

ICT_{motor}

Operating Instructions



Dentium

Table of Contents

1. Introduction	04
1.1 Product Description	04
1.2 Indications for Use	04
1.3 Product Features	04
2. Safety Instruction	05
2.1 Symbols	05
2.2 Packing Box Symbols	06
3. Caution & Warning	06
3.1 Cautions	06
3.2 Warnings	07
3.3 Warnings about electromagnetic compatibility	08
4. Scope of Delivery	09
5. Technical Information	10
6. Part Name	11
6.1 Main Control Unit	11
6.2 Control Panel	12
6.3 Foot Control Module	12
6.4 Micromotor	13
7. Installation	13
7.1 Power Connection	13
7.1.1 Power Cable Connection	13
7.1.2 Inserting the Foot Control Battery (AA size 1.5V X 2EA)	14
7.2 Irrigation Installation	15
7.2.1 Saline Bag Support Installation	15
7.2.2 Irrigation Tube Installation	15
7.3 iCT Motor Setup	16
7.3.1 Connecting Micromotor	16
7.3.2 Disconnecting Micromotor	17
7.3.3 Foot Control Sync	17
7.3.4 Attaching the Handpiece	18
8. Operating the Control Panel	19
8.1 Main Control Unit	19
8.2 Control Panel	20
8.3 Program Selection and Change	21
8.3.1 Changing Programs	21
8.3.2 Changing Rotational Speed (RPM)	22
8.3.3 Changing Torque	22
8.3.4 Changing Direction	23
8.3.5 Adjusting Handpiece Brightness	22
8.3.6 Changing Irrigation	24
8.3.7 Gear Ratio	24
8.3.8 Foot Control	25

9. Sterilization	25
9.1 Sterilization of Micromotor	26
10. Cleaning and Disinfection	27
10.1 Main Control Unit	27
10.2 Micromotor	27
10.3 Foot Control	27
11. Maintenance and Storage	28
11.1 Routine Check	28
12. Troubleshooting	29
13. Label Position	30
13.1 Main Control Unit	30
13.2 Foot Control	31
14. Information for Electromagnetic Compatibility	31
14.1 Resistance to Electronic Interference	32
14.2 Protection Distance	33
15. Precautions for System Disposal	34
16. Product Warranty and Service	35

01 Introduction

Thank you for choosing Dentium iCTmotor(WL-1). Dentium cordless iCTmotor (WL-1) can free many clinicians from the hassle of cables in the surgery room. The motor eliminates the power cable and the cable to the foot control for better portability and convenience during the dental surgery procedure.

This manual includes the user instruction, handling and maintenance guideline. For the smooth operation of the equipment, please read the manual thoroughly before use.

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1.1 Product description

iCTmotor (WL-1) is a surgical controller according to 21 CFR 872.4200 (dental hand-piece and accessories.) The device is a software based driving engine that controls the speed of a specific dental micromotor. This device is optimized for dental implant procedures and user programmable parameters operate and control a dental hand-piece for dental implant surgery. iCTmotor (WL-1) consists of a main controller unit, a charger, a foot controller, micro motor, cable, a water holder, tube holder, and micromotor holder. The main control unit operates the speed and torque of a dental micromotor that derives dental handpiece to perform routine dental procedures and to place dental implants. The main control unit is operated via a wireless foot pedal. The holders are used for placement of a saline bag, a micromotor and a handpiece. The power cord delivers electric power to the main control unit and rechargeable battery inside so that certain number of surgeries are achievable using power from battery.

1.2 Indications for Use

iCTmotor (WL-1) is intended for use in dental surgery and implantology. The Main Control Unit is designed to operate a specific dental micromotor that drives dental handpieces to remove hard and soft tissues in the mouth and place dental implants. iCTmotor (WL-1) is compatible with a handpiece equipped with connection according to ISO 3964.

1.3 Product Features

- Applies RPM control technology and stable torque optimized for implant surgery.
- Provides real-time torque and RPM display functions.
- Cordless Foot Control and Power Cable free users from the hassle of cables in the surgery room.
- Provides option for optic handpiece.
- Enables efficient procedure through 7 programs (including program '0' for Maxillary Sinus.)
- Compact size with ergonomic design

02 Safety Instruction

2.1 Symbols

- The following symbols are used for efficient product operation in the manual.
- To prevent physical injury or property damage, observe the safety precautions described here.

Symbol	Name of Symbol	Description
	INFORMATION	Information and precautions required to use the product.
	CAUTION	Important instruction required to use the product. Failure to observe it may cause critical damages to the equipment and human body.
	WARNING	Damage to property or the environment or mild to moderate injuries may result if not complied. Serious injury or death may result if not complied.
	SEPARATE DISPOSAL OF ELECTRIC AND ELECTRONIC PRODUCT	Instruction to show disposal method
	DANGER	Do not insert the finger in the irrigation module
	ELECTROMAGNETIC INTERFERENCE	Show electromagnetic interference standard
	PRESCRIPTION ONLY	For provision and use only at a licensed physician's direction and under medical supervision
	POWER PLUG	Polarity of DC power plug
	POWER SYMBOL	Power OFF
	POWER SYMBOL	Power ON
	TYPE B MOUNTIN PART	Type B protection class
	FOOT CONTROL	Foot Control
	SEPARATE DISPOSAL OF ELECTRIC AND ELECTRONIC PRODUCT	Instruction to show disposal method
	MANUFACTURING DATE	Manufacturing date
	MANUFACTURER	Manufacturer
	EUROPEAN REPRESENTATIVE	EC office representative
	MODEL NAME	Model name of product
	LOT NO.	Manufacturing LOT No.
	ACTIVE POWER	Power rating

IPX1	RATE OF WATERPROOF	Waterproof rating
MD	MEDICAL DEVICE	Indicates that the product is a medical device

2.2 Packing Box Symbols

Symbol	Name of Symbol	Meaning
	DIRECTION OF PACKING BOX	Load the box to the direction indicated by arrow
	CAUTION FOR SHOCK	Protect it from shock
	MOISTURE CONTROL	Protect it from moisture
	STORAGE TEMPERATURE RANGE	Storage temperature range (0 C°~+60 C°)
	ATMOSPHERIC PRESSURE RANGE	Storage atmospheric pressure range (700~1060hPa)
	STORAGE HUMIDITY RANGE	Storage humidity range (90% Max.)
	RECYCLABLE	Recyclable
	LOADING	Stack packing box 5 layers or less

03 Caution & Warning

Compliance with the safety instruction below is important and critical to use iCT Motor properly as intended. Please read thoroughly before use. Dentium accepts no liability for direct or consequential injury or damage resulting from non-compliance with the manual and improper use.

- iCTmotor(WL-1) is a medical device and requires operation by qualified personnel with adequate training. Federal law restricts this device to sale by or on the order of a dentist.

3.1 Cautions

CAUTION

Indicates a hazardous situation that can cause damage to property or mild to moderate injuries.

- Verify operating condition, status, and distance to the patient before using the motor.
- Keep the handpiece in the dedicated holder after use.
- Disinfect the parts and accessories that requires disinfection before using the motor.
- Do not drop or apply strong external shock to the equipment. Use of other dental accessories or sub-assemblies from third-party manufacturers is the sole responsibility of the user.

-
- Do not drop or impact micromotor against hard surface. The motor is sensitive to shock.
 - All repairs are to be performed by authorized Dentium Service Personnel.
 - Use a saline solution for irrigation.
 - Connect main power cable to a properly grounded outlet.
 - Follow the instruction for the external power supply as indicated in this manual.

3.2 Warnings

WARNING

Indicates a hazardous situation that can lead to serious or fatal injury.

- Do not touch the handpiece head and keep it away from other object while rotating.
- Connect the handpiece only after the micromotor and related instruments have completely stopped.
- Do not apply excessive force as it may degrade performance or cause a malfunction.
- If noise or heat occurs while running, stop it immediately and contact the distributor or your local sales rep before continued use.
- Use the parts recommended by the manufacturer. If not, performance degradation or failure may occur.
- Irrigation tube is single-use only. It is disposable as a medical waste.
- Do not insert hand in the irrigation pump gap as it may cause an injury.
- This product cannot be used for endodontic treatments.
- Do not turn off the power while the motor is in operation. It may cause a malfunction.
- Do not use product in areas subject to an explosion hazard. Do not operate the product in an oxygen-enriched atmosphere.
- If the temperature in the dental handpiece grip and head reach up 41°C / 105.8°F (reach to maximum 43°C / 109.4 °F after 3 minutes consecutive use), stop using it for a while. Direct contact or exposure to an extended period of time to the heated part of handpiece may cause low temperature burn. Individuals vulnerable to burns include those who are suffering from vascular or blood circulation disorder, diabetes and hypertension or have sensitive skin.
- Do not place the motor in a tub-like container. Check the coolant containers and lines for leakage. If any liquid is detected on the device, do not touch the device. Disconnect the device from the main supply without delay. Make sure that the surface of the device is completely dry before connecting the power.
- If a fire breaks out, use the officially authorized fire extinguisher for the relevant purpose. If liquid is used against the electrical fire, it may cause a serious injury to the person or damage the equipment. Disconnect the power before extinguishing the fire to prevent the risk of electric shock.
- Do not disinfect the equipment with spray. The sprayed disinfectant/sterilizer may be flammable.
- Do not modify the equipment without the manufacturer's authorization. It may cause serious injuries and may lead to death. It may cause critical damage to the equipment. (lithium-ion battery, Lithium-ion charger, Controller and Cable). The warranty does not cover accident, damage, alteration, or disassembly of the product.

- Do not place any medical electrical energy sources nearby the motor to avoid electromagnetic interference. These sources may degrade the performance of the motor.
- Use of accessories, transducers and cables other than those specified or provided by Dentium could result in electromagnetic emissions increase or electromagnetic immunity decrease of the equipment and eventually cause operational failure.
- Use only the designated charger provided by the manufacturer.
- Do not overcharge or leave the battery connected to the charger for extended periods after full charge.

 WARNING	No modification of this equipment is allowed It may cause critical damage to the equipment and human body (Lithium-ion battery, Lithium-ion charger, controller, Cable)
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 WARNING	DO NOT STORE THE DEVICE IN A VEHICLE OR UNDER DIRECT SUNLIGHT FOR EXTENDED PERIODS. - High temperature may cause the battery to overheat, leading to potential fire or explosion hazards. - Do not expose the device to temperatures above 60°C (140°F). - Store the device in a cool, dry place, away from heat sources and direct sunlight.
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3.3 Warnings about electromagnetic compatibility

Based on IEC 606010102 (DIN EN 60601-1-2) concerning the electromagnetic compatibility of electrical medical devices, we must draw your attention to the following points:

- Medical electrical devices are subjected to special precautions concerning the electromagnetic compatibility and must be installed and operated in accordance with the iCTmotor (WL-1) assembly instructions.
- High-frequency communications devices may interfere with electrical medical devices.
- Please refer to '14. Information for electromagnetic compatibility,' page 31-32.

 WARNING	Electromagnetic fields might interfere with the functions of implanted devices such as pacemakers. Ask patients if they have such a implanted device and get consultation from their physician.
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04 Scope of Delivery



No.	Name	Quantity
(a)	Main Control Unit	1
(b)	Foot Control	1
(c)	Micromotor (including cable)	1
(d)	Saline Bag Support	1
(e)	AC Power Cable	1
(f)	Main Unit Charger	1
(g)	Tube Holder	10
(h)	Micromotor Holder	1

05 Technical Information

Dimension	Main Control Unit: 27.8(W) X 17.5(D) X 13.4(H) cm Micromotor: Ø 22 X 120(L) cm Foot Control: 21.7(W) X 12(D) X 5.55(H) cm
Material	Main Control Unit: Plastic Foot Control: Plastic Micromotor: Stainless Steel
Weight	Main Control Unit: 3 kg Foot Control: 0.7 kg Micromotor: 0.4 kg
Handpiece Speed and Torque range	Rotational Speed Range: 20 – 2,000 rpm Rotational Torque Range: 5 - 70 N·cm (※ Based on 20:1 gear ratio)
Foot Control Waterproof Rating	IPX 1
Irrigation	Level 1 : 40 ml/min Level 2 : 50 ml/min Level 3 : 60 ml/min
Main Control Unit	Model : WL-1 Manufacturer : Dentium Co.,Ltd.(ICT Branch) Rated input: - 42VDC, 1.5A (Connected Main Unit Charger) - 36.5VDC, 2,750mAh(Only Li-ion Battery)
Main Control Unit Charger	Model: XVE-4200150 Manufacturer: JIN XIN YU POWER SUPPLY Co., Ltd. Rated Input : 100-240V~50/60Hz, Max. 1.5A Rated output : 42VDC, 1.5A
Foot Controller	Model : WLF-1 Manufacturer : Dentium Co., Ltd.(ICT Branch) Rated Input : 3VDC
Wireless specifications	IEEE 802.15(Zigbee) Frequency range : 2405-2480MHz Number of channel : 16 Channel spacing : 5MHz RF output power : 8.6dBm EIRP
Optimal Service Environment	Temperature: 10 ~ 35 °C Relative Humidity: 80 % (Max.) Atmospheric Pressure: 800 - 1,060 hPa
Optimal Transport & Storage Environment	Temperature: 0 – 60 °C Relative Humidity: 90 % (Max.) Atmospheric Pressure: 700 - 1,060 hPa
Warranty Period	1 Year



Power supply is specified as a part of ME EQUI or combination is specified as a ME SYSTEM.

06 Part Name

6.1 Main Control Unit

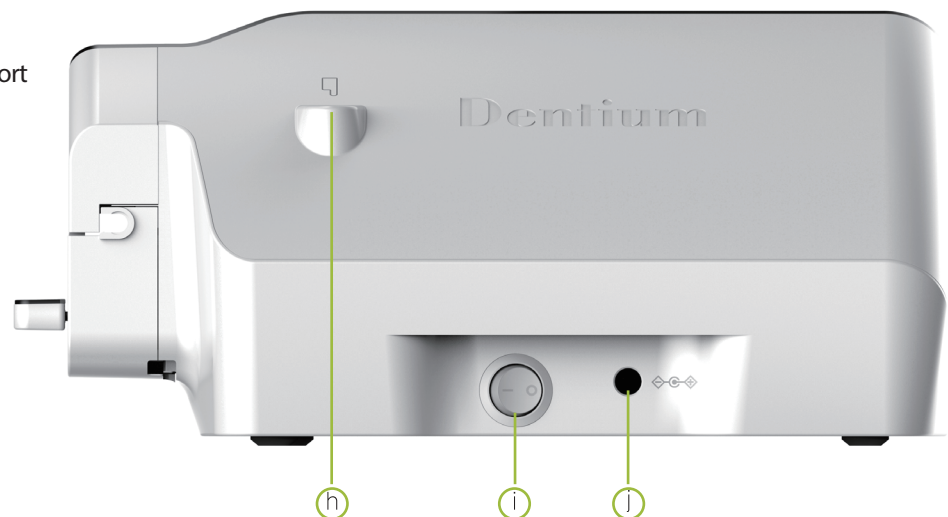
Front

- (a) Control Panel
- (b) Mode Change Switch ◀ (Left)
- (c) Mode Change Switch ▶ (Right)
- (d) Micromotor Socket
- (e) Irrigation Pump Locking
- (f) Irrigation Locking Open/Close Lever
- (g) Dial Controller



Rear

- (h) Holder for Saline Bag Support
- (i) Power Switch
- (j) DC Power Jack



6.2 Control Panel

(a) Display of Remaining Battery

(b) Program Mode (0~6)

(c) Speed Mode (20~2,000rpm)

(d) Torque Mode (5~70Ncm)

(e) Display of Remaining Foot Control Battery

※ The display does not appear when the battery is full.

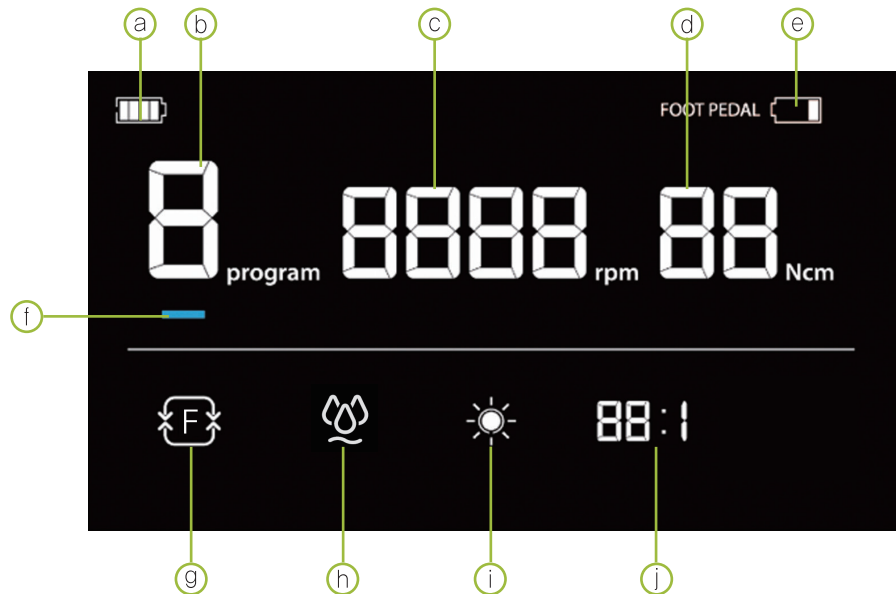
(f) Mode Change Indicator (Blue Light)

(g) Direction of Motor Rotation (Forward/Reverse)

(h) Irrigation Level (0-3)

(i) Brightness of Optic Handpiece (0-3)

(j) Gear Ratio



6.3 Foot Control Module



(a) Speed Change Pedal

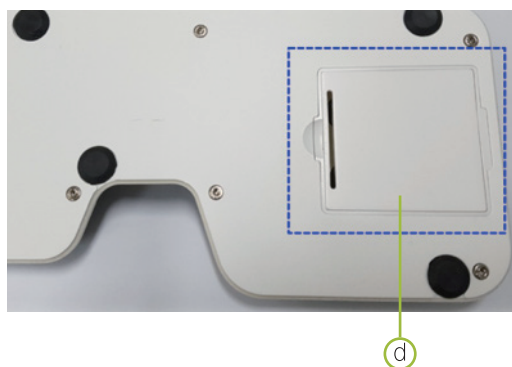
(b) Program Change Bump

(c) Power Button (Power On/Off)

(d) Battery Protection Cover

(e) Battery Holder

(f) Power Indicator (Blue Light)



- (a) Handpiece Adapter
- (b) Body
- (c) Cable
- (d) Micromotor Plug

6.4 Micromotor



07 Installation

7.1 Power Connection



WARNING

- When connecting the power, do not handle with wet hands. It may cause electric shock.
- This product uses rated input power of 100-240V~50/60Hz. Connect the equipment to rated power only.

7.1.1 Power Cable Connection

Insert the DC connector in the outlet (DC Jack.) Make sure that the shape of the plug and the socket is matched.



Rear of Main Control Unit



Main Control Unit Charger



Connection

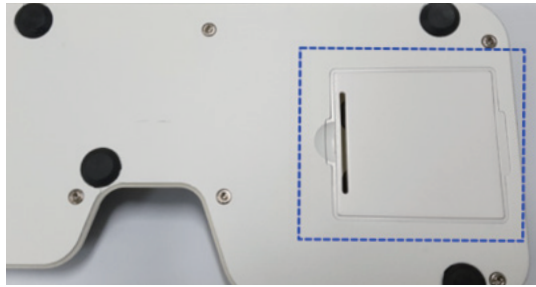


WARNING

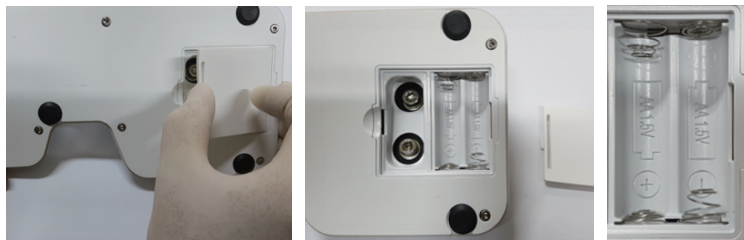
- Only use the charger provided by manufacturer. It may cause a fire or electric shock if any charger other than the one provided is used.
- Connect the charger to the Main Control Unit first. Then, connect the other end to the wall outlet. Failure to observe the instruction may cause a fire or electric shock.

7.1.2 Inserting the Foot Control battery

(AA Size 1.5V x 2EA)



- Check if the power of the Foot Control is turned OFF. (○)
- Prepare the battery (AA size 1.5V x 2ea) as shown in the figure. 2 Li-ion batteries are included in the package.
- Locate the battery protection cover at the bottom of the Foot Control (indicated in blue box above.)



- Open the battery protection cover by gently pressing and lifting it up.



- Insert the battery (1.5V AA) toward the polarity (2 units).
- Re-cover the protection and click into place to fit.

7.2 Irrigation Installation



CAUTION

- ICTmotor(WL 1) is compatible with irrigation tubes in compliance with EN ISO 7405.
- Please use legally marketed irrigation tube.
- Properly install the irrigation tube and fluid based on the manufacturers' instruction.
- The irrigation tube used for implant procedure is disposable and should not be reused to prevent cross contamination and infection.

7.2.1 Saline Bag Support Installation

Place the saline bag support into the holder.



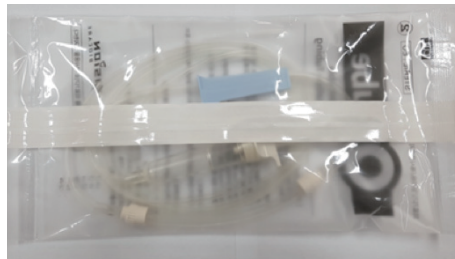
Saline Bag Holder on rear of the Main Control Unit



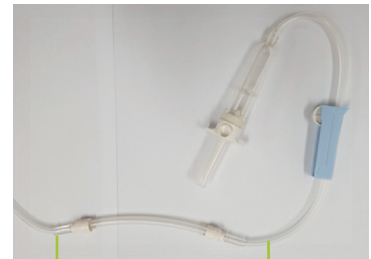
Saline bag support

7.2.2 Irrigation Tube Installation

- Move OPEN/CLOSE lever to the "OPEN" direction.
- Prepare irrigation tube as follows.



Standard Irrigation Tube



- Insert the irrigation tube in the lock and make sure to align the location of ① and ②.
- Close the lock.



OPEN CLOSE

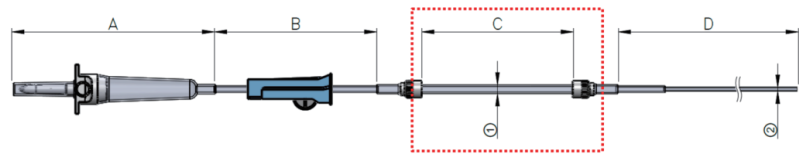


②



①

– Irrigation Tube Specification



Section	Length (mm)	Reference
A	123.5	ISO7405
B	240	
C	93±5	
D	2,000	
①	5.5 Ø	
②	2.6 Ø	

7.3 iCT Motor (WL-1) Setup

 CAUTION	• Make sure to turn off the power before connecting and disconnecting. • Verify the red dot [●] on the micromotor connector before connecting to the socket. • Life span of the micromotor socket and the handpiece connected may be degraded by the heat caused by extended period of use. Observe the following operation time. * Continuous operation with intermittent load - 3 minutes of load time and 1 minute of pause.
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7.3.1 Connecting Micromotor

- Insert the micromotor plug to the socket of the Main Control Unit. Make sure that the red dot [●] of the micromotor plug is aligned towards the red square [■] on the Main Control Unit.

※ 'Click' sound on the right connection



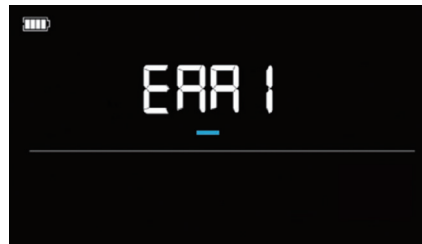
Main Unit Socket



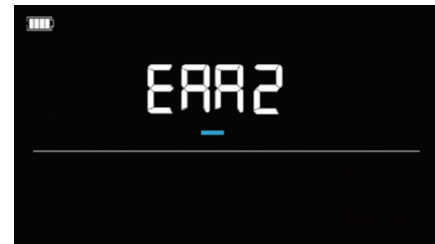
Micromotor Plug



In case of the micromotor failure, disengagement of connector or the connection error, ERR is displayed as below. Identify the cause by connecting them properly.



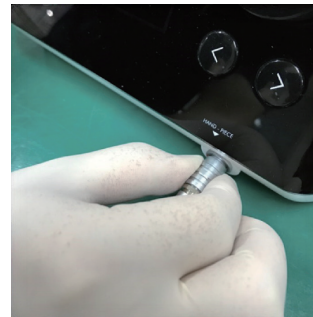
Micromotor Error



Wireless Foot switch error

7.3.2 Disconnecting Micromotor

- Grasp the micromotor plug near the micromotor socket and pull the plug out with care. Do not yank the cord.



7.3.3 Foot Control Sync

- As the wireless module is applied to iCTmotor(WL-1) Foot Control, the wireless communication will automatically be established when the power of the Foot Control and the Main Control Unit is on.
- Turn on the power by pressing the Power Switch to [⏻].
- Foot Control serves to operate or stop the equipment. To stop the operation, take the foot off the pedal.



INFORMATION

- To maintain the battery life efficiently, turn off the power after using the wireless Foot Control.
- 1.5V AA battery x 2EA (Life Cycle: 3 months)
- The battery life varies depending on the types and the frequency of use

7.3.4 Attaching the Handpiece



CAUTION

Changing straight and contra-angle handpieces during operation may cause damage to the connection due to the unbalanced motor axis.

- Change the straight and contra-angle handpieces only when the motor is not running.



INFORMATION

The contra-angle handpiece with EN ISO 3964 can be attached to ICT(WL-1) motor.

- Place the handpiece on the adapter.



- Lightly press it against the micromotor while turning it slightly in the direction of the arrow below in the picture until the guide stud can be heard to lock into place.

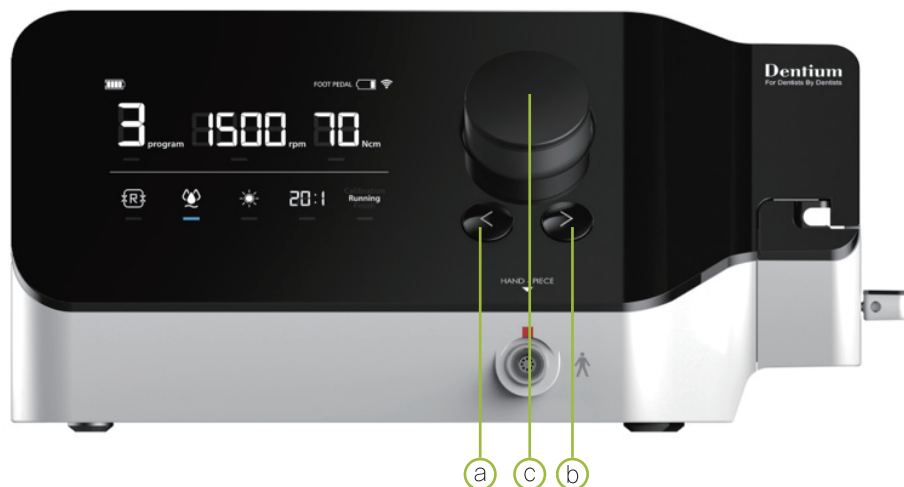


- Pull on the handpiece to make sure that it is securely attached to the motor.



08 Operating the Control Panel

8.1 Main Control Unit



a Mode Change Switch (Left)



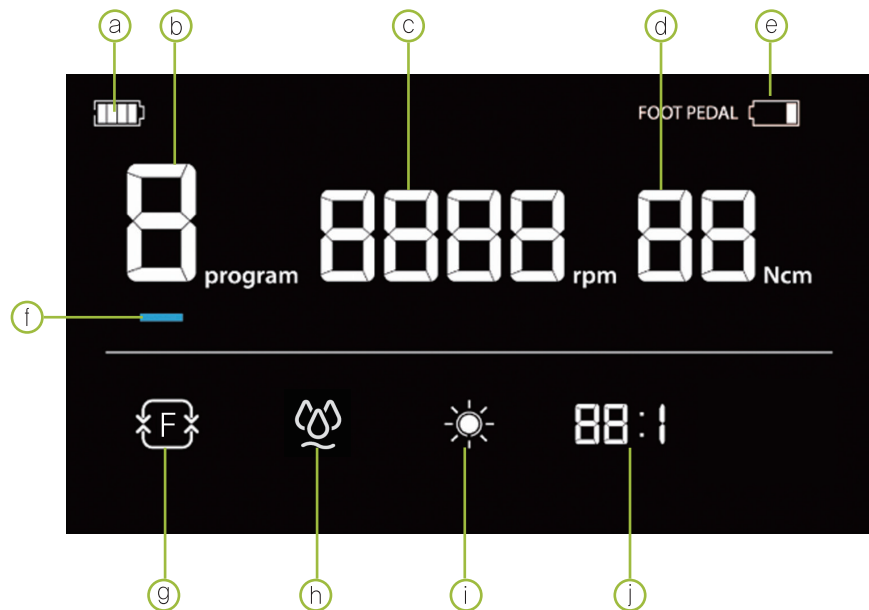
b Mode Change Switch (Right)



c Dial Controller (Value Change)

Button Image	Function
	a Press the reverse switch to select the right mode. The blue light indicator blinks on each press to indicate the mode change. (Program → Gear Ratio → Brightness → Irrigation → F/R → Torque → RPM)
	b Press the forward switch to select the right mode. The blue light indicator blinks on each press to indicate the mode change. (Program → RPM → Torque → F/R → Irrigation → Brightness → Gear Ratio)
	c Dial Controller selects the program when the mode is set on the Program. When the indicator is in the other modes, the value of each modes (RPM, Torque, F/R, Irrigation, Brightness and Gear Ratio) changes by turning the dial forward or backward. To save the mode setting, press and hold the button for 3 seconds.

8.2 Control Panel



a Remaining Battery of Main Control Unit

30~40% 40~50% 50~70% 70~100%

*The battery requires approximately 3 hours for a full charge.

b Programs

c Real-time RPM

d Real-time Torque

e Remaining Battery of Foot Pedal

*The display does not appear when the battery is full

f Mode Change Indicator (Current Mode)

g Forward(F)/Reverse(R) Handpiece Rotation

h Irrigation Setting (0 → 1 → 2 → 3 Level)

i Handpiece Brightness (0 → 1 → 2 → 3 Level)

j Gear Ratio

8.3 Program Selection and Change

- Default values have been set at the factory for the programs, speeds, torques, ratios and irrigation flow rate for every activity according to application. The parameters can be changed only within a reasonable range for the specific operation.
- iCTmotor(WL-1) provides 6 saved programs optimized for Dentium implant placement.

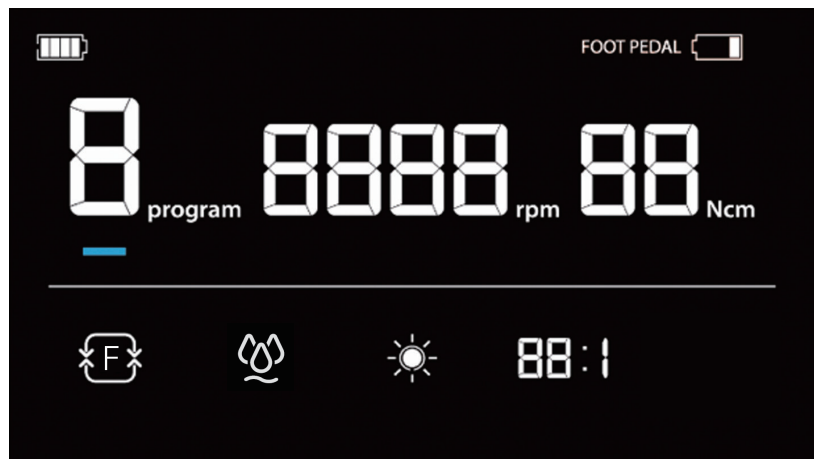
* Program Information - Factory Settings

Step	Ratio	Process	rpm	Torque	Pump	Direction
0	20:1	Idle	0	0		
1	20:1	Drilling	1,000	35		
2	20:1	Countersinking	300	35		
3	20:1	Implant Placement or Tapping	20	35		
4	20:1	Cover Screw & Healing Connection	100	5		
5	20:1	Removal	20	55		
6	20:1	Spare	20	5		

- ※ Above table is the standard guidance for Dentium implant system
- ※ Micromotor and other functions are not available in Program 0 mode
- ※ For pump symbol, refer to Section 8.4.6.

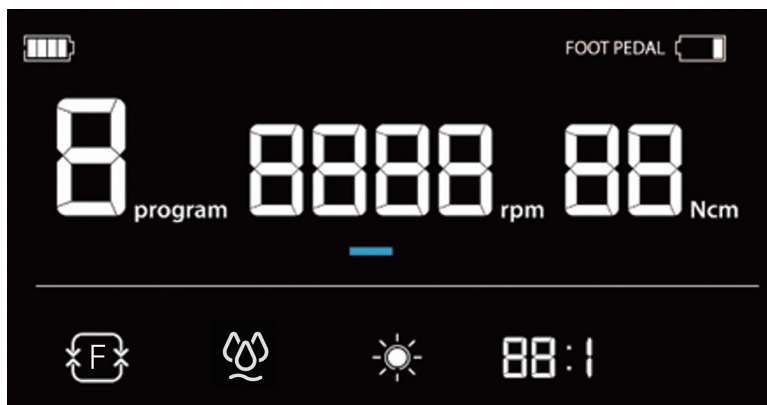
8.3.1 Changing Programs

- 1) Press “◀ ▶” buttons to move until the Mode Change Indicator locates 'program.' Use the rotating Dial Controller to set the desired program.
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved



8.3.2 Changing Rotational Speed (RPM)

- 1) Press “◀ ▶” button until the Mode Change Indicator locates 'rpm.'
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved.



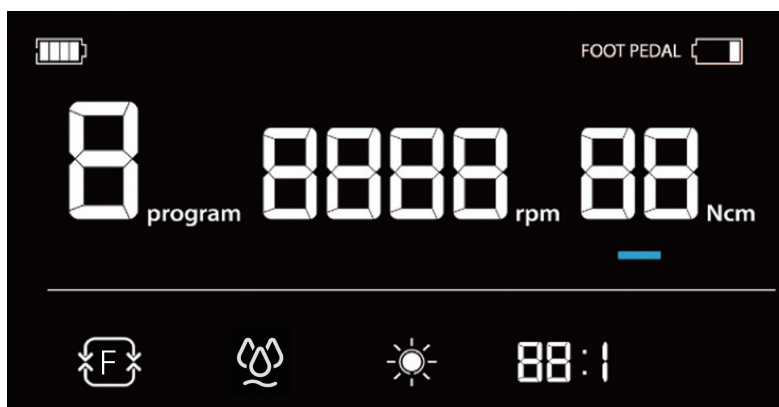
- 3) Rotational speed ranges on the left is continuously added by the number indicated on the right in the table below. For example, if the rotational speed is within 20-50 ranges, rpm is increasing by 5. If the rotational speed is in 50-100 ranges, rpm is increasing by 10.

Unit (rpm)	
Rotational Speed (rpm)	rpm increase
20–50	5
50–100	10
100–2,000	100

※ The performance may show a deviation $\pm 10\%$ when operating below 25 RPM.

8.3.3 Changing Torque

- 1) Press “◀ ▶” button until the Mode Change Indicator locates 'Ncm.'
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved.

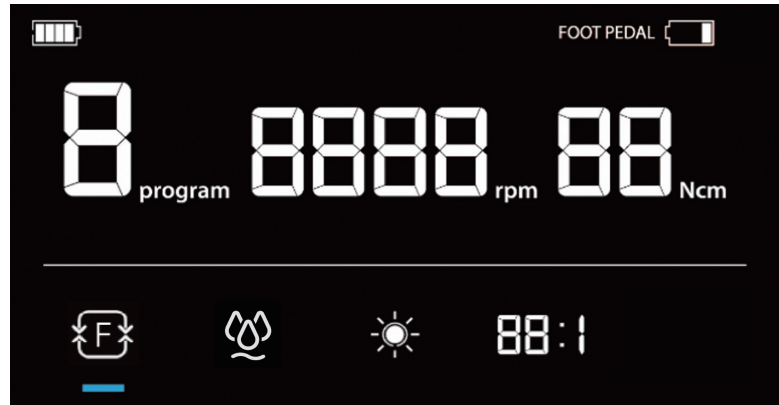


Torque value is increased or decreased by 5 N·cm unit.

※ The performance may show a deviation $\pm 10\%$ under the torque of 5N.cm.

8.3.4 Changing Direction

- 1) Press “◀ ▶” button until the Mode Change Indicator locates ‘’. Use the rotating Jog Dial to set the desired direction.
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved.



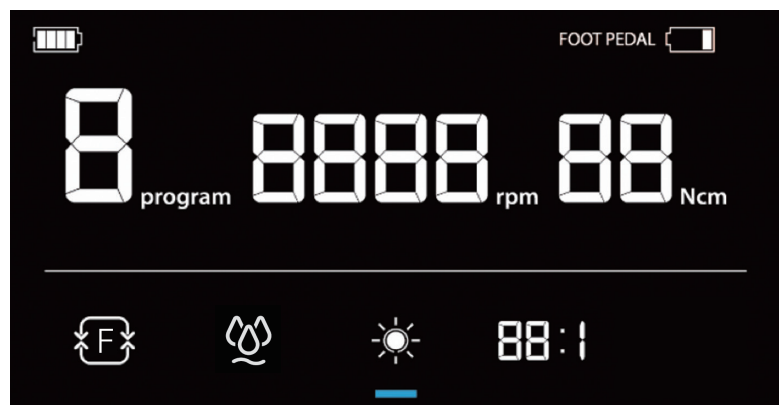
- ※ Reverse ("R") mode makes continuous long beep sound but the long beep converts to short continuous beep during the motor operation.
- ※ All set modes and values can be changed only when the motor is completely stopped.
- ※ "F" means "Forward" and "R" is "Reverse"

8.3.5 Adjusting Handpiece Brightness

- 1) Press “◀ ▶” button until the Mode Change Indicator locates ‘’. Use the rotating Dial Controller to set the desired brightness.
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved.

※ Handpiece brightness can be adjusted in 3 levels. Please refer to the table below.

Symbol	Brightness
	OFF
	Moderate
	Max



8.3.6 Changing Irrigation

- 1) Press “◀ ▶” button until the Mode Change Indicator locates ‘’. Use the rotating Dial Controller to set the desired irrigation stage.
- 2) To save the value for the program, press and hold the Dial Controller for 3 seconds. The “beep” sound ensures the program is saved.

※ Irrigation can be adjusted in 4 levels. Please refer to the table below for saline water flow.

(Unit: mL/min)

Symbol	Irrigation (Max.)
	OFF
	40ml
	50ml
	60ml

※ Each irrigation level may show deviation of ±10% depending on the tubing.

8.3.7 Gear Ratio

- iCT motor(WL-1) is provided with a default gear ratio of 20:1.




CAUTION

- ICTmotor(WL-1) motor is compatible with any contra angle handpiece in compliance with EN ISO 3964 2016
- For its use and maintenance, follow the manual from the manufacturer.

8.3.8 Foot Control



No.	Name
a	- Press the pedal with your foot to start the motor. Remove the foot from the pedal to stop the motor. - Pressure sensitive: Rotation speed increases/decreases accordingly, depending on the pressure of the foot to the pedal.
b	- A Program Change Bump. The program shifts to the next one with brief pressing. (→ 1 → 2 → 3 → 4 → 5 → 6) - Press and hold the bump for 3 seconds initiates reverse rotation of the handpiece. Another 3 seconds of pressing and hold the bump returns to the forward rotation.

 CONSULT IFU	- Power on before use. - When reaching 90% of set torque value, short beep is activated. When reaching 100%, the motor is automatically stopped (off) within 0.5 seconds. - Counterclockwise(R) operation of a handpiece (micromotor), activates continuous beep from the motor. - Program (Step) change should be made only after the handpiece operation is completely stopped.
--	--

09 Sterilization

– To prevent the secondary infection by device contamination, observe following instructions.

 CAUTION	- Sterilize the parts that require medical disinfection before surgery. - Parts sterilized with high pressure steam should be used after being cooled and completely dried.
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9.1 Sterilization of Micromotor



CAUTION

- Surgical motor and micromotor are intended to be sterilized prior to use.
- Use of a sterilization method or temperatures other than what are prescribed may damage the motor or present a risk of cross-contamination between patients.
- Do not soak or submerge the motor in any type of liquid.

- 1) Disconnect the power.
- 2) Brush off any visible signs of debris from the motor and cord.

Thoroughly clean the exterior with a moistened cloth or towel to remove any remaining signs of debris.

- 3) Micromotor assembly for sterilization



The entire micromotor and cord are fully autoclavable. Loosely coil the micromotor cord as shown in the picture on the left for sterilization.

- 4) Select one of the three following sterilization methods (A, B, or C):
 - A. Gravity air displacement cycle - single pouched
Place in a legally marketed appropriate sized sterilization pouch and seal it.
 - Temperature - 132°C (270°F)
 - Cycle dwell time - 15 min.
 - Dry time - 30 min.
 - B. Prevacuum air removal cycle - single pouched
Place in a legally marketed appropriate sized sterilization pouch and seal it.
 - Pulses - 4
 - Temperature - 132°C (270°F)
 - Cycle dwell time - 4 min.
 - Dry time - 40 min.
 - C. Unwrapped 'flash / immediate use sterilization' (Gravity air displacement cycle)
 - For immediate use only
 - Temperature - 132°C (270°F)
 - Cycle dwell time - 10 min.
 - Dry time is not required.

※ The intended performance of the micromotor may degrade after withstanding 300 times of sterilization.

10 Cleaning and Disinfection

 CAUTION	• Clean the parts after disconnecting the power cable. • Do not fold the cables. (power, micromotor, etc.) • Do not use cleaning sprays from compressed air canisters. • After each patient treatment, the surfaces near the patient that may have been contaminated by contact or aerosol need to be disinfected.
---	---

10.1 Main Control Unit

- 1) Keep liquid away from the unit.
- 2) Wipe clean using a moist disposable cloth all visible surface including saline bag support, tube holder, and connecting cable if applicable.
- 3) For manual disinfection, use a soft disposable cloth and an approved disinfectant. Wipe all visible surfaces of the unit, saline bag support, tube holder and connecting cables when applicable. Refer to the disinfectant manufacturer's instruction and national guidelines for application range.

10.2 Micromotor

- 1) Keep liquid away from the unit.
- 2) Protect micromotor from excessive oil draining from handpiece. After lubricating, stand handpiece on its base on a paper towel so that the excessive oil to drain, before autoclaving.
- 3) Refer to the Sterilization section for cleansing.

 WARNING	• Do not disassemble the micromotor. • Failure to comply with any of the above instructions void warranty.
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 Information	- Comply with the corresponding Instructions for use when re-processing the motor and motor cable. - The re-processing steps for the handpiece tray are as follows: recommends washer-disinfectors (WD) in compliance with ISO 15883-1, which are operated using alkaline cleaning agents. - For program settings as well as cleansers and disinfectants to be used, please refer to the Instructions for Use of the thermidisinfectors
---	---

10.3 Foot Control

- 1) Keep liquid away from the unit.
- 2) The exterior of the foot control may be cleaned using a moist disposable cloth and disinfected by wiping with a moistened with approved disinfectant. Refer to the disinfectant manufacturer's instruction and national guideline.

11 Maintenance and Storage



- If the equipment is stored with the power turned on for an extended period of time, the internal battery may be discharged.



- Do not oil or lubricate the motor.
- Do not attach the handpiece to the motor while the motor is running.

- Check if cable sheath is not damaged. Store it wound in a circle.
- If any noise, heat or any abnormal phenomena were noticed, stop using the equipment immediately and contact your sales representative or the distributor.
- Store the equipment and accessories secure from water and humidity.
- Store the equipment secure from sunlight, dust, salt and hot temperature, etc.
- Keep equipment on a flat surface out of the way of impacts.
- Store micromotor and hand-piece separately.
- Do not store near chemicals, gas, or electric sources.

11.1 Routine Check

Description	Check Point
Main Control Unit	• Check the power of the new iCT motor Main Control Unit is OFF when unpacked. • Check any switches on the control panels are intact. • Check the color and data on the display are clearly displayed.
Micro Motor	• Check any micromotor cable is intact. • Check the micromotor connector is intact. • Check any part of the micromotor assembly is loose.
Foot Control	• Check the power switch is working properly. • Check the foot pedal moves smoothly. • Check the program control works smoothly.



- The lifetime of the battery used in Main Control Unit is minimum 2 years. If the battery life displayed on the screen is reduced through continued use, contact your local sales representative or the manufacturer to receive the inspection.

12 Troubleshooting

 CAUTION	• Troubleshooting should be performed under a dry condition where no moisture or water is present. • If any errors occur, turn off() the power of Main Control Unit. • Simple troubleshooting that users can perform are shown below. If the problem persists, contact your sales representative or the distributor.
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Troubleshooting for common issues

Issues	Cause and Solution	Page
The screen (LCD) is not turned on	Cause 1 Power supply is not good.	8
	Solution 1 Connect again after disconnecting the power plug of the main control unit from the outlet. 2 Turn on the power  of main control unit. 3 Charge the battery first and use.	
Control button does not work	Cause 1 It does not work while the equipment operates. 2 Control button breaks down.	14-16
	Solution 1 Change the mode only after the equipment completely stopped.	
Handpiece does not work	Cause 1 Foot Control power is turned OFF. 2 Handpiece is not clean. 3 Internal gear of the handpiece is worn out or broken. 4 The machine does not respond even if the power is ON.	9-10
	Solution 1 Turn the power ON and check if it is working properly. 2 Refer to the manual from the handpiece manufacturer. 3 Connect other handpiece to the equipment to test if it is working. 4 Contact the hand piece manufacturer service center.	
Irrigation does not work or is weak	Cause 1 Damaged tube or handpiece nozzle clogging. 2 Irrigation tube stopper is locked. 3 Default setting of Irrigation volume is OFF.	8-10
	Solution 1 Replace the tube and check handpiece nozzle. ※ Clean the handpiece according to the manual from the handpiece manufacturer. 2 Open irrigation tube stopper. 3 Set the irrigation value (1-3) in the Control Panel.	

13 Label Position

13.1 Main Control Unit



Dentium
iCT_{motor}

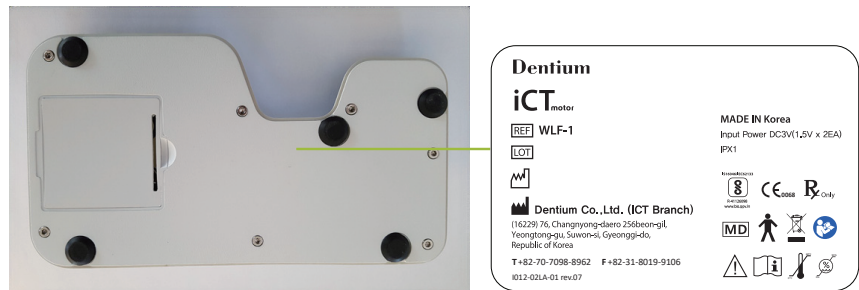
REF WL-1
LOT

Dentium Co.,Ltd. (ICT Branch)
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 Yeongtong-gu, Suwon-si, Gyeonggi-do,
 Republic of Korea
 T +82-70-7098-8962 F +82-31-8019-9106
 I012-01A-05 rev.07

MADE IN Korea
Dental Engine
 Input Power: DC 42V, 1.5A
 Non-continuous Operation: 3min ON/10min OFF
 Specified Power Supply: Main Unit Charger
 (JIN XIN YU POWER SUPPLY/XVE-4200150)



13.2 Foot Control



14 Information for Electromagnetic Compatibility

- This equipment is manufactured to work under electromagnetic environment described below.
- Users should verify the environment where the equipment is operated conforms the guidance below.

Emissions Test	Compliance	Electromagnetic environment-guidance
Radiated disturbance	CISPR 11 Group1 Class A	The emissions characteristics of iCTmotor(WL-1) make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.
Mains terminal disturbance voltage	CISPR 11 Group1 Class A	The iCTmotor(WL-1) is suitable for use in all establishments other than domestic, and may be used in domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: Warning: This equipment/system is intended for use by healthcare professionals only. This equipment/ system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-orienting or relocating the iCTmotor(WL-1) or shielding the location.
Harmonic emissions	Class A	
Voltage fluctuations flicker emissions	Complies	

14.1 Resistance to Electronic Interference

- This equipment is manufactured to operate under electromagnetic environment described below.
- Users should check if this equipment is used under such environment.

Immunity test	IEC 60601 test level	Conformance level	Electromagnetic environment-guidance
Electrostatic discharge(ESD) IEC 61000-4-2	Discharge by 8 kV direct contact 15 kV of Air-gap discharge.	Discharge by 8 kV direct contact 15 kV of Air-gap discharge.	Floors should be made of wood or concrete or have ceramic tiles. When the floor is made of synthetic material, the relative humidity must be at least 30%.
Radiated RF Electromagnetic Field immunity IEC 61000-4-3	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz	The iCTmotor(WL-1) is suitable to use in professional healthcare environment.
Immunity to Proximity Fields from RF wireless Communications Equipment Table 9 in IEC 60601-1-2	28 V/m Max. 385-5785 MHz in according to table 9	28 V/m Max. 385-5785 MHz in according to table 9	RF communication equipment is required to keep more than 30cm away from any part of the motor, including cables by Dentium.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for I/O lines 100 kHz repetition frequency	± 2 kV for power supply lines ± 1 kV for I/O lines 100 kHz repetition frequency	The quality of supplied power should be suitable for general business site or hospital environment.
Surge IEC 61000-4-5	± 1 kV line to line ± 2 kV line to earth	± 1 kV line to line ± 2 kV line to earth	The quality of supplied power should be suitable for general business site or hospital environment.
Immunity to conducted disturbances induced by RF fields IEC 61000-4-6	3 V 0.15-80 MHz 6 V in ISM bands between 0.15 and 80 MHz 80% AM at 1kHz Power supply line & I/O lines	3 V 0.15-80 MHz 6 V in ISM bands between 0.15 and 80 MHz 80% AM at 1kHz Power supply line & I/O lines	The strength of RF field in the frequency range higher than 150 kHz~80MHz, the strength of the RF field is smaller than 3 V

Voltage dips, short interruptions and voltage variations on power supply input lines 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° 0 % UT; 250/300 cycle	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° 0 % UT; 250/300 cycle	The quality of supplied power should be suitable for general business site or hospital environment. For the user to operate the equipment continuously even if the electric power supply is interrupted, it is recommended that the uninterruptable power supply device (UPS) or battery is prepared.
Magnetic field of supply frequency (50/60Hz) IEC 61000-4-8	30 A/m	30 A/m	If LCD display distortion occurs, it may be necessary to position the Model iCTmotor LCD display intensifier further from sources of power frequency magnetic fields or to install magnetic shielding. The power frequency magnetic field should be measured in the intended installation location to assure that it is sufficiently low.

14.2 Protection Distance

- Protection distance means the recommended distance between portable and mobile HF communication device and iCTmotor(WL-1).
- This equipment is manufactured to operate in the electromagnetic environment where the emitted HF disturbance is controlled.
- RF communication equipment is required to keep more than 30cm from any part of the iCTmotor(WL-1) including cables specified by Dentium.

15 Precautions for System Disposal

- When disposing the machine and its parts, it should be made according to the guideline provided by relevant country.



- This symbol means that since the unclassified local government's wastes should be collected separately, the electrical and electronic equipment wastes cannot be disposed.
- Before disposing the product or parts, contact with nearby Dentium dealer or manufacturer and dispose them with safe and adequate method.
- This equipment is manufactured to be disposed without environmental pollution.

Detailed Explanation

Part Name	Raw Material	Recycle	Hazardous Material
Frame	Aluminum + steel	◆	
Cover	Plastic	◆	
Motor	Steel + Copper	◆	
Control Board	Electronic components + PC	◆	
Cable	Copper + Steel + Oil	◆	
Packing	Cardboard + Foam	◆	

- Dentium iCTmotor(WL-1), the Dental implant surgical engine, is designed according to medical devices regulations and manufactured and inspected according to strict quality control system.
- Dentium Co., Ltd. guarantees that the warranty is complied with the international warranty regulations of Consumer Protection Act.

16 Product Warranty and Service

- Dentium Co., Ltd guarantees that iCTmotor(WL-1) and accessories do not have any defect in materials and manufacturing procedure under the normal use and service for 1 year from the purchase date.
- Product warranty has a condition that the buyer has used the product properly. During the relevant warranty period, Dentium Co., Ltd will repair and replace the defective products and parts for free. However, if Dentium Co., Ltd. may judge that the product warranty is not applied, the purchaser should pay the cost for all parts, transport and labor cost for repair.
- Fill out the following form upon the purchase of the product and email or fax to your local representative.
- When filing claim in compliance with the warranty, attach the warranty card.
- The minimum lifetime of this equipment is 3 years but it can be varied depending on the usage. Regular maintenance and proper storage and charging can extend the lifetime.
- The warranty is void if:
 - 1) Any defect or damage accidentally caused by the user's negligence, misuse, abnormal condition and inappropriate storage.
 - 2) Any damage by external causes such as collision with other objects, or weather conditions like fire, flood, sand, storm, lightning, and earthquake.
 - 3) Any defect or damage by inappropriate test, maintenance, service or adjustment not authorized by Dentium Co., Ltd.
 - 4) Any defect or damage caused by disregarding warnings in the manual.

Product Name	iCTmotor(WL-1)	Client Information (Please fill this form)	
Purchase Date		Dental Clinic	
Manufacturing Date		Address	
Serial No.			
Warranty Period	1 Year	Contact	



Dentium Specifications are subject to change without prior notice.

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