Quantum
Perfusion

The Quantum Workstation
The future in Cardiothoracic Perfusion Management

Personalized Perfusion Solutions

Spectrum Medical

The Quantum Workstation

The revolutionary new range of Quantum Perfusion Systems being developed by Spectrum Medical will enhance patient and clinician safety during Cardiopulmonary Bypass and ECMO procedures. With a pioneering dedication to system modularity, Spectrum Medical will provide advanced customized Perfusion Systems for today's clinical best practice and the new best practices of the future.

The Quantum Workstation is your "flight deck" for the management of the advanced Quantum Perfusion System. The Integrated solutions and system modularity expands the functionality of the Workstation to include patient ventilation, the delivery of cardioplegia and complete Perfusion Systems. Third generation propriety software and a 15" high-resolution portrait touch screen provides a unique user experience that is easily adapted into clinical practice.

As a standalone system the Quantum Workstation is the world's first Patient Monitor designed specifically for the safe delivery of extracorporeal circulation. Manufactured from medical grade aluminum materials, with the latest touch-screen technologies and a 2 hour battery life, the Quantum Workstation complies with the latest medical and safety regulations in accordance with ISO 62304 and ISO 60601.

Perfusion Data Management:

Recognized as the leading provider of integrated Data Management, Spectrum Medical now includes the "vendor neutral" VIPER Data Management Software as an optional feature on the Quantum Workstation. As a fully HL7 compliant system, Spectrum's EMR technology allows for the integration of third party devices, the real-time bi-directional flow of discreet HL7 data with the hospital's EHR provider and optional pdf(s) at the conclusion of the case.

Integrated Non-Invasive Diagnostics:

Using Spectrum Medical's unique non-invasive and real-time diagnostic technologies, the Quantum Workstation provides an entry level package of patient diagnostics that include SaO_2, SvO_2 and Hb/Hct.

3rd Party Device Connectivity:

With the integration of Spectrum Medical's proven 3rd party device connectivity software, the Quantum Workstation can interface in real-time to all Patient Monitors, Cerebral Oximetry Monitors and many other 3rd party devices using LAN, USB, RS232/485 and WiFi (802-11 a/b/g/h).

Your "flight deck" into Perfusion Management.

Quantum Perfusion

Central Display System

Building Your Future

Ventilation and Vacuum Management ▷

Cardioplegia Management ▷

Heart Lung Systems ▷

ECMO Systems ▷

Central Display System:

The conduct of extracorporeal support requires primary focus on patient care and immediate access to critical clinical data with minimal distraction from either the patient or the bypass circuit.

Typically, important clinical data is found on a range of monitors from different vendors in a variety of locations, the Quantum Workstation using a world first Central Display System eliminates these potentially unsafe distractions and the need for a secondary monitor.

Art Flow	SaO$_2$	SvO$_2$	FiO$_2$	Sweep	L rSO$_2$ R		Venous Temp	BP
2.92	96	85	79	2.1	68	71	36.1	95 / 74
Ven Flow	Hb		PO$_2$	PCO$_2$	CVP		Bladder Temp	MAP
2.93	15.1		224	47	7		35.3	(81)

Non-Invasive Measurement of SaO$_2$, SvO$_2$ & Hemoglobin

The Measurement of SaO$_2$ and SvO$_2$

The Measurement of O$_2$ saturation is achieved by analyzing a specific region of the oxy-hemoglobin absorption curve. The use of this non-invasive optical shape recognition technology ensures the measurement of O$_2$ is highly accurate and extremely repeatable to its pre-shipped calibrations over the lifetime of the product.

Using a miniature scanning spectrometer and infrared LED, the system measures the reflected amplitude of light at 100 discrete wavelengths.

A specifically developed algorithm derives the relative contributions from both the fully oxygenated and the reduced oxygenated absorption curves to calculate an actual O$_2$ concentration.
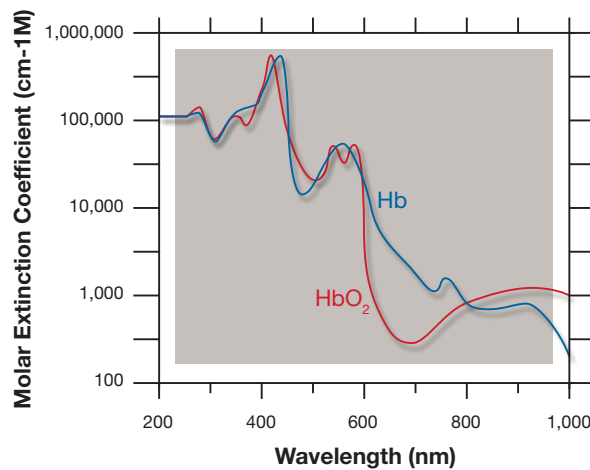
The Measurement of Hematocrit and Hemoglobin

Spectrum Medical again uses non-invasive technology for a continuous reading of Hematocrit (15 to 50%) and Hemoglobin (5 to 17g/dl).

Infrared light from an LED is passed through a flowing tube of blood. A photodiode detects a receiving light level and converts the resultant light energy into a proportional electrical output.

The sensors are delivered pre-calibrated with a high and low concentration value. Software algorithms linearize this relationship and convert the incoming signal to an actual value of Hemoglobin and a calculated measurement of Hematocrit.

Sensor Sizes

Sensors - Hb/ SO$_2$ Part Number	Tube Internal Diameter	Tube Wall Thickness	Venous Tubing Clip Size (Tube OD)	Cable Length
51-000040-00	3/16	1/16	5/16	2M
51-000039-00	1/4	1/16	3/8	2M
51-000038-00	1/4	3/32	7/16	2M
51-000037-00	3/8	3/32	9/16	2M
51-000044-00	3/16	1/16	5/16	1.3M
51-000043-00	1/4	1/16	3/8	1.3M
51-000042-00	1/4	3/32	7/16	1.3M
51-000041-00	3/8	3/32	9/16	1.3M
Venous Line of Hb/SO$_2$ sensors maximum tube size	1/2	3/32	11/16	Not Applicable

Total Customer Support

With an absolute dedication to customer support and a total solutions approach to maximizing equipment availability within the hospital, Spectrum Medical has designed a two-tier customer support program called Sentinel Total Care and Vigilance Total Care.

Sentinel Total Care:

Extended Warranty Full warranty on your Quantum Perfusion System including Associated Accessories (sensors, cable assemblies) for its 10-year life at no cost to the customer. Quantum products beyond economic repair will be replaced with latest "new build" technologies.

Annual Servicing Includes all required servicing visits performed by dedicated Spectrum Medical's service personal and the cost of all servicing items.

Accidental Damage Accidental damage including accessories (sensor, cable assemblies) for the 10-year life of your Quantum Product at no cost to the customer.

Emergency Loan Equipment Loan equipment provided if the defective equipment cannot be rectified within 24 hours of being returned to Spectrum Medical.

Annual Software Updates During the service visit the Quantum Software will be maintained to latest standards including changes to user functionality, updates to enhance maintainability, reliability and protocol changes to third party device driver software at no cost to the customer. Software deployment is subject to prior customer approval and training via webinar or in-house at Spectrum Medical is included free of charge.

Telephone Support Within standard working hours.

Vigilance Total Care: additional support when using Spectrum Medical's VIPER and VISION Data Management System.

Vigilance Server Vigilance Server is a revolution in customer support and uses current technology developed for Spectrum Medical's Perfusion Management System. Integrated within the VISION Server System the Vigilance maintenance application provides for the pro-active, real-time monitoring and reporting of electronic and functional sub-systems, real-time fault diagnosis, deployment of system wide software updates, and on-line system support. With access to a private VPN, this diagnostic information is communicated in real-time to Spectrum Medical.

Quantum Instant Access To maximize operational up time of the Quantum Perfusion System Spectrum Medical will, and at its discretion, deploy a "bonded inventory" of critical Quantum modules within a secure hospital location. Customers will have immediate 24-hour access to this bonded stock and more importantly prior approval from Spectrum Medical will not be required.

Spectrum Medical must be notified as soon as practically possible that the bonded stock has been used.

Sentinel and Vigilance Total Care programs define the standards by which other providers are measured!

Perfusion Data Management

From VIPER to VISION and LIVE VUE

VISION is a sophisticated server application that is the hub of Spectrum Medical's EMR technology. VISION automates the system-wide maintenance of software, the creation and transfer of patient records, the storage and retrieval systems for complex clinical data sets.

LIVE VUE is Spectrum Medical's web-based near real-time remote access tool. System privileges allow for the remote viewing of live clinical data, while hardware configuration supports detailed and simultaneous viewing of multiple patients.

Spectrum Medical

USA and Canada:
Call 800-265-2331
ussales@spectrummedical.com

EU and ROW:
Call +44 1242.650.120
eusales@spectrummedical.com

www.spectrummedical.com