



Detector Support Group

Weekly Report, 2019-03-20

Summary

Hall C EPICS

- CSV-to-CSS Python script finished for 8 HMS detectors.
 - ★ Created histogram screens for each detector.
 - ★ Added drop-down menu to histogram screens.
- Restore program developed for alarm fields.
 - ★ Program reads a previously created backup file and uses channel access commands to write the file's contents to the appropriate PV.
- WEDM cryogenics screens updated for Hall C, HMS, and SHMS to use PVs in alarm handler.
 - ★ PVs in alarm handler are using their alarm fields.
 - ★ By using these PVs, WEDM will display alarms for the PVs in the form of changing the text color.
- PLC code written to monitor communication between SHMS/HMS PLC and EPICS tested.
 - ★ Heartbeat counter signal was generated by EPICS IOC and sent to PLC controller.

Hall C CAEN-SY4527 Test Station

- Network and channel access configured on Linux computer.
 - ★ Configurations allows access of process variables from EPICS Server running in CAEN crate.
- Developed the first versions of two CSS-BOY screens (Expert and Novice) to monitor and control HV-CAEN module.

TEST HV CAEN - SLOT 0 - Expert Controls

Novice
Board Model: A7435SN-[72]
ALL ON/OFF

Ch#	Description	Pw	Vmon [V]	Imon [uA]	Status	Vset [V]		Iset [uA]		Vmax [V]		RUp [V/s]		RDown [V/s]		Trip [s]
00	CHANNEL00	ON	100.065	0.000	ON	100.000	100	355.00	355.00	1005	1005	50	50	100	100	10.0
01	CHANNEL01	ON	100.070	0.010	ON	100.000	100	355.00	355.00	1005	1005	50	50	100	100	10.0
02	CHANNEL02	ON	100.155	0.030	ON	100.000	100	355.00	355.00	1005	1005	50	50	100	100	10.0
03	CHANNEL03	ON	200.125	0.140	ON	200.000	200	355.00	355.00	1005	1005	50	50	100	100	10.0
04	CHANNEL04	ON	0.320	0.140	ON	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
05	CHANNEL05	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
06	CHANNEL06	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
07	CHANNEL07	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
08	CHANNEL08	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
09	CHANNEL09	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
10	CHANNEL10	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
11	CHANNEL11	OFF	0.000	0.000	OFF	600.000	600	355.00	355.00	1005	1005	50	50	100	100	10.0
12	CHANNEL12	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
13	CHANNEL13	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
14	CHANNEL14	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
15	CHANNEL15	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
16	CHANNEL16	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
17	CHANNEL17	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
18	CHANNEL18	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
19	CHANNEL19	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
20	CHANNEL20	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
21	CHANNEL21	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
22	CHANNEL22	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0
23	CHANNEL23	OFF	0.000	0.000	OFF	0.000	0	355.00	355.00	1005	1005	50	50	100	100	10.0

HV- CAEN MAIN

Max Current Hwd: 4025 microAm
 Max Voltage Hwd: 3559 Volt
 Board Temperature: 30 Celsius

Bd Status
 Power Fail
 Firmware Errors
 HV Max Cal
 Temp Cal
 Under Temp
 Over Temp

HV CAEN A74355 Module Expert Controls CSS-BOY screen

TEST HV CAEN - SLOT 0							
Expert Control			ALL ON/OFF				
Ch#	Description	Pw	Vmon	Imon	Status	Vset	Iset
00	CHANNEL00	OFF ●	0.000 Volt	0.000 microAm	OFF	100.000 Volt	355.00 microAm
01	CHANNEL01	OFF ●	0.000 Volt	0.000 microAm	OFF	100.000 Volt	355.00 microAm
02	CHANNEL02	OFF ●	0.000 Volt	0.000 microAm	OFF	100.000 Volt	355.00 microAm
03	CHANNEL03	OFF ●	0.000 Volt	0.000 microAm	OFF	200.000 Volt	355.00 microAm
04	CHANNEL04	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
05	CHANNEL05	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
06	CHANNEL06	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
07	CHANNEL07	ON ●	0.715 Volt	0.160 microAm	ON	0.000 Volt	355.00 microAm
08	CHANNEL08	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
09	CHANNEL09	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
10	CHANNEL10	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
11	CHANNEL11	OFF ●	0.000 Volt	0.000 microAm	OFF	600.000 Volt	355.00 microAm
12	CHANNEL12	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
13	CHANNEL13	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
14	CHANNEL14	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
15	CHANNEL15	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
16	CHANNEL16	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
17	CHANNEL17	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microAm
18	CHANNEL18	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA
19	CHANNEL19	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA
20	CHANNEL20	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA
21	CHANNEL21	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA
22	CHANNEL22	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA
23	CHANNEL23	OFF ●	0.000 Volt	0.000 microAm	OFF	0.000 Volt	355.00 microA

HV CAEN A74355 Module Novice CSS-BOY screen

- Voltage output check (100 V) completed for all module channels.
 - ★ CAEN tech support contacted regarding problems with two A7435 cards.
 - VMon indicates voltage output but measuring with a DMM shows no voltage.
- Output voltage tests started, to measure the output of the module channel directly (without probe or divider circuit) from 0 to 1000 V.
- Visio diagram created for Hall C HMS/SHMS PLC tags to EPICS PVs.

RICH

- Calculated image size d_0 at radius of curvature of spherical mirrors in Python and compared it to existing calculation in C.
 - ★ Average difference in d_0 result between the C program and Python is 0.0099 ± 0.0008 mm.
 - ★ With replicated program, the d_0 test station is no longer dependent on the Debian Linux PC.
 - Python can be used from LabVIEW, in addition to as a standalone program.

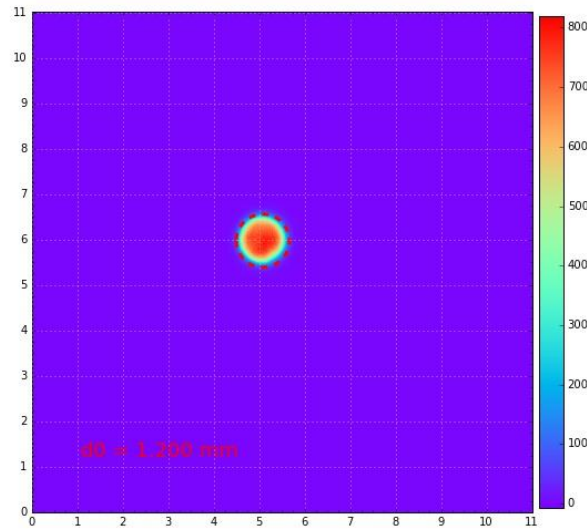
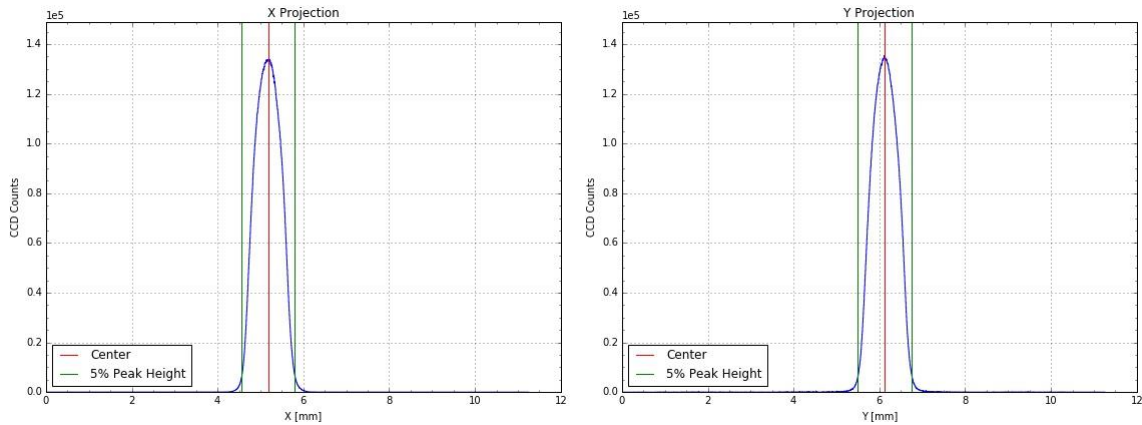


Image of d0 spot for mirror 2C generated by Python.



Left: X projection of d0 spot for mirror 2C. Right: Y projection of d0 spot for mirror 2C.
D0 width is defined to be between 5% of peak height.

SVT

- Investigated trip of interlock system during beam time on 3/19/2019.
 - ★ Trip was due to the drop in R3 temperature below the trip threshold of -19°C.
 - The threshold was adjusted to -24°C and system was reset.
 - Interlock system performed as expected.

HDIce

- Investigated update 1809 failure.
 - ★ Update 1809 will start to download and then the window would disappear.
 - No trace of the update would be in the update history window.
 - ★ HDIce needs to contact computer center, as the problem sounds like it is due to a setting made by the computer center.



Detector Support Group

Weekly Report, 2019-03-20

LTCC

- Daily flow averages for the week calculated.

Daily Flow Averages

Sector	Liters per day	Est. Total Kgs Used (after filling)	Days
S3 Supply	18.24	5.29	48
S5 Supply	31.93	8.62	43
Combined Return	37.77	10.95	48

HallA HCAL

- Inventory taken for BNC to LEMO cables in ESB.
 - ★ Located 41 cables out of ~400 cables.

DSG R&D

cRIO Test Station

- Created manual tests of differential nonlinearity, integral nonlinearity, gain error %, offset error, and dynamic range difference for current output module 9265.

Micro-controller Kit

- PIC-16F887 micro-controller programmer kit installed.
 - ★ Installed PIC C Compiler and CSS Load software in DSGPLC1 PC.
 - ★ Used UCD-U64 USB-ICD connector to connected PIC-16F887 board and PC.
 - ★ PIC code written to configure timers and counters.