CCM Express®

Indirect Calorimeter

The CCM Express indirect calorimeter brings advanced technology to the clinician and dietitian in hospitals and private practice. Testing can be accomplished in the most demanding ventilator environment, including bias flow, pressure support, and elevated or fluctuating fraction of inspired oxygen (FiO_2). Patients breathing spontaneously will benefit from comfortable testing options, such as the face tent and face mask. The built-in computer with touchscreen operation, oxygen and carbon dioxide sensors, and breath-by-breath analysis make indirect calorimetry with the CCM Express rapid and simple—while providing highly accurate resting energy expenditure (REE) and substrate utilization data.

TRUE METABOLIC ASSESSMENT

- Measurements can be obtained with breath-by-breath analysis or user-defined averaging.
- Gas sensors measure both oxygen and carbon dioxide.
- Ventilator patients can be tested on elevated (above 60%) or fluctuating FiO_2.
- System is unaffected by ventilator pressure support/pressure control and bias flow.
- Windowing function excludes non–steady-state data resulting from patient disturbances or test initiation.

COMPACT DESIGN

- Small and compact for easy transport
- Crisp monitor display, immediate text and graphical results
- Data storage in onboard database for printing at any time

TOUCHSCREEN ON-SCREEN OPERATION

- Full-function “virtual” keyboard
- Intuitive icon-based software to guide operator through testing procedures
- Multilingual reports and software

CCM EXPRESS REPORTS

- Choice of ready-to-print preconfigured reports:
  - Available reports include summary metabolic report with respiratory quotient, energy expenditure, substrate utilization, predicteds and breath-by-breath graphics.
  - Tabular report shows test variables reported in 30-second intervals.
  - End tidal report assists in monitoring appropriate ventilator support.
  - Direct fick report provides calculation of cardiac output.
- Output reports to any Windows-compatible printer or PDF file or can be archived to flash drive.

EASY-TO-USE SYSTEM

- After initial start-up, warm-up time between patients is only seconds.
- System can test normally breathing patients using a comfortable mask or face tent.

DIRECTCONNECT™ FLOW SENSOR

- The patented DirectConnect flow sensor allows measurement of REE at the endotracheal tube so there is no need to turn off, divert or compensate for pressure support or bias flow.
- System eliminates complicated connections or isolation valves, which simplifies and speeds testing.
- The DirectConnect is disposable or can be sterilized and reused—providing an excellent, cost-effective solution for infection control.

SPECIFICATIONS

SIZE (BASE)

- Height: 9.5 in (24 cm)
- Width: 7.5 in (19 cm)
- Depth: 10.5 in (26.7 cm)
- Weight: 9.2 lbs (4.2 kg)

POWER REQUIREMENTS

- 100–240 V/50–60 Hz

O_2 ANALYSIS

- Type: Galvanic
- Sensor range: 0–100%
- Application range: 5–85%
- Response: (10–90%) <130 ms
- Resolution: ±0.1%
- Accuracy: <1%

CO_2 ANALYSIS

- Type: Non-dispersive infrared (NDIR)
- Sensor range: 0–15%
- Application range: 0–10%
- Response: (10–90%) <130 ms
- Resolution: ±0.1%

GAS SAMPLE

- Proprietary gas-drying sample circuit
- Sidestream sampling flow rate: 80-120 mL/min
- Warm-up time: 30 minutes from cold start
- Patent number: 5,042,500

CCM TESTING CAPABILITIES

- RMR/REE
- Direct fick cardiac output
- Direct connect ventilator

DIRECTCONNECT™ FLOW SENSOR

- Bidirectional Pitot tube flow sensor
- Patent number: 5,038,773
- Accuracy: ±3% or 10 mL, whichever is greater
- Resolution: 2.4 mL/s
- Range: 0–40 L/min
- Application range: 100–2000 mL
- Tidal volume range: 100–2000 mL

OPTIONS

- Mobile cart/trolley

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