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**StreamTeck T60 Wireless Physiological Transmitter and Central Monitoring Software** 



#### **Product Information**

## **Product Specifications**

Material: ABS

Power: 5V/2A

• Operating time: Continuous-time

• RF range: Wireless sensor: 60GHz ~ 64GHz, Wireless transmission: 2.4/5GHz

Operating environment temperature: 15~40°C

• Operating environment humidity: 30~80%, no condensation

Operation/storage/transportation pressure: 700~1060 hPa

• Storage/transportation environment temperature: 0~50°C

• Storage/transportation environment humidity: 30~80%, no condensation

• **Size:** 190\*190\*60mm

• Weight: 250g

# StreamTeck Wireless Physiological

# **Transmitter and Central Monitoring Software**

**Caution!** Please read the user manual and follow the instructions before use.

The information provided by the product is assisted by medical care personnel under professional judgment.

This product is not suitable for use as a basis for diagnosis.

# **Product Description and Usage**

- Product composition: This product includes the wireless physiological transmitter, central monitoring software and other compatible hardware like computer, keyboard, mouse and monitor.
- Product features: StreamtTeck central monitoring software is connected to a single or multiple wireless physiological transmitters through the computer's internet. The monitoring information is used to display, record, trace the physiological parameter. The software can alarm notification function, including alarm setting and centralized monitoring and management of a single or multiple beds, suitable for the nursing station of long-term care institutions or the general wards of medical institutions. The system provides continuous real-time display and storage of physiological parameters and vacancy bed detection and can trace back the stored data. The central monitoring software should be operated by professional medical and nursing staff. It can only be used as assistance for medical and nursing staff instead of clinical treatment and diagnosis.

## **Product applicable functions**

- View the continuous monitoring physiological parameter, including heart rate, breathing rate, body temperature and bed occupation transmit by the wireless physiological transmitter.
- 2. Warning to medical units using the product (system visual warning).
- 3. Observe and review the patients' physiological data in detail.

# **Detailed Product Specifications**

Wireless Physiological Transmitter (T60)	Stream
Material	ABS
Power	5V/2A

Operating time	Continuous-time	
RF range	Wireless sensor: 60GHz ~ 64GHz Wireless transmission: 2.4/5GHz	
Operating environment temperature	15~40°C	
Operating environment humidity	30~80%, no condensation	
Operation/storage/transportation pressure	700~1060 hPa	
Storage/transportation environment temperature	0~50°C	
Storage/transportation environment humidity	30~80%, no condensation	
Size	190*190*60mm	
Weight	250g	
Medical Power Supply		
Brand	Adapter Tech. ATM012T-W050U	
Output voltage	5V	
Output current	2A	

Input voltage range	100~240 VAC
Size	80.2*40.0*40.5±1mm (L*W*H)

Central monitoring	Central monitoring software with compatible hardware		
software	including computer, keyboard, mouse and monitor		
Install environment	Minimum demand		
Processor	X86 3.0GHz four cores		
Operating system/software	Construct with LAMP (Linux, Apache, MySQL, PHP)		
RAM	More than 4G RAM		
Hard drive space	RAID1 or RAID5 no less than 1TB		
Internet require	A fixed IP and two-way 10MB bandwidth		
Future	Function		
The number of supported bed	Receive physiological parameters from 32 beds at most		
Wireless communication	Receive physiological parameter data from T60		
Wireless communication	Auto-connect and reconnect		
	Home page (login page)		
	Back: Back to the login page		
	Overview: List all the T60 devices in use		

	"Overview" page list all the information of the T60 devic e and patient data, including floor, room, bed number, p atient name, age, gender, group, real-time heart rate, br eathing rate, body temperature and vacancy bed detecti on.
	Device setting: Add new T60 device to the device list, a nd setting corresponding location floor, room number an d group, and can be removed from the device list.
System f unction management	Group setting: Adding group and group description, and can be deleted from the group list.
	Account and user authority setting: Set account authority to be user or administrator. The account and p assword can be changed.
	Patient data setting: Set patient medical record number, name, gender and birthday.
Patient basic information m anagement	Threshold setting for alarm events: Set alarm trigger thr eshold of heart rate, breathing rate and body temperature.
	Physiological data record
Physiological information tr acking	Data search (base on year/ month/ date/ hour)
	Display history physiological data

System self-protection	If the system fails, restart itself and restore it to the original setting.		
	Not login: Can not use SmartCaring		
	Ward management: Execute and set all operation and		
	system parameter		
Authority management	Normal user: Set patient basic information and alarm		
	trigger threshold		
Patient basic information	Floor, room, bed number, patient medical record		
display	number, name, gender, age, group		
	Physiological parameters exceed the threshold.		
	T60 device disconnected hint.		
	Bed vacancy and timer display.		
Alert status display	Patient motion display: T60 transmitter stop detecting		
	and transmit the last data before patient motion		
	Red: Alarm (immediately call a doctor)		
Alarm color	Green: normal		
	Orange: bed vacancy		
	Heart rate: >120bpm <50bpm		
	Breath rate: >25/per minute <8/per minute		
Default alarm threshold			

	Body temperature: >37.5°C <36°C		
Alarm threshold setting	Heart rate/ breathing rate/ body temperature		
$\sim$	IEC 60417-5032 : Alternating Current.		
===	IEC 60417-5031 : Direct Current		
<b>(3)</b>	ISO 7010-M002: Follow instructions for use		

# **Usage Scenarios**

This product is suitable for long-term care institutions and the nursing station in the general wards of medical institutions.

#### **Contraindications**

- 1. Severe physical disability prevents safe and effective measurement.
- 2. Without the patient's consent.
- 3. Do not use for the fetus.

#### Side Effect

According to Federal Communications Commission (FCC) requirements, the specific absorption rate (SAR) should be lower than 10w/m2. The passed measurement result of the product is 5.33w/m2 at a distance of 20cm. If the distance is less than 20cm, it may cause some electromagnetic wave damage to the human body, such as a mobile phone.

#### Caution

- The data gain by the wireless physiological transmitter and the central monitoring software can only be used as assistance instead of the clinical treatment and diagnosis.
- 2. Avoid the wireless physiological transmitter, central monitoring software and the

- product accessories from sunlight and high temperature and water.
- 3. Do not disassemble or repair the wireless physiological transmitter by yourself. It may affect the accuracy of the measurement result and the safety of the device.
- 4. This device complies with Part 15 of the FCC Rules and ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation
- 5. This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- 6. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- 7. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- 8. This device complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
- The wireless physiological transmitter complies with the electromagnetic compatibility (EMC) test standard but is still recommended to stay away from other microwave devices, RF devices, and radar devices, to avoid influencing the abovementioned devices.
- 10. Data may lose if the wireless physiological transmitter is powered off or abnormally

- turned off. Do not arbitrarily turn off the device. If the device is accidentally turned off, immediately reconnect the device to the power source.
- 11. The installation and the setting of the wireless physiological transmitter can only be carried out by manufacture trained and authorized personnel.
- 12. If the server PC of the central monitoring software is powered off or abnormally turned off, data may lose. Do not arbitrarily turn off the computer. If the computer is accidentally turned off, immediately turn it on and start the software.
- 13. For the installation and setting of the central monitoring software, please refer to the user manual, or operate by the staff of Streamteck Inc.
- 14. Remove the monitoring device on the software will remove the setting of the device.

  Please make sure and check that the bed related to the device no longer needs to be monitored.
- 15. It is important to choose a proper value when setting the threshold of the physiological parameters. The extreme or improper value may cause alarm invalidation.
- 16. The computer operating the central monitoring software can not be moved or run another software.
- 17. In case of serious incident that has occurred, please contact the manufacturer and local authorities immediately.
- 18. **WARNING** Do not modify this equipment without authorization of the manufacturer.
- 19. Do not place the power cord where it is difficult to disconnect and may be stepped by other persons.
- 20. Disconnect device: disconnect the power cord to fully power off the device

#### 21. CLASSIFICATION:

- Supply Class II adapter
- No applied part
- Continuous Operation
- Not AP or APG category
- 22. Disconnect this equipment from AC outlet before cleaning. Do not use liquid or spray detergents for cleaning.
- 23. CAUTION! This adapter Adaptor Tech/ ATM012T-W050U is a forming part of the device
- 24. Only use the power cord with following specification: 18AWG min., type SJT, 125V/10A, UL listed, 3m max, hospital grade if for USA market
- 25. Use a power cord that matches the voltage of the power outlet, which has been

- approved and complies with the safety standard of your particular country.
- 26. Do not dispose this device in the bin, dispose and recycle it according to national regulation

### **Industry Canada statement**

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference, and
- 2. This device must accept any interference received, including interference that may cause undesired operation.

#### Caution:

 The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems; FOR MOBILE DEVICE USAGE (>20cm/low power)

# **Radiation Exposure Statement**

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20 cm between the radiator & your body.

# Guidance and manufacturer's declaration – electromagnetic emissions The model T60 is intended for use in the electromagnetic environment specified below . The customer or the user of the model HA2402 SERIES should assure that it is used in such an environment. Emissions test Compliance Electromagnetic environment – guidance

RF emissions CISPR 11	Group 1	The model T60 uses RF energy only f or its internal function. Therefore, its RF emissions are very low and are n ot likely to cause any interference in n earby electronic equipment.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	The model T60 is suitable for use in a ll establishments, including domestic establishments and those directly con
Voltage fluctuations/		nected to the public low-voltage powe
flicker emissions IEC 61 000-3-3	Not applicable	r supply network that supplies buildin gs used for domestic purposes.

# Recommended separation distances between

# portable and mobile RF communications equipment and the model T60

The model T60 is intended for use in an electromagnetic environment in which radiate d RF disturbances are controlled. The customer or the user of the model T60 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model T60 as recommended below, according to the maximum output power of the communications

equipment.

	Separation distance according to frequency of transm itter
Rated maximum output power of transmitter	m

W	150 kHz to 80 M Hz $d = 1.2 \sqrt{P}$	80 MHz to 800 M Hz $d = 1,2^{\sqrt{P}}$	800 MHz to 2,5 GHz $d = 2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

**NOTE** 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

**NOTE** 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

# Guidance and manufacturer's declaration – electromagnetic immunity

nvironment.

The model T60 is intended for use in the electromagnetic environment specified below . The customer or the user of the model T60 should assure that it is used in such an e

Immunity test	IEC 60601test le	Compliance lev	Electromagnetic envir
illilliumity test	vel	el	onment–guidance

Electrostatic dischar ge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with h synthetic material, the relative humidityshould be at least 30 %.
Electrical fast transi ent/burst	±2 kV for power supply lines	±2 kV for power supply lines	Mains power quality sho uld be that of a typical c ommercial or hospital e nvironment.
IEC 61000-4-4	±1 kV for input/o	±1 kV for input/o	
	lines	lines	
SurgeIEC 61000-4- 5	±1 kV line(s) to li ne(s) ±2 kV line(s) to e arth	±1 kV line(s) to li ne(s) ±2 kV line(s) to e arth	Mains power quality sho uld be that of a typical c ommercial or hospital e nvironment.
interruptions and	<5 % <i>U</i> T	<5 % <i>U</i> T	
voltage variations	(>95 % dip in <i>U</i> T	(>95 % dip in <i>U</i> T	
on power supply	for 0,5 cycle	for 0,5 cycle	
input lines			Mains power quality sho
	40 % <i>U</i> T	40 % <i>U</i> T	uld be that of a typical c ommercial or hospital e
IEC 61000-4-11	(60 % dip in <i>U</i> T)	(60 % dip in <i>U</i> T)	nvironment. If the user o
	for 5 cycles	for 5 cycles	RIES requires
			continued operation during powermains interrupt

	70 % <i>U</i> T	70 % <i>U</i> T	ions, it is recommended that the model HA2402 SERIES be powered fro
	(30 % dip in <i>U</i> T)	(30 % dip in <i>U</i> T)	m an uninterruptible po
	for 25 cycles	for 25 cycles	wer supply or a battery.
	<5 % <i>U</i> T	<5 % <i>U</i> T	
	(>95 % dip in <i>U</i> T	(>95 % dip in <i>U</i> T	
	for 5 sec	for 5 sec	
Power frequency	3 A/m	3 A/m	Power frequency magne
(50/60 Hz)			tic fields should be at le vels characteristic of a t
magnetic field			ypical location in a typic
IEC 61000-4-8			al commercial or hospit al environment.

NOTE UT is the a.c. mains voltage prior to application of the test level.

# **Guidance and manufacturer's declaration – electromagnetic immunity**

The model HA2402 SERIES is intended for use in the electromagnetic environment sp ecified below. The customer or the user of the model HA2402 SERIES should assure that it is used in such an environment.

			Electromagnetic environ
Immunity toot	IEC 60601 t	Compliance	ment –
Immunity test	est level	level	guidance

			Portable and mobile RF communications equipment should be used no closer to any part of the model T60, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
			n distance $d = 1.2 \sqrt{P}$
			$d = 1,2 \text{ V}^T$ $d = 1,2 \text{ V}^T$ 80 MHz to 800 MHz
Conducted RF IEC 61000- 4-6	3 Vrms 150 kHz to 8 0 MHz	3 Vrms	$d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz
Radiated RF IEC 61000- 4-3	3 V/m 80 MHz to 2, 5 GHz	3 V/m	where <i>P</i> is the maximum o utput power rating of the tr ansmitter in watts (W) acc ording to the transmitter m anufacturer and <i>d</i> is the re commended separation di stance in metres (m).

	Field strengths from fixed RF transmitters, as determined by an electrom agnetic site survey, a should be less than the compliance level in each frequency range.
	Interference may occur in the vicinity of equipment marked with the following sy

- **NOTE** 1 At 80 MHz and 800 MHz, the higher frequency range applies.
- **NOTE** 2 These guidelines may not apply in all situations. Electromagnetic propagati on is affected by absorption and reflection from structures, objects and people.
- Field strengths from fixed transmitters, such as base stations for radio (cellular/cordl ess) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the ele ctromagnetic environment due to fixed RF transmitters, an electromagnetic site surv ey should be considered. If the measured field strength in the location in which the model T60 is used exceeds the applicable RF compliance level above, the model T 60 should be observed to verify normal operation. If abnormal performance is obser ved, additional measures may be necessary, such as reorienting or relocating the m odel T60.
- Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

#### **Detail Instructions**

The wireless physiological transmitters are installed and set by the engineer of StreamTeck Inc. The wireless sensor detects physiological signals, including heart rate, breathing rate and body temperature, in a non-contact manner of the static, lying patient. The physiological parameters can be transmitted to the central monitoring software at a nursing station in long-term institutions or the general wards of medical institutions via a wireless network for integration.

The monitoring information is used to display, record, trace physiological parameters. The software is capable of alarm notification function, including alarm setting and centralized monitoring and management of a single or multiple beds, which is suitable for the nursing station of the long-term care institutions and the general wards of medical institutions. The system provides continuous real-time display and storage of physiological parameters and vacancy bed detection and can trace back the stored data. The central monitoring software should be operated by professional medical and nursing staff. It can only be used as assistance for medical and nursing staff instead of clinical treatment and diagnosis.

# **Wireless Physiological Transmitter**

1. Install the wireless physiological transmitter at a distance of 50 cm above the hospital bed (show as the picture). After the device is set up, connect the device to the power supply.



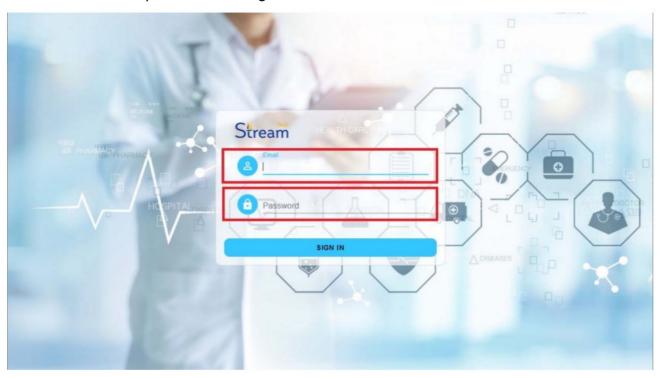
2. The device will detect the physiological signals via RF radio and infrared rays and transmit them to the receiver (server), the server computer at the nursing station of long-term care institution, nursing home or the general ward of a medical institution for monitoring.

# **Central Monitoring Software**

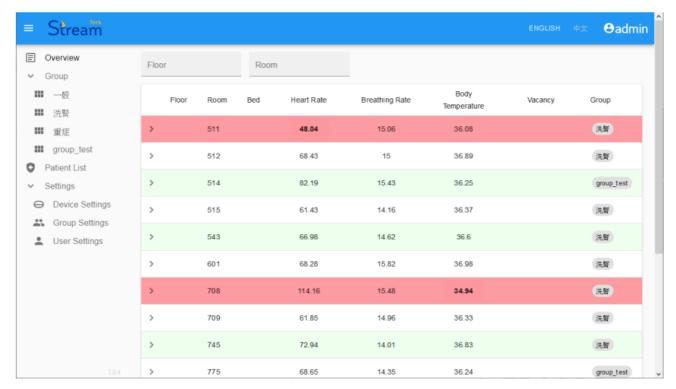
1. Open the browser, enter the central monitoring software URL and enter the homepage.



2. Enter account and password to log in.

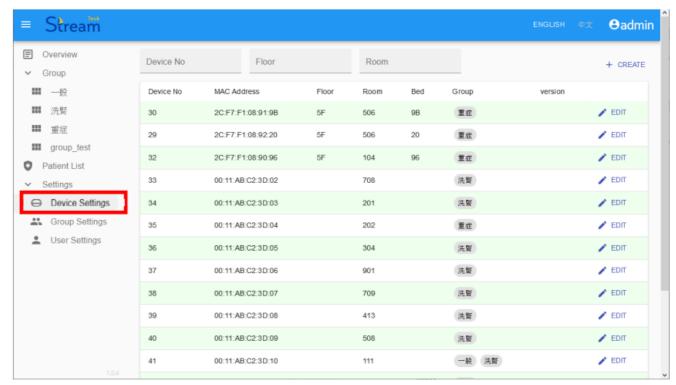


3. Enter the main screen of the monitoring system.

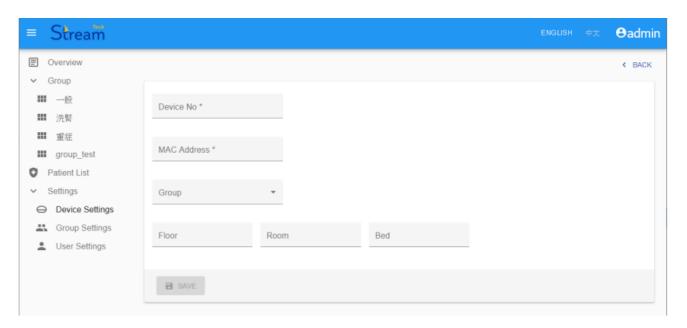


# 4. Device setting

Press the left side button "device setting."

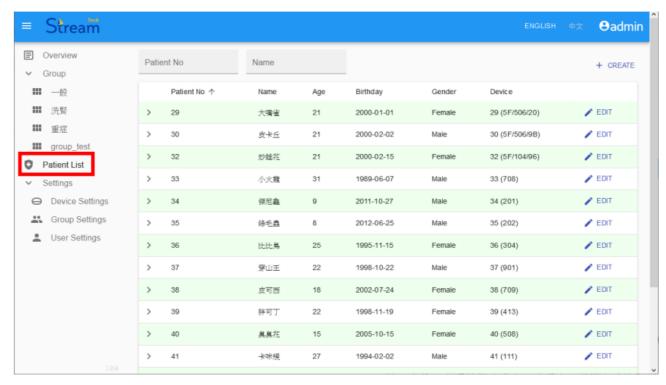


Press the "+create" button, jump to the next page, enter device number, MAC address and the location of the device, including the group, floor, room and bed number, then press "save," go back to the previous page.



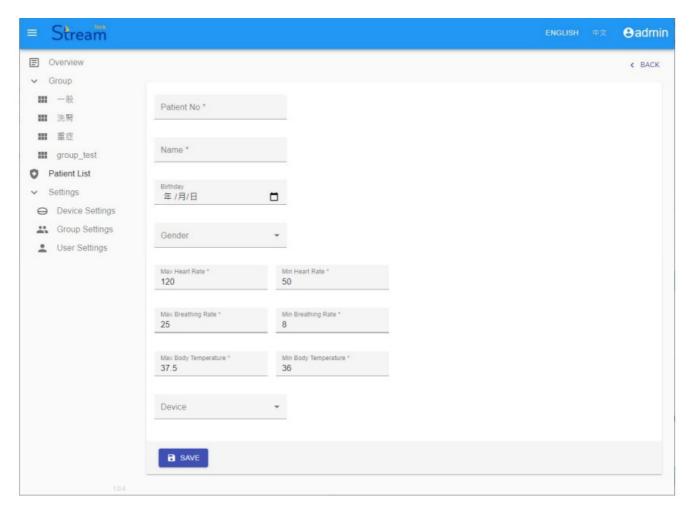
# 5. Patient data setting:

Press the left side button "Patient List."



Press the "+create" button, jump to the next page, enter patient No., name, birthday, physiological alarm threshold (heart rate, breathing rate and body temperature), and the related device, then press

"SAVE."

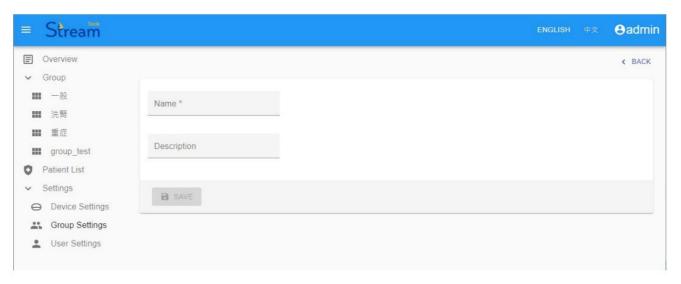


# 6. Group setting:

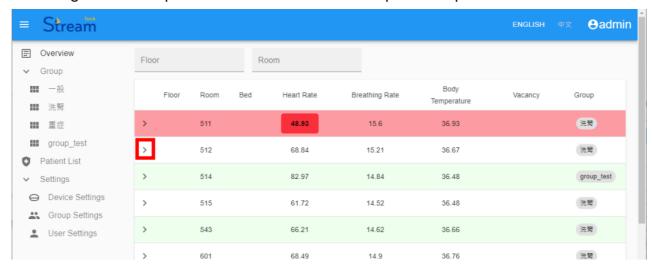
Press the left side button "Group Setting."



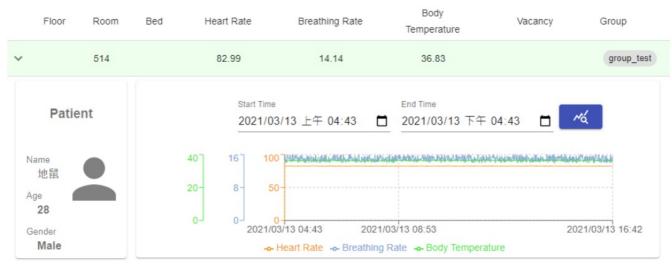
Press the "+create" button, jump to the next page, enter the group name and the group description, then press "SAVE."



7. History physiological data record and trace Press "Overview" and see the monitoring data of all patients. Click ">" unfold the patient's personal information.



The left side shows the patient's personal information, including name, age and gender. The right side shows every history data of each physiological parameter.



Choose "Start Time" and "End Time," then press the button to adjust the observation time. Click the below button like heart rate, breathing rate and body temperature to choose the physiological data you want to see. Press the left side

button "V" to fold the history data.



8. Alarm status: when detecting that the physiological is higher or lower the set threshold, the status bar will turn red, and the physiological parameter will flash a red warning.



The movement of the patient, like turning over, will affect physiological signal detection accuracy. Therefore, any motion of the patient will show on the central monitoring software, and the showing parameter number will be the last data before the patient moves.





# **Troubleshooting**

# **Wireless Physiological Transmitter (T60)**

If there is an unexpected situation or other concerns about the wireless physiological signal transmitter, please remove the power supply of the device and reconnect it after five seconds. If there is still a problem after reconnecting the power supply to the device, please record the current situation and notify the agent or our company for assistance.

### 1. Physiological signal measurement

Abnormal state: heart rate, breathing rate, and body temperature of the central monitoring software show "Error" text.

**Handling**: remove the power of the T60 transmitter and reconnect. Once the monitor still shows "Error" text, please notify the agent or our company for assistance.

The T60 Abnormal:
Shows Error

Remove the power of the T60 transmitter and reconnect the power

Check if the T60 transmitter receives the correct signal

No abnormality

No abnormality

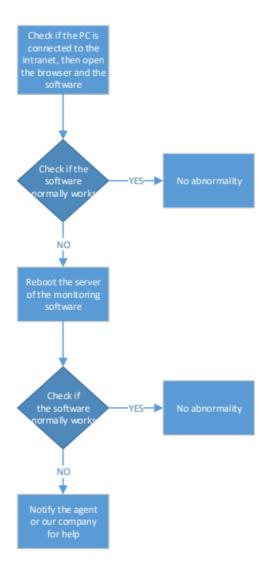
#### **Central Monitoring Software**

If there is an unexpected situation or other concerns about the central monitoring software, please close the software and re-start the software, or turn off and turn on the server computer and start the software. If there is still a problem, please record the current situation and notify the agent or our company for assistance.

When the software is abnormal, it may be a problem with the network or server of the computer using the software.

- Check if the computer is connected to the intranet, then open Google chrome browser
  to connect the software URL. If you cannot connect to the management console
  correctly, please check the server status.
- Check if the server is connected to the intranet, then reboot the server. If you cannot connect to the management console correctly, please notify the agent or our company for help.

#### Software Abnormal



### **Regular Maintenance**

Wireless physiological transmitter:

The wireless physiological transmitter is a fixed type. In order to ensure the safety of use, please regularly check whether the fixing crews and brackets are rusted and loose or not. Hence wipe the device with a damp fabric to clean up the dust. After a disaster such as an earthquake, please check the device is not loose.

#### **Central monitoring software:**

Regularly back up the patient's physiological signal history stored by the software to avoid data loss caused by the malfunction of the server computer.

#### **Authorized maintenance service**

This product does not provide users with self-maintenance. If you need any maintenance, please contact the agent or our company.

- Distributor name: StreamTeck Scientific Inc.
- Distributor address: No. 174, Huamei St., West Dist., Taichung City 403, Taiwan
- Manufacturer name: WelFare Technology Inc.
- Manufacturer address: No. 130-8, Waixizhou, Shuishang Township, Chiayi County 608006, Taiwan
- Marketing time

# **Operational Principle**

 The principle and process of the wireless sensor detecting heart rate and breathing rate

Symbol Description

- 100 Wireless physiological signal transmitter
- 110 Processor
- 120 Storage media
- 121 Communication module
- 122 Signal processing module
- 130 Transceiver
- 31 32 Wireless signal
- 41 42 Reflected signal

# • 51 52 53 54 Time period

S201 S202 S203 S204 S205 S206 S207 S208 S209 S210 S211 S212 S213 S214 S401 S402 S403 S404 S405 S406 Steps

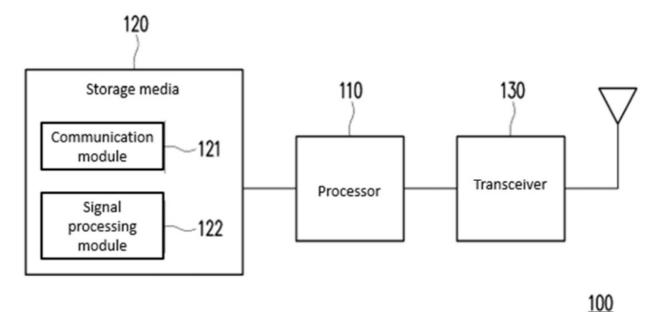


Fig. 1 Transmit multiple Judging the vital signs wireless signals to a S201 of the monitored S207 specific area person based on the first processing signal S209 S208 Receive mixed reflection signals S202 corresponding to Are vital sign Send alert the multiple wireless abnormal? message signals from a specific area No Perform a one-Generate a twodimensional Fourier dimensional signal based on the filtered signal S210 transform on the S203 mixed reflection signal to generate a one dimensional signal Generate the second S204 S211 signal based on the Does it correspond to a creature? Yes Determine the posture change of the Generate filtered signal S212 monitored person based on one-S205 based on the second dimensional signal processing signal S214 S213 Band-pass filtering the S206 Send alert is the posture filtered signal to generate the first hange abnormal? message processed signal

Fig. 2

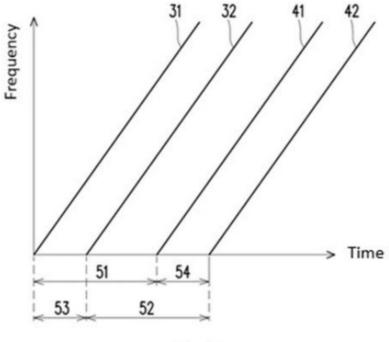


Fig. 3

- 0001 The monitoring device 100 (wireless physiological signal transmitter) in
  Fig. 1 is suitable for monitoring people's status in a specific area. The monitoring
  device 100 may include a processor 110, a storage medium 120, and a
  transceiver 130.
- 0002 The processor 110 such as a central processing unit (CPU), other programmable micro control units (MCUs) of the general-purpose or special-purpose, microprocessor, digital signal processor (DSP), programmable controller, application-specific integrated circuit (ASIC), graphics processing unit (GPU), image signal processor (ISP), an image processing unit (IPU), an arithmetic logic unit (ALU), a complex programmable logic device (CPLD), field-programmable gate array (FPGA) or other similar components or a combination of the above components. The processor 110 may be coupled to the storage media 120, the transceiver 130 and access and execute multiple modules and various application programs stored in the storage media 120.
- 0003 The storage media 120 such as any fixed or removable random access memory (RAM), read-only memory (ROM), flash memory, hard disk drive (HDD), solid-state drive (SSD) or similar components or a combination of the above components, and used to store multiple modules or various applications that can be executed by the processor 110. In this example, the storage media 120 can store multiple modules, including a communication module 121 and a signal processing module 122, the functions described later.
- 0004 In step S201, the communication module 121 can transmit multiple

wireless signals to specific areas through the transceiver 130 at a plurality of different time points. The specific area is that the patient is stationary and lying on the bed. 0005 In step S202, the communication module 121 receives a mixed reflection signal corresponding to wireless signals' plurality from a specific area through the transceiver 130. The mixed reflection signal includes corresponding to wireless signals' plurality, respectively of multiple reflection signals. Fig. 3 illustrates a schematic diagram of multiple wireless signals and mixed reflection signals according to an instance of this invention. Suppose the plurality of wireless signal comprising a wireless signal 31 and a radio signal 32; the mixed reflection signal includes at least a reflection signal 41 corresponds to the wireless signal 31, and a reflection signal 42 corresponds to the wireless signal 32. In Fig. 3, the time period 51 represents the time it takes from transmitting the infinite signal 31 to receiving the reflected signal 41, the time period 52 represents the time it takes from transmitting the infinite signal 32 to receiving the reflected signal 42, the time period 53 represents the time difference between the transmission of the wireless signal 31 and the transmission of the wireless signal 32. Period 54 represents the time difference between receiving the reflected signal 41 and receiving the reflected signal 42.

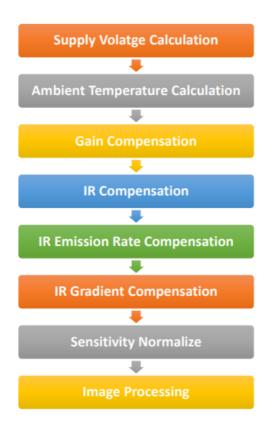
- 0006 In Fig. 2, in step S203, the signal processing module 122 performs a onedimensional Fourier transform on the mixed reflection signal to generate a onedimensional signal. The one-dimensional signal includes points corresponding to at least one object of the reflected wireless signal cloud data.
- 0007 In step S204, the signal processing module 122 can determine whether the one-dimensional signal corresponds to a living creature. If the one-dimensional signal corresponds to a biological signal, step S205 is entered. If the one-dimensional signal is not a biological signal, go back to step S201. For example, the signal processing module 122 can determine whether the mixed reflection signal contains the person's information to be monitored based on the value of each carrier in the one-dimensional signal. If multiple values of multiple carriers that can correspond to vital signs or posture changes in the one-dimensional signal are all zero, it means that the mixed reflection signal does not contain the information of the person to be monitored (or that multiple wireless signals have not scanned creatures in a specific area). Therefore, the signal processing module 122 can determine that the one-dimensional signal is not a

signal corresponding to a creature. On the other hand, if at least one of the multiple values of multiple carriers that can correspond to the vital signs in the one-dimensional signal is not zero, it means that the mixed reflection signal contains information about the person to be monitored (or represents multiple wireless signals have scanned creatures in a specific area). Therefore, the signal processing module 122 can determine that the one-dimensional signal corresponds to a creature.

- 0008 In step S205, the signal processing module 122 generates a filtered signal based on the one-dimensional signal. Specifically, the signal processing module 122 determines that the specific carrier corresponds to a non-living creature according to the value of the specific carrier of the one-dimensional signal, and in response to the specific carrier corresponding to the non-living creature, convert the specific carrier from the one-dimensional Signal filtering to generate filtered signals.
- 0009 In step S206, the signal processing module 122 may perform band-pass filtering on the filtered signal to generate a first processed signal. The purpose of this step is to filter out signals that are not vital signs signals. Generally speaking, the human breathing signal frequency is approximately between 0.1 Hz and 0.6 Hz, and the frequency of the human heartbeat signal is approximately between 0.8 Hz and 4 Hz. Therefore, the signal processing module 122 can be configured to filter signals below 0.1 Hz and above 4 Hz, thereby generating the first processed signal.

In step S207, the signal processing module 122 can determine the monitored person's vital signs according to the first processed signal, where the vital signs include breathing rate and heart rate.

# IR Sensor temprature algorithm



#### Professional installation instruction

#### 1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

#### 2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 20 cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

#### 3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/IC limit and is prohibited.

# 4. Installation procedure

Please refer to user's manual for the detail.

#### 5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

#### **FAQ**

# Q: Is the product suitable for diagnostic purposes?

A: No, this product is not suitable for use as a basis for diagnosis. It is meant to assist medical care personnel under professional judgment.

# **Documents / Resources**



StreamTeck T60 Wireless Physiological Transmitter and Central Monitorin g Software [pdf] User Manual

STKT60, 2AY6FSTKT60, T60 Wireless Physiological Transmitter and Central Monitoring Software, T60, Wireless Physiological Transmitter and Central Monitoring Software, Physiological Transmitter and Central Monitoring Software, Transmitter and Central Monitoring Software, Central Monitoring Software, Monitoring Software, Software

#### References

- User Manual
- StreamTeck
- ♦ 2AY6FSTKT60, Central Monitoring Software, Monitoring Software, Physiological Transmitter and Central Monitoring Software, Software, STKT60, StreamTeck, T60, T60 Wireless Physiological Transmitter and Central Monitoring Software, Transmitter and Central Monitoring Software, Wireless Physiological Transmitter and Central Monitoring Software

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