Star

CORDLESS PROPHY HANDPIECE INSTRUCTION MANUAL



DENTALEZ

English

Thank you for purchasing iStar.

Please read this Operation Manual to ensure proper operation and maintenance of the product. Keep this Operation Manual available for future reference.

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USER AND INDICATIONS FOR USE

User: Licensed Dental Professionals

Indications for Use: iStar is a cordless prophylaxis handpiece for use with disposable prophylaxis angles in hygiene operatory to perform cleaning and polishing procedures on teeth.

WARNING

Do not use this product in the vicinity of explosive substances and flammable materials.

NOTICE • It is the responsibility of the Dental Healthcare Professional to determine the appropriate uses of this product and to understand applicable industry and governmental agency recommendations for infection control in dental healthcare settings.

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A CAUTIONS FOR HANDLING AND OPERATION

- Please read these instructions carefully and use only for intended purpose.
- Safety instructions are intended to avoid potential hazards that could result in personal injury or damage to the device.

Safety instructions are classified as follows in accordance with the degree of risk.

Classification	Degree of Risk
	Hazard that could result in death or serious injury if the safety instructions are
(DANGER	not followed.
△ WARNING	Hazard that could result in serious injury or damage to the device if the safety
1 WARINING	instructions are not followed.
	Hazard that could result in moderate injury or damage to the device if the
11 CAUTION	safety instructions are not followed.
NOTICE	General product specification information highlighted to avoid product
NOTICE	malfunction and reduction in performance.

△ DANGER

- Do not attempt to disassemble or tamper with the product or tamper with the mechanism except
 as specified by StarDental in this Operation Manual. Unauthorized modification or repairs may
 cause injury, electric shock, or fire.
- Do not handle the AC adapter with wet hands. Wet hands coming into contact with electricity may result in electric shock.
- Do not wet the handpiece motor with a disinfectant solution or other fluids. The protective function
 of the rechargeable battery may become damaged which may result in overheating, rupture, or
 explosion due to the abnormal current or voltage to the battery.
- Should the rechargeable battery leak or the motor casing become deformed or discolored, immediately stop use and contact your Authorized StarDental Dealer for service. Using the handpiece under these abnormal conditions may cause injury or damage to property.
- Should battery fluid leak and get into patient's or user's eyes, immediately flush eyes thoroughly
 with clean water and seek medical attention. If left untreated this condition may result in
 blindness.
- Do not charge, use or store the product in direct sunlight, a vehicle, fire, stove, or other location where temperatures may be outside the range shown in this manual. This may result in overheating, smoking, reduction in performance or reduction in the life of the rechargeable battery.
- Never use an AC adapter other than the one supplied for this product. This may cause the
 product to fail.
- Do not heat the handpiece motor or dispose of in a fire. This may cause overheating, smoking, rupture, or explosion due to melting of the insulator in the internal battery, damage to the gas relief valve or safety mechanism, or ignition of the battery fluid.
- Do not pierce the handpiece motor, hit it with a hammer, or step on it. This may cause overheating, smoking, rupture, or explosion due to an internal short-circuit as a result of rupture or deformation to the internal battery.
- If the battery leaks or a strange smell comes from the handpiece, immediately discontinue use and keep the handpiece away from fire and combustible materials. This may cause smoking, rupture, or explosion due to battery fluid catching fire.

⚠ WARNING

The product may malfunction when used in the presence of electromagnetic interference. Do not
use the product in the vicinity of any device which emits electromagnetic waves. Turn off the Main
Power Switch of the product if an ultrasonic oscillation device or an electrode knife is being used
nearby.

- Using a handpiece motor, AC adapter, or accessories other than those provided by StarDental may reduce the electromagnetic compatibility performance of this product (EMC) (An emission increase or immunity decrease may occur).
- iStar should not be used adjacent to, or stacked with, other equipment. If adjacent or stacked use
 is necessary, iStar should be observed to verify normal operation in the configuration in which it
 will be used.
- Make sure to check the product before use by attaching Disposable Prophy Angle (DPA) and
 operating it outside the patient's mouth. If any abnormality is detected, immediately stop use and
 contact your Authorized StarDental Dealer.
- If any abnormal vibrations, overheating, noise or low power are perceived before or during use, immediately stop using the product and contact your Authorized StarDental Dealer.
- If the cause of the abnormality is a part that cannot be easily replaced or the cause of the abnormality is unknown, contact your Authorized StarDental Dealer.
- Keep away from explosive substances and flammable materials. Do not use the product on or near patients being treated with a flammable anesthetic (nitrous oxide).
- If the battery fluid leaks and adheres to the skin or clothing, immediately wash it off with clean water. This may cause skin irritation.
- This product cannot be sterilized. Do not attempt to sterilize this product.

△ CAUTION

- This product is intended for those who have received training and are licensed as a healthcare
 professional such as dentists and dental hygienists. This product is designed for use in clinical
 settings such as dental clinics, hospitals and for visiting dental professionals.
- Read this Operation Manual before use to fully understand the product functions.
- Always consider the safety of the patient when operating this product.
- Connect or disconnect the disposable prophy angle only after rotation of the handpiece has completely stopped. This may cause injury or cause damage to the connecting portion of the disposable handpiece.
- Do not drop or strike the product. This may cause electric shock or failure.
- · Always install a handpiece sleeve before use to prevent contamination of the handpiece motor.
- Clean the handpiece motor immediately after use and before storage by wiping down with isopropyl alcohol solution. Wipe all surfaces including the chuck, buttons, and bottom charge area, as all of these locations may become contaminated during use. Compliance with cleaning procedures is critical to patient safety. Information on proper maintenance of this handpiece is included in this manual.
- Do not lubricate the handpiece motor. This may cause overheating or a failure.
- Should an antiseptic solution, water, saline or other fluid come in contact with the handpiece motor or Stand, turn off the power immediately and thoroughly remove the fluid with an absorbent cloth.
- Do not clean the product with any solvent such as a paint thinner or benzene.
- Do not recharge or use near combustible materials. Heat generated during charging or use may cause ignition of combustible items.
- Do not use the product in a place where static electricity may be generated. This may damage
 the protection circuitry and cause the battery to leak.
- The rechargeable battery has a limited use. If you feel the operating time becomes shorter or the power becomes weaker the rechargeable battery should be replaced with a new one. Contact your Authorized StarDental dealer.

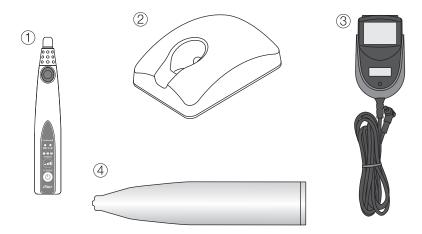
- The maximum surface temperature of the handpiece might reach 45°C depending on use.
- Extended continuous use may cause overheating of the handpiece motor which may result in an accident. Do not exceed 3 minutes of continual use and leave the handpiece off for at least 5 minutes before using again.
- This product is rated Medical Electrical equipment. Electromagnetic compatibility (EMC) is described in the enclosed documentation.
- Installation and use of this product requires special precautions regarding EMC. Refer to the enclosed EMC information.
- Portable and mobile RF communications equipment can affect Medical Electrical equipment. Do not use RF equipment near the product.
- During operation this product may interfere with computers, LAN cables in vicinity of use or could
 cause noise in radio receivers nearby.
- U.S. Federal law restricts this device to sale by or on the order of a licensed physician.

NOTICE

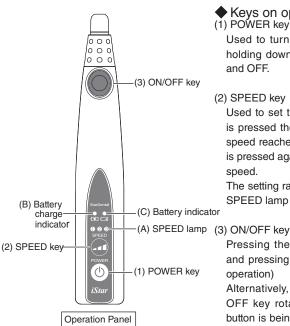
- Turn off the switch after using the product. When the product is not used for a long period, disconnect the AC adapter from the outlet.
- The AC adapter is a fast way to cut off the commercial power supply. Therefore, install the AC
 adapter in such a way that it can be quickly disconnected from the outlet in an emergency. Do not
 place any object within 6 inches of the AC adapter.
- When disconnecting the AC adapter, be sure to hold the adapter body. Disconnecting by pulling on the cord may damage the cord.
- Refer to the disposable prophy angle operation manual for the specific disposable prophy angle being used for handling and disposal information.
- Do not store the product in a place exposed to strong direct sunlight. This may cause discoloration of the handpiece body.
- Users are responsible for the operational control, maintenance and continual inspection of this
 product.
- If the product is not used for a long period check for vibration, noise and overheating before using on a patient.
- Repairs of this product are only to be performed by authorized service technicians according to StarDental requirements. Contact your Authorized StarDental Dealer if repairs are necessary.
- No special training is required prior to using this device.
- The end user shall be responsible for any judgment on use of this product on a particular patient.
- The maximum rotation speed of the handpiece motor is 2,500rpm (in the full charge state).
- The speed of the handpiece motor may get slower than the preset speed when the battery capacity lowers during use.

1 PACKAGE CONTENTS

SET COMPONENTS



	Product name	Quantity
1	Handpiece motor	1
2	Stand	1
3	AC adapter	1
4	Handpiece sleeve (25pcs.)	4



Keys on operation panel

(1) POWER key

Used to turn the power on and off. Pressing and holding down () switches the power between ON and OFF.

(2) SPEED key

Used to set the speed of the motor. Every time 🗃 is pressed the speed increases one step. After the speed reaches the maximum setting and the button is pressed again the handpiece returns to the lowest speed.

The setting range is 500 to 2,500rpm (◆Refer to the SPEED lamp on the operation panel).

Pressing the key activates the handpiece motor and pressing it again stops the rotation. (Alternate operation)

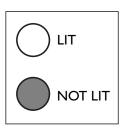
Alternatively, pressing and holding down the ON/ OFF key rotates the handpiece motor while the button is being pressed. Releasing the ON/OFF key stops rotation. (Temporary rotating operation)

Indicators on operation panel

(A) SPEED lamp

The speed is indicated by lamps.

SPEED	SPEED LAMP
500rpm	
1,000rpm	1 2 0
1,500rpm	020
2,000rpm	1 2 3
2,500rpm	1 2 3



(B) Battery charge indicator 🖼

This indicator lamp lights up during battery charging.

(C) Battery indicator <a>

Battery power is low. Charge the rechargeable battery when this indicator lamp lights up.

3-1 CONNECTING THE STAND

Insert the AC adapter plug into the connector on the back of the Stand until it stops (Fig. 1).

When disconnecting the AC adapter plug, hold the Stand firmly and pull out straight.

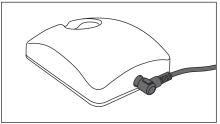


FIG. 1

3-2 CONNECTING THE DISPOSABLE HANDPIECE (DISPOSABLE PROPHY ANGLE)

NOTICE • Only use a disposable prophy angle.

- Any commercially available disposable prophy angle compatible to ANSI/ADA N. 85-1:2004 can be used with the iStar.
- · Always wear safety glasses and dust mask during use.

(1) Connecting

- 1) Turn off the handpiece motor.
- 2) Cover the handpiece with the supplied single-use handpiece sleeve (Fig. 2).
- 3) Connect the disposable prophy angle firmly to the handpiece. Check that the connection is secure by running the handpiece outside of the patient's mouth. (Fig. 3, 4).

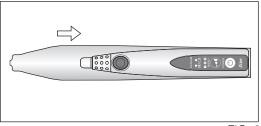


FIG. 2

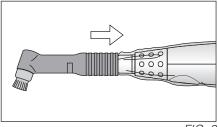
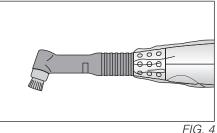


FIG. 3



- (2) When operation is complete, turn off device and disconnect the disposable prophy angle.
 - 1) Turn off the handpiece motor by depressing the Power button until the speed lights turn off.
 - 2) Pull straight on the disposable handpiece (disposable prophy angle) to remove.



- The disposable prophy angle and handpiece sleeve are disposable items intended
 for a single patient use only. Do not use the same prophy angle or handpiece sleeve
 for more than one patient. Handle the used disposable prophy angle and handpiece
 sleeve as contaminated patient care items. Dispose of these items according to
 your specific state and local medical waste regulations.
- Make sure to install a new single-use handpiece sleeve before every use to prevent contamination of the handpiece motor.

4 PREOPERATIONAL CHECKS

Before use operate the product outside the patient's mouth and check that the disposable handpiece head rotates properly. If abnormal vibration, noise or overheating is detected during testing or use immediately stop use and contact your Authorized StarDental Dealer.

5 OPERATION

5-1 Charging the Battery

- 1) Insert the AC adapter plug into a commercial AC power outlet.
- Insert the handpiece motor into the Stand. The battery charge indicator lamp lights up and charging starts.
- 3) When the battery charge indicator lamp turns off charging is completed.

The lamp lights up when remaining battery power becomes low. When the lamp is illuminated immediately charge the battery.



- Do not insert the plug into any outlet other than the one for commercial power supply.
- · Turn off the handpiece motor before charging.
- The standard charging time is Approx. 90 minutes. This may vary depending on the battery condition, age, temperature and other factors. With older batteries the charging time and operating time may become significantly shorter.
- · Only use the supplied AC adapter.
- Gently place the handpiece motor into the Stand. A strong impact may cause handpiece failure.
- When placing the handpiece motor into the Stand pay attention to the insertion direction. Excessive force is not required and it may cause damage to the handpiece.
 The handpiece may also be damaged if dropped.
- Remove the handpiece sleeve from the handpiece motor before placing it on the battery charger.
- The handpiece battery charging Stand is exclusively for the iStar handpiece motor.
 Never use the Stand for any other purpose.
- The battery will get warm during charging, but this is not a failure. Inserting or removing the plug at short intervals (approx. 5 minutes) may generate heat and interfere with charging. Charge the handpiece for at least 10 minutes.
- If not used for a long period charge the battery prior to use. If not charged periodically the battery will become fully discharged and will not charge properly. If this occurs contact your authorized StarDental dealer to purchase a new battery.



- · Use the handpiece battery charging Stand for the iStar handpiece only. Do not put any other handpiece or object (e.g., wire safety pin, etc.) into the Stand.
- Do not charge, use or store the product in direct sunlight, a vehicle in the sun, near fire or a stove, or other location where temperatures are outside the range shown in the specification table in this manual. This may result in overheating, smoking, reduction in performance or reduction in the life of the rechargeable battery.
- · Battery charge may not start in the following cases:
 - The battery temperature is too low or too high (less than approx. 10°C (50°F) or above approx. 40°C (104°F)).
 - The battery voltage is too low.
 - The battery voltage is abnormal.

- NOTICE The rechargeable battery discharges electricity gradually even in the charged and unused state. It is recommended to charge the battery immediately before using the product.
 - This product automatically turns off the power by detecting a reduction in battery voltage. However, the low voltage may not be immediately detected if the product is left under the low voltage condition before turning on the power. This is due to the properties of the battery and is not a failure.

5-2 POWFR SUPPLY

Press and hold down the POWER key to turn on the power.

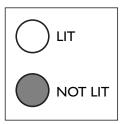
The SPEED lamp will light up on the operation panel.

5-3 SPEED SETTING

Speed is adjusted by pressing the SPEED key ... Every time you press the key the speed increases one step. After the speed reaches the maximum setting and the button is pressed again it returns to the lowest speed setting. SPEED can be adjusted during operation.

The SPEED can be selected from the following 5 settings:

SPEED	SPEED lamp
500rpm	1 0 0
1,000rpm	1 2 0
1,500rpm	020
2,000rpm	1 2 3
2,500rpm	1 2 3



5-4 OPERATION

1) When the ON/OFF key is pressed and released the handpiece motor will rotate until the key is pressed again to stop the rotation (Alternate operation).

The handpiece motor continues to rotate while pressing and holding down the ON/OFF key. Release the ON/OFF key to stop rotation (Temporary rotating operation).

2) After completion of treatment, press and hold down the POWER key to turn off the power.

5-5 AUTO POWER-OFF FUNCTION

When approximately 10 minutes have elapsed with no operation of the ON/OFF key the power is automatically turned off to save energy and prevent accidental operation. The power is NOT turned off while the handpiece motor is rotating.

5-6 LAST MEMORY FUNCTION

The current setting (last memory) is always memorized when turning off the handpiece motor.

6 MAINTENANCE

After every patient maintain the product as follows.

6-1 CLEANING THE HANDPIECE MOTOR AND STAND

- 1) Carefully remove the handpiece sleeve. Wipe down the handpiece motor with isopropyl alcohol solution. Be sure to wipe all surfaces including the chuck, buttons, and bottom charge area, as all of these locations may become contaminated during use.
- 2) Disconnect the AC adapter plug from the Stand.
- 3) Wipe the surfaces with a lightly moistened cloth then wipe with alcohol.



- Be sure to clean the handpiece motor after every patient by wiping down with isopropyl alcohol solution. Wipe all surfaces including the chuck, buttons, and bottom charge area, as all of these locations may become contaminated during use.
 Compliance with cleaning procedures is critical to patient safety.
- Do not lubricate the handpiece motor.
- Do not use any solvents such as benzene or thinner to clean the handpiece motor.
- This product cannot be sterilized. Do not sterilize it.

NOTICE

 The use of rubbing alcohol (ethanol) with its alcohol content of 76.9-81.4% (containing isoprpanol) is recommended.

7 RECHARGEABLE BATTERY

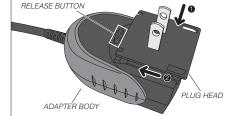
This product is rechargeable but the battery pack (lithium-ion battery) has a limited life which varies depending on use. When a shorter charging time, shorter operating time, or weaker power is observed the battery should be replaced. Contact your authorized StarDental dealer for replacement.

8 MOUNTING AND REMOVING THE AC ADAPTER PLUG HEAD

When attaching the Plug Head to the Adapter body, follow the procedure below.

- 1) Set the Plug Head on the Adapter body (1).
- 2) Slide the Plug Head to the direction of the arrow (2).

To remove, push the Release Button shown on the right figure, then remove the Plug Head from the Adapter Body.



9 PERIODIC MAINTENANCE

Perform periodic maintenance checks every three months according to the check sheet below. If any abnormalities are found, contact your Authorized StarDental Dealer for repair.

POINT TO CHECK	DETAILS	
ROTATION	Rotate the handpiece motor and check for abnormalities such as abnormal	
TIOTATION	rotation, vibration, noise, and overheating.	

10 OVERLOAD PROTECTION

10-1 PROTECTION CIRCUIT

When the product is operated under a load exceeding the allowable limit of protection, the circuit operates to stop the motor and prevent a hazard or damage. The corresponding lamp flashes on the operation panel to display the error.

10-2 ERROR DISPLAY

Where the handpiece motor stops due to an abnormality caused by a failure, overloading, breakage, misuse and other factors, the handpiece motor will display an error code on the display. When an error is displayed, turn the power off and on again to check whether the error persists. If the error is displayed again follow the solutions recommended in the table below.

Item	Error display	Error description	Cause	Check and remedy
	The SPEED	Outside the	The use	Use the product within
	lamp flashes.	range of working	temperature is	allowable temperatures.
During		temperatures	significantly low.	To reset the error turn
rotation			The use	off the power.
			temperature is	
			significantly high.	
	The battery	Battery voltage error	The voltage of the	Contact your Authorized
	charge indicator		battery pack is high.	StarDental Dealer for
	and battery			repair service.
	indicator flash.			
	The battery	Outside the	Outside the	Use the product within
During	charge indicator	range of working	range of working	allowable temperatures.
battery	flashes.	temperatures	temperatures of	
charge			the battery pack	
			(10°C or less,	
			40°C or more) or	
			thermistor failure in	
			the rechargeable	
			battery.	

11 TROUBLESHOOTING

When malfunctions occur, check the items below prior to requesting repair services. If no item is applicable or the trouble is not eliminated after following the recommended actions contact your Authorized StarDental Dealer for repair services.

<Handpiece motor, Stand, AC adapter>

		5 .
Trouble	Cause	Remedy
No battery	The AC adapter is not	Check the power connection.
charge (The	connected to the Stand.	
CHARGE lamp	The AC adapter plug is not	
does not light	inserted into the outlet or	
up).	no electricity is provided to	
',	the outlet.	
	Poor connection between	Contact your Authorized StarDental Dealer.
	the Stand and handpiece	
	motor.	
	Rechargeable battery in the	No problem.
	full charge state or close to	
	it.	
	The temperature of the	The battery is not charged when the temperature
	battery pack is low.	of the battery pack is less than approx. 10°C
		(50°F). Charge the rechargeable battery at room
		temperature (Be careful of condensation).
	The temperature of the	The battery is not charged when the temperature of
	battery pack is high.	the battery pack is approx. 40°C (104°F) or higher.
		Charge the rechargeable battery within permissible
		temperatures.
	<i>.</i>	

<Handpiece motor>

'		
Trouble	Cause	Remedy
The motor does	The handpiece motor has	Contact your Authorized StarDental Dealer.
not rotate.	an internal failure. Short-circuit in the ON/OFF	
	key.	
	No battery voltage.	

12 SPECIFICATIONS

<Handpiece motor>

Rated input	DC 3.6V 0.6A
Rated output	3W
Speed	500 - 2,500rpm
Charging time	Approx. 90 minutes
Dimensions	L150xW25xD25mm
Weight	90g

<Stand>

Rated input	DC 5V 0.6A
Dimensions	W80xD105xH37mm
Weight	120g

<AC adapter>

Rated input	100-240V AC 0.4-0.2A
Dimensions	W46.3xD80xH48.8mm
Weight	155g

	Temperature	Humidity*	Atmospheric Pressure
Use Environment*	10 - 40°C (50 - 104°F)	30 - 75% RH	-
Transportation and Store	-10 - 50°C (14 - 122°F)	10 - 85% RH	500 - 1.060hPa
Environment	-10 - 30 0 (14 - 122 1)	10 - 03 /6 1111	300 - 1,000m a

 $^{^{\}star}$ Use the product in a place where the handpiece motor is free from moisture.

NOTE: Using in conditions outside the limits above may cause malfunction.

13 CLASSIFICATION

- · Type of protection against electric shock:
 - Class II equipment
- · Degree of protection against electric shock:
 - Type B applied part / (Applied part: Disposable prophy angle, Handpiece motor)
- · Method of sterilization or disinfection recommended by the manufacturer:
 - See "6-1 Cleaning the handpiece motor and Stand"
- Degree of protection against ingress of water as detailed in the current edition of IEC 60529:
 - Handpiece motor ... IPX0
- Degree of safety of application in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide:
 - Equipment NOT suitable for use in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.
- Mode of operation:
 - Intermittent operation

14	SYMBOL	S
	CINDOL	\sim

Consult operation instructions.

For indoor use only.

© Efficiency Level

TUV Certification Mark Do not reuse.

(a) Marking on the outside of Equipment or Equipment parts that include RF transmitters or that apply RF electromagnetic energy for diagnosis or treatment.

This product meets UL safety standard requirements.

Product safety electrical and material.

 $R_{\chi}^{\text{\tiny ONLY}}$ Caution: U.S. Federal law restricts this device to sale by or on the order of a licensed physician.

Follow the waste of electric and electronic equipment (WEEE) Directive (2002/96/EC) for product and accessory disposal.

Line Tuv Rhineland of North America is a Nationally Recognized Testing Laboratory (NRTL) in the United States and is accredited by the Standards Council of Canada to certify electro-medical products with Canadian National Standards.

MD Medical Device

Limited Warranty

DENTALEZ® warrants all components of the iStar Cordless Prophy Handpiece for 12 months from the date of purchase*; with (1) free battery replacement for the inner module within the first (3) years. Please note the following additional terms of our warranty policy:

- Warranty covers manufacturing defects only and does not cover defects resulting from abuse, accidents, misuse, improper handling, cleaning, care or maintenance or the failure to follow or observe our operating/use, maintenance and/or installation instructions. Damage resulting from the use of chemicals, cleaners, disinfectants or sterilization is not covered under this warranty nor is normal wear and tear. Failure to use authorized parts or an authorized repair facility voids this warranty.
- Liability is limited to repair or replacement of the defective part(s) or products at our sole discretion.
 All other liabilities, in particular liability for damages, including, without limitation, special, exemplary, consequential or incidental damages are excluded
- THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, REPRESENTATIVE OR DEALER IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR TO GRANT ANY OTHER WARRANTY.

^{**}Provided conditions in warranty are met.



Important Notice About Returning Product To DENTALEZ Integrated Solutions

Anyone wishing to return any DentalEZ Integrated Solutions product to a DentalEZ facility MUST obtain the proper RETURN AUTHORIZATION NUMBER from the Customer Service Department. The RA Number must appear clearly marked on both the outside and inside of the returned product carton. When calling for a return authorization number you will be asked to provide the following information:

To Obtain A
Return Authorization
Number Call
1-866-DTE-INFO

- Product Name, Model Number or Part Number
 Serial Number of Product
- Dealer Return Purchase Order Number
- Reason For Return
- Copy of Invoice Showing Purchase

Items will be evaluated. Return Authorization Number is not a guarantee for credit. Your cooperation with this procedure will help us expedite processing of any returns.

For new products, manuals and technical information, call 1-866-DTE-INFO or visit our web site @ www.dentalez.com

16 SPARE PARTS

Model	Order Code
Handpiece Sleeve (500pcs.)	265996
Handpiece Motor	265992
Stand	265990
AC Adapter	265978

17 DISPOSAL

Dispose of the Stand and AC adapter as industrial waste according to local laws and regulations. Dispose of the handpiece motor as medical waste.

The handpiece motor includes a battery pack (lithium-ion battery). Do not dispose of in a fire or heat it. Doing so may cause rupture of the battery pack, scattering of the battery fluid, overheating, smoking, rupture, or explosion.

The battery pack (lithium-ion battery) included in the handpiece motor is a recyclable precious resource. When disposing of it do not disassemble the battery pack; dispose of the product according to laws and regulations. Alternatively, return it to your dealer.

18 ELECTROMAGNETIC COMPATIBILITY INFORMATION

Guidance and manufacturer's de	claration - Electromagnetic	c Emissions	
The product is intended for use such an environment.	in the electromagnetic env	rironment specified below. The customer or the user of the product should assure that it is used in	
Emissions test	Compliance	Electromagnetic environment - guidance	
RF emissions CISPR11	Group 1 Class B	The product uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.	
RF emissions CISPR11	Group 1 Class B	The product is suitable for use in all establishments, including domestic establishments at those directly connected to the public low-voltage power supply network that supplies by	
Harmonic emissions IEC61000-3-2	Not Applicable	used for domestic purposes.	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not Applicable		

The product is intended for us such an environment.	se in the electromagnetic environ	ment specified below. The custome	er or the user of the product should assure that it is used in
Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC61000-4-2	±(2, 4, 6)kV contact ±(2, 4, 8)kV air	±(2, 4, 6)kV contact ±(2, 4, 8)kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC61000-4-4	±2kV for power supply lines ±1kV for input/output lines	±2kV for power supply lines ±1kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	±1kV line(s) to line(s) ±2kV line(s) to earth	±1kV line(s) to line(s) ±2kV line(s) to earth	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 IEC61000-4-11	<5% Ut (>95% dip in Ut) for 0.5 cycles 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (<95% dip in Ut) for 5 sec	<5% Ut (>95% dip in Ut) for 0.5 cycles 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (<95% dip in Ut) for 5 sec	Mains power quality should be that of a typical commercia or hospital environment. If the user of the product requires continued operation during power mains interruptions, it is recommended that the product be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz)magnetic field IEC61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Guidance and manufacturer's declaration - Electromagnetic Immunity

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

Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment - guidance	
Conducted RF IEC61000-4-6	3Vrms 150kHz to 80MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than the recommended separation distance calculated from the	
Radiated RF IEC61000-4-3	3V/m 80MHz to 2.5GHz	3 V/m	equation applicable to the frequency of the transmitter. Recommended separation distance	
			$\begin{array}{l} d=1.2\sqrt{P}\\ d=1.2\sqrt{P} & \text{80MHz to 800MHz}\\ d=2.3\sqrt{P} & \text{800MHz to 2.5GHz} \end{array}$	
			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 meters (m).	
			Field strengths from fixed RF transmitters as determined by an electromagnetic site survey $^{(a)}$ should be less than the compliance level in each frequency range $^{(b)}$. Interference may occur in the vicinity of equipment marked with the following symbol:	

NOTE1: At 80MHz and 800MHz, the higher frequency range applies.

NOTE2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

- a: 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 product is used exceeds the applicable RF compliance level stated above, the product should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocation the product.
- b: Over the frequency range 150kHz to 80MHz, the field strength should be less than 3V/m.

Cables and accessories	Maximum length	Complies with	
AC adaptor	1.8m	RF emissions, CISPR11 Electrostatic discharge (ESD): Surge: Voltage dips, short interruptions and voltage variations on power supply input lines: Conducted RF: Radiated RF:	Class B/Group 1 IEC61000-4-2 IEC61000-4-5 IEC61000-4-11 IEC 61000-4-6 IEC61000-4-3

Recommended separation distances between portable and mobile RF communications equipment and the product

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

Rated maximum output power of transmitter	Separation distance according to frequency of transmitter			
W	m 150kHz to 80MHz			
	$d=1.2 \sqrt{P}$	$d = 1.2 \sqrt{P}$	$d = 2.3 \sqrt{P}$	
	u = 1.2 √ r	u = 1.2 √r	u =2.5 √r	
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 q' in meters (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.

NOTE1: At 80MHz and 800MHz, the higher frequency range applies.

NOTE2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and



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Specifications are subject to change without notice.

