



**LIFEPAK® 20e** DEFIBRILLATOR/MONITOR  
with CodeManagement Module™

Recommended  
Adult VF Dose: 200-300-360J

Amidst financial pressures and evolving guidelines, your hospital remains focused on saving lives. With the LIFEPAK 20e defibrillator/monitor, you get the lifesaving power and ease of use that are essential for swift, successful response to today's cardiac events, plus something more—the ability to improve your resuscitation management for tomorrow's emergencies.

ON

ENERGY  
SELECT

CHAR

ANALYZE

LEAD

SIZE



## Improving resuscitation performance is a top priority for today's hospitals. And for us.

You need defibrillation equipment you can depend on in that moment when saving a life is the only thing that matters. And you need the right tools to monitor, document and review each event to respond even better the next time. All of this is key for effective resuscitation management—and we designed the LIFEPAK 20e defibrillator/monitor with CodeManagement Module to deliver it.

As part of the Physio-Control Resuscitation Management System, the 20e meets all your defibrillator/monitor needs in a compact, affordable package. Designed specifically for crash cart use, it is simple yet powerful, and ready when you are. With features like capnography, a CPR metronome, and the ability to remotely send data to CODE-STAT, the LIFEPAK 20e with CodeManagement Module helps your hospital meet the demands of performance improvement and better prepare for tomorrow's emergencies.

*CodeManagement Module adds new capabilities to the 20e to transform the way your hospital manages resuscitations.*

# The LIFEPAK 20e with CodeManagement Module

## Easy to use for both BLS and ALS teams

- With an intuitive door system, the 20e functions as an automated external defibrillator (AED) for your BLS teams, who can begin early defibrillation before the resuscitation team arrives
- Standardized and clear user interface, so teams who also use the LIFEPAK 12 and LIFEPAK 15 will recognize it immediately
- Larger clock provides better visibility throughout the room and a centralized device to use for time management and documentation
- Compact, ergonomic footprint ensures stability and efficiency during patient transport
- Auto-send of patient and device data facilitates quality improvement review and hospital-wide device tracking\*

## Powerful to improve your resuscitation management

- Capnography (Class I recommendation for ET tube confirmation and monitoring in the 2010 AHA and ERC guidelines) aids ET tube placement and CPR effectiveness\*
- Other advanced monitoring parameters include ECG (3- or 5-wire), pacing, pulse oximetry
- Metronome helps rescuers perform compressions at the ERC Guideline rate of 100/minute
- 360J biphasic technology allows highest available energy for difficult-to-defibrillate patients
- Wirelessly transmits\* patient data to CODE-STAT\*\* software for post-event review, to capture event data and facilitate resuscitation response improvement

## Ready for when your team needs to respond

- Performs daily readiness self-check
- LIFENET® Asset status wirelessly monitors device data including battery charge status, updates and self-tests, and enables your biomed team to do upgrades that would have previously required a service call
- Battery status indicator
- Runs on long-lasting Lithium-ion internal battery,\*\*\* connects to AC power
- On-site in service training by dedicated nurses, clinical training materials
- On-site service and off-site biomed training solutions available

## Flexible to fit your hospital's needs

A choice of purchase options for an integrated system that works together seamlessly and adds new features without breaking standardization:

- 
- **Purchase new LIFEPAK 20e defibrillator/monitors or upgrade 20/20e software to add metronome and larger code clock**
- 
- **Extend the capabilities of your existing 20e devices by adding CodeManagement Module**
- 
- **Purchase new LIFEPAK 20e defibrillator/monitors with CodeManagement Module**

\* Available when using optional CodeManagement Module.

\*\* CODE-STAT software now available as a subscription. Ask your sales representative for details.

\*\*\* CodeManagement Module runs on a separate but equally long-lasting Lithium-ion battery. Both are connected to AC power using a single cord.



AED Mode  
for BLS teams



Manual Mode  
for ALS teams

**LIFEPAK® 20e** DEFIBRILLATOR/MONITOR

# Meet today's highest standards of resuscitation management—and improve your hospital's performance for tomorrow's emergencies.

Physio-Control not only supplies lifesaving technology like the LIFEPAK 20e defibrillator/monitor, we also help you get your cardiac resuscitation devices, protocols, departments and people in sync across the entire hospital. So you can respond better to evolving guidelines and requirements, improve performance and efficiency, and give your teams a better chance of ensuring the right outcomes today—and even better ones tomorrow.



## The Physio-Control Resuscitation Management System



### Readiness

The Resuscitation Management System gives you the visibility, insight and control to make sure your people and equipment are fully prepared, so your hospital has the resources to better handle a cardiac event wherever and whenever it occurs. The right start is everything when it comes to a favorable outcome.



### Response

The Resuscitation Management System is based on our decades of experience working with the real-world needs of hospitals like yours. We know that our equipment must be powerful but easy to use, so you can respond to cardiac events early and effectively for the best possible outcomes.



### Review

The Resuscitation Management System enables you to easily collect and review post-event data for quality improvement, providing your trained staff valuable information to reduce risk and drive improved lifesaving performance.



### Prevention

With Resuscitation Management System technologies, you can extend your hospital's monitoring capabilities, better assess patient status, and give rapid response teams the information they need to provide fast, effective care. Think of it as giving your teams a vital head start should a patient's condition start to deteriorate.

The LIFEPAK 20e defibrillator/monitor with CodeManagement Module is an integral part of the Physio-Control Resuscitation Management System. It wirelessly transmits device data for readiness, delivers advanced technology for sophisticated defibrillation, works with other Physio-Control technologies to improve CPR performance, and transmits patient data for post-event review.

# LIFEPAK® 20e DEFIBRILLATOR/MONITOR

## SPECIFICATIONS

### GENERAL

The LIFEPAK 20e defibrillator/monitor has seven main operating modes:

**Manual Mode:** Provides a normal operating capability for ALS users. Allows access to manual mode energy selections up to 360J, synchronized cardioversion and pacing. ECG waveform is displayed.

**AED Mode:** Provides a normal operating capability for BLS users. All user features are available except manual defibrillation, synchronized cardioversion, pacing, and access to archived patient records. Provides shock energy defaults up to 360J. User selectable option to display ECG waveforms and/or visual AED prompts.

**Setup Mode:** Allows the operator to configure the device settings.

**Service Mode:** Allows the operator to execute diagnostic tests and calibrations, to display device module software and hardware versions, and to display and print the diagnostic code log.

**Inservice Mode:** Simulated waveforms are available for demonstration purposes. The waveforms consist of short segments of realistic data, which are repeated to form a continuous waveform.

**Archive Mode:** Provides operator the opportunity to access records of previous patients for review, transmission, printing, editing or deletion.

**Auto Test Mode:** Performs daily self-tests.

### POWER

The device is an AC line-operated device with an internal battery as backup.

**AC Powered:** 100–120 VAC 50/60Hz, 220–240 VAC 50/60 Hz, total power draw less than 120 Volt-Amperes (VA).

**Internal Battery Backup:** A new fully-charged internal backup battery will provide the following prior to shutdown:

	TOTAL	AFTER LOW BATTERY
Monitoring plus SpO <sub>2</sub> (minutes):	210	5
Monitoring, plus pacing (at 100ma, 60 ppm), plus SpO <sub>2</sub> (minutes):	110	2
Defibrillation (360J discharges):	140	3

**Battery Charge Time:** <4 hours when device is powered off and AC power is applied.

**Low Battery Indication and Message:** When the device is unplugged from AC power, it switches to battery. When the battery gets low, the battery status indicator displays one yellow segment and a "low battery" message and warning tone occurs. Shortly thereafter the status indicator displays one flashing red segment, the "low battery; connect to AC power" message appears, and a warning tone occurs.

**Service Indicator:** LED illuminates when service is required.

### PHYSICAL CHARACTERISTICS

#### Weight:

- Fully-featured defibrillator/monitor (pacing, SpO<sub>2</sub> and door, without paper or cables) 5.58 kg (12.3 lbs)
- QUIK-COMBO® cable: 0.20 kg (.43 lbs)
- Standard (hard) paddles: 0.88 kg (1.95 lbs)

**Height:** 21.3 cm (8.4 in)

**Width:** 26.2 cm (10.3 in)

**Depth:** 26.2 cm (10.3 in)

### DISPLAY

**Size (active viewing area):** 115.18 mm (4.53 in) wide x 86.38 mm (3.4 in) high

**Resolution:** 320 x 240 dot color active LCD

Displays a minimum of 3.7 seconds of ECG and alpha numeric for values, device instructions or prompts

Option to display one additional waveform

**Waveform display sweep speed:** 25 mm/sec for ECG and SpO<sub>2</sub>

### DATA MANAGEMENT

The device can easily print a CODE SUMMARY™ report, including an introduction with patient information and critical event record. The summary report also includes event and vital signs log, and waveforms associated with certain events. The device can print archived patient records.

### COMMUNICATIONS

The device is capable of transferring data records by IrDA

### MONITOR

#### ECG

ECG can be monitored through 3-wire or 5-wire ECG cables.

Standard paddles or therapy electrodes (QUIK-COMBO pacing/defibrillation/ECG electrodes or FAST-PATCH® disposable defibrillation/ECG electrodes) are used for paddles lead monitoring.

Compatible with LIFEPAK 12 ECG and therapy cables.

#### Lead Selection:

Leads I, II and III, (3-wire ECG cable)

Leads I, II, III, AVR, AVL and AVF, V (c) acquired simultaneously, (5-wire ECG cable)

**ECG size:** 4, 3, 2.5, 2, 1.5, 1, 0.5, 0.25 cm/mV

**Heart Rate Display:** 20–300 bpm digital display

**Out of Range Indication:** Display symbol "..."

Heart symbol flash for each QRS detection

#### Continuous Patient Surveillance System (CPSS):

In AED mode, while Shock Advisory System™ is not active, CPSS monitors the patient via QUIK-COMBO paddles or Lead II ECG for potentially shockable rhythms.

**Voice Prompts:** Used for selected warnings and alarms (Configurable On/Off)

**Analog ECG Output:** 1V/mV x 1.0 gain < 35 ms delay

**Common Mode Rejection:** 90 db at 50/60 Hz

#### SpO<sub>2</sub>

Masimo SET

- Additional configuration available for compatibility with select Nellcor sensors

**Saturation Range:** 1 to 100%

**Saturation Accuracy:** (70–100%) (0–69% unspecified)

#### Adults/Pediatrics:

- +/- 2 digits (during no motion conditions)
- +/- 3 digits (during motion conditions)

#### Neonates:

- +/- 3 digits (during no motion conditions)
- +/- 3 digits (during motion conditions)

Dynamic signal strength bar graph

Pulse tone at the onset of the pleth waveform

**SpO<sub>2</sub> Update Averaging Rate:** User selectable 4, 8, 12 or 16 seconds

**SpO<sub>2</sub> Measurement:** Functional SpO<sub>2</sub> values are displayed and stored

**Pulse Rate Range:** 25 to 240 pulses per minute

**Pulse Rate Accuracy:** (Adults/Pediatrics/Neonates)

+/- 3 digits (during no motion conditions)

+/- 5 digits (during motion conditions)

SpO<sub>2</sub> waveform with autogain control

### ALARMS

**Quick Set:** Activates alarms for all parameters

**VF/VT Alarm:** Activates continuous CPSS monitoring in Manual Mode

### PRINTER

**Prints continuous strips of the displayed patient information**

**Paper size:** 50 mm (2.0 in)

**Print speed:** Continuous ECG 25 mm/sec +/- 5% (measured in accordance with AAMI EC-11, 4.2.5.2)

**Delay:** 8 seconds

**Autoprint:** Waveform events print automatically (user configurable)

**Print Speed for CODE SUMMARY Reports:** 25 mm/sec

### FREQUENCY RESPONSE

**Diagnostic:** 0.05 to 150 Hz or 0.05 to 40 Hz (user configurable)

**Monitor:** 0.67 to 40 Hz or 1 to 30 Hz (user configurable)

**Paddles:** 2.5 to 30 Hz

**Analog ECG Output:** 0.67 to 32 Hz (except 2.5 to 30 Hz for paddles ECG)

### DEFIBRILLATOR

**Waveform:** Biphasic Truncated Exponential. The following specifications apply from 25 to 200 ohms, unless otherwise specified.

**Energy Accuracy:** ±1 joule or 10% of setting, whichever is greater, into 50 ohms ±2 joule or 15% of setting, whichever is greater, into any impedance from 25–100 ohms

**Voltage Compensation:** Active when disposable therapy electrodes are attached. Energy output within ± 5% or ± 1 joule, whichever is greater, of 50 ohm value, limited to the available energy which results in the delivery of 360 joules into 50 ohms.

PATIENT IMPEDENCE	PHASE 1 DURATION (MS)		PHASE 2 DURATION (MS)	
	MIN.	MAX.	MIN.	MAX.
25	5.1	6.0	3.4	4.0
50	6.8	7.9	4.5	5.3
100	8.7	10.6	5.8	7.1
125	9.5	11.2	6.3	7.4

#### Paddle Options:

- QUIK-COMBO pacing/defibrillation/ECG electrodes (standard)
- Standard adult paddles with embedded pediatric paddles (optional)
- Internal handles with discharge control (optional)
- External sterilizable paddles (optional)

**Cable length:** 2.4 meter (8-foot) long QUIK-COMBO cable (not including electrode assembly)

**MANUAL**

**Energy Select:** 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 70, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, and 360 joules and user configurable sequence of 100–360, 100–360, 100–360 joules

**Charge time:**

- Charge time to 200J <5 seconds with fully charged battery
- Charge time to 360J <7 seconds with fully charged battery
- Charge time to 360J <10 seconds while not in low battery operations

**Synchronized Cardioversion:**

- Energy transfer begins within 60 ms of the QRS peak
- Energy transfer begins within 25 ms of the External Sync Pulse
- External Sync Pulse; 0–5V (TTL Level) Pulse, active High, > 5 ms in duration, no closer than 200 ms apart and no further than 1 second apart

**AED**

**Shock Advisory System is an ECG analysis system that advises the operator if the algorithm detects a shockable or nonshockable ECG rhythm. SAS acquires ECG via therapy electrodes only.**

**Shock Ready Time:** Using a fully charged battery at normal room temperature, the device is ready to shock within 16 seconds of power on, if initial rhythm finding is “Shock Advised”

**The AED mode of the LIFEPAK 20e defibrillator/monitor is not intended for use on children less than 8 years of age.**

**cprMAX™ technology Setup Options (items marked with \* are default settings)**

- Stacked Shocks: Off\*, On
- Initial CPR: Off\*, Analyze First, CPR First
- Preshock CPR: Off\*, 15, 30 seconds
- Pulse Check: Never\*, After Second No Shock Advised, After Every No Shock Advised, Always
- CPR Time 1 & 2: 15, 30, 45, 60, 90, 120\*, 180 seconds, 30 minutes

Users should refer to the LIFEPAK 20e defibrillator/monitor operating instructions for details on how to customize the configuration of their devices to hospital protocols.

**PACER**

**Pacing Mode:** Demand or nondemand rate and current defaults (user configurable)

**Pacing Rate:** 40 to 170 ppm

**Rate Accuracy:** +/- 1.5% over entire range.

**Output Waveform:** Monophasic, amplitude stable to +/- 5% relative to leading edge for currents greater than or equal to 40 mA, Duration 20 +/- 1 ms, Rise/Fall times <= 1 ms [10–90% levels]

**Output Current:** 0 to 200 mA

**Pause:** Pacing pulse frequency reduced by a factor of 4 when activated

**Refractory Period:** 200 to 300 ms +/- 3% (function of rate)

**ENVIRONMENTAL**

**Temperature, Operating:** 5 to 40° C (41 to 104° F)

**Temperature, Nonoperating:** -20 to +60° C (-4 to +140° F) except therapy electrodes

**Relative Humidity, Operating:** 5 to 95%, noncondensing

**Atmospheric Pressure, Operating:** Ambient to 522 mmHg (0 to 3,048 meters) (0 to 10,000 feet)

**Water Resistance, Operating (without accessories except for ECG Cable and hard paddles):** IPX1 (spillage) per IEC 60601-1 clause 44.6

**Vibration:** MIL-STD-810E Method 514.4, Cat 1

**Shock (Drop):** 1 drop on each side from 45.7 cm (18 in.) onto a steel surface

**EMC**

IEC 60601-1-2: 2001/EN 60601-1-2:2001, Medical Equipment-General Requirements for Safety-Collateral Standard: Electromagnetic Compatibility-Requirements and Tests

IEC 60601-2-4:2002; Clause 36/EN 60601-2-4:2003; Clause 36, Particular Requirements for the Safety of Cardiac Defibrillators and Cardiac Defibrillator Monitors

All specifications are at 20° C (68° F) unless otherwise stated.

**CodeManagement** MODULE™**SPECIFICATIONS****PHYSICAL CHARACTERISTICS**

CodeManagement Module adds 1.63 kg (3.6 lb) to LIFEPAK 20/20e defibrillator/monitors.

**Size (maximum) of LIFEPAK 20/20e device with CodeManagement Module**

**Height:** 25.4cm (10.0 in)

**Width:** 26.2cm (10.3 in)

**Depth:** 29.7 cm (11.7 in)

**DISPLAY**

With CodeManagement Module, the LIFEPAK 20e defibrillator/monitor displays a minimum of 3.7 seconds of ECG and alphanumeric for values, device instructions, or prompts

**Waveform display sweep speed:** 12.5 mm/sec for CO<sub>2</sub>

**POWER**

**LIFEPAK 20/20e defibrillator/monitor with CodeManagement Module**

**AC Powered:** 100–120 VAC 50/60Hz, 220–240 VAC 50/60 Hz, total power draw less than 150 Volt-Amperes (VA)

**Internal Battery Backup:** Lithium-ion. Batteries charge while device operates from AC Power.

**Low Battery Indication and Message:** When the device is unplugged from AC power, it switches to battery. When battery gets low on the CodeManagement Module, the defibrillator indicates with a message to connect to AC power in the status area, and a warning tone occurs.

**Battery charge time:** <4 hours when device is powered off and AC power is applied

**Operating time:** A new fully-charged internal backup battery will provide at least 210 minutes of monitoring prior to shutdown.

**CO<sub>2</sub> MONITORING**

**Drift of Measurement Accuracy:** No drift in accuracy for at least 6 hours

**Respiration Rate Accuracy:** 0 to 70 bpm: ±1 bpm  
71 to 99 bpm: ±2 bpm

**Respiration Rate Range:** 0 to 99 breaths/minute

**CO<sub>2</sub> Range:** 0 to 99 mmHg (0 to 13.2 kPa)  
Units: mmHg, %, or kPa

**Flow Rate:** 42.5 to 65 ml/min (measured by volume)

**Rise Time:** 190 msec

**Response Time:** 4.5 seconds maximum (includes delay time and rise time)

**Initialization Time:** 30 seconds (typical), 10–180 seconds

**Ambient Pressure:** Automatically compensated internally

**Waveform Scale Factors:** Autoscale,  
0–20 mmHg (0–4 Vol%), 0–50 mmHg (0–7 Vol%),  
0–100 mmHg (0–14 Vol%)

**CO<sub>2</sub> Accuracy**

	CO <sub>2</sub> PARTIAL PRESSURE AT SEA LEVEL:	ACCURACY:
(0–80 bpm)*	0 to 38 mmHg (0 to 5.1 kPa)	±2 mmHg (0.27 kPa)
	39 to 99 mmHg (5.2 to 13.3 kPa)	±5% of reading + 0.8% for every 1 mmHg (0.13 kPa) above 38 mmHg (5.2 to 13.3 kPa)
(>80 bpm)*	0 to 18 mmHg (0 to 2.4 kPa)	±2 mmHg (0.27 kPa)
	19 to 99 mmHg (2.55 to 13.3 kPa)	±4 mmHg (0.54 kPa) or ±12% of reading, whichever is higher

\*For RR > 60 bpm, to achieve specified CO<sub>2</sub> accuracy, the Microstream™ Filterline™ H Set for infants must be used.

**DATA MANAGEMENT AND TRANSMISSION**

The LIFEPAK 20/20e device captures and stores patient data, events (including waveforms and annotations), and continuous ECG and CO<sub>2</sub> waveform records in internal memory.

Wireless data transmission via LIFENET network

**WIRELESS NETWORKS**

The LIFEPAK 20/20e with the CodeManagement Module supports the following:

- 802.11a, b, g, and n wireless networking standards

- Security types:

- Open
- WPA-Personal
- WPA2-Personal
- WPA-Enterprise
- WPA2-Enterprise

- Enterprise authentication protocols:

- EAP-TLS
- EAP-TTLS
- PEAP/MSCHAPv2

- TCP/IP support

- Internet Protocol Version 4 (IPv4)
- IP addressing: automatically obtains IP address, or a static address may be assigned.
- DNS servers: automatically obtains DNS server address, or static addresses of the primary and secondary DNS servers may be assigned.

# Physio-Control Family of Products

## Defibrillators/Monitors

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### **LIFEPAK CR® Plus Automated External Defibrillator**

Featuring the same advanced technology trusted by emergency medical professionals—yet simple to use—the fully automatic LIFEPAK CR Plus AED is designed specifically for the first person to respond to a victim of sudden cardiac arrest.

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### **LIFEPAK® 1000 Defibrillator**

The LIFEPAK 1000 Defibrillator is a powerful and compact device designed to treat cardiac arrest patients and provide continuous cardiac monitoring capabilities. Built-in flexibility allows the 1000 to be programmed for use by first responders or professionals and enables care providers to change protocols as standards of care evolve.

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### **LIFEPAK® 15 Monitor/Defibrillator**

The LIFEPAK 15 monitor/defibrillator is the standard in emergency care for ALS teams who want the most clinically innovative, operationally effective and LIFEPAK TOUGH™ device available today. The 15 offers sophisticated clinical technologies with a rich array of features—like the most powerful escalating energy available (up to 360J), advanced monitoring parameters, and a completely upgradable platform.

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### **LIFEPAK® 20e Defibrillator/Monitor with CodeManagement Module™**

Clinically advanced and packed with power, the LIFEPAK 20e defibrillator/monitor is highly intuitive for first responders, and also skillfully combines AED function with manual capability so that ACLS-trained clinicians can quickly and easily deliver advanced therapeutic care. The CodeManagement Module adds waveform capnography and wireless connectivity to enhance your hospital's ability to effectively manage resuscitations from preparedness through review.

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## CPR Assistance

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### **LUCAS® 2 Chest Compression System**

Designed to provide effective, consistent and uninterrupted compressions according to AHA Guidelines, LUCAS can be used on adult patients in out-of-hospital and hospital settings.



### **TrueCPR™ Coaching Device**

TrueCPR helps your team optimize their manual CPR performance using simple real-time and post-event feedback on the most critical resuscitation parameters. It accurately measures compression depth through proprietary Triaxial Field Induction (TFI) technology.

## Information Management

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### **LIFENET® System**

The LIFENET System provides EMS and hospital care teams with reliable, quick access to clinical information through a secure, web-based platform, helping to improve patient care flow and operational efficiency.

### **CODE-STAT™ 9.0 Data Review Software**

CODE-STAT 9.0 data review software is a retrospective analysis tool that provides easy access to data, reports and post-event review.

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Find out how the LIFEPAK 20e defibrillator/monitor with CodeManagement Module can take your hospital's resuscitation performance to the next level.

Visit [www.physio-control.com/20e](http://www.physio-control.com/20e) or call 1.800.442.1142 today.

All claims valid as of June 2013.

For further information please contact your local Physio-Control representative or visit our website at [www.physio-control.com](http://www.physio-control.com)



**Physio-Control Headquarters**

11811 Willows Road NE  
Redmond, WA 98052 USA  
Tel 425 867 4000  
Fax 425 867 4121  
[www.physio-control.com](http://www.physio-control.com)

**Physio-Control Operations  
Netherlands B.V.**

Keizersgracht 125-127,  
1015 CJ Amsterdam, NL  
Tel +31 (0)20 7070560  
Fax +31 (0)20 3301194

**Physio-Control  
UK Sales Ltd**

Concorde House  
Trinity Park, Solihull  
Birmingham  
B37 7UQ  
United Kingdom  
Tel/Fax 0808 258 0094 option 1

**Physio-Control  
Australia Pty Ltd**

Suite 4.01  
15 Orion Road  
Lane Cove  
NSW 2066  
Australia  
Toll Free Tel 1800 987 982  
Toll Free Fax 1800 890 892



**Physio-Control, Inc.**, 11811 Willows Road NE, Redmond, WA 98052 USA



**Physio-Control Operations Netherlands B.V.**, Keizersgracht 125-127, 1015 CJ Amsterdam, Netherlands

