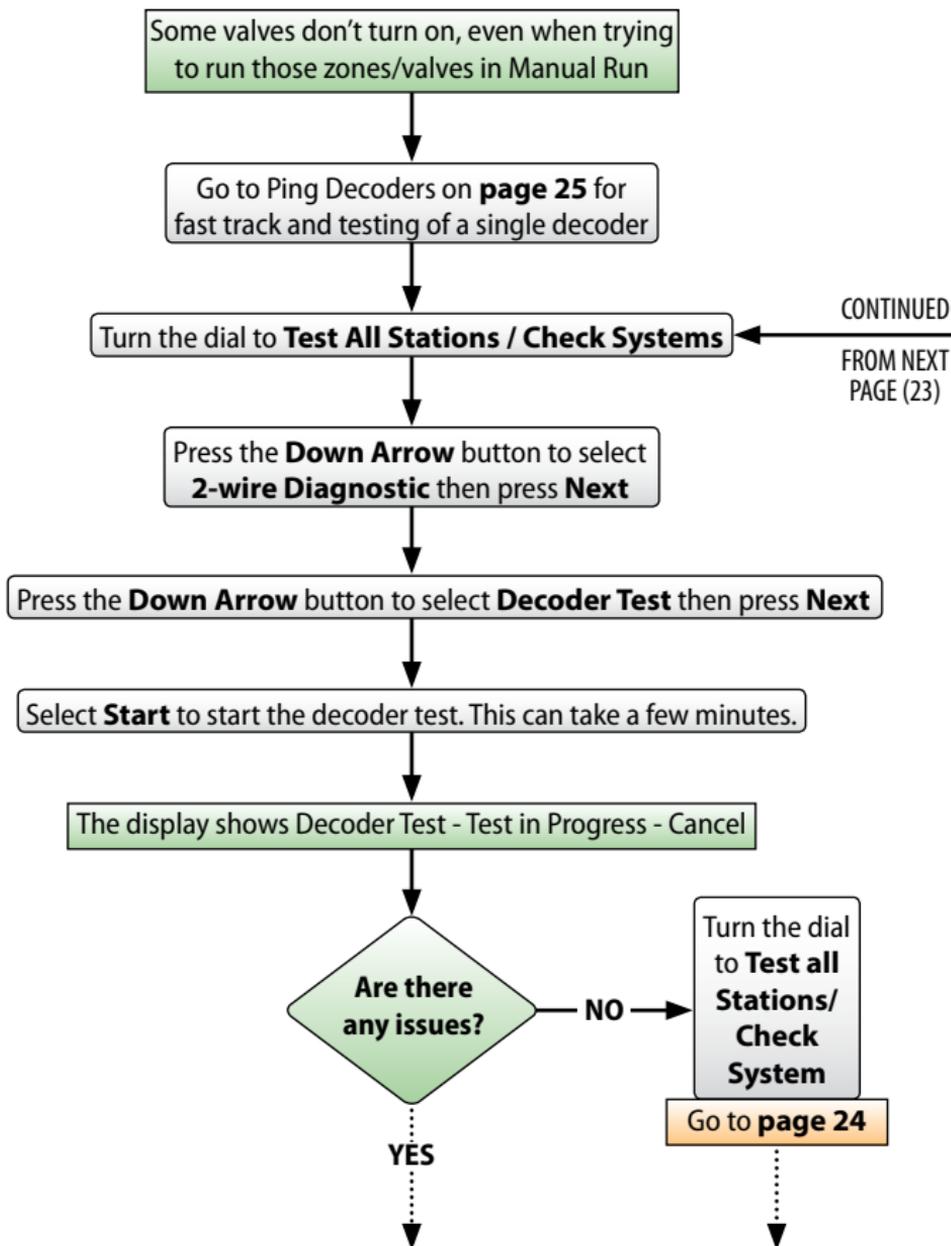


Next Page →

Flow Alarms cont.

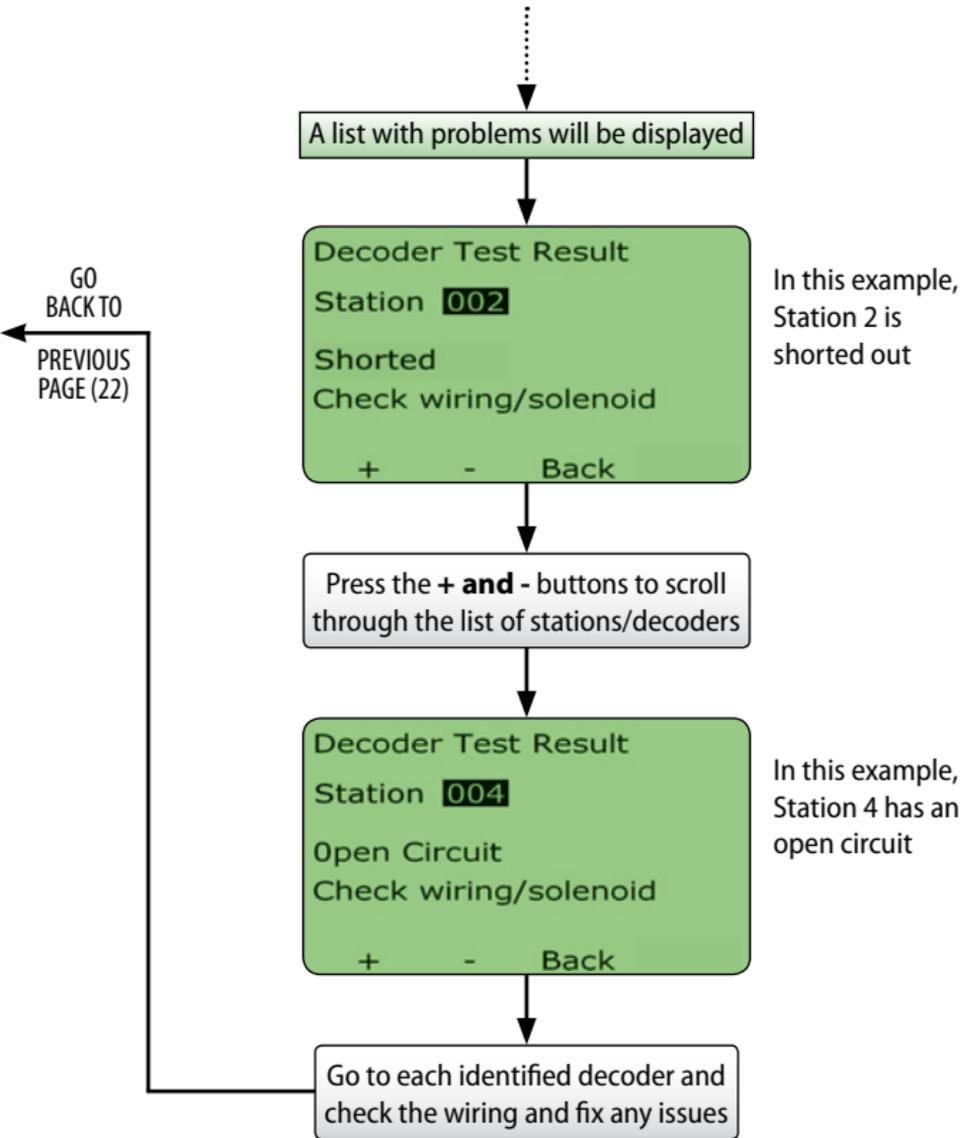


Decoder Test



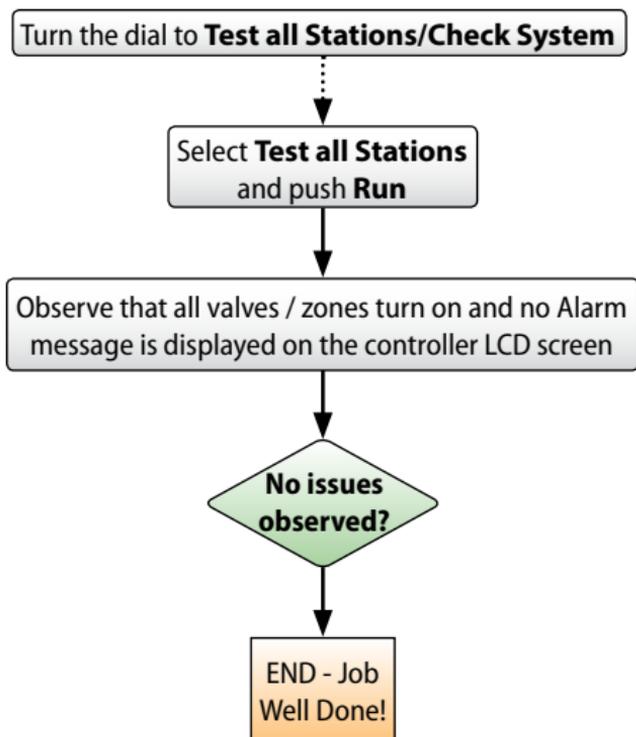
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Decoder Test cont.



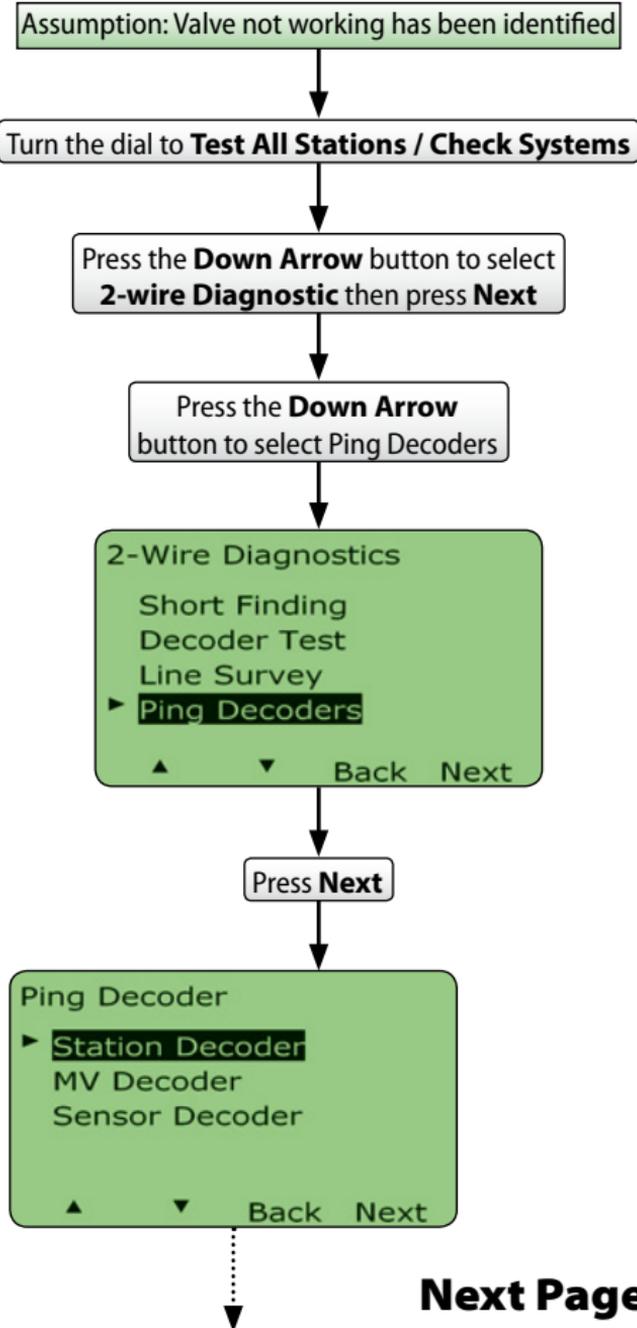
Next Page →

Decoder Test cont.

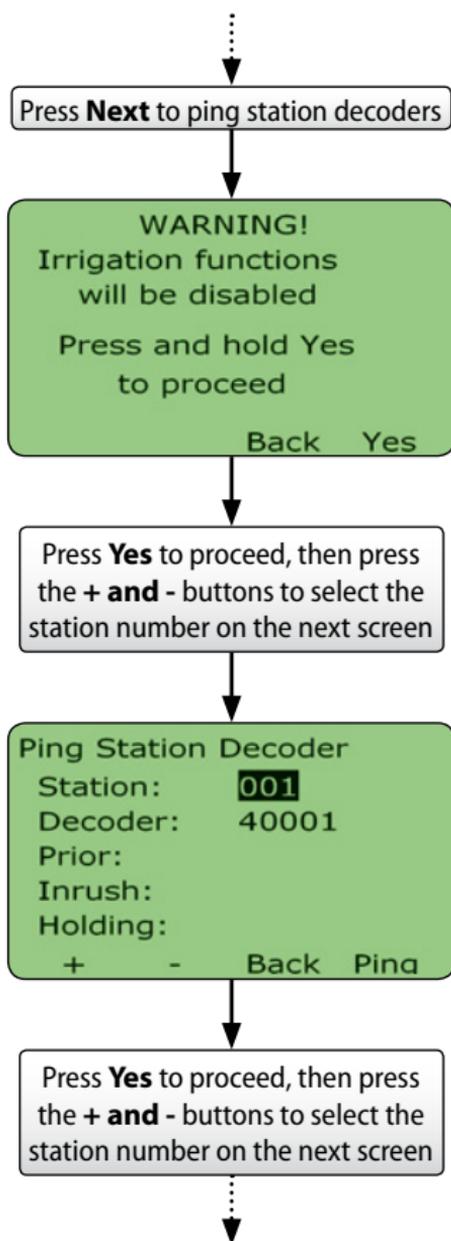


For video instructions on **Using Decoder Test & Ping Decoders to Troubleshoot Valves**, please visit:
<https://youtu.be/wkZBaBo08W0>

Decoder Ping Test



Decoder Ping Test cont.



Decoder Ping Test cont.

Turn the dial to
**Test All Stations
/ Check Systems**



NOTE: A good ping test will show values for prior, inrush and holding current. The LXD front panel Alarm Light will turn off.

Select **Ping** and wait for the result of the ping test to display

Ping Station Decoder			
Station:	001		
Decoder:	40001		
Prior:	13 mA		
Inrush:	195 mA		
Holding:	12 mA		
+	-	Back	Ping

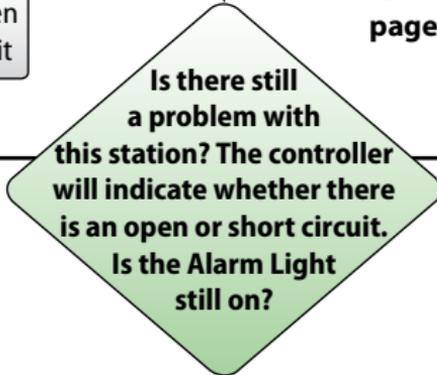
Inrush current is typically less than 200 mA. Readings of 100 mA or less indicates an open output.

Holding current is typically 10mA. Reading of 50 mA or greater typically indicates a shorted decoder output.

Prior amperage is based on line current for your system and should be about the same as the calculated System Amperage on "Short Finding Mode 5" on **page 16**

Check the wires and fix an open or short circuit

YES



NO

END - Job Well Done!

For video instructions on **Using Decoder Test & Ping Decoders to Troubleshoot Valves**, please visit:

<https://youtu.be/wkZBaBo08W0>



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Questions?

Call the Rain Bird Professional Support Line at

+1-866-544-1406

or else visit our web site at

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