APS Firmware Update

Work Instructions

Izon Science Ltd

1. Connect the USB cables to the accompanying PC and power the Exoid on.
2. Open the APSTester app in the following location:

C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Izon\ECS\Exoid Control Suite

3. The device should automatically connect to an assigned COM port number, if this is the case, please proceed to step 4. If the device does NOT automatically connect to a COM port, select the appropriate COM number that corresponds to 'Izon APS' from the 'Port' drop-down list, followed by 'Connect'.
   a. To check which COM port number corresponds to the 'Izon APS', the Device Manager can be used.
   b. Open the Device Manager from the Control Panel and select 'Ports (COM & LPT)'. Right-click on one of the 'USB Serial Device (COMXX)' and select 'Properties'.
   c. Go to the 'Details' tab and from the 'Property' drop-down list, select 'Bus reported device description', as shown in figure 1.
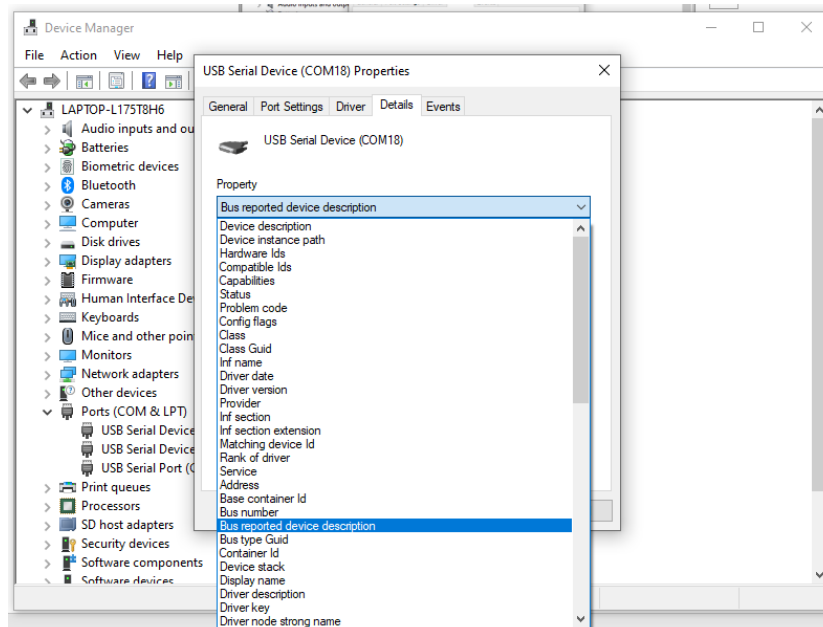

Figure 1: Identifying the 'Bus reported device description' on COM port properties

d. The Value should read 'Izon APS' for the APS, as shown in figure 2. Make note of the COM number associated with the APS as you will need it to select from the Port list on the APSTester.
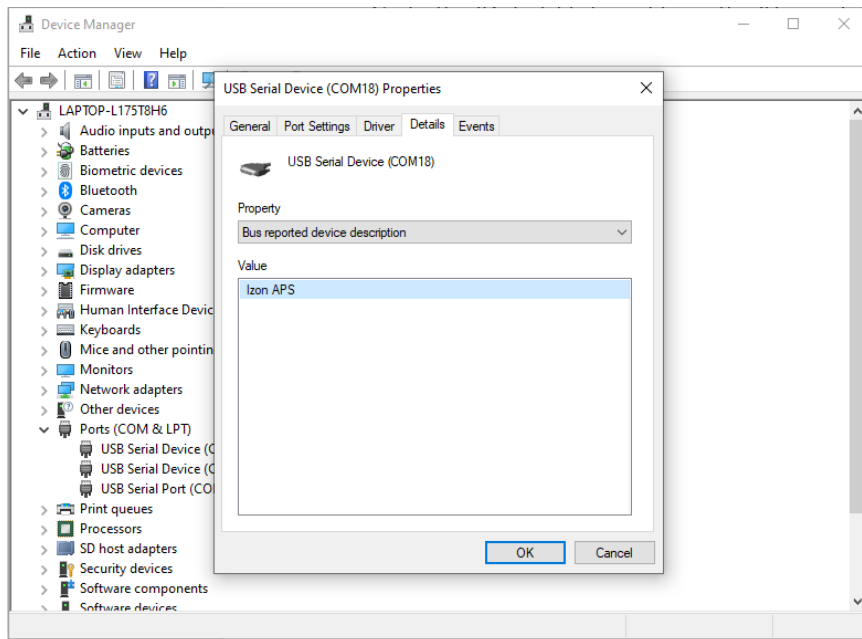

Figure 2: 'Bus reported device description' noted as 'Izon APS'.

4. Ensure the instrument has finished calibrating before you upload the new firmware. This is indicated by the APS being in 'Standby' Mode indicated in figure 3.
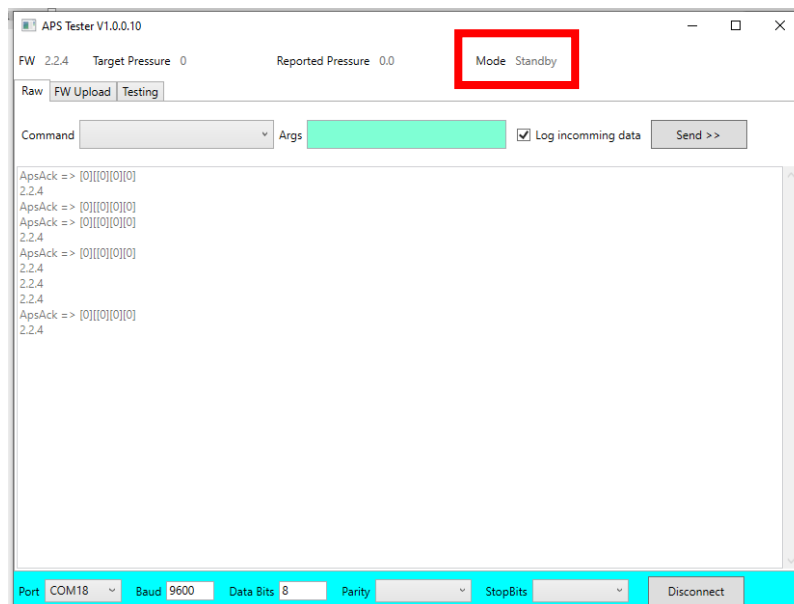

Figure 3: APS in 'Standby' mode.

5. Once the correct COM port number is connected to the APSTester, select the 'FW Upload' tab indicated in figure 4a. Use the grey square containing '…' to select the 'ExoidAPSFirmware_CBv1.1_2.4.57.bin' file and press 'Upload', as shown in figure 4b.
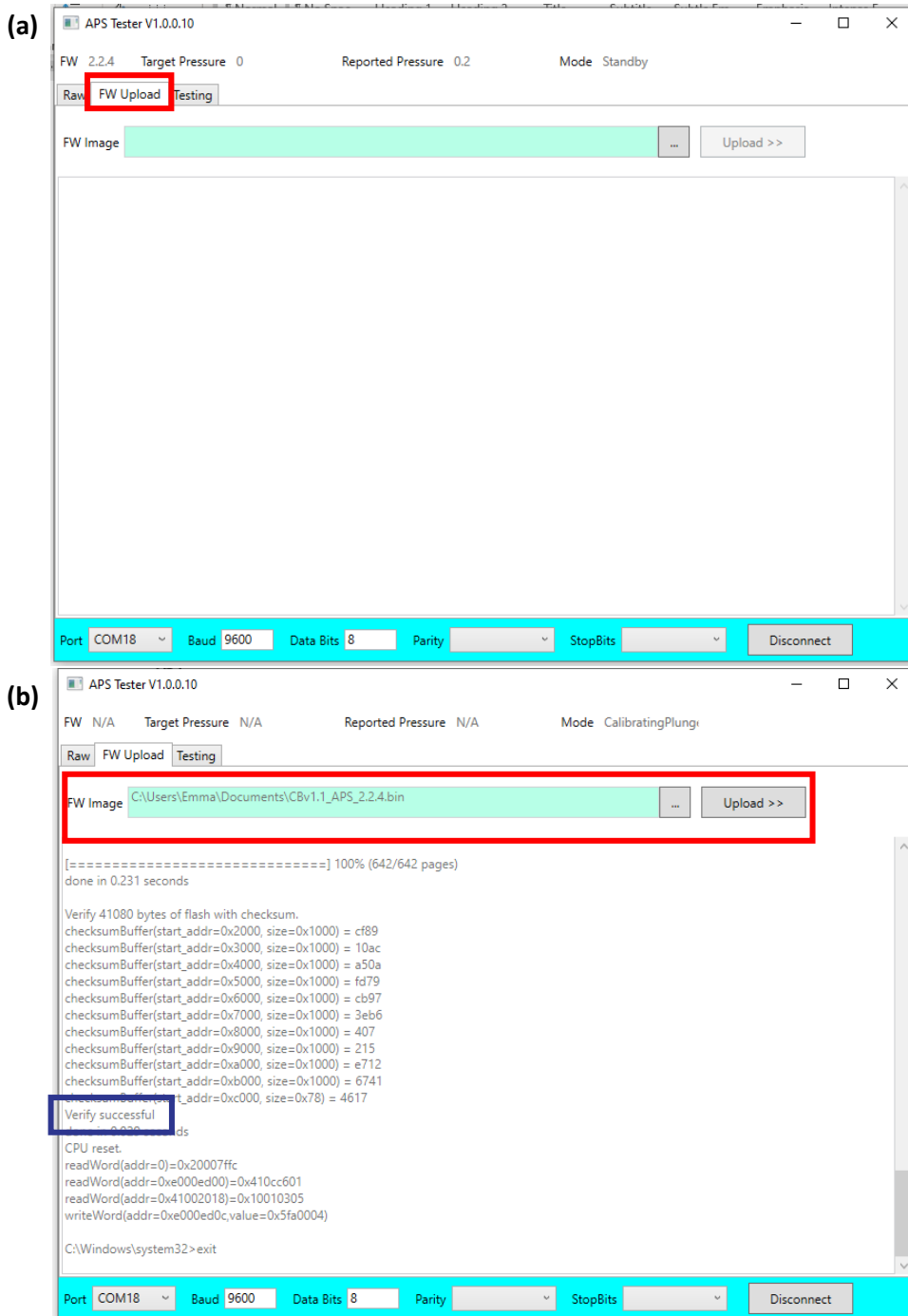
Figure 4: (a) FW Upload tab (b) .bin file selected and uploaded successfully. Please note the screenshot may not represent the binary file mentioned in step 5.

6. Once the upload is complete, text will appear in the dialogue box. Scroll down until you can see 'Verify successful', indicated by the blue square in figure 4b. This indicates the .bin file has uploaded correctly.

7. The APS will then calibrate automatically, wait for this process to finish and check the Reported Pressure is fluctuating around zero.

8. If it isn't already, insert the pressure nozzle into the upper fluid cell and power cycle the instrument (unplug or switch off the Exoid and power back on). Wait

until the Mode has switched from 'CalibratingPlung' to 'Standby', shown in figure 5a and 5b respectively.
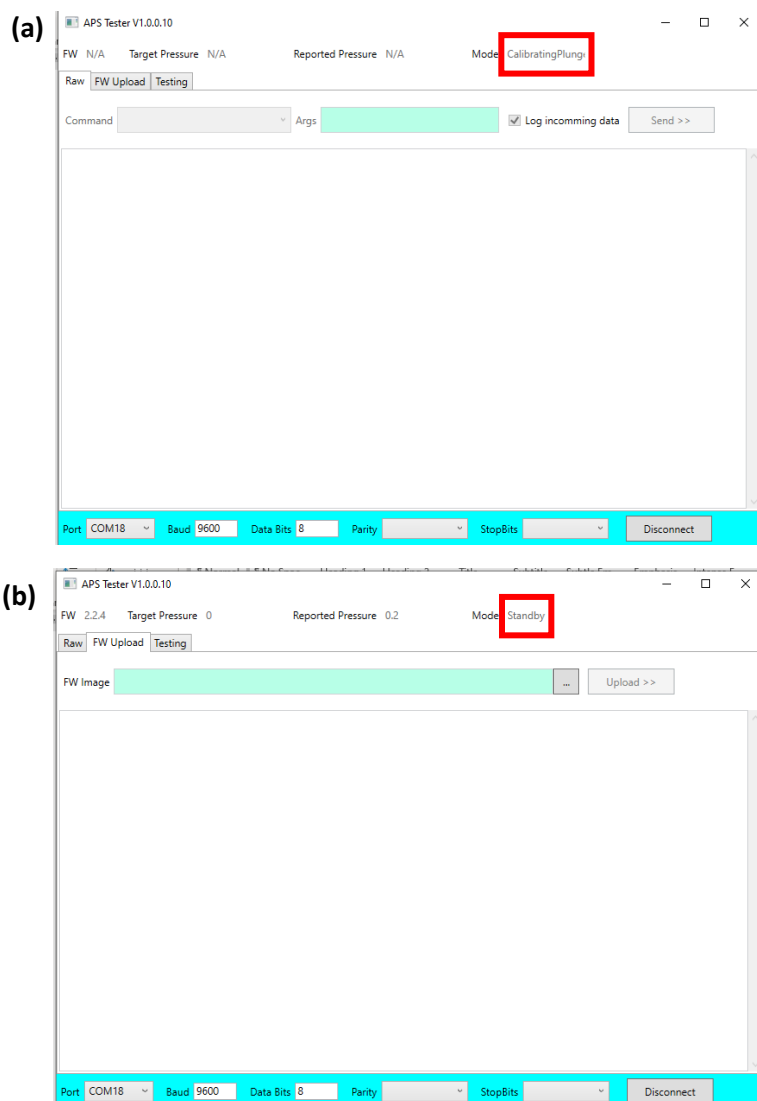

Figure 5: (a) APS calibrating in 'CalibratingPlung' mode and (b) APS in 'Standby' mode.

9. Restart the Exoid (this will restart the APS) and make sure the pressure nozzle is sealed. Simply inserting the pressure nozzle into the upper fluid cell when there is no nanopore or fluid in the upper fluid cell will not make a seal. The pressure nozzle should be sealed until the APS calibration is complete, this is indicated by the Mode switching from 'CalibratingPlung' to 'Standby', shown in figure 5a and 5b respectively.
10. In the 'Raw' tab, select 'ReportApsStatus' from the 'Command' drop-down list, as shown in figure 6 and press 'Send'.
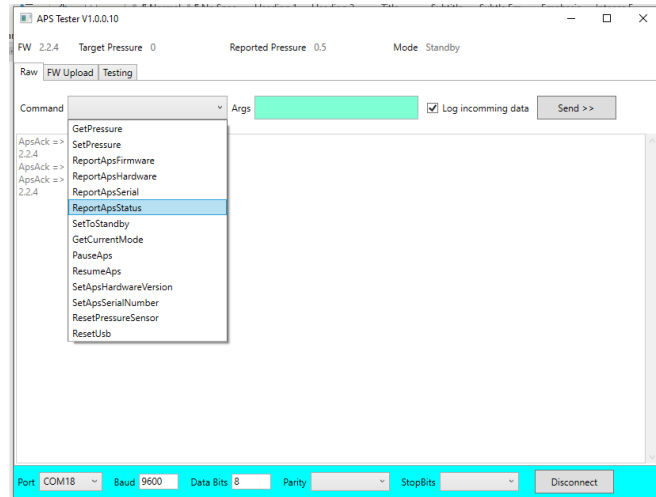
Figure 6: 'ReportApsStatus' function from the 'Command' drop-down list.

11. Check the status report reports as 'ApsAck = › [0][[0][0][0]', as shown in figure 7. This indicates the APS valve is working correctly. If you see [1024] in any of the 4 square brackets, contact Izon for support.
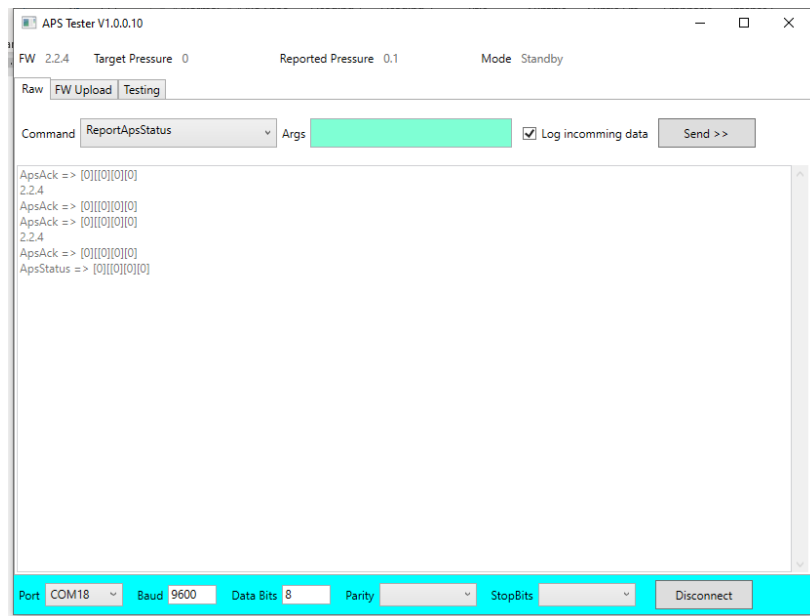

Figure 7: APS status report.

12. The APS firmware has now been successfully updated and verified.

Rev A