WEL Wiring Quick Tips:

Note: Full product descriptions are located in the WEL User Guide:
http://www.WELServer.com/support_files/WEL_User_Manual_4.0.3.pdf

My 1-wire devices use a standard color code:

Black: Ground
Yellow: 1-Wire Bus Signal
Red: Optional +V power

Note: These colors are marked in small print on the WEL next to the terminal block.
Some third-party devices do not uses these color codes, so please refer to the website for additional wiring tips and tricks:

Temperature Sensors. These MUST be installed with the correct polarity !!!!!

Note: If 1-wire sensors are connected in reverse, the WEL will report a "Bus Short" (error 3)

There are four types of encapsulated temperature sensors: Some don't have standard colors

Type 1: Plastic (encapsulated, rectangular), Long Leads

    1-Wire **Ground**:   Sensor's **Black** wire connects to Black Bus wire
    1-Wire Bus: Sensor's **Yellow** wire connects to Yellow Bus wire.

Type 2a: 1" Stainless Steel, Short Leads (non Standard)

    1-Wire **Ground**:   Sensor's **Grey** wire connects to Black Bus wire
    1-Wire Bus: Sensor's **Blue** wire connects to Yellow Bus wire.

Type 2b: 1" Stainless Steel, Long Leads (crazy non Standard) *NEW*

    1-Wire **Ground**:   Sensor's **Red** wire connects to Black Bus wire
    1-Wire Bus: Sensor's **White** wire connects to Yellow Bus wire.

Type 3: 3" Stainless Steel, Long Leads (non Standard)

    1-Wire **Ground**:   Sensor's **Brown** wire connects to Black Bus wire
    1-Wire Bus: Sensor's **Blue** wire connects to Yellow Bus wire.

Type 4: Potted (black epoxy dipped) sensors (non Standard)

    1-Wire **Ground**:   Sensor's **Brown** wire connects to Black Bus wire
    1-Wire Bus: Sensor's **Blue** wire connects to Yellow Bus wire.

1-Wire Enabled Current-Switch Module. (WEL-CS)

One pair of standard bus wires: Black and Yellow.
    Black is Ground and is wired to the Black 1-Wire GND signal
    Yellow is the bus Signal and is wired to the Yellow 1-Wire OW signal
    (Standard color usage)

DIY Digital input module. (DIGIN-DIY)

2 pairs of wire are required for this device to operate:

1-Wire pair:
>Labeled **B** and **Y** for Black and Yellow wires.
>Black is Ground and is wired to the Black 1-Wire GND signal.
>Yellow is the bus Signal and is wired to the Yellow 1-Wire OW signal.
>(Standard color usage)

NOTE: if multiple DIY units are shipped as a single piece, only one set of 1-Wire Y/B wires need be connected. The 1-wire bus is automatically extended from one board to the next.

Contact closure pair:
>Labeled **B** and **R** for Black and Red.
>Black wire has 100K pull-down, so current will flow from Red wire to Black wire.
>Note: CR9321 Current Switch may be connected Red to R, Black to B.
>Pure mechanical switch may be wired either way.

Additional Non 1-Wire devices:

CR9321-NPN Current Switch

These are **NOT** 1-Wire devices, and they must **NOT** be connected to the 1-wire bus. Instead, they are wired directly to the WEL board to connector J2.

This device has a red and black wire. There is an NPN phototransistor between these two wires inside the Current Switch. The Collector is connected to the red wire and the Emitter is connected to the Black wire. To connect this device to the WEL, the black wire must be connected to either of the 2 WEL Run Monitor Ground terminals (GND) and the Red wire is connected to one of the 8 WEL Run inputs.

WNB-3Y-208-P-300Hz Watt Node

The Advanced Watt Node (WNB) from Continental Control Systems (www.CcontrolSys.com) has up to three digital pulse outputs. These outputs are labeled P1, P2 & P3 on the Watt-Node, and they share a common "return" labeled "COM". For typical power measurement, only COM and P1 need to be wired to the WEL. P2 is also required if you are doing Net Metering power measurement. P3 is used if you have the PV (photovoltaic) option.

The Watt-Node's "COM" should be wired to "Gnd" on the WEL's J5 connector, and the Watt-Node's P1,2 or 3 can be wired to any of the 6 WEL pulse inputs (Pulse1 to Pulse6)

When monitoring a Grid Tied PV home, the Watt-Node P1 channel sends pulses when the net power is fed **into the home**. Conversely, P2 sends pulses when net power is fed **into the grid**. These can be named appropriately and displayed independently in the WEL, or they can be combined using "expressions" (eg: NetUse = PwrIn – PwrOut).

Email for further information. ideas@OurCoolHouse.com   or call Phil @ (301) 387-2331

Additional installation help is provided at http://www.welserver.com/install.htm