LED control GUI
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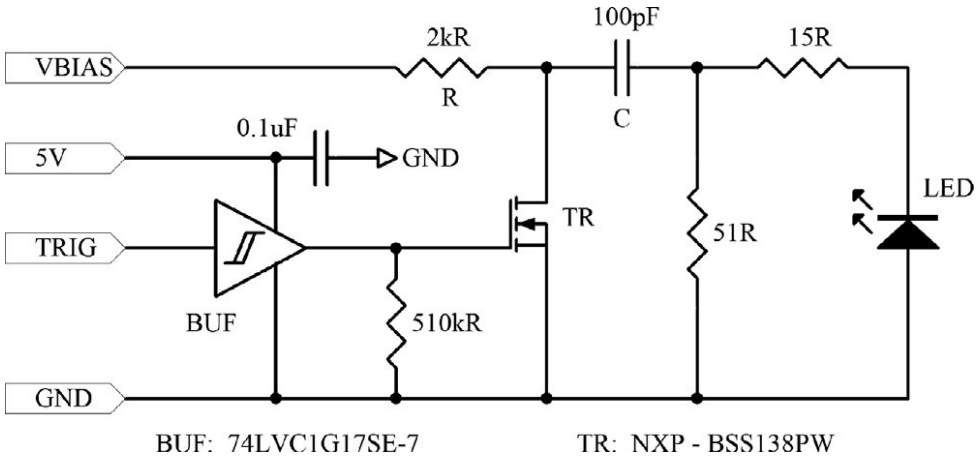
Introduction

In order to perform a bunch of tests on the BCAL and FCAL, dedicated LED boards were built.

Each board is controlled using a Caen VME pulser module for triggering and a Wiener MPOD Voltage module for bias and low voltage. This modules are controlled using Epics.



LED board circuit.

Figure 4, NIM A no. 738(2014), pp. 41-49

To ensure an easy control of each test a Graphical user interface was build using Control System Studio (CSS). All communication issues with the different modules and chassis are hidden.

Scope

The interface includes LED pulsing control, voltage controls and master or control.

Three rows, one for each LED color.
Each color has three parameters:

- Pulse width control and monitoring
  - Range 10 – 1000 ns
- Frequency control and monitoring
  - Range 0.756 Hz – 50 MHz
- Continuous mode control and monitoring
  - Continuous pulsing
  - or Number of pulses Range 0 – (2^31-1)

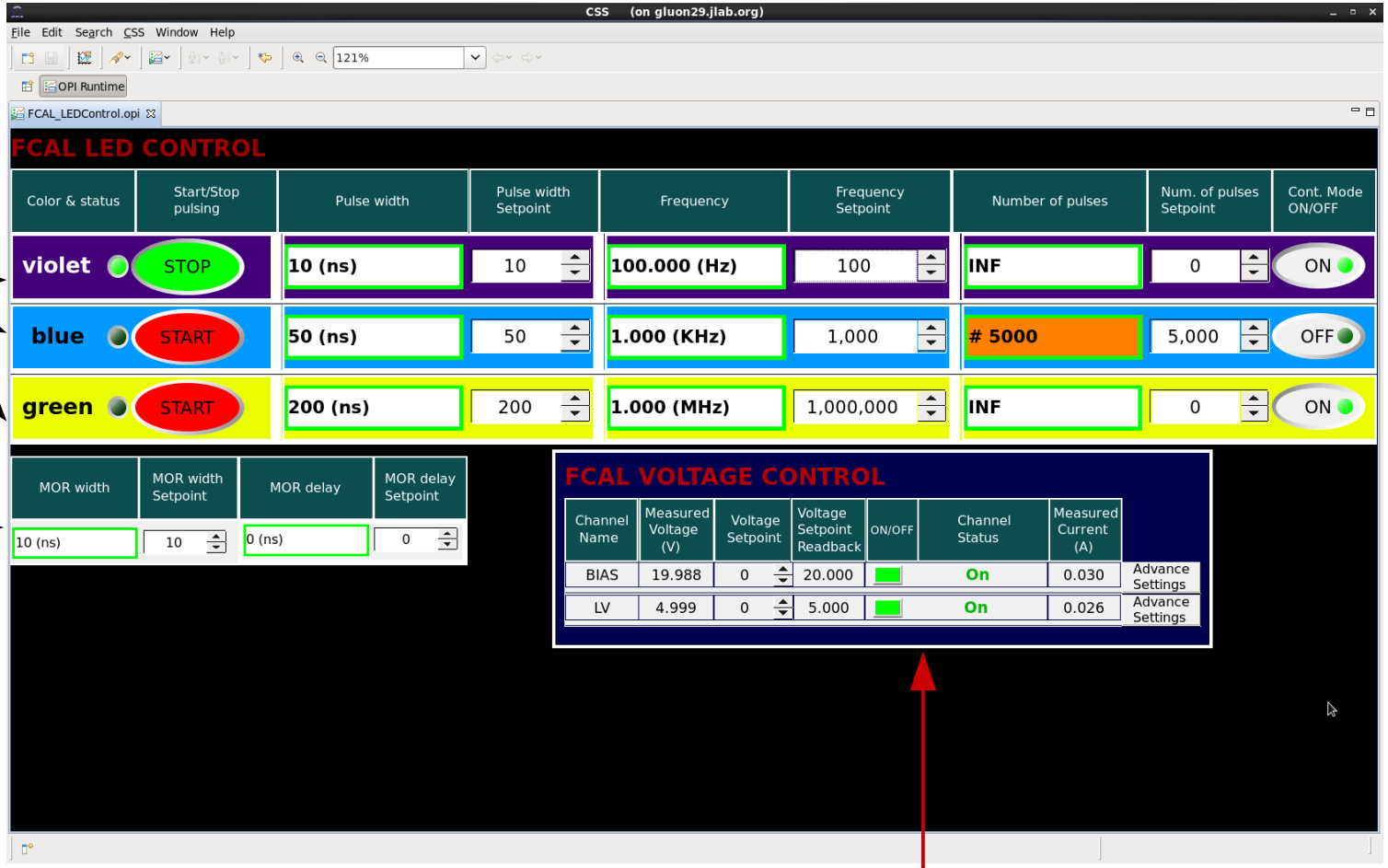
MOR control includes one row consisting of

- Pulse width control and monitoring.
  - Range 10 – 1000 ns
- Delay control and monitoring.
  - Range 0 – 40950 ns

Voltage control two rows, Bias and Low voltage.
Each row consist of:

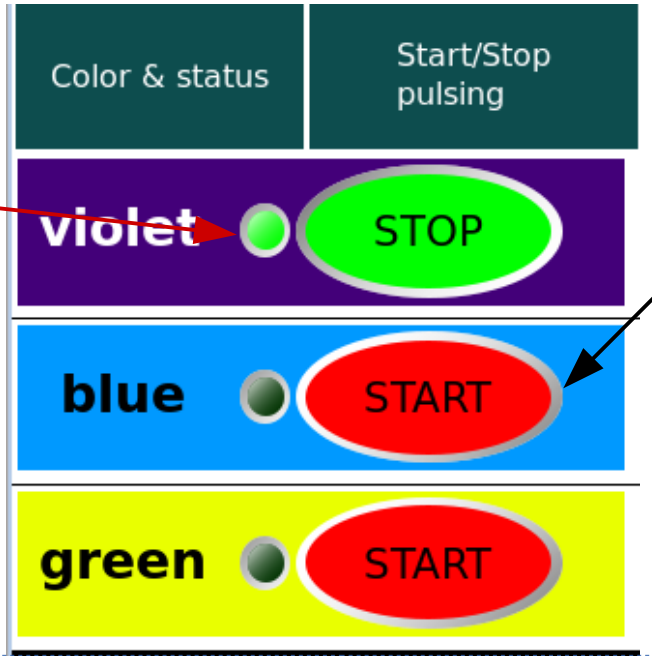
- Voltage control and monitoring.
  - Bias range 0 – 70 V
  - Low voltage range 0 – 8 V
- Current monitoring

Graphical user interface



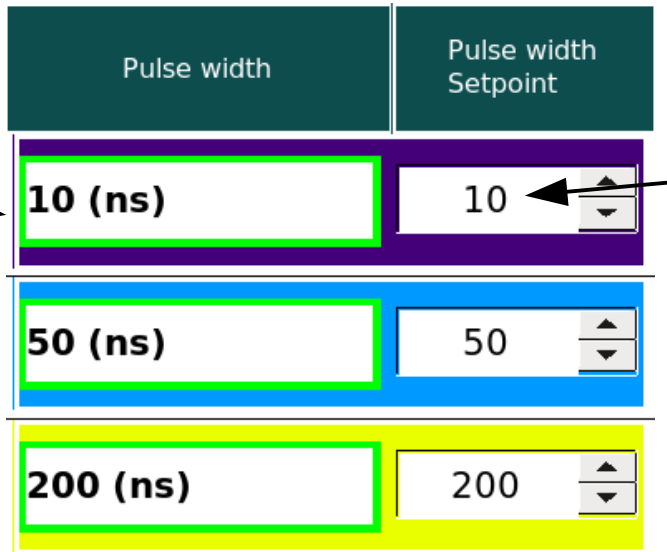
Description (1)

Status indicator.
Connected to
pulser channel
status.



Start/Stop Button

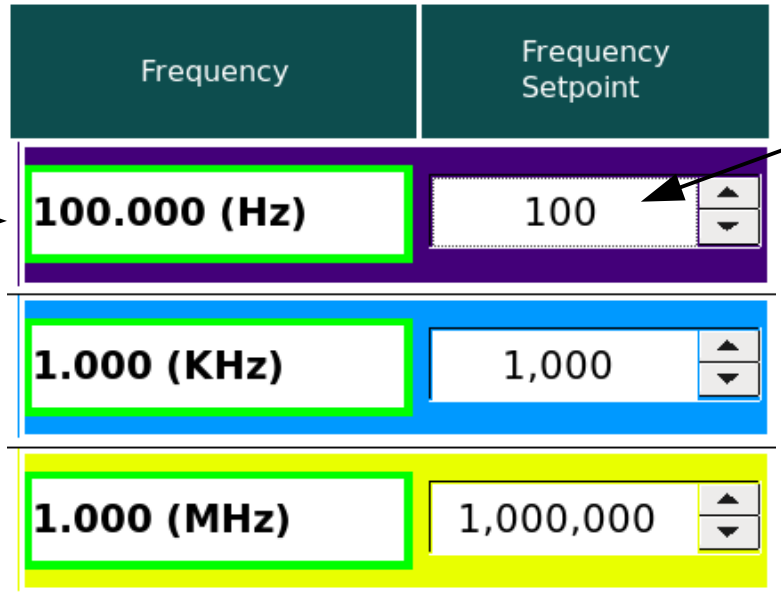
Monitoring.
Connected to pulser
register.



Setpoint.
Arrow keys step: 10 ns
Page keys: 100 ns

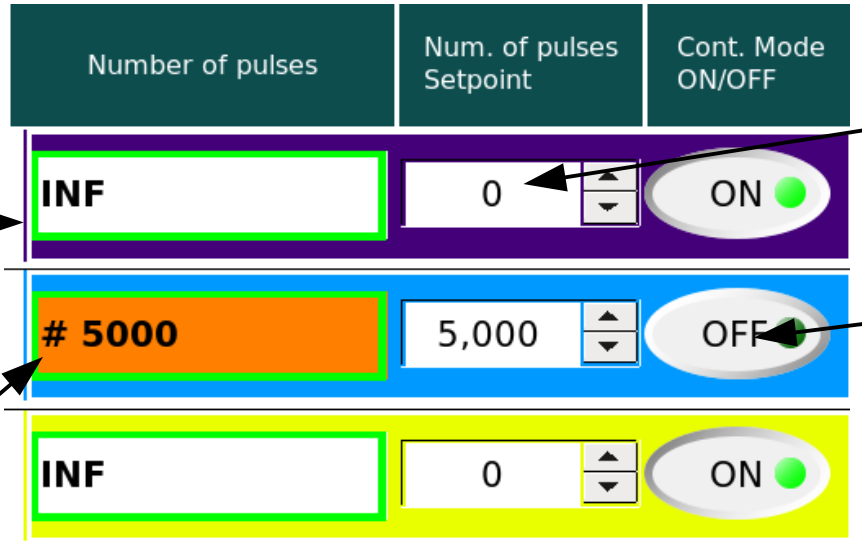
Description (2)

Monitoring.
Connected to pulser register.



Setpoint.
Arrow keys step: 100 Hz
Page keys: 10 KHz

Monitoring.
Connected to pulser register.
If continuous mode on “INF”

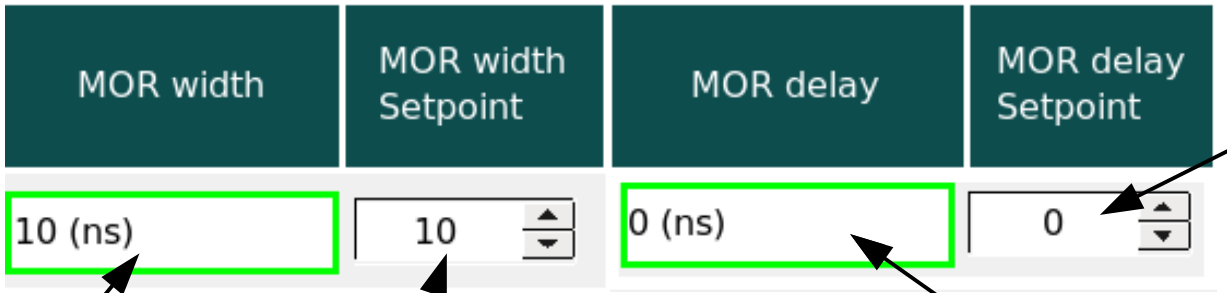


Setpoint.
Arrow keys step: 10
Page keys: 100

Continuous mode on/off

Box turn orange when continuous mode is off

Description (3)

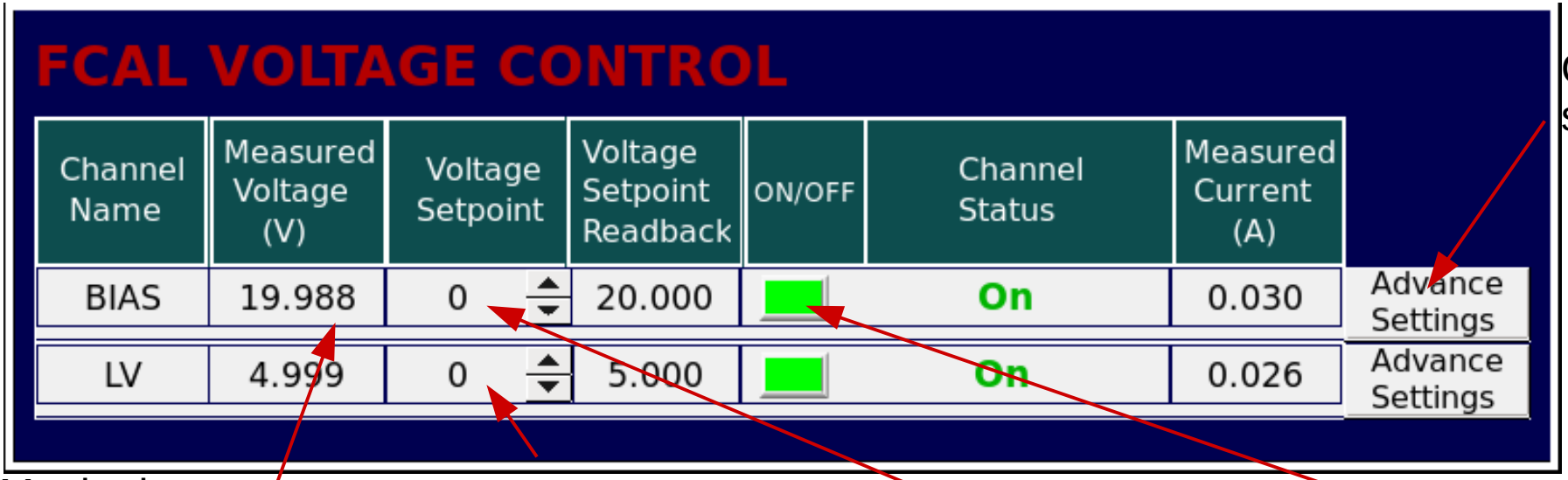


Setpoint.
Arrow keys step: 10 ns
Page keys step: 100 ns

Monitoring.
Connected to epics process variable .

Setpoint.
Arrow keys step: 10 ns
Page keys step: 100 ns

Monitoring.
Connected to pulser register.



Get Advance setting menu

Monitoring.
Connected to epics process variable

Setpoint.
Arrow keys step: 0.01 V
Page keys step: 0.1 V

Setpoint.
Arrow keys step: 1 V
Page keys step: 5 V

Voltage On/Off

Based on scripts of Vanik Kakoyan

Description (4)

Advance setting menu
for Bias Voltage. Similar
for Low Voltage

Channel Name	Crate Slot Channel #	Measured Voltage	Voltage Setpoint	Voltage Setpoint Readback	LV ON/OFF	Channel Status	Measured Current	Max Current Setpoint	Max Current Readback	Trip Current Setpoint	Trip Current Readback	Max Voltage Setpoint	Max Term Voltage Readback	Ramp Up Rate Setpoint	Ramp Up Rate Readback	Ramp Down Rate Setpoint	Ramp Down Rate Readback	Clear Events and Turn Off
BIAS	he:D2-5-MID:100	19.988	0	20.000		On	0.030	0	2.500	0	2.525	0	30.030	0	100	0	100	

Future Work

- This LED GUI can easily be modified to perform the BCAL tests.
- Questions and Suggestions...?