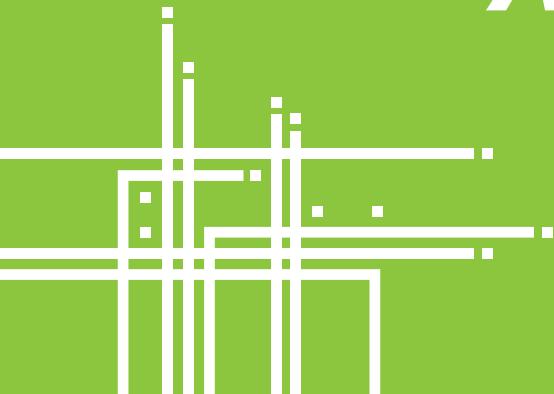


# SUNTECH<sup>®</sup>

Technology & Application of  
***Advantage OEM NIBP***



OEM NIBP



# SunTech Advantage **OEM NIBP**

## **Clinical Applications**

Standard Clinical  
EMS  
Hemodialysis  
Veterinary  
Kiosk

## **Hardware Platforms**

Advantage MX Mini  
Advantage MX  
Advantage A+ CS  
Advantage A+  
Advantage Mini  
Advantage 2.0  
Advantage HT

SunTech Medical products are manufactured in our facility that maintains compliance and certification to ISO 13485:2016 with MDSAP - which includes country specific regulations in Canada, the United States, Australia, Japan and Brazil. SunTech Medical also maintains compliance with the European Union Medical Device Directive for CE marking our finished devices.

## ***Our Technology. Your Solution.***

We've been to space and back – just imagine where our OEM NIBP technologies will take you! SunTech Medical® is the global leader in providing OEM non-invasive blood pressure (OEM NIBP) monitoring solutions across a variety of clinical applications. Let us put our more than 30 years of experience developing and supporting blood pressure products to work for you.



**We've run the gamut for blood pressure measurement application environments - from the pinnacle of Mount Everest to NASA Space Expeditions.**

We also specially design our solutions for more down to Earth applications addressed in everyday clinical environments and emergency transport.

## **Customized For Your Needs.**

We know when it comes to taking blood pressure, no two situations are alike.

Is your patient **stationary** and in a quiet environment?

Are you in a helicopter with the blades churning and **ambient noise** all around?

Is the **emergency vehicle** you're in speeding down an unpaved road hitting every bump and pothole?

Maybe you're working with an **awake animal**?

These factors and more help guide which blood pressure monitoring components will deliver the right solution for you.

**Answer these few questions and you'll be on your way to a blood pressure monitoring system that's tailor made to match your specific needs.**

**1** What's your clinical environment?

- Patient Monitoring**
- Emergency Transport**
- Hemodialysis**
- Kiosk Health Station**
- Veterinary**
- Custom Applications**

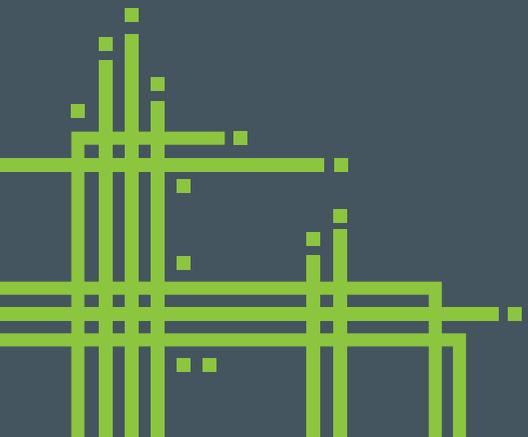
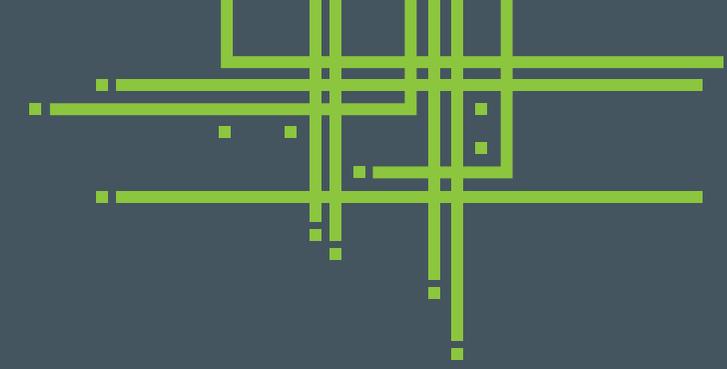
**2** In what countries will you sell this device?



**3** Which of these features best match your top priorities?

- Price**
- Power Efficiency**
- Physical Size**
- Severity of Environment**
- Customization**
- Other Priorities**

**4** We have Your SunTech OEM NIBP Solution





# The SunTech Advantage

Our family of products has been validated across a wide range of populations and environments, so you can be confident no matter if you chose one of our ready-made SunTech OEM NIBP solutions or one customized specifically to your specifications. Whether you need a different size pump, longer tubing or adjustments within the manifold connections – we’ve got you covered. We’re here to support you through every step of the process from integration development all the way through production with a direct line of communication from our engineers to yours. In fact, our dedicated OEM support and design engineers offer a two-day evaluation of the finished device, free of charge. It’s the difference in clinical grade.



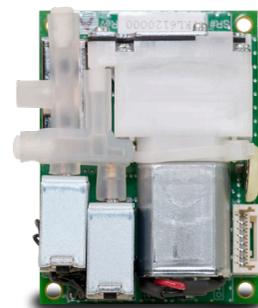
**Advantage MX Mini**

- RMT-MAX**  
Maximum Performance  
R-wave Motion Tolerance
- TMT-MAX**  
Maximum Performance  
Transport Motion Tolerance
- VET-S**  
Standard Veterinary  
Monitoring



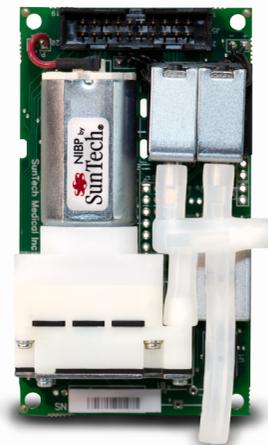
**Advantage MX**

- RMT-MAX**  
Maximum Performance  
R-wave Motion Tolerance
- TMT-MAX**  
Maximum Performance  
Transport Motion Tolerance
- VET-S**  
Standard Veterinary  
Monitoring



**Advantage A+ CS**

- SMT**  
Standard Motion Tolerance
- RMT-S**  
Standard R-wave  
Motion Tolerance
- TMT-S**  
Standard Transport  
Motion Tolerance
- VET**  
Veterinary Monitoring
- HDM**  
\*Hemodialysis Monitoring



**Advantage A+**

- SMT**  
Standard Motion Tolerance
- RMT-S**  
Standard R-wave  
Motion Tolerance
- TMT-S**  
Standard Transport  
Motion Tolerance
- VET**  
Veterinary Monitoring
- HDM**  
\*Hemodialysis Monitoring



**Advantage Mini**

- SMT**  
Standard Motion Tolerance
- TMT-S**  
Standard Transport  
Motion Tolerance
- VET**  
Veterinary Monitoring
- HDM**  
\*Hemodialysis Monitoring



**Advantage 2.0**

- SMT**  
Standard Motion Tolerance
- TMT-S**  
Standard Transport  
Motion Tolerance
- VET**  
Veterinary Monitoring
- HDM**  
\*Hemodialysis Monitoring
- KSK**  
Kiosk



**Advantage HT**

- SMT**  
Standard Motion Tolerance

# Let's Think Through Your Specific Needs Together

Module	Price	Motion Tolerance Performance	Power Efficiency	Size	Customization
<b>MX Mini</b>	\$\$\$\$+	Extreme Transport			✓
<b>MX</b>	\$\$\$\$	Extreme Transport			✓
<b>A+ CS</b>	\$\$\$+	Intense Transport			✓
<b>A+</b>	\$\$\$	Intense Transport			✓
<b>Mini</b>	\$\$+	Standard or Transport			✓
<b>Adv 2.0</b>	\$\$	Standard or Transport			✓
<b>HT</b>	\$	Standard or Transport			

Transducer Count	On Board Pump?	On Board Valves?	Power Options	Width (mm)	Length (mm)	Height (mm)	Weight (g)
2		✓	5 or 6 VDC	25.4	69.9	18.3	35.4
2	✓	✓	6 or 12 VDC	63.5	78.7	22.1	100
2	✓	✓	HV: 5.5-14.5 VDC LV: 2-9 VDC	48.5	65	22.5	85
2	✓	✓	HV: 5.5-14.5 VDC LV: 2-9 VDC	50.8	88.9	25.4	113.4
1			5.3-14.5 VDC	40.6	40.6	18	88
1	✓	✓	5.3-14.5 VDC	69.3	105.4	37.8	133
1	✓	✓	5.3-14.5 VDC	69.3	105.4	37.8	133

# Typical Clinical Situations

## Standard Clinical



### Advantage SMT

Whether it's a routine checkup, a visit to the emergency room or an inpatient hospital stay – BP measurements are critical in helping clinicians diagnose and treat hypertension. Our Advantage SMT (Standard Motion Tolerance) is designed for most clinical monitoring applications.

Currently used in many multi-parameter and ambulatory monitors, this technology delivers the proven clinical accuracy and patient motion-tolerance that you can trust in any situation.

Our Advantage SMT module has been validated across a broad range of the population from neonates to adults and is used in a wide variety of applications:

- Patient monitoring: at the bedside, in an MRI scanner or ambulatory situations
- Cardiovascular assessment: measurement of central BP, arterial compliance or cardiac output
- Cardiorespiratory assessment: during ventilation or respiratory therapy

## EMS



### Advantage TMT & RMT

In an emergency situation, clinicians make split-second decisions regarding patient treatment. They rely on timely and accurate information, and a big part of that is having a patient's exact blood pressure measurement.

An ambulance is rarely an ideal environment for accurate measurement, but the Advantage TMT (Transport Motion Tolerance) technology overcomes these environmental challenges to deliver reliable, accurate BP measurement when time and precision are of the essence.

Beyond that, the Advantage RMT (R-wave Motion Tolerance) technology is the solution you want when clinicians need to attach EKG leads to a patient, taking blood pressure measurement and EMS care to another level.

Both TMT and RMT are available in Standard and Max configurations.

## Hemodialysis



### Advantage HDM

For those with kidney failure, hemodialysis brings normalcy to daily life. By researching characteristics and complications unique to hemodialysis monitoring, we are able to provide reliable NIBP for renal disease patients even in the presence of changing blood volumes and compromised physiologies.

To help guide treatment, clinicians measure blood pressure before, during and after the procedure. Advantage™ HDM (Hemodialysis Monitoring) - validated specifically for patients undergoing dialysis - allows for safe, reliable monitoring when it matters most.

*\* HDM available on Advantage Mini, A+, and A+ CS with additional customer discussion.*

## Veterinary



### Advantage VET

For a growing number of people, pets have become an extension of their family. Just as blood pressure is important to monitor in people, this holds true for our furry companions.

Advantage VET (Veterinary Monitoring) has been developed and validated for use with cats and dogs, assuring a simpler assessment process for veterinarians and their staff.

While other NIBP providers apply their human technologies to the veterinary market, we developed an automated NIBP technology in cooperation with a leading veterinary medical school specifically for the veterinary healthcare industry.

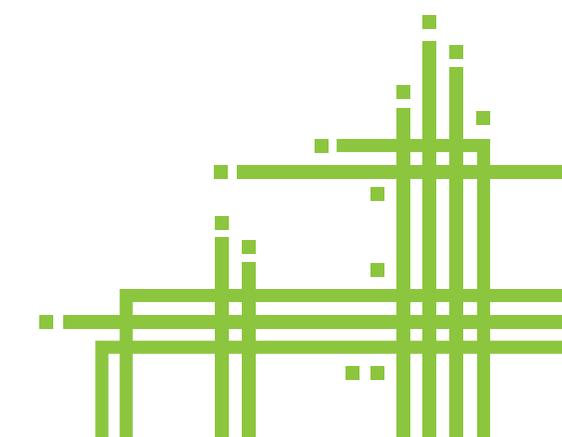
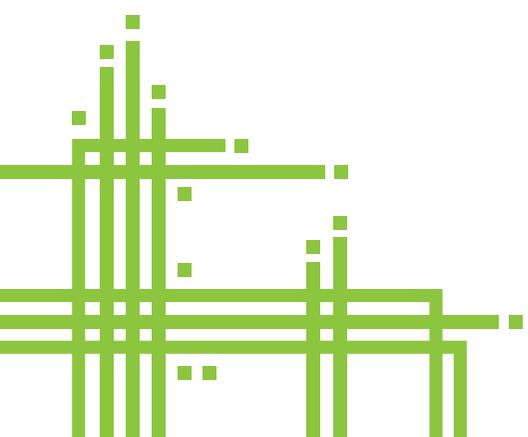
## Kiosk



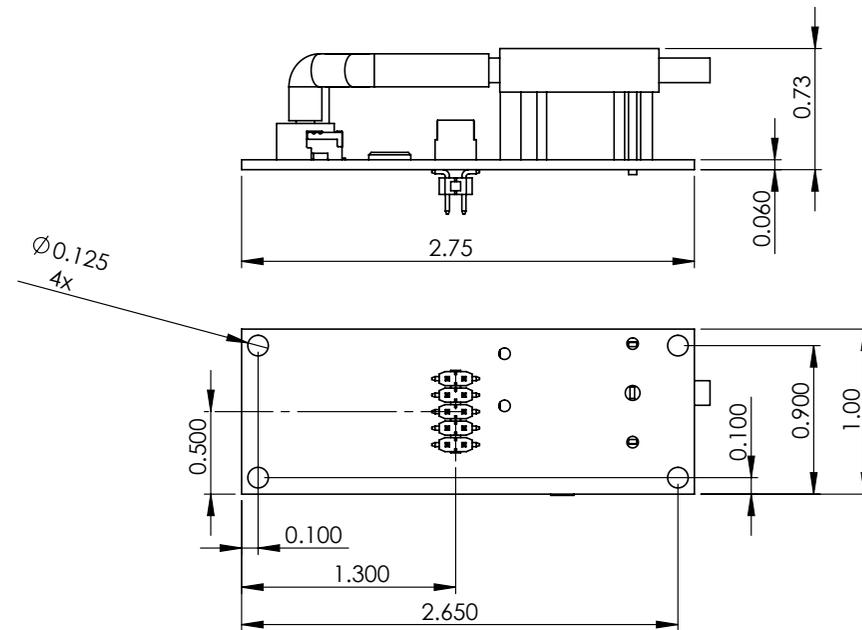
### Advantage KSK

There is no one-size-fits-all solution in this world. That certainly holds true for kiosk health stations that often use a unique blood pressure cuff and special enhancements to meet the requirements for being a public-use device.

We have been supplying kiosk-specific, clinical-grade NIBP solutions to the health kiosk market for more than 10 years. Our Advantage KSK (Kiosk) technology is used in health kiosks throughout the world.



# Advantage MX Mini



The highest performance OEM module in the smallest complete valve onboard package available. The Advantage MX Mini is our newest hardware platform condensed to allow maximum design flexibility and space efficiency.

- Ultra-high Performance for the most challenging clinical applications
- Advantage RMT-Max (Maximum Performance R-wave Motion Tolerance)
- 3rd Edition and RoHS Compliant
- TTL Communication Protocol
- Smallest total package footprint with the convenience on on-board valves.

## Technical Specifications

### Physical Dimensions

Width	1.0 in [25.4 mm]
Length	2.75 in [69.9 mm]
Height	0.72 in [18.3 mm]
Weight	1.25 oz. [35.4 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 30-255 mmHg Neonatal: 30-135 mmHg
Diastolic Range	Adult: 15-220 mmHg Neonatal: 15-110 mmHg
Pulse Rate Range	Adult: 30-240 BPM (Beats per min) Neonatal: 40-240 BPM
Pulse Rate Accuracy	±2% or ±2 BPM, whichever is greater
Transducer Accuracy	± 3 mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 55°C, 15% to 90%, non-condensing humidity
Storage Conditions	-20°C to +65°C, 15% to 95% RH non-condensing

### Electrical

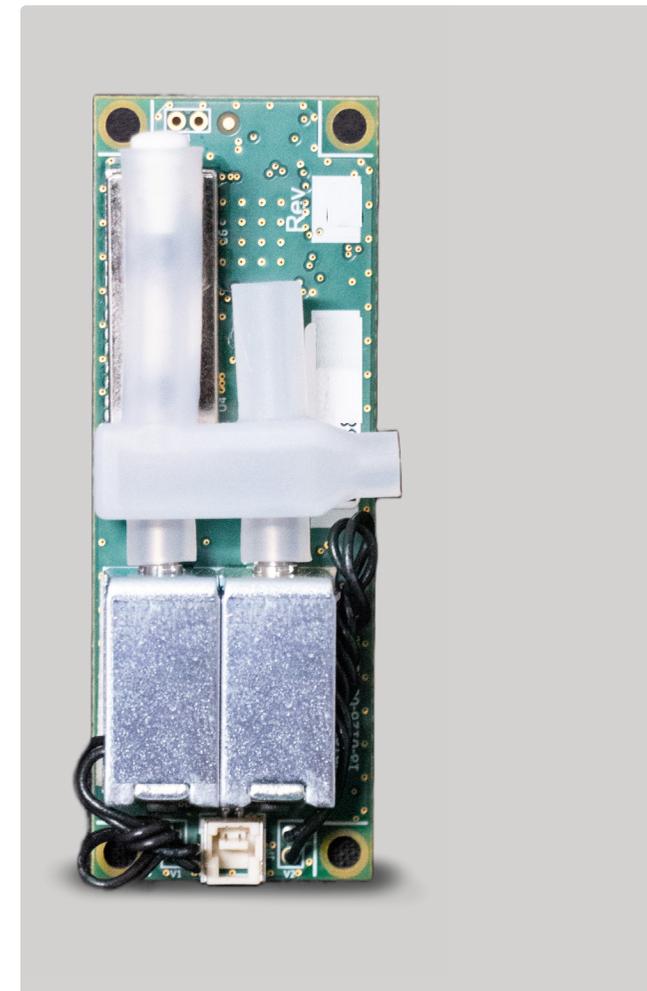
Operating Voltage	5 VDC ± 5%, 6 VDC ± 5%
Power Consumption	Using 5 VDC Nominal Sleep: 50 mW Idle: 150 mW Measurement: 1.0 W Inflation: 3.6 W
Communication Protocols	TTL (5V)

### Safety & Regulatory Standards

IEC 60601-1, IEC/EN80601-2-30, EN60601-1-2:, ISO 81060-2:

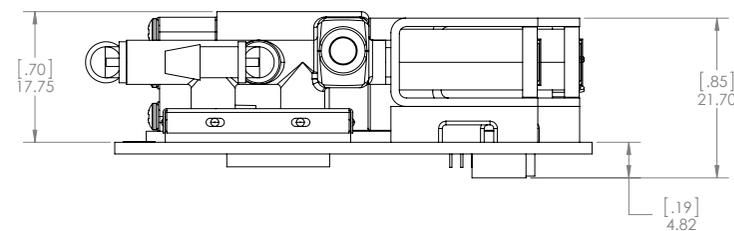
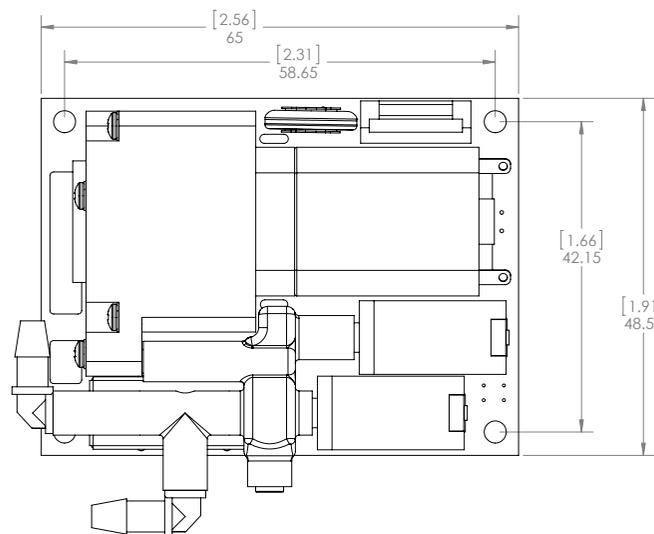
### Advantage Technologies

RMT-MAX (Maximum Performance R-wave Motion Tolerance)  
TMT-MAX (Maximum Performance Transport Motion Tolerance)  
VET-S (Standard Veterinary Monitoring)





# Advantage A+ CS



Functionally equivalent to the A+, the A+ CS provides the same high-performance features and energy efficiency in a smaller physical format while still including all hardware in a single board mounted design. The Advantage A+ CS is ideal when space is an issue including EMS applications and use in hand-held devices.

- The smallest full board mounted BP solution.
- RMT and TMT capable
- 3rd Edition and RoHS Compliant
- RS232 and TTL communication protocols
- Offers the convenience of a board mounted solution
- Compact A+ performance

## Technical Specifications

### Physical Dimensions

Width	1.9 in [48.5 mm]
Length	2.56 in [65.0 mm]
Height	0.89 in [22.5 mm]
Weight	0.1875 lbs [85 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 40-260 mmHg Pediatric: 40-160 mmHg Neonatal: 40-130 mmHg
Diastolic Range	Adult: 20-200 mmHg Pediatric: 20-120 mmHg Neonatal: 20-100 mmHg
Pulse Rate Range	30-220 BPM (Beats per min)
Pulse Rate Accuracy	±2% or ±3 BPM, whichever is greater
Transducer Accuracy	± 3 mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 50°C, 15% to 95%, non-condensing humidity
Storage Conditions	-20°C to +65°C, up to 90% RH non-condensing

### Electrical

Operating Voltage	5.3-14.5 VDC (High), 1.8-9.0 VDC (Low)
Power Consumption	Using 6 VDC Nominal (High) or 3.3 VDC Nominal (Low) Sleep: 2 mW (High), 3.0 mW (Low) Idle: 348 mW (High), 430 mW (Low) Measurement: 1.3 W (High), 1.4 W (Low) Inflation: 3.7 W (High), 3.4 W (Low)
Communication Protocols	Serial RS232 or TTL (3.3V or 5V)

### Safety & Regulatory Standards

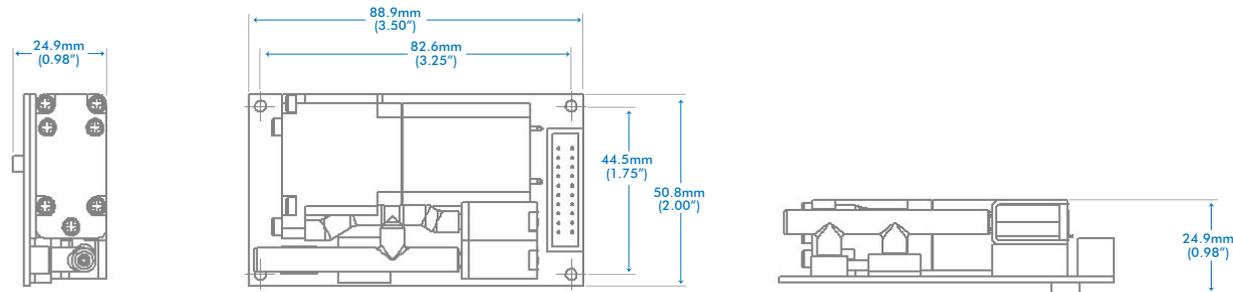
IEC 60601-1, IEC/EN60601-2-30, AAMI SP10, EN1060-1, EN1060-3, EN1060-4, IEC 80601-2-30, ISO 81060-2

### Advantage Technologies

SMT (Standard Motion Tolerance)  
RMT-S (Standard R-wave Motion Tolerance)  
TMT-S (Standard Transport Motion Tolerance)  
VET (Veterinary Monitoring)  
HDM (Hemodialysis Monitoring)



# Advantage A+



The A+ provides a higher level of performance to meet the needs of more challenging clinical applications. With internal automatic modes, low voltage communication protocols and the lowest power consumption in the industry, A+ provides the solution for the most demanding needs.

- Performance for the most challenging clinical applications
- Automatic long and short-term measurement modes
- High and low voltage power options
- RS232 and TTL communication protocols
- Advantage RMT-S (Standard R-wave Motion Tolerance) capable
- 3rd Edition and RoHS compliant

## Technical Specifications

### Physical Dimensions

Width	2.0 in [50.8 mm]
Length	3.5 in [88.9 mm]
Height	1.0 in [25.4 mm]
Weight	0.25 lbs [113.4 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 40-260 mmHg Pediatric: 40-160 mmHg Neonatal: 40-130 mmHg
Diastolic Range	Adult: 20-200 mmHg Pediatric: 20-120 mmHg Neonatal: 20-100 mmHg
Pulse Rate Range	30-220 BPM (Beats per min)
Pulse Rate Accuracy	±2% or ±3 BPM, whichever is greater
Transducer Accuracy	± 3 mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 50°C, 15% to 95%, non-condensing humidity
Storage Conditions	-20°C to +65°C, up to 90% RH non-condensing

### Electrical

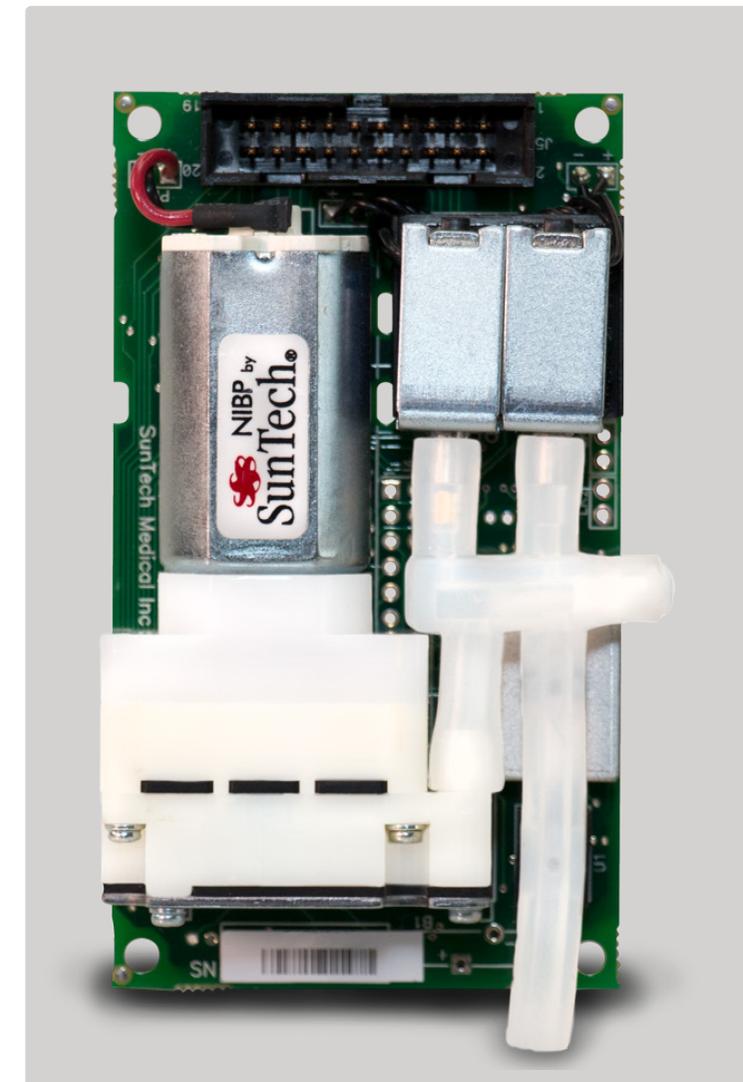
Operating Voltage	5.3-14.5 VDC (High), 1.8-9.0 VDC (Low)
Power Consumption	Using 6 VDC Nominal (High) or 3.3 VDC Nominal (Low) Sleep: 2.0 mW (High), 3.0 mW (Low) Idle: 372 mW (High), 430 mW (Low) Measurement: 1.3 W (High), 1.4 W (Low) Inflation: 3.7 W (High), 3.4 W (Low)
Communication Protocols	Serial RS232 or TTL (3.3V or 5V)

### Safety & Regulatory Standards

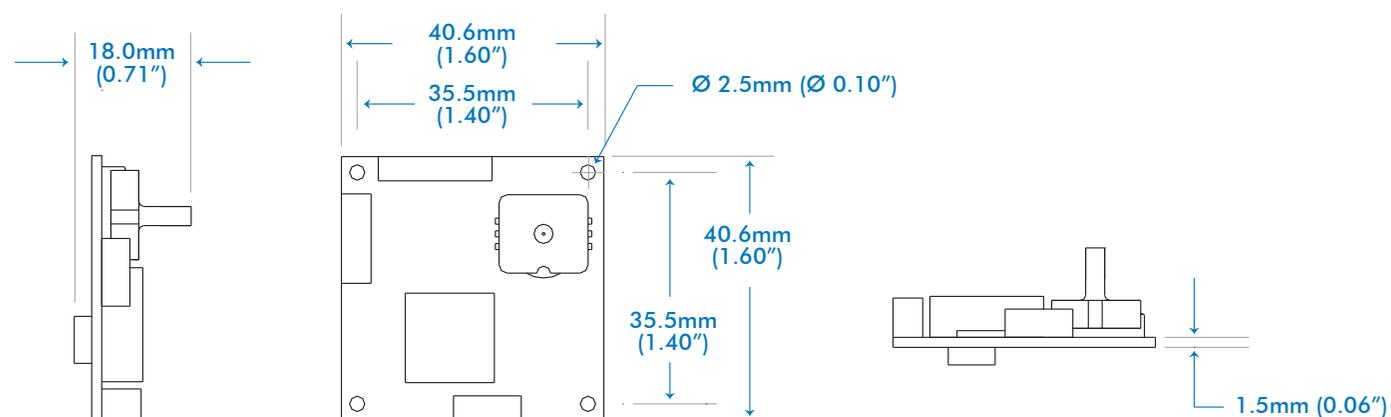
IEC 60601-1, IEC/EN60601-2-30, AAMI SP10, EN1060-1, EN1060-3, EN1060-4, IEC 80601-2-30, ISO 81060-2

### Advantage Technologies

SMT (Standard Motion Tolerance)  
RMT-S (Standard R-wave Motion Tolerance)  
TMT-S (Standard Transport Motion Tolerance)  
VET (Veterinary Monitoring)  
HDM (Hemodialysis Monitoring)



# Advantage Mini



Designed to be functionally equivalent to the 2.0, Mini provides all the features, control and performance customers expect, but in a compact package. With the freedom and flexibility to position the pump and valves elsewhere, Mini is the obvious choice for applications where space is limited.

- Functionally equivalent to the 2.0 with the same features, control and performance
- Off-board mounting of pump and valves supports customized configurations
- Small module footprint allows various integration options
- Best choice for space limited applications
- 3rd Edition and RoHS compliant

## Technical Specifications

### Physical Dimensions

Width	1.6 in [40.6 mm]
Length	1.6 in [40.6 mm]
Height	0.71 in [18.0 mm]
Weight	0.2 lbs [88 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 40-260 mmHg Pediatric: 40-160 mmHg Neonatal: 40-130 mmHg
Diastolic Range	Adult: 20-200 mmHg Pediatric: 20-120 mmHg Neonatal: 20-100 mmHg
Pulse Rate Range	30-220 BPM (Beats per min)
Pulse Rate Accuracy	$\pm 2\%$ or $\pm 3$ BPM, whichever is greater
Transducer Accuracy	$\pm 3$ mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 50°C, 15% to 95%, non-condensing humidity
Storage Conditions	-20°C to +65°C, up to 95% RH non-condensing

### Electrical

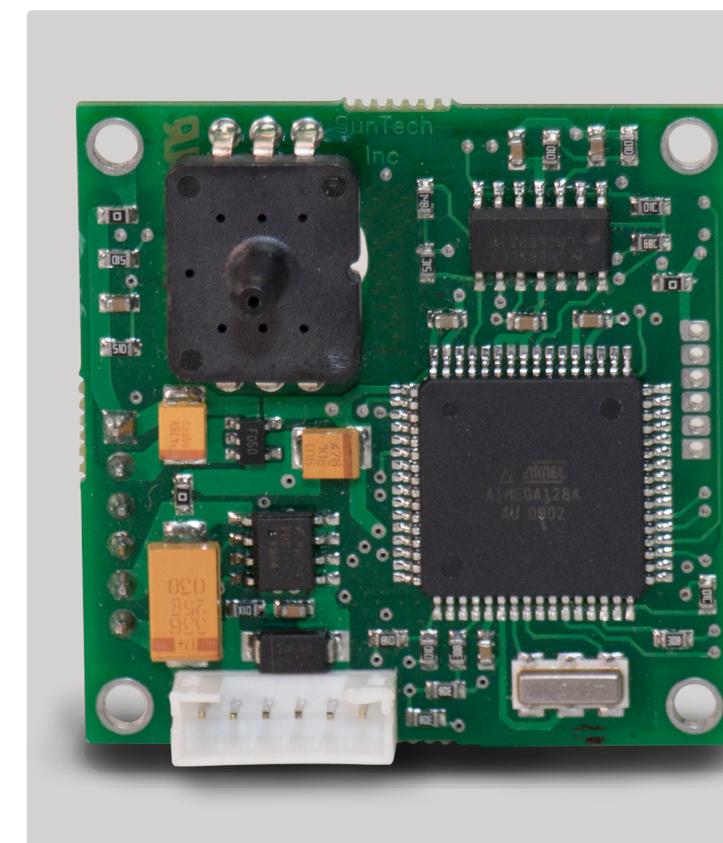
Operating Voltage	5.3-14.5 VDC
Power Consumption	Using 6 VDC Nominal Sleep: 1.4 mW Idle: 204 mW Measurement: 1.1 W Inflation: 3.8 W
Communication Protocols	TTL (5V)

### Safety & Regulatory Standards

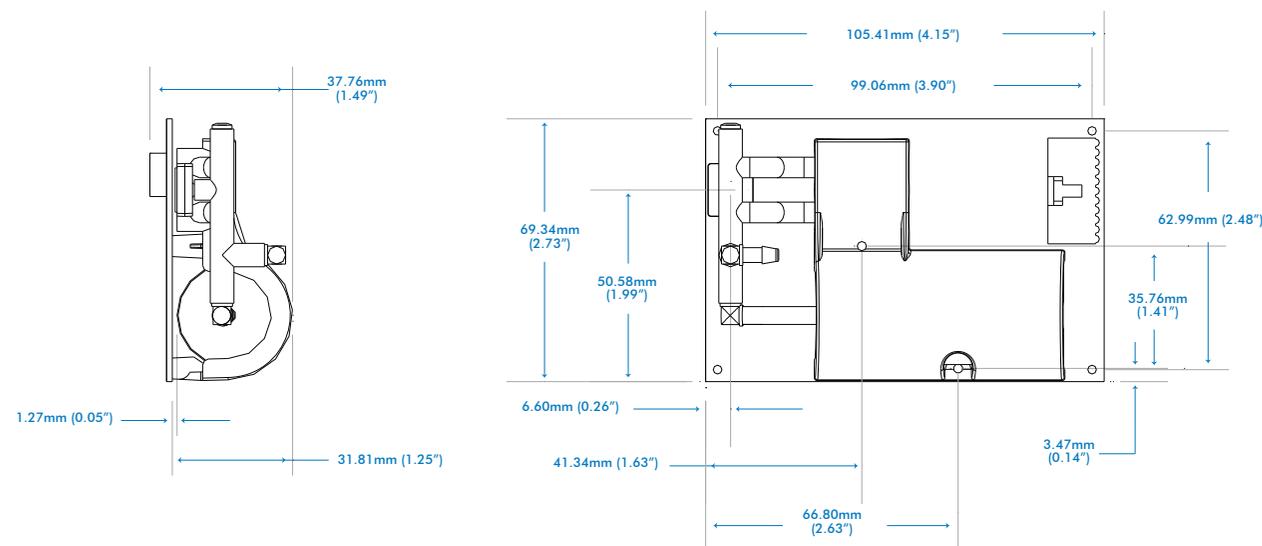
IEC 60601-1, IEC/EN60601-2-30, AAMI SP10, EN1060-1, EN1060-3, EN1060-4, IEC 80601-2-30, ISO 81060-2

### Advantage Technologies

SMT (Standard Motion Tolerance)  
TMT-S (Standard Transport Motion Tolerance)  
HDM (Hemodialysis Monitoring)  
VET (Veterinary Monitoring)



# Advantage 2.0



SunTech's most popular OEM module platform provides a complete solution to quickly integrate with the host system. It is currently used in many multi-parameter monitors, EMS defibrillators, hemodialysis machines and various other clinical monitoring devices. Suitable for nearly all automated NIBP applications with adult, pediatric and neonatal modes.

- Most popular OEM module platform
- Appropriate for most clinical applications and environments
- Adult, Pediatric and Neonatal modes
- RS232 & TTL communication
- Best value solution
- 3rd Edition and RoHS compliant

## Technical Specifications

### Physical Dimensions

Width	2.73 in [69.3 mm]
Length	4.15 in [105.4 mm]
Height	1.49 in [37.8 mm]
Weight	0.3 lbs [133 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 40-260 mmHg Pediatric: 40-160 mmHg Neonatal: 40-130 mmHg
Diastolic Range	Adult: 20-200 mmHg Pediatric: 20-120 mmHg Neonatal: 20-100 mmHg
Pulse Rate Range	30-220 BPM (Beats per min)
Pulse Rate Accuracy	±2% or ±3 BPM, whichever is greater
Transducer Accuracy	± 3 mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 50°C, 15% to 95%, non-condensing humidity
Storage Conditions	-20°C to +65°C, up to 95% RH
	non-condensing

### Electrical

Operating Voltage	5.3-14.5 VDC
Power Consumption	Using 6 VDC Nominal Sleep: 1.4 mW Idle: 204 mW Measurement: 1.1 W Inflation: 3.8 W
Communication Protocols	Serial RS232 or TTL (5V)

### Safety & Regulatory Standards

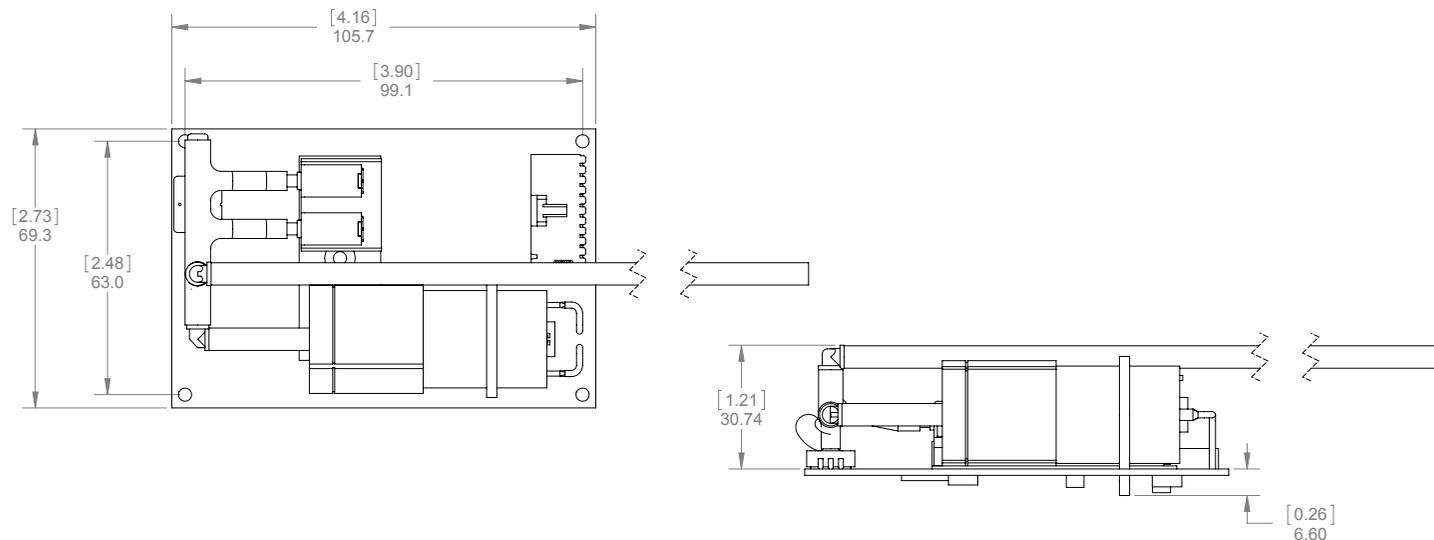
IEC 60601-1, IEC/EN60601-2-30, AAMI SP10, EN1060-1, EN1060-3, EN1060-4, IEC 80601-2-30, ISO 81060-2

### Advantage Technologies

SMT (Standard Motion Tolerance)  
TMT-S (Standard Transport Motion Tolerance)  
VET (Veterinary Monitoring)  
HDM (Hemodialysis Monitoring)  
KSK (Kiosk)



# Advantage HT



The practice of medicine is extending beyond the hospital and other acute care settings to the home where preventive care is practiced in tandem by clinicians and patients. Blood pressure monitoring in home telemedicine applications needs to be as safe, reliable, accurate, and trusted as hospital patient monitors. SunTech® Advantage™ HT offers proven performance trusted in hospitals at an exceptional value appropriate for the home healthcare setting.

- The same measurement technology selected by the leading medical device manufacturers and trusted in hospitals worldwide.
- Proven clinical-grade performance at a price appropriate for home telehealth.
- Step-by-step guidance and support to safely design clinical-grade blood pressure measurement into your device.
- 3rd edition and RoHS Compliant

## Technical Specifications

### Physical Dimensions

Width	2.73 in [69.3 mm]
Length	4.15 in [105.4 mm]
Height	1.49 in [37.8 mm]
Weight	0.3 lbs [133 g]

### Measurement

Technique	Oscillometric
NIBP Accuracy	Meets ANSI/AAMI SP10, EN 1060-4, ISO 81060-2
Patient Applications	Adult, Pediatric, Neonatal
Systolic Range	Adult: 40-260 mmHg Pediatric: 40-160 mmHg Neonatal: 40-130 mmHg
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Pulse Rate Range	40-220 BPM (Beats per min)
Pulse Rate Accuracy	±2% or ±3 BPM, whichever is greater
Transducer Accuracy	± 3 mmHg over full range in operating conditions
Operating Modes	Manual
Operating Conditions	0°C to 50°C, 15% to 95%, non-condensing humidity
Storage Conditions	-20°C to +65°C, up to 90% RH non-condensing

### Electrical

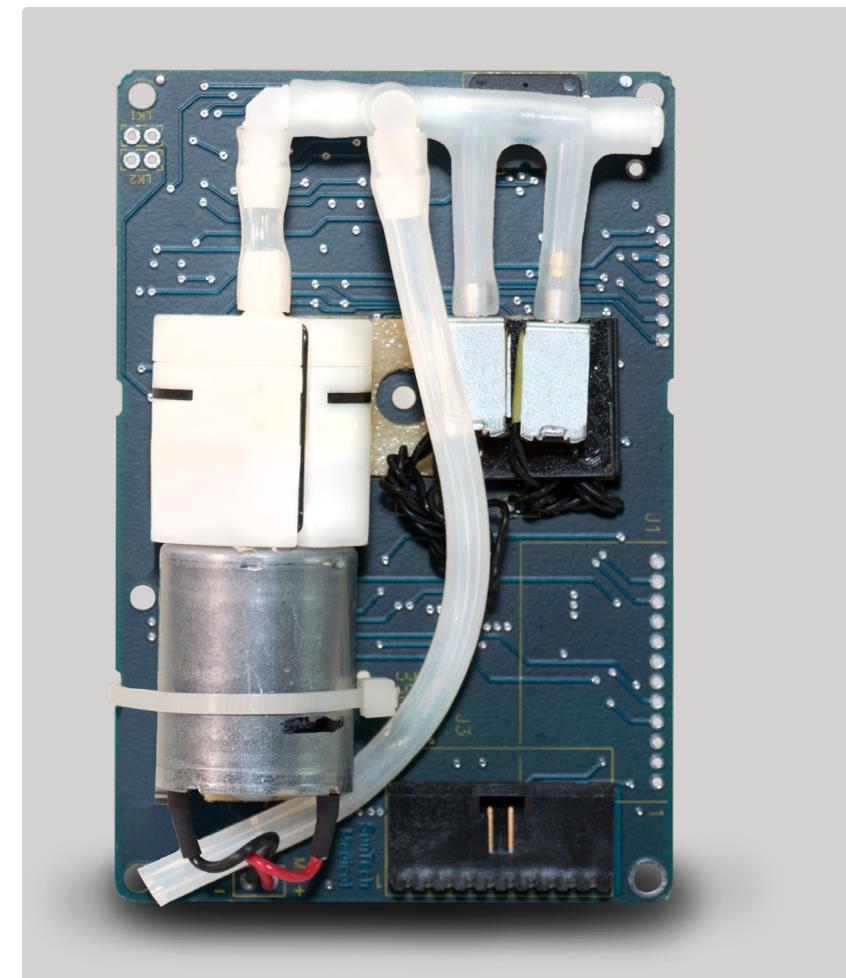
Operating Voltage	5.3-14.5 VDC
Power Consumption	Using 6 VDC Nominal Sleep: 1.4 mW Idle: 204 mW Measurement: 1.1 W Inflation: 3.8 W
Communication Protocols	Serial RS232 or TTL (5V)

### Safety & Regulatory Standards

IEC 60601-1, IEC/EN60601-2-30, AAMI SP10, EN1060-1, EN1060-3, EN1060-4, IEC 80601-2-30, ISO 81060-2

### Advantage Technologies

SMT (Standard Motion Tolerance)





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