

# Meridian Series™

## Cardiorespiratory Diagnostic Systems



### THE MERIDIAN SERIES: FROM CLASSROOM TO CLINIC, LAB TO PRACTICE

#### Why choose the Meridian Series™ for your College or University Program?

Our CPET systems let your students explore human physiology in depth, understanding how the cardiovascular, respiratory, and metabolic systems interact during exercise and at rest. Equip your students with the tools and knowledge they'll need for successful careers in healthcare, research and performance.



#### MODULAR SYSTEM DESIGN

- Versatile cart and tabletop setups.
- Option for lab-provided computer.
- Maximized testing comfort.
- Exceptional performance and reliability.



#### FLOW SENSORS FOR SIMPLICITY AND ACCURACY

- Proprietary preVent® flow sensor and DirectConnect™ metabolic flow sensor.
- Teach best practices in patient care and lab hygiene.
- Save time between subjects.
- Meets or exceeds ATS/ERS standards.



#### SEAMLESS SUBJECT TRANSITIONS

- Eliminates warm-up delays.
- No flow recalibration needed.
- Ensures uninterrupted diagnostic testing.
- Effortless operation with intuitive Ascent™ cardiorespiratory diagnostic software and streamlined workflow solutions.



# Unmatched Functionality for Comprehensive Learning

## OPTIMIZED WORKFLOW AND READINESS

- Reduce setup time and boost hands on learning with just one daily calibration.
- Ascent Scheduler ensures the system is always ready for immediate testing

## IN-DEPTH CARDIORESPIRATORY ANALYSIS

Provide students with detailed for comprehensive analysis of exercise capacity and metabolic function.

## POWERED BY ASCENT™ SOFTWARE

Our easy-to-use Ascent™ software simplifies CPET testing and offers powerful analytical tools:

**EXERSCRIPT:** Design and run custom exercise tests to create personal programs based on subject's CPET results.

**O<sub>2</sub> KINETICS:** Explore oxygen deficit and debt to analyze how efficiently the body utilizes oxygen during exercise and recovery.

**QUERY DATABASE:** Easily find, organize, and analyze test results for projects and research.

**SEAMLESS DATA EXPORT:** Easily move test results and charts into reports and presentations.

**INSIGHT™ QUALITY CONTROL GAUGES:** Visually assess results to spot normal reactions and unusual patterns.

**CURVEFITS:** Analyze complex variable relationships both graphically and numerically.

**EXTERNAL CONTROL:** Connect and control your existing lab treadmills and cycle ergometers.

**CUSTOMIZABLE VIEWS:** Tailor data presentation (averages, graphs, tables) to fit your teaching needs.



*Tall Cart with  
Dual Monitor*

## Essential Supplies for Hands-on Learning

Our systems are designed for seamless integration with a range of essential supplies, ensuring your students gain practical experience with the tools they'll encounter in the field. We recommend lab packaging including coupler, flow sensor (see page 3), and neoprene mask.



**MOUTHPIECES**

SHOWN: MOUTHPIECE  
WITH SALIVA TRAP



**FACE TENT**

SHOWN: FACE TENT  
WITH BACTERIAL FILTER



**FACE MASK**

SHOWN: PREVENT™  
FACE MASK (SIZES XS-L)



**FACE MASK**

SHOWN: V2/8900 MASK  
(SIZES XS-L)



**COUPLER**

SHOWN: COUPLER FOR  
PREVENT FACE MASK

# The Meridian Series: All-in-One for Education & Research

The Meridian Series is your all-in-one solution, seamlessly combining Spirometry and Gas Exchange. This single advanced platform allows you to explore lung function, exercise capacity, cardiac performance, and metabolic analysis, elevating your diagnostic precision. The Meridian seamlessly integrates with specialized exercise equipment from leading manufacturers.



Short Cart with  
Single Monitor

Also  
Available:

## Desktop Configuration

System can be placed  
on any solid surface  
for maximum flexibility.  
The computer can be  
customer provided for all  
configurations.



## preVent® flow sensor FOR SIMPLICITY AND ACCURACY

### Efficiency Redefined, Hygiene Elevated

Our proprietary preVent® flow sensor saves time and provides maximum infection control. It is a market leader in flow technology (pneumotach), offering superior accuracy and precision.

- Eliminates warm-up or flow recalibration between patients.
- Simple snap in setup contains no moving parts or electronics ensures maximum infection control.
- Versatile and cost-effective with options to use a filter (spirometry only), sterilize, or discard
- Meets ATS/ERS standards and specifications.
- Independently validated\*

### YOUR INFECTION CONTROL, YOUR CHOICE: THREE OPTIONS FOR YOUR PEACE OF MIND

We prioritize infection control and offer flexible options to align with your needs. With the preVent flow sensor, you control the level of safety and convenience required.

1. **Change:** Simply change the filter and keep the same preVent flow sensor.
2. **Re-Use:** Change the flow sensor between patients and replace with disinfected components.
3. **Dispose:** Dispose of the flow sensor after each patient.

\* Porszasz JA, Barstow TJ, Wasserman KA. Evaluation of a symmetrically disposed Pitot tube flowmeter for measuring gas flow during exercise. *Journal of Applied Physiology*. 1994 Dec 1;77(6):2659-65.

# Service & Support

## BEST-IN-CLASS SERVICE & SUPPORT

- Our specialists, including exercise physiologists, complete extensive training on each MGC Diagnostic system.
- Benefit from our U.S.-based Live Technical Support, where expert assistance is readily available by phone, internet, and remote connection. We're committed to answering 90% of calls within two minutes.
- Regional Field Service Engineers are dispatched for on-site support.

The Meridian Series™ cardiorespiratory diagnostic systems offer maximum flexibility to configure your gas exchange systems. Simply select the product that best meets your needs, or talk to your product sales representative for more info.

| TESTING CAPABILITIES                      | CPX | CARDIO <sub>2</sub> | CCM        |
|-------------------------------------------|-----|---------------------|------------|
| <b>PULMONARY FUNCTION TESTS:</b>          |     |                     |            |
| • Spirometry (FVC, SVC, MVV)              | ✓   | ✓                   | ✓          |
| • 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              | ✓   | ✓                   | ✓          |
| • Exercise capacity                       | ✓   | ✓                   | ○          |
| • Nutrition assessment: REE/RMR           | ○   | ○                   | ✓          |
|                                           |     | ✓ standard          | ○ optional |

## SPECIFICATIONS

### MODULE ONLY

- H x W x L: 5 x 15.5 x 14 in (12.7 x 39.37 x 35.56 cm)

### TALL CART

#### DUAL MONITORS

- Base: W x D: 23 x 27 in (58.42 x 68.58 cm)
- Width: 48 in (121.92 cm)
- Height: 70 in (177.8 cm)

#### SINGLE MONITORS

- Base: W x D: 18 x 24 in (45.72 x 60.96 cm)
- Width: 48 in (121.92 cm)
- Height: 70 in (177.8 cm)

### SHORT CART WITH SINGLE MONITOR

- Base: W x D: 18 x 24 in (45.72 x 60.96 cm)
- Width: 24 in (60.96 cm)
- Height: 60 in (152.4 cm)

### PREVENT® FLOW SENSOR

- Bidirectional Pitot tube flow sensor
- Range: ±18 L/s
- Accuracy: ±2% 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: ±2% 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 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)



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