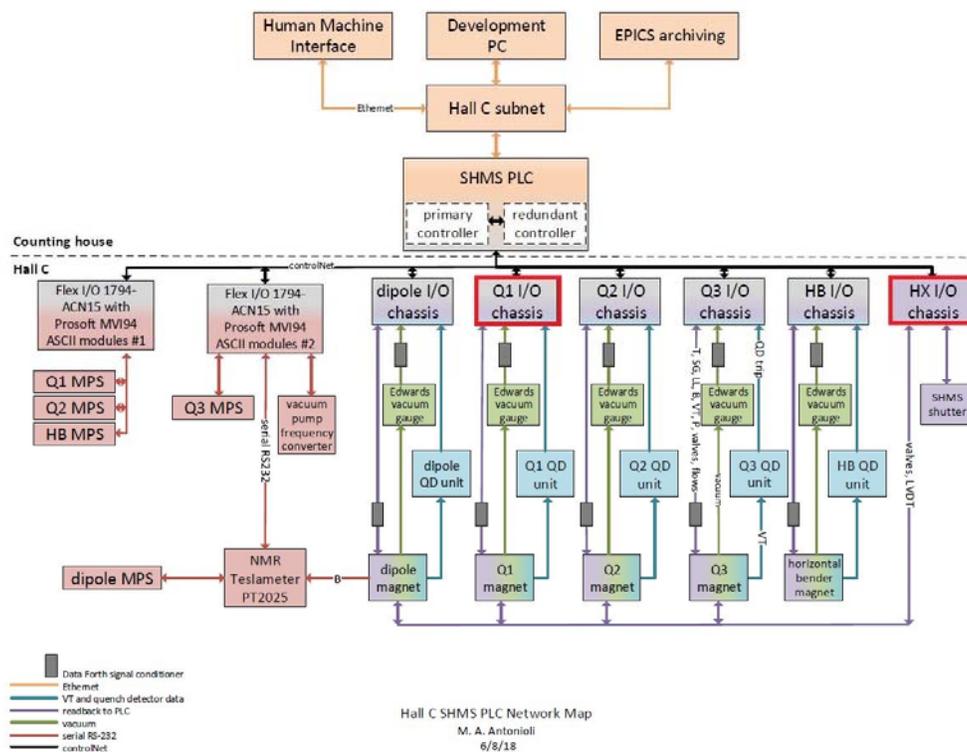


HALL C PLC TASKS REPORT (06/28/2018 – 07/04/2018)

Hall C - PLC Task List							
Item	Description	Priority	Primary Person	Start Date	Status	Comments	Suggested Duration (days) by Hall C
1	HMS & SHMS Dipole field regulation routine	1	Pablo	14-Jun-18	In Progress	Completed flow chart for currently used SHMS dipole regulation module RG-2024 (Flow chart based in user manual). Completed first version of flow chart for regulation routine	10
2	New NMR communication through PLC to PSU	1	Brian	10-May-18	In Progress	Received probe to test field readouts in NMR. Need magnet to simulate magnetic field between within probe operation range (1.13-3.4 T). Python code to interface with NMR under development. Run test (read NMR data at 1hz) during a week, connection stable	5
3	Test Ethernet vs Controlnet interface.	1	Pablo	7-Jun-18	Completed	Checked by Steve	N/A
4	Swapping of Controlnet by Ethernet modules in SHMS	1	Pablo-Brian	3-Jul-18	In Progress	Swapped HX PLC Controlnet module by ENBT ethernet module and Q1 PLC by EN2T ethernet module. Configured new version for SHMS PLC project which included the addition of two Ethernet modules. After modules were swapped found communication errors (Connection/ service request error). Controlnet modules re-installed in Q1 and HX PLC chassis since communication errors could not be solved. Debugging in progress. Contacted Rockwell tech support, informed that v16 (used in SHMS) incompatible with ENTB and EN2T modules. Surprisingly both modules worked in the TEDF (see task #3)	N/A
5	Add spectrometer rotation electric break control	2	TBD	-	Waiting	Waiting for Hall C to determine and order parts	5
6	Add HMS Spectrometer Vacuum to controls	2	Tyler	29-May-18	Waiting	Hall C must decide which type of vacuum gauge will be used and procure it.	2
7	Data Logging upgrade, install and make operational	2	TBD	-	Not started	None	20
8	Develop "on loop" current regulation routine for quads' (3) PSU.	2	Amanda	14-Jun-18	In Progress	Completed flow chart for current monitoring loop	10
9	Tune valve responses	2	TBD	-	Not started	None	5
10	Wire UPS status to controls	2	Tyler	30-May-18	In Progress	APC relay card pre-wired to external DB-37 PIN connector. Relay card installed/configured on UPS. Completed PLC code	2
11	Modify SHMS shutter not in place status	2	Amanda	-	Waiting	Mike will talk to Steve on implementing wire loop to determine "shutter in-place" status	1
12	Add HMS shutter controls and status	3	TBD	-	Not started	None	1
13	Alarm notification to on-call staff	3	TBD	-	Not started	None	4
14	Add HMS quadrupoles hall probe readouts to PLC	3	TBD	-	Not started	None	3
15	Change SHMS LVDT I/O module from Differential to Single ended	3	TBD	-	Not started	None	4
16	End of life for Windows 7 upgrade to windows 10 (next year?)	4	TBD	-	Not started	None	10

- After swapping ControlNet modules in the SHMS Heat Exchanger (HX) PLC chassis and Q1 PLC chassis with Ethernet modules (ENBT and EN2T), communication issues prompted ControlNet modules to be reinstalled.
 - * Swapped the two ControlNet modules with Ethernet modules (ENBT on HX, EN2T on Q1).
 - * Configured SHMS PLC project files and Ethernet drivers for the ENBT and EN2T.
 - * Could not communicate to HX PLC after installing ENBT module.
 - Verified proper Ethernet switch ports, connections, MAC address, and IP address.
 - Attempted manual IP setting assignment through DHCP software with a direct Ethernet connection to module.
 - * Q1's EN2T Ethernet module connected to the network (able to ping it and it showed in RSLinx), but gave an error in the PLC's .ACD file.
 - * ControlNet modules for Q1 and HX PLC chassis were reinstalled and PLC program reverted to previous version.



SHMS Network Topology Map.

HX and Q1 Chassis where ControlNet modules were swapped for Ethernet modules are boxed in red.

- APC relay card pre-wired to external connector before installation in UPS.
 - * Labeled conductors on ferrule end of cable and on relay-card terminal block.
 - * Attached ferrules to terminal block.
- Relay card installed in APC UPS.
 - * Relay card left in default configuration, but configuration can be changed at any time without affecting UPS operation.
- During weeklong test, SBC maintained connection with NMR for duration of test when polling at 1 Hz.
- Python code to interface with NMR under development.

- * Changed Ethernet/IP Python package from *cpppo* to *pycomm3*, as *pycomm3* is easier to use for reading and writing PLC tags.
 - * Code will use a state machine to keep track of status of instrument and handle resets better.
- Flow chart completed for currently used HMS and SHMS Dipole regulation routine that uses the RG-2040 regulation module.
- Flow chart completed for new PLC routine that will take place of RG-2040 regulation module when PT2026 NMR Teslameter is used.
- Flow chart completed for current monitoring loop.
 - * User inputs current set point, program sets power supply to ramp past user-input current to a value determined by magnet hysteresis, program waits a set amount of time, program ramps power supply down to the user-input value.