

Small Animal Monitoring and Gating System

For use with PET, CT and SPECT

Monitoring

- ECG
- Temperature
- Respiration
- Blood pressure
- Auxiliary channels



Temperature control

Gating

- ECG
- Respiration
- ECG & respiration
- Auxiliary gate inputs

Waveform & trend data acquisition

The **Model 1025L monitoring and gating system** was designed to meet the physiological monitoring and gating needs for anesthetized mice, rats and larger animals in the PET, CT, SPECT and laboratory environments. The system consists of a main data acquisition and processing module located near the animal and a fiber optic transceiver (FORT) Module connected to a PC located near the operator console. The PC displays multiple waveforms, measured values, trends and gating pulses. The data acquisition module is controlled by menu driven software from the PC.

The animal's electrocardiograph (ECG) waveform is measured using three leads with sub-dermal needle electrodes, gold disk surface electrodes or radio translucent pads. The waveform is processed to detect R-waves and determine the heart rate.

Temperature is measured using a small rectal temperature probe. The temperature measurement can be used with the Heater System to control the temperature of the animal. Temperature variations of ± 0.1 °C can typically be obtained.

A respiration waveform is measured using a small pneumatic pillow placed next to the animal's abdomen. The waveform is automatically processed to detect inspiration, expiration and respiration rate.

A blood pressure waveform is measured using a pressure transducer connected with small bore tubing to an invasive line in the animal. The waveform is processed to determine systolic, diastolic and mean arterial pressure.

Auxiliary input channels allow the user to acquire, record, display and gate from user generated signals.

A sophisticated user configured gating algorithm allows gates generated from each measured waveform to be combined to supply a trigger to the imager. The user can control the start, stop and width of each gate.

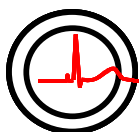
Power is supplied from an internal battery and/or an external 12 VDC power supply which operates from 100-230 VAC, 50-60 Hz. The internal battery is automatically charged when connected to line power.

Specifications:

ECG	Range:	40 - 700 BPM
	Accuracy:	$\pm 2\%$
	Input range:	-2.50 mV to 2.5 mV
	Input Impedance:	>10 M Ω at 10 Hz
	CMRR:	100 dB at 60 Hz
Temp	Probe types	rectal
	Range	0 - 100 °C
	Accuracy	± 0.2 °C, 10-70°C
Resp	Range	15 - 300 bpm
	Accuracy	1 count
IBP	Display range	0 - 300 mmHg
	Channels	3
Main Module	Auxiliary inputs	2 digital 2 analog
	Power	+12 VDC & battery
	Patient isolation	optical
	Size: hwxwd cm	8.3x15.5x15.9
FORT Module	Power	+12 VDC
	Size: hwxwd cm	3.8x7.0x11.5
Gating	R-wave to gate delay	selectable - 0 ms to 600 ms
	Expiration gate width and delay	selectable - 1 ms step size
Temp	Heater control	fiber optic PWM

PC requirements:

Software:	Windows	95, 98, 2000 or XP
Hardware:		>1 GHz processor Serial com port CD reader



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