

## Key Features

- Dual ECG R-wave peak detection and Respiratory cycle detection
- Dual Synchronized ECG & RESP trigger outputs
- 4 lead ECG configuration with auto lead selection
- Auto calibrating pneumatic respiratory bellows
- On-screen color coded trigger pulse indication
- Ethernet communication interface
- X-Ray on interface
- Analog ECG and RESP waveform output
- Multi-language user interface
- Patient isolation/protection
- Optional strip chart recorder
- Universal power supply/voltage
- FDA 510(k) & CE Mark

## Product Description

The Ivy Biomedical Systems' Model 7810 is our newest gating monitor, and provides both cardiac and respiratory gating capabilities. It is ideal for use in applications requiring precision ECG R-wave and/or respiratory synchronization, such as with PET/CT and SPECT/CT systems for cardiac and thoracic imaging studies. Respiratory gating can be performed either prospectively or retrospectively.

Value added features include: auto ECG lead selection ensures the best trigger vector will be used; auto-calibrating pneumatic bellows makes set-up quick and intuitive; built-in ECG simulator for pre-scan testing of the entire system; electrode impedance check for reliable scans; X-Ray on signal input enables ECG waveform file capture for post scan analysis; two channel, electrically isolated Ethernet port allows for data interface to both the console and gantry display. An optional strip chart recorder is also available for hardcopy documentation of ECG rhythms.

## Synchronized ECG Trigger Output\*

ECG Trigger Delay	< 2ms
R-to-R Accuracy	±75µs dither (typ.) @ 1mV input
Pulse Width**	1, 50, 100 or 150 ms
Pulse Amplitude**	0V to +5V or -10V to +10V
Pulse Polarity**	Positive or Negative
Output Impedance	< 100 Ω



\* Input signal test conditions: ½ sine wave, 60ms width, 1mV amplitude, 1 pulse/sec

\*\*Pre-configured at the factory only

## ECG

Configuration	4-Lead system
Trigger Lead Select	I, II, III or Auto
Second Trace Display	RESP; ECG I, II or III
ECG Simulator	Integrated
Patient Isolation	>4 kV rms, 5.5 kV peak
Frequency Response	0.67 - 100Hz Unfiltered 1.5 - 40Hz Filtered
Notch Filter	50/60 Hz (auto)
CMRR	≥ 90dB
Tall T-wave Rejection	≤ 1.2 * R-wave
Pacer Rejection (user on/off)	0.1 to 2ms pulse width @ ±2 to ±700 mV
Defibrillator Protection	360 J discharge; < 5 sec recovery time (Type CF)

## Cardiotach

Adult	10-300 bpm
Pediatric/Neonate	10-350 bpm
Accuracy	±1% ±1 bpm
Resolution	1 bpm
Sensitivity	300 µV peak
HR Averaging	Exponential @ 1Hz; 2 or 8 sec max response time

## Alarms

High HR Limit	15-250bpm (5 bpm inc)
Low HR Limit	10-245bpm (5 bpm inc)
Asystole	R-to-R interval > 6 sec
ECG Lead Off	Each detached lead
Check ECG Lead	Lead imbalance >0.5V



For additional specifications,  
refer to Operator Manual



(Specifications subject to change without notice)

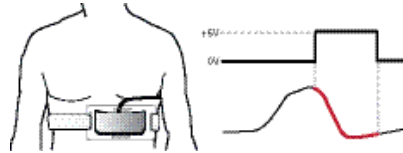
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## Synchronized RESP Trigger

Trigger Phase	Inspiration or expiration
Trigger Point & Width	User configurable
Gain Adjustment	Low/Med/High
Sensitivity Adjustment	Low/Med/High
Pulse Width**	1, 50, 100 or 150 ms
Pulse Amplitude**	0V to +5V or -10V to +10V
Pulse Polarity**	Positive or Negative
Output Impedance	< 100 Ω



\*\*Pre-configured at the factory only

## Display

Waveform Type	ECG & RESP; Freeze Active Matrix TFT Color Touch Screen LCD
Resolution Size	640x480 pixels 8.4" (21.3 cm) diagonal

## Input/Output Interface

Synch Output	BNC; Provides trigger pulse output synch to ECG R-wave peak
ECG Output	¼" stereo jack; Provides trigger pulse output synchro nized to ECG R-wave peak as well as analog ECG wave form output
Aux Conn	DB-9; Resp trigger out; X-Ray On; ECG & RESP waveform out
RESP Sensor	Pneumatic connection
RS-232 Comm	Micro DB-9; device interface
Ethernet Comm	RJ-45; 10BaseT, IEEE 802.3 (2 channels)
Data Storage	USB 2.0 Type A 200 ECG Events (FIFO) .vxp format Resp file

## Mechanical

Size (HxWxD)	22.1x23.5x15.5 cm (8.7x9.25x6.1 inches)
Weight	2.54 kg (5.6 lbs.)
Case Material	Lexan®

## Electrical

Input Voltage	100-120Vac; 200-230Vac
Frequency	50/60 Hz
Power Consumption	45 VA (max.)
Power Recovery	Auto if power restored within 30 seconds

Distributed by:

## Environmental

Water Resistance	IPX1
<b>Operating</b>	
Temperature Range	5°C to 40°C
Relative Humidity	0% to 90% non-condensing
Altitude	-100m to +3,600m
<b>Storage</b>	
Temperature Range	-40°C to +70°C
Relative Humidity	5% to 95% non-condensing
Altitude	-100m to +14,000m

## Options

Integrated Recorder	2 trace, direct thermal
Mounting Plate	3" adaptor for rollstand
Roll Stand	with 3" receiver plate

## Globalization

User Interface	12 selectable languages
Operator's Manual	33 languages on CD

## Compliance & Certifications

ANSI/AAMI ES60601-1: A1:2012, C1:2009/  
(R)2012 and A2:2010/(R)2012  
IEC 60601-1 Edition 3.1 (2012)/EN 60601-1:2006  
+ A1:2013 + A12:2014  
IEC 60601-1-2:2014+AMD1:2020, Edition 4.1  
IEC 60601-1-6:2010 (Third Edition) + A1:2013; IEC  
62366:2007 (First Edition) + A1:2014  
IEC 60601-1-8:2006 (Second Edition) + Am.1:2012  
IEC 60601-2-27 (2011)  
IEC 62304:2006  
CAN/CSA-C22.2 No. 60601-1:2014  
CAN/CSA-C22.2 No. 60601-1-2:2016  
EU MDR 2017/745  
CE 2862  
ISO 13485:2016  
RoHS 2011/65/EU  
WEEE 2012/19/EU  
FDA/CGMP  
MDSAP

## Notified Body

Intertek Medical Notified Body AB,  
Identification Number 2862  
MDR Classification IIb

## Authorized Representative

EC REP: Emergo Europe  
CH REP: MDSS CH GmbH

