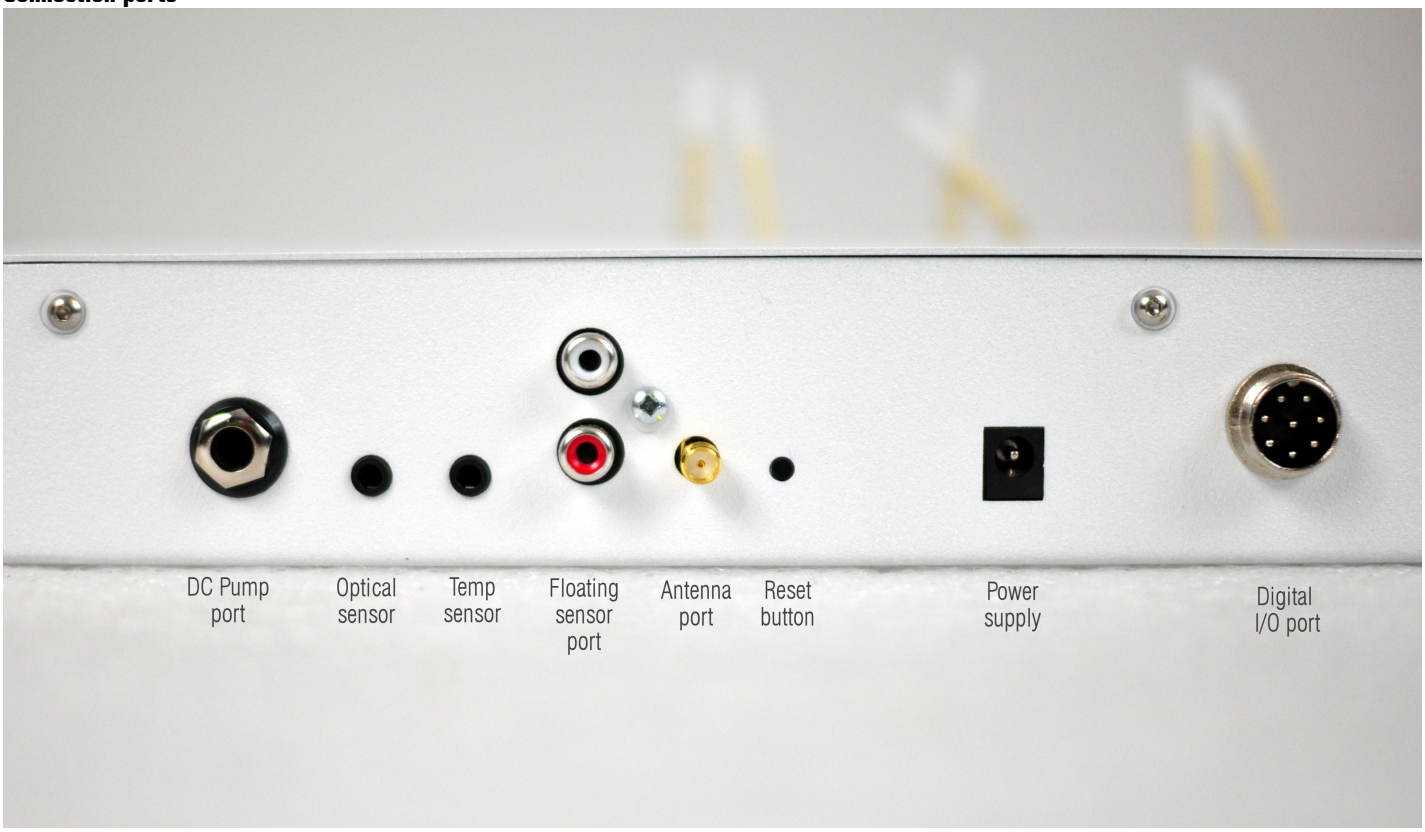
Pacific Sun

Kore 5th

Intelligent Doser

Connection ports



1.a

Connecting to your computer

Kore 5th dosers are controlled using a Bluetooth connection between doser and your computer. It is highly recommended that you use an external Bluetooth adapter to ensure a strong signal between the doser and your computer. Bluetooth adapter should be USB compatible with Class 1 specification and output power not less than 14dBm-20dBm.

Steps:

1) Enable Bluetooth on your computer (or install external USB Bluetooth adapter)
2) Initiate the Pairing process between your doser and your computer

   Tip! You can do this by going to your **Start** menu, and selecting **Devices and Printers**. Once the window opens, click on **Add a device** button. Your computer will search for all available devices, and will show the available Kore 5th device. Select your doser and click on **Next**.
3) Select option "**Enter the devices pairing code**", enter "**1234**" as the pairing code, and click on **Next**. You will receive a message stating "This device has been successfully added to this computer".

   Tip! All Pacific Sun devices have the default pairing code of "1234".
4) You will see the **Kore 5th doser** in your "Device list" now.

   Tip! You can view your Device list by navigating to your **Start** menu, and selecting **Devices and Printers**.

   Right click on the **Kore 5th doser** and click on **Properties**
5) Click on the **Services** tab, and take note of the COM port that was assigned to your doser

Tip! You can increase the transfer rate between your doser and your computer by clicking on the **Hardware** tab, selecting your COM port, and clicking on **Properties**. In the new dialog, click on the **Port Settings** tab, and change the value of "Bits per second" field to **19,200**. Click **OK** and then **OK** again.

Using the software

Installation

From CD

1) Insert the CD into your CD-ROM drive
2) Go to **My Computer** or **Computer**, and double click on Pacific Sun CD to explore the contents of the disk
3) Double click on **Setup.exe** and follow the prompts on screen

From Web

1) Download the software
2) Extract the files to a local folder using the RAR Lab WinRAR unpacking tool
3) Browse through the extracted files, locate **Setup.exe** and run it

Tip! You can also run the software by browsing through the installation disk / extracted folder, and double clicking on the Pacific Sun application.

Starting the software

The installation creates a shortcut to Pacific Sun software in your **Start** menu. Click on **Start**, and run the Pacific Sun software from there.

Connecting to your doser

To control your doser, you will need to connect it to your computer first. (see *Connecting to your computer* for further help with this)

1) Start the software
2) Select the **COM port** for your **Kore 5th** from the drop down, select **Bluetooth** in the second drop down, and click on **Connect**
   Tip! You can also type the COM port in manually in the drop down
   Tip! Refer to *Connecting to your computer* to find the COM port for your doser
3) If software is unable to connect to doser at first, try a couple more times – you can also try moving closer to the doser for better signal between the doser and your computer

Once the connection is successfully established, the software will display some basic information regarding your actual doser settings. Information displayed varies in different versions of software.

General information about Kore 5th doser firmware upgrade procedure

Caution: Switching off the power supply during updating process may damage your doser CPU. Recomended distance between the doser and the computer that you are using to update firmware is between 1-2 meters. If you are using a laptop with bluetooth module built-in, please use an external USB bluetooth module for better signal strenght.
Bluetooth module Class 1 is strongly recomended.

Uploading wrong firmware may damage your doser and void your warranty. The damage may require returning the doser to our service department to restore its original functionality.

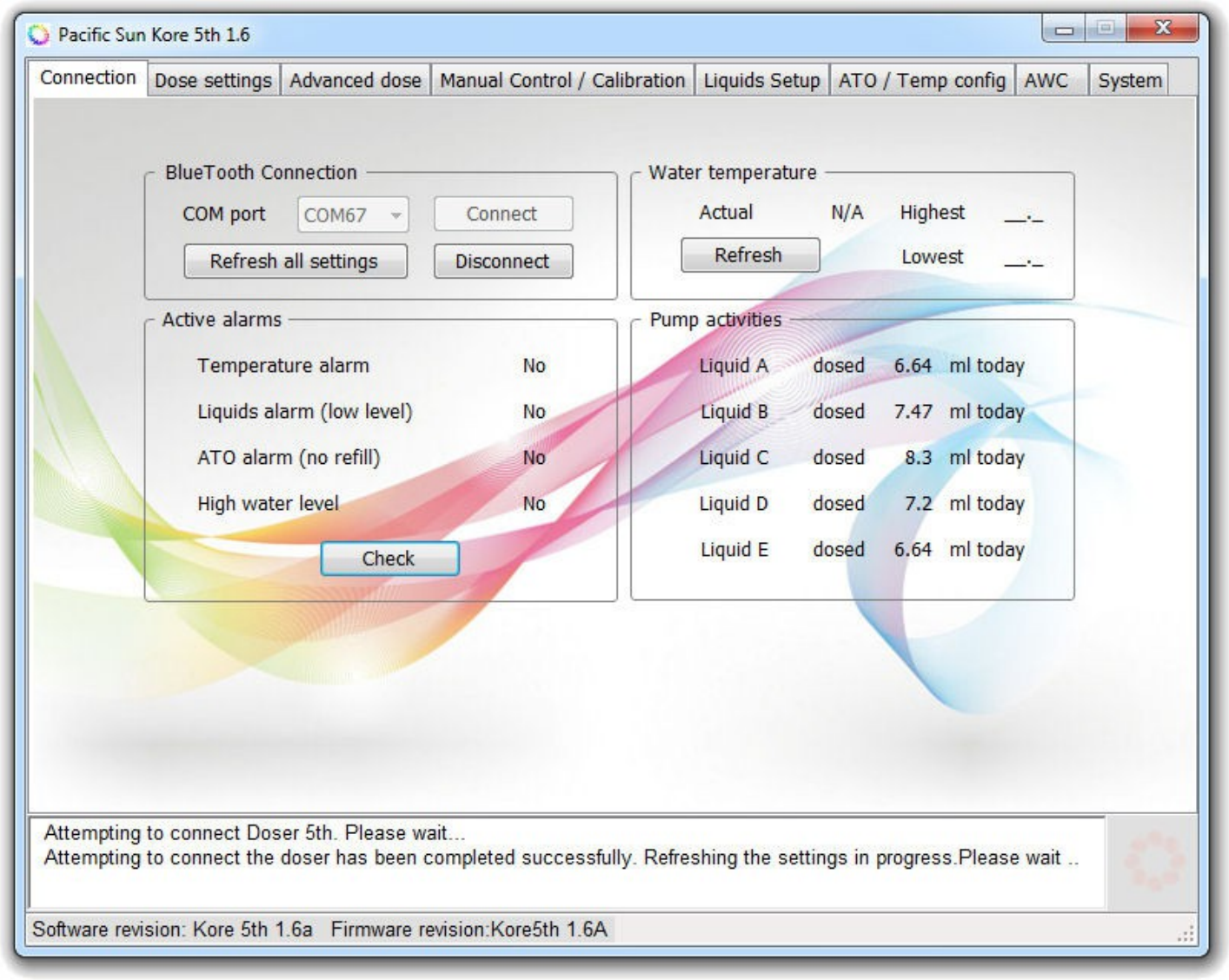
1. b

Firmware update process:

Download the application and firmware on to the computer that you will be using to update your doser firmware. If you already have the Pacific Sun Kore 5th 1.1 software installed on your computer – uninstall it and download the newest version available on www.pacific-sun.eu
If you need technical support, email service@pacific-sun.eu for further help.

Bluetooth protocol:

Check on which **COM** port your loser is installed. You can check this via Navigation Panel (in Winows) – Bluetooth Manager – **COM** ports. **During pairing procedure please use code „1234".**
Select the appropriate **COM port** – and click **Connect** button.



In the **Connection** tab you will find:

Connection group box:

- **Connect button** – allow establish connection with doser on choosed COM port(this port is assigned to doser in installation process)
- **Disconnect** – close connection with doser
- **Refresh all settings** – by pressing this button you can refresh/load all important doser settings. It can take up to two-three minutes

Water temperature – if your temperature sensor is connected properly, you will see your actual, lowest and highest temperature measured by the sensor. By using **Refresh** button you can read actual temperature settings.

Active Alarms – this group box show all active alarms on doser:

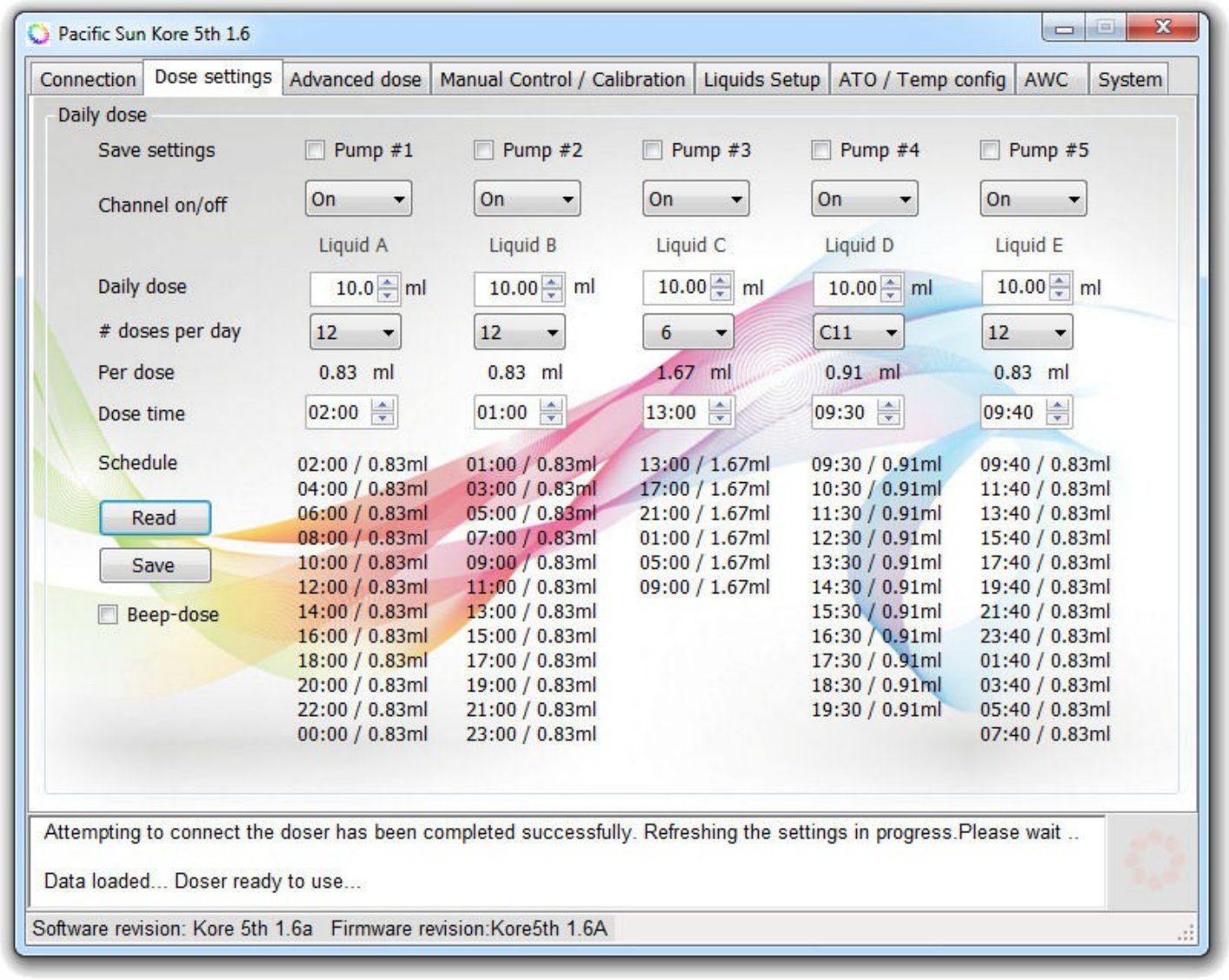
- **temprature alarm** – if that alarm is active it mean that your water temperature is above or below maximum/minimum settings(check this on ATO/Temp config)
- **liquids alarm** – if active – liquid level (in any container) reached minimum level(configured in ATO/Temp config)
- **ATO alarm** – active when ATO tried refill four times without success. Check that your DC pump is working or refill container isn't empty
- **High water level** – your sump water level **is too high**(above top floating level switch). It can be also activated by **optical sensor** working as safety sensor(you can set working mode for optical sensor in last **Service** Tab)

Pump activities – there you can see information about pump activities in actual day(from 00:01 time to now).

To initialize connection with doser you should choose proper COM port and push **Connect** button.
Within a few seconds your computer should establish connection with your doser(you will see "Connected and settings refreshed. Doser ready to use. .. " in the Status window.)
Now you are connected to the doser and can program and modify settings.

Next, select the **Service tab.**
Click **Firmware Upgrade** – and select the firmware file (firmware file extension is .bin)
Upgrade procedure will start.
When the process is completed, you will see "Firmware updated" displayed in the status window.

1.1 Dose settings

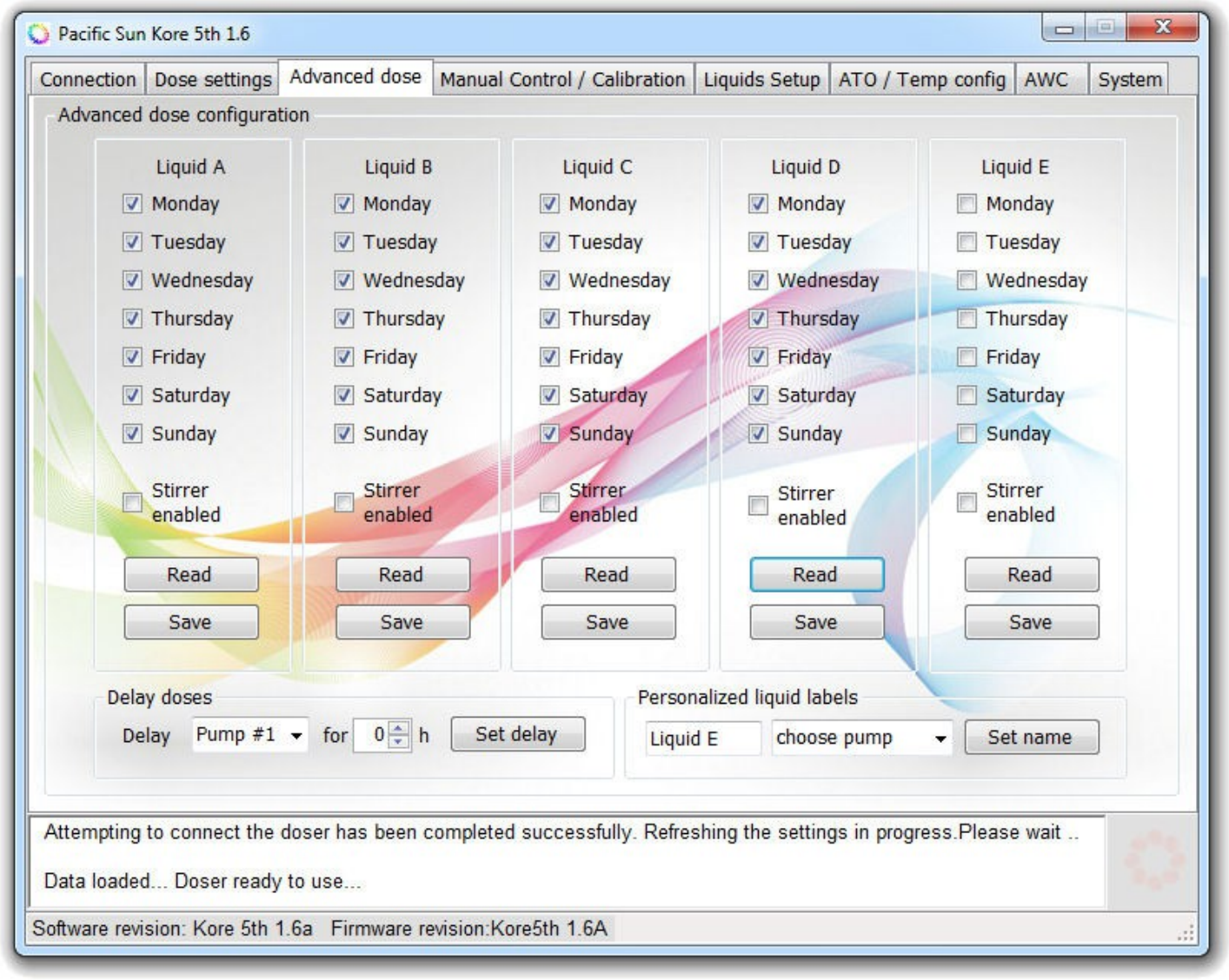


Dose settings – here you can set daily amount of dosed liquid for each pump.
Channel on/off – turns off / on the corresponding channel
Daily dose - determine the appropriate daily dose which will be divided into a number of dosing (depending on the doses per day). Minimum single dose – 0.01ml **(for channel #1 – 0.1ml)**
 # doses per day – you can set 1,2,4,6,12, or 24 doses per day.
Additional special dosing programs:

- **C5** – 5 doses hour by hour
- **144** – only pump #1 – 144 doses during the day(each dose every 10 minutes).

Per dose – single dose of fluid
Dose time – Initial dosing time for each pump. PacificSun software will automatically calculate the following times to dose the liquids.
Read – read pump setting from doser memory
Save – save pump settings(daily dose, doses per day, time shedule) to doser internal memory for each pump *where checkobox in Save settings row is checked*. Example: Checked Pump#1 checkobox only will overwrite pump #1 settings.
Beep-dose – if checked - doser will generate short "beep" signal(sound type configured in ATO/Temp config tab) after each single dose.

1.2 Advanced dose



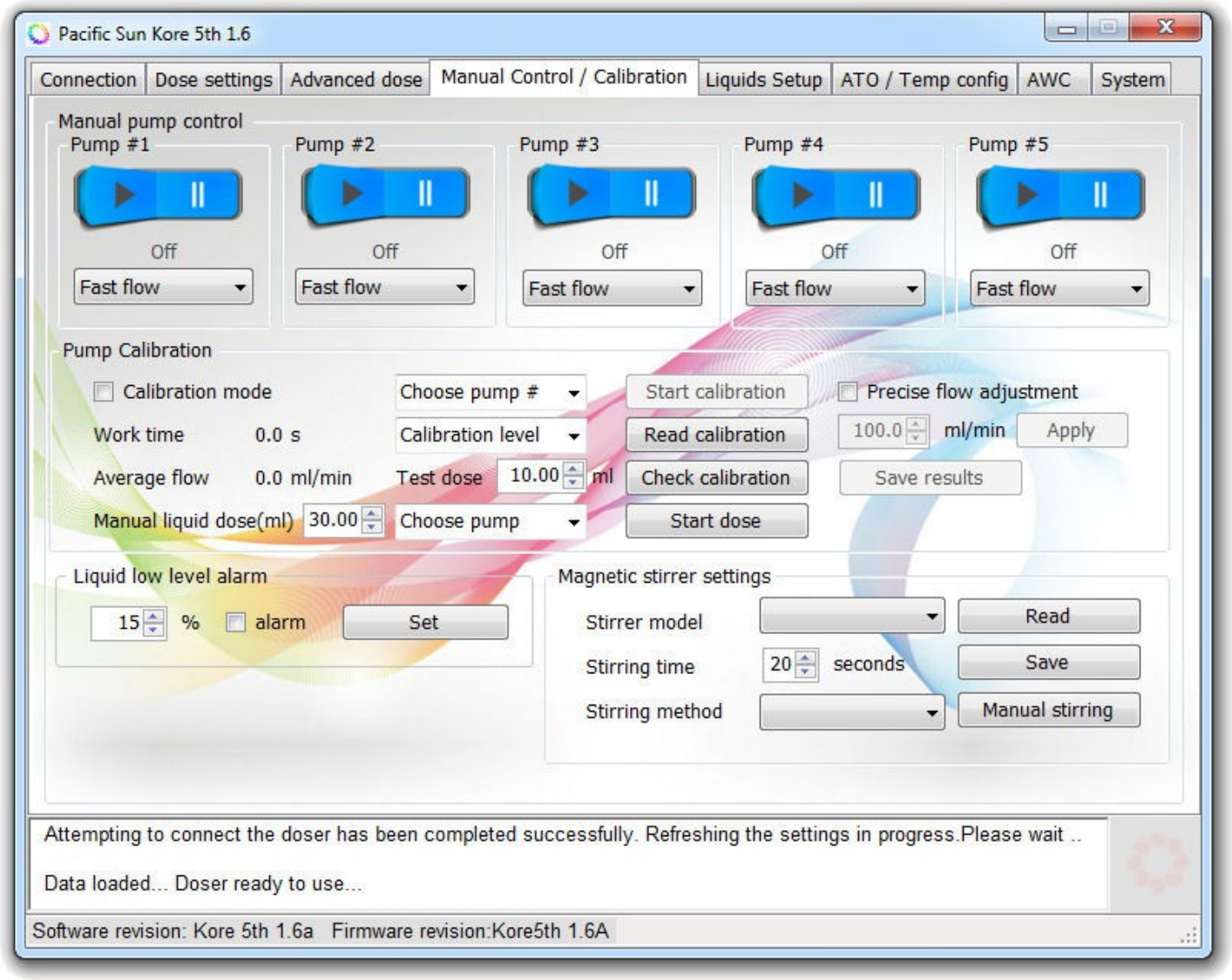
Allows you to set which days of the week each pump have to work.
By pressing:

- **Set shedule** – you can save schedule to doser memory. It should be done for each channel separately.
- **Read** – you can read schedule from doser memory.

Presonalized liquid labels - You can give your own name for the dispensed fluids. This names are written in doser RAM memory so after power failure they will be lost. Maximum lenght – 16 chars.

Delay doses - You can set delay time(in hours) how long pumps/exact channels will be turned off. After this time doser will start scheduled doses automatically.

1.3 Manual Control / Calibration



This tab allows you to manually control the various pumps and their calibration.
Pump flow – there are three modes to choose:
- fast flow
- moderate flow
- precise flow

Depending on the tubing used, you have the option to achieve the following performance:
a)high flow Pharmed/Viton/Santoprene
Fast flow - maximum average flow 110ml/min
Moderate flow - maximum average flow 60ml/min
Precise flow - not suggested(inregular flow depending from material hardness). The best for precise dose is silicone tubing.

b) high flow special silicone tube (thick)
Fast flow - maximum average flow 140ml/min
Moderate flow - maximum average flow 110ml/min
Precise flow - maximum average flow 50ml/min

c) precise flow special silicone tube (thin)
Fast flow - maximum average flow 600ml/min
Moderate flow - maximum average flow 26ml/min
Precise flow - maximum average flow 10ml/min(!)

Pump calibration procedure:
1) Check the **Calibration mode** checkbox
2) Select the pump that you want to calibrate from the drop down
3) Select calibration level (10ml)
4) Make sure that the tube is devoid of air bubbles
5) Place the tip of tubing over the measurement cell (50ml plastic cylinder)
6) Click **Start calibration** button and wait until the water level in the cylinder reaches 10ml

7) When you reach the required level - click the button again (**Stop calibration**).

Calibration check procedure:

1) prepare (empty) cylinder 50 ml
2) in **Test dose** window set tested amount for 10ml
3) Click **Check calibration** button – pump will start test and after dosing requested amount of fluid will stop

If dosed amount is different than the requested amount , you can use **Precise flow adjustment** option.

Example: If after inital calibration, average flow was measured to 45ml/min and your real dosed amount of fluid was higher than 10ml(like 11ml) – you need to increase flow level(in P**recise flow adjustment** box) to 45.5ml and confirm by apply button.

If after test dose, real amount of liquid is less than 10ml – you need to decrease flow level in **Precise flow adjustment** box.Repeat checking procedure again – if it still not correct(too high or too low) adjust pump flow again and repeat until you will reach exact amount of dosed fluid as it set.

4) Use **Save results** button to save calibration config in doser memory. Repeat procedure for each pump.

5) Important! If you change pump speed mode or tubing(from one type to another) you will need to repeat calibration procedure again. For best results and exact amount of dosed fluid we suggest calibrating every 3-4 months.

Read calibration – read calibration settings from doser memory for each pump separately(pump need to be selected in the drop down first). After reading the settings, calibration test can be performed.

Calibration verification procedure can be performed for any fluid capacity of 0.01ml (use a small measuring cylinder with precision syringe 1ml) to a maximum of 45ml (50ml large cylinder).

Manual liquid dose - allows manual dispensing of a specified quantity of fluid.

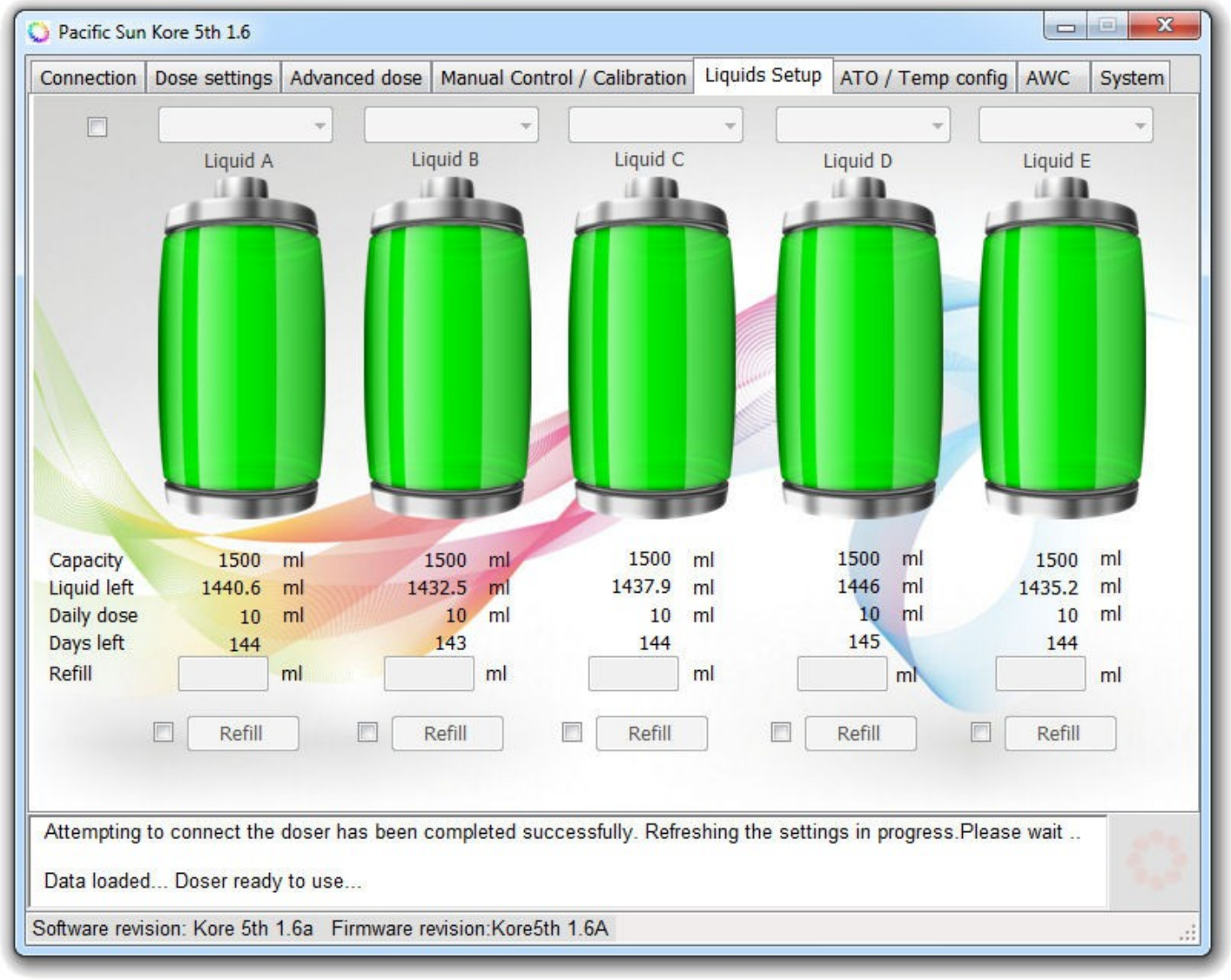
Magnetic Stirrer settings - allows for configure proper version of Magnetic Stirrer and set stirring time before doses.

Stirrer model - V1.0 – it is first generation of stirrers without external power supply(power taken from Kore 5th). V2.0 – is new stirrer, with own power supply.

Stirring time – stirring time before starting dose. Minimum 5s – maximum 60s. We suggest between 30 and 40 seconds(depend from liquid density/type)

Stirring method– 7 different stirring programs. Different speed and variable „pulsations" mode. Help choose the best one for used bottle type and liquid density. Test before the save – magnetic pellet should should spin without any obstacles or bouncing.

1.4 Liquid status



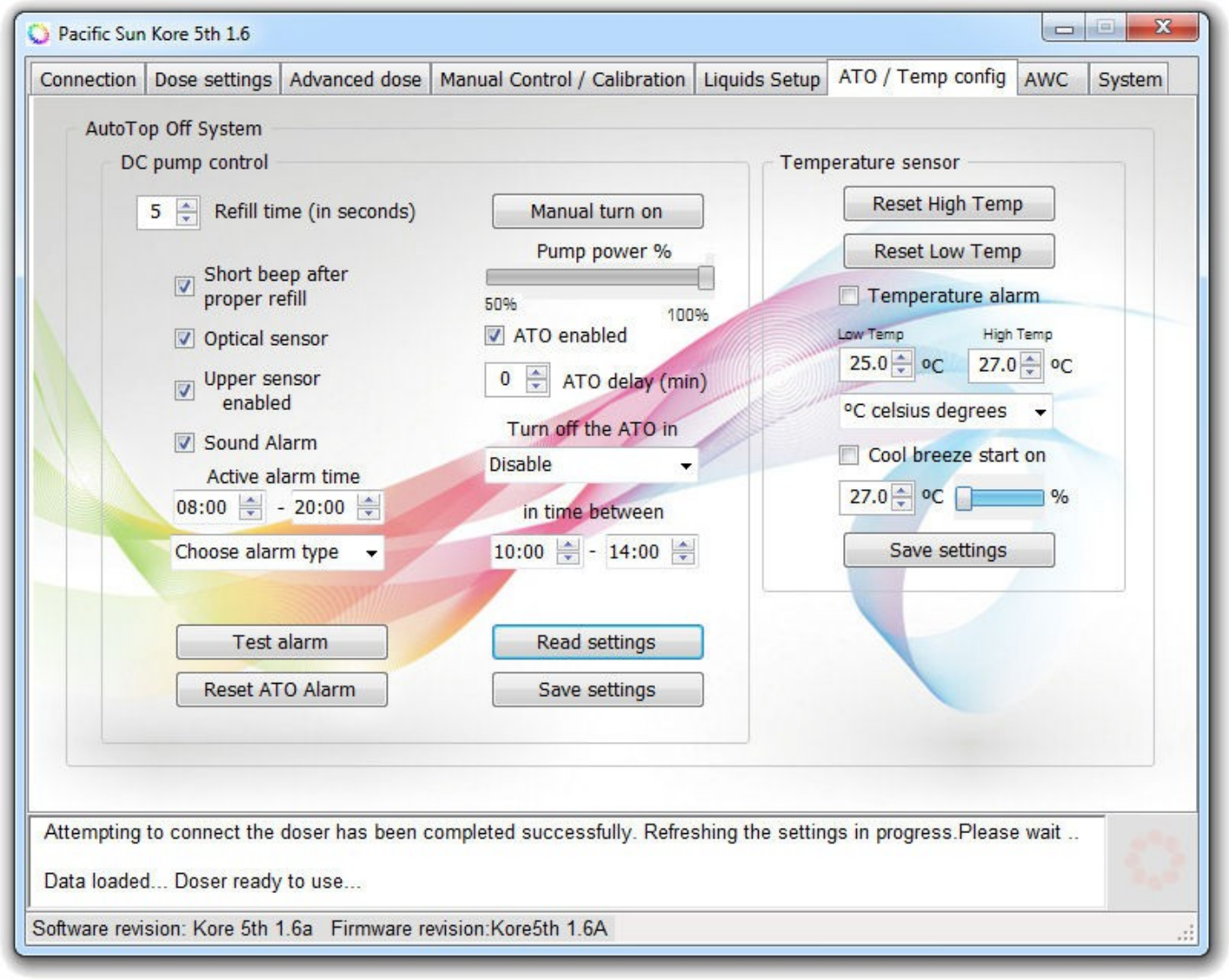
By clicking on each of the bottles, you can check the current level of the fluid. Below you will find information about:
Capacity – initial bottle capacity
Liquid left – calculated actual liquid level(in ml)
Daily dose – information about daily dose from each bottle(for each pump)
Days left – approx. time left to empty bottle(in days)

Here you can refill bottles.
There is text box below each bottle:

- **Refill** – how much liquid is this container. If you have 3 liters container – put there 3000 (in ml)

The setting is saved by pressing **Refill** button.

1.5 ATO/Temp config

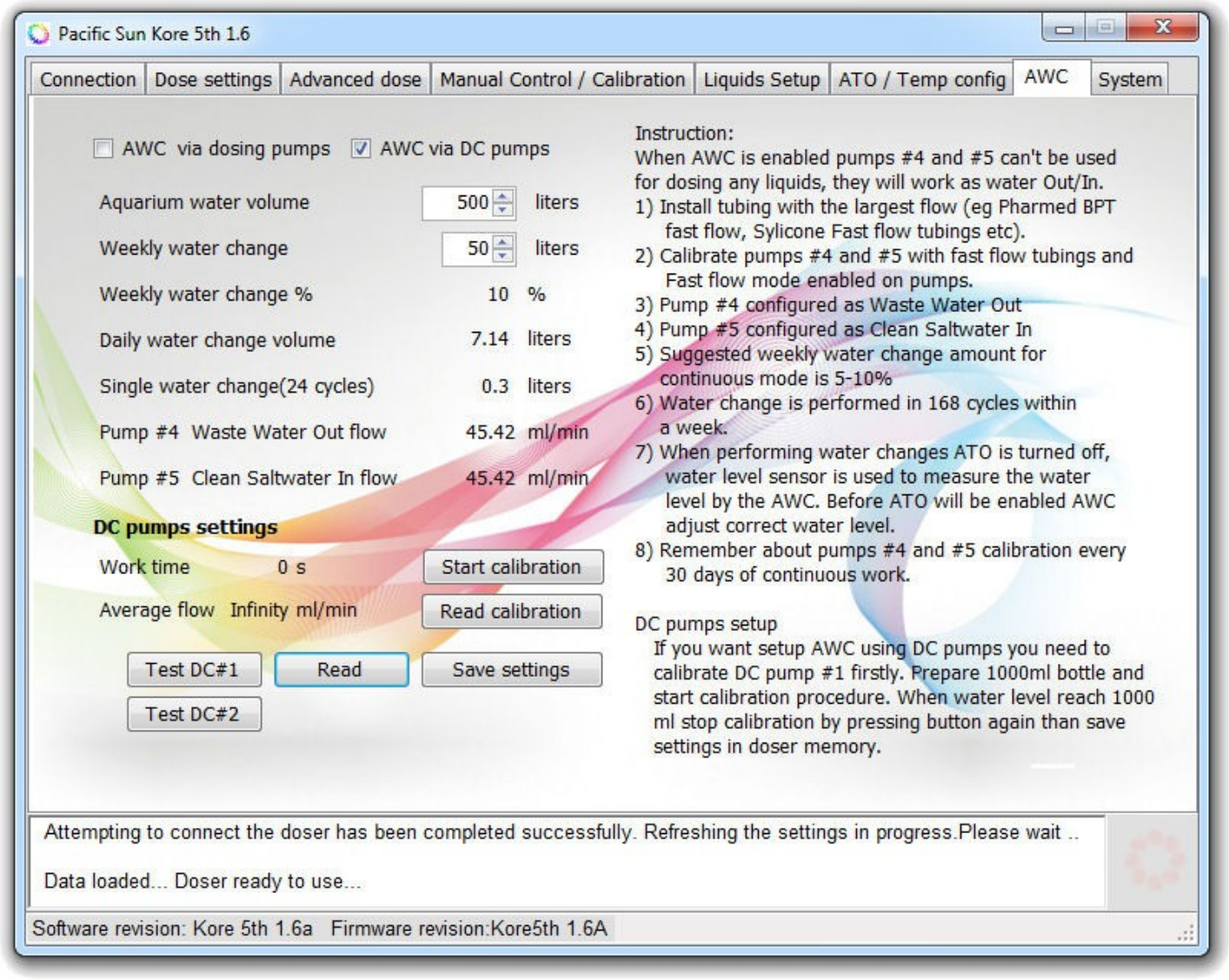


DC pump control box.
Refill time(in seconds) - time in seconds defining how long the DC pump will work when water low level sensor is activated. After four unsuccessful attempts the pump will be turned off (to prevent damage). It is highly advised to select „Unsuccessful water refill Alarm checkbox so you can be notified upon failure.
Manual turn on/off – allows selecting the flow rate manually(flow adjust in 40-100% range).
Short beep after proper refill - enabling this option will cause a beep after each refill of water.
Sound alarm – turn on/off sound alarm when high level sensor is activated.
Choose alarm type - allows you to select sound signal generated by the doser.
Test alarm – test sound alarm.
Reset ATO alarm – allows resetting the ATO after four unsuccesfull refills.

Temperature sensor box
Reset High/Low temp – erase highest/lowest temperature record from doser memory
Temperature alarm – turn on/off sound alarm for temperature settings

Liquid low level alarm
Allows you to set an alarm for a minimum level of dispensed liquids. You can also turn on/off sound alarm for low level of liquid in bottles.

1.6 AWC tab (Auto Water Change)



AWC allows you to program automatic water changes. To configure AWC enter the following data:

- **Aquarium water volume** – yoru aquarium water volume together with sump
- **Weekly water change** – we suggest 5-7% changes

AWC will perform 24 water changes daily(168 weekly). AWC allows maintaining stable water parameters due to constant swapping on fresh saltwater.
Pumps connection:

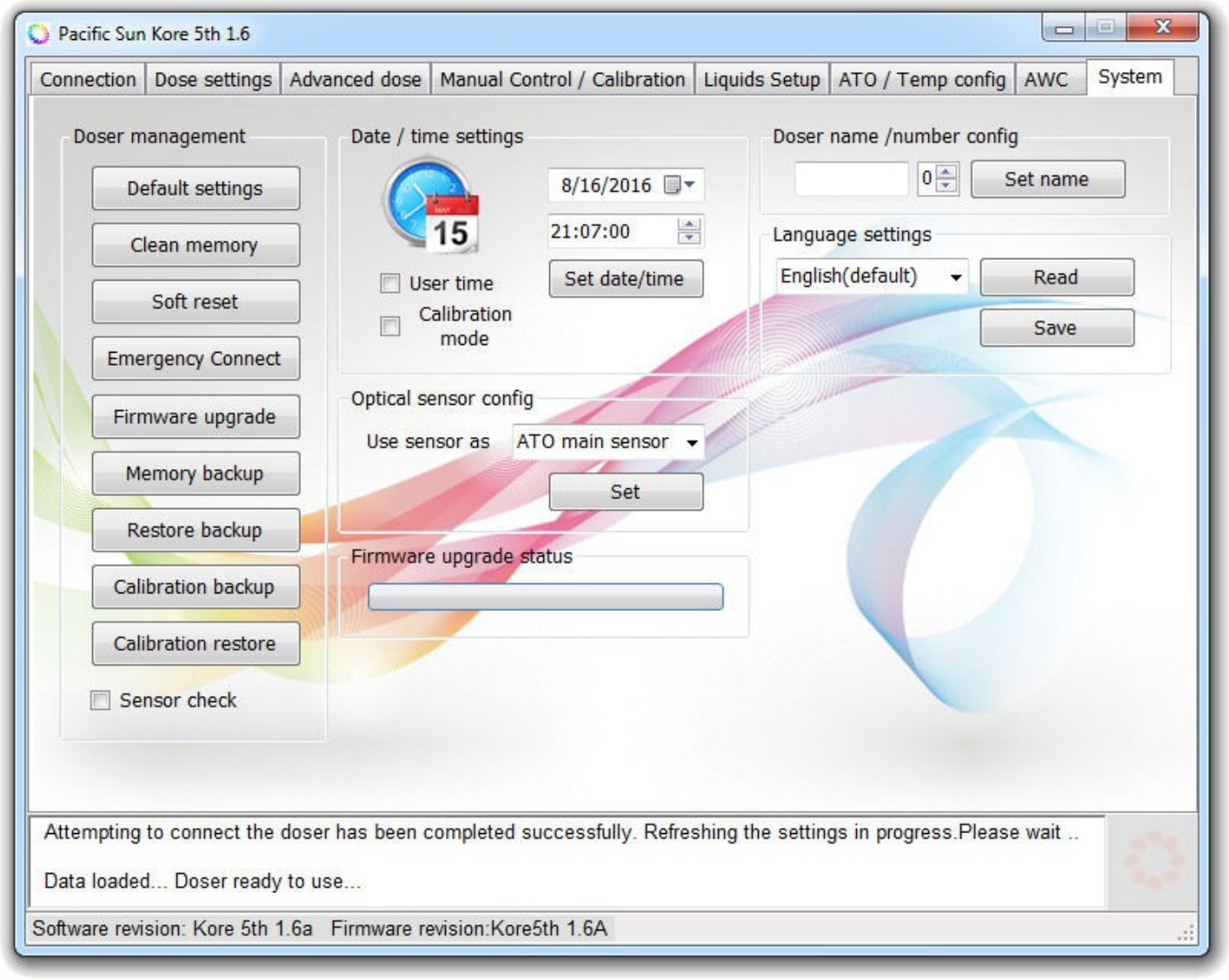
- **pump #4 – waste water out**
- **pump #5 – fresh water in**

When AWC is enabled pumps #4 and #5 can't be used as dosing pumps(will be disabled).
Use **Save** button to write settings in doser memory and **Read** when you want load it from memory to application.
When water change procedure start(waste water out) ATO will be disabled. After succesfull fresh water refill ATO will be enabled again.

You can also configure AWC using additional AWC DC pump set. It allow for much faster water change(up to 250l/h) and with that set your pumps from channel #4 and #5 can still be used as dosing pumps.
Connect DC Pumps to output port on back side of doser. Using two attached tubings connect pump #1 to drain(waste water out) and pump #2 as „fresh" water refill
DC Pump #1 – Waste water out
DC Pump #2 – Fresh water in
You can test/recognise them using test buttons(Test DC#1/Test DC#2).
Before AWC via DC pump can be started you need to follow calibration procedure.

1. Preapre 1000ml cup/bottle
2. **Start Calibration** procedure(push button). Your pump should start pumping water.
3. When you'll reach 1000ml water level in measuring cup – press **Start/Stop Calibration** button again.
4. You will see average flow and time needed to fill 1 liter cup. Now – when you will choose **AWC via DC pump** and click button **Save settings** – your AWC will be configured, doing 24 small water changes daily.

1.7 Service tab



Default settings – program doser with default settings. We suggest use this button if your doser after firmware upgrade not work properly.
Clean memory – erase doser memory. Should be only performed after Pacific Sun Service request.
Sof reset – generate reset signal for doser
Emergency connect – should be performed if software can'y connect with doser due firmware incompatibility. After connection firmware update(with proper corresponding to software firmware) should be performed.
Firmware upgrade – allow upgrade firmware in doser memory
Memory backup – generate .mbf file(memory backup file). This file can be send to our service for diagnose(if something not work properly).
Restore backup – allow import .mbf file to doser memory.
Calibration backup – generate file with pump calibration config.
Restore calibration – allow import calibration backup file to doser memory
Sensor check(checkbox) – when enabled on LCD screen show floating level sensor status. Can be used for diagnose proper switch connection/readings.

Date/time settings:
Once software is connected to the doser:
1) By default, the system date and time is displayed. Click on **Set date/time** to set the same date and time on your doser
2) To select a date and time other than system date and time, check the box next to **User time**, and type the date and time you would like to set. Click on Set date/time to save these settings to your doser
Calibration mode – show actual time(hours/hh:mm:ss format). To back for normal dose mode – uncheck box.

Internal Clock Calibration:
If internal doser clock gain time you can use clock calibration procedure. To start calibration procedure follow next steps:

1) click **Set** button after midnight(00:05 or later)
2) click **Read** button before midnight the same day(ca. 23:40). Calibration procedure should take time up to 24h. Longer calibration time – better accuracy.
3) After succesfull reading app will show how many minutes/seconds doser is too fast/to slow.
4) Click **Save** button to write that numbers to doser memory. Since that moment every night your doser will adjust his internal time automatically.
5) **Reset** – erase calibration data in doser memory.

Hardware check – water level sensor configure(floating sensor).