Outcome include:

1. **“Roboteq Controller KBL1xxx”** Labview driver
2. **“Pump Controller”** Labview 2017 examples and tests project

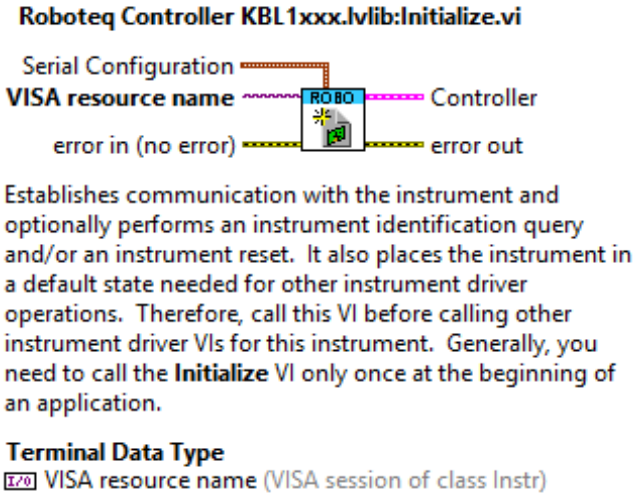
1 “Roboteq Controller KBL1xxx” Labview driver

Should be copying to Labview instrumentation driver’s folder.

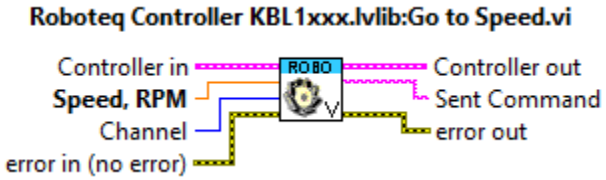
For example: *c:\Program Files (x86)\National Instruments\LabVIEW 2017\instr.lib*

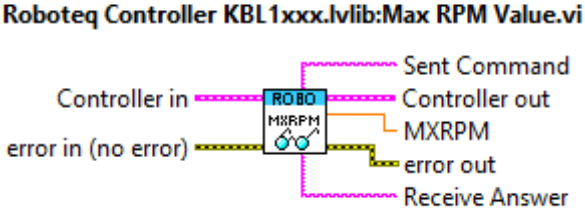
Workflow (common for all instrument Labview drivers):

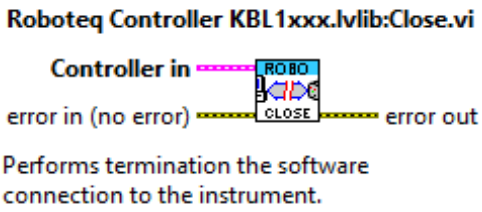
VISA Resource name → Initialize.vi → Controller.ctl (Type Def)



Using Controller “reference” execute commands and acquire parameters.







Driver features can be extended

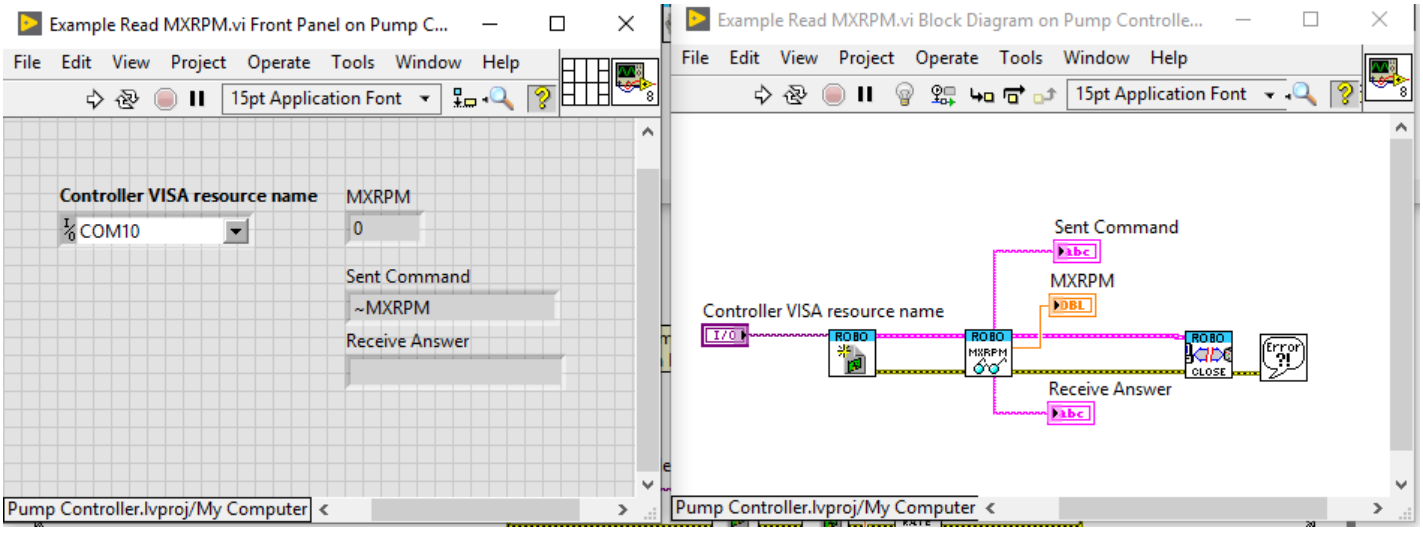
2 “Pump Controller” Labview 2017 examples and tests project

Include several Low and High level examples and tests VIs.

Example Read MXRPM.vi

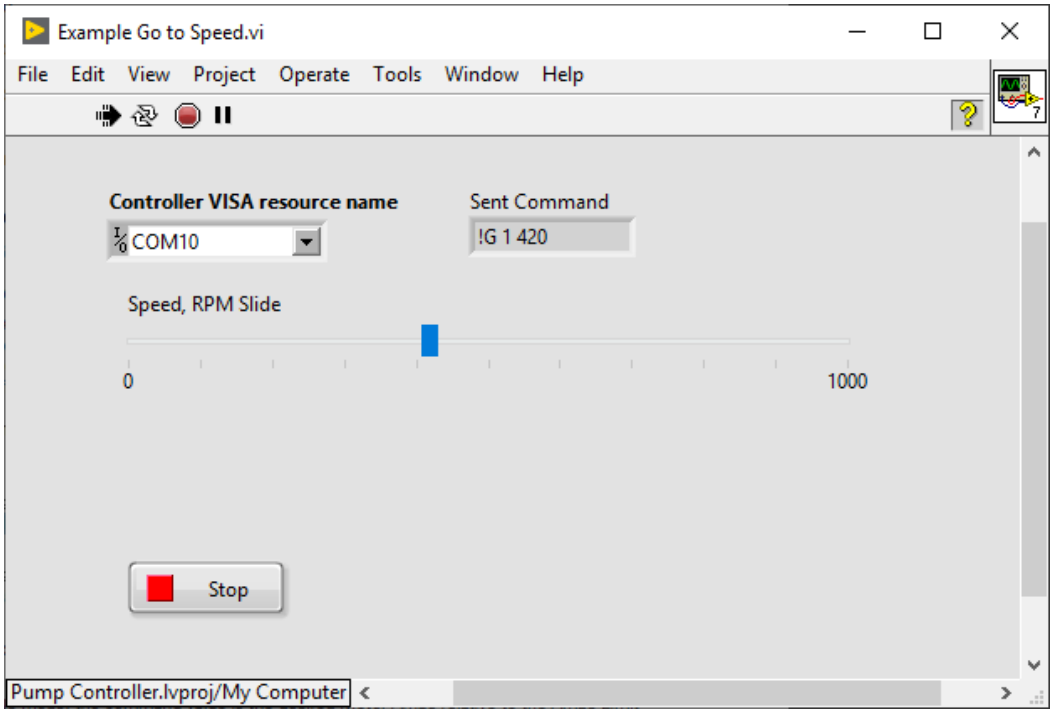
To use “G - Go to Speed” command in Closed Loop Speed mode it is necessary to know maximum speed that is stored in the MXRPM configuration parameter.

Please execute **Example Read MXRPM.vi** test VI, enter valid **Controller VISA resource name** and provide **Receive Answer** from controller.

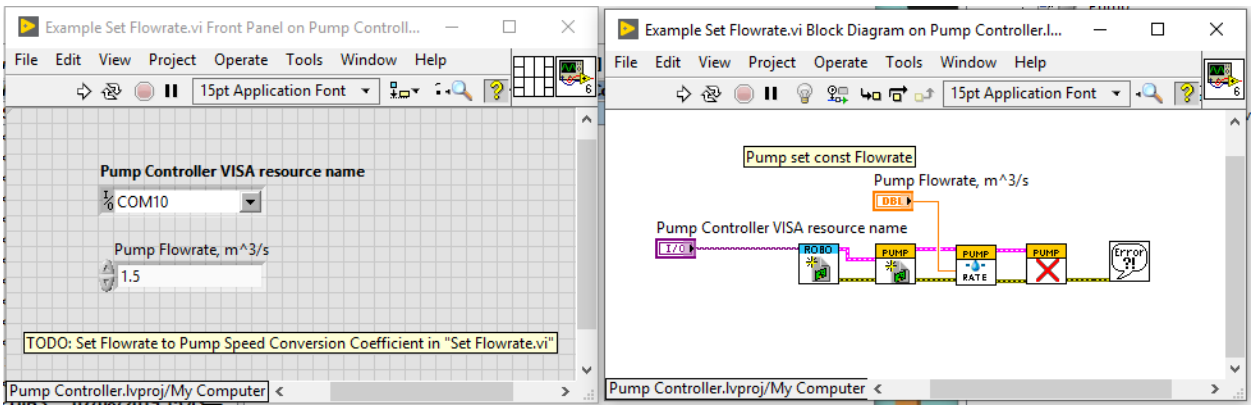


Example Go to Speed.vi

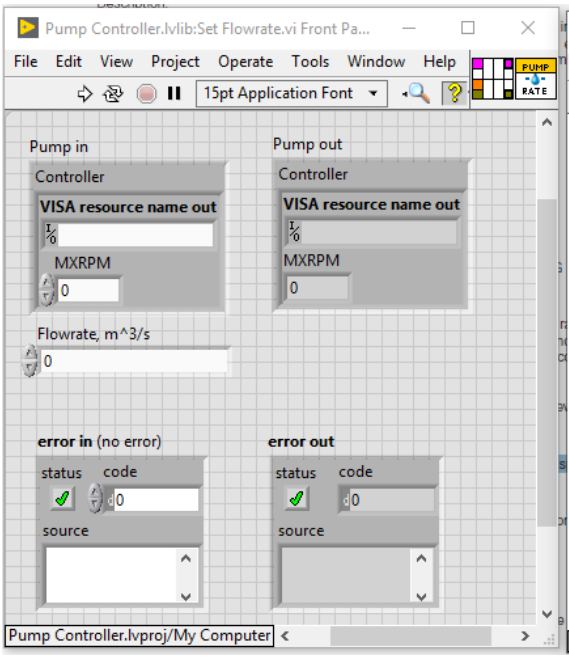
This example use **MXRPM=1000** (will be modified to read the real value)

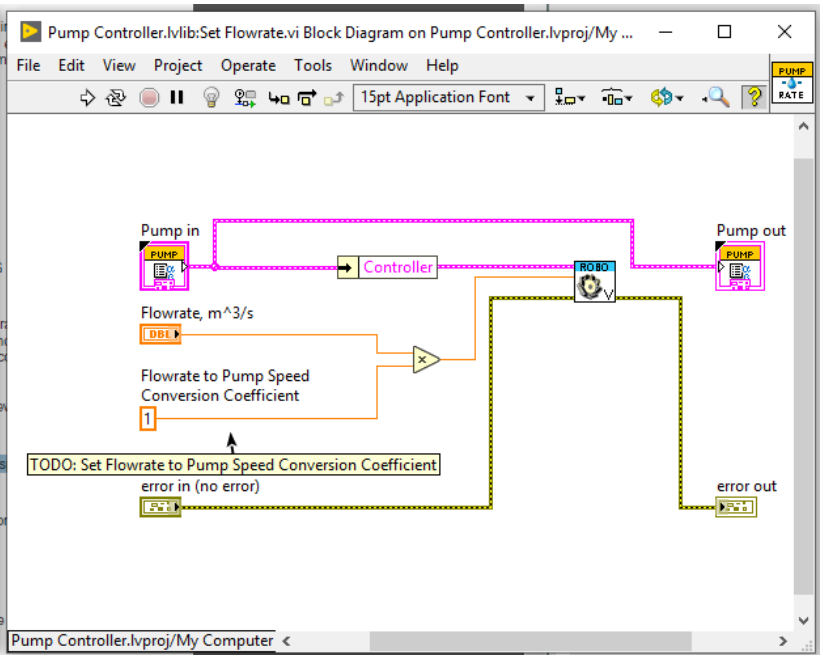


Example Set Flowrate.vi

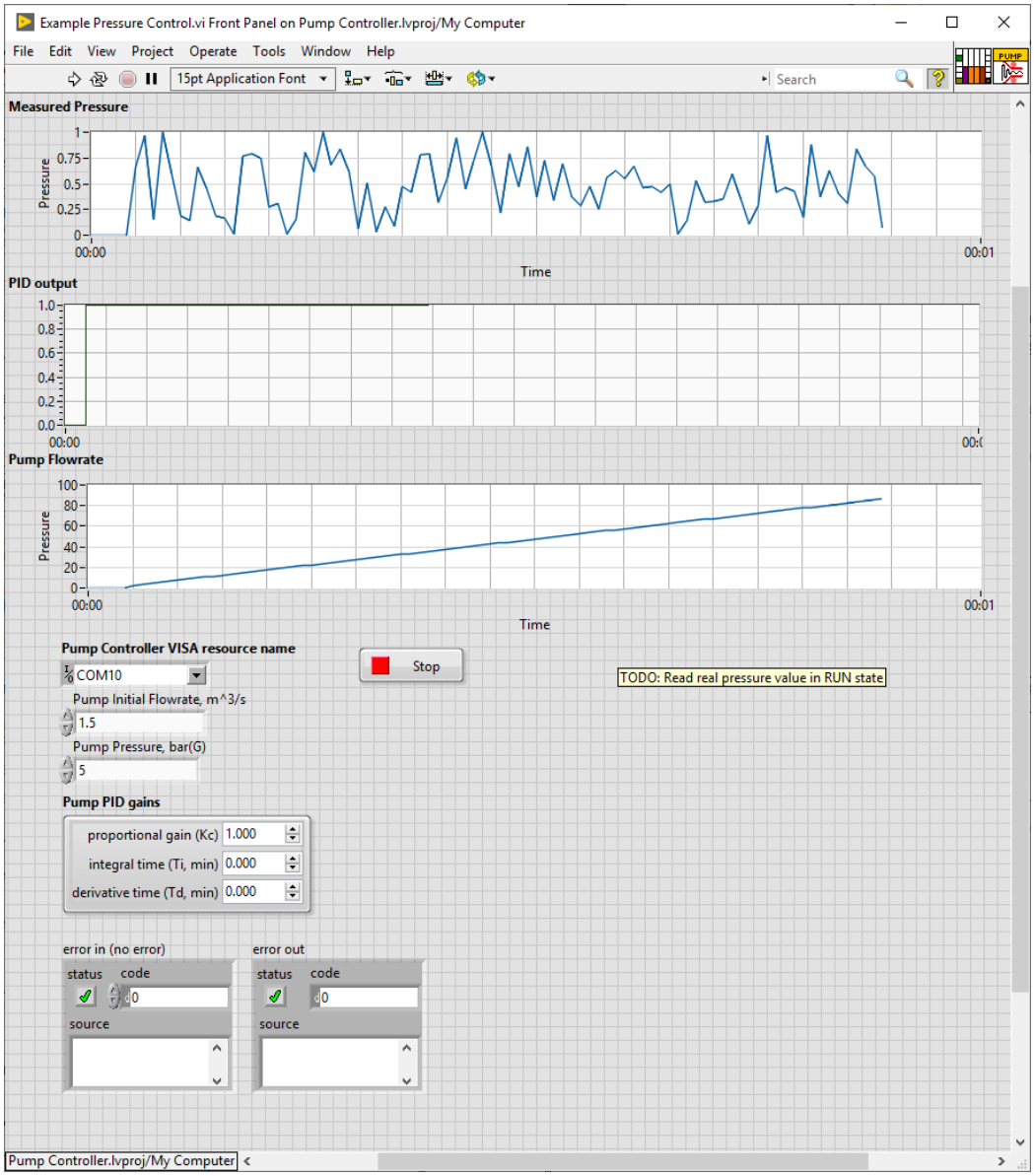


To test flowrate control it is need to set Flowrate to Pump Speed Conversion Coefficient in **Pump Controller.lvlib:Pump\Set Flowrate.vi** (see below)


Pump Controller.lvlib:Set Flowrate.vi Front Pa...
File Edit View Project Operate Tools Window Help
15pt Application Font
Pump in
Controller
VISA resource name out
MXRPM
0
Pump out
Controller
VISA resource name out
MXRPM
0
Flowrate, m^3/s
0
error in (no error)
status
code
0
source
error out
status
code
0
source
Pump Controller.lvproj/My Computer


Pump Controller.lvlib:Set Flowrate.vi Block Diagram on Pump Controller.lvproj/My ...
File Edit View Project Operate Tools Window Help
15pt Application Font
Pump in
Controller
Pump out
Flowrate, m^3/s
Flowrate to Pump Speed
Conversion Coefficient
1
TODO: Set Flowrate to Pump Speed Conversion Coefficient
error in (no error)
error out
Pump Controller.lvproj/My Computer

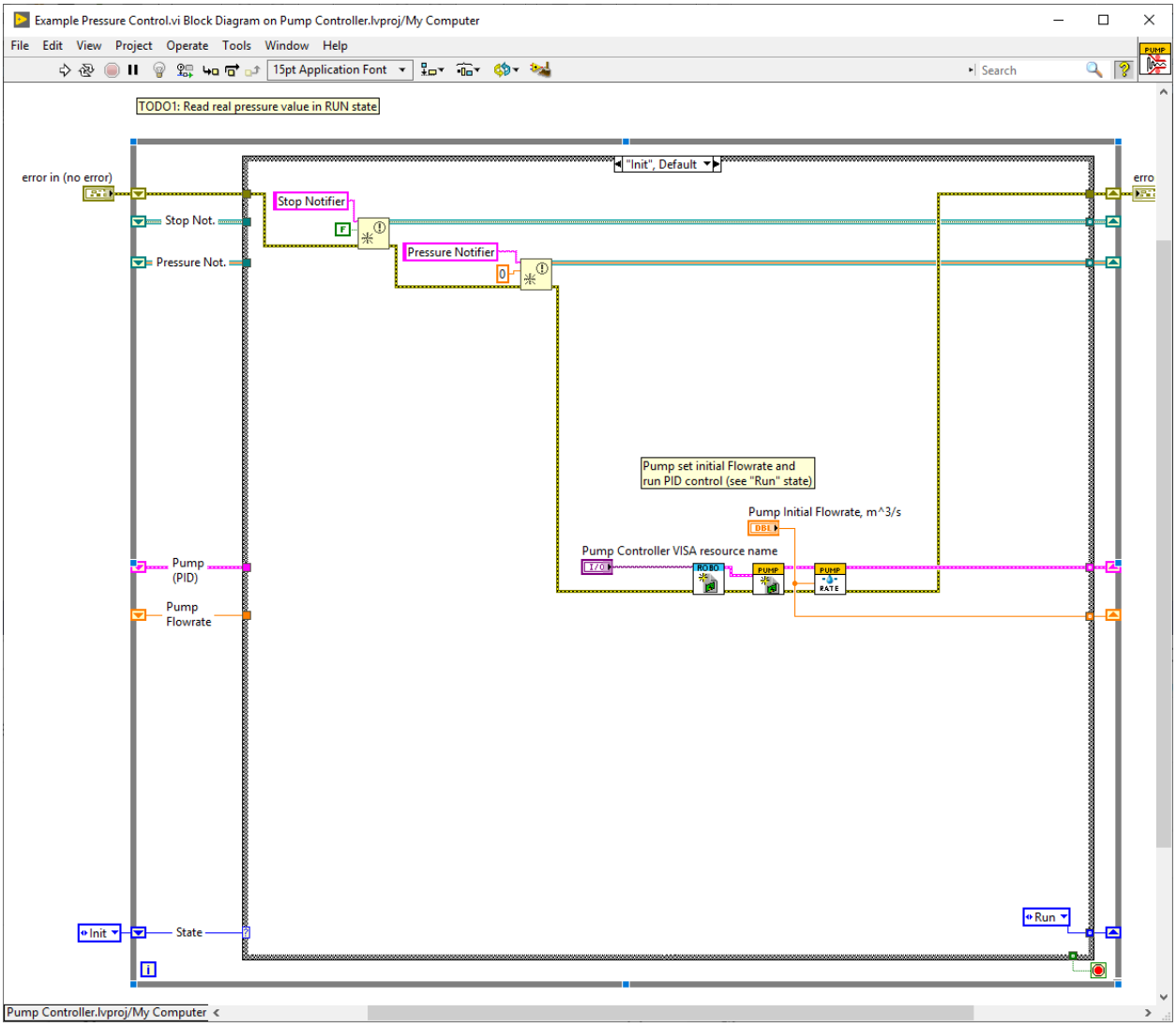
Example Pressure Control.vi



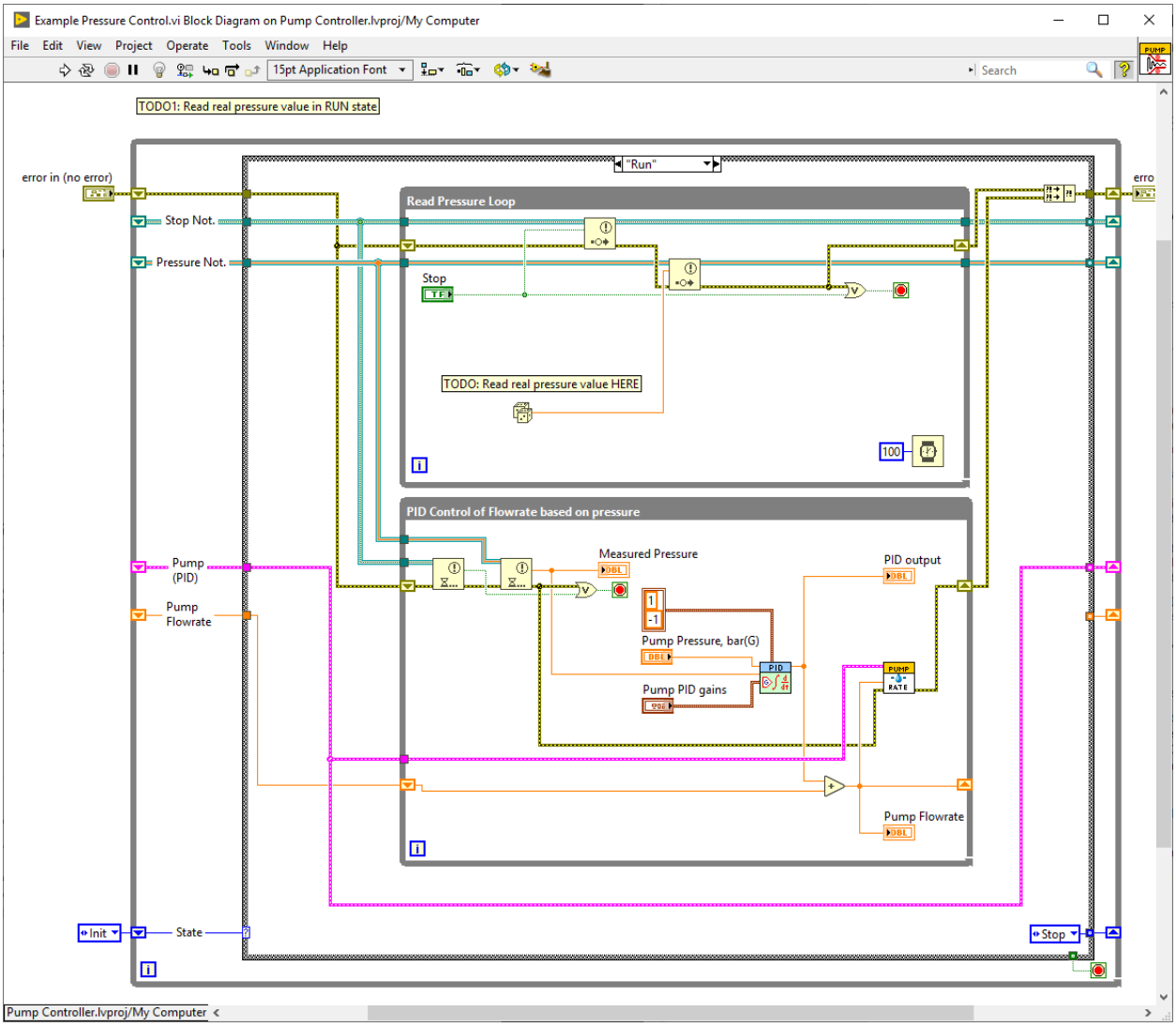
You need to select **Pump Controller VISA resource name**, enter **Pump Initial Flowrate, m^3/s** and required **Pump Pressure, bar(G)**. Change **Pump PID gains** if required.

Example works using State Machine pattern. There is thee states: Init, Run and Stop.

On **Init state** program creates Controller reference, Pump reference and sets initial flowrate value.



On **Run state** program perform pressure measurement (with pause) and control pump flowrate using PID.


Example Pressure Control.vi Block Diagram on Pump Controller.lvproj/My Computer
File Edit View Project Operate Tools Window Help
15pt Application Font
Search
TODO1: Read real pressure value in RUN state
error in (no error)
"Run"
Stop Not.
Pressure Not.
Read Pressure Loop
Stop
TODO: Read real pressure value HERE
100
PID Control of Flowrate based on pressure
Measured Pressure
PID output
Pump (PID)
Pump Flowrate
Pump Pressure, bar(G)
Pump PID gains
Pump Flowrate
Init
State
Stop
Pump Controller.lvproj/My Computer