eShirt® System

July 2026

MEDICAL THERAPEUTICS, INC

Manufacturing will have
style, size & color changes

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eShirt® SYSTEM

PRODUCT DESCRIPTION

The eShirt® is a fully integrated wireless, non-invasive smart garment that will continuously and simultaneously monitor physiologic functions such as heart rate, respiratory rate, ventilation, body position, activity level, blood oxygen saturation and skin temperature to create a complete ambulatory picture of a patient's physiologic status in real-time.

The eShirt® will use Bluetooth and communicate to a smart phone for bidirectional data transmission. The entire platform is designed for efficiency, data quality, upgradability and ease of use.

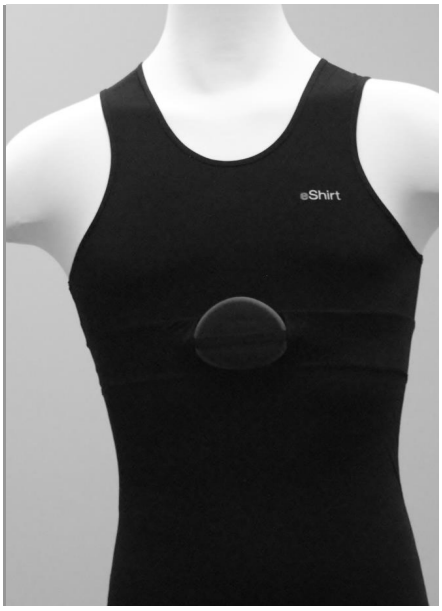
Core Product Components

The eShirt core components include

- A wearable *garment* that will have both a male and female version available in multiple sizes. It will contain ECG (2) electrodes (multiple options) and respirometry sensors (magnetic coils).Additional future sensors that may be required.
- An *electronics module* that will house
    - ECG amplifier and signal processor
    - Respirometry transmitter and receiver electronics
    - Actigraphy sensors (3-axis accelerometer)
    - Temperature sensor
    - Wireless Bluetooth interface(s) to support other sensors
    - Battery
- Charging Station

Features

- ECG Heart Rate
    - Range: 25-240 BPM
    - Resolution: ± 1 BPM
- RESPIRATION
    - Range: 3-70 BR/MIN
    - Resolution: ± 1 BR/MIN
- TEMPERATURE (Skin)
    - Range: 10-60° C
    - Resolution: ± 0.1° C
- ACCELEROMETRY
    - 3 Axis Acceleration to 6G
    - Posture/Position ± 180°
    - Activity in VMU
- PATIENT STATUS INDICATION
- BLUETOOTH CONNECTIVITY
    - Either iOS or Android
    - Transmit Logging Modes
- GARMENT(S)
    - Male – S-XXL
    - Female – S-XL



SPECIFICATIONS

HEART RATE	
Range	25-240 BPM ± 1
Time to First Lock	7 S @ 60 BPM
No Signal Response Time	0 ms
ECG Sensor Sample Interval	0.1 - 10 mV
Input Dynamic Range	

RESPIRATION	
Rate Range	3 - 70 BR/MIN ±1
Sensor Sampling Interval	100 ms

TEMPERATURE (SKIN)	
Range	10° - 60°C ±0.1
Accuracy	0.2° C
Response Time	3 s
Sampling Interval	0

ACTIVITY	
VMU (Vector Magnitude Units)	6 G
Sampling Interval	50 ms
Dynamic Range	Min -6g to Max 6g

POSTURE	
Dynamic Range	Range -180° to 180°
Epoch	1 s

GENERAL	
Logging Capacity	320 Hr
Power Supply Voltage	5.0 V ± 0.5V
Battery Life -Logging	24 Hrs
Charging Time	3 Hrs
Storage	6 M Between Charges
Charging Cycles	300 Cycles
Digital Resolution	12 Bits

DATA OUTPUT-TRANSMITTED

PARAMETER	REPORTING FREQUENCY (Hz)	RANGE	UNITS
General Data Packet			
Heart Rate	1	25 to 240	BPM
Respiratory Rate	1	3 to 70	BR/M
Temperature (Skin)	1	10 to 60	° C
Posture	1	±180	Degrees
Activity Level	1	±6	VMU (g)
Peak Acceleration	1	±6	g
Battery Voltage	1	3.5 to 4.2	V
Respiratory Wave Amplitude	1		V
ECG Amplitude	1		V
ECG Noise	1		V
X Acceleration Min	1	±6	g
X Acceleration Peak	1	±6	g
Y Acceleration Min	1	±6	g
Y Acceleration Peak	1	±6	g
Z Acceleration Min	1	±6	g
Z Acceleration Peak	1	±6	g
Battery Percent Full Charge	1	0 to 100	%

ENVIRONMENTAL

- Operating Temperature -10° C / +60° C
- Storage Temperature -40° C / +85° C
- Charging Temperature 0° C / +45° C
- ESD IEC 801 – 2KV

AGENCY COMPLIANCE

IEC:

- 60601-1,2,3 Medical electrical equipment- Part 1-2 General requirements for safety- Collateral standard; EMC – Req. and tests.

RF CHARACTERISTICS

- **Bluetooth** Version 4.0
- **Supported** Apple IAP, MDS
- **Discoverability** Discoverable with PIN
- **Operating Freq.** 2.4 to 2.835 GHz
- **Output Power** 2 mW
- **Operating Range** 30 ft /10m radius indoors
- **Antenna Type** Internal

PATIENT STATUS INDICATION

Value which is calculated in the smart phone & is dependent on thresholds of;

- Heart Rate Minimum
- Heart Rate Maximum
- Respiratory Rate Minimum
- Respiratory Rate Maximum
- Inactivity
- Hyperactivity
- Temperature

Current & previous Heart Rate and Respiratory Rate values are used in conjunction with activity level to establish a patient's status by the care provider. Patient's status may be emailed or sent via SMS text message either at programmed intervals or upon exceed limits.