

## Instrumentation and Control System Drawings for Hall A SoLID Solenoid

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This note presents an overview of the development of the Instrumentation and Controls (I&C) drawings for the Hall A SoLID magnet.

I&C system drawings for the Hall A SoLID magnet are being generated to facilitate installing and troubleshooting. Drawings will show which instruments/sensors are connected to be monitored or controlled by the PLC. Additionally, these drawings will provide details about the type of modules and number of channels that are to be used, critical information for replacing malfunctioning modules.

Based on the components functionality, location, and connection to other components in the system, drawings are classified and numbered by groups. A spreadsheet [1] with the description and details of each drawing has been generated; the same spreadsheet is used to track comments and progress.

It is estimated that about 70 drawings are needed for the I&C system, but the number of drawings could increase or decrease based on the final configuration of the system.

Figure 1 shows cabling from the connectors to the terminal strip located in the hall rack for the pressure transducers (nitrogen and helium), vacuum meter sensor, and mass flow meters (left cool lead and right cool lead). On the left side of the drawing, circled numbers pointing to the connectors correspond to item numbers in the table in the bottom right, specifying the type of connector; circled numbers pointing to the bundled cables specify cable type. The table also gives available details of the items (required but missing data is indicated by the dashes). The contents of each column are labeled at the bottom of the table.

To conclude, these instrumentation and controls drawings are critical to ensure proper and safe installation, trouble-free commissioning, and smooth operation of the SoLID solenoid.

[1] SoLID Controls Drawing List

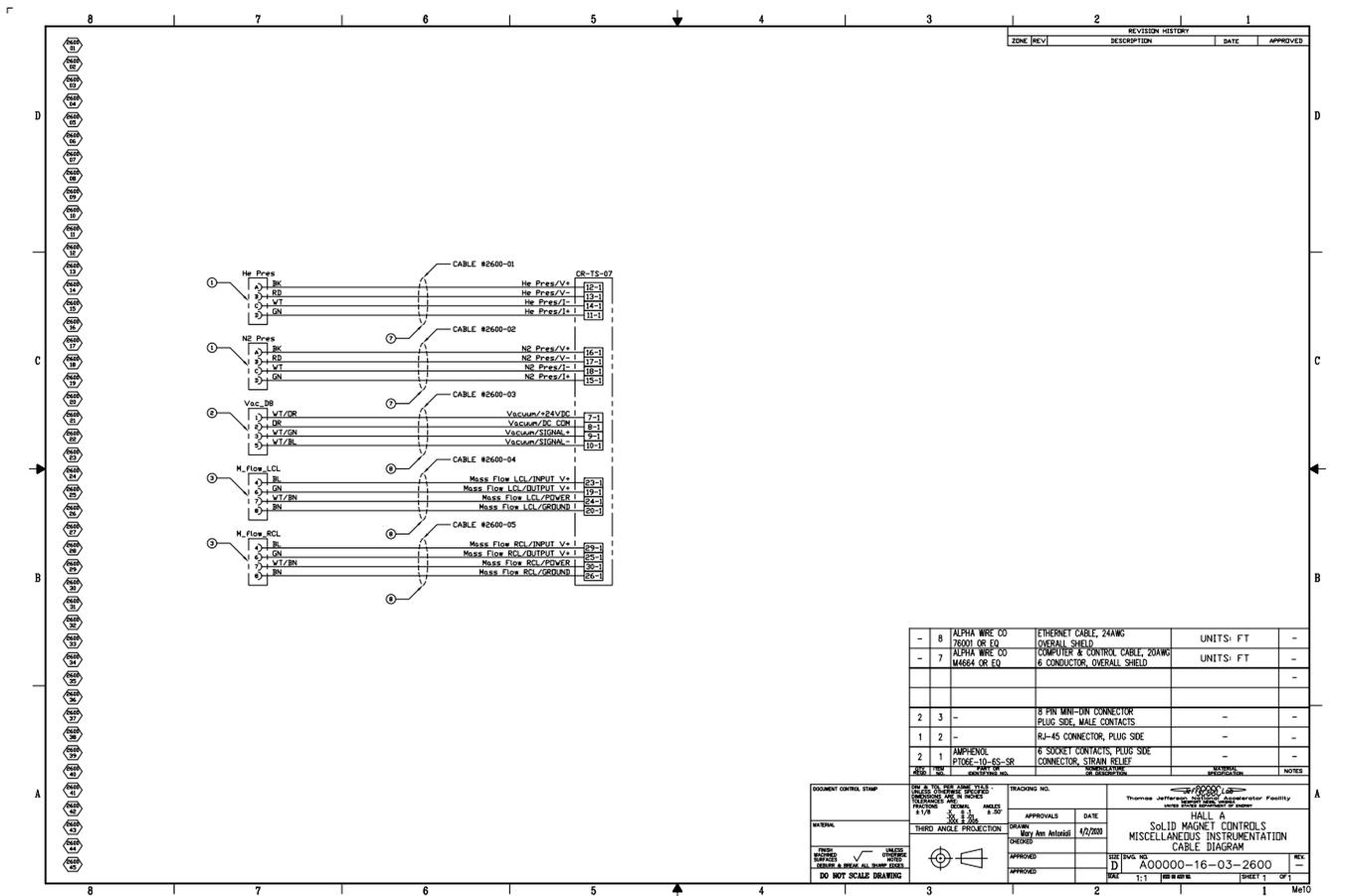


FIG. 1. Cable diagram of miscellaneous instrumentation.