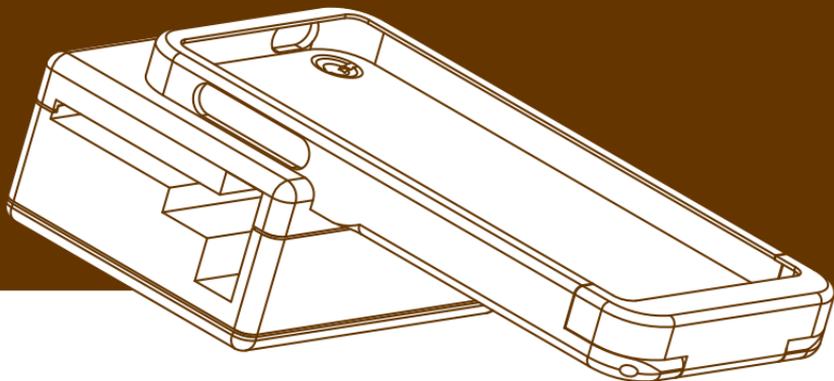


Dairy Quality RT10 Device & mpengo Dairy
A QUICK-START GUIDE



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A Quick-Start Guide

To use the Dairy Quality RT10 Device you'll need the device, Dairy Quality preloaded slides, and the mpengo Dairy app from mpengo Ltd.

- For Dairy Quality information and purchasing, visit www.dairyquality.com
- For the mpengo Dairy app and purchasing, visit www.mpengo.com

NOTE: Your device may not have been shipped with the battery installed. If so, your battery is contained under the small cardboard ledge in the box. Using a small screwdriver, remove the back screw and install the battery, paying careful attention to the polarity alignment. Replace and affix the back cover.

mpengo Dairy has four sections:

1. **Files & Settings**, to set up the cow file, company and support information
2. **Samples**, to analyze and record your milk samples
3. **Reports & Tools**, to create reports and manage data files for import and export
4. **On-Line Help Guide**, with instructions and handy tips

Files & Settings

First, set up your herd in **Cow File** and **Sample History**. In this section, create an entry for each cow by entering the cow's tag number and any comments you may

have about previously known medical problems or relevant information you would like to record.

NOTE: If you already have a data file from another program like a herd management software system, you may be able to import an existing file in the **Tools** section.

Sample History will become more complete and accumulate as samples are taken and analyzed by your iPhone®. You can tap a sample line to see the original raw image and the results. The **Cow File** list will show you the date last tested as a handy reference. If available, you can also add extra cow information such as birth date, breeding date (the app will calculate and display the "dry" date), and lactations.

Settings:

Contact Info: Enter the Farm/Company name, address, and your Business ID number or farm registration number. This information will be displayed on reports. Also enter your name, email, and telephone number. We need this information if you have a support question. (This information will **ONLY** be used by mpengo Ltd. and Dairy Quality Inc. for client support.)

Slide Type: Please keep this setting as '**Preloaded Cassettes**' (there is an alternate type of slide that is occasionally used by others).

In **Preferences**, enter the acceptable SCC (somatic cell count) target (or threshold) for your area. This is used to warn you of readings over this target value.

There are two ‘**Cow Selector**’ methods in the Analysis program: **Cow List**, and **Keypad**. If you select Cow List, your cows will be shown in a table list and you can pick from the table: with Keypad, you can tap in the cow’s tag number. Keypad tends to be faster for larger herds.

Sync and Import Tools:

Synchronize Data: If you have more than one iPhone with mpengo Dairy, you can sync the data on both devices. The sync will create and email a data file to the other iPhone. To sync the files, open the email with the file attachment on the second device. Tap and hold the file attachment and the data from the first iPhone will be merged.

Import Cow (Herd) File: Use **Import** if you have your cow herd information already available from another source (such as in a herd management software system) and would like to use that data as your Cow (Herd) file. Tap ‘**Explain**’ for instructions in the app, or see below:

- Use **Excel** to create a table with these columns:
 - Col 1 = Cow Tag or Name
 - Col 2 = Comments (optional)
 - Col 3 = Birth date YYYY-MM-DD [e.g., 2010-05-31 (optional)]
 - Col 4 = Breeding date YYYY-MM-DD (optional)
 - Col 5 = Number of lactations (optional)
- Save the file as a tab-delimited text file (.txt)
- Email the file to your iPhone

- On your iPhone, open the email message and tap and **hold** the attachment icon until you see ‘**Open in mpengo Dairy**’ – tap it!

Erase Old Samples can be used periodically. Though the data storage requirement of a sample is not large (about 2MB per sample), you might only wish to keep recent information on hand.

Take a Milk Sample & Analyze

Taking a sample and analyzing the results requires the Dairy Quality Device, a special Dairy Quality preloaded slide, and the mpengo Dairy app. (The device, process, and technology have patents pending.)

Sampling Instructions:

- Collect the milk to be sampled into a separate clean container
- Insert the slide tip into the milk sample, and press firmly on the white piston: a small quantity of milk will be drawn up: allow a second or two for the milk to enter the slide.

(After use, dispose of slide according to local waste management requirements.)

Analyze the sample with mpengo Dairy:

- Open the mpengo Dairy app on your iPhone, and tap **Take Milk Sample and Analyze**

- Align your slide to the slide image displayed at the bottom of the screen, lining up the slide with the large black dot on the right. Match the dot pattern of the slide by tapping the appropriate three dots on/off (this optimizes the calibration of the app to the volume of milk in the viewing chamber).
- Insert the slide into the Dairy Quality Device and firmly “seat it”. When inserted, the device will power on and you will notice a slight green glow inside the reading chamber (make **SURE** you see the green glow that illuminates the sample).
- Tap **‘Choose Cow’** and select the cow. You can also tap **‘Quick-Test’** if you do not wish to record the sample against any particular cow.
- Add extra comments if you desire
- If you want to keep track of your samples by udder quarter, you can also indicate that here
- Tap **‘Analysis’**. After a countdown period to permit the milk and reagent mixture to incubate, the iPhone will take an image of the sample, review the background, make note of the highlighted cells, and analyze any patterns. More than one snapshot may be taken to account for fluid and cell (Brownian) motion. Within a few seconds, the sample image, the SCC value and, if a high count, an indication of type of pathogen appear. You can also tap **‘Tap for Raw Image’** to see the actual image created by the device.
- Tap **‘Save’** to keep a record. You will find that over a period of time you’ll start to see the relationship of the image to the SCC value and be able to visually confirm the quality of the milk.

NOTE: It is unlikely that you will get exactly the same result twice if you analyze the sample twice. This is because of Brownian motion: the sample is a fluid, and cells move around in a fluid, so at any time, some cells may float out of the field of view of the microscope and/or other cells may float into the field of view. At low SCC counts, one or two cells will make quite a difference (one cell might change a 20K count by 10K). At high SCC counts, the effect is dramatically reduced. This is true of **ALL** SCC reading technologies in the world: we can all reduce differences by taking several **‘analysis shots’** and averaging, but nevertheless, there is a variance. Secondly, the sample rapidly degrades after a few minutes as the cells lose their brightness, so be sure to test your sample within a few minutes of drawing up the milk.

Battery Life:

As the battery loses strength there will be insufficient contrast between the background and the cells, resulting in poor readings. If you see the **‘Check battery’** alert, consider changing the battery. **Here’s how:**

- Using a slotted screwdriver, remove the screw and back cover of the Dairy Quality Device
- Replace the battery with a standard 9 volt alkaline battery
- Replace the back cover

Lens and Focusing:

Although the Dairy Quality Device has been carefully assembled and focused, it might become necessary to refocus the lens and image:

- Use a small screwdriver to loosen the locking setscrew along the side of the device near the lens assembly
- Insert a **loaded** milk sample slide and your iPhone into the device, and use Apple's Camera app to view the image
- Slide out the iPhone a few inches, and adjust the outer lens ring in or out with the screwdriver (there is an inner and outer ring), re-inserting the iPhone to see if the adjustment is sufficient: repeat as necessary (it shouldn't be necessary to turn the lens more than 1/3 of a turn, and if turned 'in' too far, the lens will block the slide area, and the slides will not load)
- When you are happy with the image, use the screwdriver again to lock the lens assembly

Self Calibration:

The app has the ability to 'fine-tune' the calibration with a slide of known SCC value to optimize future results. If you wish to do this routine, go to '**Settings**' and tap '**Calibration**'.

- Tap '**Self Calibration**'
- Line up your slide against the image on the screen, and match up the dot pattern, as you normally do in regular use

- Enter the known SCC value
- Tap '**Continue**'
- The SCC will be re-calculated, and any calibration settings will be optimized

Reports & Tools

This section lets you produce detailed milk sample reports that can be emailed or printed to an AirPrint supported printer, as well as create data files which you can send to your computer, herd management software, or other software.

To create reports, select the following options:

- **Cows Desired:** Tap here to indicate which cows you wish on the report/data file. You can also tap '**Select/Un-Select All**'.
- **Date Range:** Tap the dates to set up the range you are interested in
- **Type of Output:** Indicate if you want a report, or export a tab-delimited (.txt) data file. The report is displayed on the screen, with options to email or print. The data file is available for email only.

For a quick report, simply tap '**Today's Samples**' to select all cows for the day, and you'll get a report or tab file of just today's samples.

TIP: Create a Cow record called **Tank**, and periodically check your overall tank reading. This may be interesting information for you.

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