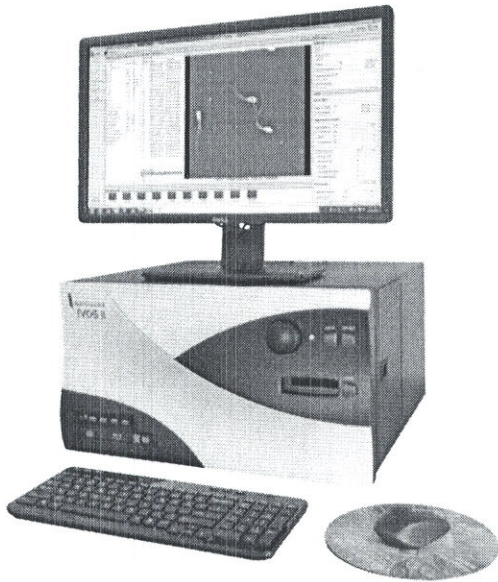




HAMILTON THORNE

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IVOS II ANIMAL - HARDWARE SPECIFICATIONS (Digital)



Dimensions	Height	Width	Depth	Weight
	in. (mm)	in. (mm)	in. (mm)	lb. (kg)
IVOS II	11.1 (282)	20.3 (515)	19.3 (490)	53 (24.1)
Monitor (with stand)	20.2 (513.5)	21.9 (556)	7.1 (180.3)	10.1 (4.6)

Electrical	IVOS	Monitor
Input Voltage:	110-240 VAC	110-240 VAC
Power:	350 watt (max)	72 watt (max)
Line Frequency:	50/60 Hz	50/60 Hz

Heated Stage
 Temperature Control: Room Temperature to 45°C, *Optional:* 10°C to 45°C
 Temperature stepsize: 0.1°C
 Temperature stability: 0.5°C
 Stage Position: Programmable
 Stage Motor: Built in acceleration and deceleration

Compatible Specimen Chambers
 Type: Slide, Cannula, Makler
 Depth: User defined

Internal Optical System
 Camera: High resolution digital CCD array
 Resolution: 782 x 582 pixels
 ½ inch CCD sensor
 Progressive scan
 Exposure, Black Level and Gain controls
 Gigabit Ethernet
 Objective: Standard: 10x
Optional: 4x, 10x UV, 20x, 40x, 60x, 100x
 Image Type: Dark field, Bright field
 Phase Contrast, negative and positive
 Magnification: Set by CASA II software administrator

LED Illumination System

Type: Stroboscopic LED light source
 Sample Exposure: Source only on when needed for analysis and setup
 Pulse: 1 - 16 millisecond (4 ms typical)
 Intensity: Computer controlled
 Histogram: Scale on screen

IDENT Illumination System (optional)

Type: Choice of Stroboscopic Xenon or LED light source
 Sample Exposure: Source only on when needed for analysis and setup
 Pulse: 10 µs
 Intensity: Computer controlled

Digital Image Acquisition

Frame Rate: 60 Hz
 Frames: 1 - 200 (limited only by system memory)
 Fields: 1 - 100
 Field Selection: Automatic or manual

Input

Standard: Mouse and Keyboard (wired and wireless included)
 Footswitch
Optional: Electronic scale (ejaculate volume)
 Barcode reader

IVOS II Computer System (specifications subject to change)

Operating System: Windows 8.1 Pro (32-bit)
 Standard CPU: 3.0 GHz Intel i7 Quad
 RAM: 8 GB SDRAM
 Ports: 4 Serial
 2 USB 3.0
 8 USB 2.0 (4 on front)
 2 DVI
 1 Parallel
 1 DisplayPort
 1 Line-in (stereo/microphone)
 1 Line-out (headphone/speaker)
 Network: 10/100/1000 LAN - Ethernet NIC,
 2 RJ45 ports (one used by camera)
 Hard Drive: 1 Terabyte 6.0 GB/sec 7200 RPM hard drive
 Monitor: 24" Flat Panel Widescreen (16:10)
 CD/DVD Drive: CD/DVD ± RW DL, BD-R

Specifications subject to change without notice.



Handwritten signature



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CASA II Sperm Motility Software

Boar Breeders II - Version 1.10

Data Input

Analysis Info: Animal Species Animal ID
Genetic Line Ejaculate #
Batch # Volume (manually or by scale)
Sample:Extender Collection Technician
Lab Technician
Dose Info: Sperm / Dose (M/ml or B/ml)
Dose Volume (ml)
Notes: User-defined
Data Fields: 25 User-Defined Labels/Fields

Analysis Results

Counts: Total, Motile, Static, Progressive, Slow
Percentages: Total, Motile, Static, Progressive, Slow (%)
Concentrations: Total, Motile, Static, Progressive, Slow (M/ml or B/ml)
Sample: Total, Motile, Static, Progressive, Slow (M or B)
Kinematic Values: VAP, VCL, VSL, ALH, BCF, LIN, STR, DAP, DCL, DSL, WOB, Elongation (head shape) and Area (head size).
Includes mean, standard deviations and median.
Adjustments: Total, Motile or Progressive
Morph: Normal, Bent Tail, Coiled Tail, DMR, Distal Droplet, Proximal Droplet
Select which to include in dose adjustment
Processing: Extender Volume
Final Volume
Adjusted Concentration
Number of Doses

Live Setup Configuration

Illumination: Interactive illumination setting
Histogram showing real-time feedback
Motility Setup: Interactive sperm identification setup
Automatic minimum tail brightness based on Photometer Offset
Minimum head and tail brightness
Minimum and maximum head size and head elongation
Real-time feedback through color overlays

Quality Control

Auto Illumination: One Shot and Auto on Field Change (IVOS II only)
Illumination Check: Quick view to confirm illumination and focus
Illumination Status: Acceptable / Unacceptable
Video Playback: Color-coded labeling of motile, progressive and static cells
Static Tail Filter: Automatic elimination of debris

Video Playback

Full Field: Frame-by-frame playback
Analysis results for selected field
Turn on/off motility and morphology overlays
Save TIFF image of individual frames
Export fields as .avi files for presentation purposes only
Zoom Cell: Frame-by-frame playback
Analysis results for selected sperm
Data point coordinates
Cell classifications
Turn on/off motility and morphology overlays
Save TIFF image of individual frames
Save individual cell data to ASCII
Save data points to ASCII file

Security

HT User Groups: Administrative or Basic user
Password Security: Windows-based Users
Unlimited User IDs and passwords
Setup Access: Analysis Setups restricted to Administrator users only

Specifications subject to change without notice.

Included Data Management Options

ASCII Export: Transfer of summary data and/or individual track to ASCII compatible spreadsheet or database programs
Video Storage: Ability to save video file of each field analyzed, along with sample information and analysis setup values.
Recall and analyze video with saved settings or new settings
Re-analyze single videos or entire analysis sets
Report Viewer: View analysis data in report format.
Report Designer: Report designer and manager to create unlimited professional reports from sperm analysis results. Ability to include all data (calculated and user input), images, and logo. Drag and drop design, snap-to alignment. Ability to combine results from two analyses from same Animal ID into a single report.

Optional Special Applications

Sort: Segments sperm into sub-populations based on kinematic and/or morphometric parameters
Edit Tracks: Save individual track data to ASCII output plus ability to manually delete tracks from cell population
IDENT: (IVOS II Only) Automated motility analysis of high-detritus samples using DNA-specific, fluorescent stain and integrated fluorescent illumination.
VIADENT: (IVOS II Only) Sperm viability assessment software option. Stain sperm with non-membrane permeable DNA stain and calculate viable sperm numbers under fluorescence (requires IDENT option)

Analysis Sets: Unlimited, User-defined by administrator

Analysis Setup Parameters (Administrative Users Only)

(Setup): Setup Name
Analysis Limits: Min Motility Percent Min Progressive Percent
Min Total Count
Calibration: Objective Name
X-axis Magnification Y-axis Magnification
Camera: Exposure (Ms) Gain
Integrate Enabled Integrate Time (Ms)
Cell Detection: Elongation Max (%) Enable Advanced Tail Detection
Elongation Min (%) Enable Background Subtraction
Head Brightness Min Head Size Max (μm^2)
Head Size Min (μm^2) Static Tail Filter
Tail Brightness Min Tail Min Brightness Auto Offset
Tail Min Brightness Mode
Chamber: Capillary Correction
Chamber Depth (μm)
Chamber Type (Capillary, Drop)
Illumination: Illumination Primary (IVOS II only)
Max Photometer
Min Photometer
Kinematics: Cell Travel Max (μm) Static Algorithm
Progressive STR (%) Static VAP ($\mu\text{m}/\text{s}$)
Progressive VAP ($\mu\text{m}/\text{s}$) Static VSL ($\mu\text{m}/\text{s}$)
Slow VAP ($\mu\text{m}/\text{s}$) Static Width Multiplier
Slow VSL ($\mu\text{m}/\text{s}$)
Morph: DMR Confidence (%)
DMR Droplet to tail end Max (μm)
DMR Tail Length Max (μm)
Droplet Confidence (%)
Droplet Distal Distance Min (μm)
Droplet Proximal Head Length (μm)
Morph Normal Minimum Percent (%)
Min Tail Length (μm)
Tail Bend Angle Averaging Length (μm)
Tail Bending Angle Rate Min ($^\circ/\mu\text{m}$)
Tail Bent Confidence (%)
Tail Coiled Angle Min ($^\circ$)
Tail Coiled Confidence (%)
Tail Confidence (%)
Viadent: Viadent Fluorescing System
Video Capture: Frame Capture Speed (Hz)
Frame Count



Shed