

Theory of Operation and Trouble Shooting



Innovative Concepts in Entertainment

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REV A

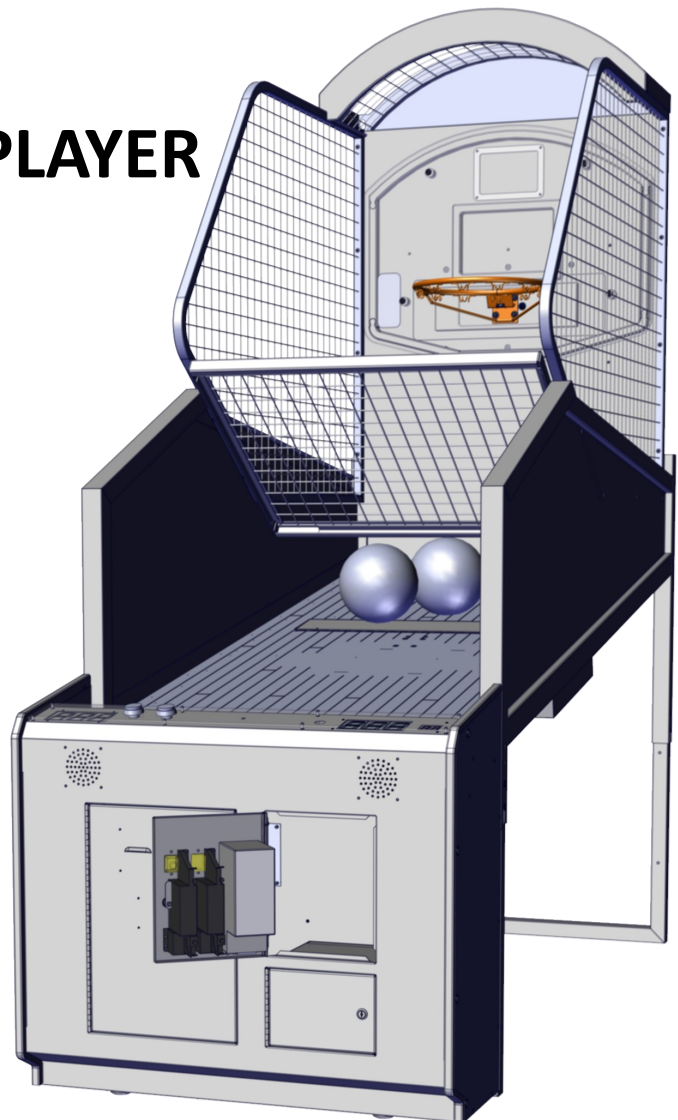
Linking Your Games

It is important to set each game option the same between games. Setting games to different settings would confuse the players when they are competing head to head. Players would win different amounts of tickets at different scores or be charged differently to play games.

When a marquee is used, the marquee will show the points needed to score and the amount of bonus tickets that can be win. If all games are set differently, the marquee will use the highest settings for those two options out of all the linked games.

When the games are powered on they will first display the version number of the software installed and preform a self check. Then they will determine what station ID they are. This is displayed then as "ID" and then a number. The game will continue to show dashes until it has determined what station ID it is. A setting in the software will determine how long to wait before going into game mode. This occurs if no communication is found. This setting can be increased if more games are linked together requiring more time for them to communicate.

**NOTE: THIS IS A ONE PLAYER
GAME ONLY.**

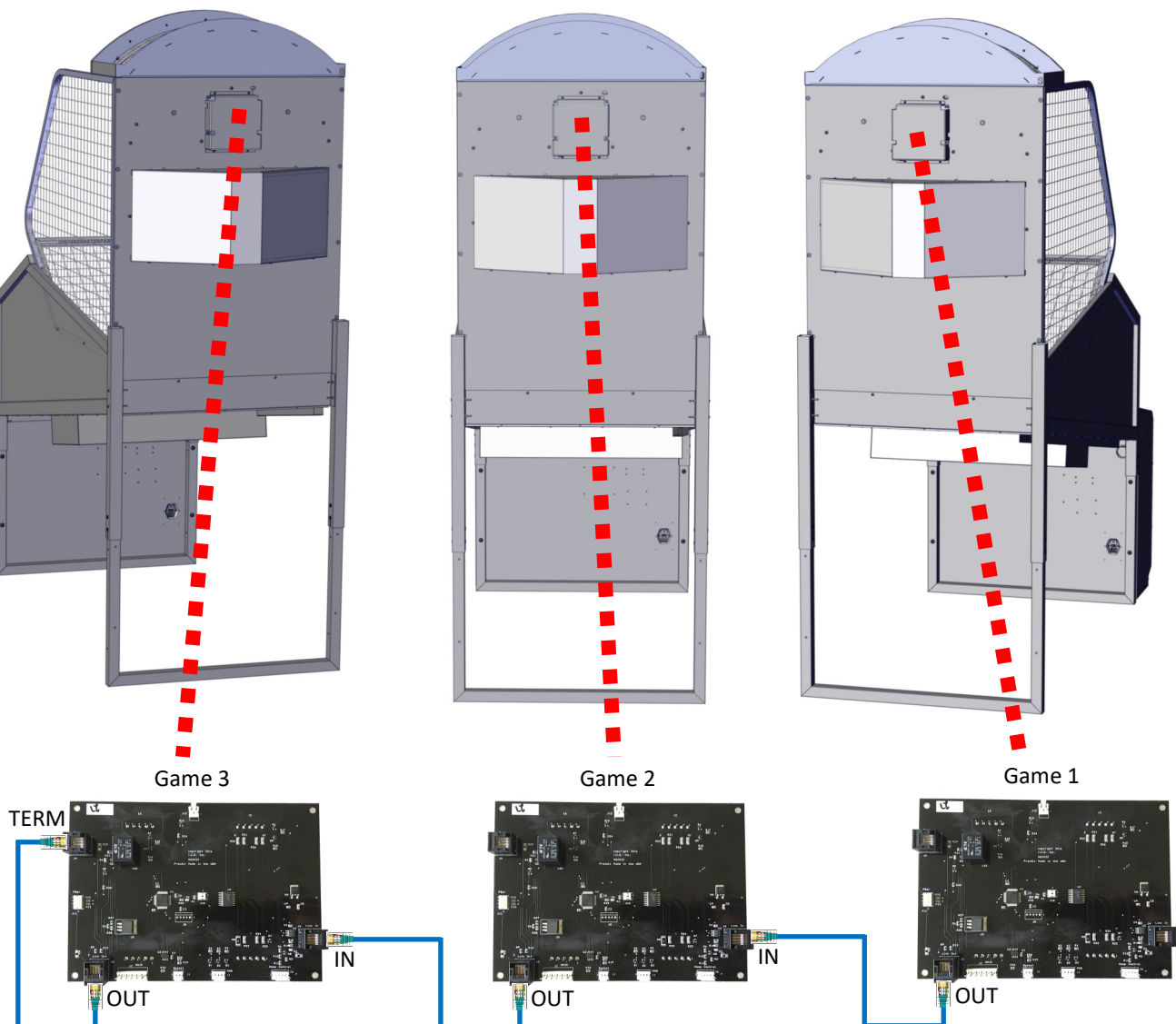


LINKING

If the games do not ID themselves at startup you will need to isolate the problem to either one of the display boards or one of the cables. It is recommended to isolate the games to pairs when working with three or more games. In this example below, it is recommended to unplug the connector going “in” to game 3 and move it to “TERM” of game 2. Reboot the game.

If it correctly configures the ID then move the back board display of game 3 to game 2 to retest. At this point if the game no longer will correctly configure, replace the back board display.

If it never configured correctly replace the cable from game 1 “out” to game 2 “in” with another cable. Although the cables are standard and can be tested with a cable tester the connection between games are not standard and contain harmful voltages. They are designed only for use with ICE products. Once you have two games linked and working, test the remaining cables between the “out” of game 1 and the “in” of game 2.



Marquee Linking

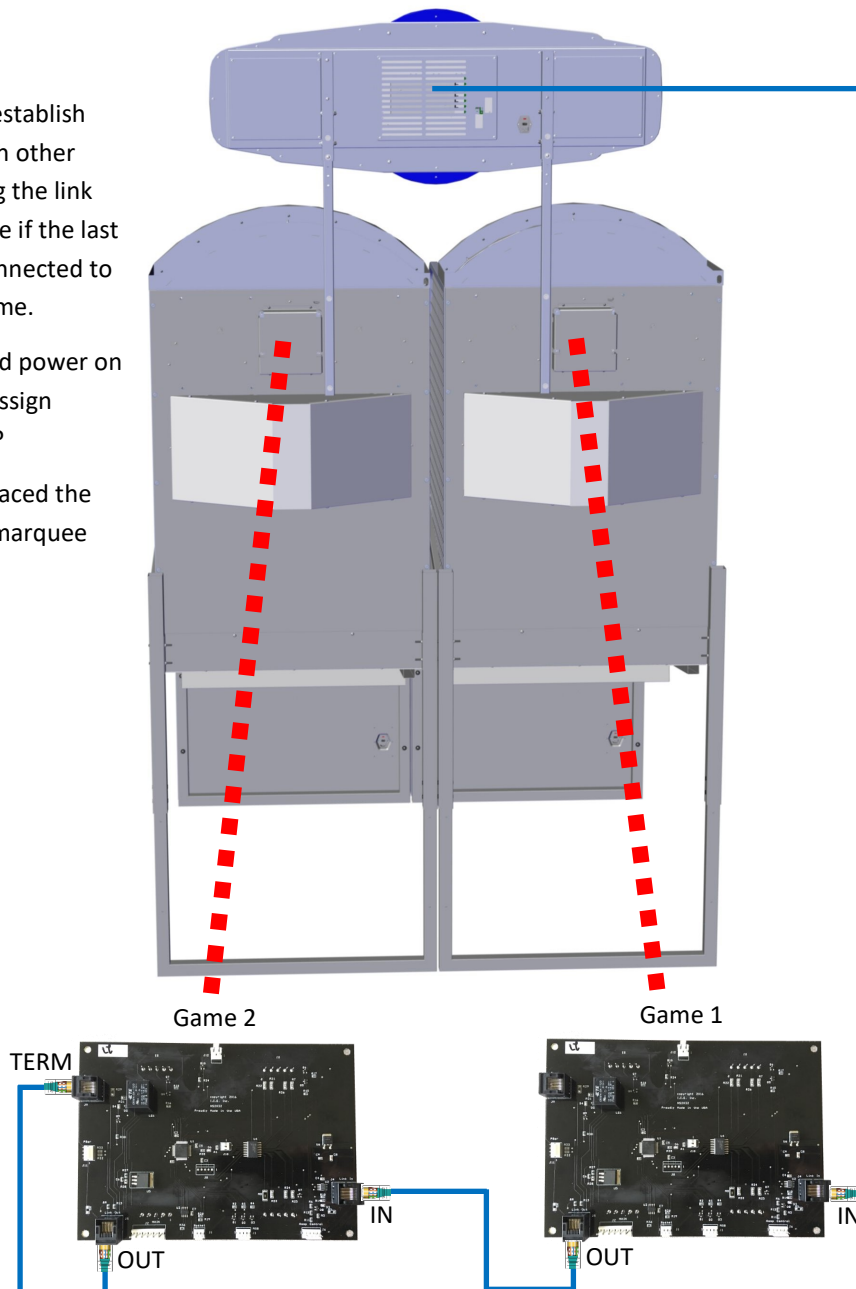
When the marquee is powered on it will display dashes until the it can communicate with other linked games. At anytime the communication is lost the display will show dashes. If the marquee power is applied after the games are powered on, the marquee will not establish communication with other games. Always power the marquee on first or at least at the same time with the games. Powering games on first will result in the marquee not linking.

The marquee can only be plugged in before Station ID 1 game or the game that has no input from another game plugged in. The marquee is always the first game in the chain.

If the marquee cannot establish any communication with other games start by replacing the link cable. Then check to see if the last game has the "OUT" connected to "TERM" of the same game.

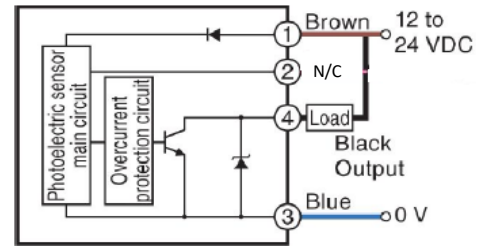
Unplug the marquee and power on games. Do the games assign themselves station ID's?

If yes and you have replaced the cable then replace the marquee board.



NBA Game Time score sensor theory of operation

The game uses an intelligent reflective sensor to register a score during the game. The sensor operates by transmitting a beam of light from the transmitter LED and then looks for the beam to be bounced back at the receiving LED. Both of these LEDs are intergraded into a single sensor assembly. The light that is transmitted from the sensor is red and it can be seen with the naked eye when a white piece of paper is held in front of the sensor assembly.



Net sensor troubleshooting

If shots do not register

Check for +12 VDC power to the net sensor, this can be done visually or with a voltage meter. A red LED facing the customer and a green LED on the lower left side are visual indicators the sensor has power. To use a voltage meter, at the back of the sensor attach the red probe on the Brown wire (12 VDC) and the black probe to light blue/blue wire (ground). The meter should read 12 VDC or within 10 percent of that.

- - If no voltage is present then move the red probe to pin 1 and the black probe to pin 3 at connector J 1 of the score display board.
- - If there still is no voltage and the display is lit then replace the display board.
- - If there is power present at J1 connector then check / repair the harness

Check the signal line of the net sensor. There is a LED visual indicator on the left side of the net sensor that will light orange when the sensor is blocked. You can measure the signal line output to the score display by touching the red probe on the black wire (signal) and the black probe on the light blue/blue wire (ground) at the sensor. The meter should read voltage at 3.3VDC and when blocked, 0 VDC.

- - if the voltage does not change, with the probes previously attached, adjust the sensitivity of the net sensor.

If adjusting the sensitivity still doesn't show voltage, replace the sensor.

- - if the voltage is changing and the score display is on, check and repair the harnessing from the sensor to J1 at the back board.
- - If no problems are found with the wiring then replace the display board.

Net sensor adjustment

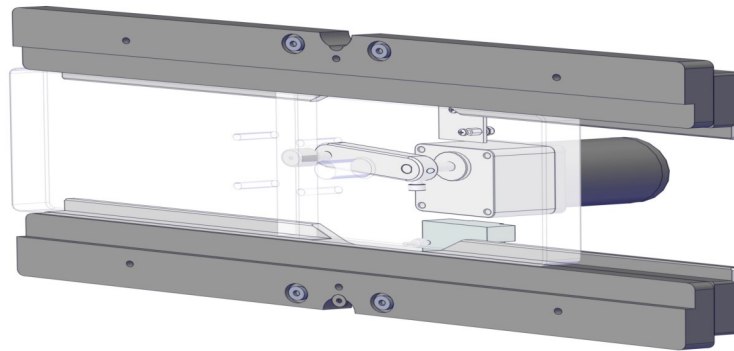
The net sensor has a sensitivity adjustment located on the side, below the visual indicator LEDs, to adjust for environmental conditions in your location. Turning the screw clockwise will increase the sensitivity and turning it counter clockwise will decrease the sensitivity.



NBA Game Time back board motor theory of operation

The game uses a motor to move the hoop assembly left and right. A motor arm connects to the motor and rests between two DELRIN blocks that ride on a HPDE channel. The motor will always attempt to keep itself centered. This is accomplished by using an optical sensor to read reflective tape at the back of the motor arm. This determines when it is in the center position. If the sensor board does not see the reflection from the tape, it will activate the motor periodically throughout the game. The motor is activated when the display board sends a low voltage signal to a solid state relay. This relay connects to the motor and controls the incoming A.C. voltage to the motor. When the motor drive signal is present at the relay its internal contacts completes the AC circuit to the motor causing the motor to move the hoop assembly.

WARNING—when servicing the backboard assembly keep your fingers clear of the motor arm to avoid injury!



Troubleshooting the back board not moving.

Step 1 - Check option 12 is set to 1. This enables movement.

Step 2 - Check the set screw in the motor arm is tight and engaging the shaft.

Step 3 - Check for incoming AC voltage between tabs 1 and 2 (brown wires) of the solid state relay.

-if there is voltage then proceed to the next step.

-If there is no voltage then inspect the harnessing and all AC inter connections.

Step 4 - check for the signal to turn the relay on. There is an indicator LED on the solid state relay which lights when the signal is present. You can measure this signal using a voltage meter set to DC voltage. Place the red probe on pin 3 (orange/blue trace wire) and the black probe on pin 4 (violet wire). The meter should read 0 VDC when there is no signal. It should change to 12 VDC with a signal present. There will always be a constant 12 VDC on tab 3 of the relay if you use on the back display board at J2, pin 2. If the 12 VDC is not present at this pin, check the voltage at the connector J6, pin 1 on the same board.

- if there is a signal to the relay and the voltage to the motor is present then replace the motor.

- if no signal is present at the relay measure at connector J6 with the red probe on pin 5 and the black probe on pin 1.

- if 12 VDC is present repair the harnessing.

- if there is 0 VDC replace the back display board.

Hoop will not center.

The optical encoder mounted on the rear of the back board assembly reads the reflective tape on the back of the motor arm to determine when the hoop is in the center position. When the hoop is centered it is called the home position of the motor. The back display board will always try to move the hoop to the center position even if the movement is disabled in the software programming.

Step 1 - inspect the optic sensor for signs of physical damage and that the reflective tape on the motor arm is still present and undamaged.

Step 2 - measure the optic board with the red probe on pin 1 (+12vdc , orange wire) and the black probe on pin 3 (ground, black wire). You should measure +12 VDC.

- if you have the correct voltage, proceed to step 3.

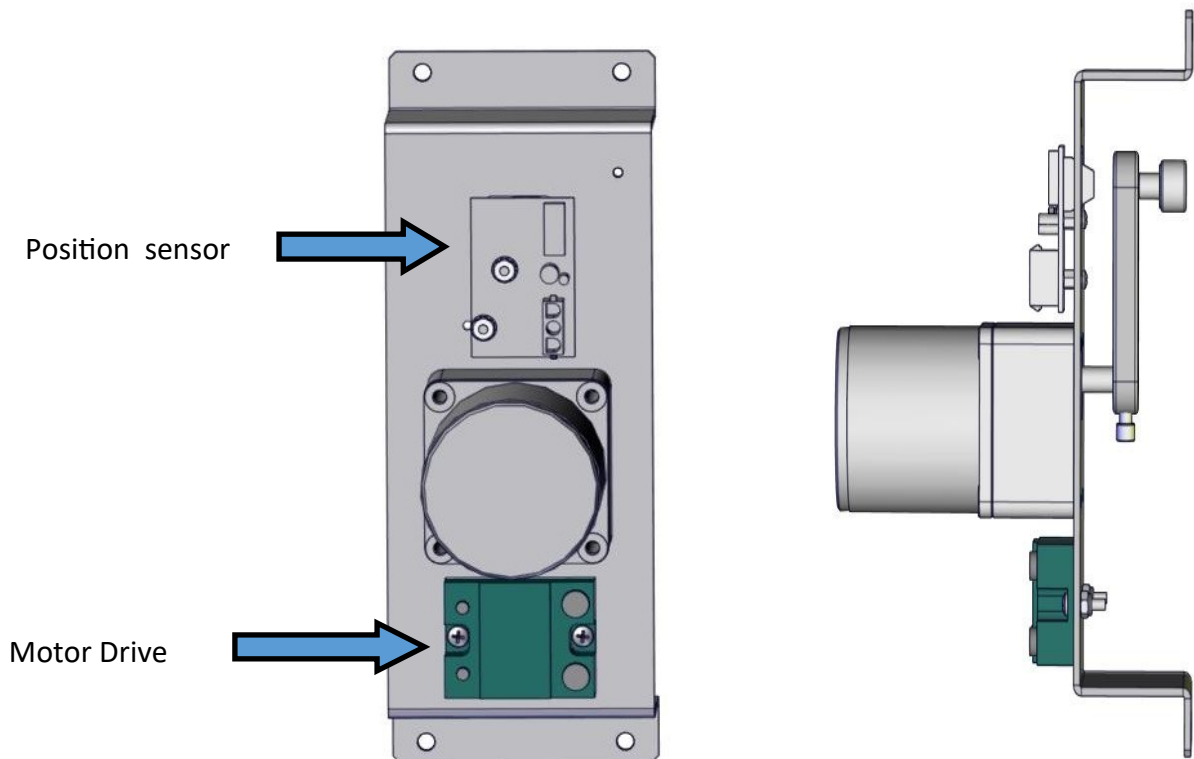
- inspect the wiring for damage all the way back to connector J6 on the timer board. If the wiring is good and the display is off, replace the display.

Step 3 - measure at the optic the output (signal) by placing the red probe on pin 2 (signal , white wire) and the black probe on pin 3 (ground , black wire). You should see +5 VDC when the reflector tape is in front of the optic. 0 VDC when it is not.

- If not working in this manner inspect the harnessing and connections to the display board to connector J6. Unplug the connector and measure with the red probe pin 3 and the black probe on pin 4.

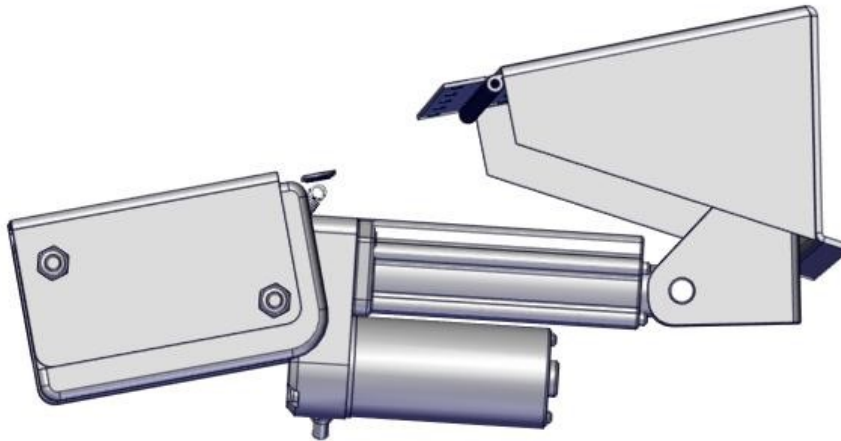
- if the voltage is 3.3vdc then replace the sensor.

- if not then replace the display board.



NBA Game Time ball gate theory of operation

The game uses a linear actuator to control the ball gate. The linear actuator has a spring loaded mount that pushes the gate back up if it is pressed down. There are internal limit switches to control the movement of the push rod when it reaches the end of its travel in the actuator. For this reason, there will always be voltage to the actuator. The reason for this is so the gate will remain closed until otherwise told to do so. When the game is started, the main board will send a signal to a relay board located at the front of the cabinet of game. This will reverse the polarity of the voltage to the actuator causing the gate to open.



No movement from the ball gate

- Step 1 - inspect the wiring and connections from the actuator to the relay board for signs of damage. This is located inside the front podium.
- Step 2 - check the 12 VDC input voltage to the relay PCB at connector J1 by touching the red probe on pin 1 (orange wire) and the black probe on pin 2 (black wire). You should measure +12 VDC.
 - if no voltage is present check the wires and connections back to J3 connector of the main board.
- Step 3 - Start a game and measure the voltage at J1 again but use pin 3 (brown/yellow wire) for the red probe and pin 2 for the black probe.
 - If no voltage is present and all harnessing and connectors are good, replace the main board if missing.
- Step 3 - check for output voltage on the J2 connector of the relay PCB. In standby mode you will see +12vdc from the black wire (positive, use red probe) to white wire (negative, use black probe). When the game is started the voltage will reverse polarity.
 - if no voltage is present, replace the relay PCB.
 - if voltage is present and the wiring is good to the actuator, then replace the actuator.

