

## Field Decoders

Field Decoders come in five different models:

1. FD- \_\_\_\_\_ One address, controlling a single solenoid per address
2. FD- \_\_\_\_\_ One address, controlling up to two solenoids per address
3. FD- \_\_\_\_\_ Two addresses, controlling up to two solenoids per address
4. FD- \_\_\_\_\_ Four addresses, controlling a single solenoid per address
5. FD- \_\_\_\_\_ Six addresses, controlling a single solenoid per address

## Tools needed to accurately troubleshoot a decoder system

1. As-built drawing showing wire path routing, decoder location, decoder type, and decoder addresses.
2. A multimeter capable of reading 0-50 VAC and resistance to 1 million ohms
3. A milliamp clamp meter with a precision of 1.0mA minimum (recommend 0.1 mA)
4. Wire tracing and fault finding equipment
5. Spare components (decoders, solenoids, splice kits, wire)
6. Decoder programming unit DPU-210 (optional)

ESP-LXD built in diagnostics testing

1. Line Survey
2. Decoder Test
3. Ping Decoders
4. Short Finding Mode

## Wire Path Faults

1. Open Circuit
2. Short Circuit
3. Earth-ground Fault

An OPEN CIRCUIT occurs when the 2-wire path is cut or a splice is no longer connected, leaving one or more decoders disconnected from the wire path.

The current draw on the wire path will be \_\_\_\_\_ than the expected value and will be almost even on the red and black wire lead at the controller. Also, no faults will show in the controller.

A SHORT CIRCUIT occurs when there is current passing between the red and black wire lead. This may be caused by a damaged decoder, a poor splice connection, or damaged insulation on the 2-wire path.

The current draw on the wire path will be \_\_\_\_\_ than the expected value and will be almost even on the red and black wire lead at the controller. The ESP-LXD controller will likely be automatically placed in short finding mode to limit the current draw on the wire path and prevent damage to the controller.

A GROUND FAULT occurs when there is current from one wire lead of the 2-wire path into the ground. This happens when the insulation of just one lead has been damaged, leaving the conductor in contact with the surrounding soil.

The current draw on the wire path will be \_\_\_\_\_ then the expected value, but only on the wire lead with the damaged insulation in the field. The "CURRENT" and "OVERLOAD" will display "NOT OK" on the Line Survey diagnostics screen.