



SQA-Vp PIG User Guide

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Section 1: Overview

The SQA-Vp is a high performance analytical veterinary device that combines state-of-the-art technology in electro-optics, computer algorithms and video microscopy. The system can be used to conduct automated or manual testing. The SQA-Vp performs a rapid and reliable automated analysis of Fresh/Extended boar semen. The video visualization system allows the user the flexibility to view specimens at X300 through X500.

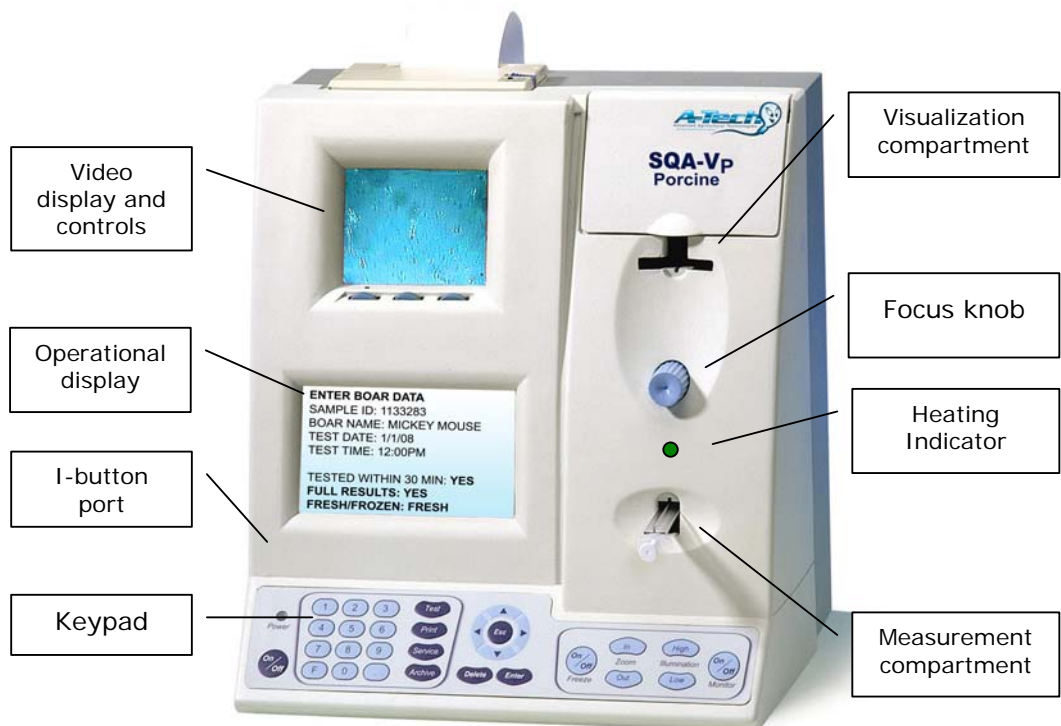
FRESH samples for AI dosing: The SQA-Vp analyzes fresh semen samples automatically. The test results can be transferred to the PC where **P-Sperm** software supplies all the dosing tables, calculations and analysis.

EXTENDED samples for QC: This feature is used to automatically assess the quality of extended (stored) semen prior to insemination.

Data from the SQA-Vp can be downloaded to a PC where **P-Sperm** software reports all the results and provides data management.

Section 2: System Overview

The SQA-Vp

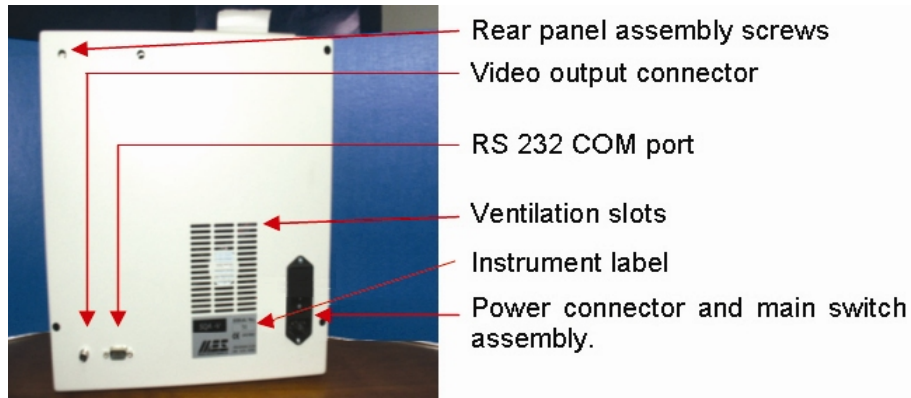


The Rear/Side Panel



I-button

The Rear Panel Components are as follows:



Keypad and Navigation

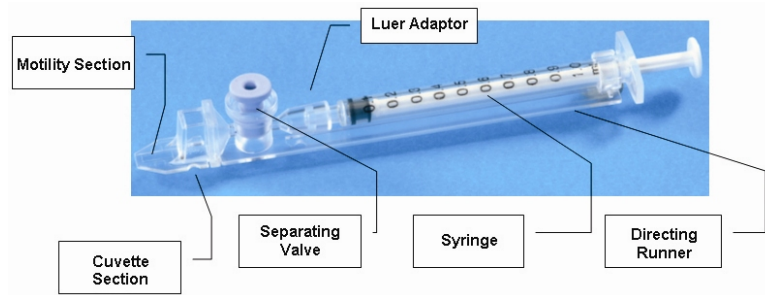
The front panel Keypad buttons are shown in the figure:



- Use the ARROW keys to move within the screens.
- Press ENTER to select menu options and to move to the next screen or row.
- Using ESC will return the user to a previous screen or row.

SQA-Vp Testing Capillary

The testing capillary consists of the following parts:



- Plastic, multi-use (animal use only), disposable.
- Can be used in both the measurement and visualization chambers of the SQA-Vp.
- Refer to the appendix section of this guide for instructions on how to use the capillary and how to clean it.

Slide Adaptor



- Use a standard laboratory slide 76 x 25.6 mm and 22 x 22 mm cover-slip.
- Sample should be placed where indicated by the yellow dot.

Section 3: Operating the SQA-Vp

NOTE: Load I-button tests and set system defaults **PRIOR** to testing (see Section 7 for full instructions)

- Turn on the main switch on the rear panel of the SQA-Vp.
- The power indicator and 37°C heating indicator on the front panel will illuminate.
- Press the On/Off key on the SQA-Vp keypad.
- The system will now automatically perform system stabilization, auto-calibration and self-testing followed by # **Tests Remaining** message.
- Press the **ENTER** key to view the **MAIN MENU**.

Four options are available from the **MAIN MENU**:

- **TEST NEW SAMPLE**
- **ARCHIVE**
- **CONTROL**
- **SERVICE**

Section 4: Sample Testing

To begin testing samples in the SQA-Vp, select:

- **TEST NEW SAMPLE** from the MAIN MENU
- The **ENTER SAMPLE DATA** screen will be displayed either for **FRESH** or **EXTENDED** samples based on the default settings (Section 7).

Fresh Samples

ENTER SAMPLE DATA: FRESH	
DATE 10/01/07	TIME 10:30:17
BOAR ID 2356478	SAMPLE # 325481
NEAT EJACULATE VOLUME	100 ml
PRIMARY EXTENDER VOLUME	100 ml
TIME FROM COLLECTION < 30 MIN	YES/NO
AGGLUTINATION (VISUAL INPUT)	25 %
EXPECTED CONC. > 1 Bil/ml	YES/NO

The screen above will be displayed and the following data needs to be entered:

- **Boar ID:** up to 10 digits
- **Sample #:** up to 10 digits
- **Neat Ejaculate Volume** (Semen volume only): up to 3 digits
- **Primary Extender Volume** (Amount of extender used for primary semen dilution before testing): up to 3 digits
- **Time from collection < 30 MIN** – If **YES** is selected, an automated morphology will be run; If **NO** is selected the test will report NA for morphology.
- **Agglutination** can be entered by visual semen assessment (not obligatory): up to 3 digits
- **Expected Conc. > 1Bil/ml:** Select **YES** if the boar is known to have highly concentrated semen and to avoid a two-step dilution process.

NOTE: Morphology results will be generated by the system **only** for Fresh samples tested within 30 minutes of collection.

NOTE: When preparing samples for testing the extender volume is always two milliliters.

NOTE: DO NOT pre-heat the FRESH sample! Only pre-heat the extender and testing capillaries or motility will be impacted and throughput will be

FRESH SAMPLE PREPARATION	
1.	PRE-HEAT 2ml EXTENDER: 4 MIN
2.	PRE-HEAT EMPTY CAPILLARY: > 4 MIN
3.	ADD SEMEN TO EXTENDER: 200 ul
4.	MIX SAMPLE
5.	FILL AND CLEAN CAPILLARY
AUTOCALIBRATION – DO NOT TOUCH UNIT	

- The screen above instructs how to prepare a **FRESH** sample for testing.
 - Prepare 2ml aliquots of extender pre-heated to 37°C (98.6°F).
 - Pre-heat the testing capillaries to 37°C (98.6°F).
 - DO NOT HEAT THE SAMPLE! ONLY THE EXTENDER AND CAPILLARY or motility will be impacted!
- Follow the screen instructions and do not touch the system or insert a testing capillary until instructed.

FRESH SAMPLE PREPARATION	
1.	PRE-HEAT 2ml EXTENDER: 4 MIN
2.	PRE-HEAT EMPTY CAPILLARY: > 4 MIN
3.	ADD SEMEN TO EXTENDER: 200 ul
4.	MIX SAMPLE
5.	FILL AND CLEAN CAPILLARY
INSERT CAPILLARY INTO CHAMBER	

- The SQA-Vp will sound a 'beep' and a message will appear to **INSERT CAPILLARY** when the system is ready to test the sample.
- Insert the testing capillary and testing will begin automatically.
- A "beep" will be heard in about 45 seconds when the testing is finished.

SEMEN ANALYSIS REPORT: FRESH SAMPLE	
DATE 10/01/07	TIME 10:30:17
BOAR ID 2356478	SAMPLE # 325481
NEAT EJACULATE VOLUME	150 ml
PRIMARY EXTENDER VOLUME	100 ml
TIME FROM COLLECTION < 30 MIN	YES
AGGLUTINATION (VISUAL INPUT)	25 %
PRESS ENTER TO CONTINUE	

- Press ENTER to view the test results – if the QwikClick morphology is to be run, this screen will not be seen until the morphology count has been completed:

TEST RESULTS: FRESH SAMPLE			
CONC.	700.6 M/ml	MSC	550.1M/ml
MOTILITY	78.5 %	MOTILITY GRADING	4
MORPHOLOGY	55.3 %		
TOTALS PER EJACULATE			
SPERM #	70.1 Bil	MOT. SPERM	55.0 Bil

- The test results will be automatically saved and can now be transferred to P-Sperm for dosing following the instructions below:

FOR DOSING CALCULATION PRESS: "IMPORT TEST" BUTTON IN P-SPERM

NOTE: Import test data to P-Sperm in order to activate the dosing screen.

- If QwikClick Morphology was set-up as a system default, before showing the test results, the screen below will be displayed.

PRESS: IMPORT TEST BUTTON
IN P-SPERM
TO ACTIVATE QWIKCLICK MORPHOLOGY
PREPARE A SLIDE FOR QWIKCLICK TESTING

- While this screen is displayed, go to the PC (it should be connected to the SQA-Vp), activate **P-Sperm** and press the **Import Test** button.
- The test results will be imported and the **Dosing Set-up** screen OR the **QwikClick Morphology** counter will be activated.
 - If using the QwikClick Morphology – prepare a slide with immobilized sperm cells for QwikClick counting
- After completing the dosing or QwikClick count, press ENTER on the SQA-Vp keypad and the test results will be printed (if this system default was set-up).

Extended Samples

Before testing Extended Samples, save keystrokes by setting-up EXTENDED as the sample type default. To do this go to:

- **SERVICE > SYSTEM DEFAULT SETTING > SAMPLE TYPE>EXTENDED**

The SQA-Vp is now set to test only EXTENDED samples. To proceed with testing:

- **MAIN MENU > TEST NEW SAMPLE**

The screen below will be displayed for testing Extended Samples:

ENTER SAMPLE DATA: EXTENDED

DATE 10/01/07	TIME 10:30:17
BOAR ID 2356478	SAMPLE # 325481
DATE OF PREPARATION	09/01/07
SEMEN VOLUME	100 ml
AGGLUTINATION (VISUAL INPUT)	10 %

NOTE: PRE-HEAT the **EXTENDED** semen sample for **ONLY 4 minutes** – do not heat for more or the sample may agglutinate and motility readings will be impacted!

Enter the requested data using the SQA-Vp keypad:

- **Date** and **Time** will be displayed by the unit
- **Boar ID**: up to 10 digits
- **Sample #**: up to 10 digits
- **Date of Preparation** (the date when the AI dose was prepared)
- **Semen Volume** (the actual dose volume): up to 3 digits
- **Agglutination** enter the % based on visual analysis (3 digits max)

The screen below indicates that the system is performing auto-calibration. Do not insert a testing capillary at this time. Fill a pre-heated testing capillary with the extended sample (both should be pre-heated to 37°C or 98.6°F).

EXTENDED SAMPLE PREPARATION

1. PRE-HEAT 2ml SAMPLE: 4 MIN
2. PRE-HEAT EMPTY CAPILLARY: > 4 MIN
3. MIX SAMPLE
4. FILL AND WIPE TESTING CAPILLARY

AUTOCALIBRATION – DO NOT TOUCH UNIT

When the auto-calibration is finished the screen below will indicate: **Insert Capillary**. A “beep” will also sound. Insert a filled and pre-heated capillary into the measurement compartment:

```

EXTENDED SAMPLE PREPARATION
1. PRE-HEAT 2ml SAMPLE:      4 MIN
2. PRE-HEAT EMPTY CAPILLARY: > 4 MIN
3. MIX SAMPLE
4. FILL AND WIPE TESTING CAPILLARY
   INSERT CAPILLARY INTO CHAMBER
    
```

- Testing will begin automatically and will take about 40 seconds.
- A “beep” will indicate when the testing is done.
- The following screens will display the test results:

```

SEMEN ANALYSIS REPORT: EXTENDED SAMPLE
DATE 10/01/07          TIME 10:30:17
BOAR ID 2356478       SAMPLE # 325481
DATE OF PREPARATION   09/01/07
SEMEN VOLUME          100 ml
AGGLUTINATION (VISUAL INPUT) 10 %
PRESS ENTER TO CONTINUE
    
```

Press ENTER to view the test results:

```

TEST RESULTS: EXTENDED SAMPLE
CONC. 20.5 M/ml      MSC 15.1M/ml
MOTILITY 73.7 %     MOTILITY GRADING 4

TOTALS PER SEMEN VOLUME
SPERM # 2.1 Bil      MOT. SPERM 1.5 Bil
    
```

Press ENTER to view the **Import Test** screen.

- Activate **P-Sperm** and press the **Import Test** navigation button in P-Sperm. The test results will be imported into the P-Sperm data base.
- Press Enter on the SQA-V keypad to print test results (if this was set as a default – see section #7).
- After printing the **Main Menu** will be displayed for further testing.

MAIN MENU:

After testing a sample the following MAIN MENU screen will be displayed:

```

MAIN MENU
TEST NEW SAMPLE
RECALL LAST TEST RESULTS
RETEST SAME SAMPLE
ARCHIVE
CONTROL
SERVICE
    
```

Two additional options appear in this post-testing Main Menu screen:

- **RECALL LAST TEST RESULTS:** The results can be recalled for displaying on the operational screen.
- **RETEST SAME SAMPLE:** Allow the user retesting the sample without re-entering the sample data again.



Section 5: ARCHIVE

NOTE:

To import the SQA-Vp archive to the PC, please follow the instructions in the P-Sperm™ User Guide.

Select the **ARCHIVE** option to view the archived test records in the SQA-Vp. The user can retrieve records by:

ARCHIVE MENU	
BOAR ID:	
DATE OF TEST	10/01/07
SCROLLING	

- Highlight the option for searching, using the arrow key on the SQA-Vp
- Input the required information regarding test date or BOAR ID
- PRESS: **ENTER** and the record(s) will be displayed
- PRESS: **PRINT** to obtain a hard copy of the test results
- Another option to searching by BOAR ID or DATE OF TEST is to scroll through the archive and select a record from the entire table.
 - Press **ENTER** after highlighting (using the arrow keys) SCROLLING
 - The entire archive will be displayed in the chronological order of test results (most recent test will be at the bottom of the list)
 - Select the desired test record using the directional arrows
 - Press **PRINT** for a copy of the test results

Section 6: Running Controls

The SQA-Vp can run commercially supplied latex beads CONTROLS for testing the accuracy of measuring concentration in the SQA-Vp. QwikCheck™ beads produced by Medical Electronic Systems are assayed for the SQA-Vp, other commercially supplied latex bead medias will need to be assayed by the user for the SQA-Vp.

Control media is aspirated into the testing capillary and run in the same manner as a semen specimen in the testing compartment of the SQA-Vp.

For each **new lot** of controls, set-up the SQA-Vp system defaults through P-Sperm prior to running a test. To run QwikCheck-beads assayed control use the information for Target Value and +/- Range provided on the product labeling. To run a non-assayed control, the Target Value and +/- Range must be established by the laboratory.

SET UP

Controls are set-up through P-Sperm as follows:

- **From the SQA-Vp** go to: **MAIN MENU>SERVICE>SERVICE DATA.**
- **From P-Sperm** go to: **CONTROLS>SET UP** (the PC must be connected to the SQA-Vp via the RS232 cable)
- Press: **CONTINUE** to activate the set-up screen in P-Sperm.
 - Enter the requested information found on the QwikCheck Beads box label
 - Press **APPLY** and the set-up data will be transferred to the SQA-Vp

The SQA-Vp is ready to run Controls. For each new lot of beads, run set-up again.



Controls Testing

To run Controls on the SQA-Vp go to: **MAIN MENU>CONTROL.**

- Select the Control **LEVEL**, press **ENTER** to continue:

```
CONTROL: LATEX BEADS
SELECT:

CONTROL TEST: AUTOMATED
CONTROL LEVEL:
LEVEL #1/LEVEL #2/NEGATIVE CONTROL
PRESS ENTER TO CONTINUE
```

- Follow the instructions:

```
CONTROL: LATEX BEADS, LEVEL #1 (#2, #3)
PLEASE WAIT
DO NOT INSERT CAPILLARY
SYSTEM PERFORMING AUTOCALIBRATION
PLEASE NOTE:
BE SURE TO VERIFY THAT LOT #, EXP DATE
AND TARGET VALUES ARE CURRENT
```

- A “beep” will indicate that the autocalibration has been completed and a testing capillary can be inserted:

```
CONTROL: LATEX BEADS, LEVEL #1 (#2 or #3)

FILL, CLEAN AND WIPE CAPILLARY
INSERT IN CHAMBER
TESTING WILL BEGIN
AUTOMATICALLY
```

- Another “beep” will indicate that testing is complete:

```
CONTROL TEST RESULTS: AUTOMATED
DATE 10/01/07          TIME 15:09:08
LEVEL #1              LOT# 112233445
EXP. DATE 04/08 MM/YY
TYPE: LATEX BEADS
TARGET VALUE: 45 +/- 6.3 M/ml
CONC. RESULTS: 45.5 M/ml NORM (LOW, HIGH)
ACCEPTABLE RANGE: 38.7 – 51.3 M/ml
```

- Press **ENTER** to both print and save the controls test results.

Section 7: SERVICE MENU

Select the **SERVICE MENU** to access one of 5 functions:

- **SERVICE DATA**
- **SERVICE PERSONNEL**
- **PRINT SELF-TEST AND DEFAULT SETTINGS**
- **SETTINGS**
- **ADD TESTS TO COUNTER**



SERVICE DATA: Select this option to view three service screens:

- **Service Data screen (Communication screen):** This screen establishes communication between the SQA-Vp and the PC (P-Sperm) in order to:
 - Transfer test records from the SQA-Vp archive
 - Set-up the CONTROLS default settings
 - Report SQA-Vp service information for technical troubleshooting
- **Self-Test Data screen:** This screen provides system information after Self-Test (Self-Test Data) and after regular testing (Internal Data).
- **Algorithm data screen:** This screen displays algorithm calculations

SERVICE PERSONNEL:

This option is for technical services personnel only and requires a password to access.

PRINT SELF-TEST DATA AND DEFAULT SETTINGS:

This option allows the user to print the SQA-Vp **Self-Test Data** and **Default Settings** that were selected by the user. To activate these functions:

- Highlight this option in the **SERVICE MENU** and press **ENTER**.
- Select: **Self-Test Data** or **Default Settings** and press **ENTER**.

SETTINGS Select this option to set the system and sample defaults.

System Default Settings:

SYSTEM DEFAULT SETTINGS	
LOCAL TIME:	08:15:45 HH:MM:SS 24 h
DATE FORMAT:	MM/DD/YY D/MM/YY
DATE SETTING:	04/01/07
SAMPLE TYPE:	FRESH/EXTENDED
HIGH CONC. OPTION:	YES/NO
BARCODE DATA TRANSFER:	YES/NO
QWIKCLICK ACTIVATION	YES/NO

- **LOCAL TIME:** enter local time
- **DATE FORMAT:** Select the format **DD/MM/YY** or **MM/DD/YY** using the right/left arrows on the keyboard. Press **ENTER** to confirm.
- **DATE SETTING:** enter current date
- **SAMPLE TYPE:** FRESH/EXTENDED
- **HIGH CONC. OPTION:** If the sperm is highly concentrated >1 Bil/ml then select this option to avoid a two step dilution process. The ENTER SAMPLE DATA:FRESH screen will now display: EXPECTED CONC.>1 Bil/ml **YES/NO**
- **BARCODE DATA TRANSFER:** This feature requires tech support/additional set-up and is for facilities using barcode readers at the collection site.
- **QWIKCLICK ACTIVATION:** To use the QwikClick Morphology counter to identify distal and proximal droplets, click YES. For fully automated morphology, select NO.

Sample Default Settings:

SAMPLE TYPE:	FRESH	EXTENDED
AUTOMATICALLY PRINT	YES/NO	YES/NO
DISPLAY TEST RESULTS	YES/NO	YES/NO
AUTOMATICALLY SEND TO PC	YES/NO	YES/NO
EXTENDER TRANSPARENT*		YES/NO



NOTE: If the I-Button is not properly inserted a message: **I-BUTTON NOT PROPERLY ACTIVATED** will be displayed. Remove the button, press ESC and try again.

Enter the desired default settings for different sample types:

***EXTENDER TRANSPARENT:**

- If the semen extender is transparent select **YES**.
- If **No** is selected, follow the onscreen instructions for extender testing.
- Fill the capillary with extender, clean and wipe the capillary tip and insert it in the measurement chamber when instructed.
- After **EXTENDER SETTINGS COMPLETED** message, the **SERVICE MENU** is brought back into view.

ADD TESTS TO COUNTER:

The SQA-Vp requires that tests be “loaded” using a new I-Button.

- Select **SERVICE > SERVICE MENU > ADD TESTS TO COUNTER** and press **ENTER**
- The SQA-Vp screen will instruct the user to: **HOLD NEW I-BUTTON AGAINST PORT AND PRESS ENTER.**
- Make sure the I-Button touches the internal surface of the port.
- Press the I-button firmly in the port, moving it left and right to make sure it also touches the edges of the port.
- The **#TESTS ADDED** and the cumulative **#TESTS NOW REMAINING** will be displayed on the screen of the SQA-Vp.
- The screen will warn the user if an **EMPTY I-BUTTON (was) INSERTED**

Section 8: Troubleshooting

Stabilization Failed:

STABILIZATION FAILED
TURN OFF MAIN SWITCH ON REAR PANEL
REACTIVATE UNIT

IF PROBLEM PERSISTS,
CALL FOR TECHNICAL SUPPORT

- Ensure there is no testing capillary in the measurement compartment.
- Remove the SQA-Vp from sources of electronic noise (centrifuge, cell phones, etc.).
- Clean measurement compartment (refer to Appendix).
- Reboot the SQA-Vp without a testing capillary in the chamber:
 - Turn system **OFF** then back **ON** at the main switch on the rear panel.
 - Press the front panel **ON/OFF** key to begin Auto-Calibration/Self-Test
 - Call for technical support if failure recurs.

Failed Self-Test:

FAILED SELF-TEST
TURN OFF MAIN SWITCH ON REAR PANEL
CLEAN OPTICAL CHAMBER
REACTIVATE UNIT

IF PROBLEM PERSISTS,
CALL FOR TECHNICAL SUPPORT



- Ensure there is no testing capillary in the measurement compartment.
- Remove the SQA-Vp from sources of electronic noise (centrifuge, etc.).
- Clean measurement compartment (refer to Appendix).
- Reboot the SQA-Vp without a testing capillary in the chamber:
 - From the rear panel switch, turn the system **OFF** then back **ON**.
 - Press the front panel **ON/OFF** key to begin Auto-Calibration, Stabilization and Self-Test.
- Call for technical support if this message is displayed again. Prepare for technical support by printing a copy of the SQA-Vp Self-Test/Service Data:
 - Press **SERVICE** key. The **SERVICE MENU** will be displayed.
 - Select **PRINT SELF-TEST AND DEFAULT SETTINGS** option.
 - Select **SELF-TEST DATA** and press **ENTER** to print a copy of the self-test/service data.

Electronic Noise:

ELECTRONIC NOISE
TURN OFF MAIN SWITCH ON REAR PANEL
REACTIVATE UNIT

IF PROBLEM PERSISTS,
CALL FOR TECHNICAL SUPPORT

- Ensure there is no testing capillary in the measurement compartment.
- Remove SQA-Vp from sources of electronic noise (centrifuge, etc.).
- Clean measurement compartment (refer to Appendix).
- After cleaning:
 - Activate **MAIN MENU > TEST NEW SAMPLE** and re-run the test.
- If this message is displayed again, reboot the SQA-Vp:
 - Turn the system **OFF** then back **ON** at the main switch on the rear panel.
 - Press the front panel **ON/OFF** key to begin Auto-Calibration and Stabilization.
 - From MAIN menu: Select **TEST NEW SAMPLE** and re-run.
 - Call technical support if this message is displayed again. Prepare for technical support by printing a copy of the Self-Test/Service parameters:
 - Press **SERVICE** key. The **SERVICE MENU** will be displayed.
 - Select **PRINT SELF-TEST AND DEFAULT SETTINGS** option.
 - Select **SELF-TEST DATA** and press **ENTER** and the service parameters will be printed.

If the testing capillary has been left in the measurement chamber after testing one sample and prior to testing the next sample this screen will be displayed:

REMOVE CAPILLARY
FOLLOW ON-SCREEN INSTRUCTIONS



Input error:

INPUT ERROR
SAMPLE DILUTION RATE
OUT OF RANGE

- o This message appears when the neat ejaculate and the primary extender volumes have not been entered correctly.
- o Go back to **TEST NEW SAMPLE** and enter these values correctly.

Sample too concentrated:

PREPARE NEW SAMPLE: TOO CONCENTRATED
1. PRE-HEAT 2ml EXTENDER 4 MIN
2. PRE-HEAT EMPTY CAPILLARY > 4 MIN
3. ADD SEMEN TO EXTENDER: 200 ul
4. MIX SAMPLE
5. FILL AND CLEAN CAPILLARY
AUTOCALIBRATION-DO NOT TOUCH UNIT

- o When the sample is too concentrated for the system to read accurately the screen above will be displayed
- o Prepare a new sample based on the dilution instructions on the screen

Test results out of physiological range:

TEST RESULTS OUT OF
PHYSIOLOGICAL RANGE

- o The screen above is displayed when the sample has not been prepared accurately. The SQA-Vp will prompt the user to prepare a new sample.

Appendix I: Semen Sample Preparation

EQUIPMENT REQUIRED:

- Extender
- Dispenser
- 10 ml Plastic Container
- Pipette
- SQA-Vp capillary
- Heater – set to 40°C (for 37°C sample heating)

FRESH SEMEN SAMPLES:

NOTE: DO NOT PRE-HEAT the **FRESH** semen sample (pre-heat only the extender and testing capillary) or motility and throughput will be impacted!

- Place 2 ml aliquots of extender into the 10 ml sample containers provided in the test kit (figure 1)
- Pre-heat the extender to 37°C / 98.6°F for **4 minutes** in the SQA-Vp heater.
- Place SQA-Vp testing capillaries in the heater and pre-warm to 37°C / 98.6°F for at least **4 minutes**.
- Do not pre-heat the fresh sample!

SAMPLE PREPARATION

1. Mix the entire semen sample thoroughly.
2. Extract exactly the volume of semen specified by the SQA-Vp onscreen instructions using a pipette (Figure 2).
3. Wipe the tip of the pipette to remove any excess semen.
4. Add the semen from the pipette to the pre-warmed extender in the 10 ml plastic container (Figure 3).
5. Close the plastic container and gently but thoroughly mix the sample for 10-20 seconds (Figure 4).
6. The sample is now ready for testing. Fill a pre-heated SQA-Vp testing capillary with the semen sample.

NOTE: Set the SQA-Vp heating device to 40C to obtain 37C heating of the testing capillary and extender.

NOTE: PRE-HEAT the **EXTENDED** semen sample for **ONLY 4 minutes** – do not heat for more or the sample may agglutinate and motility readings will be impacted!

EXTENDED SEMEN SAMPLES:

1. Mix the extended semen in its original package.
2. Transfer 2 ml of sample into a 10 ml plastic container.
3. Pre-heat the sample to 37°C/98.6°F for **4 minutes**
4. Place SQA-Vp testing capillaries in the heater and pre-warm to 37°C / 98.6°F for at least **4 minutes**
5. Gently and thoroughly mix the sample for 20 to 30 seconds
6. The sample is now ready for testing.
7. Fill a pre-heated SQA-Vp testing capillary with the semen sample and test immediately.



Figure 1: Dispenser



Figure 2: Aspirate the required sample volume



Figure 3: Add semen to the extender

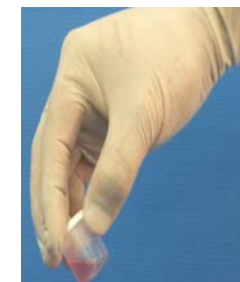
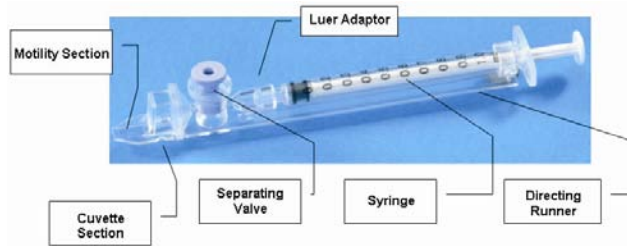


Figure 4: Thoroughly mix the sample.

Appendix II: Capillary Filling Instructions



1. Push the syringe piston in fully. Place only the thin part of the capillary into the bottom of the diluted sample (Figure 1).
2. Placing two fingers below the piston head pull the piston back slowly while keeping the tip of the capillary well below the sample level and surface bubbles (Figure 1).
3. Continue to aspirate the sample until it appears in syringe – hold in a vertical position and check to see that the sample has completely filled the thin section and the cuvette section and appears in the syringe (Figure 2).
4. Tap on the syringe to make sure there are no air bubbles in the sample.
5. Quickly and thoroughly wipe both the top and bottom of the outer surface of the capillary with a tissue. (Figure 3). Visually confirm that the capillary chambers are still full after wiping - a meniscus will be visible in the thin section of the capillary if sample has been lost due to wiping. If this is seen, push very slightly on the piston to re-fill the thin capillary section.
6. Slowly and carefully push-in the blue valve until it is level with the plastic. The capillary is now ready for testing (Figure 4).
7. Insert the capillary into the SQA-Vp (Figure 5)

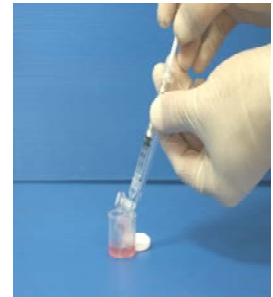


Figure 1



Figure 2



Figure 3



Figure 5



Figure 4

Appendix III: SQA-Vp Cleaning Instructions

When to clean:

Daily or after every 25 tests
If the system fails **SELF TEST**

Cleaning kit components:

Blue Dot capillaries (fig 1)
Sponge-tipped drying capillaries (fig 2)
Cleaning brush-wooden-handled (fig 4)
Cleaning fluid

CLEANING: STEP 1

1. **TURN OFF** the SQA-Vp.
2. Select a **BLUE DOT** fibrous material capillary.
 - Moisten with **ONE** drop of cleaning fluid, shaking off excess fluid.
 - Insert into the measurement compartment - fibrous material facing up, and move back and forth a few times.
 - Repeat with fibrous material facing down.
 - Insert a sponge-tipped drying capillary into the measurement compartment and move back and forth a couple of times to dry the chamber. (fig 3)

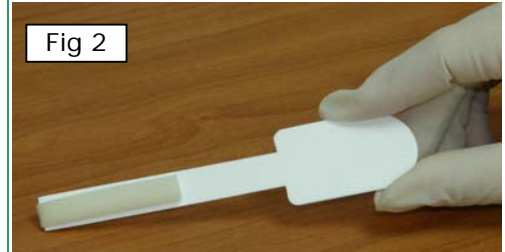
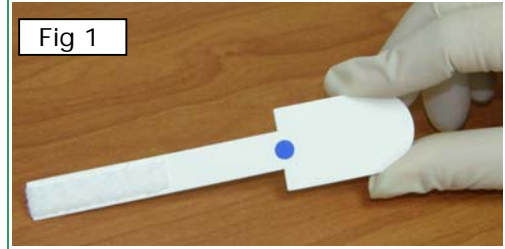
CLEANING: STEP II

Use the wooden-handled cleaning brush:

1. Insert the brush (bristle-side down) fully into the upper portion of the measurement chamber. (fig 5)
2. Pull the brush out of the chamber while sweeping or "dusting off" the LED (you will feel a step or shelf at the back and top of the chamber – this is the top of the LED). (fig 6)
3. Switch SQA-Vp unit **ON** and observe self-test results. The SQA-Vp should now **PASS** the self-test. If not, repeat cleaning procedure with the brush.

CLEANING THE VISUALIZATION COMPARTMENT:

Open the visualization compartment door (upper slot) and swing the cover above the lens to the left. Wipe the lens with 98% alcohol (not provided).



Appendix IV: Capillary Washing Instructions (For animal applications ONLY)

Testing Capillary



Reposition the blue valve with the jig



Remove the plunger



Reassemble the capillary

10 ml sample collection cups

Both testing capillaries and 10ml sample collection cups can be washed and re-used up to 10 times by following this EASY procedure:

Step 1 After running a test:

- Use the white capillary jig to re-position the blue capillary valve
- Expel semen by pumping the plunger a couple of times
- Soak the testing capillary in tap water until ready to wash

Step 2 Set-up: Fill with 1 liter/2 quarts of solution as follows:

- Bowl #1: Tap water (marked "TAP WATER")
- Bowl #2: Distilled water (marked "DISTILLED WATER")
- Bowl #3: Isopropyl Alcohol 70% - 100%

Step 3: Expel all liquid from the testing capillary:

- Pump the syringe plunger a couple of times to expel all remaining liquids.

Step 4: Capillary Washing:

- **Bowl #1 Tap Water:** Completely fill each capillary with tap water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 2.
- **Bowl #2 Distilled Water:** Completely fill each capillary with distilled water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 3.
- **Bowl #3 Isopropyl Alcohol:** Completely fill each capillary with isopropyl alcohol and expel the solution into a hazardous waste container. **Repeat 2 times.**
- Remove the plunger from the syringe after isopropyl washing.

Step 5: Drying the Capillaries:

- Place the capillaries on a flat surface and dry overnight, use the silica bead desiccator described in Appendix V or place in a low heat oven for a few hours until they are completely dry.

Step 6: Final Preparation/Inspection:

- Replace the plunger into the syringe.
- Inspect the capillary for cracks (throw away) or semen (re-wash).
- Note the number of washings by making a dot on the capillary with a water proof marker after each washing cycle.

Washing – Please refer to Step 4 Capillary Washing and follow the same process for washing in the solutions in bowls #1; #2 and #3. Turn upside down on absorbent paper to dry overnight or place in the SQA-Vp desiccator.

Appendix V: Capillary Drying Instructions Using a Desiccator with Silica Beads

(For animal applications ONLY)

A simple desiccator can be made to dry the washed SQA-Vp capillaries using the silica gel beads provided in the SQA-Vp start-up kit. The capillaries dry in approximately 12-24 hours.

Materials/Equipment Required:

- 1 kg of the blue Silica gel beads provided in the SQA-Vp Start-up kit.
- 1 large airtight plastic box/jar container.
- Pliable plastic netting to hold capillaries above the silica beads
- 50 capillaries washed according to the SQA-Vp capillary washing protocol.

Drying Instructions:

Step 1: Assemble the desiccator

- Pour all of the Silica gel beads into the desiccator.
- Put plastic material on top of the silica beads.
- Remove as much water as possible from up to 50 washed capillaries and place them on the plastic rack.
- Tightly close the desiccator.



Silica gel beads

Step 2: Capillary Drying

- After 12-24 hours, check to see if the capillaries are dry - without opening the cover.
- If still wet, close the desiccator and check again in 2 – 4 hours.
- After removing dry capillaries tightly close the desiccator to preserve the beads.



Capillaries drying on top of rack

Step 3: Capillary re-assembly:

- Replace the plunger back into the syringe.
- Inspect the capillary for cracks (throw away) or semen (re-wash).
- Check syringe suction by aspirating air in and out twice.
- Note the number of washings by making a dot on the capillary after each washing-drying cycle.
- The capillaries are ready for use.

Step 4: Silica gel re-activation:

When the BLUE silica gel beads turn PURPLE/PINK this indicates that they can no longer absorb water. To re-use the silica gel beads:

- Heat for 3 to 4 hours @ 130°C
- Periodically mix the beads
- When the color is again BLUE, place the beads back into the desiccator and close tightly.



Appendix VI: The Visualization System

The SQA-Vp Visualization System is for analyzing and viewing semen samples. Both the SQA-Vp testing capillary and a standard slide can be read in the visualization system. Pictures and videos of samples viewed in the visualization system can be captured and stored in P-Sperm. The system:

- Operates via control knobs to set focus, brightness, contrast and color, and via the keypad zoom, illumination, and monitor on/off functions.
- Has a magnification range: x300 to x500.

Operating Instructions:

Slide Preparation:

- Use 10 µl of semen
- Use only a standard slide with a 22mm x 22mm cover-slip.
- Load the prepared slide into the SQA-Vp slide adaptor and insert into the visualization compartment of the SQA-Vp.

Testing Capillary Preparation:

- Fill the SQA-Vp testing capillary with semen following the instructions in the appendix section of this guide.
- Insert the capillary into the visualization compartment of the SQA-Vp.

Testing Process:

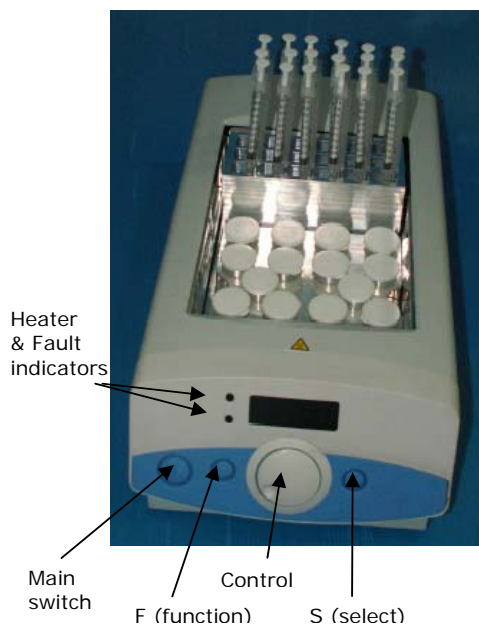
1. The video display illuminates when the SQA-Vp is turned on.
2. To ensure that the visualization system is working properly prior to use:
 - a. Press the **HIGH ILLUMINATION** key multiple times to achieve the maximum level setting.
 - b. Turn **BRIGHTNESS**, **CONTRAST** and **COLOR** buttons all the way counterclockwise.
 - c. Turn **FOCUS** knob fully clockwise.
3. Use **ZOOM IN** for maximum magnification (x500) or **ZOOM OUT** for minimum magnification (x300).
4. Insert the semen sample into the visualization chamber.
5. Turn the **BRIGHTNESS** knob clockwise until the video screen just begins to lighten-up.
6. Turn the **FOCUS** knob counter-clockwise until the image is in focus.
7. Adjust **CONTRAST**, **COLOR**, **BRIGHTNESS**, **FOCUS** and object **ILLUMINATION** controls for optimal image quality.

NOTE: Use caution when turning the focus knob. If resistance is felt it is at the maximum (or minimum) position. Forcing this knob beyond the stopping point may damage the focus system.

Appendix VII: Block Heater Operating Instructions **For Use with A-TECH Sperm Quality Analyzers with Heating Requirements**

Safety:

- Do not pre-fill the SQA testing capillaries with semen prior to heating.
- Do not touch the heating elements to check the temperature.
- If transported or stored in humid conditions, dry the unit before connecting it to power.
- Plug into a grounded electrical outlet that delivers the appropriate voltage indicated on the rear panel of the heater.
- If liquid is spilled inside the unit, disconnect the power supply, take out the metal heating blocks and wipe the spilled material with a damp cloth. Do not use chemical cleaning agents.
- Place the system on a level surface that is free from flammable materials, insuring that all ventilation slots on the base of the system are clear of obstructions.



Heater Operation:

- Place the metal heating racks for capillaries and sample containers into the heating system.
- Plug the electrical cord into the socket at the rear of the unit.
- Turn the unit on by pressing the Main Switch on the front panel - The display will illuminate showing the current temperature of the block.
- Press the 'S' button and adjust the temperature to 40°C using the Control knob. This will ensure a 37°C temperature for the testing capillary and semen samples.
- Press 'S' to confirm the temperature setting or press 'F' to exit without changing the value.
- The block heater will now begin to heat the racks.
- A light will indicate that the system is heating and will begin to flash when the set temperature is approached.
- The temperature setting will be stored in the memory.

Timer Operation:

- Press 'F' button and turn the Control knob until 'CLOC' is seen.
- Press 'S' button and turn the Control knob until 'On' is seen.
- Press 'S' button and turn the Control knob to select the required time (Example: 4 minutes (004) for Equine).
- Press 'S' button: The time and the Temperature will be displayed intermittently.
- A beep will sound and 'End' will be displayed when the time has expired; press 'S' to stop beeping.

Heating the SQA Testing Capillaries and Samples:

- Place **empty** testing capillaries in the heating rack (as shown in the picture above).
- Place **empty** 10-ml plastic containers in the appropriate heating rack.
- Wait 5-7 minutes for the heating unit to pre-heat the containers and testing capillaries.
- Distribute the semen sample into 10-ml container following User Guide instructions.
- Close the containers during pre-heating.
- Remove testing capillaries as needed for testing. Fill with semen per user guide instructions.

Note: If the processor detects an error in heating the fault indicator will illuminate, the buzzer will beep and the display will flash. To reset this fault, switch the unit off and on. If the fault re-occurs contact the service personnel at your local distributor.



Appendix VIII: Glossary of Terms

	SQA-Vp Terms	Definition
Menu	SN	Serial Number of the SQA-Vp
	DATE/TIME	The date and time the test was performed
	SAMPLE #	The number assigned to the semen sample
	BOAR ID	The identifying number of the boar being tested
Test Results	CONC.	Total sperm concentration expressed in millions/ml
	MSC	Motile sperm concentration expressed in millions/ml
	MOTILITY %	Percentage of motile spermatozoa: Motile Sperm Concentration divided by Total Sperm Concentration expressed as a %.
	GRADING MOTILITY	Motility Grade score (0-5) is related to progressiveness of motile sperm. Score 0 corresponds to absence of progressive motility whereas score 5 corresponds to the maximum progressive motility.
	MORPHOLOGY	Percentage of morphologically normal spermatozoa.
	SPERM #	The total number of sperm cells per ejaculate volume (Fresh samples) or per semen volume (Extended samples).
	MOT. SPERM	The total number of motile sperm cells per ejaculate volume (Fresh samples) or per semen volume (Extended samples).
	Dosing Calculations P-Sperm	EXTENDER VOLUME
TOTAL VOLUME		Semen volume (neat ejaculate + primary extender volume) + extender volume (ml)
NUMBER OF DOSES		The total number of doses that will be produced based upon the users set-up parameters
Dosing Set-up P-Sperm	DOSING METHOD	Options to dose by: Total Sperm #; Motile Sperm #; or Morphologically Normal Sperm # in an A.I. dose
	DOSE VOLUME	The desired A.I. dose volume (ml): 80/100/other
	TARGET # SPERM	The number of spermatozoa according to the dosing method desired in an A.I. dose (Billion/Dose)
	MOTILITY CUTOFF	The lowest acceptable level of Motility
	MOTILITY GRADE CUTOFF	The lowest acceptable level of Motility Grade



Appendix IX: SQA-Vp System Specifications

Dimensions: 40 x 30 x 15 cm

Weight: 4 kg

AC power supply: 100 to 250 VAC, 50/60 Hz, 10 VA

Measurement Compartment

- **Sources of radiant energy** - two 880 nm LEDs for motility and spectrophotometry channels
- **Detector system** – 2 photo detectors - Motility and Optical Density

Visualization Compartment

- Green LED illumination system
- CCD, 350 TV lines
- Objective lens: Standard, x20
- Signal Output: PAL standard
- Zoom system for smooth magnification transition from x300 to x500
- Focus regulator

Display(s)

- Operational backlight LCD (16 lines x 40 characters)
- Video backlight LCD (8 x 10 cm)

Printer

- Built-in, Dot Matrix
- Non-thermostatic narrow paper with 20 characters per line (Citizen)
- Ribbon cassette (Citizen)

Keypad

- **Operational keys:** ON/OFF, TEST, PRINT, SERVICE, ARCHIVE, DELETE, ENTER, four cursor buttons, ESC, numeric buttons (0-9)
- **Video control keys:** ON/OFF, ZOOM IN/OUT, ILLUMINATION HIGH/LOW, and MONITOR ON/OFF

Front Panel

- Built-in printer
- Visualization compartment
- LCD video display and controls
- Focus knob
- LCD operational display
- Measurement compartment
- Multi-button keypad



Rear/Side Panel

- Power connector with fuse-holder (fuse 250V, 1A)
- Video connector
- RS232 cable outlet
- I-Button port (side panel)

Specimen Testing Supplies

- **Measurement capillary:** Disposable, multi-use plastic, positive displacement testing capillary (purchase from manufacturer).
- **Standard lab slide:** 76 x 25.6 mm, 22 x 22 mm cover-slip.
- **I-Button:** Required to run tests (purchase from manufacturer)

Archive Capacity

- 500 test records in each (Test Results and Control) archive

Operating System

- **Control:** Keypad
- **Analysis Time:** 45 seconds for a Normal Test
- **Software:** Resides on flash memory and drives all man-machine interface functions, runs algorithms for test measurements and operational screens. System can be upgraded from a PC CD-ROM.
- **Sample Testing Temperature:** 37°C (98.6°F).
- **Motility channel input signal:** Analog, up to 5V.
- **Spectrophotometer channel input signal:** Modulated (1 kHz) analog, up to 5V.

Quality Control

- **Internal:** Electronic Self-Test and Auto-Calibration.
- **External:** QwikCheck-beads control media.

PC Compatibility

Minimum requirements for P-Sperm™ software

- **PC:** 1 GHz processor, Pentium 3
- **RAM:** 256 MB
- **AGP-video display card** with at least 16 MB of RAM memory
- **Video color:** At least 16 bit (65,535)
- **CD ROM drive**
- **40 GB free hard disk space** for image capturing and storage
- **Video resolution:** Minimum 640 x 480

Operating system compatibility: Windows 2000, Windows XP, DirectX, DivX

- **Ports:** One serial; two USB ports
- **Monitor:** 15" color

Additional Software (supplied with system)

- **P-Sperm software:** Real time visualization interface between PC and SQA-Vp visualization system, data transfer, video/picture capture and archive.



Operational Temperature and Humidity

- System is operational at 15-38°C.
- *NOTE:* SQA-Vp operates in a wide range of ambient temperatures however the system is calibrated to measure semen samples at 37°C (98.6°F).
- System is fully operational at up to 80% humidity and 31°C.

Maintenance Schedule

- Cleaning daily and after every 50 tests (refer to User Guide – "Cleaning Instructions").

Manufacturer Recommendations

- Operate the SQA-Vp away from devices that may cause electronic noise (cell phones) or other devices causing vibrations such as centrifuges.
- Turn system **OFF** at the rear-panel when not in use for extended period of time.
- Semen is considered a biologically hazardous material and is subject to individual laboratory protocols for handling such materials.

Factory Default Settings:

Date format: DD/MM/YY

Time/Date: Manufacturer's local time/date

Sample Type: FRESH

Automatically print: YES

Display test results: YES

Automatically send to PC: YES

Extender transparent: YES

Appendix X: Product Performance Data

Abbreviations:

CONC: Sperm Concentration
 CV: Coefficient of Variation
 M/ml: Million per milliliter

Performance Data Summary:

The performance of the SQA-Vp system for boar semen analysis is summarized in the text, tables and graphs below. Sperm concentration measurements are expressed as 10⁶ sperm cells per milliliter (M/ml). Motility is expressed as a percent (%). Unless otherwise noted all testing was performed using fresh and extended boar semen samples.

Calibration:

Each SQA-Vp is biologically calibrated against two reference systems at Medical Electronic System’s laboratory using boar semen.

Dynamic Range:

Sample Type	Conc. M/ml	Motility %	Grading Motility	Morphology %
Fresh	0-1500	0-100	0-5	0-100
Extended	0-500	0-100	0-5	-

Precision and accuracy established against a known target (Latex beads)

Background: The precision and accuracy of the SQA-V were compared to a known target value using commercially available latex beads of two concentrations. Latex beads are used commercially to validate automated sperm counting systems. The beads were run on the SQA-V in the same manner semen samples are run on the system.

Limitations of method:

- Latex beads cannot:
- Measure sperm motility or morphology
 - Correct for inaccurate chamber depths or technician errors

Methodology:

A total of 320 latex bead samples were tested on ten SQA-V systems. The precision of the SQA-V is demonstrated in Table 1. SQA-V concentration readings were compared to the established target values +/- the acceptable range for the latex beads (Fig. 1 & 2).

Accu-beads® published ranges (Hemocytometer):

- Vial #1: 47 +/- 7.0 M/ml
- Vial #2: 24 +/- 3.4 M/ml

Table 1: Precision

SQA-V	Latex-beads	CV %
Intra-device Variability	High 47 ± 7.0 M/ml	≤ 0.01
	Low 24 ± 3.4 M/ml	≤ 0.01
Inter-device Variability	High 47 ± 7.0 M/ml	≤ 2.00
	Low 24 ± 3.4 M/ml	≤ 2.50

Fig. 1. Accuracy: High Level Control

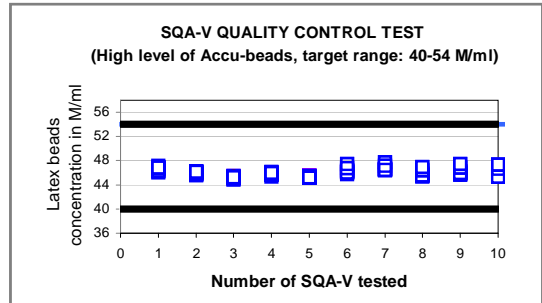
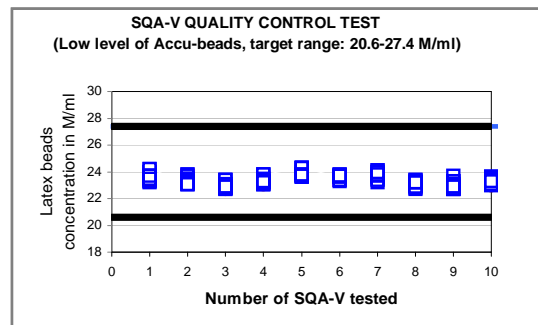


Fig. 2. Accuracy: Low Level Control



**Conclusions:**

The **CONTROL** mode software of the SQA-Vp (pig) device is exactly the same as the SQA-V (human) system. Both systems also have the same hardware platform. Therefore, the accuracy and precision results obtained on the CONTROL mode of the SQA-V will be the same as that of the CONTROL mode of the SQA-Vp.

Sensitivity, specificity, precision and correlation to manual methods established in MES laboratories and field clinical trials using boar semen samples

Clinical claims:**Sensitivity**

- Concentration: 90%
- Motility: 75%
- Grading Motility: 60%
- Morphology: 60%

Specificity

- Concentration: 90%
- Motility: 75%
- Grading Motility: 80%
- Morphology: 80%

Precision (CVs)

- Conc.: 3%
- Motility: 5%
- Morphology: 5%

Correlation to Manual Method:

- Concentration: 0.9
- Motility: 0.8
- Morphology: 0.7

Notes:

- Sensitivity and specificity **claims** are lower than actual values noted (Table 2).
- Precision CV **claims** are higher (lower precision) than actual values noted (Table 3).
- Correlation to Manual Method **claims** are less than actual correlations noted (Table 4).

Method comparison:

SQA-Vp was compared to the microscope based on WHO'99 manual guidelines. The SQA-Vp automated readings of the sperm concentration, motility and morphology were compared to microscopic results. A Makler chamber was used according to manufacturer's instructions for manual sperm concentration measurements. A standard slide and P-Sperm software were used to assess manual motility. The stained slides were used for the manual morphology examination. The protocols were based on WHO'99 manual and MES guidelines. The alpha-site clinical trials were conducted at the Lahav farm. A total of 58 fresh and extended semen samples were analyzed.

Table 2: Sensitivity/Specificity

SQA-Vp vs. Microscope	Sensitivity, %	Specificity, %
Sperm Concentration	91.7	95.2
Motility	80.0	79.0
Grading Motility	66.7	89.1
Morphology	66.7	84.0

Table 3: Precision: SQA-Vp intra-device variability (CV, %)

Semen Variable	CV, %
Sperm Concentration M/ml	2.1
Motility, %	4.0
Morphology, %	3.6

Table 4: Correlation to manual method

Parameters	Correlation coefficients
Sperm Concentration, M/ml	0.99
Motility, %	0.83
Morphology, %	0.71

Analytical Specificity:

- To achieve analytical specificity a specific wave length of light which is maximally absorbed by sperm cells and minimally absorbed by other cells and seminal plasma is used.
- Low noise and high electronic resolution hardware components and compensation circuits ensure that analytical specificity is optimized.

Limitations of method:

Samples were assessed in duplicate on the automated SQA-Vp system and manually using a microscope. Statistical counting errors and intra-operator variability (subjectivity) may have affected the results of the study.

Performance parameters:

- Sensitivity and specificity were calculated using ROC analysis formulas. The cutoffs normally used for the sperm concentration, motility and morphology were used for calculation of sensitivity and specificity (Table 2).
- Precision of the SQA-Vp device was estimated by calculation of the intra-device coefficients of variation (CV) of the duplicate measurements (Table 3). CV is calculated according to the formula:

$$CV = SD / MEAN \times 100$$

The lower CV, the higher precision of the method.

- Correlation to manual method was established by calculation of correlation coefficients (Table 4, Fig. 3-5).

Conclusions:

- The sensitivity, specificity and correlation of the SQA-Vp to the manual method are very high. Therefore the instrument can replace the manual method for assessing, dosing and extending pig semen.
- The SQA-Vp is precise and reports accurate results with low coefficients of variation for the semen variables assessed (<6%).

Fig. 3: Method comparison: Regression plot of SQA-Vp Sperm Concentration in boar semen vs. manual results

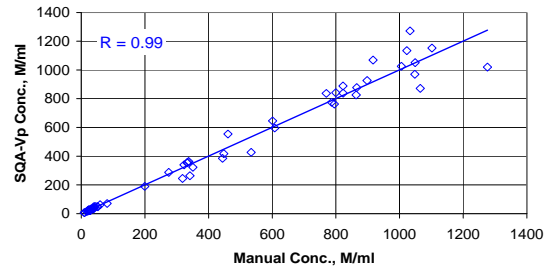


Fig. 4: Method comparison: Regression plot of SQA-Vp Motility in boar semen vs. manual results

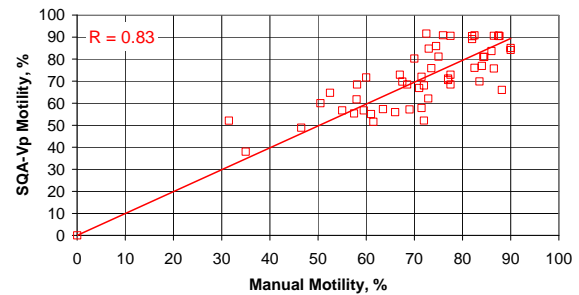
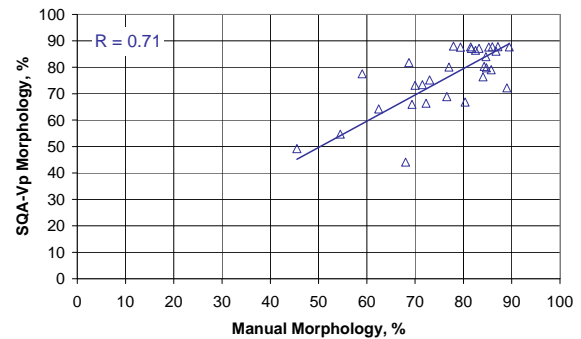


Fig. 5: Method comparison: Regression plot of SQA-Vp Morphology in fresh boar semen vs. manual results





P-Sperm™

User Guide

Catalog # 5112

Version 1.01

February 2008



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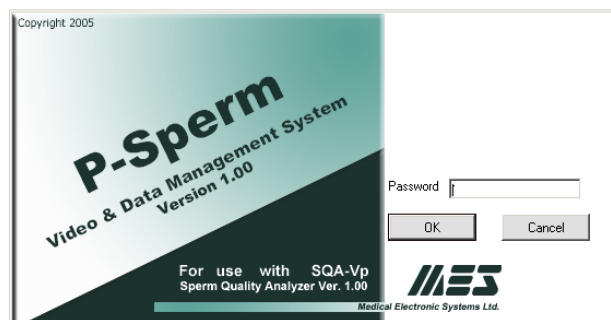
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Section 1: Overview



P-Sperm is a user friendly data management software package that works together with the SQA-Vp to provide the following features and benefits.

- Test results from the SQA-Vp can be downloaded from the SQA-Vp and analyzed, sorted, graphed and archived on a PC.
- Data can be analyzed through the entire testing, dosing and storage cycle.
- Semen samples can be viewed in “real time” on the PC monitor.
- Video clips and images can be captured and stored
- Information is secure – access to P-Sperm requires a password.



The P-Sperm package includes:

- P-Sperm User Guide
- Installation CD
- Security Key
- Video Frame Grabber (or internal PC card)
- Video Cables

System Requirements:

- SQA-Vp with RS232 communication cable and power cable
- PC requirements:

Hardware requirements:

- 1Ghz or higher CPU
- 256 MB RAM
- AGP Video Display Card with at least 16 MB of RAM memory
- CD-ROM compatible drive
- RS232 communication port (serial)
- Two available USB ports

Software requirements:

- Compatible operation system:
- Windows XP and VISTA
- EXCEL (for exporting data)
- At least 40 GB of free hard disk space recommended
- Video resolution \geq 640x480 (recommended 1024x768)
- Video color quality \geq 16-bit



Section 2: Software / Hardware Installation

Warning: The frame grabber should be installed prior to using P-Sperm!

Video grabber USB device Installation

P-Sperm requires that the user install the frame grabber provided by the manufacturer. For frame grabber installation instructions, please refer to the package insert in the P-Sperm package.

P-Sperm Installation

NOTE: It is highly recommended to use the manufacturer's default settings.

1. Close any open programs before beginning the upgrade process.
2. Insert the P-Sperm CD into the PC's CD-ROM. The installation process will begin automatically
3. The screen will display: Initializing Wise Installation Wizard
4. Click NEXT when the "Welcome" screen is displayed
5. Click NEXT when the "Choose Destination Location screen is displayed to accept the P-Sperm default folder or click "Browse" to select another folder.
6. Click NEXT when "Select Program Manager Group" is displayed. If a messages "Digital Signature Not Found" is displayed, click YES
7. Installation complete: Click OK to restart the PC.

NOTE: Do not plug in the capture device until the P-Sperm software is installed.

P-Sperm Security Key installation

Security Key Installation

Warning: P-Sperm will not work without the security "key" connected to the PC.

- Plug the P-Sperm security key into a second free USB port on the computer and the P-Sperm security key will be automatically installed.



SQA-Vp Connection

- Connect one end of the RS232 communications cable to the PC.
- Connect the other end of the RS232 communications cable to the SQA-Vb.
- Follow the instructions in the SQA-Vp User Guide for setting up system defaults.

Video Capture Device Settings

- Go to the P-Sperm: Real Time Video > Video Settings
- Using the drop-down menus, make the appropriate setting selections for the video capture device that has been installed
- Refer to the Video Captures Installation guide provided with the video capture hardware



Seven Navigation buttons allow easy access to the P-Sperm features.

- Test Data
- Controls
- Import Test
- Import/Export
- Real Time Video
- Set-Up
- Exit


Section 3: System Navigation Overview


- All the features of P-Sperm are activated by clicking on one of 7 navigation buttons that are always available in the left margin of the screen.
- Select one of the navigation buttons and sub-menu buttons appear across the top of the P-Sperm screen displaying further options to run reports, export data, etc.
- A variety of icons guide the user through the P-Sperm features and options. Directional indicator buttons allow the user move back to the previous menus with ease.


<> Test results out of clinical range: This icon is displayed to indicate that one or more of the test results are **out of the clinical range** that has been set-up by the user (please refer to Section 9:Set Up).

! Dosing mismatch: This icon will be displayed when the dosing requirements cannot be implemented. This can happen when:

- The set-up values have been entered incorrectly
- The semen sample is of low quality

 **Picture indicator:** A camera icon will be displayed to indicate that a picture has been attached to the test results. Click the camera icon to view the attached picture. Only one picture can be attached to each test.

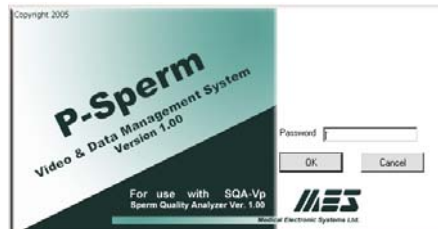
 **Video Indicator:** A video camera icon will be displayed to indicate that a video clip has been attached to the test results. Click the video icon to view the attached video clip. Only one clip can be attached to each test.

 **Graphs:** A graph icon indicates that an individual boar's test results can be graphed by clicking on the icon and selecting the parameter to be graphed.

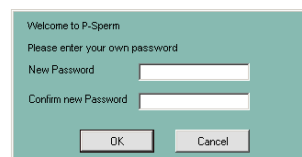


Section 4: Start-up

Click on the P-Sperm icon located on the PC desktop to enter the system. Enter the **temporary password: fertility** and then click OK.



A screen will automatically appear. Enter and confirm a new password.



WARNING: Please remember the new password or the system cannot be re-entered.

Test Data

WARNING: Before starting the testing process go to Section 9: Set-Up to insert the system defaults.

Section 5: Test Data (Before testing see Section 9: Set-Up)

The first navigation button is **TEST DATA**. From this screen the user can locate, select and analyze test results that have been imported from the SQA-Vp. Click the navigation button **TEST DATA** and three sub-buttons will appear:

- **Dosing – Fresh**
- **Extended**
- **Daily Report**

Dosing - Fresh

Note: See "System Navigation Overview" for an explanation of the following icons:



Graphs



Test Results out of Clinical Range



Dosing Mismatch



Camera



Video

Dosing-Fresh:

The **Dosing-Fresh** button displays a data base of fresh semen samples and enables the user to calculate insemination doses (see "**Dosing Set-up**" instructions to follow).

Dosing - Fresh

Number of Records 59

Sort Hide Freeze Columns View All

			Date	Time	Time from Collect. <30 min.	Boar ID	Boar Name	Sample #	Neat Ejaculate Volume [ml]
			23/08/2006	09:22	No	190	Vandredy 7	2	50
			23/08/2006	09:21	No	190	Vandredy 7	1	50
			23/08/2006	09:20	No	189	Vandredy 6	2	100
			23/08/2006	09:19	No	189	Vandredy 6	1	100
			23/08/2006	09:17	No	186	Vandredy 3	1	50
			23/08/2006	09:16	No	184	Vandredy 1	2	150
			23/08/2006	09:15	No	184	Vandredy 1	1	150
			23/08/2006	09:14	No	182	Toledo 13	1	200
			23/08/2006	09:13	No	181	Toledo 12	1	60
			23/08/2006	09:12	No	181	Toledo 12	2	60
			23/08/2006	09:11	No	180	Toledo 11	1	50
			23/08/2006	09:10	No	180	Toledo 11	2	50

Clear All Select All Delete Dosing Set-up

Click on **Dosing-Fresh** to view the table above. Simply scroll left and right from the bottom or up and down from the right side bar to view all the columns and to access test results imported from the SQA-Vp.



The following information is displayed in the **Dosing–Fresh** table:

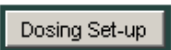
Sample/Boar Information:

- Date – The date the sample was tested
- Time – The time the sample was tested
- Time from Collection < 30 min. – indicates Yes or No
- Boar ID – A unique Boar identification number designated by the user
- Boar Name – Entered through the **Boar Settings** screen (Section 9: Set-Up).
- Sample # - The Sample number designated by the user
- Neat Ejaculate Volume – The ejaculate volume (in ml).
- Primary Extender Volume – The volume of extender added prior to the collection of the ejaculate.
- Agglutination, % - Percentage of sperm cell agglutination noted visually.

Test Parameters:

- Sperm Concentration, M/ml
- MSC, M/ml
- Motility, %
- Motility Grading, (0-5)
- Morphology, %
- Morphology Method – Automated or Manual
- Sperm # (billions/ejaculate)
- Motile Sperm # (billions/ejaculate)

Unit #: The serial number of the SQA-Vp.



Dosing Set Up

To set-up the parameters for dividing the semen sample into doses:

- Select the desired boar test record from the **Dosing-Fresh** table by moving the cursor to that test and highlighting it.
- Click the **Dosing Set-up** button at the bottom of the table. A dosing calculation window will open (see the table below).
- Enter the dosing settings as follows:
 - **Dosing method:** The method selected for dosing: Total Sperm, Motile Sperm or Morphologically Normal Sperm per AI dose.
 - If morphologically normal sperm is selected the SQA-Vp will use the automated morphology results as a default for dosing.
 - If manual morphology is preferable, simply enter the % normal morphology test results in the Morphology (%) manual field by overwriting the OPTIONAL entry.
 - **Dose Volume (ml):** Enter manually or select: 80 or 100.
 - **Target # Sperm (Bil./Dose):** Enter the desired # of sperm cells/dose.
 - **Target Value:** Input the target value for each dose.
 - **Motility Cutoff (%):** Enter the lowest motility acceptable for dosing.
 - **Motility Grade Cutoff (%):** Enter the lowest Motility Grade level acceptable for dosing.



Dosing Set-up			
Boar ID	190	Boar Name	Vandyedy 7
Location	Lehav	Date	23/08/2006 09:22
Neat Ejaculate Volume [ml]	50	Primary Extender Volume [ml]	60
Sperm Conc. [M/ml]	1003	MSC [M/ml]	906.2
Motility [%]	90.4	Motility Grading [0-5]	4
Morphology [%] - Automated	87.6	Morphology [%] - Manual	Optional
Dosing Method	Motile Sperm	Dose Volume [ml]	80
Target # Sperm [Bil/Dose]	35	Motility Cutoff [%]	70
		Motility Grade Cutoff [0-5]	3
Calculate			
Extender Volume [ml]	851	Total Volume [ml]	961
		Number of Doses [#]	12
Motility Cutoff	Pass	Motility Grade Cutoff	Pass
Save and Close		Cancel	Report

Click the **CALCULATE** button to calculate and display the dosing instructions:

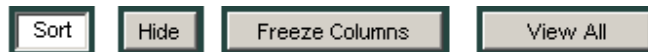
- **Extender Volume (ml):** The volume of extender to be added to the sample.
- **Total Volume (ml):** The volume of the semen plus the extender.
- **Number of doses (#):** The total number of doses that can be generated from the extended sample.
- **Motility Cut off:** Does the sample fall into the range selected? (PASS/FAIL)

Click:

- **Report:** To display a printable copy of the dosing screen.
- **Save and Close:** The data will now be displayed in the Dosing FRESH table.
- **Cancel:** To delete the data.

A new **Dosing Set-up** screen will automatically open at this point. For more information about this screen see the Import/Export section of this guide.

The **Dosing-Fresh** screen has other option buttons:





Click on the buttons above to modify the data display in the **Dosing-Fresh** table:

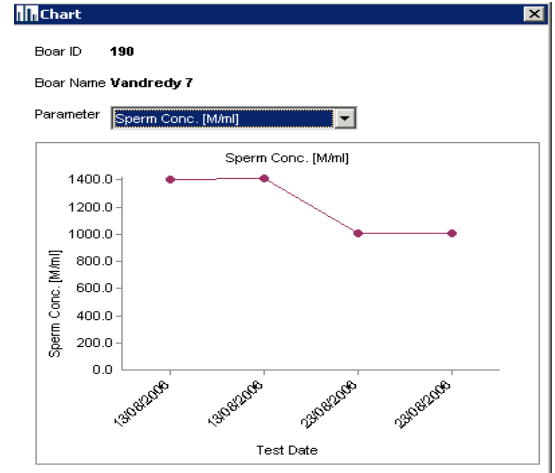
- **SORT:** Click the **Sort** button and then click on the column header that contains the information you wish to sort (DATE, BOAR ID, SPERM CONC., MSC, etc.)
- **HIDE:** Click the **Hide** button. Select the columns from the table that you wish to hide and the columns will disappear.
- **FREEZE COLUMNS:** Click on this button to freeze the columns: DATE through SAMPLE #. Other report data can still be scrolled.
- **VIEW ALL:** This option will re-activate ALL of the hidden columns.



On the test table, graph icons are available to run charts of the pig parameters:

 **Graphs:** Click on this icon and then select the parameter to be displayed on the graph.

 This icon will be displayed only if a boar has more than one test in the data base.

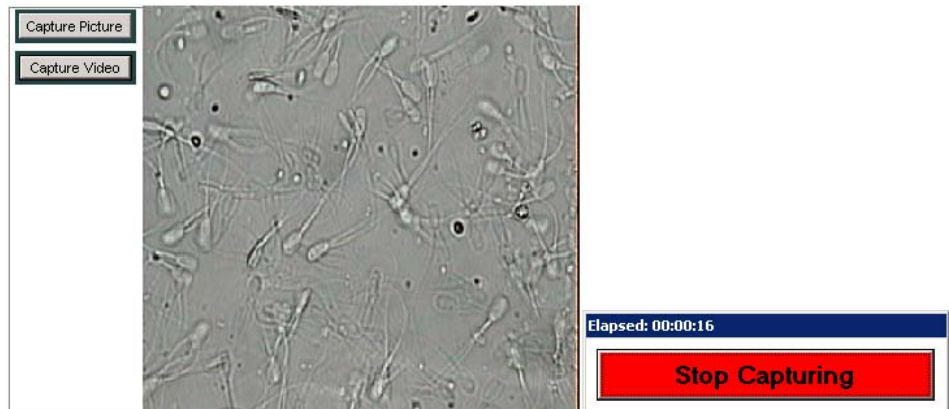


Three additional sub-buttons are displayed at the top of the **Dosing-Fresh** table: **Capture Image, Export** and **Report**.

Capture Image

Capture Image: Click to activate the "real time" video and display the semen sample (from the SQA-Vp visualization system) on the PC.

NOTE: If no record is selected the video or picture will be attached to the latest record imported into P-Sperm.



To save a video clip or picture and attach it to a record:

- Import the test records from the SQA-Vp to P-Sperm.
- Open: **TEST DATA>DOSING FRESH OR EXTENDED** data base
- Insert a standard slide with a semen sample into the visualization system of the SQA-Vp.
- Highlight the desired record in P-Sperm to attach a video/picture.
- Click: **CAPTURE IMAGE** to activate the video screen in P-Sperm
- Click: **CAPTURE PICTURE** to save and attached a picture to the selected record
- Click: **CAPTURE VIDEO** to save and attached a clip to the selected record; Click Stop Capturing to end the video capture process.
- A camera/video icon will now appear adjacent to the selected record in the table.



To **delete** a picture or video simply click on the icon to view the image and click on the "Delete" in the lower left hand corner of the viewing screen.

Export: Click on this button to export selected P-Sperm records to another database or external file in Excel format (The entire data base of records can be exported at once through the IMPORT/EXPORT main navigation menu).

Export

Import Test: After running a dosing test, click **Import Test** button in P-Sperm when being prompted by the SQA-Vp onscreen instruction to immediately transfer this record to P-Sperm for dosing. The current test results will be imported and dosing calculations can be performed immediately (For more detailed information, please see the Import/Export section of this manual).

Import Test

Report: Click on this button to view, print and/or export the semen analysis report.

Report

**SQA-Vp
Dosing Test Report**

Report Date: 22/02/2007 22:51:10

<>	Sample Data								Test Results						Dosing Results				
	Date	Time	Time from Collect. <30 min.	Boar ID	Boar Name	Sample #	Neat Ejac. Vol. [ml]	Primary Extend. Vol. [ml]	Agglut. [%]	Sperm Conc. [M/ml]	MSC [M/ml]	Motility [%]	Motility Grading [0-5]	Morph. [%]	Totals per Ejaculate Sperm # [Bil] Motile Sperm # [Bil]	Number of Doses [#]	Extender Volume [ml]	Total Volume [ml]	
<>	23/08/2006	09:22	No	190	Vandredy 7	2	50	60	21	1003	906.2	90.4	4	87.6 [A]	50.15	45.31	12	851	961
<>	23/08/2006	09:21	No	190	Vandredy 7	1	50	60	16	1005.8	909.7	90.5	4	87.7 [A]	50.29	45.49	12	851	961
<>	23/08/2006	09:20	No	189	Vandredy 6	2	100	100	9	349.6	189.3	54.2	2	64.2 [A]	34.96	18.93	12	761	961
<>	23/08/2006	09:19	No	189	Vandredy 6	1	100	100	30	354.7	190.8	53.8	2	69.5 [A]	35.47	19.08	12	761	961
<>	23/08/2006	09:17	No	186	Vandredy 3	1	50	100	21	1127.6	1101.7	97.7	3	87.3 [A]	56.38	55.08	18	1291	1441
<>	23/08/2006	09:16	No	184	Vandredy 1	2	150	100	8	388.4	304.1	78.3	4	69.9 [A]	68.26	45.62	15	950	1200
<>	23/08/2006	09:15	No	184	Vandredy 1	1	150	100	9	399	285.5	71.6	4	62.9 [A]	69.85	42.82	14	870	1120
<>	23/08/2006	09:14	No	182	Toledo 13	1	200	100	11	442.6	320.6	72.5	4	77.8 [A]	88.61	64.13	21	1380	1680
<>	23/08/2006	09:13	No	181	Toledo 12	1	60	60	25	723.3	699.7	96.8	4	85 [M]	43.4	41.98	14	1001	1121
<>	23/08/2006	09:12	No	181	Toledo 12	2	60	60	16	732.7	700.0	95.6	3	82 [M]	43.96	42.0	14	1001	1121
<>	23/08/2006	09:11	No	180	Toledo 11	1	50	60	29	1024.5	1006.0	98.2	4	87.7 [A]	51.22	50.3	22	1651	1761

- Use the page bar at the bottom of the report to move between pages.
- Click the Printer icon to print the report.
- Click the Export button to save the data in Excel format (must have Excel software).
- Use the ZOOM option to minimize/maximize the report view.
- Exit the report by clicking the "X" in the upper right hand corner of the screen.
- The indicator < > will be displayed if test results are out of range.

Extended

Extended:

The **QC-Extended** data base displays a list of all the tests run on extended semen.

QC - Extended

Number of Records 40

Sort Hide Freeze Columns View All

				Date ▾	Time ▾	Boar ID	Boar Name	Sample #	Dose Prep. Date	Semen Volume [ml]	Aggluti [%]
				23/08/2006	09:26	189	Vandredy 6	2	23/08/2006	100	25
				23/08/2006	09:25	189	Vandredy 6	1	23/08/2006	100	30
				23/08/2006	09:24	190	Vandredy 7	2	23/08/2006	100	27
				23/08/2006	09:23	190	Vandredy 7	1	23/08/2006	100	20
				22/08/2006	08:26	185	Vandredy 2	1	22/08/2006	100	16
				22/08/2006	08:25	185	Vandredy 2	1	22/08/2006	100	8
				22/08/2006	08:24	178	Sphinx 11	1	22/08/2006	100	9
				22/08/2006	08:23	178	Sphinx 11	2	22/08/2006	100	30
				22/08/2006	08:22	166	Duplex 49	1	22/08/2006	100	20
				22/08/2006	08:21	166	Duplex 49	1	22/08/2006	100	7
				22/08/2006	08:17	179	Toledo 10	1	22/08/2006	100	25
				22/08/2006	08:16	177	Sphinx 10	1	22/08/2006	100	14

Clear All Select All Delete

The following information can be viewed in the **QC – Extended** table:

Sample Information:

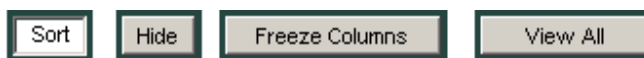
- Date – The date the sample was tested
- Time – The time the sample was tested
- Boar ID - The Boar identification number that was designated by the user
- Boar Name – Entered by the user through the **Boar Settings** screen (P-Sperm Section 9: Set-Up).
- Sample # - The Sample number that was designated by the user
- Dose Preparation Date – The date when the dose was prepared
- Semen Volume – The actual volume of the AI dose
- Agglutination, % - Percentage agglutination assessed and entered manually by the user

Test Parameters reported for QC-Extended samples:

- Sperm Concentration, M/ml
- MSC, M/ml
- Motility, %
- Motility Grading, (0-5)
- Sperm # (billions/ejaculate)
- Motile Sperm # (billions/ejaculate)



The **QC-Extended** screen has the same option buttons for displaying data as the previous Dosing-Fresh table:



The same sub-buttons are displayed at the top of the **QC -Extended** table as were previously discussed in the Dosing-Fresh table: **Capture Image, Export, and Report.**

Daily Report

Daily Report: Click on this button to view, print and/or export the DAILY REPORT. The Daily Report is a comprehensive table of all the testing data performed on fresh and extended samples for a given day.

To run the Daily Report:

- Click: TEST DATA>DAILY REPORT buttons.
- Specify the report date...
- Click the Daily Report button at the bottom of the **Select Report Date** window, and the report below will be displayed.

Daily Report

SQA-Vp
DAILY PRODUCTION REPORT for 22/08/2006

Sample Data						Fresh Semen Parameters					Dosing Set-up		Dosing Results		Extended Sample Test Results					
Time	Boar ID	Boar Name	Sample #	Nest Ejac. Vol. [ml]	Primary Extend. Vol. [ml]	Sperm Conc. [M/ml]	MSC [M/ml]	Motility [%]	Motility Grading [0-5]	Morph. [%]	Dosing Method	Target # Sperm [Bili/Dose]	Number of Doses [#]	Extender Volume [ml]	Sperm Conc. [M/ml]	MSC [M/ml]	Motility [%]	Motility Grading [0-5]	Totals per Semen Volume	
																			Sperm # [Bil]	Motile Sperm # [Bil]
DB01	166	Diplex 69	1	50	60	864.9	782.7	90.5	4	87.7	Total Sperm	1.5	28	2691	16.5	8.7	56.1	2	1.55	0.9
DB01	166	Diplex 69	1	50	60	864.9	782.7	90.5	4	87.7	Total Sperm	1.5	28	2691	16.2	9.3	57.3	2	1.62	0.9
DB02	168	Diplex 51	2	30	40	1266.9	1020.0	80.8	4	72.4	Motile Sperm	2	40	3080						
DB03	170	Oare 51	1	45	60	881.6	800.4	90.8	5	88.0	Total Sperm	2	19	1416	24.8	10.5	42.5	4	2.48	1.1
DB05	172	Oare 52	1	50	60	1090.4	936.3	88.2	4	79.4	Total Sperm	2	26	1911	25.8	9.3	36.9	3	2.58	0.9
DB07	177	Spiku 10	1	45	60	375.3	262.0	69.8	3	70.1	Motile Sperm	4	2	56	69.8	49.1	82.3	4	5.96	4.9
DB07	177	Spiku 10	1	45	60	375.3	262.0	69.8	3	70.1	Motile Sperm	4	2	56	60.8	52.7	86.7	4	6.08	5.3
DB08	178	Spiku 11	2	45	60	1300.3	1142.3	87.7	4	87.5	Motile Sperm	2	26	1886	29.2	22.5	77.3	3	2.92	2.3
DB09	178	Spiku 11	1	45	60	1240.8	1218.9	98	3	N/A	Total Sperm	2.5	22	1686	29.1	20.9	71.7	3	2.91	2.1
DB10	179	Toledo 10	1	45	60	669.3	446.1	66.7	3	64.8	Total Sperm	2.5	11	776	31.6	11.3	36.8	2	3.16	1.1
DB11	183	Toledo 14	1	150	0	1078.2	964.4	89.5	5	80	Motile Sperm	3	48	3690						
DB12	185	Vadredy 2	1	150	100	348	311.9	89.7	3	80.7	Total Sperm	3	17	1110						



Click on this icon to print a copy of the report.



Click on this icon to export the semen analysis report

- Use the page bar at the bottom of the report to move between pages.
- Click the Printer icon to print the report.
- Click the Export button to save the data in Excel format (Excel software required).
- Use the ZOOM option to minimize/maximize the report view.
- Exit the report by clicking the "X" in the upper right hand corner of the screen.

Controls

Please note: The SQA-Vp runs a self-test and auto-calibration check upon start-up. LATEX BEADS controls re-verify the concentration channel and may indicate a problem (usually obstruction of the concentration channel with dirt or debris) BEFORE it impacts the test results.

Set-Up

NOTE: Remember to set-up Controls before running the QC Beads.

NOTE: The Set-up data transfer may take several minutes! Please wait.....

Section 6: Controls

The SQA-Vp runs LATEX BEADS as an external control material (QwikCheck-beads are an assayed control for the SQA-Vp) to validate the concentration parameters of the system. In order to run these tests, defaults must be set-up in P-Sperm. The test results will then be archived and can be viewed in P-Sperm.

After running controls, import the data from the SQA-Vp to P-Sperm (Refer to Section 7, Import/Export for instructions). A complete table of all archived Control test results will be displayed in P-Sperm and this data can be viewed, graphed and exported to an external file if desired.

Click on the **Controls** tab and two buttons will appear: **Set Up** and **Test Results**:

Set Up Controls:

To set up the Controls settings both the SQA-Vp and P-Sperm must be activated:

- The SQA-Vp and the PC running P-Sperm must be connected via the RS232 communication cable supplied with the system.
- Activate the SERVICE DATA screen of the SQA-Vp.
- Go to: **MAIN MENU > SERVICE > SERVICE DATA**
- From the P-Sperm main navigation buttons select: **CONTROLS > Set-Up**
- From this set-up screen enter the default settings for each level of **CONTROLS**:
 - Lot Number
 - Expiration date
 - Target value and +/- Range
- Press **Apply** to accept and transfer the default settings to the SQA-Vp.

Control Set-Up

Level 1			Level 2			Negative Control		
Lot #	150506001		Lot #	010806002		Lot #	010806003	
Exp. Date	07/07		Exp. Date	07/07		Exp. Date	07/07	
	Target Value	+/- Range		Target Value	+/- Range		Target Value	+/- Range
Automated	46	6.4	Automated	23	3.2	Automated	0.0	0.0

Test Results

Control Test Results:

To view the Controls Test Results press the **TEST RESULTS** button and a complete list of the QC results will be displayed.

Date Test Performed	Control Level	Lot Number	Expiration Date	Target Value	Range +/-	Conc.
01/08/2006 10:41	Negative Control	010806003	07/07	0	0	
01/08/2006 10:40	Negative Control	010806003	07/07	0	0	
01/08/2006 10:39	Negative Control	010806003	07/07	0	0	
01/08/2006 10:38	Negative Control	010806003	07/07	0	0	
01/08/2006 10:37	Negative Control	010806003	07/07	0	0	
01/08/2006 10:37	Negative Control	010806003	07/07	0	0	
01/08/2006 10:36	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:35	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:34	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:33	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:32	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:31	Level 2	010806002	07/07	23	3.2	
01/08/2006 10:30	Level 2	010806002	07/07	23	3.2	

Report

Report:

NOTE: The Controls report needs to be run for each level separately.

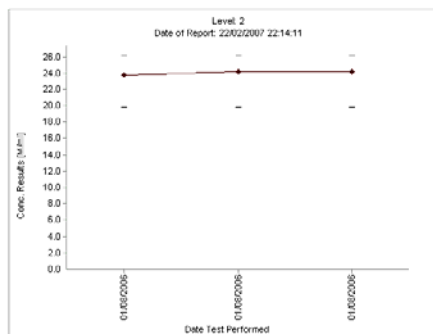
- Select the desired records to display in the report by either selecting individually or click and drag the mouse over a series of tests
- Click the **REPORT** button.
- Use the **Page bar** to move between pages (if necessary).
- Use the **Zoom** function to maximize/minimize the report.

SQA-Vp Control Test Results

Level: 2

Date of Report: 22/02/2007 22:14:11

Date Test Performed	Control Level	Lot Number	Exp. Date	Concentration			In Range	Out of Range	Unit #
				Target Value	Range +/-	Conc. Results (M/ml)			
01/08/2006 10:36	Level 2	010806002	07/07	23	3.2	24.2	Normal		122
01/08/2006 10:35	Level 2	010806002	07/07	23	3.2	24.2	Normal		122
01/08/2006 10:34	Level 2	010806002	07/07	23	3.2	23.0	Normal		122



Import Test

Section 7: Import / Export

Import Test

This function allows the user to import the test results immediately after the test is completed in the SQA-Vp device. If this function (Automatically Send to PC) is activated in the SQA-Vp SERVICE>SETTINGS screen, the corresponding message will appear in the SQA-Vp after completion of any test. The user should click the **Import Test** main navigation button in P-Sperm and the results will be immediately transferred to the P-Sperm and appear in the corresponding spreadsheet (The SQA-Vp should be connected to the PC through the RS232 communication cable).

When FRESH semen is tested and the results are imported to P-Sperm, the Dosing Set-up screen will pop-up automatically to enable the user to make dosing calculations.

Import/Export

Import/Export

In order to view test results of the SQA-Vp archive in P-Sperm, data has to be imported from the SQA-Vp. Click the **Import/Export** button in the navigation menu and two buttons will appear: **Import** and **Export**.

Import

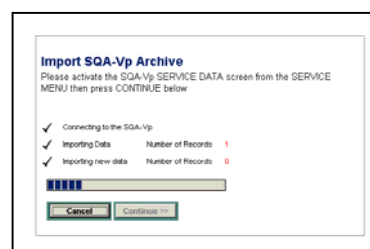
Import: Select this option to bring data into P-Sperm from the SQA-Vp. To successfully **Import** data:

NOTE: The P-Sperm software checks for duplicate records and will not overwrite records already imported.

NOTE: The user has the option to delete the SQA-Vp archive when the import has been completed.

NOTE: The SQA-Vp archive has limited storage capacity so records MUST be imported to P-Sperm and deleted from the SQA-Vp archive when a warning message is displayed in the SQA-Vp!

- The SQA-Vp and the PC running P-Sperm must be connected via the RS232 communication cable supplied with the system.
- Display the SERVICE DATA screen of the SQA-Vp: To activate this screen go to: **MAIN MENU > SERVICE > SERVICE DATA**
- Click: The **IMPORT/EXPORT** navigation button in P-Sperm
- From the displayed screen select: **IMPORT (TEST RESULTS or CONTROLS) > CONTINUE.**



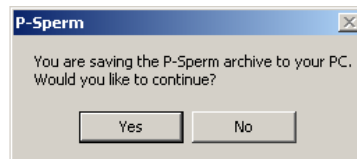
- A screen will confirm that the data has been successfully transferred from the SQA-Vp to P-Sperm.
- The user will be asked whether he wants to delete the data in the SQA-Vp.
 - Select **YES** to delete the records from the SQA-Vp (Advised)
 - Select **NO** to retain all the test data in both the SQA-Vp and P-Sperm.
- The Control data is imported separately

Export

NOTE: Set the page print default to "landscape" when printing exported tables in Excel.

Export: Select this option to send data from P-Sperm to an external file – you must have Microsoft Excel on your computer to use this function:

- Click **IMPORT/EXPORT** in the navigation menu.
- Select **EXPORT**
- Select **Export Test Results>Export Dosing-Fresh or Extended or Controls**
- Enter a path and file name; then click **SAVE**.
- The data will be saved to the designated location.
- A message box appears stating that the P-Sperm archive will be saved.
- Click **Yes**



Real Time Video

Real Time Video

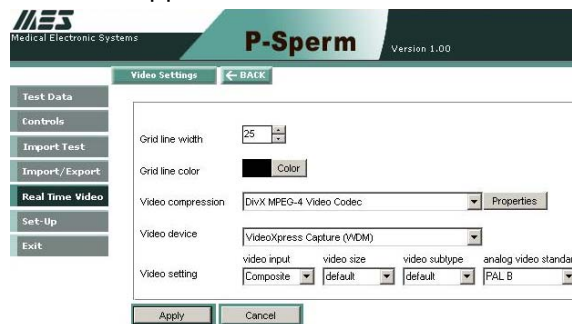
Video Settings

Section 8: Real Time Video

The **REAL TIME VIDEO** feature allows the user to set video definitions and view semen samples "live" from the SQA-Vp visualization system on the PC screen.

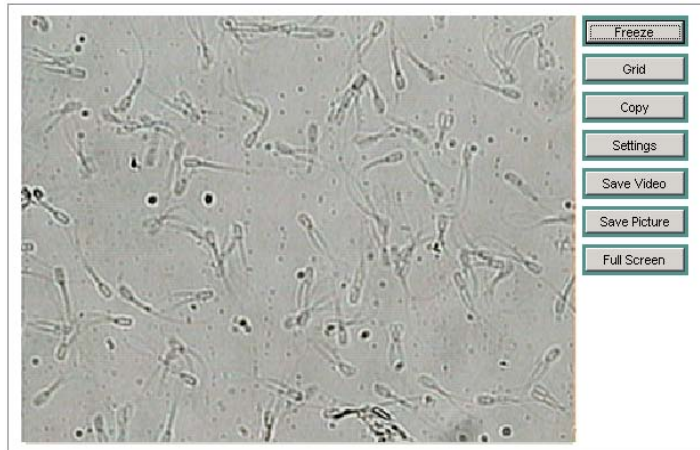
Click the **VIDEO SETTINGS** button to select grid size, color and video settings:

- The appropriate video device settings are described in the video device installation procedure supplied with the video device hardware.



Click the **REAL TIME VIDEO** button and the following features are displayed:

- **FREEZE** – To freeze the screen. Click the **REAL TIME** button to un-freeze.
- **GRID** – A grid can be added to the screen to make counting easier.
- **COPY** – Pictures can be copied by clicking the COPY button and then pasting the picture in an external file (WORD, Excel, etc.).
- **SETTINGS** – Video settings can be selected by the user.
- **SAVE VIDEO** – Video clips can be saved in an .avi format.
- **SAVE PICTURE** – Pictures can be saved in a .bmp format.
- **FULL SCREEN** – The screen can be maximized. To minimize the screen, click the **CLOSE** button.



Section 9: Set-Up

Before beginning the testing process, P-Sperm setting defaults must be set by the user. Click the **Set-Up** navigation button to display two options:

Data Settings

Data Settings: Opens **Boar Settings** and **Normal Ranges** options.

Boar Settings

Boar Settings: Includes Boar ID, Name, Owner, Location and Breed:

Boar ID	166
Name	Duplex 49
Owner	Dodo
Location	Lahav
Breed	Large White
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Normal Ranges

Normal Ranges: Click this button to set-up normal ranges for semen test results.

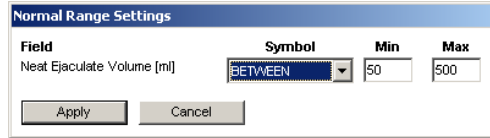
NOTE: The manufacturer has set default test ranges (See the SQA-Vp User Guide for details).

Normal Ranges ← BACK		
Fresh Semen Ranges		
Parameter	Normal Range	Select
Neat Ejaculate Volume [ml]	50 - 500	←
Sperm Conc. [M/ml]	150 - 750	←
MSC [M/ml]	100 - 750	←
Motility [%]	70 - 100	←
Motility Grading [0-5]	3 - 5	←
Morphology [%]	80 - 100	←
Sperm # [Bil]	20 - 120	←
Motile Sperm # [Bil]	14 - 120	←
Extended Semen Ranges (doses)		
Parameter	Normal Range	Select
Sperm Conc. [M/ml]	20 - 40	←
MSC [M/ml]	14 - 40	←
Motility [%]	70 - 100	←
Motility Grading [0-5]	3 - 5	←
Sperm # [Bil]	2 - 3	←
Motile Sperm # [Bil]	1.4 - 3	←

- Click on the ARROW ← which points to the parameter to be set-up.



- The **Normal Range Settings** screen will appear.



- Enter the desired symbol (\leq , \geq , =, BETWEEN, etc.)
- Enter the desired values and click **APPLY**

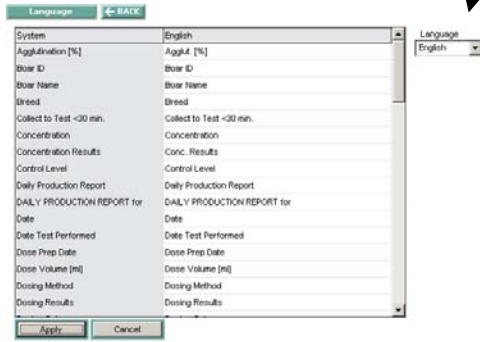
System Settings

System Settings: Opens **Language**, **Password** and **Port** options.

Language

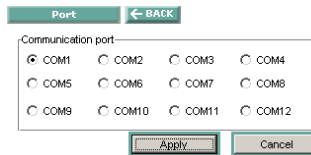
Language: Click this button to activate the screen displayed below and customize the language used in the P-Sperm Reports.

- Choose "Other" from the Language drop-down menu.
- Edit the table as desired and click **Apply** to save.



Port

Port: Click this button to set the communication port for the PC.



Password

Password: The password can be changed by clicking the password button and entering a new password and confirmation in the entry screen. Click **APPLY** to save the new password. The password is immediately re-set and the user can access P-Sperm with this new password only. **REMEMBER YOUR PASSWORD!**

NOTE: Forget your password? E-mail the MES customer support team @: mes@mes-ltd.com



Exit

Section 10: Exit

Exit the P-Sperm system by clicking the **EXIT** button. Confirm with a click.

