

### General

**Q. How does the QUANTOM Tx™ count cells?**

A. The QUANTOM Tx™ counts fluorescence-stained microbial cells through automated fluorescence imaging and analysis.

**Q. What kinds of cells does the QUANTOM Tx™ count?**

A. The QUANTOM Tx™ is optimized to count bacterial cells, but may be able to count other cell types.

**Q. How long does the QUANTOM Tx™ take to count?**

A. It takes ~30 seconds per sample when capturing and analyzing 10 images.

**Q. What size cells can the QUANTOM Tx™ detect?**

A. Cells ~0.3-50 µm can be counted.

**Q. What is the QUANTOM Tx™ counting range?**

A. The QUANTOM Tx™ can count samples with concentrations in the range of  $2 \times 10^5$  to  $1 \times 10^9$  cells/mL. The optimal range is  $1 \times 10^6$  to  $5 \times 10^8$  cells/mL.

**Q. Can I buy the QUANTOM Tx™ without the QUANTOM™ Centrifuge?**

A. The QUANTOM™ Centrifuge is crucial for distributing cells along a single plane for accurate counting with the QUANTOM Tx™.

**Q. Can I use different slides with the QUANTOM Tx™?**

A. No. Bacteria are small and need to be loaded into special chambers for even distribution. QUANTOM™ M50 Cell Counting Slides have been designed specifically for microbes for use with the QUANTOM Tx™ and the QUANTOM™ Centrifuge.

**Q. Can I do viability measurements with the QUANTOM Tx™?**

A. For viability information, two separate counts will have to be performed with two different stains and calculations made by hand.

**Q. What is the magnification of the objective used in the QUANTOM Tx™?**

A. 10X.

**Q. What are the excitation/emission spectra of the QUANTOM Tx™?**

A. Ex 470/30 nm, Em 530/50 nm.

**Q. What kind of image sensor is in the QUANTOM Tx™?**

A. It is a highly sensitive 1/3" CMOS sensor.

**Q. What is the counting area and volume of the QUANTOM Tx™?**

A. When capturing and analyzing 10 images, the QUANTOM Tx™ counts cells within 1.73 mm<sup>2</sup>. As the QUANTOM™ M50 Cell Counting Slide has a chamber height of 50 µm, the measuring volume of 10 images is approximately 0.09 µL.

**Q. How many fields of view are captured for image analysis?**

A. 1-10 different fields of view can be captured. This can be adjusted as desired in the Settings: Counting Options.

**Q. How often do I have to calibrate the QUANTOM Tx™?**

A. The QUANTOM Tx™ comes precalibrated so it does not need to be calibrated again before use. Calibrate the instrument after each software update.

### Sample Prep

**Q. How can I avoid bubbles in my sample being counted as cells?**

A. Mix cells and loading buffer gently to avoid creating bubbles.

**Q. What is the purpose of the QUANTOM™ Cell Loading Buffer I?**

A. QUANTOM™ Cell Loading Buffer I is a viscous solution that immobilizes cells upon centrifugation.

**Q. Why does it take so long to load the sample into the QUANTOM™ M50 Cell Counting Slide?**

A. This is most likely due to the viscosity of the loading buffer. Leave the slide for 20-30 seconds after loading and try again. If it takes more than one minute, you may need to use a fresh batch of QUANTOM™ M50 Cell Counting Slides.

**Q. What do I do if the slide is only partially full?**

A. Load more of the sample into the slide (e.g. total 5.5-6.0  $\mu$ L). If the slide does not fill completely with the increased volume, you may need to use a fresh batch of QUANTOM™ M50 Cell Counting Slides.

**Q. What do I do if my cells aren't all in the same focal plane? Some are in focus and some aren't.**

A. Increase centrifugation speed or time with the QUANTOM™ Centrifuge.

**Q. What do I do if my cells are in the same focal plane but cell distribution is not even?**

A. Lower centrifugation speed or time with the QUANTOM™ Centrifuge.

**Q. Why did my cells clump after staining?**

A. Increased dye incubation time can cause cell aggregation. Reduce incubation time and proceed quickly to counting.

### Cell counting

**Q. What bacteria have been tested on the QUANTOM Tx™?**

A. *Alcaligenes faecalis*, *Bacillus amyloliquefaciens*, *Bacillus circulans*, *Bacillus coagulans*, *Bacillus lentus*, *Bacillus lichenformis*, *Bacillus megaterium*, *Bacillus mycoides*, *Bacillus pumulis*, *Bacillus sphaericus*, *Bacillus subtilis*, *Comamonas terrigena*, *Enterobacter aerogenes*, *Enterobacter cloacae*, *Escherichia coli*, *Lactobacillus casei*, *Pseudomonas fluorescens*, *Proteus mirabilis*, *Pseudomonas putida*, *Pseudomonas stutzeri*, and *Serratia marcescens*. This is just a partial list. We are continually testing additional microbes.

**Q. Can the QUANTOM Tx™ count irregular or elongated cells?**

A. Yes, but you may need to optimize the roundness levels in the protocol parameters to find the right setting for your type.

**Q. Can the QUANTOM Tx™ count clumped or chains of cells?**

A. Yes, but you may need to optimize the declustering levels in the protocol parameters to find the right setting for your type.

**Q. Do I have to set specific parameters for specific cell types?**

A. Specific cell types may require protocol parameter adjustments depending on their morphology and arrangements.

**Q. Can the QUANTOM Tx™ count both gram negative and positive cells?**

A. Yes, the QUANTOM Tx™ can count both gram negative and positive cells.

**Q. Can the QUANTOM Tx™ count spores?**

A. It depends on dye penetration. Most spores are resistant to dye penetration.

**Q. Can the QUANTOM Tx™ count live cells?**

A. Yes. Stain cells with QUANTOM™ Viable Cell Staining Kit to count live cells.

**Q. Can the QUANTOM Tx™ be used for mycoplasma testing?**

A. No. Mycoplasma are too small to be detected with the QUANTOM Tx™.

### Dyes/Detection

**Q. Can dyes other than the QUANTOM™ dyes be used with the QUANTOM Tx™?**

A. SYTO® 9 stain may be used but since its signal intensity is different, light intensity levels should be optimized prior to counting.

**Q. If my samples are fluorescent bacteria, do I still need to stain them?**

A. It depends on the signal's excitation/emission spectrum and intensity. If the spectrum falls within the instrument's spectral capacities and the signal is strong enough, the sample may be counted without staining.

**Q. How do the QUANTOM™ dyes work?**

A. QUANTOM™ Total Cell Staining Dye is a fluorescent DNA binding dye. QUANTOM™ Viable Cell Staining Dye permeates cells and is converted to a fluorescent product upon hydrolysis within viable cells.

**Q. Can I use LIVE/DEAD BacLight Bacterial Viability Kits?**

A. LIVE/DEAD BacLight Bacterial Viability Kits are composed of SYTO® 9 stain and propidium iodide. As the QUANTOM Tx™ has just one fluorescence channel, only the SYTO® 9 signal is detectable.

**Q. Can QUANTOM™ Total Cell Staining Dye label cells other than bacteria?**

A. Yes. QUANTOM™ Total Cell Staining Dye is a fluorescent DNA binding dye, so it can label any cells with DNA.

**Q. What is the QUANTOM™ Viable Cell Staining Dye?**

A. QUANTOM™ Viable Cell Staining Dye is a Calcein AM derivative. In viable cells, cellular esterases hydrolyze the dye into a fluorescent protein which is retained in intact cell membranes.

**Q. Can I use fluorescein diacetate (FDA) or its derivatives for live cell counting?**

A. Most bacterial cells cannot generate sufficient fluorescence with FDA to be detected by the QUANTOM Tx™.

## Data

### Q. What kinds of files does the QUANTOM Tx™ generate?

A. A PDF data report, raw and tagged TIF cell images, and numerical data in CSV format.

### Q. Can I customize the data reports?

A. Yes, you can insert your own logo. Upload your logo in Settings: Saving Options.

### Q. I just saved my count results and can't find my files. Where are they?

A. When you press Save, your files are saved to the internal SSD drive. Access them directly by going to the Review screen.

### Q. How do I transfer files from the QUANTOM Tx™?

A. In Review: Review Images, use the file manager and command keys to transfer files saved on the SSD drive to USB drives. Alternatively, connect the QUANTOM Tx™ to a wireless network, install QUANTOM™ Utility software or the recommended FileZilla FTP freeware to a compatible computer, and download data through the wireless network. This will depend on the serial number of your instrument. For detailed instructions, refer to the user manual.

### Q. Is a computer required?

A. Only if you want to access your data wirelessly.

### Q. What can I connect to the QUANTOM Tx™?

A. You can connect a keyboard, a mouse, the provided WiFi dongle, and USB drives to the QUANTOM Tx™.

### Q. Do I need to load software on my computer?

A. Only if you want to access your data wirelessly. Download and install QUANTOM™ Utility software or the recommended FileZilla FTP freeware to a compatible computer to download data through the wireless network. This will depend on the serial number of your instrument. For detailed instructions, refer to the user manual.