



Molecule to Man Imaging

**Revision: September 13, 2006**

Product Definition:

## **BioVet Physiological monitoring and triggering system**

BioVet® is a specialized monitoring system for the preclinical CT, SPECT and PET imaging used for physiological event triggering and animal monitoring. Designed to monitor and trigger from 3 standard channels: Respiration, Temperature and ECG. Output to imaging system hardware for event synchronization via TTL active high or active low (software defined) and has been tested on leading manufacturer's instruments (i.e. dual trigger out ability). BioVet® has an optional upgrade for animal temperature regulation. *This device is not intended for human use.*

Customers may also wish to use this product in conjunction with m2m's animal handling solutions and stand alone temperature regulation unit for regulating temperature pre and post anesthesia – further information is available on our website [www.m2mimaging.com](http://www.m2mimaging.com).

### General Features:

- \* Fully USB operated and powered.
- \* Automated functionality to suit your work flow.
- \* Suits major imaging suppliers gating inputs, individual and combination triggering and provides advanced triggering dialogs.
- \* Offers ECG (3 lead radio translucent), pneumatic Respiration, Temperature as standard.
- \* 2 User defined inputs.
- \* Minimal sitting requirements.
- \* Easy to use and operate.
- \* **Temperature regulation channel upgrade available**

### System Inclusions:

- BVCM – BioVet® command module
- BVAM – BioVet® acquisition module
- Full cable and sensor package
- BioVet® Software package
- Documentation and Manuals

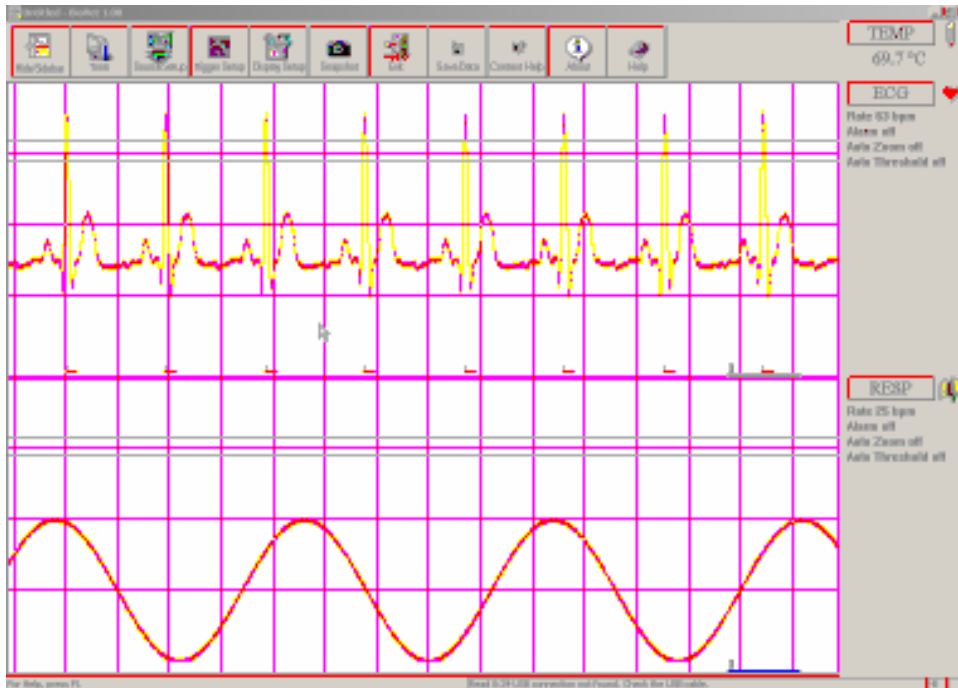
### Cable and sensor package includes:

- ECG electrodes (3 sets)
- Respiration sensor pads (2 pads)
- 0.7m ECG extension cable
- 0.7m Respiration extension tube
- 1.8m USB cable
- 9m triggering cable (connection to third party device)
- 9m cable BVCM to BVAM
- 1.2m Temperature sensor

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## BioVet Software

Main default screen of the BioVet® software is depicted below.



The BioVet® software offers functionality and usability to perfectly suit requirements of the triggering and animal monitoring process.

## Software Features Summary

- Advanced triggering setup for both channels either in combination or individually.
- Source control menu providing lead switching, hardware signal gain software signal gain controls.
- Automated hysteresis and threshold setup (triggering) and auto zoom functions
- Beat rate counters and alarm for high and low BPM's (also displays millisecond per trigger point for ease of sequence engineering).
- Scrolling screen display (fastest 1 second per screen scroll), multi window display 1 to 5 channels simultaneously, modify all color options and line thickness modified.
- Save experiments to ASCII format for post processing.
- Save configuration for easy repeat setup of experiments.
- Screen snap shot, stop watch, print screen, help functions, digital temperature display, and automated USB connection and reconnection functions.
- Control of optional temperature regulation channel is achieved through the software.



## BioVet Hardware Specifications

| Parameter                 | Specification  |
|---------------------------|--|
| <b>ECG</b>                | 3 Leads carbon silver chloride electrodes<br>Gain x1 to x20 (8 steps software controlled)<br>Trigger detection: threshold<br>Operating mode: 3-Lead<br>Lead switching ; Leads I, II, III |
| <b>Respiration</b>        | Pneumatic sensor<br>Trigger detection: Threshold<br>Gain x1 to x20 (8 steps software controlled)   |
| <b>Temperature</b>        | Thermistor based R-T YSI-400 compatible<br>Range 0°C to 50°C<br>Accuracy +/- 0.2°C   |
| <b>Trigger Setup</b>      | Two trigger modes selectable GatingMode and TriggerMode<br>Pulse width variable TTL level, active high/low (selectable)<br>Dual trigger out function available                           |
| <b>User Channels</b>      | 2 channels<br>Range -2.048 to +2.048 Volts<br>Input impedance 12K ohm<br>Gain x1 to x20 (8 steps software controlled)  |
| <b>Additional Options</b> | Temperature regulation channel upgrade available   |

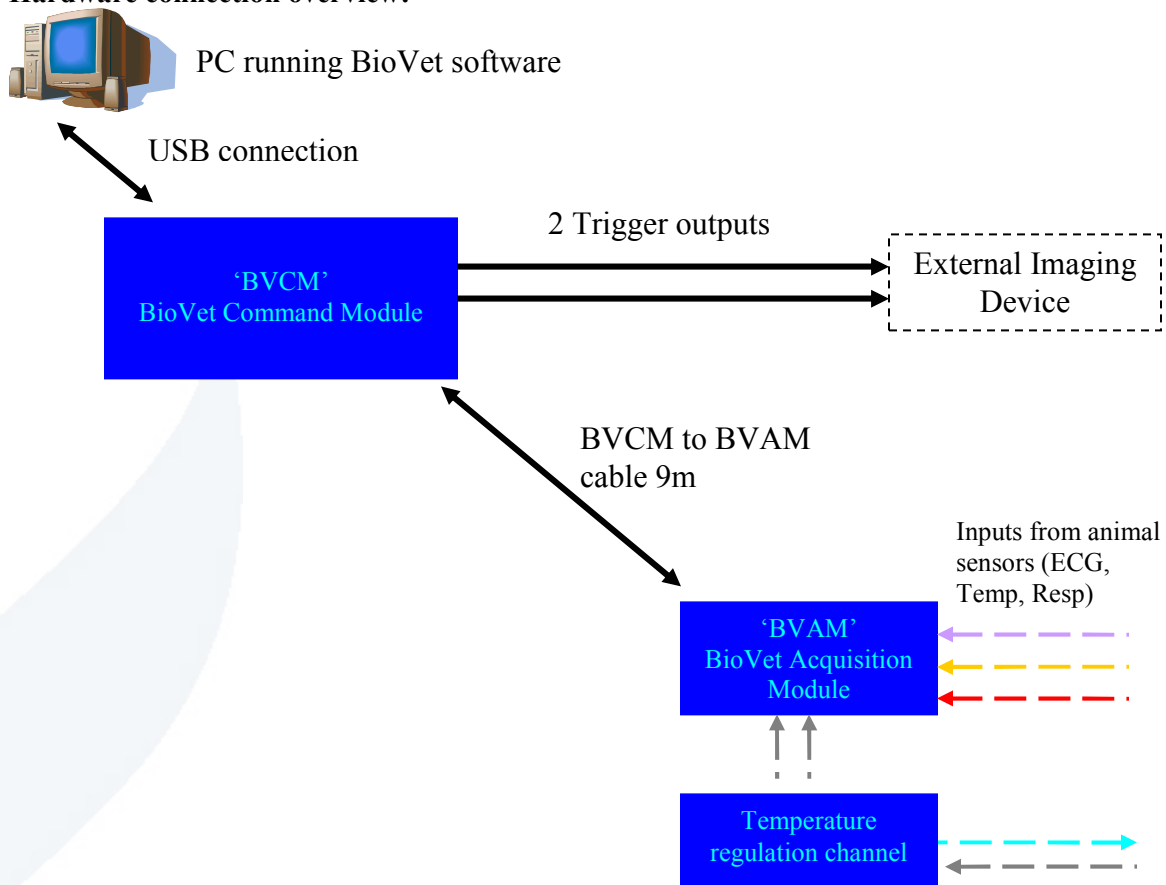
## System Overview

BioVet® consists of 3 major components:

- BVCM (BioVet command module)
- BVAM (BioVet acquisition module)
- BVSW (BioVet software)
- Temperature regulation channel (optional extra)

Software is the user interface and control point of the system and runs on a standard desktop or laptop. BVCM is the heart of the system, running over the USB (fully USB powered) this module contains the trigger out connections and connections to BVAM. Triggering functions are performed within this module under 5mS from the actual physiological event. BVAM is the connection point to the animal for all 3 standard channels and also the user channels (user channels; 2 additional channels available for the user to plug in existing hardware).

### Hardware connection overview:





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## Contact

For further information and pricing on this system please contact m2m Imaging Corp:

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m2m Imaging Corp is an ISO9001 and ISO13485 certified manufacturer.



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