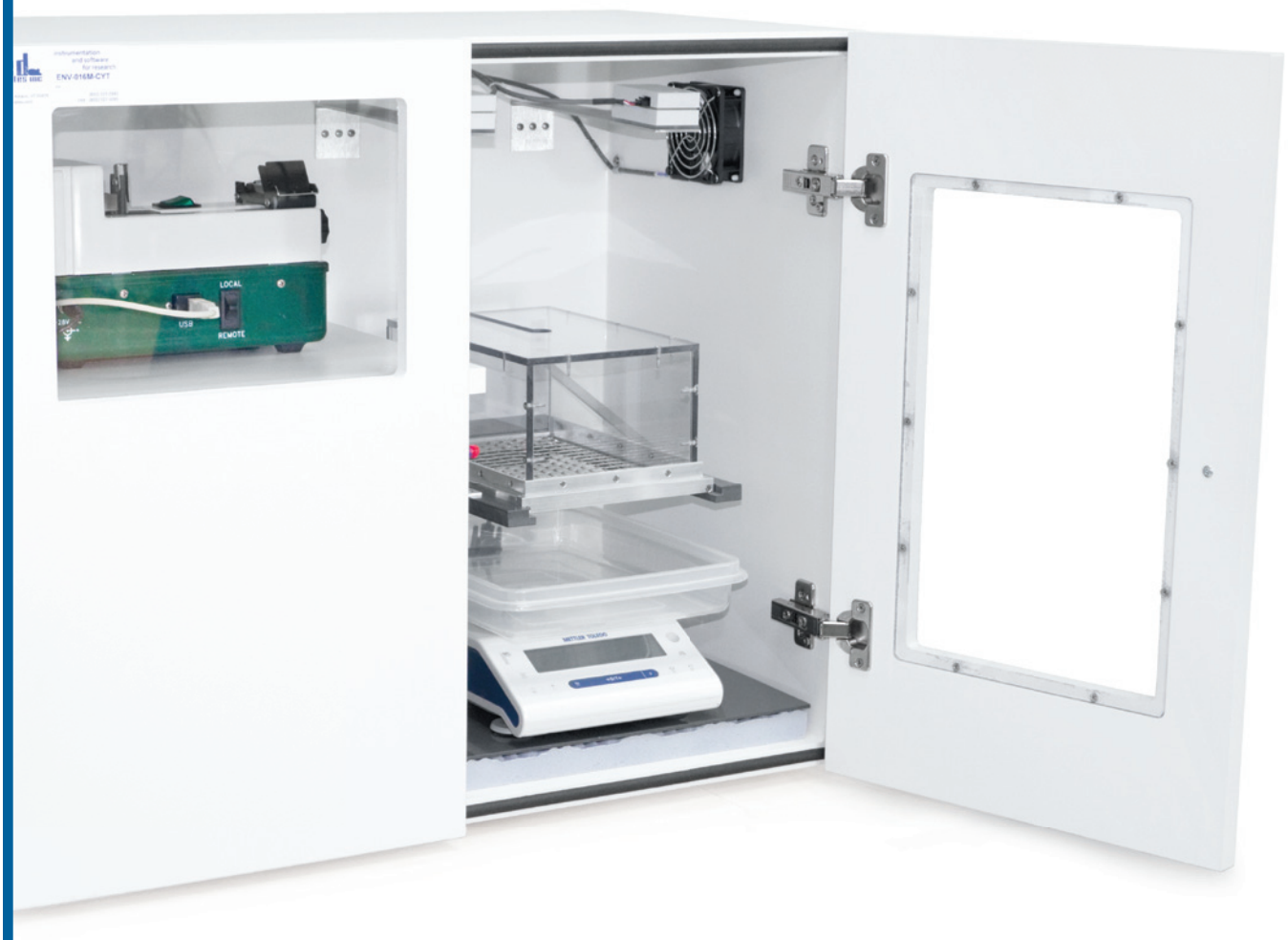
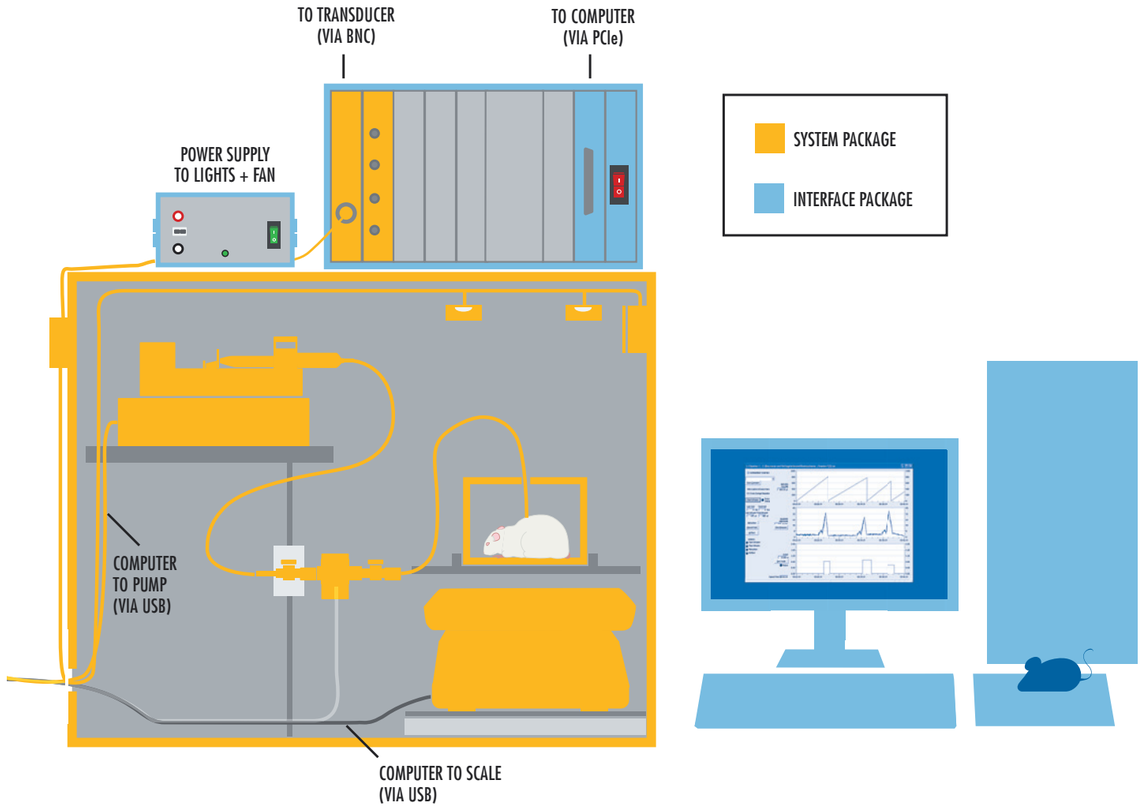
med associates inc

Instrumentation and Software for Research

SMALL ANIMAL CYSTOMETRY





CAT-CYT-R

The small animal cystometry lab station is designed for performing in-vivo measurements of bladder function in mice and rats. It is ideal for physiological assessment of bladder function in “knock-out” and transgenic mice.

This system allows standard urological tests and cystometrograms to be performed in conscious, unrestrained mice and rats while measuring bladder capacity, filling pressure, micturition pressure, and voided urine volume. The experimental animal is chronically instrumented with an intra-bladder catheter, which is routed underneath the skin and exteriorized at the base of the animal’s neck.*

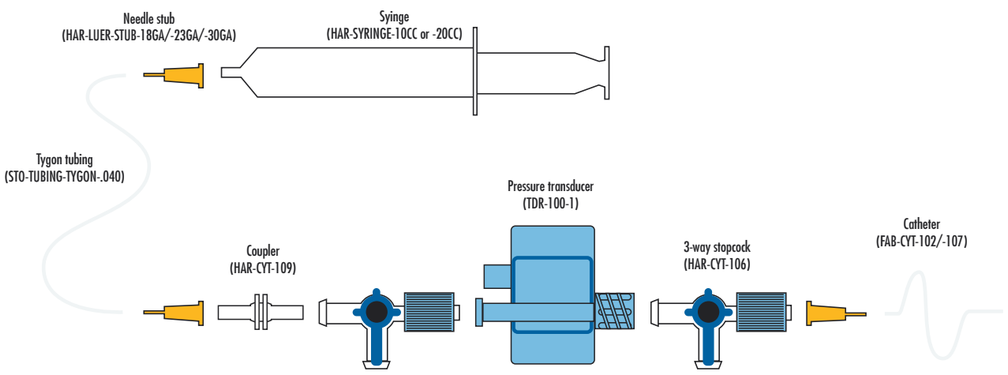
A computer-controlled syringe pump infuses saline into the bladder, and an in-line pressure transducer records intra-bladder pressure during the infusion. When bladder capacity is reached, the transducer records pressure during the urination event (micturition). An analytical balance is located beneath the animal cage, which records the weight of urine to provide an index of voided urine volume.

** This technique requires familiarity with small animal survival surgery.*

PACKAGE CONTENTS				
	A = CAT-CYT-M		B = CAT-CYT-R	
#	SKU	DESCRIPTION	A	B
1	ENV-016M-CYT	MDF Sound Attenuating Cubicle	A	B
1	CAT-ENV-272-KIT	Cystometry Cage w/Connectors *for Rat*		B
1	CAT-ENV-273-KIT	Cystometry Cage w/Connectors *for Mouse*	A	
1	ENV-026	Switch Box for Cubicle Fan and Light(s)	A	B
1	SCALE-TOR-AD-520-USB-URO	AD520 Scale w/USB Kit	A	B
1	SYR-PUMP-USB	USB Infusion Pump Kit	A	B
1	TDR-100-1	Pressure Transducer *(reusable/disposable)*	A	B
1	CANL-430A	Bridge Amplifier Card	A	B
1	IO-206	Direct Input Module	A	B
1	CAB-TDR-100-1	Transducer Extension Cable	A	B
1	SG-210CP-25	Power Cable, 25' *(7.6 m)*	A	B
1	SG-216A	3-Pin Mini-Molex Extension, 18" *(45.7 cm)*	A	B

CAT-CYT-R
& CAT-SYST-CYT-BASIC

PACKAGE CONTENTS				
	A = CYT-M-FIT-KIT		B = CYT-R-FIT-KIT	
#	SKU	DESCRIPTION	A	B
10	FAB-CYT-102	Catheter *for Rat*		B
10	FAB-CYT-107	Catheter *for Mouse*	A	
10	HAR-CYT-106	Luer 3-Way Stopcock	A	B
10	HAR-CYT-109	Male Luer Slip Coupler	A	B
10	HAR-LUER-STUB-18G	Needle Stub, 18 Gauge	A	A
10	HAR-LUER-STUB-23G	Needle Stub, 23 Gauge	A	B
10	HAR-LUER-STUB-30G	Needle Stub, 30 Gauge	A	
5	HAR-SYRINGE-10CC	Syringe, 10 mL (cc)	A	
5	HAR-SYRINGE-20CC	Syringe, 20 mL (cc)		B
2	STO-TUBING-TYGON-.040	Tygon Tubing *(0.04"ID)*	A	B



CYSTOMETRY LAB STATION

CAT-CYT-M MOUSE
CAT-CYT-R RAT

SUMMARY OF CONTENTS

- Animal cage w/modified top
- Kit with catheters & connectors
- Analytical balance
- Razel™ infusion pump
- Pressure transducer
- Specialized sound attenuating cubicle
- Electronic interface with push button event markers, pressure transducer amplifier, and manometer for calibration

TUBING + FITTING KIT

CYT-M-FIT-KIT MOUSE
CYT-R-FIT-KIT RAT

- Included in the cystometry cage kits
- Precision-made catheters with a flared tip for easy implantation into a bladder

	WORKING AREA (W×H×D)
ENV-016M-CYT	22″ x 27.5″ x 14″ *(55.88 x 69.85 x 35.56 cm)*

ENV-016M-CYT

ENV-273A

SOUND ATTENUATING CUBICLE

ENV-016M-CYT MOUSE+RAT

- Built-in structures make for easy placement of syringe pump, cage, and scale
- Provides isolation of your animal from environment
- Windows for convenient viewing

ENV-273-GR

	WORKING AREA (W×H×D)
ENV-272	5.8″ x 4.2″ x 8.8″ *(12.7 x 10.67 x 22.35 cm)*
ENV-273	3.3″ x 2.52″ x 5.2″ *(8.38 x 6.4 x 13.21 cm)*

CYSTOMETRY CAGE

ENV-272 RAT | MESH FLOOR
ENV-273 MOUSE | MESH FLOOR
ENV-273-GR MOUSE | GRID FLOOR

CYSTOMETRY CAGE w/FOOD+WATER

ENV-272A RAT | MESH FLOOR
ENV-273A MOUSE | MESH FLOOR
ENV-273A-GR MOUSE | GRID FLOOR

- Modified top for routing catheter to the animal
- Cages for both rat and mouse fit in the same SAC without modification
- Mouse models are also available with a grid floor
- Food and water models are modified to accommodate an ad-lib food cup and a volumetric drinking tube with Lixit valve

ANALOG OUTPUT MODULE

IO-200-4 MOUSE+RAT

Four BNC ports take analog signals from your cystometry system and output them to a third-party data collection system.

Especially useful for recording bladder pressure simultaneously with other physiological signals, such as EMG or EEG electrophysiological recordings.

- Channels available for output:
  - Bladder pressure
  - Event marks

PRESSURE TRANSDUCER SIGNAL CONDITIONER MODULE

CANL-430A MOUSE+RAT

- Used for recording bladder pressure
- A second module can be added for recording of an additional pressure (blood, abdominal, etc.)

PUSH BUTTON DIRECT INPUT MODULE

IO-206 MOUSE+RAT

NOTE: All of the following functions are also able to be executed via MED-CMG software.

Four push buttons to manually:

- Start the infusion pump
- Stop the infusion pump
- Annotate a micturition event
  - Infused volume trace is reset to zero and counting begins again for the next micturition cycle
- Annotate a recording artifact
  - Adds an event mark to the data that alerts the user that something other than urine has disturbed the scale

ANALYTICAL BALANCE

SCALE-TOR-AD-520-USB-URO MOUSE+RAT

Analytical balance for recording voided urine volume. Contains a USB cable for easy connection to data acquisition computer.

SPECIFICATIONS

Readability = 1 mg

Repeatability = 1 mg

Linearity = ± 0.002 g

Stabilization Time (typical) = 3 s

Tare Range = -520g

Accuracy Class = II

NOTE: exact model may vary, contact sales to confirm current model specifications

SYRINGE PUMP

SYR-PUMP-USB MOUSE+RAT

Used for filling bladders at defined rates during cystometry.

The RAZEL™ R100-EC combines the features of our R100-E with the added precision of a computer controlled USB interface. The pump is controlled using MED-CMG software by entering syringe size and desired infusion rate.

- Precision rate control, programmable injections, start/stop & ramp infusion
- LCD display
- Syringe manufacturer & capacity selection
  - *NOTE: To determine flow rates with other syringes, a calibration sheet is included*
- External & USB operation options
- Accuracy within 2%
- Stop switch disconnects power on syringe depletion
- Infusion rate: 0.6 µL/hr – 467 mL/hr
  0.01 mL/min – 7.78 mL/min

COM-106R2-PC

SG-501

CSG-6080

CSG-6080 cabinet shown with
IO-115, CANL-430A, IO-206, and IO-200-4

PACKAGE CONTENTS				
	A = CAT-SYST-CYT		B = CAT-SYST-CYT-BASIC	
#	SKU	DESCRIPTION	A	B
1	CAL-PRESSURE-TRANS	Pressure Transducer Calibration Kit	A	B
1	COM-106-NV	Computer	A	
1	COM-4-PORT-USB-PCI	4 Port USB 2.0 PCIe Card	A	B
1	COM-MONITOR-LCD	Widescreen LED Monitor	A	
1	CSG-6080	Tabletop Interface Cabinet	A	B
1	DIG-744e	PCIe Data Acquisition Card	A	B
1	IO-115	Physiological Interface Card	A	B
1	SG-244-68	Shielded Cable, 68-pin, M/M	A	B
1	SG-501	DC Power Supply 28V, 1A	A	B
1	SOF-551	MED-CMG Cystometry Software	A	B
1	SOF-552	Cystometry Data Analysis Software	A	B

CYSTOMETRY SYSTEM INTERFACE STARTER

CAT-SYST-CYT MOUSE+RAT

Our custom-built data acquisition computer with MED-CMG™ and Cystometry Data Analysis® software installed, comes complete with a 19" widescreen monitor, speakers, wired keyboard, mouse & pad.

One data acquisition computer can control up to four cystometry systems.

SUMMARY OF CONTENTS

- Pressure transducer calibration kit
- Computer *(w/PCIe card)*
- MED-CMG and Data Analysis Software
- Tabletop interface cabinet *(w/interface card)*
- DC power supply
- 68-pin cable

CYSTOMETRY SYSTEM INTERFACE BASIC

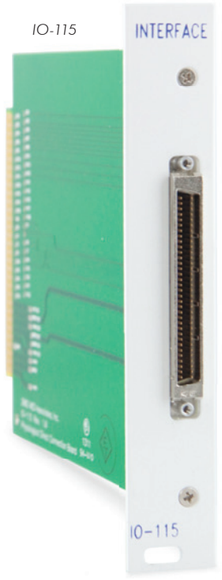
CAT-SYST-CYT-BASIC MOUSE+RAT

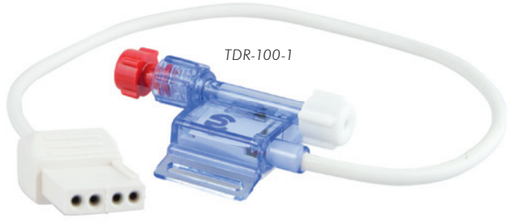
The same contents as the starter interface, only without the computer.

One data acquisition computer can control up to four cystometry systems.

COMPUTER REQUIREMENTS

- Windows 7 or newer
- One PCIe slot
- Two USB ports per cystometry station





PRESSURE TRANSDUCER

TDR-100-1 MOUSE+RAT

- Records intra-bladder pressures
- Disposable/reusable

PRESSURE TRANSDUCER CALIBRATION KIT

CAL-PRESSURE-TRANS MOUSE+RAT

Inflate the manometer by squeezing the bulb to both reach and hold the desired pressure.

SUMMARY OF CONTENTS

- Manometer (reads in units of mmHg)
- Stopcock
- Luer connector to easily hook up to the Pressure Transducer *(TDR-100-1)* for calibration

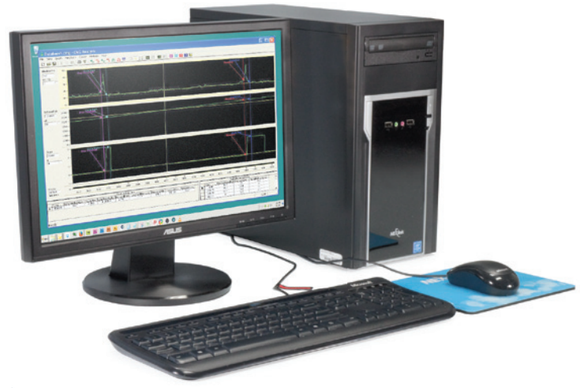
Includes conversion table with units of cmH2O for reference.

INTERFACE CONNECTION CARD

IO-115 MOUSE+RAT

For connecting the interface cabinet to the data acquisition computer via a 68-pin cable.

Used for recording bladder pressure.



STANDALONE 28 V DC POWER SUPPLY

SG-501 MOUSE+RAT | 120/230 V | 1 A DC

- Includes two individually switched outputs and two unswitched outputs:
  - Switched outputs control accessories that need to be independently turned on and off
  - Unswitched outputs power accessories that are always on, like cubicle lights and fans
- Eight (8) individual four-pin Molex® connectors

COMPUTER

COM-106R2-PC MOUSE+RAT

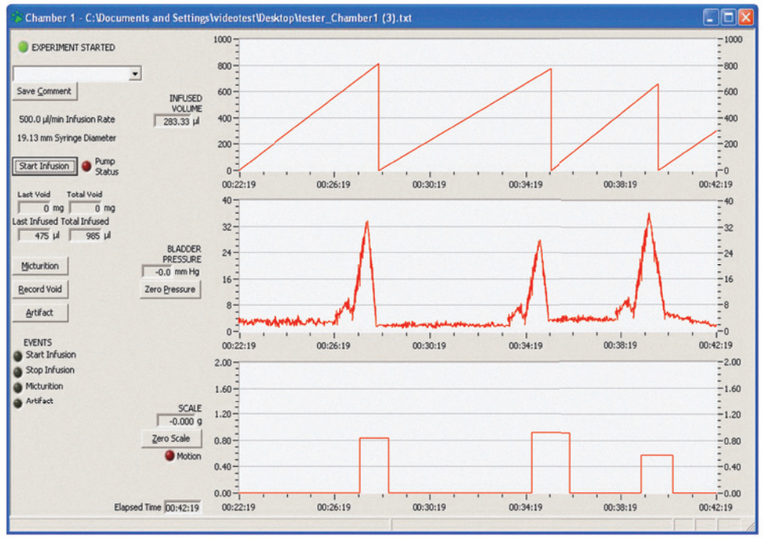
LED MONITOR

COM-MONITOR-LCD MOUSE+RAT

- Interfaces between software and hardware components to facilitate experimental control and data collection
- Designed to support up to four cystometry packages
- Interface cabinet does not have a built-in 28V DC power supply, sold separately

SPECIFICATIONS

- Windows 11 (64-bit)
- USB 3.0 *(x4)*, USB 2.0 *(x2)*
- PCI *(x1)* / PCIe X16 *(x1)* / PCIe X1 *(x2)*
- HDMI *(x1)* / DisplayPort *(x2)* / VGA *(x1)*
- Widescreen monitor w/speakers
- Wired keyboard and mouse



SOF-551

SMALL ANIMAL CYSTOMETRY "MED-CMG" SOFTWARE

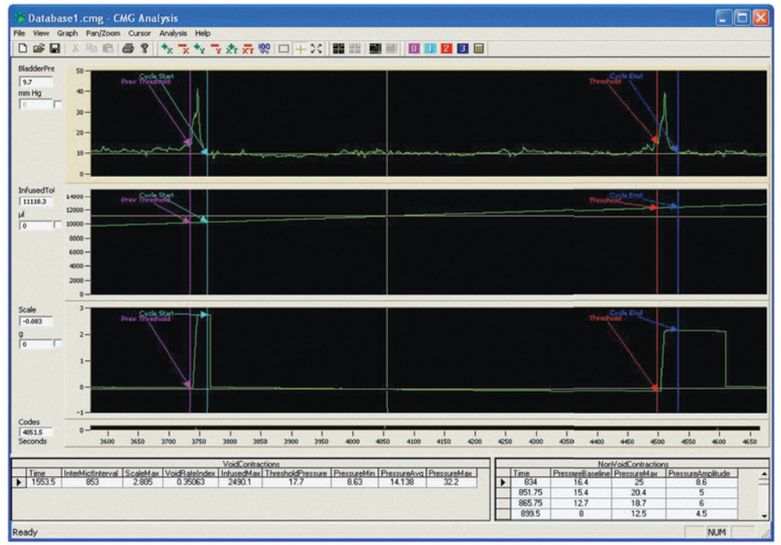
SOF-551 MOUSE+RAT

Our powerful data acquisition software for recording cystometrograms (CMGs) from small laboratory animals, such as rats or mice.

- Acquire data from up to four cystometry stations per computer
- Enables control of:
  - bladder filling infusion pump
  - recording bladder pressure
  - pressure transducer calibration
  - annotating event comments during an experiment

COMPUTER REQUIREMENTS

- Windows 7 or newer
- One PCIe slot
- Two USB ports per cystometry station



SOF-552

CYSTOMETRY DATA ANALYSIS SOFTWARE

SOF-552 MOUSE+RAT

Automatically create a graph of the cystometrogram of the exported data from MED-CMG. Analysis of the data is made possible with readouts of bladder pressure, infusion pump, and scale traces to identify void and non-void contractions.

- X-axis = volume of liquid
- Y-axis = intraluminal pressure of the bladder
- Spikes correspond to the bladder contractions associated with the micturition reflex
- Curve formed by the bottom of the plot reflects the level of pressure necessary to void
- Displays up to four data traces in the main window in an easy-to-view "strip chart"
- Spreadsheets can either be printed or saved
- Calculate key urodynamic parameters:
  - Bladder Pressures
    - Minimum
    - Average
    - Threshold
    - Maximum
  - Inter-micturition Interval
  - Infused Volume
  - Voided Volume
  - Void Rate Index
  - Non-void Contractions
- Isolate & analyze each micturition cycle within a region of interest independently by placing the:
  - Green cursor at the beginning of a cycle,
  - Blue cursor at the threshold of micturition, where the bladder pressure begins to rise sharply
  - Red cursor at the end of the cycle
  - Once cursors are in position, the data can exported to a spreadsheet in one click

Data saved to the tab delimited text file includes:

- the voided urine volume
- bladder capacity
- bladder threshold pressure
- minimum bladder pressure during filling
- average bladder pressure prior to micturition
- maximum micturition pressure

COMPUTER REQUIREMENTS

- Windows 7 or newer

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