

RAT MOTILITY - TOXICOLOGY

Version 14 TOX-IVOS

Sperm Analysis System Specifications



HAMILTON THORNE BIOSCIENCES

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Dimensions	H	W	D	
	in. (mm)	in. (mm)	in. (mm)	lb. (kg)
TOX IVOS	11.1 (282)	20.3 (515)	19.3 (490)	53 (24.1)
Monitor	16.9 (429)	16.7 (424)	7.9 (200)	17.0 (7.7)

Electrical	TOX IVOS	Monitor
Input Voltage:	110-240 VAC	110-240 VAC
Power:	160 watt	200 watt
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

Specimen Chambers

Cannula:	100 micron, >30 fields
Slide:	20, 50 micron, 30 fields
User Defined	Programmable

Internal Optical System

Imaging Device:	Integrated High Resolution CCD array for low intensity fluorescent sample imaging
Objective:	Standard: 4x, 10x, 10x UV Optional: 20x, 40x, 60x, 100x
Image Type:	Dark field, Bright field Phase Contrast, negative and positive
Signal Output:	NTSC, RS-170 60 Hz optional: PAL, CCIR 50 Hz

Illumination System

<i>Stroboscopic light source</i>	
Photometer:	Scale on screen
Exposure:	Source on only during acquisition and focus
Pulse:	1 - 3 millisecond
Intensity:	Computer controlled
<i>IDENT Fluorescent light source</i>	
Illumination:	Epifluorescent, Strobed Xenon
Pulse:	5 - 8 microsecond
Intensity:	Computer controlled
Filter:	Double bandpass, 450 nm and 660 nm

Digital Image Acquisition

Frame Rate:	60, 30, 15, 7.5 Hz [optional: 50, 25, 12.5, 6.25 Hz]
Frames:	Min. 5, Max. 100
Fields:	1 - 20
Designation:	Automatic or Manually Selected

Analyzing System

Input Signal:	NTSC, RS-170 [optional: PAL, CCIR]
Image Resolution:	640 x 480
Control:	Mouse, Keyboard [optional: Touchscreen]
Analysis Time:	<5 seconds for 200 cells
Software:	On Hard Disk: Updates on Diskette, CD-ROM
Quality Control:	4 Levels: Video Playback, QC by Size, Intensity, Elongation
Analysis Sets:	7 User-defined

Video Capability

Analyze both 50 Hz (PAL) and 60 Hz (NTSC)

Standard Toxicology Software

Counts:	Total, Motile, Progressive % Motile, % Progressively Motile Rapid, Medium, Slow and Static Cells
Concentrations:	Total, Motile, Progressive (millions/ml) Rapid, Medium, Slow and Static Cells Sperm/gram tissue (IDENT mode)
Mean Values:	VAP, VCL, VSL, ALH, BCF, LIN, STR, Elongation (head shape) and Area (head size). Includes standard deviations.
Distributions:	VAP, VCL, VSL, Elongation, ALH, BCF, LIN, STR
Graphics:	Distribution Bar Charts Color coded tracks, Plots

Security

Password Security:	3 Levels Analysis Setup access 99 unique User IDs and passwords Electronic signatures
Audit Trail:	Log file of user actions
Timer:	Automatic log-off after system is idle for designated number of minutes

Included Special Applications

<i>IDENT:</i>	Automated sperm concentration analysis of homogenized cauda samples using DNA-specific, fluorescent stain and integrated fluorescent illumination.
<i>Sort Function:</i>	Determines fraction of cells within user-specified limits on: VCL, VSL, VAP, LIN, STR, ALH, BCF, Head Size, and Elongation.
<i>Track Editing:</i>	View and store detailed data for individual sperm tracks. Used for validation procedures.
<i>HDATA ASCII Export:</i>	Transfer of summary data and/or individual track to ASCII compatible spreadsheet or database programs.
<i>Clinical Filing:</i>	Provides ability to design three one-page reports and to store analysis reports to file.

Optional Applications

<i>Digital Image Storage:</i>	Allows storage and retrieval of exact fields analyzed. Includes add on program to convert saved video files to industry standard avi or wmv.
<i>Rat Matrix Morphology:</i>	Interactive, user-defined morphology program.
<i>VIADENT:</i>	Sperm viability assessment software option. Stain sperm with non-membrane permeable DNA stain and calculate viable sperm numbers under fluorescence (requires IDENT option)

Data Output

Printer, Clinical Filing, ASCII Export, Digital Images

TOX IVOS Computer System (specifications subject to change)

Operating System:	Windows 7
Standard CPU:	2.8 GHz Pentium IV
RAM:	2 GB SDRAM
Ports:	2 serial, 1 parallel, 2 USB (V2.0 compliant)
Network:	10/100 LAN - Ethernet NIC
Floppy Drive:	1.44 MB 3.5" High Density
Hard Drive:	320 Gigabytes (<i>back up hard drives optional</i>)
Monitor:	20" Flat Panel UXGA
CD/DVD Drive:	CD/DVD ± RW DL