Using Levitronix® PuraLev® Low Shear Single-Use Flow Controllers with a PendoTECH® TFF Process Control System

1. Connect the PendoTECH PDKT-LFC-TFF interface cable to the Circulation Pump output on the back panel of the TFF system. Connect the other end of the PDKT-LFC-TFF cable to the PLC input on the Levitronix PuraLev Flow Controller. Connect the PuraLev Flow Controller power supply to the PWR input.

Figure 1: PendoTECH PDKT-LFC-TFF interface cable.

Figure 2: Levitronix PuraLev Flow Controller power supply.

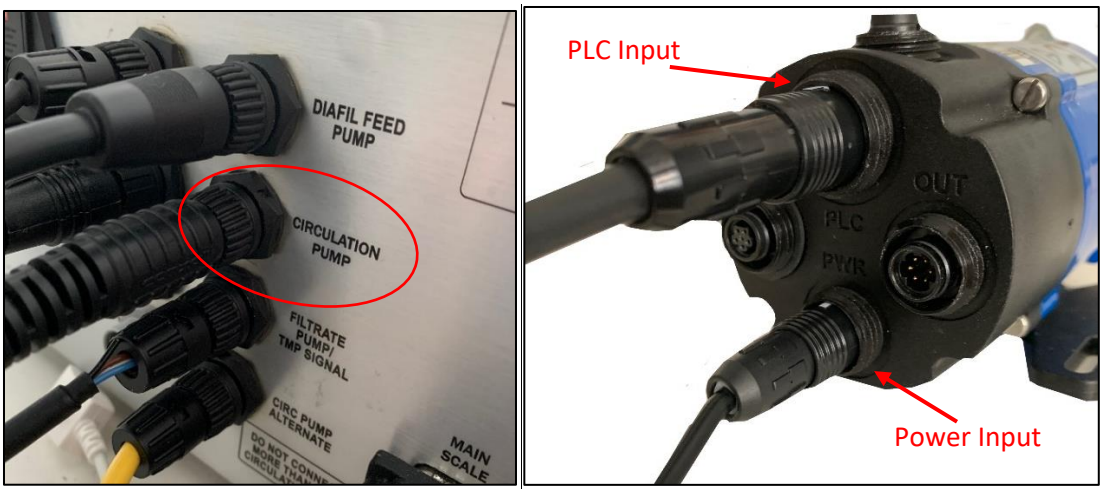

Figure 3/4: PDKT-LFC-TFF interface cable connected to PendoTECH TFF and Levitronix PuraLev Flow Controller.

2. Connect a LEVIFLOW® Single-Use Flow Sensor (Example PN: LFS-03SU-Z-F1) to the FLOW input on the PuraLev Flow Controller using the Levitronix interconnect cable (Example PN: ICS-1.1-01).

Figure 5: Levitronix ICS-1.1-01 interconnect cable.

Figure 6: LEVIFLOW SU Flow Sensor integrated to PuraLev Flow Controller.

3. A second external pump, such as a peristaltic pump, is required to prime the PuraLev Flow Controller. With the single use pump head installed in the Flow Controller, prime the system until both the pump head and the integrated flow sensor are fully purged of air. For additional guidance on priming the PuraLev Flow Controller, refer to the following instructional video from Levitronix: Design Guideline: Priming With Peristaltic Pumps - Levitronix
4. Once the system is fully primed, stop the pump. Ensure there are no air bubbles in the Flow Controller pump head or LEVIFLOW sensor. At zero flow rate, press the white button on the PDKT-LFC-TFF interface cable. This button is used to tare the integrated flow sensor which ensures accurate flow control. Wait approximately 10 seconds after pressing the white for the taring process to complete.
5. The PuraLev Flow Controller is a centrifugal pump; therefore, its maximum flowrate is dependent on the process pressure. Refer to the PuraLev iF30SU and iF100SU pressure/flow curves below to determine the appropriate maximum flowrate for your process.

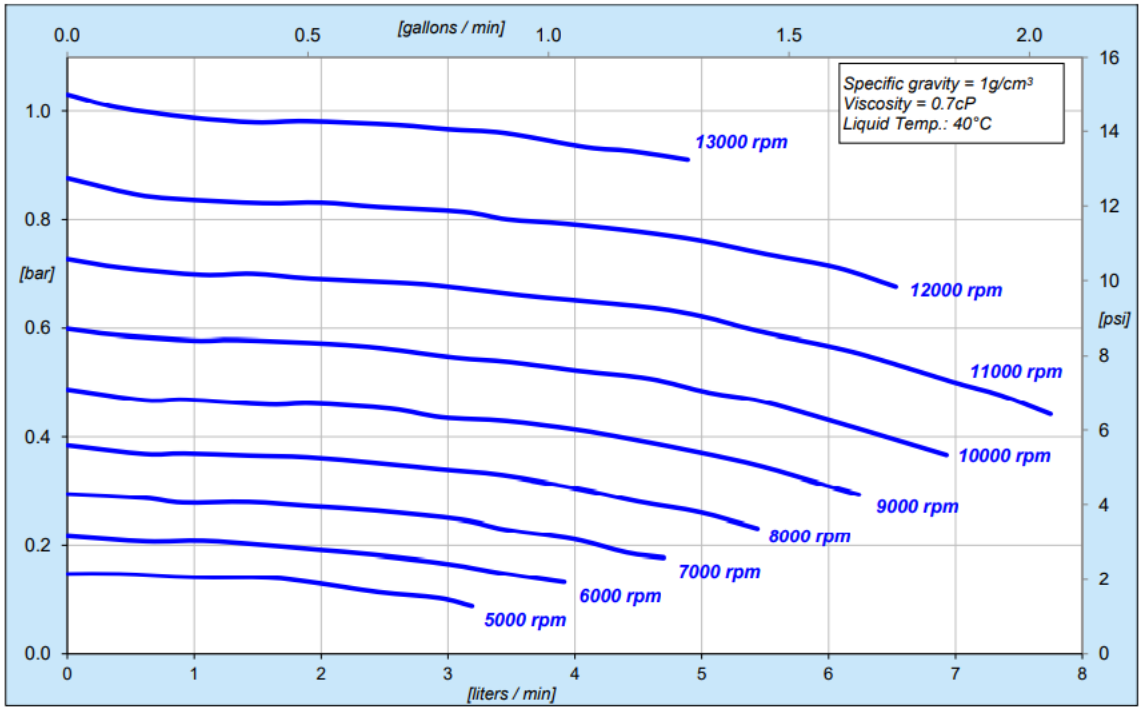

*Figure 7: Pressure/flow rate curves for **PuraLev iF30SU** Flow Controller.*

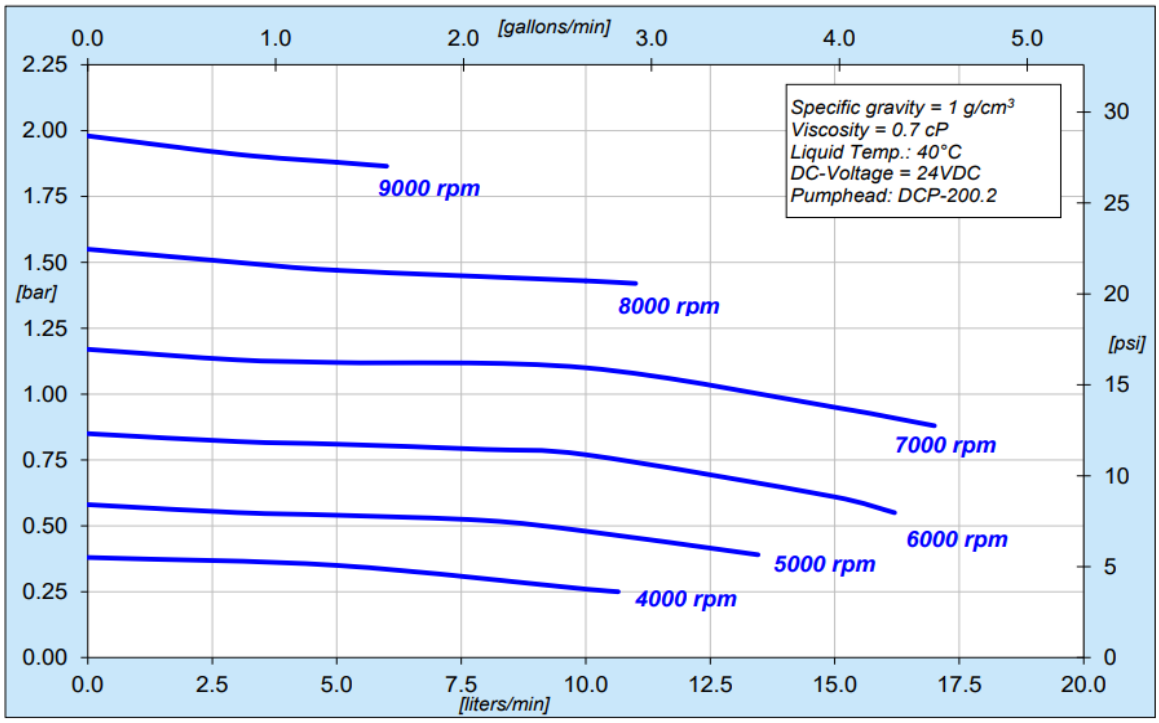

*Figure 8: Pressure/flow rate curves for **PuraLev iF100SU** Flow Controller.*

6. After determining the maximum flowrate based on the back pressure from the graphs above, divide the maximum flowrate by the maximum RPM for the pump model and multiply by 1000 to get the mL/rot (**NOTE:** The PendoTECH TFF system will not control RPM directly, but will instead send the desired flowrate to the pump). Enter the maximum RPM and mL/rot for the Circulation Pump in the Maintenance View tab of the PendoTECH TFF software.

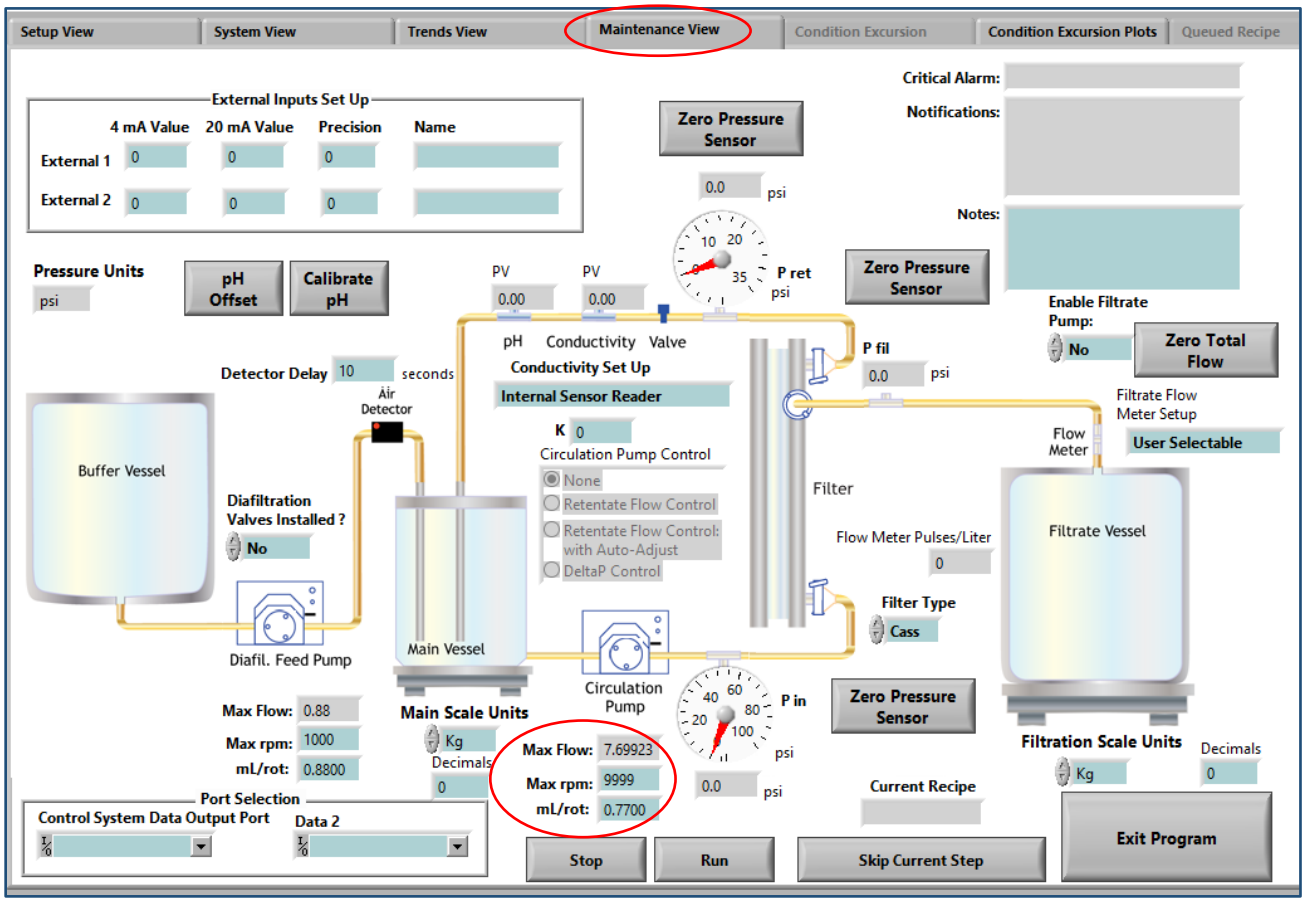

Figure 9: PendoTECH TFF Software Maintenance View circulation pump settings.

7. In the System View tab of the TFF software, enter the Circulation Pump flow rate set point. The integrated flow sensor on the PuraLev Flow Controller will work to maintain this set point while the pump is running.

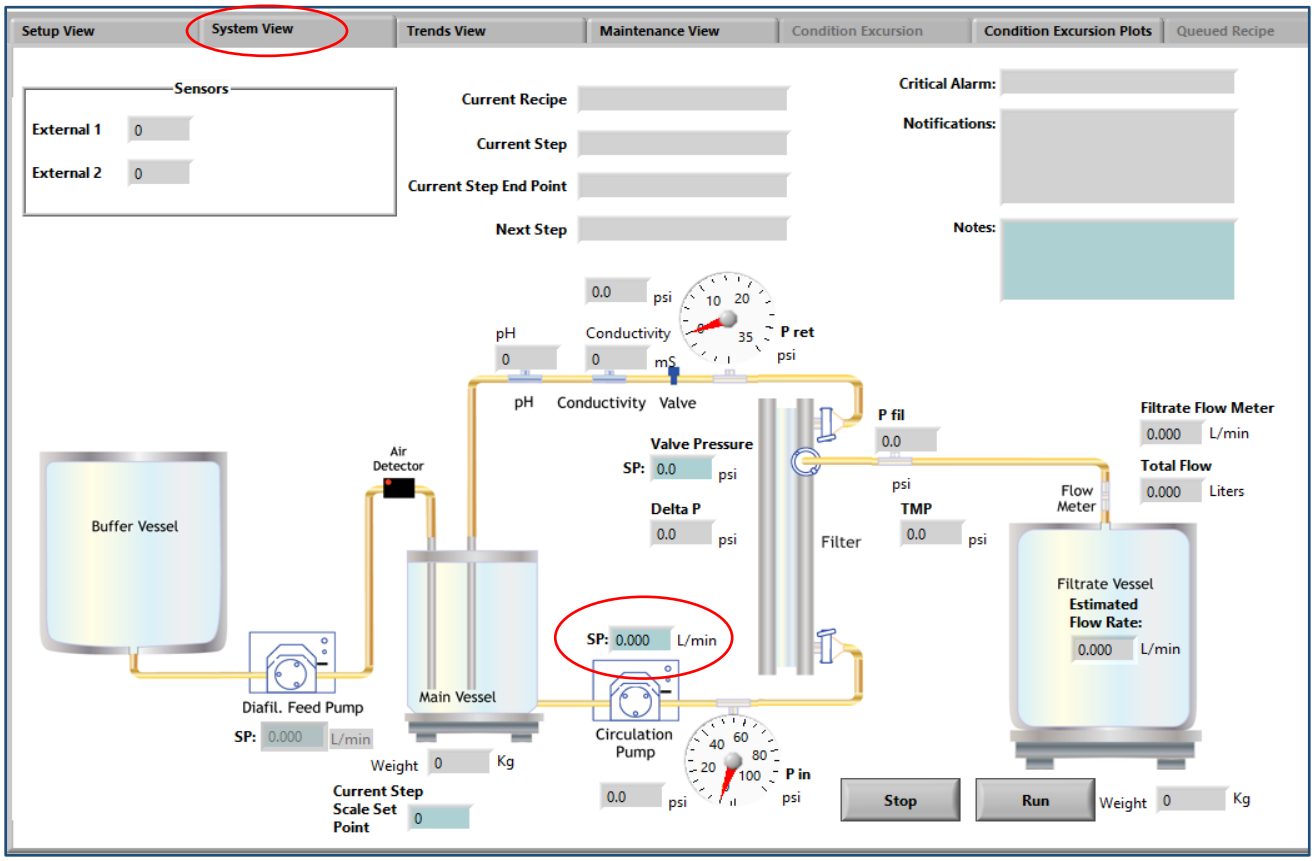

Figure 10: PendoTECH TFF Software System View circulation pump flow rate set point.

For additional information on the PendoTECH TFF Process Control System, refer to the PendoTECH product page: [PendoTECH Cross Flow Filtration TFF System - PendoTECH]

For additional information on the Levitronix PuraLev Flow Controllers, refer to the Levitronix product page: [Bioprocessing Flow Controllers Archives - Levitronix]