

**NOTE: BETTER DOCUMENT NEEDS TO BE PRODUCED**

The list below comprises the power and grounding connections for the MCC3 replacement phase of the TCS3 project. This list will be updated as additional equipment and IO is installed as part of the project. Therefore this list for the power and ground layout will not be finalized until the last signal is brought online for the TCS3 replacement project.

The list is organized first with the rack then the opto-22 index slot with the present connection type.

**1 Rack A****1.1 Index 0, 1**

- Type: Analog input returns for the motor amplifier current signals
- Returns shorted: P113t, KK, G, y, a
- Power Supply: Motor amplifier power supply
- Impact: None, returns are all connected to the same power supply

**1.2 Index 4**

- Type: Digital input for the switched power relay status
- Returns shorted: None
- Power Supply: 24V supply for Drawer D
- Impact: None

**1.3 Summary**

The power supplies used for the above modules are the present ones used in the system. Isolation is kept intact and no change is made to the present grounding scheme.

**2 Rack C****2.1 Index 0**

- Type: Analog input returns for the Focus and Collimate LVDTs
- Returns shorted: S902F, c, d
- Power Supply:  $\pm 15V$  in Tube Ring Electronics box
- Impact: None, returns are all connected to the same power supply

**2.2 Index 1, 2, 3**

- Type: Analog input returns for the Counter Weight position feedback
- Returns shorted: S211E, V
- Power Supply:  $\pm 15V$  in West Yoke Junction box
- Impact: None, returns are all connected to the same power supply

**2.3 Index 4**

- Type: Digital input for Dec and HA zenith switch

- Returns shorted: None
- Power Supply: 5V in MCC
- Impact: None

#### **2.4 Index 5**

- Type: Digital input for mirror feedback signals
- Returns shorted: None
- Power Supply: 24V inside Rack C/D
- Impact: None

#### **2.5 Index 6, 7, 8, 9**

- Type: Digital output for counterweight drive
- Returns shorted: None
- Power Supply: 24V inside Rack C/D
- Impact: None

#### **2.6 Index 10, 11, 12**

- Type: Digital output for collimate and focus drives
- Returns shorted: None
- Power Supply: 24V inside Rack C/D
- Impact: None

#### **2.7 Index 13**

- Type: Analog input for temperature and humidity sensors
- Returns shorted: None
- Power Supply: External supply
- Impact: None

#### **2.8 Summary**

The analog inputs use the power supply presently used in the system for these feedback signals. The 24V power supply in Rack C/D replaces the external Drawer D power supply used in the present system for the mirror, counterweight, collimate, and focus Digital I/O. There is no impact to the present grounding scheme.

### **3 Motor Relay Card**

This card is a custom PCB used to drive the focus and collimate drive relays and is also used to scale the Focus and Collimate LVDT feedback signals. The relays are fed from the Rack C Index 10, 11, and 12 slots as shown above (2.6). The LVDT signals are fed to the Rack C Index 0 as shown above (2.1)

#### **3.1 Relays**

- Type: Digital output for collimate and focus drives
- Returns shorted: None
- Power Supply: 24V inside Rack C/D

- Impact: None

### **3.2 Voltage Divider**

- Type: Analog input returns for the Focus and Collimate LVDTs
- Returns shorted: None
- Power Supply:  $\pm 15V$  in Junction box
- Impact: None

### **3.3 Summary**

The 24V power supply in Rack C/D replaces the external Drawer D power supply used in the present system for the collimate, and focus Digital I/O. The analog inputs use the power supply presently used in the system for these feedback signals. There is no impact to the present grounding scheme.