

# Ultima Series™

## Cardiorespiratory Diagnostic Systems



MODEL:

### Ultima™ Cardio<sub>2</sub>®/PFX

Gas Exchange Analysis/Pulmonary Function System

The Ultima Series™ cardiorespiratory diagnostic systems offer maximum flexibility to perform both pulmonary function testing (PFT) and gas exchange testing. The Ultima™ Cardio<sub>2</sub>®/PFX system combines two superior technologies into one singularly powerful solution. The result is an all-in-one, easy-to-use metabolic stress testing system with pulmonary function capabilities.

- Fast responding oxygen and carbon dioxide sensors acquire data on a discreet breath-by-breath basis, providing continuous analysis and display of data.
- Simplified testing and data interpretation.
- Optional wireless ECG and thermal printer.



#### 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 sampling via the calibration tower 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> /PFX	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)

### PATIENT INTERFACE ADJUSTMENT (PF ARM)

- Horizontal extension: 26" in (58.5 cm)
- Radius: 110°

### 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>)

### DIFFUSION ANALYSIS: RTD™ REAL-TIME DIFFUSION

- Analysis time: <1 sec
- Range: CO, 0-0.35%; CH<sub>4</sub>, 0-0.35%
- Accuracy: CO, ±0.003%; CH<sub>4</sub>, ±0.003%
- Linearity: <1% full scale
- Resolution: CO, 0.0005%; CH<sub>4</sub>, 0.0005%

### GAS SAMPLE

- Proprietary gas-drying sample circuit

### GAS REQUIREMENTS

#### ULTIMA CARDIO<sub>2</sub>/PFX

- Calibration gas: 5% CO<sub>2</sub>, 12% O<sub>2</sub>, bal N<sub>2</sub> (5-7 psi)
- DLco mix 0.3% CO, 0.3% CH<sub>4</sub>, 21% O<sub>2</sub>, bal N<sub>2</sub> (135 psi)
- 100% O<sub>2</sub> (135 psi)

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