How to replace the Q-Vision2 (or Q-Vision) Board and Camera

The QubicaAMF Q-Vision2 (or Q-Vision) unit counts the fallen pins and calculates the passing ball speed. In the case of a defective unit QubicaAMF can either replace the Q-Vision2 (or Q-Vision) board or the OKKIO camera.

ALWAYS:

- Disconnect the power from the lane control box (VDB, RDB, 3QT, 4HD-HUB, 5HD-HUB).
- Remove the plastic cover on top of the Q-Vision2 (or Q-Vision) assembly.
- Using the correct size slotted screwdriver open terminals 5, 6, 7 and 8 on the terminal strip where the camera is connected.
- If a single camera is installed on the lane pair, the terminal strip in use should be the terminal strip located on the approach end of the camera board and on the even lane side of the camera board.

1 Installing the replacement Q-Vision2 (or Q-Vision) Board

- Take note of the color sequence of each cable connected to the Q-Vision2 (or Q-Vision) board.
- Disconnect the LCOM cable (for Q-Vision: disconnect the green plug).
- Disconnect the ball sensors.
- Disconnect the cables connected to JP8 or JP9 (if present).
- Unscrew the defective board from the assembly and replace with the new Q-Vision2 (or Q-Vision) board (tightening all the screws to fix the board to the Q-Vision2 or Q-Vision assembly).
- Reconnect the LCOM cable (or the green plug if installing a Q-Vision board).
- Reconnect the ball sensors, paying attention to maintain the correct sequence of wires.
- Reconnect the camera following the wire sequence indicated on the side of the camera.
- Reconnect the cables connected to JP8 or JP9 (if previously disconnected).
- Turn on the lane control box.
- If during the Q-Vision2 (or Q-Vision) boot-up sequence an error occurs, you must send the programs to the lanes.

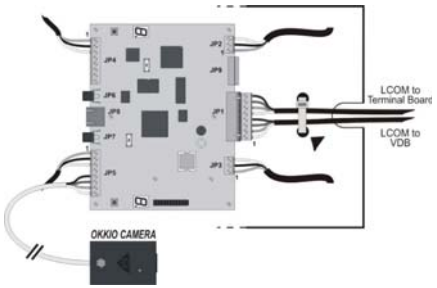


Figure 1, Q-Vision

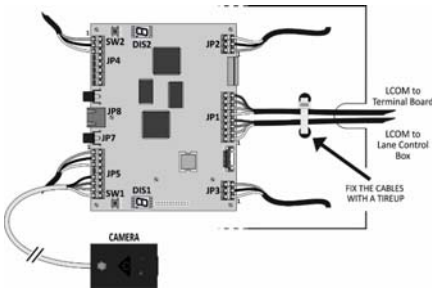


Figure 2, Q-Vision2

IMPORTANT NOTE: when replacing an old **Q-Vision BOARD** with a new **Q-Vision2 BOARD**, attach the supplied Q-Vision2 label over the old one to correctly identify the upgraded unit.	

1.1 Installing the replacement camera

- Remove the camera retaining nut (or bolt) located under the mounting bracket.
- Remove the faulty unit and place aside.

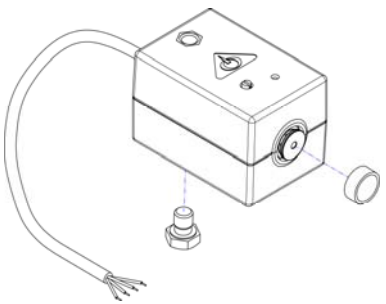


Figure 3, OKKIO and OKKIO 3 cameras

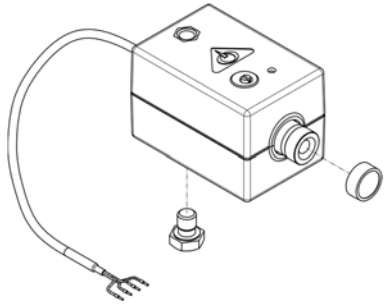


Figure 4, OKKIO IV, OKKIO 5 and OKKIO 6 cameras

- Place a hex bolt into the hole in the camera mounting base then place the new camera and lightly tight up the hex bolt into the new camera. **DO NOT TIGHTEN FULLY**.
- Connect the four conductors for the camera into the terminal strip from where the faulty camera was removed. Make sure to give each of the four conductors a light tug to ensure that they are properly “seated” in their respective terminal slots.
- Make sure the camera connections are correct (each wire color of the camera cable has its location described on the label on the right side of the camera body) and the terminals are tightened accordingly.

Figure 5, OKKIO 3 camera

Figure 6, OKKIO IV camera

- Visually align the camera lens so that is aimed at a point midway between the two head pins of the lane pair.
- Re-connect the power to the lane control box and wait for the unit to fully boot up.

- In the case that two cameras are installed (e.g. for a pair of lanes separated by a column), the auxiliary camera is connected to the Q-Vision2 (or Q-Vision) board via the rear connector (**JP4**).

2 Adjusting the Camera

It is not necessary to set the focus of the OKKIO camera because it is pre-adjusted by QubicaAMF. The light/contrast settings are automatically adjusted by the Q-Vision2 (or Q-Vision) camera.

2.1 Replacing the camera with an OKKIO camera

Ensure that the trimmer on the top of the OKKIO camera is completely turned counterclockwise.

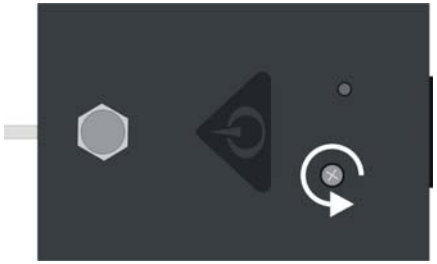
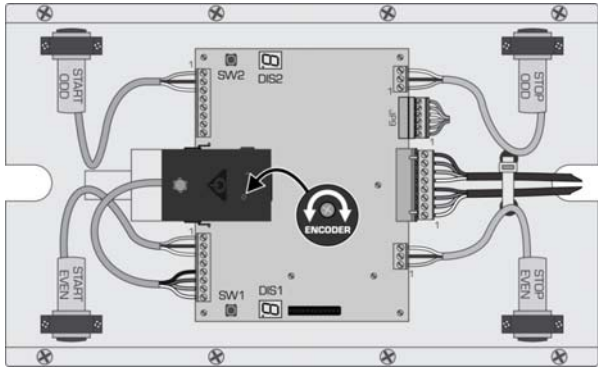


Figure 7, OKKIO camera

N.B.: If glow-bowling ultraviolet lights are also used in the bowling center, verify that the camera scores correctly with the glow-lighting on.

2.2 Replacing the camera with an OKKIO 3, OKKIO IV, OKKIO 5 or OKKIO 6 camera

Check the LED on the OKKIO camera:



- **GREEN**: the new OKKIO camera is operating in automatic light regulation.
- **RED**: there could be different reasons that can cause the LED on the new OKKIO camera to be red:
  - The new OKKIO camera is operating in manual mode;
  - The Q-Vision2 (or Q-Vision) is not completely boot up;

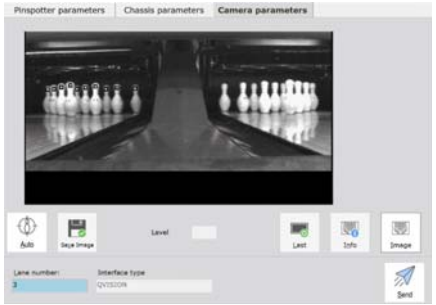
  - The Q-Vision2 (or Q-Vision) is in error; check the state of the lane on the lane monitor;

If the LED on the new OKKIO camera is RED, the Q-Vision2 (or Q-Vision) reports no errors and the lane boot up correctly, the new OKKIO camera is operating in manual mode. If the new OKKIO camera has to operate in automatic mode slowly rotate counter-clockwise the encoder, using a screwdriver, until the LED becomes GREEN.
When the LED is flashing, it means that there is communication between the new OKKIO camera and the camera board.

2.3 Q-Vision2 (or Q-Vision) errors during lane control box boot

- Errors during boot up of the Lane Control Box are going to most likely be caused by either a faulty replacement unit, a board incorrectly replaced, or an issue with a setting in Conqueror PRO.
- Errors caused by the replacement of this part are most likely to be errors of the Error 2XX variety displayed on the lane monitor during the diagnostic on the “TEST QVis” line or on the “CAMERA” line of the control box diagnostic test.
- Unplug the Lane Control Box, verify that the camera has been replaced correctly – use a working lane to compare, if necessary.
- Verify that the lane set up is correct: Q-Vision2 (or Q-Vision) is correctly selected for the center equipment installed.
- Upload programs to the lane pair and if error returns/continues, contact **QubicaAMF Technical Support.**

3 Configuring the camera in Conqueror Pro / X



Open the affected pair of lanes from Conqueror to turn on the pinspotter and the pit lights with all the pins down.

- Navigate through the Conqueror X main menu and select: **SETUP** / **Lane Setup** / **Pinspotter and Camera**.
- Choose the lane and select the Camera Parameters tab
- Click on **Image** and verify that the camera can see both sets of ten pins (if not, rotate slightly the camera orientation on the metallic support stand).
- Check that the heads of the pins are clearly visible and click on **Auto** to move the white dots on to the center of the pin-heads.
- If **Auto** is grayed out, but the pin-heads are distinct, **IT IS NOT A PROBLEM!** Simply move the dots manually on to the pin-heads.
- Finally, check that the ball-sensors are correctly aligned and replace the plastic cover on top of the Q-Vision2 (or Q-Vision) unit