
Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM

Connector Pane

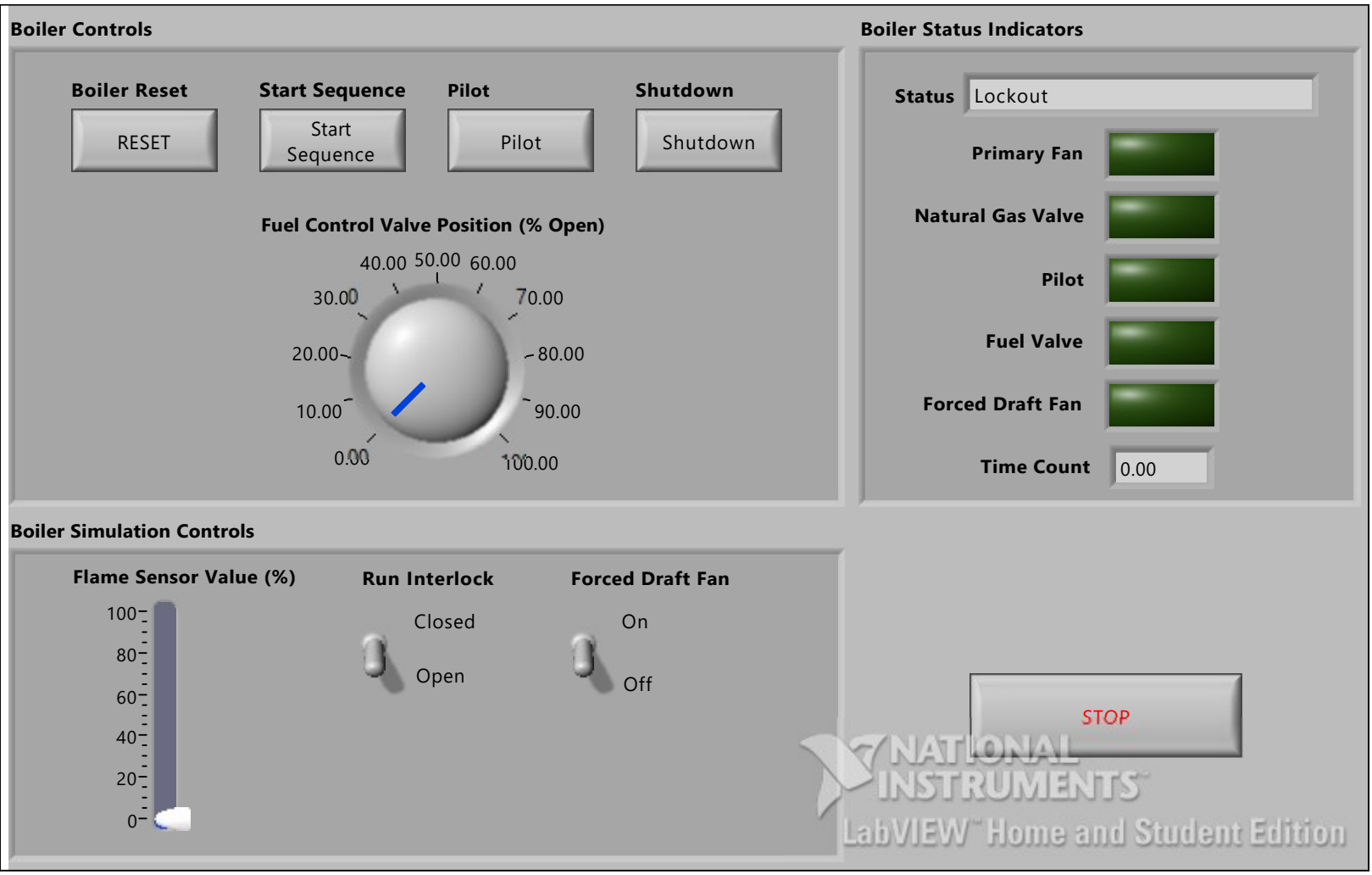
Boiler.vi

The VI "Boiler" is designed to simulate the operation of a boiler startup controller. This VI uses a state machine to control the states of its execution sequentially. Outside of the state machine are input variables that determine the maximum and minimum values required for events to take place as well the ability to name the event log file. Each state is indicated by the Boiler Status Indicators on the Front Panel and data collected from each state is written to the event log file. The states (with a short description of how to get to each state when applicable) are as follows and will repeat until the user presses STOP:

1) Reset Controls and Indicators
   If state 10 has been executed: Wait 10s (or inputted value) for Shutdown and Purge to complete
2) Start (Application Run)
3) Reset Lockout
   "Run Interlock" ON and
   "Boiler Reset" ON
4) Pre-Purge
   "Start Sequence" is ON
5) Pre-Purge (continued)
   Wait 10 s (or inputted value) for Pre-Purge to complete
6) Ignition (Ignite Pilot)
   "Pilot" is ON
7) Prove the Pilot
   Flame Sensor Value (%) > 30 (or inputted minimum value)
8) Start and Run
   Forced Draft Fan ON
9) Start and run (continued)
   Fuel Valve Position > 10 (or inputted minimum value)
10) Shutdown and Purge
   Run Interlock OFF or
   Forced Draft Fan OFF or
   Shutdown ON or
   Fuel Valve Position > 75 (or inputted maximum value) or
   Fuel Valve Position < 10 (or inputted minimum value)

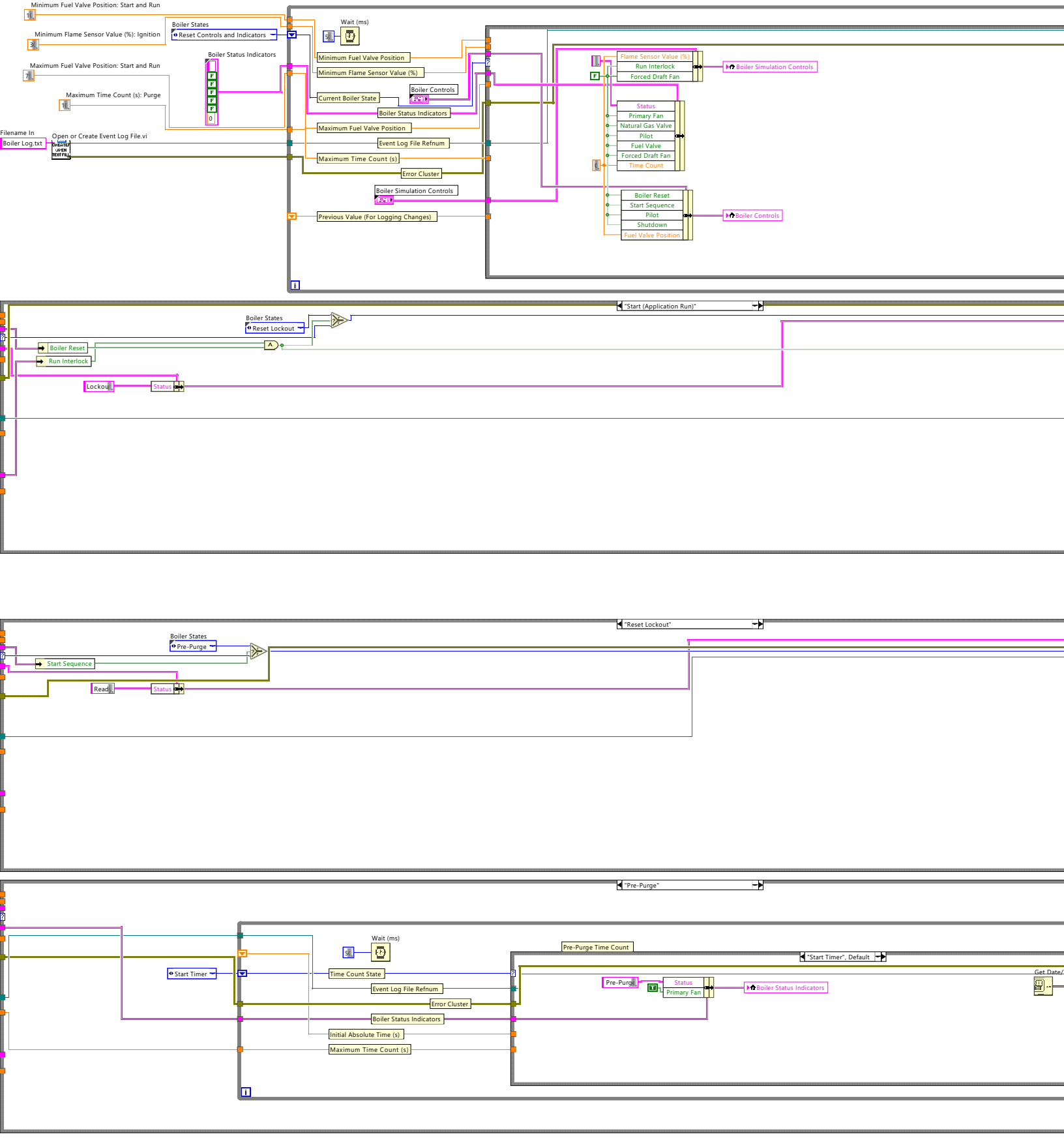
Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM

Front Panel

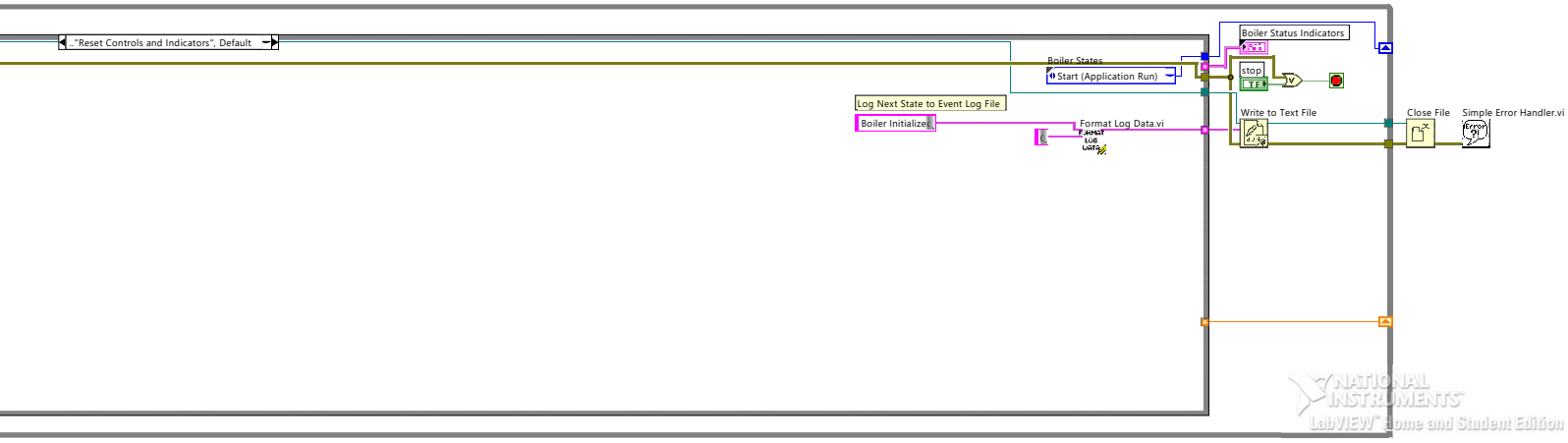


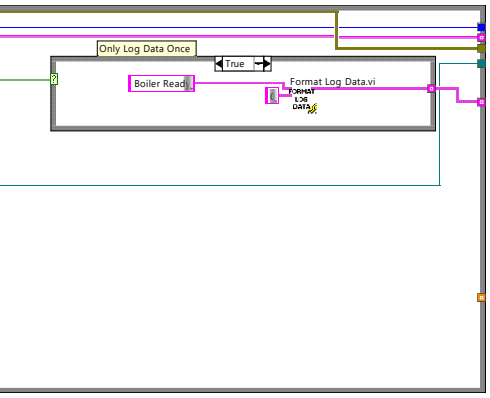
Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM

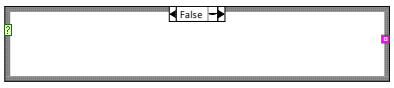
Block Diagram

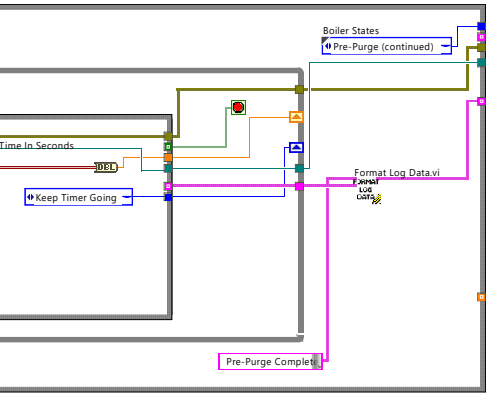


Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM

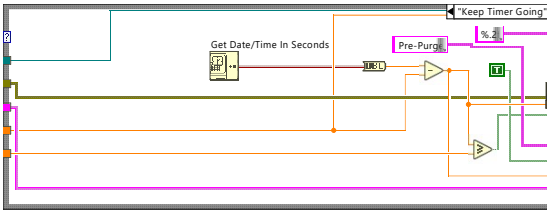


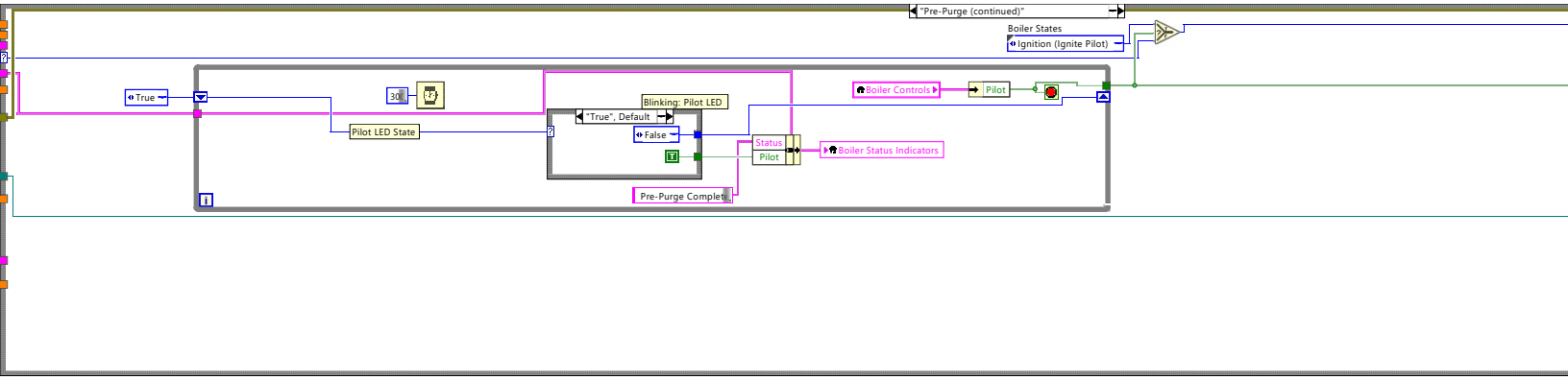


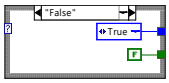


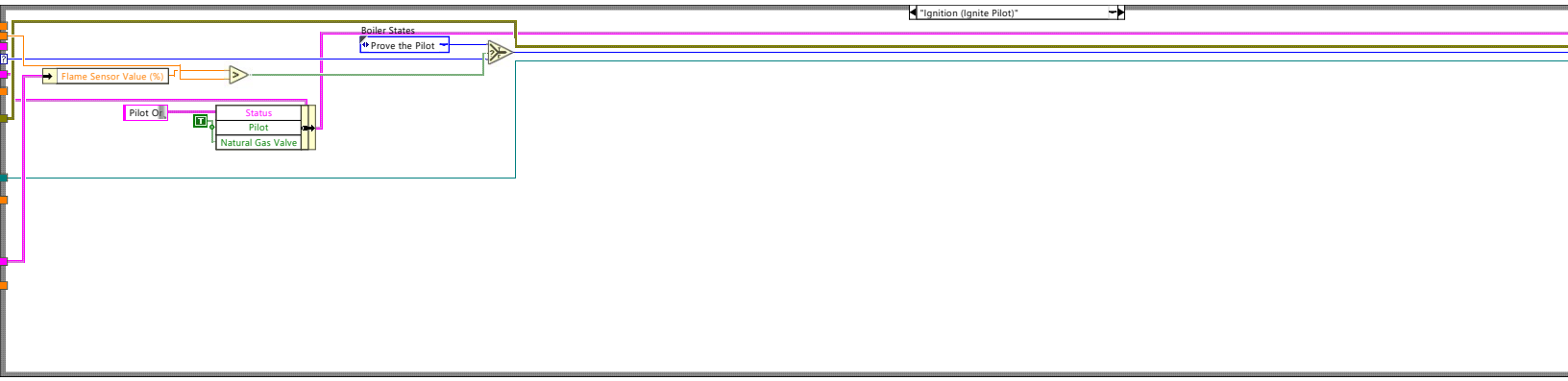


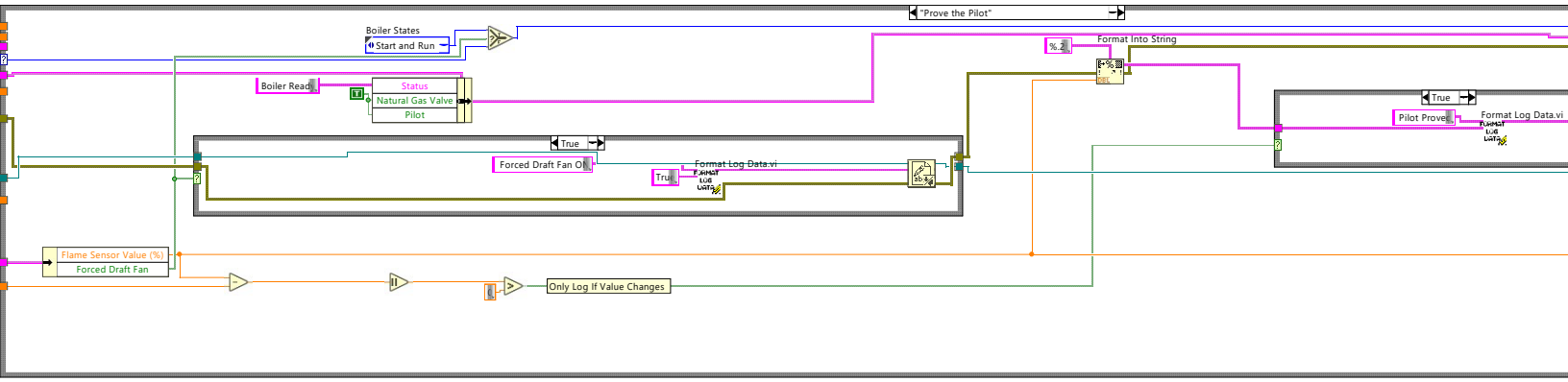
Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM

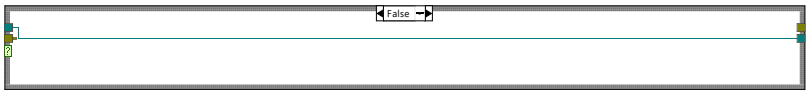




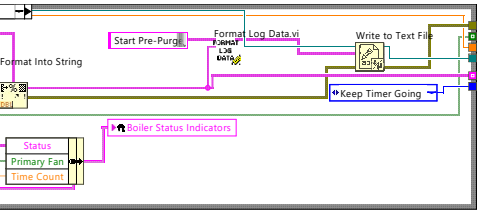


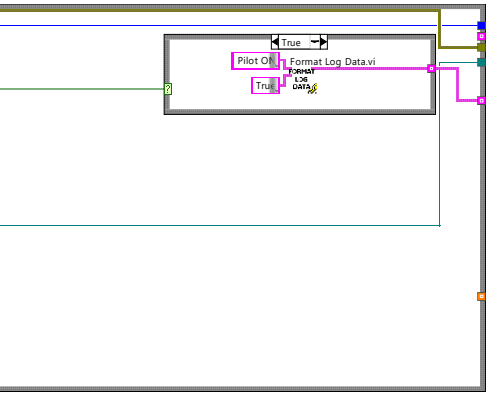


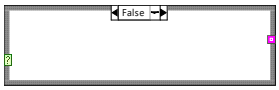


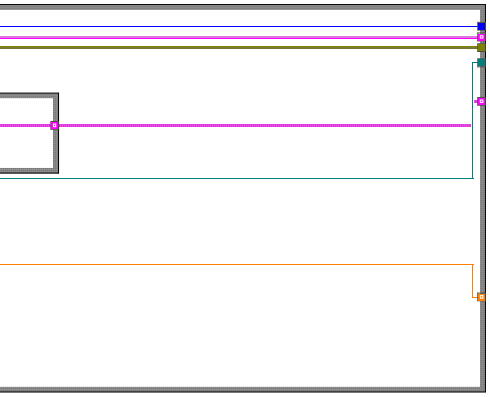


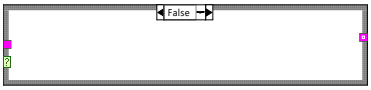
Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM



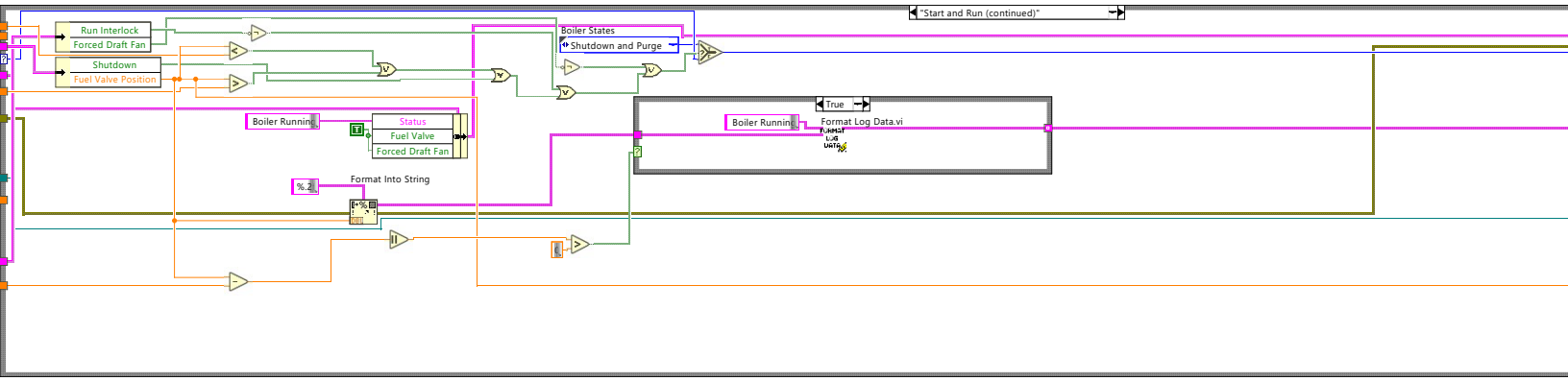


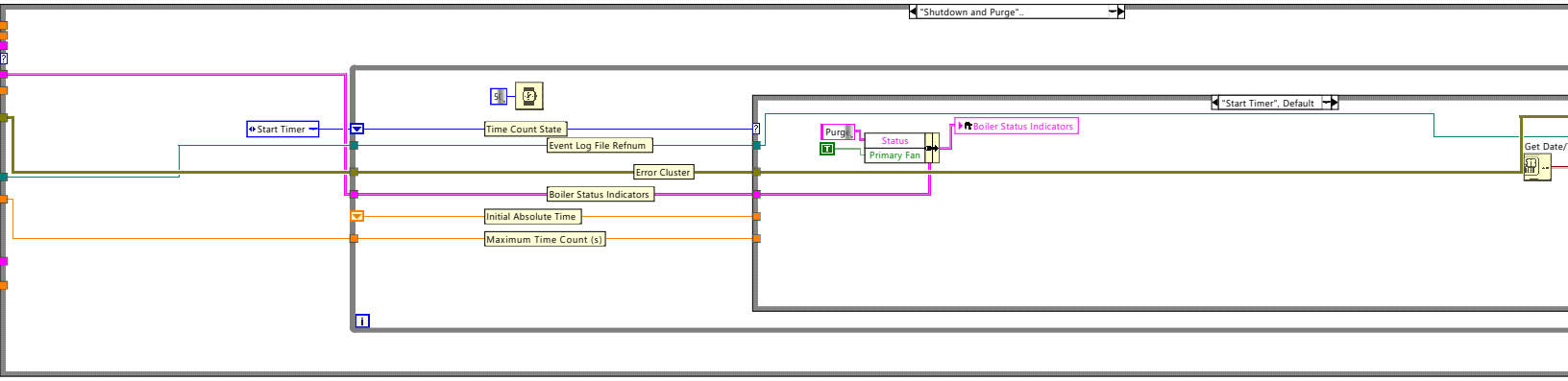


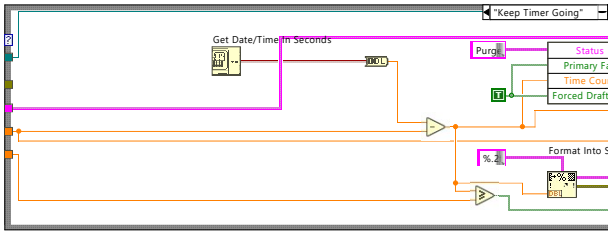




Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:48 PM







Boiler.vi
C:\Users\pfisc\Desktop\PHYS 580 Files\Project 1\LabVIEW Project\Boiler\Boiler.vi
Last modified on 10/6/2020 at 10:47 PM
Printed on 10/6/2020 at 10:49 PM