
Technical Bulletin



Marquee ACON Troubleshooting Guide

This document provides information about troubleshooting *Marquee* ACON problems. It provides a *Checklist* for mechanical and electronic projector setup issues, as well as a list of *Possible Error Messages* with explanations.

It is worthwhile to note that the ACON sensor “sees” light differently than the human eye. It is most sensitive to blue. This means that it is sensitive to florescent light and sunlight.

Checklist

Here are some of the steps that people follow when troubleshooting ACON. They are presented in a useful order to follow.

- check that ESD (electrostatic discharge) precautions were and are used when handling the ACON module. Electrostatic discharge can cause subtle faults.
- check that the ACON sensor has no bent pins or loose wires and is securely connected.
- check that you have a **Marquee** ACON board (not an ECP module). The board number 50-1960-01P is silk-screened on the board. The connector is labeled either 03-270307-01P or 02-270307-01P. It has a programmed chip in location U8.
- check that the ACON board is properly seated in the correct slot, the left slot above the control board.
- check that the software recognizes the existence of the ACON board. The first status page will show ACON as one of the options. Press <*>.
- check that there are no obstructions in the line of sight from the sensor to all parts of the screen.
- check that the toe-in brings the red and blue center very close to the green, within one target.
- check that the sensor is not closer to the screen than the width of the screen. 1.5 times is more typical. The sensor is designed to have the target displayed on the middle part of the sensor and not the edges.
- check that the sensor is not farther than 15 feet away from screen.
- check that the sensor is mounted at an angle of 15 degrees or less to the center of the screen.
- check that manual convergence works and that no zone has convergence at or near the limit of adjustment range.
- check the version of software in the ACON board. Press <UTIL><9><0901><6><2>. It should be version 1.2 or higher (around Aug 95).
- check that the source is stable. An unstable or noisy source will cause ACON to be unstable.
- check that the ACON sensor shows smooth motion in both the horizontal and vertical direction.
- reduce overall ambient light, especially florescent lights and sunlight. Ambient light should not fall directly into the ACON sensor.
- check that infrared light is not interfering.
- check for uneven screen response (hot spots). Screen border should not reflect light; it should be matte black.
- if sensor is mounted on the projector and a rear screen is used, try mounting sensor remotely either on the rear side or, preferably, on the audience side.
- check that the version of main software is V3.2 or higher (around Dec 95). Press <*> to display first status page. There have been no ACON changes since this version.

T e c h n i c a l B u l l e t i n

- check that targets are sharply focused and uniform and that there are no “hot” spots on the ACON sensor side of the screen.
- did you perform a learn screen after moving the projector? Learn screen should be performed on the biggest physical image. Lighting conditions for learn screen and ACON should be the same.
- Have you tried manual learn screen? Move the bars as close to the edge as possible while still seeing most or all of the bar. Make sure that the bars are uniform in intensity.
- check that the stigmatism and the focus are set correctly.
- use CMM to boost the corners that seem too dim.
- adjust color temperature before ACON is performed. Saturation may be an issue.
- use yellow post-it notes or plain non-reflective paper on the screen where misconverged targets exist and try ACON again. This is another saturation test.
- adjust G2 or drive levels slightly up or down for colors that are suspected to be a problem.

Possible Error Messages

An ACON message is based on the results of the last ACON action since power-up. If there has been no ACON performed since power-up, no status is displayed in the ACON menu. Status messages are also displayed in the EXIT dialog box.

The following messages indicate the successful completion of an ACON operation:

Full Auto-Convergence Complete	Auto-Centering Complete
Touchup Complete	ACON Offset Complete
Learn Screen Complete	ACON Stacking Complete
ACON Complete	

If user exits prematurely from ACON, this message is displayed in Exit dialog box but not on ACON menu.
ACON Stopped By User

The following message means either that ACON has not been performed since power-up or that a request to read the ACON sensor did not get a response from the ACON controller.

ACON Status Unknown

Errors during Learn Screen operation.

Learn Screen Failed:
 X Out Of Range
 Y Out Of Range
 Insufficient Magnitude

Learn Screen: X Out Of Range occurs when searching for the bar, maximum X is reached & no bar is found.

Learn Screen: Y Out of Range The code suggests that it occurs when learn screen is working on the center, all was okay then the user aborted with EXIT key! It could not be reproduced.

Learn Screen: Insufficient Magnitude occurs when, in a binary search to locate a target, contrast and gain are at maximum and it can't “see” the big (>10x10 character) rectangle. The sensor reading is too low.

Errors while trying to lock sensor onto the green target.

Sensor Lock Failed:
 Too Many Readings

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Low Signal
High Signal

Errors while trying to converge red and blue onto the green target. Sensor is already optimally pointing to the green target and will not move. Only converge values will be changed.

Converge Lock Failed:

Too Many Readings
Low Signal
High Signal
Off Tube Point

Too Many Readings means that adjustment was being made but there were too many motor or convergence steps to get to the optimal value. The assumption is that ACON is off track and will not succeed no matter how many more attempts are made and it is time to give up. There are more steps allowed for the center where it is likely to be needed. Low signal may be reported as Too Many Readings.

Low Signal means contrast is at the recommended maximum (76%), gain is at maximum and level is below the marginal value. Too Many Readings error message will occur much more often than Low Signal.

High Signal means the sensor is saturated at minimum contrast (1%) and minimum gain.

Converge Lock: Off Tube Point means that red or blue were out of convergence range and the target is thought to be off the tube.

Note: If red or blue are out of convergence range but not off the tube, the value will be accepted as okay even though there may be an error. Most often it is close and should not be a cause for complete rejection!

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