

PREXISO™

Non-contact Infrared Thermometer Manual instruction



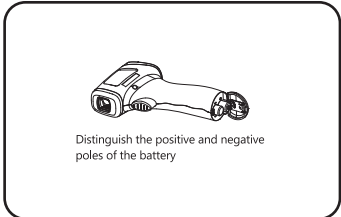
Compliant to IEC 60601-1, IEC 60601-1-11, IEC 60601-1-2, IEC 62304, IEC 62133-1, ISO 80601-2-56, ASTM E1965-98
Please read this manual instruction thoroughly before use.

www.prexiso-eu.com

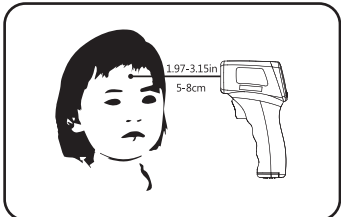
Version: V1.0 Date: 2020-04-05

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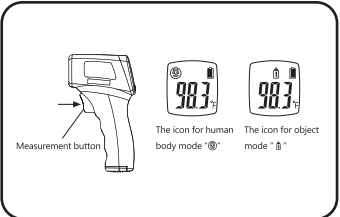
Operating instructions



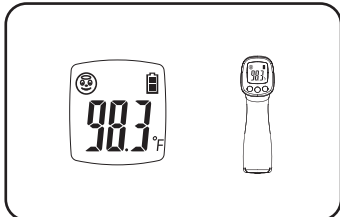
1. Take out the thermometer and open the battery lid to install 2*AAA batteries



2. Keep distance at 1.97-3.15in (5-8cm) from the thermometer probe to the middle of forehead, please do not contact forehead directly.



3. Select measurement mode and click the measurement button to start taking temperature



4. Reading displays on the screen after successful measurement

Instruction Manual

1. Introduction & classification

This is a non-contact infrared thermometer applicable to forehead measurement. The thermometer measures body temperature by collecting heat radiation emitting from forehead. New probe structure is adopted in this thermometer. It's simply operational, hygeian, reliable and highly accurate. Users can get precise reading within one second by one touch. This thermometer is cost-effective and is widely used in schools, customs, hospitals and for family use.

Intended Use & Indication for use: The Prexiso Non-contact infrared Thermometer is an infrared thermometer intended for the intermittent measurement of human body temperature in people of all ages.

This thermometer is classified as a Class IIa(for CE)/class II(for FDA) Medical Device, sorted as internally-powered equipment and type BF application device. It's prohibited to use this thermomter in flammable anesthetic gas or gas mixture of air and oxygen or nitrous oxide. This is a continuous operation equipment.

2. Working principle

Any object can generate certain proportion of infrared radiant energy as per its own temperature. The radiant energy and its wavelength distribution are subjected to its surface temperature. Based on this principle, this thermometer is designed to detect infrared radiation at 5~14um by highly precise infrared sensor. By adopting this high quality sensor plus special calculation and calibration, this thermometer is able to take accurate body temperature.

3. Safety precautions

Warning:

- Using this thermometer is not intended as a substitute for consultation with your physician. It is dangerous for users to perform a self-evaluation and self-treatment based on the measuring result. Please follow doctor's instruction.
- Keep the thermometer out of reach of children. Please consult the doctor at once in case of accidental swallow of battery or other component.
- Don't throw the battery into fire.

Notice:

- The device is precision instrument, don't drop, tramp or impose any vibration or impact on the thermometer.
- Do not touch the lens of the probe with your fingers and disassemble the device by yourself.
- Please make sure your forehead is clean before measuring forehead temperature.
- Please stay still indoors about 30 minutes after exercise, eating or bathing before measuring.
- Please place the thermometer indoors for about 30 minutes if ambient temperature varies a lot before using.
- The maximum number of temperature taking is 3 times in a consecutive way. It is possible that a proper body temperature measure is obstructed despite of a normal recovery. For continuous measurement up to 4 times or above, wait for 10 minutes before another measure.
- After measuring high temperature objects (above 158°F), it needs to stand for 12 hours to accurately measure the human body temperature.
- Please collect the record of individual temperature under the good condition of body in usual days as a reference for checking fever or not.
- Do not measure the sites of scarred tissue or tissue compromised by skin disorders because they will affect the accuracy of measurement.
- Do not measure if patient is treated with certain drug therapies because body temperature may rise in the drug within the effort time limit.
- Do not immerse the device into water or any other liquid, do not expose to the sun.
- Do not use a mobile or cordless phone near the thermometer measuring. Do not use the thermometer near a mobile or cordless phone.
- Please don't measure body temperature in strong electromagnetic interference environment (such as microwave, high frequency equipment operation environment) to ensure the accuracy of measurement data.
- This thermometer only a personal device, please do not share with others.
- Please store the thermometer according to the technical specifications.
- Keep the sensor and probe cavity clean before use and after use.

- The materials (ABS) of contact with patient has passed the ISO 10993-5 and ISO 10993-10 standard test, no toxicity, allergy and irritation reaction. They are compliant with the MDD requirements based on the current science and technology, and other potential allergic reactions are unknown.
- The patient can measure, read data and replace battery under normal circumstances and maintain the device and its accessories according to the user manual.
- The PATIENT is an intended OPERATOR.

Recommendations:

- Don't use this thermometer for other purposes.
- It is forbidden to leave the product exposed to any chemical solvent, direct sunshine or high temperature in case of damaging the product or the battery.
- Do not measure while talking on the phone.
- Please report to MANUFACTURER if any unexpected operation or events occur.

4. Features

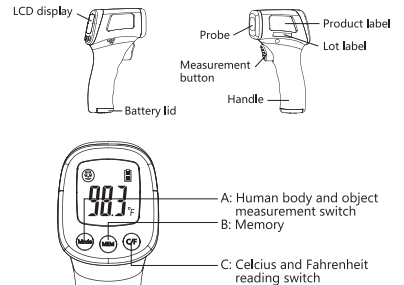
- Fast and easy measurement with high accuracy
- Excellent adaption to ambient temperature. Accurate and reliable even under complicated surrounding
- Measurement mode for human body and object available, one button to switch measurement mode
- Beeper for high temperature
- °C/°F reading available
- Automatic shut off
- Storage of last 10 readings
- 3 Colors Backlight LCD for easy reading

5. Technical parameters

Model	HW-F7
Measurement distance	1.97-3.15in (5-8cm)
Measurement	Human body 93.2°F~109.4°F (34.0°C~43.0°C) <93.2°F/34.0°C, "LO" displays >109.4°F/43.0°C, "HI" displays
	Object 32.0°F~199.4°F (0°C~93°C) <32.0°F/0°C, "LO" displays >199.4°F/93°C, "HI" displays

Measuring accuracy(at laboratory conditions)	For forehead temperature ±0.4°F/0.2°C during 93.2°F~107.6°F (34.0°C~42.0°C) ±0.5°F/0.3°C during 107.7°F~109.4°F (42.1°C~43.0°C)
Resolution	0.1°F/0.1°C
Working condition	59.0°F~104°F (15°C~40°C) RH≤95% Non-condensing "ERR" displays when it's not used under working condition
Storage condition	-13°F~131°F (-25°C~55°C) RH≤95% Non-condensing
Power supply	d.c. 3V 2*AAA Batteries
Power consumption	When off≤10uW When measurement≤30mW
Memory	Storage of last 10 readings
Display	3 Colors Backlight LCD (red, green, orange)
Reading scale	Celsius or Fahrenheit
Automatic shut off	In 30 seconds
Dimensions	5.4 x 3 x 1.5 in (136 x 76.5 x 38 mm)
Net weight	0.165 lb / (75 g)

6. Illustration



7. Display & icons

Function definition	Icon	Details
Battery level		When it is visible The battery is in low level, but the thermometer is still functional properly. Please replace battery asap.
		When it flashes The battery is exhausted and thermometer can not function properly. Please replace battery immediately.
Measurement mode		When it is visible Human Body mode
		Object mode
Reading scale		Celsius reading
		Fahrenheit reading
Reading display		Temperature value
Memory		Temperature value of previous measurement

8. Function definition of buttons

Buttons	Description
Mode	To switch measurement mode between human body and object
MEM	To track last 10 readings
C/F	To switch unit of temperature reading

9. Setting

User can change reading scale between Celsius and Fahrenheit, and change measurement mode between human body mode and object mode.

Measurement mode setting:

When thermometer is on, it displays current measurement mode (fig.9.1). Press the "Mode" button to change measurement mode (fig.9.2).

Reading scale setting:

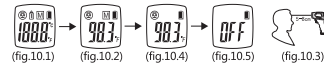
When thermometer is on, it displays current Reading scale. Press the "C/F" button to select reading scale.

Notice:

- Temperature under human body mode is obtained from dynamic compensation of environmental temp and forehead surface temp.
- Object temperature mode is to test surface temperature of an object. The temperature get from forehead under this mode is merely temperature of forehead surface but not body temperature.

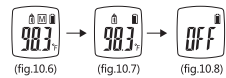
10.1 Body temperature

- Press measurement button to turn on thermometer and it displays boot screen (fig.10.1). After POST and two beeps, it will display value of last reading and be ready for measurement (fig.10.2).
- Make sure the thermometer is under body mode.
- Keep distance at 1.97 to 3.15in from thermometer probe to the middle of forehead (fig.10.3). Press measurement button and then it gives a "beep" to indicate measurement is finished and value will be displayed (fig.10.4). If measurement value exceeds alarm value (Defaulted value is 100.4°F), it gives "beep, beep, beep" as a indication.
- After measurement, if the thermometer is idle for 30 seconds, it will display "OFF" (fig.10.5) and gives a "beep" and shut off automatically.



10.2 Object temperature

- Press measurement button to turn on thermometer (fig.10.6).
- Make sure the thermometer is under object mode.
- Keep vertical distance at 1.97 to 3.15in from object to measurement probe. Press measurement button and then it gives a "beep" to indicate measurement is finished and value will be displayed (fig.10.7).
- After measurement, if the thermometer is idle for 30 seconds, it will display "OFF" (fig.10.8) and gives a "beep" and shut off automatically.



Notice:

- The value under this mode is object surface temperature instead of core temperature.
- The default value of emdifared emissivity is 0.95. The reading will deviate from the real temperature because of different emissivity. For example, the reading on stainless steel is obviously lower than real temperature. BE CAUTIOUS FOR SCALDING.

10.3 Exceeding measurement range

Body mode:

When measurement value is lower than 93.2°F (34.0°C), it displays Lo (fig.10.9) and gives "beep, beep, beep, beep", with the color of backlight turning red.

When measurement value is higher than 109.4°F (43.0°C), it displays Hi (fig.10.10) and gives "beep, beep, beep, beep", with the color of backlight turning red.

Object mode:

When measurement value is lower than 32°F (0°C), it displays Lo (fig.10.11) and gives "beep, beep, beep, beep", with the color of backlight turning red.

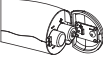
When measurement value is higher than 199.4°F (93°C), it displays Hi (fig.10.12) and gives "beep, beep, beep, beep", with the color of backlight turning red.

Notice:
When surrounding temperature is lower than 59°F (15.0°C) or higher than 104°F (40.0°C), it displays Err (fig.10.13) and gives "beep, beep, beep, beep", with the color of backlight turning red. Under this condition, it's not allowed to use this thermometer or accuracy is not assured.



11. Battery replacement

- Open the battery lid and take out exhausted battery.
- Put into 2 AAA batteries and close up battery lid. After new battery is installed, the color of backlight turns in the order of green, orange and red, each of them flashing one time respectively, with a "beep" heard. If no beep is heard, please check if the positive and negative pole is correct (see fig.11.1).



- Notice:
- Take out battery in case the thermometer is not used for a long time. Don't put the battery to fire.
 - Dispose battery according to local regulations.

12. Maintenance & tips

- Make sure the sensor and probe cavity is clean otherwise it will affect accuracy. Cleaning method for probe:
 - Use the cotton stick or soft cloth with water or alcohol to wipe the casing.
 - Use the cotton stick or soft cloth with alcohol to wipe the sensor surface or probe cavity gently. Don't use thermometer before alcohol is vaporized.
- Read this manual book thoroughly before use. Make sure battery is well installed. It is not allowed to put the thermometer in any liquid or expose to strong sunlight or extremely low temperature.

- Strong crash or hit to the product will cause its damage.
- Do not dismantle this thermometer by yourself.
- Keep the thermometer from children's reach.
- Do not use the thermometer under circumstance of strong electromagnetic interference.
- The measurement results are probably fluctuating due to improper measurement ways.
- Please practice adequate measurements in order to improve your skill.
- The measurement results can not supersede a doctor's diagnosis.
- Special maintenance is unnecessary for this thermometer. Please contact distributor or manufacturer in case of malfunction.

13. Trouble shooting

Description	Solutions
LCD display "LO" or "HI"	1. Breeze, water, sweating, cosmetic on forehead may affect measurement. 2. While if the testing environmental temp changes so enormously or if the thermometer is used directly from high-temp object to very low-temp one, the measurement difference will happen. The thermometer should be kept in a relatively stable environment for 30 minutes to get heat balance before starting a new measurement. 3. Ensure measurement distance is 1.97 to 3.15in.
No response when pressing measurement button	1. Take out and reassemble battery.
No display or improper display	1. Take out battery and install battery again.
Shut off right after switching on	1. Check battery level or take out the battery and install the battery again.

Standard list

IEC 15223-1	Symbols for use in the labeling of medical devices
EN 1041	Information supplied by the manufacturer with medical devices
IEC 60601-1	Medical electrical equipment Part 1: General requirements for basic safety and essential performance
IEC 60601-1-2	Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests
IEC 60601-1-6	Medical electrical equipment – Part 1-6: General requirements for basic safety and essential performance – Collateral standard: Usability
IEC 60601-1-11	Medical electrical equipment – Part 1-11: General requirements for basic safety and essential performance – Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in home healthcare environment
ASTM E1965-98	Standard Specification for Infrared Thermometers for Intermittent Determination of Patient Temperature

ISO 80601-2-56	Medical electrical equipment part 2-56: particular requirements for basic safety and essential performance of clinical thermometers for body temperature measurement
IEC 62304	Medical device software – Software life-cycle processes
IEC 62366	Medical devices – Application of usability engineering to medical devices
ISO 10993-1	Biological evaluation of medical devices – Part 1: Evaluation and testing within a risk management process

Disposal
Dispose of the device in accordance with the regulation applicable at the place of operation. Dispose of at public collection point in the EU countries - 2002/96/EC WEEE Directive.
If you have any queries, please refer to the local authorities responsible for waste disposal.

NOTES:

- Please act according to the native law to proceed to handle the battery and wastes.
- Take out the battery if you are not going to use the unit for a long time.
- Dispose of empty battery at your retail store or at appropriate collection sites according to national or local regulations to protect environment.
- Dispose of at public collection point in the EU countries - 2006/66/EC Directive.

Normalized symbols

	Read instruction manual before use
	Type BF applied part
	Batch
	Serial number
	Manufacturer information
	Complies with the European Medical Device Directive (93/42/EEC and amended Directive 2007/47/EC. Notified Body is SGS
	Complies with RoHS directive 2011/65/EU of the European parliament and of the council of 8 June 2011.
	Disposal in accordance with Directive 2002/96/EC (WEEE)
	Follow operating instructions
	IP code of the device: this device's grade of against ingress of solid foreign objects – ≥12.5mm diameter (and the against access to hazardous parts with finger); the grade of waterproof is dripping (15° tilted).

14. EMC Declaration

- Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
- Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this Infrared Thermometer could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Infrared Thermometer, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

Guidance and manufacturer's declaration – electromagnetic emission – for all EQUIPMENT AND SYSTEMS

Guidance and manufacturer's declaration – electromagnetic emission		
The infrared thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of infrared thermometer should assure that it is used in such an environment.		
Emissions test	Emissions test	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Infrared Thermometer uses RF energy only for its internal function. There for, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Infrared Thermometer suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	N/A	
Voltage fluctuations flicker emissions IEC 61000-3-3	N/A	

Guidance and manufacturer's declaration – electromagnetic immunity – for all EQUIPMENT AND SYSTEMS

Guidance and manufacturer's declaration – electromagnetic emission		
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The infrared thermometer is intended for use in the electromagnetic environment specified below.
The customer or the user of infrared thermometer should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0 % UT; 0.5 cycle g) At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 cycles Single phase: at 0°	N/A	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Infrared thermometer requires continued operation during power mains interruptions, it is recommended that the Infrared thermometer be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	0 % UT; 250/300 cycle	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

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

Guidance and manufacturer's declaration – electromagnetic emission – for all EQUIPMENT AND SYSTEMS

Guidance and manufacturer's declaration – electromagnetic immunity			
The infrared thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of infrared thermometer should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 6 V in ISM and amateur radio bands between 0.15 MHz and 80 MHz	N/A	Portable and mobile RF communications equipment should be used no closer to any part of the infrared thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = \sqrt{\frac{3}{f}} \cdot \sqrt{P}$ where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol:
Radiated RF IEC 61000-4-3	10 V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2:2014)	10 V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2:2014)	where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic is affected by absorption and reflection from structures, objects and people.

a, The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz. The amateur radio bands between 0.15 MHz and 80 MHz are 1.8 MHz to 2.0 MHz, 3.5 MHz to 4.0 MHz, 5.3 MHz to 5.4 MHz, 7 MHz to 7.3 MHz, 10.1 MHz to 10.15 MHz, 14 MHz to 14.2 MHz, 18.07 MHz to 18.17 MHz, 21.0 MHz to 21.4 MHz, 24.89 MHz to 24.99 MHz, 28.0 MHz to 29.7 MHz and 50.0 MHz to 50.1 MHz.
b, Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Infrared thermometer is used exceeds the applicable RF compliance level above, the Infrared thermometer should be observed to verify normal operation, if abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Infrared thermometer.
c, Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Recommended separation distances between portable and mobile RF communications equipment and the Infrared thermometer

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

Separation distance according to frequency of transmitter				
Rated maximum output of transmitter W	150 kHz to 80 MHz in ISM and amateur radio bands	150 kHz to 80 MHz in ISM and amateur radio bands	180 MHz to 800 MHz	800 MHz to 2.7 GHz
0.01	$d = \sqrt{\frac{3}{f}} \cdot \sqrt{P}$	$d = \sqrt{\frac{12}{f}} \cdot \sqrt{P}$	0.035	0.07
0.1	0.12	0.20	0.11	0.22
1	0.38	0.63	0.35	0.70
10	1.2	2.00	1.10	2.21
100	3.8	6.32	3.5	7.0

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.

15. Two (2) years limited warranty

Two-Year Limited Warranty. This product is warranted to the original purchaser from the original purchase date for two years subject to the warranty coverage described herein. Please retain your receipt. This product is warranted to the original user to be free from defects in material and workmanship. If you believe that the product is defective at any time during the specified warranty period, pls contact Prexiso customer service agent by sending email to info@prexiso-eu.com. This warranty does not cover (1) Part failure due to normal wear or product abuse; (2) Any parts have been altered or modified by anyone other than an authorized Prexiso personnel or failure to install and operate equipment according to the guidelines put forth in the instruction manual; (3) Any products or parts used for rental purposes, damage resulting from shipping (claims must be filed with freighter), accident, abuse, act of God, misuse, or neglect. Prexiso will replace or repair the defective unit, at its option, subject to verification of the defect. Any implied warranties arising from the sale of a Prexiso product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. Prexiso shall not be liable for loss of use of the product or other incidental or consequential damages, expenses, or economic loss, or for any claim of such damage, expenses, or economic loss. This warranty excludes any accessories. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Manufacturer: Dongguan Simzo Electronic Technology Co., Ltd.
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