

# Adtemp™ 658 Electronic Stethoscope

INSTRUCTIONS  
FOR USE



**ADC**<sup>®</sup>  
AMERICAN DIAGNOSTIC CORPORATION

## ADC® Adscope® 658 Electronic Stethoscope

Thank you for choosing the ADC® Adscope® 658 Electronic Stethoscope. We're proud of the care and quality that goes into the manufacture of each and every item that bears our name. Only the finest materials are used to assure you of a timeless instrument designed for optimum performance.




You'll quickly appreciate the results, for you now own one of the finest electronic stethoscopes that money can buy. With proper care and maintenance, your Adscope 658 is sure to provide you with many years of dependable service. Please read the following instructions and general information which will prove helpful in allowing you to enjoy your ADC product.



### Device Description and Intended Use

The Adscope 658 Electronic Stethoscope is intended for medical diagnostic purposes only. It can be used for the amplification of heart, lung, and other body sounds. Frequency selection and volume buttons enable operator control. The 658 can be used on patients of any age undergoing a physical assessment. This device is designed for use in a professional setting by a healthcare practitioner.

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### Symbol Definitions

Symbol	Definition
	Important warning/caution
	Not made with natural rubber latex
	Equipment type is BF

Symbol	Definition
	Low power indication
	Manufacturer's information
<b>SN</b>	Serial number

## General Warnings

A warning statement in this manual identifies a condition or practice which, if not corrected or discontinued immediately, could lead to patient injury, illness, or death.

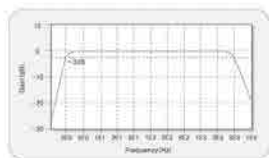
- Do not tap hard or scratch diaphragm of the chestpiece while wearing the eartips with the stethoscope powered on.
- Do not bend or apply excessive force to the stethoscope.
- Do not disassemble, repair, or modify the device. When repair is needed, contact the ADC Customer Service Dept. (see reverse side).
- Avoid any place of high humidity or wet conditions such as a bathroom. Pressing the power button while the stethoscope is wet could cause irreparable damage to the device.
- Do not immerse in water. This product is not water resistant, avoid excessive moisture.
- Sounds might be distorted if the battery level is low.
- This product is intended for use by a medically trained specialist.
- Fully charge battery before first use.
- This scope cannot be used while being charged.
- Incorrect replacement of lithium batteries will result in an unacceptable risk.
- Replacement of lithium batteries by untrained personnel can result in a hazard.
- Do not dispose of in municipal waste. Waste batteries may be returned to ADC's service center at: 55 Commerce Drive, Hauppauge NY 11788 or you may contact your local EPA office for guidance on the proper disposal of lithium ion batteries.

## Caution:

- Avoid direct exposure to sunlight, heating fans, or heating appliances.
- Avoid strong magnetic fields beside the device. These could cause it to malfunction.
- Do not use the stethoscope for purposes other than the intended use.
- Federal law restricts this device to sale by or on the order of a physician or licensed healthcare practitioner.
- Always check security of the eartips before use.

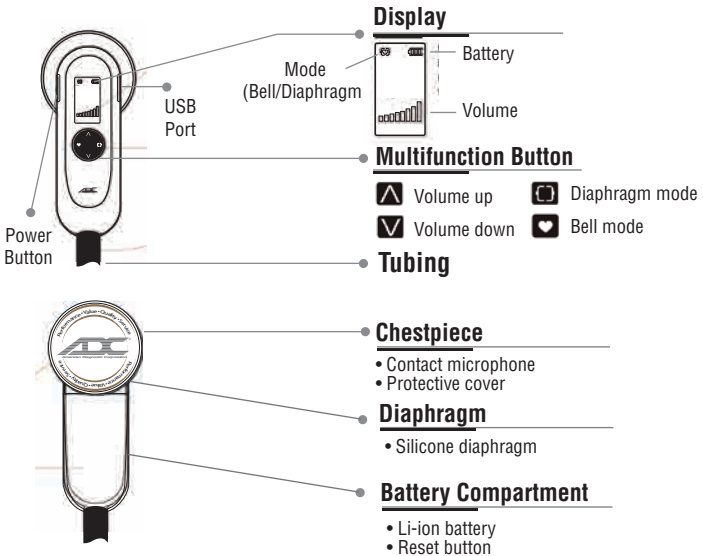
## Adscope 658 Electronic Stethoscope Features:

- Improves low-frequency sound transmission characteristic with the use of a piezopolymer film contact microphone
- MPU controlled automatic power off
- Mode selection function (bell, diaphragm)
- 8-level digital volume control
- Holds last mode and volume setting



An acoustic microphone used in most electronic stethoscopes may have frequency characteristics not suitable for the body sounds, especially for the low-frequency heart sounds. Other stethoscopes provide the internal body sounds not directly from the body surface, but through the air layer between the body surface and the microphone. The 658 solves these problems with the use of a piezopolymer film contact microphone which is the heart of the 658. The 658 has wide-frequency characteristics and enables you to detect the heart and lung sounds more precisely.

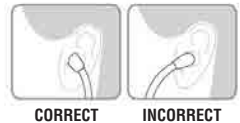
### Name and Function of Each Part



### Operation of the Headset

The Adscope 658 electronic stethoscope is designed to provide comfortable ear fittings and the best sound transmission. The binaurals (ear tubes) are angled at 15° to permit a comfortable, acoustically sealed aural fit.

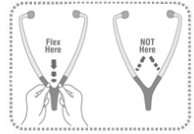
Eartips should point forward, towards the bridge of the nose, to fit properly.



## Adjusting the Spring Tension in the Headset

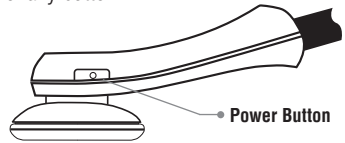
To reduce the tension, grip the binaurals firmly using both hands with fingers at the center of the “Y” in the tubing, thumbs at each side where the tubing branches out. Flex binaurals gradually until the desired tension is obtained.

To increase the tension, grip the binaurals in the hand and squeeze the binaural tubes together gradually. Excessive adjustment of the spring tension could weaken the spring.



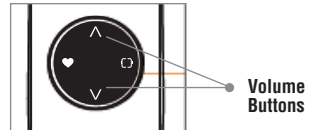
## Power ON/OFF

Press the power button to turn the 658 on. The multifunction button will turn blue, and the LCD will show the selected mode and volume. The backlight will stay on for fifteen seconds. The unit will remain on for up to three minutes, but the display will remain dark to conserve power - A quick press of any button will awaken the unit. Press the Power button for two seconds (or more) then release to manually power down the unit. The 658 turns off automatically three minutes after the last button is pressed.



## Volume Control

While auscultating, press the volume button ‘^’ to increase the sound level, and press the volume button ‘v’ to decrease the sound level. The volume is divided into eight levels.



## Mode Selection

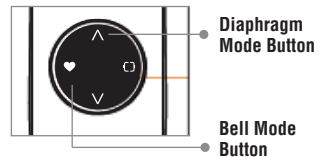
After the 658 powers on, pressing either the Bell or Diaphragm mode button will change the mode.

 B - Bell (Low Frequency 15-200Hz)

 D - Diaphragm (High Frequency 100-500Hz)

**Bell** mode provides excellent detection of low & medium-pitched heart sounds and murmurs.

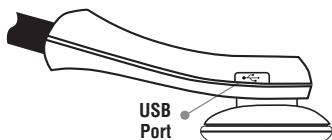
**Diaphragm** mode is designed for the detection of pulmonary sounds and high-pitched murmurs, clicks, and ejection sounds.



## Battery Charging

When you see the low battery icon on the LCD display, you'll need to charge the unit. To charge, make sure the unit is off, then open the USB cover and use the enclosed cable to connect the scope to a power source. A full charge takes about 70 minutes.

When the unit is off and the battery is charging, the backlight display will be red. A blue backlight while charging simply means the unit is on, and does not reflect when charging is complete. To confirm that the unit is fully charged, remove the USB cable, power on, and check the battery icon.



### NOTE:

- Fully charge before first use.
- The 658 scope cannot be used while it is being charged.

**Cell Model No:** PR-632540N

**Product Name:**

Secondary ( Rechargeable ) 3.7V Li-ion  
Battery 620mAh, 2.294Wh

**TCL Hyperpower Batteries Inc**

No.,3,Hechangdongliu Rd.  
Huitai Industrial Zone,

Huicheng District, Huizhou,  
Guangdong,P.R.China,516006

## Replacing the Eartips

**To replace Adsoft™ Plus Eartips:** Slide the eartip over adapter until it locks tight into internal channel. Repeat steps for second aural tube. Eartips may be removed from binaurals for a thorough cleaning. Periodically check that eartips are tightly secured to binaurals.



**Caution:** Always check security of eartip before inserting in ears.

## Replacing the Diaphragm

Your 658 chestpiece is equipped with an ultrasensitive piezoelectric sound transducer, covered by a silicone diaphragm.

**To remove the silicone diaphragm:** Gently pull off one side of the diaphragm from the rim, and continue around edge until the diaphragm comes completely off (Figure 1).

**To replace the silicone diaphragm:**

Clip one edge of the new diaphragm on the chestpiece rim and gently stretch until entire diaphragm inserts fully in the track around the rim (Figure 2).

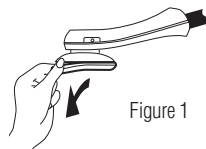


Figure 1



Figure 2

**NOTE:** Do not touch piezoelectric sound transducer located in the center of the chestpiece under the diaphragm, as it is extremely sensitive and susceptible to damage (Figure 3).



Figure 3

## Care and Maintenance

- Avoid extreme heat, cold, solvents, or oils.
- Do NOT leave exposed to direct sunlight for prolonged periods of time.
- The headset can be wiped down with alcohol or mild soapy water.
- Eartips may be removed from binaurals for a thorough cleaning.
- Periodically check that eartips are tightly secured to binaurals.
- Do NOT immerse stethoscope in any liquid or subject to steam sterilization.
- Chestpieces and diaphragms can be wiped down with 70% isopropyl alcohol for cleaning purposes.

It is unnecessary to disassemble the unit for cleaning. Use a slightly moistened cotton cloth with alcohol to clean chestpiece diaphragm, binaurals, and eartips. Be careful to prevent alcohol seepage under the diaphragm, as it may cause significant damage to the microphone and electronic circuits.

**Caution:** Never immerse instrument in any liquid. Do not apply excessive force to the diaphragm. Your 658 has a replaceable diaphragm with a piezopolymer film contact microphone positioned behind it. The chestpiece is not user-serviceable and should never be disassembled, except to replace the diaphragm.

To order any replacement parts, contact our Customer Service department at **1-800-232-2670**.

## Troubleshooting Solutions

Troubleshooting Possible Problems	
PROBLEM	SOLUTION
Battery will not charge	Check battery connection. If battery is properly connected and will not charge, battery must be replaced. Contact your local ADC dealer.
Poor sound quality, intermittent sound amplification, or no sound amplification	Contact your local ADC dealer for warranty service on your stethoscope.
Damaged/worn chestpiece diaphragm	Contact your local ADC dealer for warranty service on your stethoscope.
Low battery icon is displaying	Charge battery. If icon displays frequently despite regular charges contact your local ADC dealer for replacement battery.

## Specifications

ITEM	CONTENT		
Sensor:	Piezoelectric sound transducer activated by polycarbonate diaphragm		
Voltage:	3.7V Li-polymer		
Power Dissipation:	0.115VA (3.7V * 31mA)		
Filter Range:	Microphone	5Hz - 5,000Hz	
	Filter Range	Bell Mode	15Hz - 200Hz
		Diaphragm Mode	100Hz - 500Hz
Battery Life	20 hours under continuous power on		
Charging Time	70 minutes		
Amplifier	Amplification range	6dB - 18dB	
Control Volume	Control Volume	Digital volume (8 step), 3dB/step	

### Operating Environment

- Temperature: -4°F to 104°F (-20°C ~ 40°C)
- Humidity: 20 to 95% Relative humidity
- Atmospheric Pressure: 101.325 kPa (760mmHg)

### Storage Environment

- Temperature: -4°F to 122°F (-20°C ~ 50°C)
- Humidity: 20 to 95% Relative humidity

### Regulatory Standards

EN 60601 1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012  
 EN 60601-1-2:2007+AC: 2010

### Guidance and Manufacturer's Declaration

Below cables information are provided for EMC reference.

Cable	Max. cable length, Shielded/unshielded		Number	Cable classification
DC Power Line	0.92m	Shielded	1 Set	DC Power



### **Important information regarding electromagnetic compatibility (EMC)**

This electrical medical equipment needs special precautions regarding EMC and should be put into service according to the EMC information provided in the user manual. The equipment conforms to this IEC 60601-1-2:2014 standard for both immunity and emissions. Nevertheless, special precautions need to be observed:

**Warning:** The equipment is intended used in professional healthcare facility environment except for near active HF SURGICAL EQUIPMENT and the RF shielded room of an ME SYSTEM for magnetic resonance imaging, where the intensity of EM DISTURBANCES is high. Essential Performance of the device includes supplying continuous sound output during a medical evaluation equal to or below 92.1 dB.

**Warning:** 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.

**Warning:** The use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

**Warning:** 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 658, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

**Warning:** When the AC input voltage is interrupted, the equipment will shut down and if the power supply restored, it should be recovered by operator manually. This degradation could be accepted because it will not lead to unacceptable risks and it will not result in the loss of basic safety or essential performance.

**Warning:** Accessories and cables provided with this device have not been tested or verified for use with other medical electrical equipment and should not be considered interchangeable.

**EMI Compliance Table (Table 1)**

<b>Table 1 - Emission</b>		
<b>Phenomenon</b>	<b>Compliance</b>	<b>Electromagnetic environment</b>
RF emissions	CISPR 11 Group 1, Class B	Professional healthcare facility environment
Harmonic distortion	IEC 61000-3-2 Class A	Professional healthcare facility environment
Voltage fluctuations and flicker	IEC 61000-3-3 Compliance	Professional healthcare facility environment

**EMS Compliance Table (Tables 2-4)**

<b>Table 2 - Enclosure Port</b>		
<b>Phenomenon</b>	<b>Basic EMC Standard</b>	<b>Immunity test levels</b>
		<b>Professional healthcare facility environment</b>
Electrostatic discharge	IEC 61000-4-2	±8 kV contact ±2kV, ±4kV, ±8kV, ±15kV air
Radiated RF EM field	IEC 61000-4-3	3V/m 80MHz-2.7GHz 80% AM at 1kHz
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	Refer to table 3
Rated power frequency magnetic fields	IEC 61000-4-8	30A/m 50Hz or 60Hz

<b>Table 3 – Proximity fields from RF wireless communications equipment</b>		
<b>Test Frequency (MHz)</b>	<b>Band (MHz)</b>	<b>Immunity test levels</b>
		<b>Professional healthcare facility environment</b>
385	380-390	Pulse modulation 18Hz, 27V/m
450	430-470	FM, $\pm 5$ kHz deviation, 1kHz sine, 28V/m
710 745 780	704-787	Pulse modulation 217Hz, 9V/m
810 870 930	800-960	Pulse modulation 18Hz, 28V/m
1720 1845 1970	1700-1990	Pulse modulation 217Hz, 28V/m
2450	2400-2570	Pulse modulation 217Hz, 28V/m
5240 5500 5785	5100-5800	Pulse modulation 217Hz, 9V/m

<b>Table 4 – Input a.c. power Port</b>		
<b>Phenomenon</b>	<b>Basic EMC Standard</b>	<b>Immunity test levels</b>
		<b>Professional healthcare facility environment</b>
Electrical fast transients/burst	IEC 61000-4-4	$\pm 2$ kV 100kHz repetition frequency
Surges line-to-line	IEC 61000-4-5	$\pm 0.5$ kV, $\pm 1$ kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands between 0.15MHz and 80MHz 80%AM at 1kHz
Voltage dips	IEC 61000-4-11	0% UT; 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°
		0% UT; 1 cycle and 70% UT; 25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11	0% UT; 250/300 cycles

## Warranty

ADC® warrants its products against defects in materials and workmanship under normal use and service as follows:

1. Warranty service extends to the original purchaser from the date of purchase.

**2 years - Electronic Chestpiece**

**Lifetime - Binaurals & Tubing**

2. The entire stethoscope is warranted. This warranty is only valid if the product is registered online at [www.adctoday.com](http://www.adctoday.com).

**What Is Covered:** Repair, or replacement of parts, and labor.

**What Is Not Covered:** Transportation charges to ADC. Damages caused by abuse, misuse, accident, or negligence, incidental, special, or consequential damages. Batteries or damage from old batteries is not covered by the warranty. Some states do not allow the exclusion or limitation of incidental, special, or consequential damages, so this limitation may not apply to you.

**To Obtain Warranty Service:** Send item postage paid to ADC, Attn: Service Dept., 55 Commerce Dr., Hauppauge, NY 11788. Please include your name and address, daytime phone no., proof of purchase, and a brief note explaining the problem.

**Implied Warranty:** Any implied warranty shall be limited in duration to the terms of this warranty and in no case beyond the original selling price (except where prohibited by law). This warranty gives you specific legal rights and you may have other rights which vary from state to state.

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ADC®  
55 Commerce Drive  
Hauppauge, NY 11788

Inspected, assembled and  
packaged in the U.S.A.  
Chestpiece made in China  
Headset made in Taiwan

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toll free: 1-800-232-2670  
fax: 631-273-9659

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