

# Ultima Series™

Cardiorespiratory Diagnostic Systems



MODEL:

## Ultima CCM™

Indirect Calorimeter

The Ultima Series™ cardiorespiratory diagnostic systems offer maximum flexibility to configure both pulmonary function testing (PFT) and gas exchange testing. The Ultima CCM™ indirect calorimeter allows assessment of critically ill patients while providing cost-effective healthcare delivery.

- Patients with thermal injury and/or trauma are able to have optimal nutrition while those with metabolic and eating disorders are carefully monitored.
- Cost-effective management of mechanically ventilated patients is possible by reducing the amount of vent days and time spent in the ICU.



### UNIQUE SYSTEM DESIGN

The Ultima system's all-in-one design allows for maximum testing comfort for the technician and the patient while utilizing the latest technology for unparalleled performance and reliability.

- Fully adjustable desktop allows for expansive personal workspace whether the technician is sitting or standing.
- Room to room portability with gas tanks.
- BreezeSuite Scheduler allows for automatic warm-up so the system is always ready for testing.



### FLOW SENSORS FOR SIMPLICITY AND ACCURACY

Our proprietary preVent® flow sensor and DirectConnect™ metabolic flow sensor saves time between patients and provides maximum infection control while meeting or exceeding ATS/ERS standards and specifications.

- Eliminates warm-up or flow recalibration between patients.
- Simple snap-in setup contains no moving parts or electronics for cost-effective testing.
- Options to use with a filter (PFT), sterilize or discard.



### TEST SPECIFIC QUICK CALIBRATION

Test specific quick calibration allows for simplified gas calibration based on the test being performed (pulmonary function or metabolic) without compromising accuracy of test results and lab efficiency.



The Ultima Series™ cardiorespiratory diagnostic systems offer maximum flexibility to configure both pulmonary function testing (PFT) and gas exchange systems. Simply select the product that best meets your needs, or talk to your product sales representative for more info.

TESTING CAPABILITIES	PF	PFX	CPX	CARDIO <sub>2</sub>	CCM
<b>PULMONARY FUNCTION TESTS:</b>					
◦ Spirometry (FVC, SVC, MVV)	✓	✓	✓	✓	✓
◦ Respiratory mechanics (MIP/MEP)	✓	✓	-	○	-
◦ Diffusing capacity	✓	✓	-	○	-
◦ Nitrogen washout	✓	✓	-	○	-
◦ Single breath N <sub>2</sub>	✓	✓	-	○	-
◦ Arterial blood gases (ABG manual entry)	✓	✓	✓	✓	✓
<b>ECG/HEART RATE CONFIGURATIONS:</b>					
◦ Integrated 12-lead ECG	-	○	-	✓	-
<b>GAS EXCHANGE TESTS:</b>					
◦ Direct fick cardiac output	-	✓	✓	✓	✓
◦ Indirect fick cardiac output (NICO)	-	○	○	○	○
◦ Exercise capacity (O <sub>2</sub> and CO <sub>2</sub> )	-	✓	✓	✓	○
◦ Nutrition assessment: REE/RMR (O <sub>2</sub> and CO <sub>2</sub> )	-	○	○	○	✓
			✓ standard	○ optional	

## SPECIFICATIONS

### ULTIMA SYSTEM

- Workspace: W x D: 24 x 21 in (70 x 53.3 cm)
- Base: W x D: 25 x 31 (63.5 x 78.7 cm)
- Height: 49 in (124.5 cm)

### PREVENT® FLOW SENSOR

- Bidirectional Pitot tube flow sensor
- Range: ±18 L/s
- Accuracy: ±3% or 50 mL, whichever is greater
- Resistance: <1.5 cm H<sub>2</sub>O @ 14 L/s
- Dead space: 39 mL

### DIRECTCONNECT™ METABOLIC 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

### POWER REQUIREMENTS

- 100-240 V/50-60 Hz

### O<sub>2</sub> ANALYSIS

- Type: Galvanic
- Range: 0-100%
- Response: (10-90%) <180 ms
- Accuracy: ±1%

### CO<sub>2</sub> ANALYSIS

- Type: Non-dispersive infrared (NDIR)
- Range: 0-15%
- Response: (10-90%) <180 ms
- Accuracy: ±0.1% (0-10% CO<sub>2</sub>)

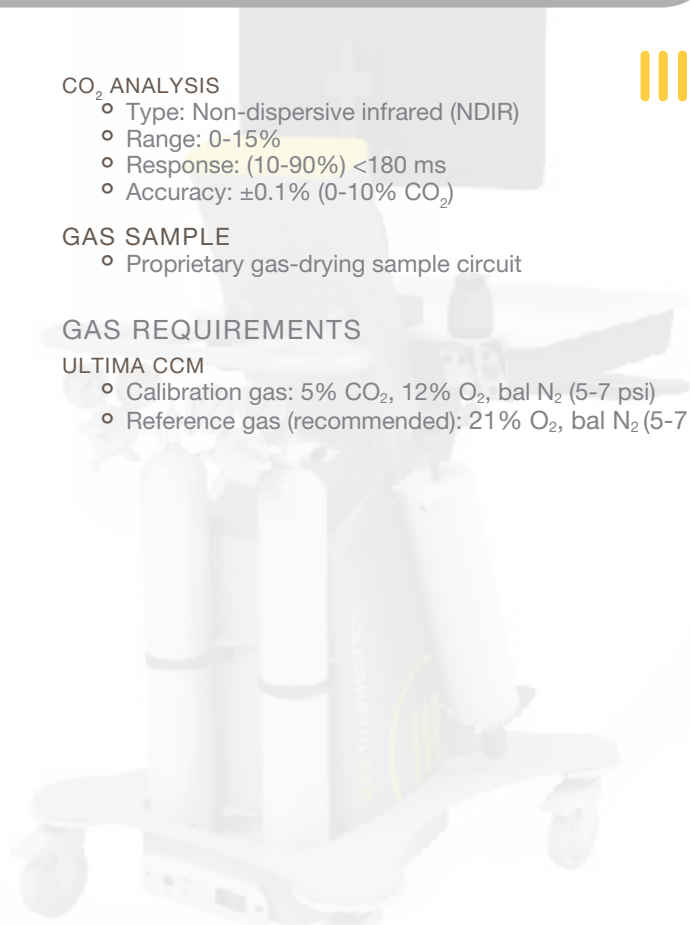
### GAS SAMPLE

- Proprietary gas-drying sample circuit

### GAS REQUIREMENTS

#### ULTIMA CCM

- Calibration gas: 5% CO<sub>2</sub>, 12% O<sub>2</sub>, bal N<sub>2</sub> (5-7 psi)
- Reference gas (recommended): 21% O<sub>2</sub>, bal N<sub>2</sub> (5-7 psi)



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350 Oak Grove Parkway St. Paul, Minnesota USA 55127-8599

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