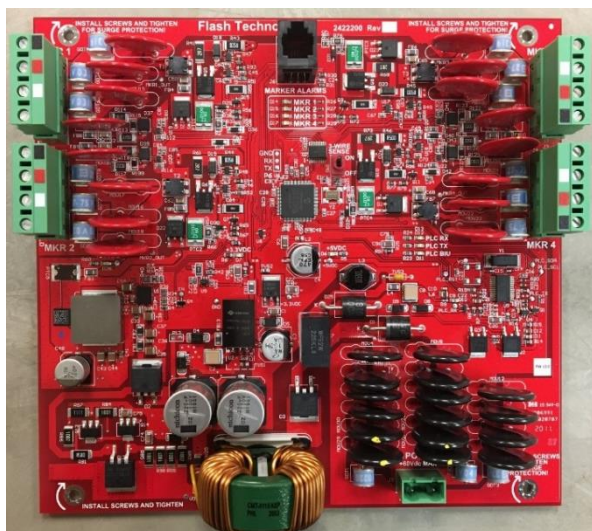


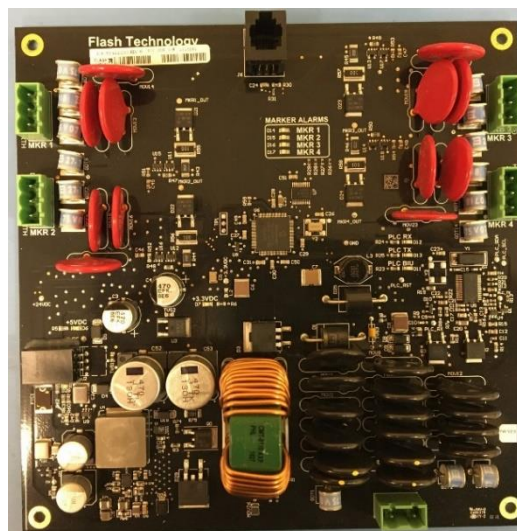
# Vanguard® FTS 370

## Marker Interface Board Trouble Shooting Guide



“RED” Marker Interface Board (**43J Compliant**)

F2422200 PCB MARKER JBOX DC FTS 370D MKR 372



“BLACK” Marker Interface Board

F2422000 PCB MARKER JBOX DC FTS 370D

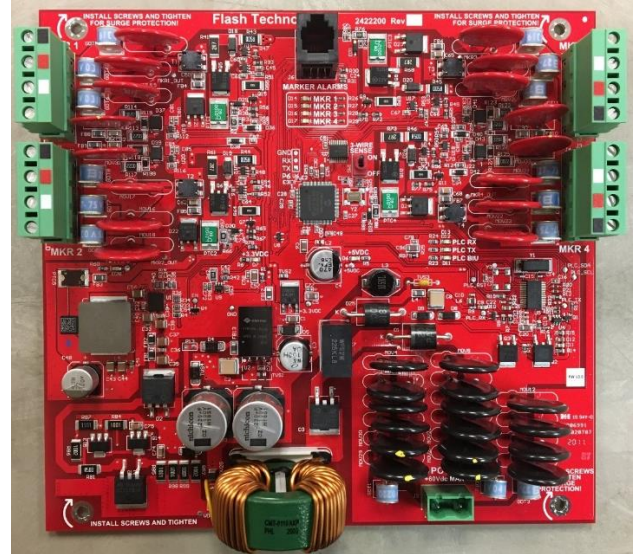
### Installation Errors with RED Marker Interface Boards

- |  |   |
|--|---|
| 1. Not connecting the marker SENSE wire and/or setting the PCB “3-WIRE SENSE” switch to the wrong position   | Refer to “Marker Interface Board Installation” Section                |
| 2. Not confirming correct operation while installer is still at the Marker Interface Enclosure.  | Refer to “Verification Steps to Confirm Correct Installation” Section |
| 3. Unplugging power to the Marker Interface Board while the ground controller is powered ON results in marker alarms even though Marker A2D values are good. | Power cycle the controller to clear the alarms                        |
| 4. Swapping markers during troubleshooting generates marker alarms and turns marker output off. Marker A2D readings display as “0000”                        | Power cycle the controller to clear the alarms                        |

# Marker Installation Board Installation

The following guide provides instructions to install “RED” 2422200 Marker Interface Board with 3-Wire Markers (FAA 43J Compliance).

1. Verify that you have a RED, F2422200 Marker Interface Board



2. Verify that you are connecting only 3-wire Markers (Red, Black, White/Blue) to the Marker Interface Board  
  
**Note:** For 2-wire markers (Red, Black) the toggle switch on the Marker Interface Board must be set to “OFF” (down) position



- Important:** The White/Blue wire provides a SENSE connection to the Marker Interface Board and is critical to transfer alarm/status information to the Controller

3. Verify that the marker cable has 3 insulated wires (Red, Black, White/Blue) and a bare Shield (drain) wire



4.

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5.

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6.

1. All installed markers must be 3-Wire MKR 372 markers and the Marker Interface Board “3-WIRE SENSE” switch must be in the ON (up) position
2. The SENSE wire of each MKR 372 must be connected and operating correctly



## Verification Steps to Confirm Correct Installation

- Verification must be carried out while installer is present at the Marker Interface Enclosure
- Installer must carry voltmeter onto tower for marker voltage measurements
- The Lighting Inspection (LI) does not check for proper SENSE wire connection. LI will initially pass (showing correct marker A2D values) but a marker alarm will be generated during normal operation.
- More than 30 minutes may elapse before the ground controller displays a Marker Alarm

1. Turn the system power ON and set system to Manual NIGHT to power Markers ON

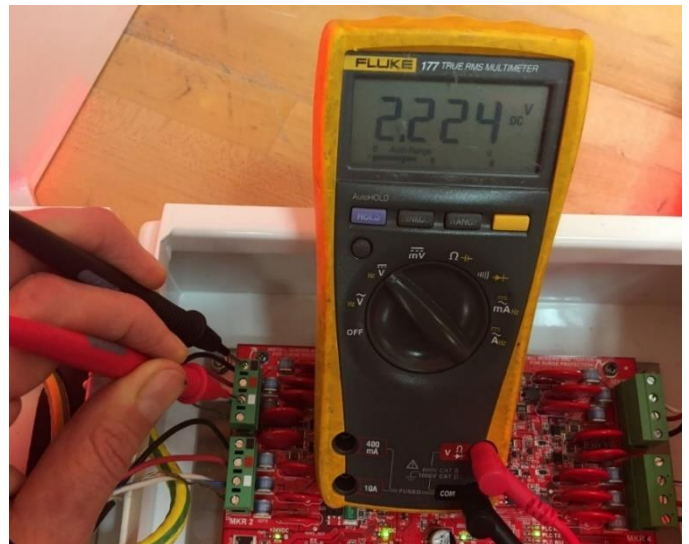
Set the Markers to "Steady"

2. Verify that the number of markers installed is the same as "Number of Markers per tier" in Marker settings

Set the digital voltmeter to "DC" and measure the voltage between DC- (Black conductor) and SENSE (White/Blue conductor)

3. Verify that the value is between 2.17 VDC and 2.25 VDC

Perform measurements for each connected marker



Verify that all the MARKER ALARM LEDs for connected Markers on the RED Marker Interface Board are OFF (not flashing or steady ON)

4. If a LED is flashing or is steady ON, it indicates a White/Blue SENSE wire connection error between marker and marker interface board.

Check connection to discover the source of the error.



## Marker Types And A2D Values in FTS 370 Systems

Marker Type	MKR has SENSE (white/blue) wire	Typical A2D Value with RED PCB	Typical A2D Value with BLACK PCB
MKR 372	Yes	3200	3252
MKR 371 IR	Yes	1560	3091
MKR 371 NON-IR	Yes	0982	1847
MKR 370 IR	No	1750	3233
MKR 370 NON-IR	No	1009	1900
DIALIGHT	No	0697	1219
OPEN (no marker attached)	N/A	0140	0003

### **Note:**

- Voltage from Marker DC- to SENSE with SENSE wire connected: 2.2Vdc
- Voltage from Marker DC- to SENSE with NO sense wire: 0V
- 3-Wire SENSE switch should only be set to ON (up) if ALL attached Markers have a connected SENSE wire.
- 3-Wire SENSE switch should be set to OFF (down) if ANY attached Marker does not have a connected SENSE wire.
- The RED Marker Interface Board can be used with all Marker types listed above