



A FULLY featured, veterinary specific, multi-parameter monitor.

With options to include ECG, CO₂, Agent, Pulse-Oximetry, IBP, NIBP and Temperature, the Lightning monitor delivers full monitoring performance in a robust, compact unit.



The Lightning Multi-Parameter monitor offers the following:

- ✓ High visibility, 6-inch colour touchscreen
- ✓ Optional modular configuration
- ✓ Battery powered for portability
- ✓ Table-top, wall-mount or cage-mount
- ✓ USB connection to PC as standard
- ✓ Extensive PC monitoring and reporting software
- ✓ Automatic anaesthetic record generation

Lightning

Multi-parameter, colour touchscreen monitor for all animals

Key features

- 6-inch colour touchscreen
- Portable, battery-powered unit
- Lightning weighs just 1.4kg when fully fitted
- Supports the following modules: ECG, Pulse-Oximetry, Capnography, Agent, NIBP, IBP, Temperature, Wireless, USB stick
- Single channel or six-lead ECG module option
- ECG noise suppression filter
- Fully diagnostic ECG with supporting software
- Single or dual-channel IBP available
- Dual-channel temperature as standard
- 50ml per minute microsampling sidestream rate
- PC connection via USB cable or wireless
- Full data recording
- Suitable for general practice and research
- Comes with a full PC software suite for monitoring and recording all your data
- Designed and manufactured in the UK



Anaesthetic Monitoring

Lightning

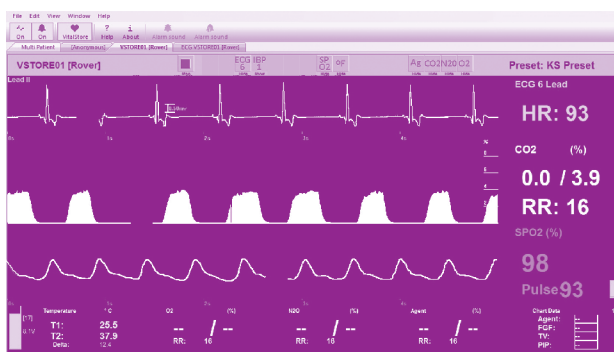
Multi-parameter, colour touchscreen monitor for all animals

The Lightning multi-parameter monitor from Vetronic Services is a fully featured, veterinary-specific monitor. Lightning is simple to use and can be turned on and connected to the patient in seconds. Using our own embedded software means the time from turn on to display of monitoring data is just four seconds. Lightning has been designed to fit the needs of small animal practitioners, large animal practitioners and research establishments alike.

With a monitoring range catering for exotic species, the Lightning monitor is capable of measuring heart rates up to 600bpm (ECG) and 450bpm (Pulse-Oximetry). A dual-channel invasive blood pressure module allows simultaneous monitoring of arterial and venous lines and the dual-channel temperature module provides two temperature values (as well as the difference or delta value).

Information is displayed on an intuitive, simple to use colour touchscreen, with a user-configurable layout with the functionality to easily add or remove traces. When connected to a PC using either the USB cable (included) or the optional wireless link, all monitoring data is shown on our VitalMonitor software program (**below**) and can be recorded for future review. A second program, VitalStore, allows a full review of your data and can automatically produce anaesthetic record charts as well as ECG and other monitoring reports.

The ECG review feature allows full measurement of the ECG waveform, along with mean heart rate and VVTi calculations.



Technical Specification

General

Weight	1.4kg (all options fitted)
Dimensions	225mm x 205mm x 80mm,
Power	Internal lithium polymer battery pack, 7.4v 3.8Ah capacity. 9V 20W DC universal input mains charger
Connectivity	USB: 2.0 compliant, B connector for direct PC connection; 2.0 compliant A connector for use with external USB stick Wireless: Enhanced Bluetooth 2.4GHz link to remote PC
Mounting	Optional pole mount, wall mount or cage hanger

ECG Module

Type	Fully isolated single-channel or six-lead. Diagnostic quality
Range	+/- 5mV, 6 to 600bpm
Input impedance	5MOhms

Pulse-Oximetry module

Sensor type	Dual-beam (red/IR) transmission or reflectance
Range	18-450bpm, 0 to 100% saturation
SpO ₂ accuracy	10-100% +/-2%
Rate accuracy	+/- 3%

Gas monitoring module

Monitored gases	CO ₂ , Anaesthetic agents, Nitrous oxide and Oxygen (Oxygen by external module only)
Supported anaesthetic agents	Isoflurane, Sevoflurane, Desflurane, Halothane, Enflurane
Respiration rate	0-150 per minute
Detection	Nine-channel, non-dispersive infra-red. Oxygen by paramagnetic sensor
Warm-up time	10 secs first reading; 60 secs full accuracy
Agent detection threshold	0.2%
Accuracy	CO ₂ , Agent and N ₂ O better than +/-0.2%. Oxygen better than one per cent

Invasive blood pressure module

Range	0 to 300mmHg, 10-600bpm
Accuracy	+/- 1mmHg
Modes	Pulsatile (arterial line), Static (CVP, CSF pressure)
Sensor	Industry-standard disposable, 5uV/V/mmHg

Dual temperature module

Range	10° to 45°C (50° to 113°F)
Sensors	2 x industry-standard 400-series thermistor sensors
Accuracy	+/- 0.1 degree

NIBP Module

Measurement method	Oscillometric
BP range	Systolic: 40-265mmHg; MAP: 27-222mmHg; Diastolic: 20-200mmHg
Pulse rate range	25-300bpm
Start-up initialisation	7 seconds
Supported cuff sizes	Neonate #1 (3-6cm) to Neonate #5 (8-15cm), plus human cuff sizes
Sampling modes	Manual or Automatic
Automatic interval	1-120 minutes in one-minute steps