Class II Medical Device

Operating System:
- Microsoft Windows XP

Power:
- AC
- Battery Backup

Enclosure:
- Polyurethane TC-885 A/B FR

Dimensions:
- 18.5 cm x 37.4 cm x 38.6 cm

Weight:
- Approx. 15 lbs.

Display:
- 15" 32 Bit Color LCD Active Touch Screen

Measurement Current:
- 2.0 mA, 100kHz

Electrodes:
- IQ²™ disposable hydrogel electrodes only

Memory/Drive:
- Solid State – 512mb
- Memory – 512mb/ram

Defibrillation Protection:
- Up to 500 Joules

Communication:
- Isolated Optical Interface

Operating & Storage Temperature:
- 15ºC – 40ºC (40ºF – 113ºF)

Relative Humidity for Operation & Storage:
- 20% - 80% non-condensing

IP20

NIBP:
- Self-contained

IQ²™ is a registered trademark of the NMT Corporation
Specifications subject to change without notice.

Improving Patient Outcomes for:
- Heart Failure
- Dyspnea
- Hypertension
- Pacemaker
- Trauma

- Patients with suspected or known cardiovascular disease
- Differentiation of cardiogenic from pulmonary causes of acute dyspnea
- Optimization of atrioventricular interval for patients with AV sequential cardiac pacemakers
- Patients with need of determination for intravenous inotropic therapy
- Patients with the need for fluid management
- Critical Care
**IQ²™ Introduction**

IQ²™ is a noninvasive hemodynamic monitor that provides continuous real-time assessment and trend data regarding heart and vascular health.

The IQ²™ noninvasively measures changes in thoracic electrical bioimpedance over changes in time in relation to the cardiac cycle. With each heartbeat, changes in conductivity occur as blood distends, and then leaves the aorta. These changes are measured and recorded as the dZ/dt waveform, similar to the arterial pressure waveform but based on volume rather than pressure.

**Approved Indications & Applications**

- Patients with suspected or known cardiovascular disease
- Differentiation of cardiogenic from pulmonary causes of acute dyspnea
- Optimization of atrioventricular interval for patients with AV sequential cardiac pacemakers
- Patients with need of determination for intravenous inotropic therapy
- Patients with the need for fluid management

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**IQ²™ Connect Application**

The IQ²™ Connect represents the entire patient interface. For this reason, the application of NMT brand electrodes should include careful site preparation and placement. The patient skin must be clean, dry and free of excessive body hair. It is recommended for adults that the skin under the electrode sites be scrubbed with isopropyl alcohol (70%) and a site prep pad.

- Remove the relief liner backing from each of the IQ²™ electrode patches as each are placed.
- Place one BLUE / YELLOW patch at root of each side of the neck. **Arrows pointing downward.**
- Place one GREEN / GREY patch on each side of the thorax/chest – the GREEN dot should be level with the Xyphoid Process (bottom of breastbone) and directly beneath the armpit. **Arrows pointing upwards.**
- The thoracic length is the distance between the YELLOW dot on the neck and the corresponding GREEN dot on the thorax.
- As depicted in the diagram, the ECG electrodes are placed in standard Lead II configuration (RA, LA, LL)

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**IQ²™ Patented 3-Dimensional Impedance Signal (dZ/dt)**

3-Dimensional IQ²™ Algorithm

2-Dimensional Estimate

IQ²™ is the only Noninvasive Hemodynamic Monitor that utilizes a patented three dimensional algorithm reporting accurate, patient-specific information, as opposed to hemodynamic estimates displayed by other two-dimensional signal processing technologies.
Recent References


For a complete reference list copy contact NMT
888-466-8552 or www.nmtinc.org

Patient Benefits

- Quickly assess baseline hemodynamic status with any patient
- Trend and detect hemodynamic changes for earlier intervention & outcome improvement
- Monitor drug titration and fluid management to evaluate and optimize treatment
- Provide a noninvasive bridge to enable earlier removal of invasive lines
- Provide hemodynamics in patients where invasive procedures are contraindicated or not routinely used

Surgery / Anesthesia

Pre-operative:

- Establish baseline hemodynamics on high-risk surgical patient

Peri-operative:

- Assess hemodynamic status during thoracic, vascular, orthopedic, general surgery
- Establish differential diagnosis between fluid status and cardiac dysfunction
- Monitor drug titration and fluid management to evaluate and optimize treatment
- Trend and detect hemodynamic changes for earlier intervention

Post-operative

- Evaluate hemodynamics for transfer to appropriate care unit
- Detect compromised hemodynamics to guide therapeutic options

Emergency and Trauma Care

Establish baseline status on any patient with potentially unstable hemodynamics:

- Heart Failure
- COPD
- Hypo / Hypertension
- Myocardial infarction
- Cardiac arrhythmia
- Early Sepsis detection
- Early identification of Shock Syndrome
- Differentiation between Cardiogenic and Non-Cardiogenic shock

Billing

IQ”™ monitoring is reimbursed and indicated under CPT code: 93721 or 937015

- Noninvasive diagnosis or monitoring of hemodynamics in patients with suspected or known cardiovascular disease
- Differentiation of cardiogenic from pulmonary causes of acute dyspnea
- Optimization of atrioventricular interval for patients with A/V sequential cardiac pacemakers
- Patients with need of determination for intravenous inotropic therapy
- Post heart transplant myocardial biopsy patients
- Patients with a need for fluid management
High Risk Pregnancy

• Guide differential diagnosis and treatment options
• Monitor drug titration and fluid management to evaluate and optimize treatment
• Trend and detect hemodynamic changes for earlier intervention
• Triage patients to appropriate level of care

Congestive Heart Failure

• A quantifiable measurement of the effects of cardiac medications on both the power (CO/Cl), timing (VET/PEP), resistance (SVR) and volume (Zo)
• The added benefit that it does not require the patient to be hospitalized
• Easy to perform in the outpatient clinic
• For Class III - IV heart failure patients requiring outpatient inotrope infusions, the IQ2™ System monitoring assists in determining an adequate dosage regimen through immediate noninvasive display of hemodynamic parameters.

Pacemaker Optimization

• Various parameters (AV-delay, maximum pacing rate) of pacemakers require individual adjustment (which can be a time consuming process achieved by trial and error that may not reach the true optimum).
• The IQ2™ System enables easily optimized pacemaker settings by measuring CO (cardiac output), VET (Ventricular Ejection Time) and PEP (Pre-Ejection Period).
• In patients with dual-chamber pacemakers, cardiac output can vary significantly by altering the AV delay. With the rapid stroke volume determination available with the IQ2™ System, cardiac outputs can be evaluated at a wide range of AV delays within minutes.

Heart Transplant

• Decreased myocardial contractility is one of the first signs of early heart rejection.
• The IQ2™ System monitoring can serve as a valuable noninvasive adjunct in monitoring for early rejection.

Hypertension

• Assessing baseline hemodynamics and the interaction between blood pressure, flow, resistance, and fluid status assists in the selection and dosing of therapy.
• Because hemodynamic information, historically has not been available, many times patients are diuresed or beta-blocked to the benefit of blood pressure but at the expense of overall vascular resistance and peripheral flow.
• The IQ2™ System data can be used to verify a balanced treatment regimen by providing data on LV contractility (beta-blockers), Systemic Vascular Resistance (vasodilators), and fluid status (diuretics), to target therapy for each patient’s unique needs.

Dialysis

• Aid in the determination of Ideal Dry Weight
• Assessing hemodynamic status during dialysis to evaluate and optimize patient condition and identify optimum fluid status and customize therapy for each patient
• The IQ2™ System prevents hemodynamic crisis by trending and detecting changes in hemodynamics for earlier intervention

| IQ2™ Parameters |
|-----------------|-----------------|-----------------|
| **Abbreviation** | **Parameter**    | **Normal Values** |
| HR              | Heart Rate      | 65-90 bpm       |
| CO              | Cardiac Output  | 4-8 l/min       |
| CI              | Cardiac Index   | 2.5-4.0 l/min/m²|
| SV              | Stroke Volume   | 60-120 ml/beat  |
| PEP             | Pre-Ejection Period | 0.05-0.12 sec |
| VET             | Ventricular Ejection Time | 0.25-0.35 sec |
| dZ/dt           | Change in Impedance/Time | 0.8-2.5 Ohms/sec |
| ACI             | Acceleration Contractility Index | 2-5 Ohms/sec² |
| LCWI            | Left Cardiac Work Index | 3-5 kg min/m² |
| SVR             | System Vascular Resistance | 800-1200 dyne sec/cm² |
| Zo              | Base Thoracic Impedance | 19-30 Ohms |