

# TROUBLESHOOTING

## Important tools

#2 Phillips screwdriver,

Calculator

ICD-HP Handheld Programmer

Known-good solenoid

Known-good decoder

Digital Multimeter

## ICD-HP Handheld Wireless Programmer



This Hunter product allows wireless connection with DUAL decoders, even when they are wired into field installations. The ICD-HP allows direct diagnostics, operation, and programming of any DUAL decoder installed in a valve box. ICD-HP can also verify status of solenoids, read voltage, and test sensors. The ICD-HP is highly recommended for field troubleshooting and will pay for itself in greatly reduced setup, programming, and diagnostic time.



## Faults and Fault Messages

**Faults:** Controller display shows "Fault". This may be followed by a station number.

The Station Status light on the ICore System Status dashboard will also show a red LED when there has been a decoder fault.



**NOTE:** Fault light and message are only visible when stations are not running. During active irrigation, the Fault will not be visible.

If one or more station numbers are listed on the display, troubleshoot those stations. If there is no station number, troubleshoot the two-wire path connections.

1. Open the controller inner door to see additional diagnostic information on the DUAL48M display. The display may show Line Open or Line Fault.



The message may alternate with other screens. Allow a few seconds to see all displays.

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2. Press the Mode (center) button on the DUAL48M control panel. Select "Diagnostics" with the ▲▼ arrows, and press Mode to select.
3. Press the Mode button to select "Read Current". This will show the current draw in milliamps (ma). In standby (no stations running), the total should be approximately 3-4mA multiplied by the number of decoders in the system. The number of decoders on the two-wire paths determines the correct current for the system.



When a station is turned on, the milliamps should increase by approximately 40mA, per solenoid attached to the active station.

- If a station is turned on, and the milliamps don't increase enough, the controller will show a Station Fault followed by the station number.
- If a station is turned on, and the milliamps increase by more than the controller will allow, the controller will show a Station Fault followed by the station number.
- If the milliamps increase too much when no stations are supposed to be running, the controller will show a Fault with no station number.

4. Observe the current draw with no stations running. Divide the current draw by the number of decoder modules connected to the controller. It should be approximately 3-4 mA per decoder.
  - Do not include DUAL-S surge suppression devices in current draw calculations- they do not increase the current.
5. If no problem is observed with the current draw reading in standby (no stations running), turn on a station listed in the Fault message with the Manual Single Station feature, or a wireless remote control.
6. Observe the Current Draw display. The current should increase by approximately 40 milliamps per solenoid connected to the decoder. Wait at least 30 seconds for the controller to complete its retry attempts and for the current to stabilize.

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**Line Fault:** If the DUAL48M says “Line Fault” when no stations are running, the most likely cause is a direct short between the two wires in the two wire path (red and blue). If the Line Fault message only appears when a station is turned on, the problem is most likely a short in the decoder-to-solenoid wiring for the affected stations.

<b>ICore Display</b>	<b>DUAL48M display in Standby</b>	<b>Cause</b>	<b>Corrective Action</b>
<b>Fault, no station</b>	Line Open: Current draw too low on standby	Two-wire path disconnected	Check connections to two wire path
	Line Fault: Current draw too high on standby	Short in two-wire path Too many decoders (more than 48) in two-wire path	Check two-wire path (red and blue must not touch) Verify number of decoders in two-wire path
<b>Fault with station numbers</b>	<b>DUAL48M display with Active Station</b>	<b>Cause</b>	<b>Corrective Action</b>
	Current Draw for station too low (station number will blink slowly) *	Decoder not programmed Decoder missing, damaged, or disconnected Solenoid missing, damaged, or disconnected	Program decoder address Repair/replace decoder or connections Repair or replace solenoid or decoder-to-solenoid wiring
	Current Draw for station too high (Line Fault will appear when station is running)	Shorted solenoid or solenoid wiring Multiple decoders with same address Too many solenoids connected	Repair/replace solenoid or decoder-to-solenoid wiring Remove duplicate addresses Remove excess solenoids

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**\* Current Draw Too Low:** In a low current situation, the controller will retry the command to the station up to 3 times.

The DUAL48M display will show the station number when it is sending the command to the decoder.

If the current does not increase, the station number will disappear for a few seconds. This indicates that the draw did not increase as expected.

After 4-5 more seconds, the station number will re-appear, during the retry attempt.

If low current draw continues, the number will disappear again.

After 3 unsuccessful attempts, the station number will disappear, and the Fault message will appear on the ICore controller facepack display.

The slow blink of the station number is an indication that either the specified decoder, or its solenoids, are not connected or operational.

When a healthy decoder and solenoid are activated, there is no need for the retry attempts, and the station number will not appear to blink.

## **If No Stations Will Activate:**

1. Verify that slide lock is in the Power On position and that power is on to the DUAL48M module (display appears).
2. Check DUAL48M for "Line Open" message. This means the two-wire path is disconnected from the controller.
3. Check between the controller and the first decoder to verify that the two-wire path is connected.

**If No Stations Will Activate Beyond a Certain Station Number** (followed by multiple station faults): Likely break in two-wire path beyond station 1.

1. Identify failing stations from Fault messages.
2. Identify decoder locations and layout on plan or in wiring path.
3. Begin with last working station, and look for break beyond that point.
4. If multiple two-wire paths are in use, disconnect other paths, and troubleshoot one path at a time.

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## Clear Fault Alarms:

Press the – button on the ICore facepack to clear the Fault message and/or Alarm light.

## Special Notes:

ICore Decoders are not compatible with mechanical relays.

When combining DUAL48M with conventional ICore station output modules, not all stations will be available for decoder addressing. The station numbers for slots with ICM-600 modules will not be available for decoder station programming.

Voltage measurement between an active decoder and the solenoid is not a reliable indicator of the output from a decoder.

- Decoder electrical power is not the same as 50/60 Hz power and normal voltmeters may show very low readings to active stations (may range from 5 to 14 Volts).
- It is more reliable to keep a known-good decoder, and a known-good solenoid, for troubleshooting purposes.

Controller may temporarily fault Open if only one decoder is connected to the two-wire path, since standby current may fluctuate below the minimum. Correct by either waiting 5 minutes for line to stabilize, or connecting a second decoder.

Stations turned on in the field with ICD-HP may shut down prematurely, because the controller is unaware of the decoder activation. To prevent this, start another station via the controller or remote control anywhere in the system.