

# PortaCount<sup>®</sup> Respirator Fit Tester Tips and Tricks



## Troubleshooting Guide for the Top 5 Issues

Application Note RFT-043 (A4)

This quick guide provides helpful information and troubleshooting instructions for the PortaCount<sup>®</sup> Respirator Fit Testers. For additional information and further troubleshooting guidance, please refer to the PortaCount<sup>®</sup> Respirator Fit Tester manual, the FitPro<sup>™</sup> Ultra software manual, the product website under Resources, or contact our Technical Support (see end of document for contact details).

The following are the five most common challenges faced by customers. The order refers to the chronological order in which the problems may occur when working with the PortaCount<sup>®</sup> Respirator Fit Tester.

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### Five Most Common Problems and Contact Information

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# Communication Issue: I Cannot Connect my PortaCount® Respirator Fit Tester

If the PortaCount® Respirator Fit Tester is not found by the FitPro™ Ultra software, this can have various causes. Perform the following actions in the order below and check after each step to see if the connection can be established.

## 1. Cable connection incorrect

Check that you are using the cable correctly to connect the PortaCount® Respirator Fit Tester to your laptop/PC. The USB-C connector end of the cable must always be plugged into the PortaCount® instrument.

## 2. Driver problem

Open the device manager on your Windows® laptop or PC and check if the driver “TSI Device (COM5)” is displayed as shown in the picture. If the driver is marked with an exclamation mark within a yellow triangle, uninstall the driver, disconnect the PortaCount® Respirator Fit Tester and then reconnect the device. The driver should now have reinstalled itself.

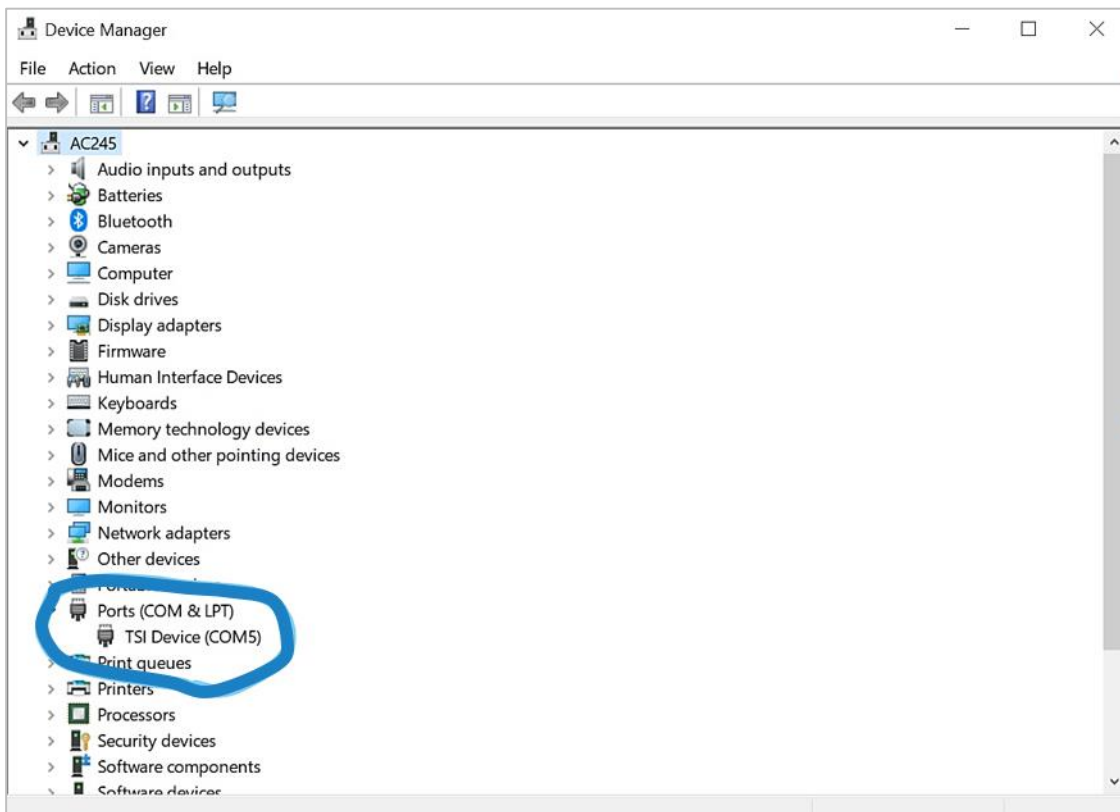
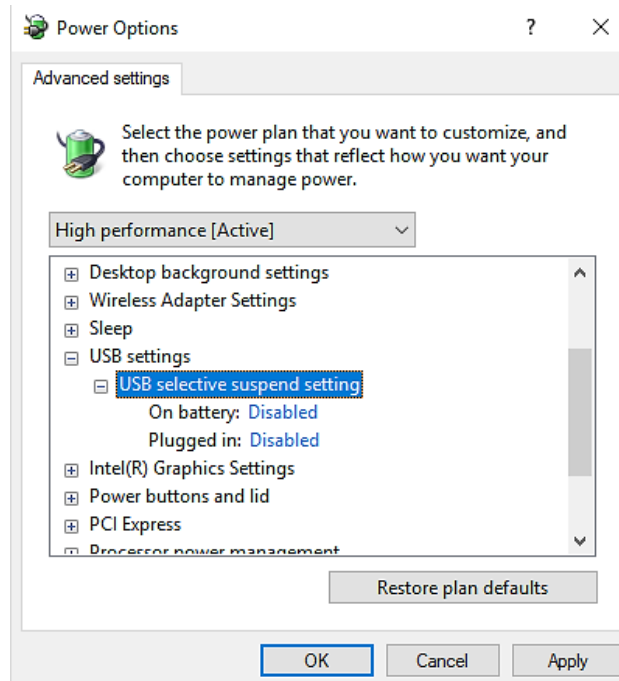


Figure 1: Correct Driver for Using the PortaCount® Respirator Fit Tester

## 3. USB port – power saving.

Check that the USB port of your laptop/PC is not in power saving mode. This can happen if the laptop has been put into power saving mode due to lack of activity. Errors may occur when exiting the mode (laptop has “hung up”). Plug any other device (e.g., a USB stick) into the port and check if your laptop/PC recognizes it. If it is recognized, the error is not with the USB port. If the USB stick is not recognized, restart your computer. To avoid the problem in the future, go to the power saving settings of your laptop/PC and disable the USB setting for selective suspend.



**Figure 2: Changing USB Power Saving Settings**

#### 4. IT restrictions

It may be that your company's firewall prevents the PortaCount® Respirator Fit Tester from connecting to your computer. To connect the instrument to your laptop/PC in such cases, you need to contact your company's IT department and arrange the following:

##### **PortaCount® 8030 or 8038**

If you are using an 8030 or 8038 PortaCount® Respirator Fit Tester, your IT department will need to add the device to your corporate network via its IP address. To do this, you must view the IP address of the PortaCount® Respirator Fit Tester in the device's settings while it is in standalone mode. It is also important to use port 3602 to add the PortaCount® Respirator Fit Tester to the company network.

##### **PortaCount® 8040 or 8048**

The PortaCount® Respirator Fit Tester setting should be set to VCOM (USB Serial Connection) by default. However, you may still need to turn off your laptop's/PC's firewall for a short time to connect. This requires admin rights that only your IT department may have. You can check the connection settings of your PortaCount® Respirator Fit Tester after connecting under "PortaCount Settings."

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## Daily Check Fail

The Daily Check function of your PortaCount® Respirator Fit Tester is a simple and quick test to determine whether your unit is operating correctly and whether your environment is suitable for carrying out fit tests. As environmental conditions can change during the course of a day, you should repeat the Daily Check, e.g., after your lunch break or if you suspect changes in the environment.

## Ambient Condition Check Fail

If the ambient particle test is not passed, this can have several reasons. If the measured particle concentration is too low, the environment must be adjusted. A particle generator such as TSI®'s Particle Generator 8026 can be used for this purpose. Sometimes it may be sufficient to open the window for a few minutes (e.g., in a building near a busy street). However, when performing several fit tests, keep an eye on the ambient concentration so that it does not decrease too much over time.

Also check the room in which you are conducting the fit test. Avoid a room that is too large or a drafty environment (e.g., due to air conditioning or open windows). Prevent constant going in and out of the room.

If the Daily Check measures too few particles by a significant margin, this may have other reasons. Therefore, check the following aspects one after the other and repeat the Daily Check after each step.

### 1. Twin Tubes

Check that the Twin Tubes are not kinked, pinched or blocked. If the kinking, pinching or blockage cannot be completely removed, use new Twin Tubes.

### 2. Installation of alcohol cartridge and wick

Ensure that the alcohol cartridge is installed in the PortaCount® Respirator Fit Tester. If not, remove the protective cap and insert the alcohol cartridge (fully soaked with alcohol) into the instrument. If the alcohol cartridge was installed, please remove the cartridge, pull off the silver case and check if the alcohol wick is installed correctly. (If it looks dirty, replace it.)

### 3. Using the right alcohol

Verify that only reagent grade isopropanol with a purity of 99.5% or higher was used to soak the wick. To ensure this, it is best to use TSI®'s isopropanol reagent grade (product number 8016).

If the wrong alcohol has been used or if the isopropanol has been in the filling capsule for a long time (mixing with ambient humidity), empty the filling capsule and replace the wick with a new one. Allow the old wick to dry completely so that it can be successfully reused afterwards. To do this, place the wick in a well-ventilated area for 16 to 24 hours and then allow it to re-saturate with the proper alcohol. When drying the wick, it is best if the environment has an ambient humidity of less than 50%.

### 4. Alcohol soaking

Ensure that only reagent grade isopropanol with a purity of 99.5% or higher has been used to soak the wick. Also confirm that the wick has absorbed sufficient alcohol. To do this, fill the filling capsule with alcohol up to the fill line and insert the cartridge. Leave the cartridge in the capsule for a few minutes and then put it back into the PortaCount® Respirator Fit Tester.

### 5. Moisture inside the PortaCount® Respirator Fit Tester

If the PortaCount® Respirator Fit Tester has been operated for an extended period of time with alcohol mixed with moisture or if the unit has been operated in high humidity, this moisture may have condensed in the unit. If this possibility exists, replace the alcohol and the wick. Allow the PortaCount® Respirator Fit Tester to run dry for two hours. To do this, leave the alcohol cartridge in the capsule and operate the PortaCount® Respirator Fit Tester without alcohol, but with the storage cap in place.

### 6. Contamination of the device

If the device has sucked in a very high concentration of particles over a longer period of time, e.g., if the HEPA filter was not plugged in and the hose was lying on the floor (vacuum cleaner effect), it is possible that the nozzle of the PortaCount® Respirator Fit Tester is clogged. If you believe this to be the case, perform the nozzle cleaning procedure as described in the Maintenance section of the PortaCount® Respirator Fit Tester Operator's Manual.

## Zero Check Fail

If the Zero Check fails, this can have various causes. However, it is most likely that there is a leak in the device. Therefore, check the following aspects and perform a new Zero Check after each step.

### 1. Zero Filter broken

It may happen that the zero filter (HEPA filter) breaks. For this case, two of these filters are supplied with the PortaCount® Respirator Fit Tester. Change the filter and perform the Zero Check again. If the unit now passes the test, dispose the damaged HEPA filter so that the fault does not reoccur. If the device does not pass the check, check the following aspects.

### 2. Twin Tubes

Frequent plugging and unplugging of the Twin Tubes causes the ends of the tubes to wear out over time. Therefore, shorten the tubes on both sides by one centimeter each so that the tubes sit tightly on the connections again.

If the tubes have been damaged, for example if they have been severely pinched or if they have come into contact with sharp-edged objects, the tubes may have small cuts. If you suspect that this may be the case, replace the Twin Tubes with new ones.

### 3. Ports

Ensure that the blue and silver connectors are screwed on tightly. Be careful not to damage the threads (steel meets aluminum) or the inlet filters if you use pliers. Also clean the black sealing rings on the ports and inlet filters. Replacement filters are supplied.



**Figure 3: Black Sealing Rings on the Inlet Ports (back) and the Inlet Filters (front)**

#### 4. Alcohol cartridge

Verify that the alcohol cartridge is tightly closed. Also check the three black sealing rings on the alcohol cartridge. Change the individual O-rings or the entire alcohol cartridge, if sealing rings are damaged. When replacing the O-rings, use a very small amount of grease (such as petroleum jelly) for lubrication.



Figure 4: Sealing Rings at the Alcohol Cartridge

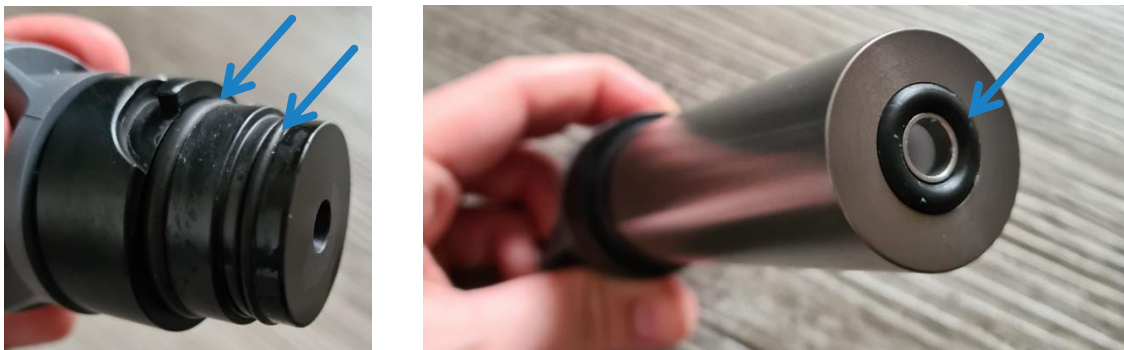


Figure 5: Sealing Rings at the Alcohol Cartridge - Details

#### 5. The problem is not due to a leak

In individual cases, it can happen that the error is not only caused by a leak. For example, the switching valve may be contaminated, so that instead of the sample from the transparent tube, the sample from the unsealed blue tube is measured. Please contact our [Technical Service](#) if the previous steps did not help you.

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## Fit Test Fail

A failed fit test is common and usually has exactly one cause: the respirator does not fit the wearer properly. However, if you assume that the fit of the respirator is not the reason for the poor fit test result then proceed as follows:

#### 1. Check failed exercises

If you are unsure because only one exercise failed the Fit Test, switch to Real-Time FitCheck® mode. Have the person breathe normally and then perform the exercise where the failure occurred. If the Fit Factor then abruptly drops below the pass level, the Fit Test was correct and the respirator is only leaking during that particular movement. This is often the case with the “talk out loud” exercise. The fit test result is then correct and the respirator is not suitable for the wearer.

## 2. Zero Check/ Fake Fit Test

To check if the respirator or other parts are the reason for the failed test, the daily check can be repeated. If the Zero Check passes, the device is working and the problem lies elsewhere. Alternatively, you can perform a fictitious fit test. To do this, connect the clear tube to the zero filter, not to a respirator, and start a fit test again. If the fit test passes, the instrument is functioning properly.

## 3. Check used filters

Verify that P3 filters are installed on the respirator being tested. If you are testing FFP2 or FFP1 respirators, make sure you have N95 technology enabled.

### NOTICE

It is important to use pure P3 filters and not combination filters for gases and particles, as these release particles from the gas filter that are measured along.

## 4. Checking the other elements

Make sure that the transparent part of the Twin Tubes is correctly connected to the adapter of the respirator. Also check that the adapter is tightly connected to the respirator and that the sampling tubes inside the respirator are tightly connected to the adapter. In addition, inspect the adapter itself. Plastics can become brittle over time and small cracks can develop.

### NOTICE

Very high fit factors may indicate a fit test failure. Make sure that the sampling tube in the respirator is not placed against the face. If the end of the tube sucks on the face, no correct sample can be taken.

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## Database Management

If you have any questions about database management, please contact our Technical Service. Our colleagues will be happy to assist you.

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## Technical Support

If you have any further questions or problems with your PortaCount® Respirator Fit Tester, do not hesitate to contact our technical support. You can reach our European team under the following contact details:

Telephone: +49 241-52303-0

Email: [tsigmbh@tsi.com](mailto:tsigmbh@tsi.com)

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