



# Ultima Series™

Cardiorespiratory Diagnostic Systems



THE ULTIMA SERIES™ CARDIORESPIRATORY DIAGNOSTIC SYSTEMS OFFER MAXIMUM FLEXIBILITY TO CONFIGURE BOTH PULMONARY FUNCTION AND GAS EXCHANGE SYSTEMS TO MEET YOUR DIAGNOSTIC NEEDS

THE ULTIMATE ALL-IN-ONE SYSTEM

It's not often that a system is introduced in the cardiorespiratory diagnostics industry. In today's market, a medical system can't just look nice, it has to be able to improve patient care with intuitive, easy-to-use technology which also optimizes functional design.

The Ultima Series cardiorespiratory diagnostics systems can perform both pulmonary function tests (PFT) and metabolic tests conveniently and accurately in a single device, with absolutely none of the compromise that are sometimes found in combined systems.

UNIQUE SYSTEM DESIGN

The Ultima Series cardiorespiratory diagnostic system's all-in-one design allows for maximum testing comfort for the technician and 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

OPTIMAL TEST SPECIFIC GAS SAMPLING

Test specific sampling optimizes each of the gas sample pathways (pulmonary function and metabolic) for accurate results. Lab efficiency is increased with test specific sample lines because the technologist does not need to change the sample line or recalibrate flow between tests.



PREVENT® FLOW SENSOR AND DIRECTCONNECT™ METABOLIC FLOW SENSOR FOR SIMPLICITY AND ACCURACY

Our proprietary flow sensors save 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



Fully Adjustable Desktop

ULTIMA PF™ PULMONARY FUNCTION SYSTEM

Offers complete pulmonary function testing. The Ultima PF System can also be upgraded to include complete exercise and nutritional assessment, providing future expansion of testing capabilities.

- Single system testing for pediatric through adult patients
- Compact and versatile pulmonary function platform
- Powerful diagnostic tool for the clinician

ULTIMA PFX® PULMONARY FUNCTION / STRESS TESTING SYSTEM

Offers complete pulmonary function and metabolic assessment options in one package.

- Proprietary breath-by-breath metabolic analysis testing during both rest and exercise
- Samples are acquired at a rate of 100 times per channel, per second, providing continuous analysis and display of patient data

ULTIMA CPX™ METABOLIC STRESS TESTING SYSTEM

Provides true breath-by-breath metabolic analysis for complete assessment of functional capacity and cardiorespiratory diagnostics.

- Testing capabilities including Exercise Capacity, Direct Fick Cardiac Output and Spirometry
- Easily interfaces with ergometers (cycle and treadmill)

ULTIMA CCM™ INDIRECT CALORIMETER

Cost-effective management of mechanically ventilated patients reducing the number of vent days and time spent in the ICU

- Optimizes nutritional needs of thermal injury and trauma patients
- Assesses outcomes of critically ill patients providing cost effective health care delivery

ULTIMA™ CARDIO® GAS EXCHANGE ANALYSIS SYSTEM

Combines MGC Diagnostics leading gas-exchange technology with the premier Mortara® ECG. The results is an all-in-one, easy-to-use, "gold standard" metabolic stress-testing system.

- 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



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 our 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)

### 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 PF/ULTIMA PFX

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

### ULTIMA CARDIO<sub>2</sub>/CPX/ 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)

MGC DIAGNOSTICS CORPORATION, through its subsidiary Medical Graphics Corporation  
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