Planning for WebBrick 7

Andy Harris 20th March 2009

Important change

If you read nothing else: WebBrick 7 has one DPCO relay and one SPCO relay. This is a change from the WebBrick 6 series that have two DPCO relays.

If you swapping a 7 into 6 application, the connections labelled Relay4A are open circuit on the 7 series.

Introduction

In the next six months we'll be introducing the WebBrick 7. This is directly evolved from the 6 series, they run virtually identical firmware and have the same interface and command structure. Under the casing there are many changes, the driving factors were:

- Meeting future CE standards and electrical regulations
- Increasing survival of wiring mistakes in the field
- Increasing internal mechanical strength
- Reducing the number of internal connectors

The changes

Relays

This is the main change that the installer will see. The key reason for the change is that there is now a protective earth track that separated the relays from the triacs. This means that an electrical spike large enough to cause a flash-over will find the earth route first.

As before the protective earth is just that, there is no connection with the WebBrick ground.

The benefit of this change is that mixed voltages can be used between the relays and the triacs.

Note: Mostly, the relays are used for drapery control. Where one relay is used to set direction and the other to supply power. If you always use Relay4B as power and Relay5A+B for direction then you'll be able to straight swap a 7 for 6 series WebBrick.

Open Collectors

The 6 series OC were rated at 500mA, with more powerful LED lighting available we found that these were getting inadvertently overloaded. The 7 series can now handle 3A per OC. This has changed the connected load at 12V from 6W to 36W.

On the 6 series relay coils connected between 12V and the OC would be enough to back feed the WebBrick. On the 7 series this has been changed and now external supply rails of up to 24V can be accommodated for OC triggered devices.

Note: The open collectors will not survive a dead short (6 and 7 series)

Dual 5V Rails

We had found that incorrect temperature sensor wiring could introduce noise to the power supply of the WebBrick processors, this instability could cause a WebBrick to reset. The 7 series has a separate current limited 5V rail for ancillaries.

Temperature Sensor Bus

On the 6 series incorrect wiring of temperature sensors could introduce noise into the data bus and therefore interfere with WebBrick operations. The 7 series has common mode chokes to reduce the likelihood of this.

As an aside, once we had seen the common mistakes in the field we improved the training and now have very few problems with temperature sensors. They still won't work if you don't connect them properly! Were sticking with the single temperature sensor on 90m and up to 5 sensors on 70m CAT5E cable.

Mimic outputs

6.4 hardware versions of the 6 series had chunky mimic drivers, however a common field mistake is to crossover the Mimic and Digital Input connections. This leads to a dead short on the Mimic output as the switch is operated. In some cases this would destroy the mimic driver.

With the 7 series we've introduced current limiting on these outputs (200mA all Mimics driven).

Digital and Analogue Inputs

There is more filtering on these, however the electrical characteristics remain the same.