



Rain Bird® Decoders

Decoders are a cost-effective alternative to traditional in-field controllers. Installed underground and featuring simple, low-cost wiring, decoders are an aesthetically pleasing and economical option for reliable, in-field control. Installation requires up to 80 percent less wire than conventional controller systems. Electronic components are completely encapsulated to protect against the elements. And system expansion is easy: simply splice into the communication line to add additional decoders.

Learn more about this simple, reliable technology and how to service it in the following topics:

- General Information
- No Control Over Field Decoders
- Shorted Wire Path
- Suspected Broken Wire Path
- Suspected Ground Fault





General Information

Calculate expected "At Rest" current draw on each wire path and each LDI or SDI interface.

- FD-101 = 0.5 mA
- FD-102 = 0.5 mA
- FD-202 = 1.0 mA
- FD-401 = 1.0 mA
- FD-601 = 1.0 mA

Prior to troubleshooting when using a clamp meter, make sure you know the static current draw of the wire path or sections of wire path you will be troubleshooting. (1) To calculate the static current draw at an individual wire path section, add the number of decoders that are downstream from the test point, and multiply it by the current draw of each decoder to determine the total calculated current draw of the wire section after the test point. (2) To calculate the static current draw of an entire wire path, add the number of decoders on the entire wire path, and multiply it by the current draw of each decoder to determine the total calculated current draw of the wire path. (3) To calculate the static current draw of an entire interface, add up all calculated wire path current draws that are connected to the interface.

NOTE: If the wire path has been looped, you must break the loop in order to properly troubleshoot current draw using a clampmeter.

(see Locating A Bad Decoder on page 4).

Example:

BLUE WIRE

- 100 FD-101 x 0.5 mA = 50 mA
- 25 FD-202 x 1.0 mA = 25 mA
- 10 FD-401 and FD-601 = 10 mA
- **Total Blue Wire current = 85 mA**

RED WIRE

- 80 FD-102 x 0.5 mA = 40 mA
- 20 FD-202 x 1.0 mA = 20 mA
- 15 FD-401 and FD-601 = 15 mA
- **Total Red Wire current = 75 mA**
- **Total Current for LDI or SDI = 85 + 75 = 160 mA**

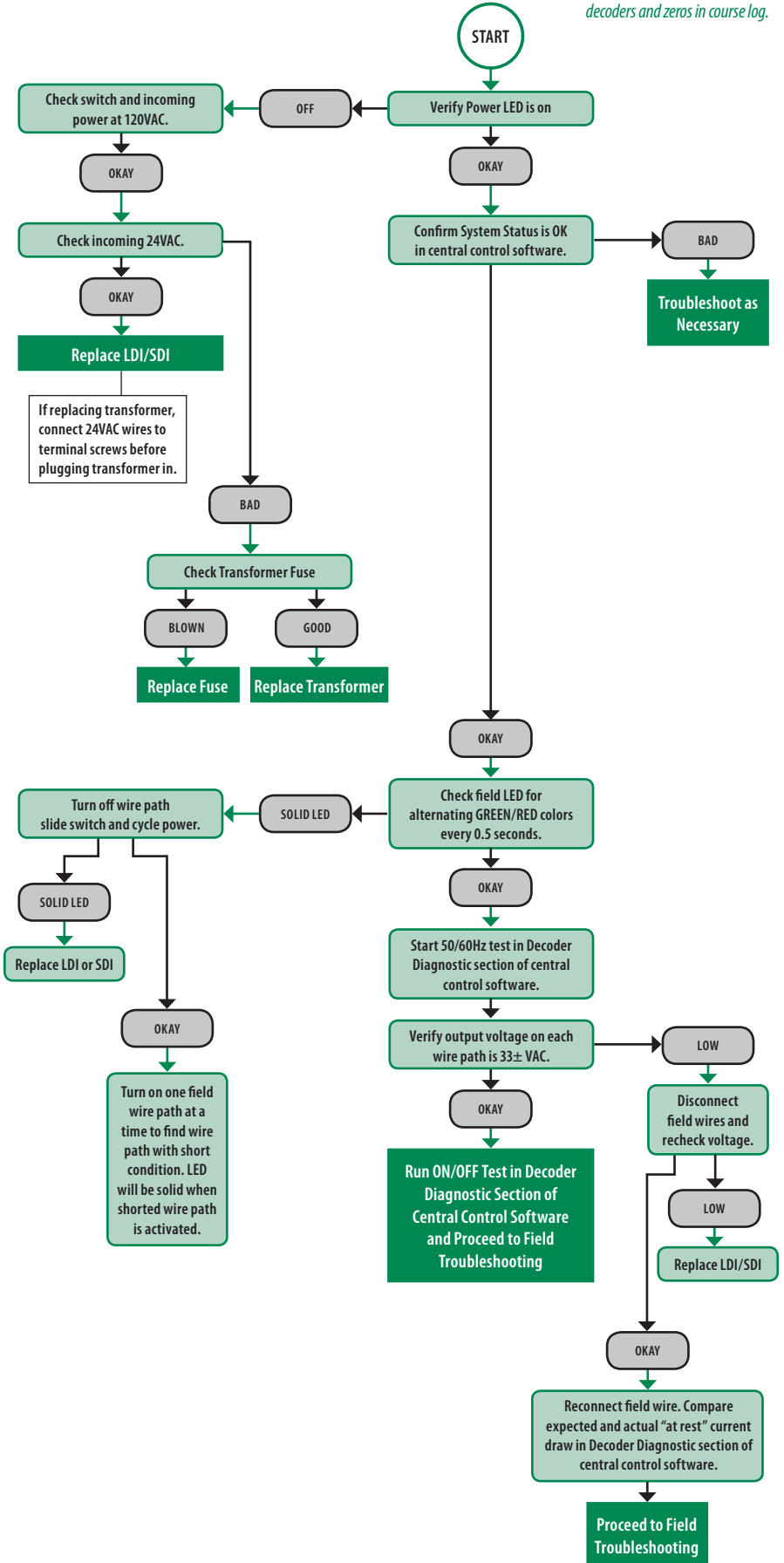
Tool List

- Spare Decoders
- Clamp Meter (current specifications are available by calling 1-866-GSP-XPRT)
- Digital Multi-Meter
- Direct Bury Wire Splice Kits
- Maxi Wire Strippers
- Wire Strippers
- Linesman Pliers
- Extra Maxi Wire
- Updated "As-Built" drawing (*"As Built" should show wire path colors, decoder locations, expected current draw per wire path and expected current draw per LDI/SDI.*)



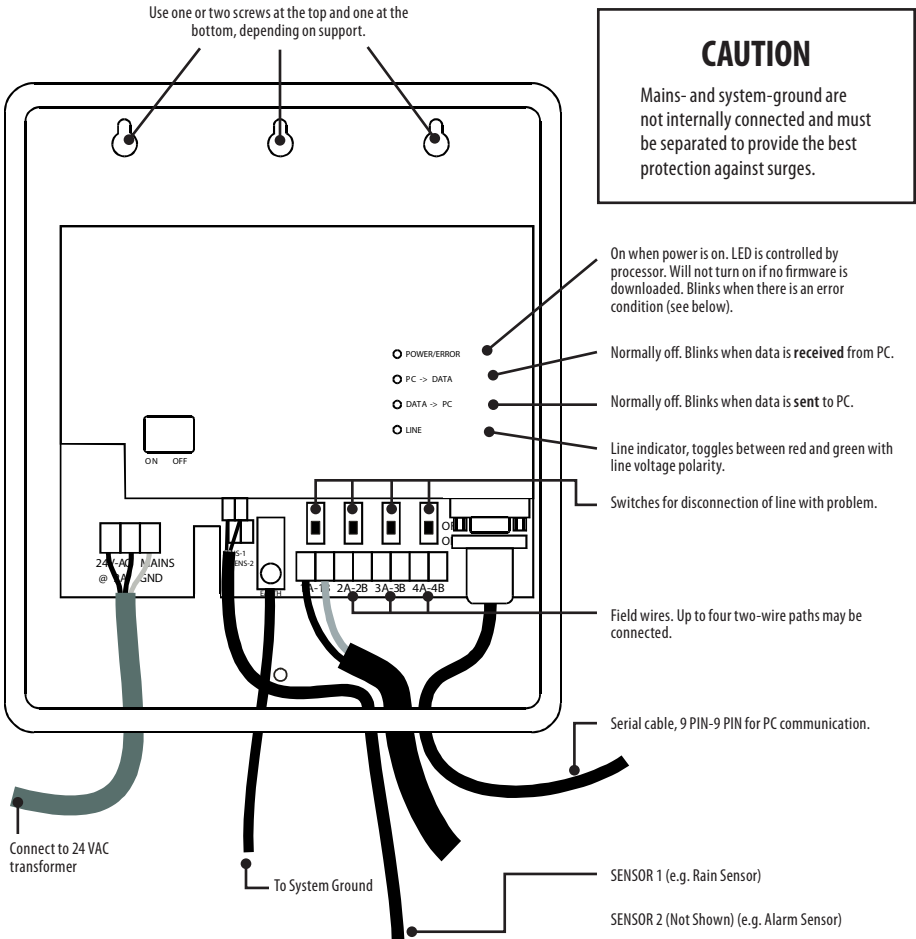
“No Control Over Field Decoders”

Symptoms: No control over field decoders and zeros in course log.





INSTALLATION DETAILS (LARGE AND SMALL DECODER INTERFACE)



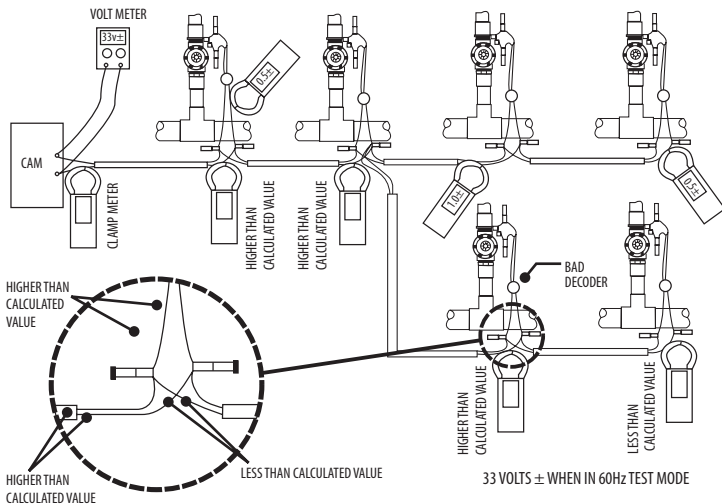
During power up, the LED's will blink in sequence ending with POWER LED on for 5 seconds.

If the POWER LED blinks, it means that an **error** is detected by the unit. The reason for the error is indicated by the other LED's:

- If **DATA->PC** is ON = line voltage has been switched off because connection to the PC is lost.
- If **LINE** is ON = line voltage is below 25 V (short).

LOCATING A BAD DECODER USING A CLAMP METER

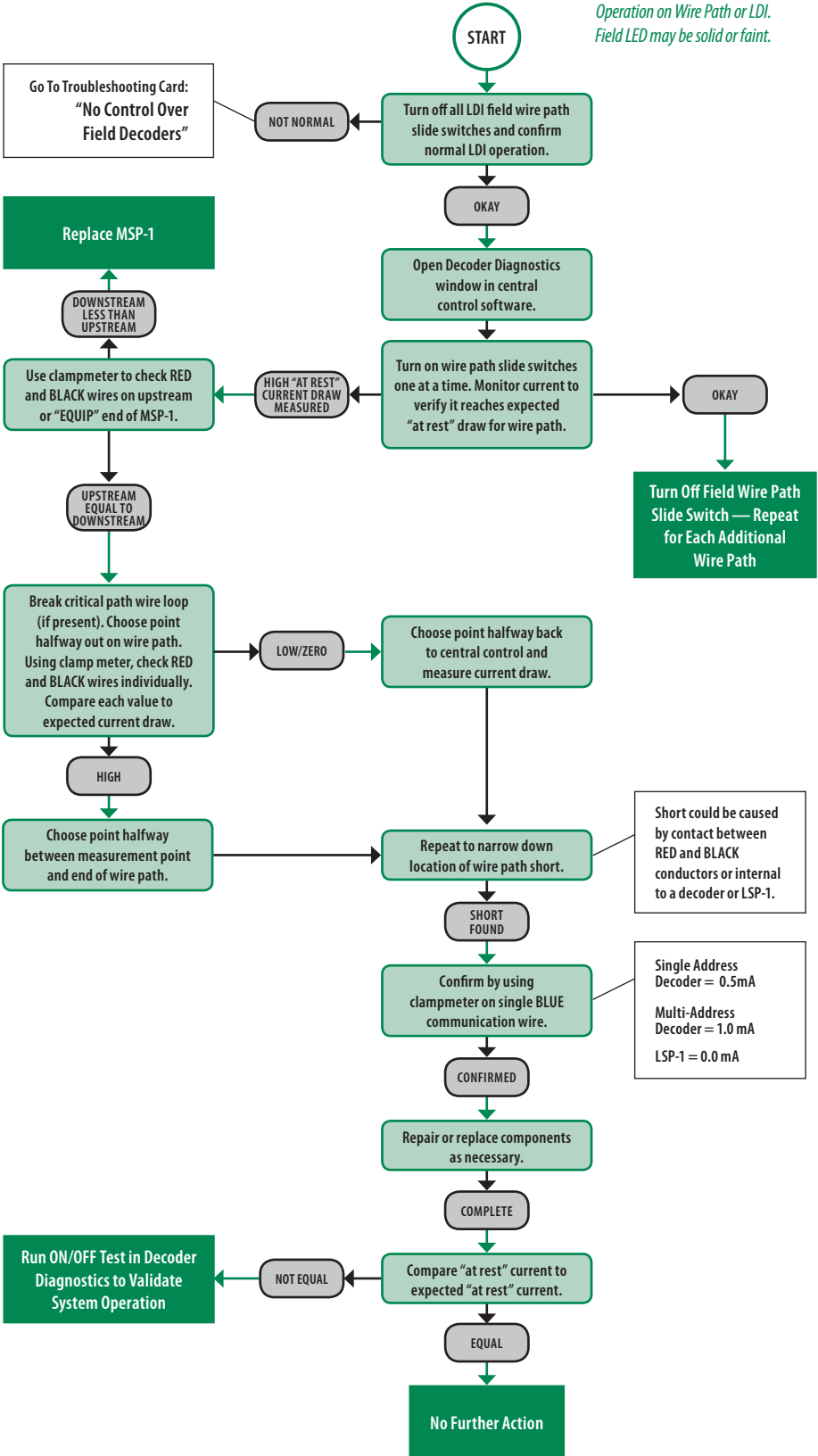
- In the Decoder Diagnostics screen select 60Hz test mode to allow the clamp meter to measure current. When done with troubleshooting remember to cancel the 60Hz test mode to resume irrigation.





“Shorted Wire Path”

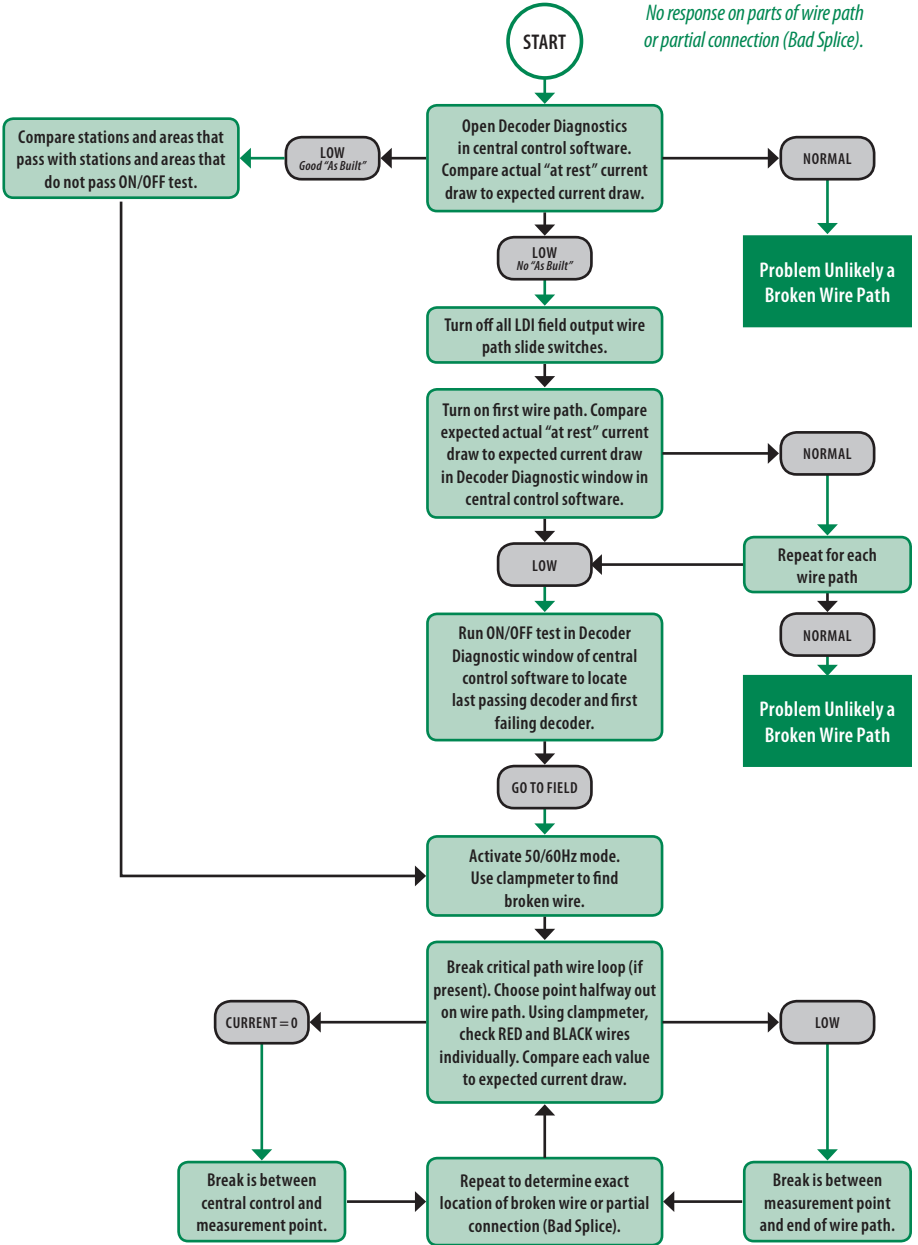
*Symptoms: No Decoder
Operation on Wire Path or LDI.
Field LED may be solid or faint.*





“Suspected Broken Wire Path”

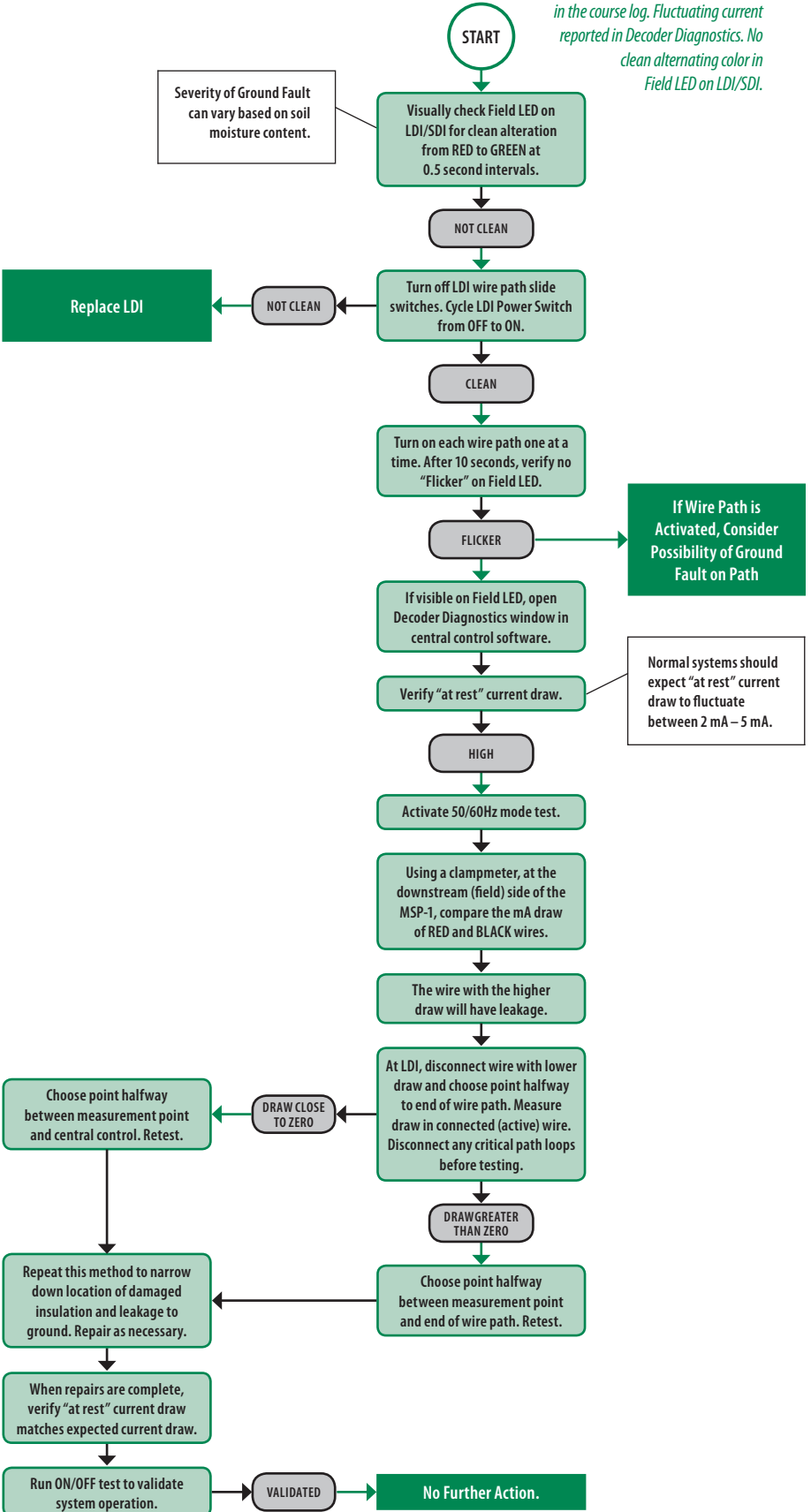
*Symptoms: Zeros in course log.
No response on parts of wire path
or partial connection (Bad Splice).*





“Suspected Ground Fault” (Leakage to Ground)

Symptoms: Lower run times or zeros in the course log. Fluctuating current reported in Decoder Diagnostics. No clean alternating color in Field LED on LDI/SDI.



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