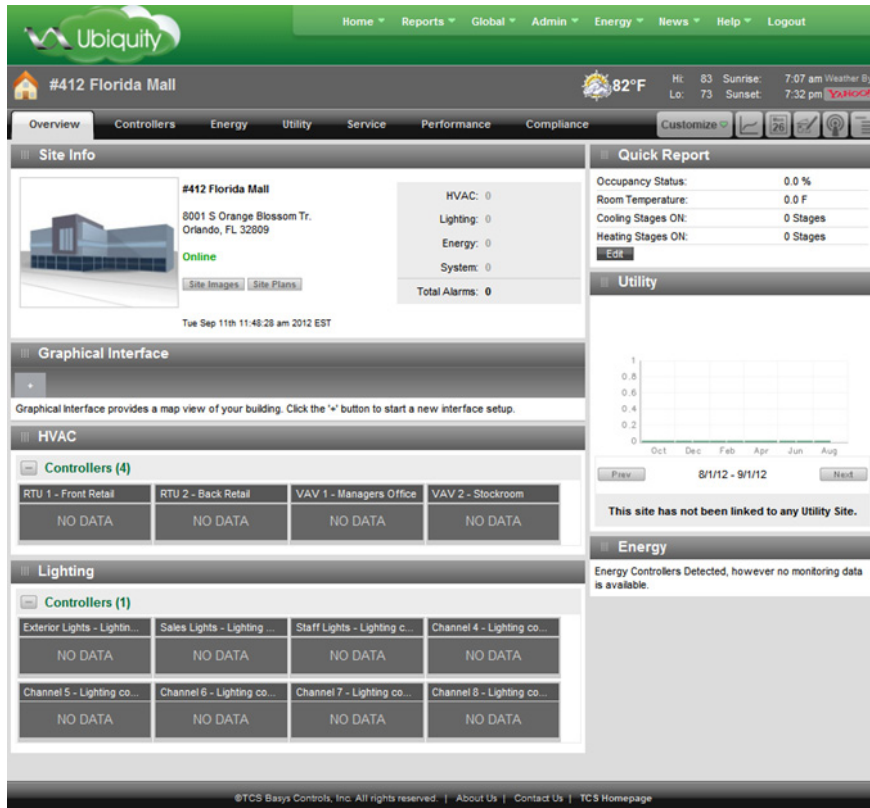


Problem:

For QWL 3.0 panels with date codes between 1222 and 1231 (shipped between 6-6-2012 and 8-30-2012). If all communication ports time out (NO DATA) for the entire site it is possible that the QWL 3.0 needs to have a simple fix applied to rectify this behavior.

Symptom:



Cause:

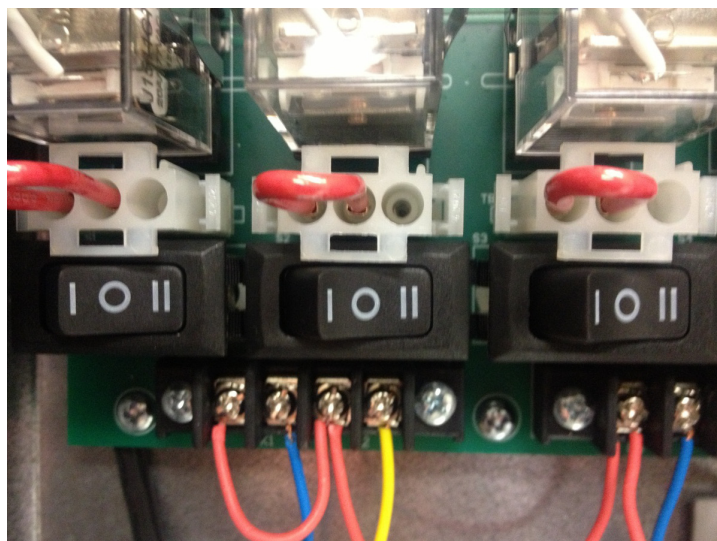
The 24V relays inside the QWL 3.0 panel are connected to a high voltage relay or contactor. When the QWL3.0 panel relay opens, the coil of the high voltage device (recently had a voltage applied to it) has a magnetic field that starts to collapse. The collapsing magnetic field inside the coil generates a large voltage which is applied across the relay contacts inside the QWL3.0 panel. When the large voltage spike from the collapsing magnetic field reaches the gap created by the opening of the QWL3.0 panel relay, it radiates outward. The radiating electromagnetic waves created at the relay contacts interfere with the USB ports causing them to lock up, thereby disabling communications with the TCS wired and wireless networks.

Solution:

To keep the large voltage spike (created in the collapsing magnetic field) from radiating into the QWL3.0 Panel, up to eight transient voltage suppression (TVS) diodes need to be applied across the terminal strips (relay contacts) inside the QWL3.0 Panel. When the voltage across the QWL3.0 relay contacts reaches 39V, the TVS will turn on deflecting the voltage out of the QWL3.0, keeping it from radiating across the contactors as electromagnetic waves. The addition of the TVS diodes has been shown to be effective at reducing communication problems caused by a relay change of state.

Installation of the TVS Diodes:

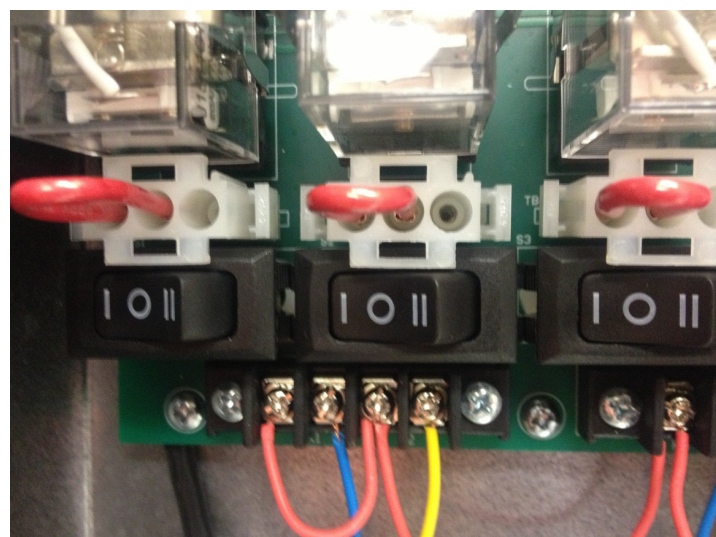
1. Locate the Red or Black HOA (Hand – Off – Auto) switches and change from “Auto” to either “Off” or “Hand” depending on how the outputs are wired (NC or NO) and how they are configured in programming. **Typically**, if the outputs are wired for NC set HOA switch to “Off” and if the outputs are wired for NO set HOA switch to “Hand”.



“Auto” Position (QWL 3.0 in control of the lights)



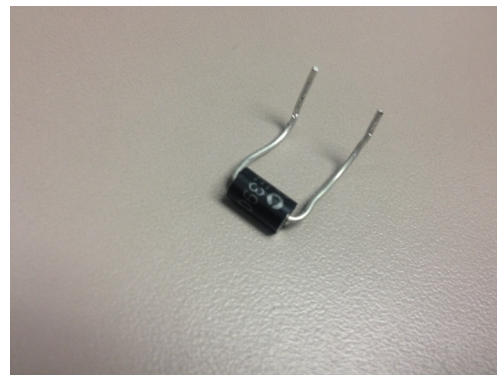
“Off” Position (typically, lights on if NC, lights off if NO)



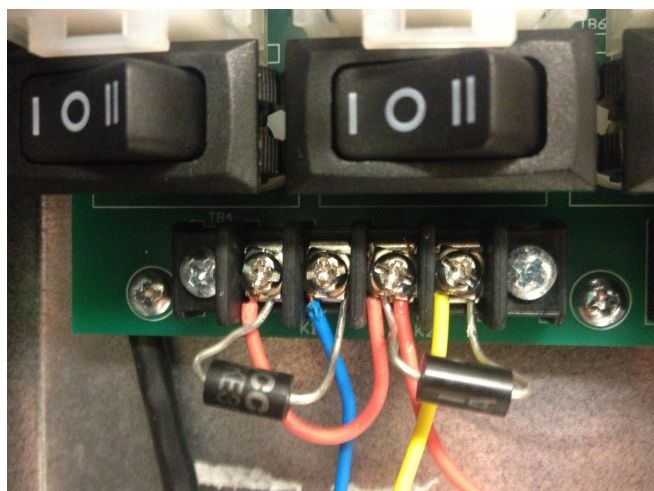
“Hand” Position (typically, lights off if NC, lights on if NO)

2. Shut off whatever is providing power to the output terminals (K1, K2, K3, etc., 24 VAC only), not the power to the QWL 3.0 panel itself.

3. Form the TVS diode as shown below. It does not have a polarity.



4. Install a TVS diode between the Load and Line terminals (K1, K2, K3, etc., 24 VAC only). Repeat as needed for each relay or contactor being used.



5. Re-apply power to the output terminals and switch the HOA switch back to the "Auto" position.

