

**mindray**

# **mWear<sup>TM</sup>**

**Wearable Patient Monitor**

**Data Sheet**



## Physical Specifications

Weight	EP30 Main unit: 60g ES30 ECG unit: 31g BP20 NIBP Module: 165g
Size	EP30 Main unit: 61.5*49*18 mm ES30 ECG unit: 46.5*46.5*12.5 mm BP20 NIBP Module: 119*60*19 mm
Display screen	EP30: LCD TFT screen. 1.54-inch, 240*240 pixels. Support 4 kinds of screen BP20: 2.4-inch. 208*360 pixels
Display channel	EP30: 1 channel ECG waveform
Degree of protection	Type CF defibrillation proof for ECG, SpO <sub>2</sub> , Resp, TEMP and NIBP
Drop test	EP30 Main unit: 1.5m ES30 ECG unit: 1.5m BP20 NIBP Module: 1.5m
Protection against	EP30 Main unit: IP24, EP30: IP22 ES30 ECG unit: IP24 BP20 NIBP module: IPX2 C20 Charging station: IPX1
Disinfectants	EP30 main unit/ES30 ECG unit/BP20 NIBP module support 48 kinds of disinfectants

## ECG

Lead set	3-lead: I, II, III
ECG Standard	AHA, IEC
Gain	1.25 mm/mV (×0.125), 2.5 mm/mV (×0.25), 5 mm/mV (×0.5), 10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4), Auto, less than 5% error
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s, less than 5% error
Bandwidth	Monitor mode: 0.5 to 40 Hz
Notch filter	50/60 Hz, Monitor : notch filter turns on
CMRR	Monitor mode: >105dB(with notch filter on)
Electrode offset potential tolerance	± 800 mV
Input signal range	± 10 mV (p-p)
Defib. Protection	Enduring 5000V (360 J) charge without data loss or corruption
Baseline recovery time	<5 s(after defibrillation)
Pace pulse rejection	Amplitude: ± 2 mV to ± 700 mV Width: 0.1 to 2 ms Rise time: 10 to 100 μs

## Heart Rate

Measurement range	Adult: 15 to 300 bpm Pediatric: 15 to 350 bpm
HR accuracy	± 1 bpm or ± 1%, whichever is greater
HR resolution	1 bpm

## Arrhythmia Analysis

mWear can detect lethal arrhythmias, including Asystole, V-Fib/V-Tach, Extreme Tachy, and Extreme Brady.

## Respiration

Lead	I or II
Measurement range	0 to 200 rpm
RR accuracy	± 1 rpm (0 to 120 rpm) ± 2 rpm (121 to 200 rpm)
RR resolution	1 rpm

## SpO<sub>2</sub>

Measurement range	0 to 100 %
Resolution	1%
Accuracy	± 2 % (70 to 100%, without motion) ± 3 % (70 to 100%, with motion)

Refresh Rate	Unspecified (0 to 69%) 2 sec
PI	Yes. Measurement range: 0.05% to 20%
Ring SpO <sub>2</sub> sensor	Yes
<b>PR</b>	
Measurement Range	20 to 300 bpm (from SpO <sub>2</sub> ) 30 to 300 bpm (from NIBP)
Resolution	1 bpm
Accuracy	± 2(from SpO <sub>2</sub> , without motion) ± 4(from SpO <sub>2</sub> , with motion) ± 3bpm or ± 3%, whichever is greater(from NIBP)

## NIBP

Technique	Oscillometry
Operation mode	Manual, Auto, STAT, Sequence
Parameters	Systolic, diastolic, mean
Auto mode repetition intervals	1, 2, 2.5, 3, 5, 10, 15, 20, 30, 60, 90, 120, 180, 240 or 480 min
Systolic measurement range	Adult: 25 to 290 mmHg Pediatric: 25 to 240 mmHg
Diastolic measurement range	Adult: 10 to 250 mmHg Pediatric: 10 to 200 mmHg
Mean measurement range	Adult: 15 to 260 mmHg Pediatric: 15 to 215 mmHg
Accuracy	Max mean error: ± 5 mmHg Max standard deviation: 8 mmHg
Resolution	1 mmHg

## Temperature(Wireless Thermometer)

Range	25 to 45 °C (77 to 113 °F)
Resolution	0.1 °C (±0.2°F)
Accuracy	± 0.1 °C or ± 0.2 °F (excluding probe error ±0.1 °C or ±0.2 °F)

## Data Storage

Trends	8 hours (Stored in mWear)
For more information about data storage, refer to the datasheet of central station.	

## Alarms

Alarms are issued on central station. All alarm related functions and messages are provided by central station. For more information about alarms, refer to the datasheet of central station.

## Special Functions

PWTT	Yes
Health parameter	Exercise time, sleep time
Identify patient status	Fall down, sleep, motion, rest
Device positioning	Yes
Home hospital application*	Yes. Support dedicated app
EP30 provides QR code related to the device information.	

## Working Mode

mWear support two modes: Wearable mode and continuous mode.

## Interfaces

Data transmission interfaces Wi-Fi, Bluetooth and NFC interface

## Wi-Fi

Protocol	IEEE 802.11a/b/g/n
Operating frequency	2412MHz - 2472MHz; 5180MHz - 5320MHz; 5500MHz - 5700MHz; 5745MHz - 5825MHz
Data security	Standards: WPA/WPA2-PSK, WPA/WPA2-Enterprise EAP method: EAP-TLS, PEAP-MsCHAPv2, EAP-

Modulation mode TTLS  
Encryption: TKIP and AES  
BPSK, QPSK, 16-QAM, 64-QAM  
Average output power ≤20 dBm

#### Bluetooth

Protocol EP30&ES30: Bluetooth 5  
BP20: Bluetooth low energy 4.0  
Operating frequency 2402MHz - 2480MHz  
Modulation mode GFSK  
Output power <10 mW  
Data security Private

#### NFC

Protocol EP30: ISO/IEC 14443 A; ISO/IEC 14443 B  
ES30 & BP20: ISO/IEC 14443 A  
Working mode EP30: READER, CARD, P2P  
ES30 & BP20: CARD  
Operating frequency 13.56 MHz  
Modulation mode EP30: ASK  
Data security Private

#### Power

Battery EP30: Rechargeable lithium-ion battery, 48 hours run time  
ES30: Rechargeable lithium-ion battery, 72 hours run time  
BP20: Rechargeable lithium-ion battery, 600 NIBP measurements  
Charge time EP30: 3 hours to 90%  
ES30: 3 hours to 90%  
BP20: 5 hours to 90%  
C20 Charging station Power input: 1, AC power input  
Input voltage: 100 to 240 VAC  
Input current: 1.2A to 0.6A  
Frequency: 50/60 Hz  
Charging support: 8 EP30 main units, 8 ES30 ECG units and 1 BP20 battery. Support devices and accessories storage

#### Environmental Specifications

Temperature Operating: 0 to 40 °C  
Storage: -20 to 60 °C  
Humidity Operating: 15 to 95 % (non condensing)  
Storage: 10 to 95 % (non condensing)  
Barometric Operating: 57 to 107.4 kPa  
Storage: 16 to 107.4 kPa

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\*The application of mWear in home hospital will go online on 2023.01.01



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