Hello Fred,

Here is a note that I hope clarifies the wiring issues.

Best regards,

Steven

Instrumentation Wiring

Jlab will supply only the 41 pin connectors as part of the CCR item. The 41 pin connectors for any SMI connections will not be pre-wired. The temperature sensors installed within the CCR will be prewired and connected to their separate 41 pin connectors, labeled Connector B and C. Temperature sensors and voltage sensors that are to be installed and wired by SMI will have their own 41 pin connectors. SMI will not have to share multi pin connectors with the CCR subcontractor.

The current leads will be shipped to SMI in a separate package from the CCR. This is to avoid damage to the current leads during transit. It will be SMI’s responsibility to install and wire the current leads. All temperature sensors and voltage taps, as well as their connections, for the current lead will be the responsibility of SMI.

SMI is responsible for all connections and hardware identified to the left of the Vendor responsible line on drawing 67125-00111 rev A.

The PT100 temperature sensors technical specifications indicate that the temperature range of the sensors is from -50C to 550C. These seem to be high temperature sensors, not cryogenic sensors. SMI must provide a calibration curve showing sensors can accurately measure temperatures down below 70K with adequate sensitivity.

The carbon-ceramic resistors are acceptable to JLAB as noted before. Please provide calibration curve.

Updated Tables: Clarifications are highlighted in red. Only tables that need clarification are shown.

Primary Sensors as defined in 67125-E-00110 RevF

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sensor ID  | Location  | Connector  | Pins  | Fit and Wiring Responsibility  |
| CG-1 T\_Coil\_1  | Magnet coil 1  | 1  | 1,2,3,4  | Scientific Magnetics  |
| CG-2 T\_Coil\_2  | Magnet coil 2  | 1  | 5,6,7,8  | Scientific Magnetics  |
| CG\_3 T\_Coil\_3  | Magnet coil 3  | 1  | 9,10,11,12  | Scientific Magnetics  |
| CG\_4 T\_Coil\_4  | Magnet coil 4  | 1  | 13,14,15,16  | Scientific Magnetics  |
| CG\_5 T\_CL\_N\_C  | Current lead negative in CCR  | 1 |  17,18,19,20  | Scientific Magnetics |
| CG\_6 T\_CL\_P\_C  | Current Lead positive in CCR  | 1 |  21,22,23,24  | Scientific Magnetics |
| PT102-1 PT\_Yoke\_1  | Yoke  | 1  | 25,26,27  | Scientific Magnetics  |
| PT102-2 PT\_Yoke\_2  | Yoke  | 1  | 28,29,30  | Scientific Magnetics  |
| PT102-3 PT\_Yoke\_3  | Yoke  | 1  | 31,32,33  | Scientific Magnetics  |
| PT102-4 PT\_Yoke\_4  | Yoke  | 1  | 34,35,36  | Scientific Magnetics  |
| Short  |  | 1  | 40, 41  | Scientific Magnetics |

Redundant Sensors as defined in 67125-E-00110 Rev F

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sensor ID  | Location  | Connector  | Pins  | Fit and Wiring Responsibility  |
| CG-1\_R T\_Coil\_1  | Magnet coil 1  | 2  | 1,2,3,4  | Scientific Magnetics  |
| CG-2-R T\_Coil\_2  | Magnet coil 2  | 2  | 5,6,7,8  | Scientific Magnetics  |
| CG\_3-R T\_Coil\_3  | Magnet coil 3  | 2  | 9,10,11,12  | Scientific Magnetics  |
| CG\_4-R T\_Coil\_4  | Magnet coil 4  | 2  | 13,14,15,16  | Scientific Magnetics  |
| CG\_5-R T\_CL\_N\_C  | Current lead negative in CCR  | 2 |  17,18,19,20  | Scientific Magnetics |
| CG\_6-R T\_CL\_P\_C  | Current Lead positive in CCR  | 2 |  21,22,23,24  | Scientific Magnetics |
| PT102-1-R PT\_Yoke\_1  | Yoke  | 2  | 25,26,27  | Scientific Magnetics  |
| PT102-2-R PT\_Yoke\_2  | Yoke  | 2  | 28,29,30  | Scientific Magnetics  |
| PT102-3-R PT\_Yoke\_3  | Yoke  | 2  | 31,32,33  | Scientific Magnetics  |
| PT102-4-R PT\_Yoke\_4  | Yoke  | 2  | 34,35,36  | Scientific Magnetics  |
| Short  |  | 2  | 40,41  | Scientific Magnetics |

Primary Sensors as defined in 67125-E-00110 Rev. F

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sensor ID  | Location  | Connector  | Pins  | Fit and Wiring Responsibility  |
| PT102\_6 PT\_N2\_OUTER\_TOP  | Magnet outer nitrogen shield top  | A  | 1,2,3  | Scientific Magnetics  |
| PT102\_7 PT\_N2\_OUTER\_BOTTOM  | Magnet outer nitrogen shield bottom  | A  | 4,5,6  | Scientific Magnetics  |
| PT102\_8 PT\_N2\_BORE\_TOP  | Magnet bore nitrogen shield top  | A  | 7,8,9  | Scientific Magnetics  |
| PT102\_9 PT\_N2\_BORE\_BOTTOM  | Magnet bore nitrogen shield bottom  | A  | 10,11,12  | Scientific Magnetics  |
| PT102\_5 PT\_N2\_IN  | Nitrogen feed line  | B  | 1,2,3  | CCR Contractor  |
| PT102\_10 PT\_N2\_RETURN  | Nitrogen return line  | B  | 4,5,6  | CCR Contractor  |
| DIODE-1 TD\_HE\_COOLDOWN  | He pipework  | B  | 7,8,9,10  | CCR Contractor  |
| DIODE-2 TD\_HE\_SUPPLY  | He pipework  | B  | 11,12,13,14  | CCR Contractor  |
| DIODE-3 TD\_HE\_COLD\_RETURN  | He pipework  | B  | 15,16,17,18  | CCR Contractor  |
| DIODE-4 TD\_HE\_WARM\_RETURN  | He pipework  | B  | 19,20,21,22  | CCR Contractor  |
| CG\_7 T\_HE\_RESV  | Helium reservoir  | B  | 23,24,25,26  | CCR Contractor  |
| Short  |  | B  | 40,41  | CCR Contractor  |

Voltage taps and the responsibility for making them are shown in the following tables

Redundant Sensors as defined in 67125-E-00110 REV F

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sensor ID  | Location  | Connector  | Pins  | Fit and Wiring Responsibility  |
| PT102\_6\_R PT\_N2\_OUTER\_TOP  | Magnet outer nitrogen shield top  | A  | 13,14,15  | Scientific Magnetics  |
| PT102\_7\_R PT\_N2\_OUTER\_BOTTOM  | Magnet outer nitrogen shield bottom  | A  | 16,17,18  | Scientific Magnetics  |
| PT102\_8\_R PT\_N2\_BORE\_TOP  | Magnet bore nitrogen shield top  | A  | 19,20,21  | Scientific Magnetics  |
| PT102\_9\_R PT\_N2\_BORE\_BOTTOM  | Magnet bore nitrogen shield bottom  | A  | 22,23,24  | Scientific Magnetics  |
| Short  |  | A  | 40,41  | Scientific Magnetics |
| PT102\_5\_R PT\_N2\_IN  | Nitrogen feed line  | C  | 1,2,3  | CCR Contractor  |
| PT102\_10\_R PT\_N2\_RETURN  | Nitrogen return line  | C  | 4,5,6  | CCR Contractor  |
| DIODE-1\_R TD\_HE\_COOLDOWN  | He pipework  | C  | 7,8,9,10  | CCR Contractor  |
| DIODE-2\_R TD\_HE\_SUPPLY  | He pipework  | C  | 11,12,13,14  | CCR Contractor  |
| DIODE-3\_R TD\_HE\_COLD\_RETURN  | He pipework  | C  | 15,16,17,18  | CCR Contractor  |
| DIODE-4\_R TD\_HE\_WARM\_RETURN  | He pipework  | C  | 19,20,21,22  | CCR Contractor  |
| CG-7\_R T\_HE\_RESV  | Helium reservoir  | C  | 23,24,25,26  | CCR Contractor  |
| Short  |  | C  | 40,41  | CCR Contractor  |

Scientific Magnetics **Voltage Taps Ref 67125-E-00111 and 67125-D-00113**

**Voltage Taps Ref 67125-E-00111 and 67125-D-00113**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pot Tap ID  | Location  | Connector  | Pins  | Fit and Wiring Responsibility  |
| POT TAP I+U  | + current lead top  | N/A |  N/A  | Scientific Magnetics |
| POT TAP I-U  | - current lead top  | N/A |  N/A  | Scientific Magnetics |
| POT TAP I+U\_R  | Magnet outer nitrogen shield bottom  | N/A |  N/A  | Scientific Magnetics |
| POT TAP I-U\_R  | Magnet bore nitrogen shield top  | N/A |  N/A  | Scientific Magnetics |