

Background

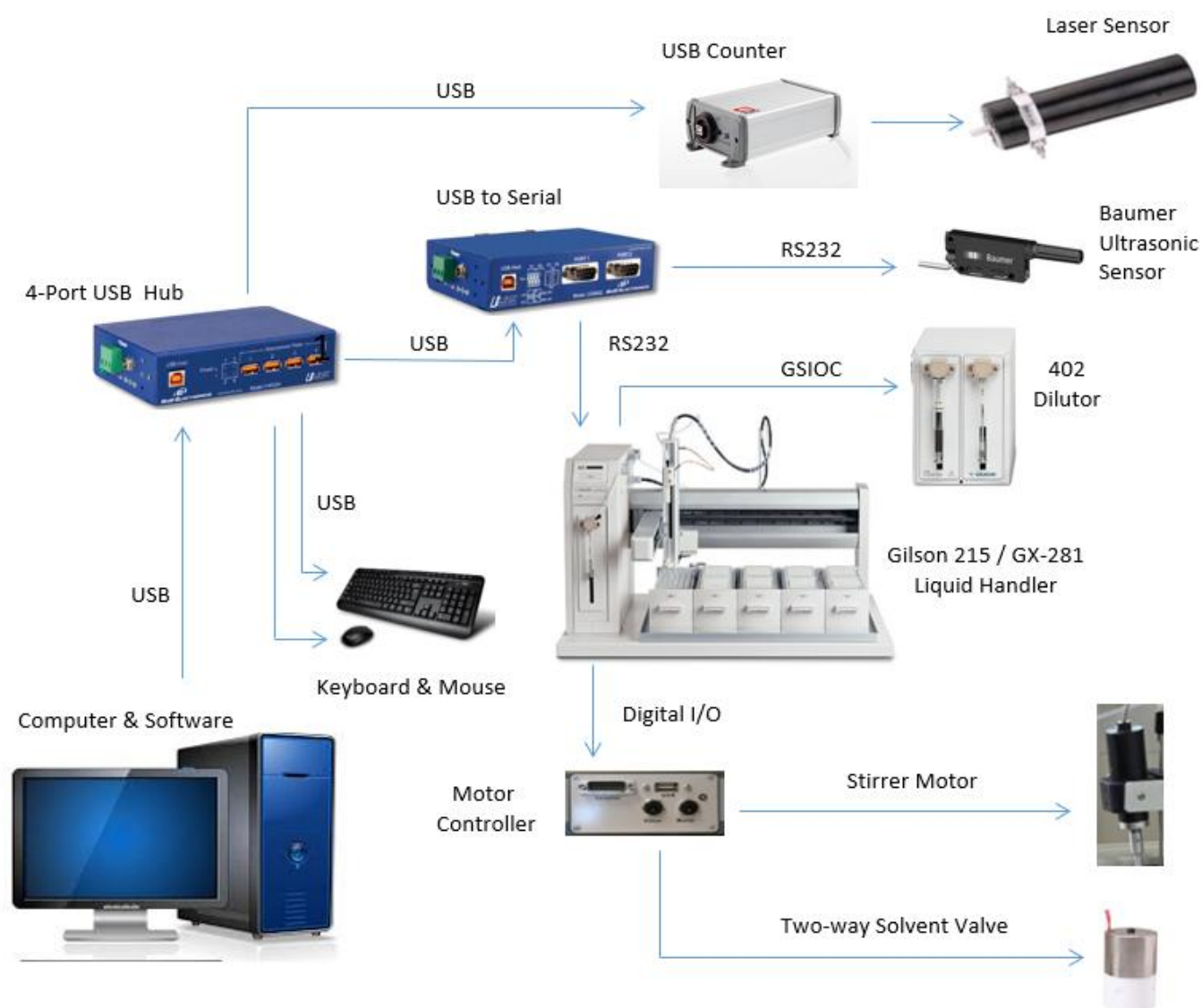
When starting the Automatic Particle Counting (APC) instrument the software produces the following error;

Cannot perform operation on a closed port.

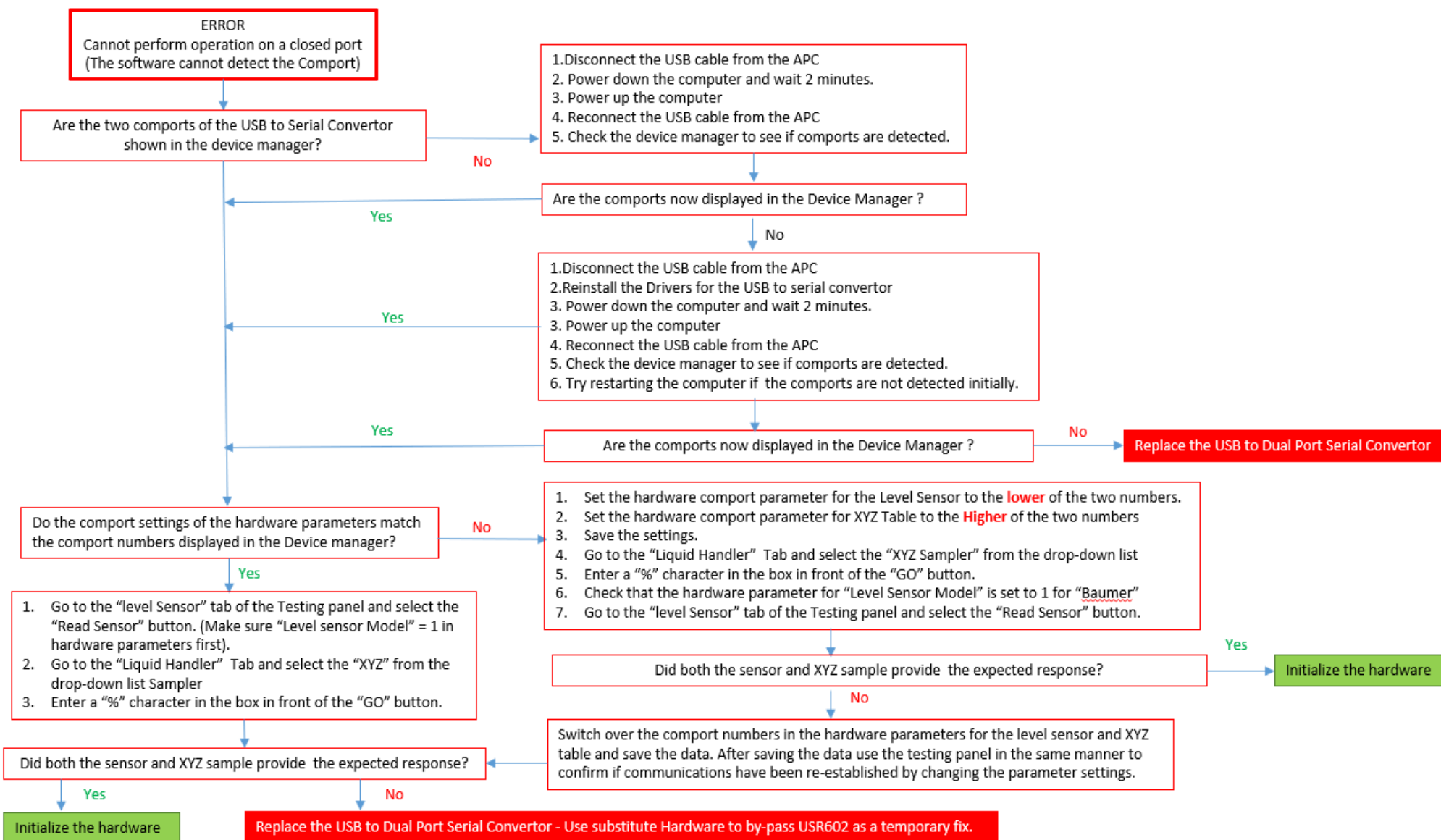
This error occurs when the instrument cannot communicate with the Baumer level sensor and/or the Gilson Liquid Handler (XYZ table).

Resolution

Communication with the COM ports needs to be resolved. The trouble-shooting chart on page two of this document provides guidance on determining the root of the COM port error. If the COM port issue cannot be sorted out on the computer and thru the instrument software, then this guide provides guidance on determining if the USB Hub is malfunctioning. If the USB Hub is at fault, then this guide provides an alternative mode of operating the instrument until the USB Hub can be repaired or replaced.

APC System Overview


COM Error Trouble-shooting Chart




Determining if there is a Hardware Issue

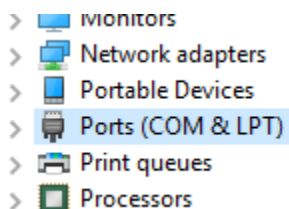
Before replacing the USB to serial Convertor run the system from another computer to confirm that the issue is a hardware malfunction and not computer related.

1. Place the CINRG software (CINRG_ParticleCounter.exe) and the Markus Klotz driver (MKLIB.dll) into a folder on a USB stick or a new folder on the "test" computer's hard drive.

 CINRG_ParticleCounter.exe

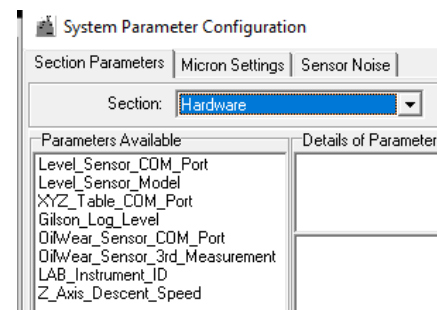
 MKLIB.dll

2. Download the Device drivers for the USB to Serial converters to the "test" computer from the CINRG support web page for your instrument model.
3. Unplug the USB cable from the system computer and plug it into the "test" computer.
4. Allow time for the drivers to be installed and windows to register the virtual comports.
5. Use windows device manager to obtain the comport numbers.



6. Load the CINRG Software in supervisor mode by holding down the [ctrl] and [shift] keys and double clicking on the software.
7. Use the [Edit Parameters] option to set the following hardware parameters.
 - Level_Sensor_COM_Port = lower of the two COM Port numbers.
 - Level Sensor Model = 1 (for Baumer Sensor).
 - XYZ_Table_COM_Port = higher of the two COM Port numbers.

8. Use the testing panel to see if the system communicates with the hardware
 - under the "Level Sensor" tab click on the "Read Level" button to see if a reading is returned by the sensor.
 - under the "Liquid Handling System" tab select the "XYZ Sampler" enter a "%" command and click on the [GO] button.



9. If there are no communications from either device, then change the hardware parameters so the level sensor is linked to the higher comport number and the XYZ sampler is linked to the lower comport number and then repeat the tests as detailed in 9 above.



10. If the communications are OK, then initialize the hardware but first set the tray parameter for sample position 1Y to a safe value of 30 so that the system does not generate a y-axis error.



How to temporarily by-pass the USR602 USB Hub with inexpensive “off-the-shelf” components

Two USB to RS232 serial convertors that can be purchased on-line or from a computer store will be needed to temporarily replace the USR602 unit in the electronics enclosure. The back panel of the electronics enclosure must be removed and the USR602 unit isolated from the other hardware by unplugging the two RS232 communication cables with 9-way D-sub connectors from the units as well as the USB connection that connects it to the hub.

Preparation of alternative XYZ table connection.

1. Install the driver that was supplied with the USB to serial convertor on the computer.
2. Plug in the first USB to serial convertor into a USB port on the computer and wait for the drivers to be installed and the device to be registered and ready for use .
3. Use Windows device manager to confirm the registration of a virtual comport. Note the number of the Comport and set the hardware parameter in the Cinrg Software for the XYZ sample table Comport to this number.
4. Plug in the 9 way female connector of the RS232 cable for the XYZ auto-sampler into the 9 male connector of the USB to serial convertor.
5. Use the testing panel to confirm that communications are working by sending a % character as an immediate command to the auto-sampler.

Note: The APC can be operated with two inexpensive USB to serial convertors while a replacement USR602 unit is being sourced, but this hardware has the disadvantage that the COM port number allocations can change under many circumstances, including;

1. If the device is plugged into a different USB port on the computer.
2. If a USB port that has gone to sleep is reactivated.
3. If the computer power is cycled. (ON – OFF –ON).
4. If a windows update occurs.

If the COM port allocations change the CINRG Software will show the error “Cannot perform operation on a closed port” and it will be necessary to set the hardware parameter to the new COM port allocation number for the software to start running again!

Preparation of alternative XYZ table connection.

1. Plug in the second USB to serial convertor into another USB port on the computer and wait for the drivers to be installed and the device to be ready for use .
2. Use Windows device manager to confirm the registration of a virtual COM port. Note the number of the COM port and set the hardware parameter in the CINRG Software for the Baumer Level Sensor COM port to this number.
3. Plug in the 9-way female connector of the RS232 cable for the level sensor into the 9-pin male connector of the USB to serial convertor.
4. Use the testing panel to confirm that communications are working by obtaining a reading from the sensor using the “read level” button.



Figure 1 – USB to RS232 serial convertors that can be purchased on-line or at a local computer store.