

Operation and Service Manual

Model Name: **REXTAR**



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Table of Contents

Part I. Operation Manual	1
1. <i>Basic Instructions</i>	1
2. <i>Notes to the User</i>	4
3. <i>Storage and Operating Conditions</i>	6
4. <i>Caution: Radioactivity</i>	7
5. <i>Parts and Components</i>	8
6. <i>Specifications</i>	9
7. <i>Name of Each Component</i>	13
8. <i>Operation</i>	27
9. <i>Operating Instructions</i>	29
10. <i>Instructions for Battery Use</i>	37
11. <i>Using the UMPC</i>	39
 PART II. Service Manual	 50
1. <i>Notes to the User</i>	50
2. <i>Regular Maintenance</i>	51
3. <i>Block Diagrams</i>	52
4. <i>Common Error Codes</i>	53
5. <i>Circuit Diagrams</i>	54

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Part I. Operation Manual

1. Basic

1) Outline

REXTAR is one of the POSKOM battery-powered portable dental x-ray series. REXTAR is the most compact and light-weighted, yet the most powerful High-Frequency X-ray device in the portable devices market. All X-ray devices in the battery-powered portable devices series are Ripple-free HF-type X-ray generating devices, which produce 40~50% more powerful output than other portable X-ray devices on the market; moreover, its UMPC sets REXTAR apart from other battery-powered portable series of its kind. UMPC can be used to construct of a DR System, as well as for the ordinary UMPC functions.

REXTAR dental-use X-ray device is perfectly designed for medical diagnostic situations requiring ease of use and portability.

2) Features

- ◆ Ultra-lightweight, ultra-compact dental-use X-ray generator
- ◆ High frequency X-ray generator
- ◆ High output at 70kV / 2mA
- ◆ UMPC with built-in touch screen monitor for user convenience
- ◆ X-ray function controlled by a single button for added convenience
- ◆ UMPC provides a USB-controlled restraint function against excessive X-ray radiation
- ◆ supporting stand topped a battery-charger

3) Manual

This manual covers all aspects pertaining to product operation and services. The Services Manual also offers information about the main points of installation, as well as on-site adjustment and continuous maintenance of the device.

This manual may not take the place of education certified by a licensed department of medicine or radiology. The following device may only be used by personnel trained in the operation and the diagnostic use of X-ray devices.

Apart from its independent use, the following device may also be used with a portable support device or, in conjunction with a device that may be loaded with an X-ray tube, with a table intended for X-ray use, and a variety of similar types of diagnostic X-ray devices.

4) Attention

This manual is a guide pertaining to the safe use and operation of REXTAR portable X-ray device. The user of said device must receive instruction and training in the use of X-ray devices, and may only refer to this manual in the context of said instruction. The proprietor of REXTAR portable X-ray device has an additional obligation to receive proper instruction from regional officials and ensure that only qualified personnel may operate this device.

There may be latent hazards associated with the use of dental electric equipment and X-ray devices latent hazards. All users and operators of this device must be fully aware of the safety and emergency measures and operation instructions set forth in this booklet.

Each device manufactured by POSKOM Co. Ltd. is certified to comply with safety and health concerns by including restraints on radioactivity in its construction, according to United States federal law Article J, Section 1, Paragraph 21 and according to European Union general provision EN60601 for protection against radioactive rays generated from diagnostic X-ray devices, under IEC601-1-3.

POSKOM Co. Ltd. does not accept liability for casualties or losses arising from misuse or abuse of REXTAR portable X-ray device.

Additional questions concerning safety or miscellaneous matters should be referred to the POSKOM Co. Ltd. Service Team, or to the regional retailer or distributor.

5) Caution and Warning Signs

Latent hazards may arise through improper use of X-ray devices. Such hazards are noted by warning notices as shown below concerning crucial safety and prevention measures.

※ Information ※

The Operation Manual details operation procedures for the safe and efficient use of REXTAR product for X-ray technicians, radiation technician, and other medical institutions using REXTAR X-ray device.



※CAUTION※

Failure to comply with the following safety provisions may result in X-rays posing a danger to both the patient and the operator of the device.

2. Notes to the User

1) Machinery



※CAUTION※

This device has not been waterproofed.

The central concern in the design of REXTAR portable X-ray device is your safety and convenience. However, to better ensure your safety when operating the device, we request your adherence to the following regulations.

This device must be operated only under the supervision of a legally qualified individual.

REXTAR was designed to generate radioactive rays, and cannot be used for any other purpose, including transparency.

REXTAR is to be used in diagnosis only, and cannot be used for treatment purposes.

REXTAR has been designated as a Class 1 Type B device, in conformance with provisions IEC60601-1, 2.

REXTAR may not be altered or manipulated at the discretion of the individual. In the case that such changes cannot be avoided, all inquiries must be directed to the POSKOM Co. Ltd. Service Team, or to a retail center licensed for service.

REXTAR has been adjusted for the highest level of function. If a product should be discovered defective, immediately turn off the device and report the incidence to the POSKOM Co. Ltd. Service Team, or to a retail center licensed for service.

REXTAR can be used interchangeably or in conjunction with other devices. If you should desire to link another company's product with REXTAR, inquire with the POSKOM Co. Ltd. Service Team, or to a retail center licensed for service.

2) Batteries



※Caution※

Failure to properly dispose of used batteries may lead to explosions or fire

Each country and region may have differing rules and regulations concerning the disposal of used batteries. Disposal of batteries must follow these regional regulations.

Throwing, taking apart, or having external pressure applied to batteries increases the risk of bodily harm, as well as of fire and explosion.

Using batteries not approved by POSKOM Co. Ltd. with this device increases the risk of fire and explosion.

Batteries being stored separately must not come into contact with metal. Contact with a metal object will provoke an excessive electrical current that will raise the temperature to such a degree that there is risk of burns or of the battery being damaged.

Only battery chargers approved by POSKOM Co. Ltd. may be used. Other battery chargers pose a risk of damage to both the battery and the device.

Heating batteries or putting them near flames poses a risk of injury, or of explosion and fire.

3. Storage and Operating Conditions

1) Storage

For proper operation and maintenance, please avoid following places.

- Where the equipment is exposed to water vapor.
- Where the equipment is exposed to direct sunlight.
- Where the equipment is exposed to heavy dust.
- Where the equipment is exposed to high humidity.
- Where there is insufficient ventilation.
- Where the equipment is exposed to salty atmosphere.
- Where the equipment is exposed to chemicals or gas.

2) Operating Conditions

Keep safe distance from strong vibration and maintain good environment

Operational Environment

Temperature range	10°C ~ 40°C (50°F ~ 104°F)
Humidity range	30% ~ 75%RH

Optimal Working Environment

Temperature range	17°C ~ 23°C (63°F ~ 73°F)
Humidity range	40% ~ 60%RH

3) Storage and Transportation

For safe storage and transportation, please keep proper temperature, humidity and other conditions.

Storage and Transportation

Temperature range	-25°C ~ +60°C (-13°F ~ +140°F)
Humidity range	10% ~ 95%RH

4. Caution: Radioactivity



※CAUTION※

Ionizing radiation may pose a significant hazard to both the patient and the operator if safety rules are not strictly followed.

- 1) The user and/or the operator must be wearing the appropriate clothing and safety devices.
- 2) The user must distance himself or herself from the origin point of radiation and from secondary exposure to radiation.
- 3) All unnecessary items must be removed from the vicinity of radiation.
- 4) Any experiments must be performed at the lowest possible value of sec (Exposure Time).
- 5) Care must be taken to not exceed levels of radioactivity designated safe for each particular site.

5. Parts and Components

REXTAR is an X-ray device for medical use. This device may be applied to diagnostic purposes, and must be operated by a licensed physician. The user must follow health and safety regulations relating to electric and chemical safety, and the safeguarding of medical equipment with ionizing potential.

REXTAR product is composed of 1) REXTAR parts listed below.

Each and every part must be securely in its place and properly assembled for the device to operate normally.

1) REXTAR core parts

- ◆ High pressure tank, including X-ray tube
- ◆ Board (built-in PCB type)
- ◆ UMPC (Q1 Ultra)
- ◆ Battery pack

2) REXTAR component parts

- ◆ REXTAR core
- ◆ Cone 1 (60mm)
- ◆ Cone 2 (140mm)
- ◆ Neckpiece to be attached to the core
- ◆ Hand Strap
- ◆ Carrying case
- ◆ Operation and Service Manual
- ◆ UMPC Manual (Q1 Ultra)
- ◆ Supporting stand with battery-charging function
- ◆ Battery charger
- ◆ Power code

6. Specifications

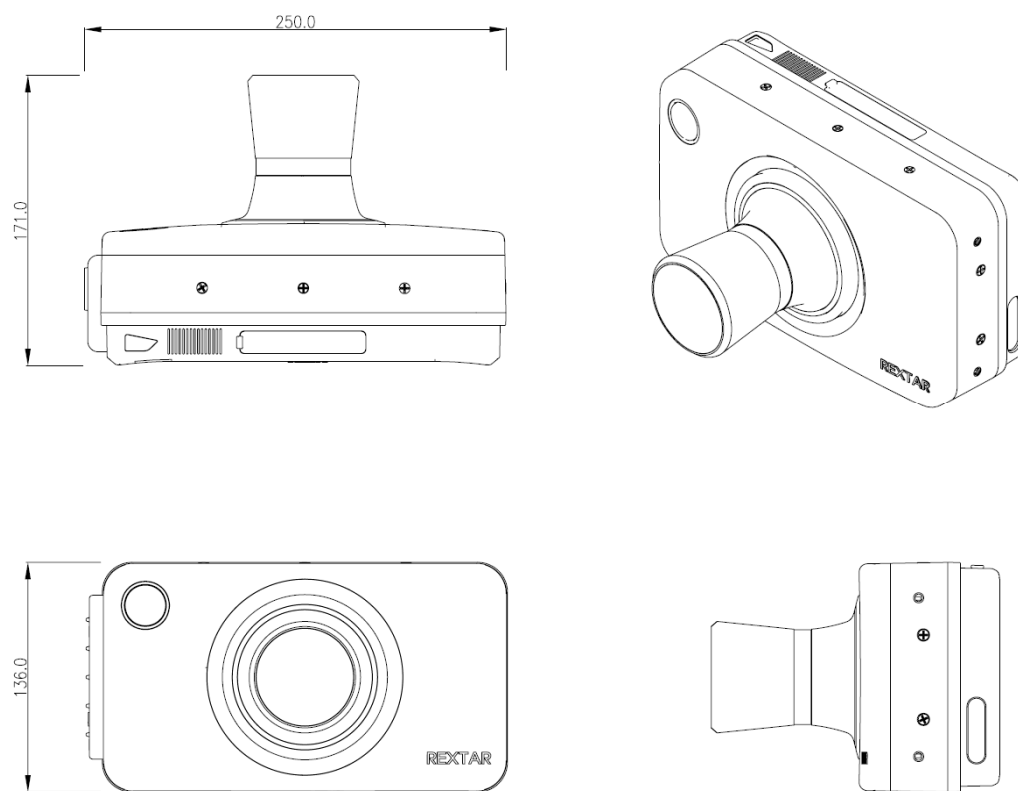
1) Device Specifications

Items		Specifications
Input Specifications	Input Power Source	19 VDC 3.16A
	Battery Charger Input Power Source (identical to support stand specs.)	100-240 VAC, 50~60Hz 1.5A
Max. Output		140 W
Input Power Source		11.1 VDC (Battery)
Battery		11.1 V
Frequency		70kHz
voltage [kV] / current [mA]		70 kV / 2 mA (Fixed)
X-Ray Exposure Time Range [sec]		0.01 ~ 1.30 sec (43 levels total) (0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.12, 0.14, 0.16, 0.18, 0.20, 0.22, 0.24, 0.26, 0.28, 0.30, 0.32, 0.34, 0.36, 0.38, 0.40, 0.42, 0.44, 0.46, 0.48, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00, 1.10, 1.20, 1.30)
Accuracy	Voltage [kV]	± 7%
	Exposure time [sec]	± 10%
Display Method		7 inch screen (Resolution : 1024 × 600)
		SMD LED
X-ray Tube	Model Name	D – 041
	Inherent Filtration	Minimum of 1.0mm Al
	Focus	0.4 × 0.4 mm
UMPC	Model name	Q1 Ultra
	Resolution	1024 × 600
	Operating System	Windows XP Tablet PC Edition (Korean)
	Connection Device	USB Connection
Total Filtration		1.5mm @ 70 kV
Size		(404×234×198mm)
Weight		2.7 kg

< Chart 1.6.1.1 Device Specifications

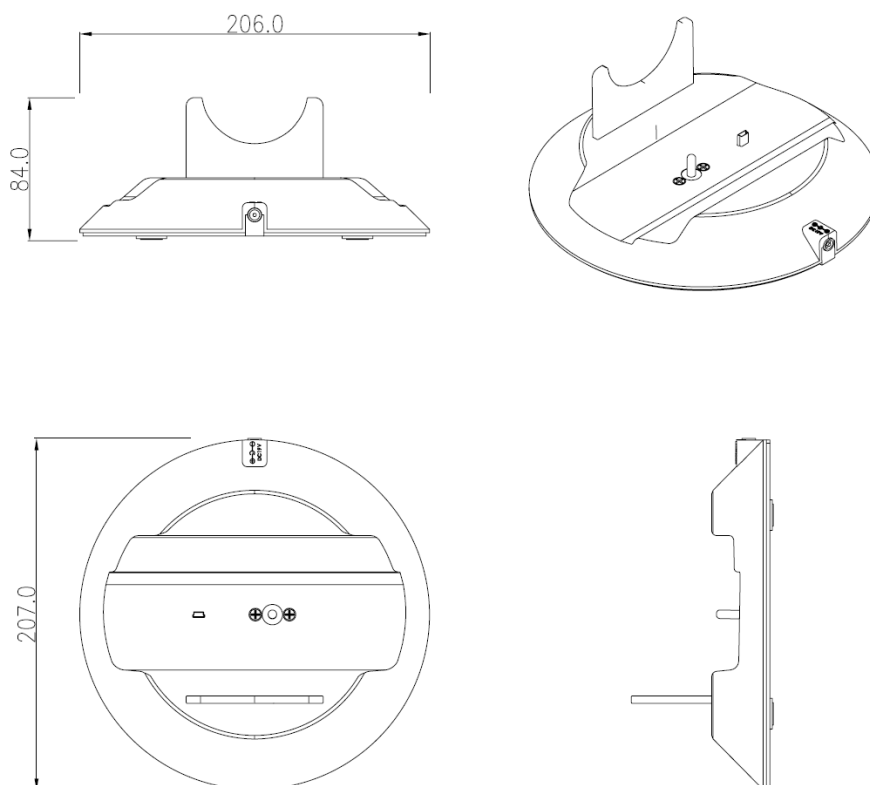
2) Measurements of Core and Components

(1) Core



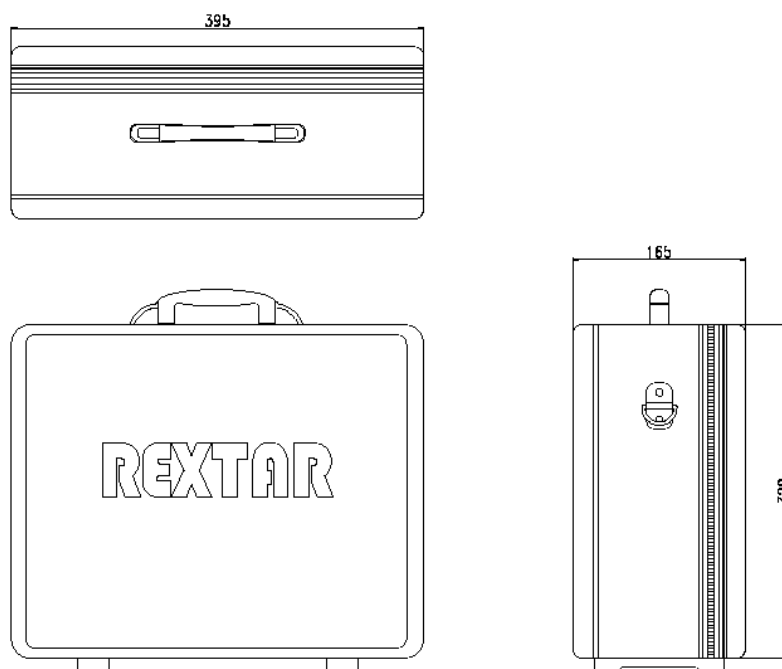
< Figure1.6.2.1 Core Drawing

(2) Support Stand with Battery-Charging Function



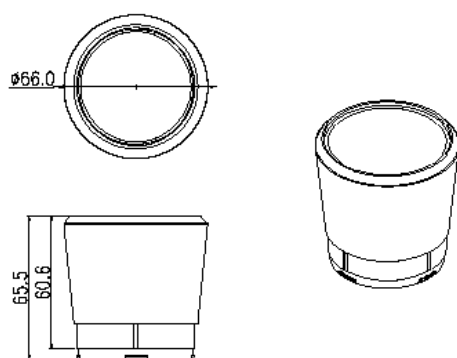
< Figure 1.6.2.2 Support Stand Drawing >

(3) Carrying Case

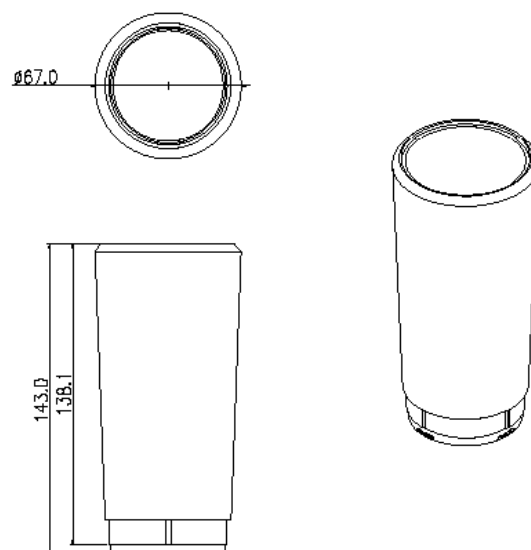


< Figure 1.6.2.3 Carrying Case Drawing >

(4) Cone 1 (60mm) / Cone 2 (140mm)



< Figure 1.6.2.4 Cone 1 (60mm) Drawing >



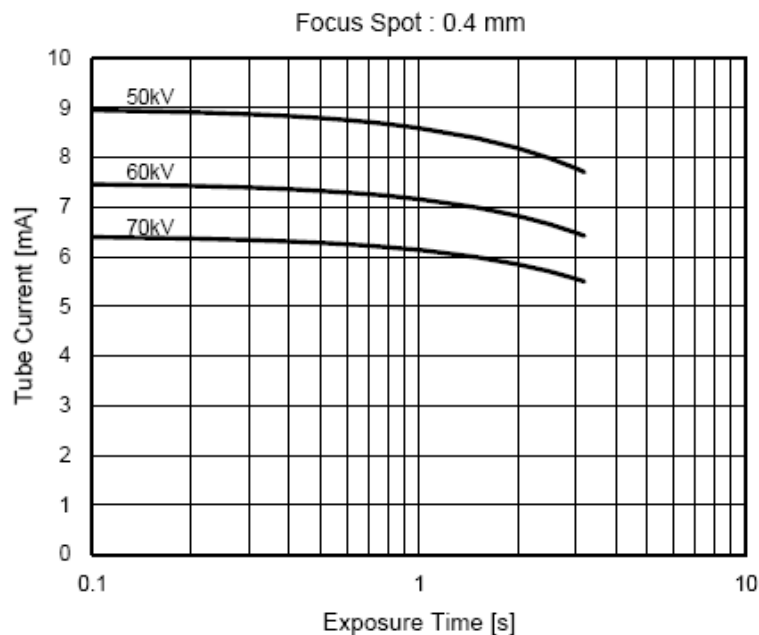
< Figure 1.6.2.5 Cone 2 (140mm) Drawing >

3) X-ray Tube Specifications

(1) Basic Specifications

Model Name (Manufactured by) : D – 041 (Toshiba)
 Voltage Range (Maximum Voltage) : 50 ~ 70kV (77kV)
 Focal Spot Size : 0.4 × 0.4mm
 Input Electrical Power (per second) : 430W
 Anode Heat Radiation Index: 4300J
 Maximum Rate of Anode Heat Exhaustion : 100W

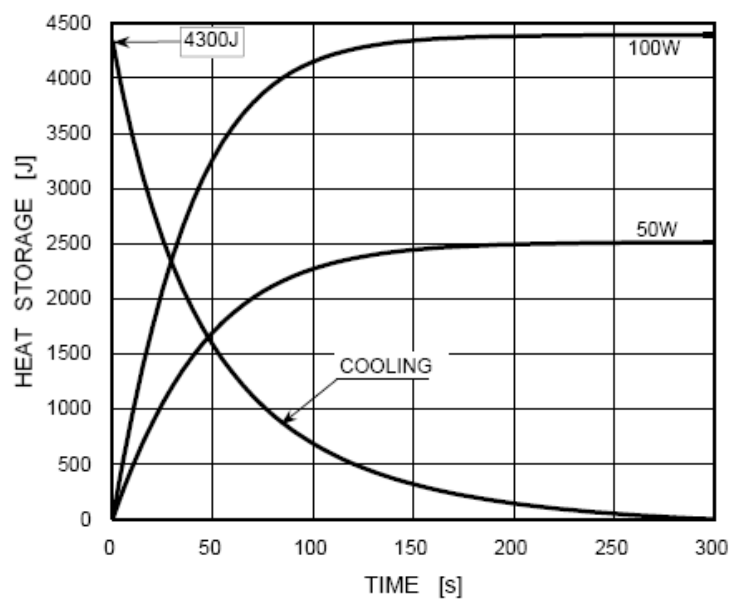
(2) Graph of Maximum Output



< Figure1.6.3.1 Graph of X-Ray Tube Maximum Output >

(3) Anode Thermal Characteristics Curve

Anode Thermal Characteristics



< Figure1.6.3.2 Heat Characteristic Curve of X-ray Tube Anode >

7. Name of Each Component

1) Core



< Figure 1.7.1.1 Front View of Core >



< Figure 1.7.1.2 Rear View

No	Explanation
(1)	USB Port and CF Memory Slot
(2)	Top Ventilation Opening
(3)	UMPC Shutter
(4)	X-RAY Exposure Button
(5)	X-RAY Exposure Control Light
(6)	Battery Charger Connection Terminal
(7)	Handle
(8)	Core neckpiece attachment point
(9)	Exposure Aperture Light
(10)	Cone (Choice between 60mm, 140mm)
(11)	Battery-charging support stand attachment point
(12)	Support stand charging terminal and remote switch connection terminal
(13)	Lower Ventilation Opening
(14)	Cover for Battery Pack
(15)	Stylus Pen

(1) USB Port and CF Memory Slot

USB Port : used in connecting to DR System.

CF Memory Slot : can use CF memory cards as a method of external storage.

(2) Top Ventilation Opening

Used to ventilate UMPC(Q1 Ultra). Care must be taken not to block the opening, or hardware problems with the UMPC (Q1 Ultra) may arise.

(3) UMPC Shutter

Used with camera attached to UMPC(Q1 Ultra).

For further detailed explanation or learn more about the functions of this device, see enclosed

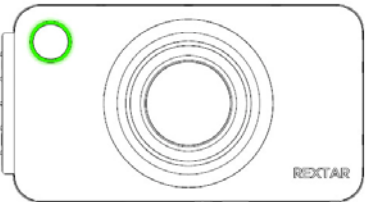
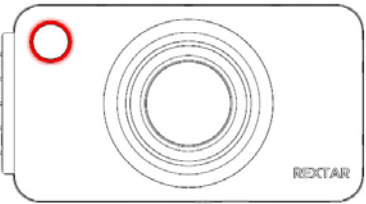
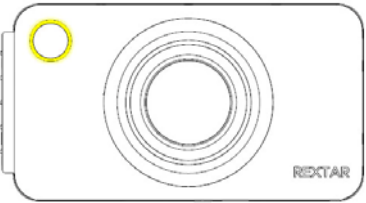
Q1 Ultra Basic Guide Manual.

(4) X-RAY Exposure Button

Used to control the X-ray function of REXTAR.

There are two control mechanisms: pressing briefly and letting go, or holding down the button for longer intervals.

(5) X-RAY Exposure

LED Color	Explanation
 <p>< Green ></p>	<p>The green light lights up when the Exposure button is pressed.</p>
 <p>< Red ></p>	<p>If battery levels are too low to power X-ray operation, the red light lights up when the Exposure button is pressed.</p>
 <p>< Yellow ></p>	<p>If the battery is being charged, the yellow light lights up upon start-up of the Exposure button, and the core must be disengaged from the charger before X-ray operation can begin.</p>

(6) Battery Charger Connection Terminal

Terminal used when charging REXTAR internal battery and the UMPC (Q1 Ultra) battery.
Only the enclosed battery charger may be used for this purpose.

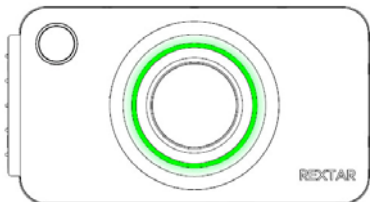
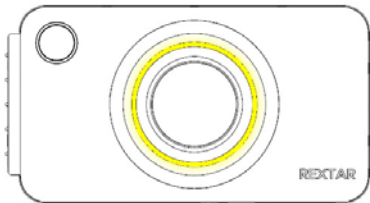
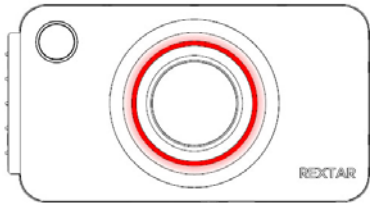
(7) Handle

For increased convenience of use of REXTAR device.

(8) Core neckpiece attachment point

For increased convenience of use of REXTAR device.

(9) Exposure Aperture Light

LED Color	Explanation
 <p>< Green ></p>	The green light lights up when the device is ready to commence Exposure.
 <p>< Yellow ></p>	The yellow light lights up as the X-ray is being exposed.
 <p>< Red ></p>	The red light lights up when X-ray exposure is complete and the system is in standby mode.

(10) Cone

Choice between 60mm or 140mm, depending on conditions.

(11) Battery-charging support stand attachment point

The central point of attachment when REXTAR device is fixed to the support stand. Join REXTAR device to the battery-charging support stand so that this attachment point coincides with the secure slot at the center of the support stand.

(12) Support stand charging terminal and remote switch connection terminal

Serves as a terminal for charging the device on the battery-charging support stand. May also be used as a remote switch.

(13) Lower Ventilation Opening

Used to ventilate UMPC(Q1 Ultra). Care must be taken not to block the opening, or hardware problems with the UMPC (Q1 Ultra) may arise.

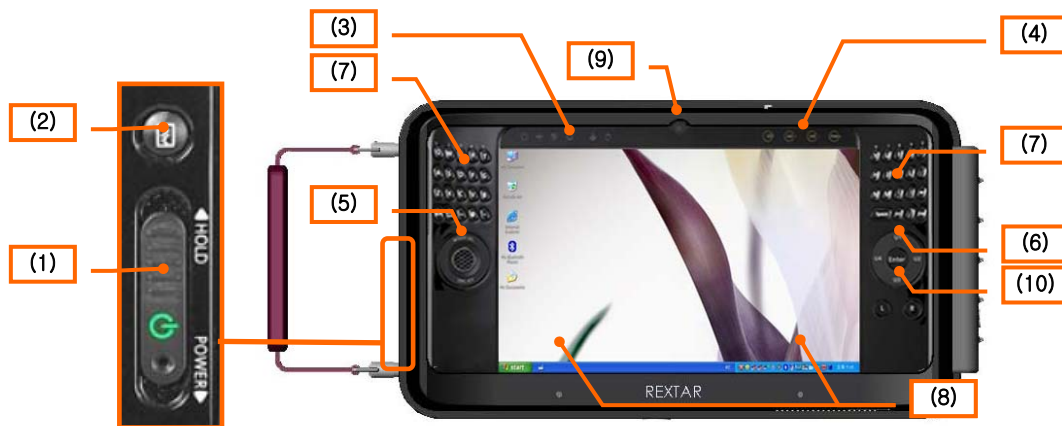
(14) Cover for Battery Pack

For increased convenience in detaching REXTAR device battery.

(15) Stylus Pen

To be used with the UMPC (Q1 Ultra) touchscreen.

2) UMPC



< Figure 1.7.2.1 UMPC

No	Explanation
(1)	Power Switch (Turns Power ON, Lock Function)
(2)	AV Station Viewer
(3)	Task Indicator Light
(4)	Touch Sensor Buttons
(5)	Mouse/Joystick
(6)	Enter Button, User-Defined Functions
(7)	Keypad (Supports Korean/English/Numeral Characters)
(8)	Microphone
(9)	Camera
(10)	Mouse button (L / R)

* For detailed instructions or for further function-related matters, please refer to the enclosed Q1 Ultra

Basic Instruction Manual.

(1) Power Switch (Turns Power ON, HOLD Function)



Pulling the switch down turns on the computer.

If the switch is pulled upwards (towards the HOLD sign) while the UMPC (Q1 Ultra) is still on, the hold function is turned on, and the computer cannot be used. Pulling the switch back down towards the middle position releases the HOLD setting, and the computer can be used again.

(2) AV Station Viewer

AV Station Viewer is a program that helps to manage your image, music, and video files, while the computer is on or off, and assists the running of AV Station.

(3) Task Indicator Light



A : Hard Disk Drive

Indicates that the Hard Disk Drive is active.

B : Wireless LAN

Indicates that Wireless LAN is active.

C : Battery

Indicates the state of the AC adaptor and the battery.

green : indicates that the battery is completely charged, or has not yet been installed

orange : indicates that the battery is charging

flashing : flashes when the HOLD switch is turned on, or when another button is pressed while the computer is on HOLD.

off : indicates that the AC adaptor is not connected and the computer is running on battery power

D : Power

Indicates the activity state of the computer.

On : Indicates that the computer is on

Flashing : Indicates that the computer is on standby. Returning the power switch to the middle position will lift standby mode.

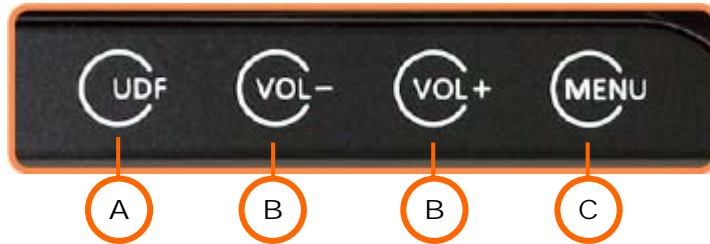
E : Joystick

'(5) Mouse / Joystick' If the above MOUSE part is pressed and the joystick icon lights up, the joystick function may be used in game-play.

F : Mouse

'(5) Mouse / Joystick' If the above MOUSE part is pressed and the mouse icon lights up, the mouse function may be used.

(4) Touch Sensor Buttons



A : UDF

Brings up the Easy Button Manager, enabling the user to set User-Defined Functions.

B : VOL-, VOL+

Controls sound volume.

C : MENU

Runs the MENU program. Many of the tasks most frequently used by the computer are saved by the MENU program for your convenience

(5) Mouse/Joystick

The Mouse, Joystick, Dialkeys functions can be used.

(6) Enter Button, User Settings Button

Enter button : runs selected tasks and content. Functions identically to Enter key on the keyboard.

User Settings button : Sets and runs most frequently used programs.

(7) Keypad

Allows the user to directly type in text and numbers.



※CAUTION※

Do not allow water near the keypad.

(8) Microphone

The microphone is a device that records sound.

(9) Camera

Camera that can capture photos and videos.

(10) Mouse button (L / R)

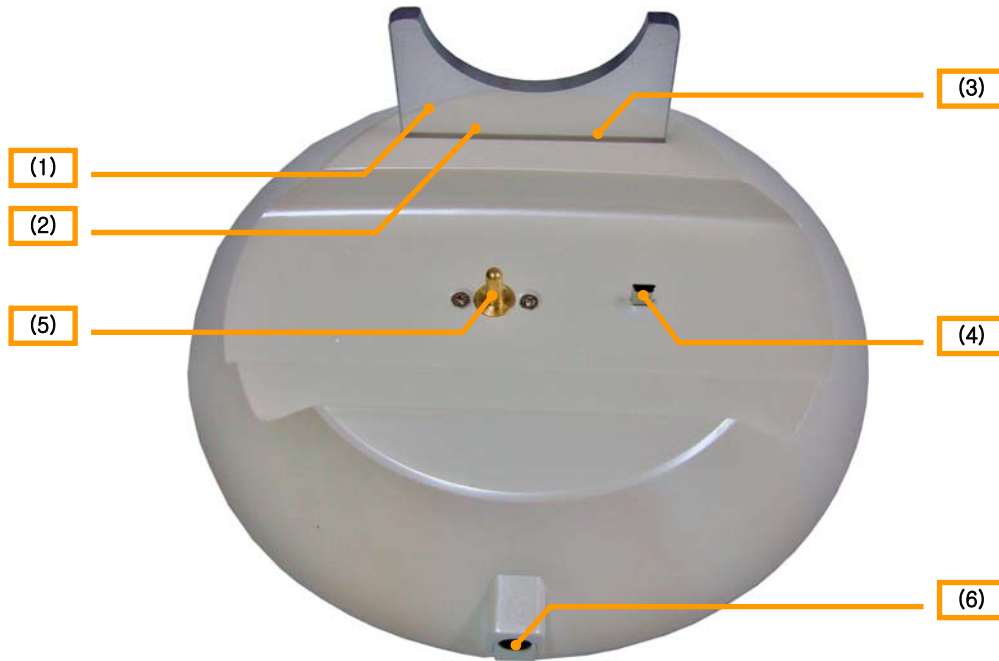
When using the Mouse / Joystick as a mouse

Carries out the left mouse button, right mouse button functions:

L button : one click acts as a single click, two clicks as a double click.

R button : one click acts as a right click of a normal computer mouse.

3) Battery-Charging Support Stand



<Figure 1.7.3.1

No	Details
(1)	Core Cone Support
(2)	Battery-Charger Light 1 (indicates battery charging status)
(3)	Battery-Charger Light 2 (indicates connection)
(4)	Core Battery-Charging Connection Terminal
(5)	Battery-Charging Device Secure Slot
(6)	Battery-Charging Connection Terminal

(1) Core Cone Support

Supports the cone of the core when core is attached to the Battery-Charging Support Stand.

(2) Battery-Charger Light 1

Green light lights up only when Battery-Charger is connected to the Support Stand.

(3) Battery-Charger Light 2

If the core is placed on the Battery-Charging Support Stand while the battery-charging component is connected, an orange light lights up to indicate that the battery is charging.

Off : the battery-charger is not connected, or the battery has finished charging.

On : indicates that the battery is charging.

Flashing : charging is nearly complete.

(4) Core Battery-Charging Connection Terminal

The terminal at which charging of the core battery takes place.

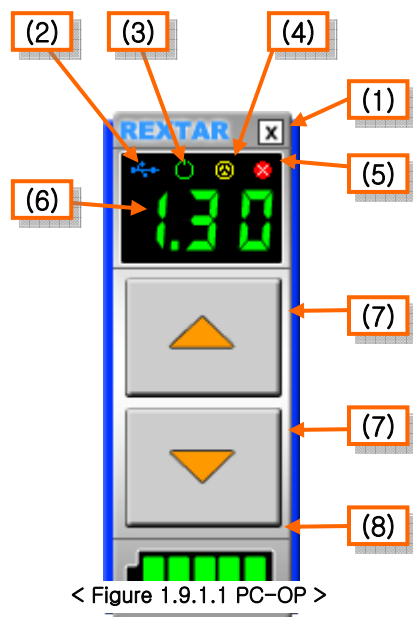
(5) Battery-Charging Device Secure Slot

Made to coincide with the core's secure slot for battery-charging connection.

(6) Battery-Charging Connection Terminal

Terminal used when charging the core using the Battery-Charging device.

4) PC-OP



< Figure 1.9.1.1 PC-OP >

No	Explanation
(1)	Off Button
(2)	USB LINK Light
(3)	Ready Light
(4)	X-RAY Light
(5)	Standby Light
(6)	Exposure Time Display
(7)	Exposure Time Setting Switch
(8)	Remaining Battery Life Display

(1) Off Button

Shuts down PC-OP.

(2) USB LINK Light

Indicates the hardware link status of UMPC and REXTAR.

- a. Normal connection : Lights up.
- b. Connection cut off, errors : Light flickers.

(3) Ready Light

Indicates status of X-RAY Exposure (ready, finished, etc).

- Once REXTAR Exposure button is pressed, lights up to indicate device is ready to irradiate.

(4) X-RAY Light

Indicates X-RAY Exposure status.

- When REXTAR Exposure button is held down at the ready state, lights up as Exposure is taking place.

(5) Standby Light

Once X-RAY Exposure is complete, the Standby Light indicates the readiness of the device for the next irradiation.

- The Standby light lights up for 6 seconds after X-RAY Exposure. The light must dim before the next Exposure can proceed.

(6) Exposure Time Display

Displays X-RAY exposure time.









(7) Exposure Time Setting Switch

Sets the exposure time for X-RAY Exposure.

- Time increases by 1 step each time the switch is pressed. For time intervals permitted for Exposure, refer to < Chart 1.6.1.1 Device Specifications >

(8) Remaining Battery Life Display

Displays the remaining REXTAR internal battery life in 5 blocks, as shown below.

Status Display	Explanation
	Remaining Battery Life: 1% ~ 10%
	Remaining Battery Life: 11% ~ 20%
	Remaining Battery Life: 21% ~ 30%
	Remaining Battery Life: 31% ~ 55%
	Remaining Battery Life: 56% ~ 80%
	Remaining Battery Life: 81% ~ 100%
	Charging Battery
	Remaining Battery Life: 0% (Needs to be charged)

※ Information ※

If the Remaining Battery Life Display falls to two blocks or lower, the battery should be charged.

8. Operation

1) Preparing for Operation

- (1) Lead aprons must be worn during Exposure.
- (2) In order to minimize the time required per session and gain the best results, the device must be kept from being shaken or otherwise disturbed.
- (3) In order to set the wanted sec value free of error, pay attention to the decimal point when setting the sec value.
- (4) Visitors must be sent outside of the room while X-RAY filming patients.
- (5) Close and continuous attention must be paid to the maintenance of the device.
- (6) Accumulation of radiation should not exceed the maximum recommended level.
Especially if long time intervals are often used, it is necessary that an expert assess the situation and determine if the user needs to take any extra protective measures.



※WARNING※

It is imperative to check that the frequency and voltage of power feeding equipment follow specifications written on the system labels affixed to the body of the device.

Voltage must be within $\pm 10\%$ of the normal level.

2) Pre-Heating

(1) Outline

All portable X-RAY devices require preliminary preparatory measures such as written below.

Pre-heating is a necessary step to protect the X-RAY tube from a sudden increase in electric current flow, and for the safe continued use of the device.

X-RAY tubes must be pre-heated in the following circumstances.

- ◆ During installation or on the first use
- ◆ At low temperatures, when at least 1 month has elapsed since the device's last use
- ◆ When the temperature of the X-RAY tube is at 0°C(32°F) or below

(2) How to Pre-Heat the X-RAY tube

It is recommended that pre-heating follow the procedure outlined below.

- ◆ Install the device in a place free of radiation.
- ◆ When the outside temperature is 0°C or below, bring the device indoors and warm it up.
- ◆ Conduct X-RAY Exposure as written below at 15 second intervals to pre-heat the filaments of the X-RAY tube.
 - a. First : irradiate 5 times at 0.10 sec
 - b. Second : irradiate 5 times at 0.30 sec
 - c. Third : irradiate 5 times at 0.80 sec



※CAUTION※

During X-RAY irradiation, the device will emit a series of beeps. Once X-RAY irradiation is complete, do not manipulate the irradiation button during Wait Mode.

9. Operating Instructions

1) Running the UMPC (Q1 Ultra)



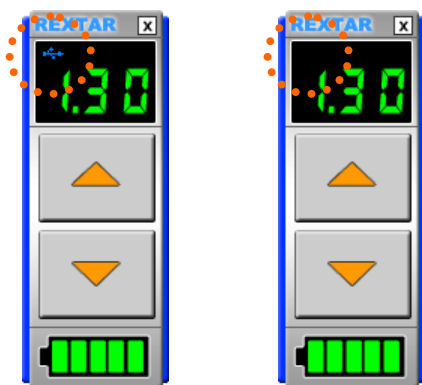
< Figure1.9.1.1 UMPC Power Switch >

Pushing the Power switch of the UMPC (Q1 Ultra) towards the bottom will turn it on.

2) Running PC-OP

Double-click the “REXTAR PC-OP” icon on the UMPC (Q1 Ultra) Desktop Screen.

(1) Check USB LINK Light



< Figure1.9.2.1 PC-OP USB LINK Light >

Check that the 'USB LINK Light' is flashing.

(2) Setting Exposure Time

The Exposure Time Setting Switch can be used to set exposure time only when the USB LINK Light is flashing (USB LINK is not set).

USB connection is initiated simultaneously with the pressing of the X-RAY Exposure button.

If USB connection proceeds without problems, the USB LINK Light will turn on.

At this time, exposure time is already set and cannot be altered.

When X-RAY Exposure is complete, exposure time can be reset once the USB LINK Light begins to flash again.



※CAUTION※

If there is no change visible in the USB LINK Light after running PC-OP, use the off button to shut PC-OP down. Restart the program before running.

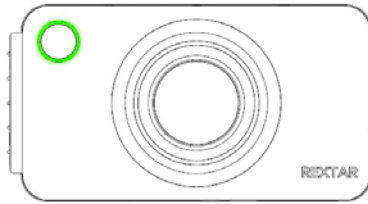
If there is no change even after restarting, inquire with the POSKOM Co. Ltd. Service Team, or to a retail center licensed for service.

3) X-RAY Exposure Operation Instructions

※ Information ※

REXTAR controls X-RAY irradiation with a single button. The button must be held down until the device switches to standby after X-RAY irradiation.

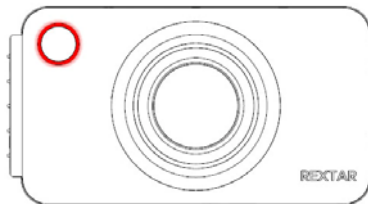
(1) X-RAY Control Power ON



Pressing REXTAR Core Exposure Button initiates X-RAY Exposure.

The green light will light up (providing that the remaining battery life is not too low)

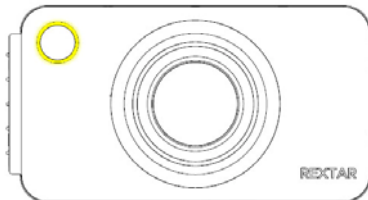
< Figure 1.9.3.1 Core Power ON – Normal Function >



If remaining battery life is too low to proceed with X-RAY Exposure, the light will glow red when the Exposure button is pressed.

X-RAY Exposure cannot be performed.

< Figure 1.9.3.2 Core Power ON – battery LOW >



The yellow light comes on if the device is charging.

X-RAY Exposure cannot be performed during charging.

< Figure 1.9.3.3 Core Power ON – battery charging >

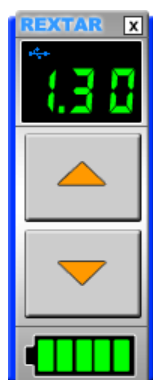
※ Caution ※



When the battery is LOW (red light) or charging (yellow light), X-RAY Exposure cannot be performed. Proceed with Exposure only after device had been fully charged and disengaged from charger, and only once the battery function is deemed to be normal (green light).

(2) Beginning Preparations for X-RAY Exposure

< Time connected to USB LINK : about 1~2 seconds >



If a green light comes on with '(1) X-RAY Control Power ON' and battery functioning is deemed to be normal, the USB LINK Light attached to PC-OP will remain on

< Figure 1.9.3.4 PC-OP Beginning Preparations for Exposure Process >

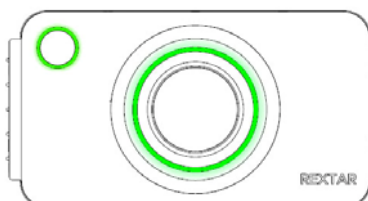


※NOTICE※

Exposure intervals cannot be set from the lighting up of USB LINK Light and the device goes into standby mode.

(3) Completing Preparations for X-RAY Exposure

< Time to complete preparations : about 2 seconds >



When the status '(2) Preparations for X-RAY Exposure Complete' is reached, the Core Exposure Aperture Light lights up green.

< Figure 1.9.3.5 Core Preparations for Exposure Complete >



Next, the PC-OP Ready Light lights up.

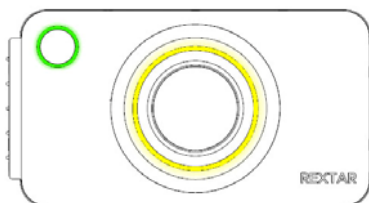
< Figure 1.9.3.6 PC-OP Preparations for Exposure Complete >

(4) X-RAY Exposure



※NOTE※

If the Exposure button is released before the device goes into standby mode, the device goes into X-RAY Exposure cancellation status, and X-RAY Exposure is cancelled.



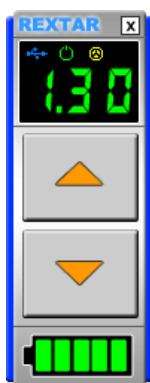
< Figure 1.9.3.7 Core X-RAY Exposure >

<X-RAY Exposure time: set exposure time (0.01~1.30 second)>

When the '(3) Completing Preparations for X-RAY Exposure' status is reached, and the PC-OP X-RAY Ready Light is turned on, the core begins X-RAY Exposure.

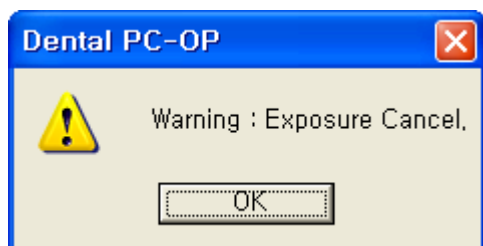
While X-RAY exposure is proceeding, the core emits a series of beeps, and the exposure Light lights up yellow.

Next, the PC-OP X-RAY Light lights up.



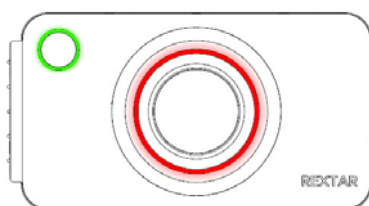
< Figure1.9.3.8 PC-OP X-RAY Exposure >

If the Exposure button should be released before the Exposure is over, Exposure will be immediately cancelled, and PC-OP will display a warning pop-up window.



< Figure 1.9.3.9 PC-OP Warning POP-UP

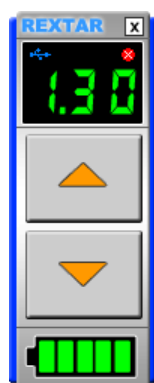
(5) Standby After Completion of X-RAY Exposure



< Figure1.9.3.10 Core Standby >

< Time spent in standby : 6 seconds >

Once '(4) X-RAY Exposure' is complete, the beeping will stop and the standby light (red) will lights up.



< Figure 1.9.3.11 PC-OP Standby >

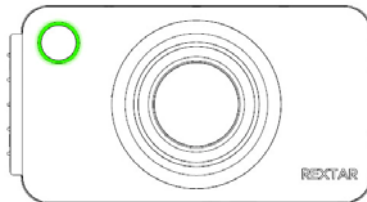
Next, the PC-OP Standby Light lights up.

(6) Remaining Battery Life Display; Conclusion of Standby



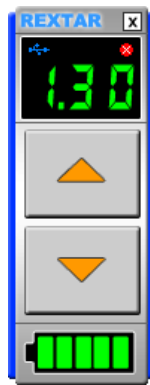
※NOTE※

In order to protect the X-RAY tube, the Exposure button must be released after each Exposure session to allow the next Exposure session. During standby, the Exposure button must be released. Standby will only be concluded once the Exposure button is released.



Once (5) Standby After Completion of X-RAY Exposure is concluded, the standby (red) light turns off.

< Figure 1.9.3.12 Conclusion of Core Standby >



Next, the PC-OP Remaining Battery Life Display is refreshed to reflect current battery life status, and the light dims.

If the Exposure button is being held down, the PC-OP Standby Light remains on and the Exposure Button Release is maintained.

< Figure 1.9.3.13 PC-OP Standby >

Only once the X-RAY Control is turned OFF, the USB LINK is disconnected, the PC-OP Standby Light turns off, and USB LINK standby status is on, is one round of Exposure over.

4) Checking Remaining Battery Life

Pressing and quickly releasing the Exposure button after running PC-OP will cause current battery status to be displayed on PC-OP Remaining Battery Life Display.

5) Miscellaneous

If battery status is 'LOW' or 'charging,' or if an error occurs, a pop-up window in PC-OP will inform the user of the current state of the device.

(1) Exposure initiated while Battery is 'Charging':

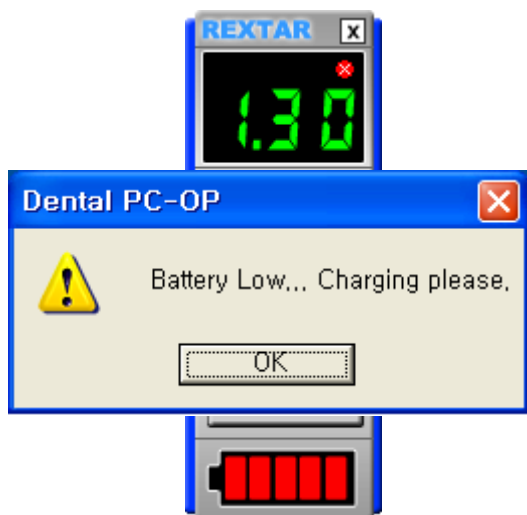


< Figure 1.9.5.1 PC-OP POP-UP >

Displays 'charging' battery status in a pop-up window as shown at left.

PC-OP Remaining Battery Life Display shows all five bars as yellow.

(2) Exposure Initiated while Battery is 'LOW' :



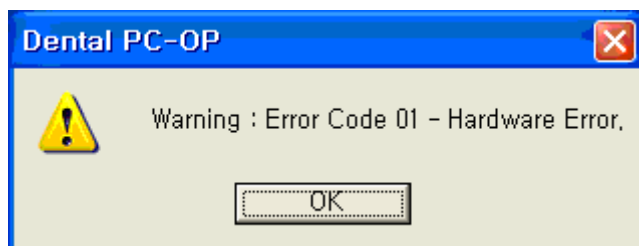
< Figure 1.9.5.2 PC-OP POP-UP >

Displays 'LOW' battery status and a message requesting recharging in a pop-up window as shown at left.

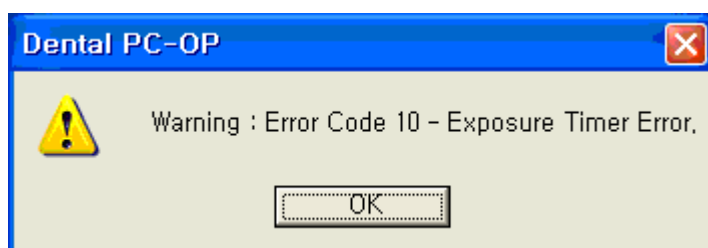
PC-OP Remaining Battery Life Display shows all five bars as red.

(3) If an error occurs

If an error occurs during the Exposure procedure, Exposure is cancelled immediately, and the error code is displayed in PC-OP as a pop-up window, as shown below.



< Figure 1.9.5.3 PC-OP Error Code 01 POP-UP >



< Figure 1.9.5.4 PC-OP Error Code10 POP-UP >

10. Instructions for Battery Use

1) Instructions for Detaching and Mounting Batteries



※NOTE※

Batteries should only be detached when being replaced. Overly frequent detachment causes reduced battery life.

*When detaching the battery cover, the **2.6 PIE six-sided bolts** affixing the cover must also be removed.

(1) The battery is located on the rear side of the core.

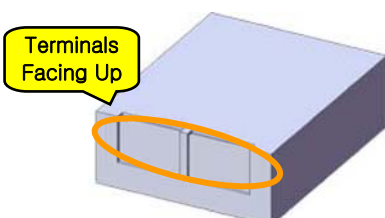


(2) Detach the battery cover after removing the six-sided bolts

(3) Detach the battery pack



(4) Dispose of the detached battery pack in the way best applicable to the user.



(5) A new battery pack must be inserted with the terminals facing up (shown at left), and mounted in an order reverse to what is shown above



※Caution※

Failure to properly dispose of used batteries may lead to explosions or fire

2) Charging Batteries

To charge batteries, connect the Battery Charger to the Battery Charger Connection Terminal.

The Battery Charger can be directly connected to the Battery Charger Connection Terminal. Or the Battery Charger may also be connected to the Battery-Charger Support Stand, which is in turn connected to the Battery Charger Connection Terminal.

※ INFORMATION ※

Battery charge time: 5 hours after complete discharge

If the Remaining Battery Life Display falls to two blocks or lower, the battery should be charged.

3) Battery Use Cycles

Batteries wear down with use. Old batteries must be recharged more often. When the length of time a battery could function after each charging has shrunk to half or less compared to when the battery was new, it is time to replace the battery.

When storing batteries for extended periods of time, charge them before storing.

※ Information ※

When device is not in use for extended periods of time, the battery should be stored only after being completely charged, and should be recharged every 6 months to slow the degradation process.

11. Using the UMPC

※ Information ※

The following functions are not functions inherent to REXTAR, but are only meant to provide additional convenience for users of this product.

1) Windows XP Remote Desktop Linking

Windows XP Remote Desktop Linking and Options and Settings Manual

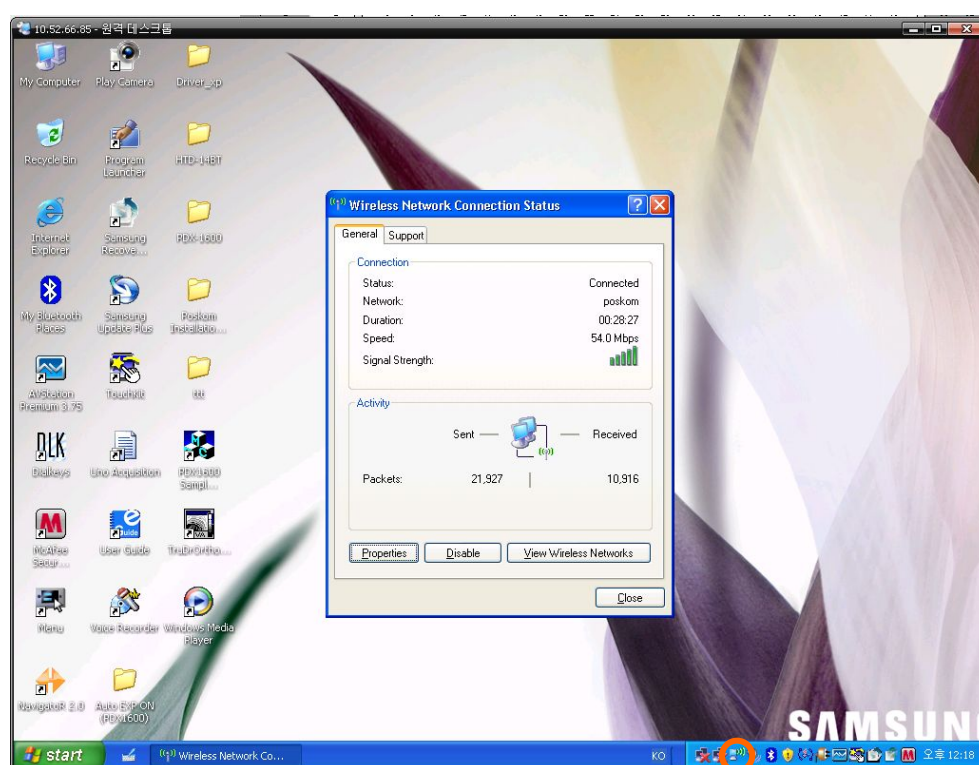
(1) UMPC (Q1 Ultra) Check Connection Status to Wireless Network

Check that the computer is connected to the wireless network, as shown below.

(Right-button click Wireless LAN icon at bottom right of screen.)

If a Search for Available Networks window comes up, the computer is not connected to a wireless network. .

Therefore, refer to the Wireless Settings section in UMPC (Q1 Ultra) Manual and your internet provider's Wireless Network Settings Manual to connect to a Wireless Network.



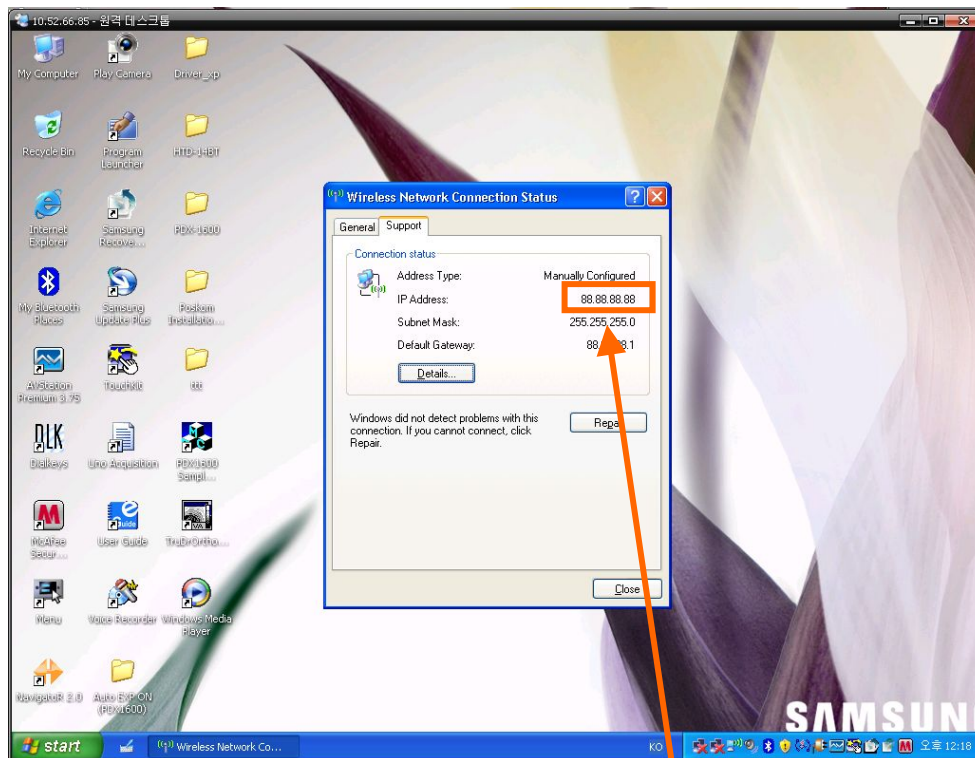
< Figure 1.11.1.1 Wireless Properties Window 1 >



(2) UMPC (Q1 Ultra) Wireless IP Address

Can be found in the Wireless Network Connection Status window by looking under the “Support” tab. The IP Address Number is needed in order to establish the remote control function.
(Recorded separately)

The IP number shown in the image below is a sample IP. Use the IP assigned to you by your Internet Provider



< Figure1.11.1.2 Wireless Properties Window 2 >

88.88.88.88

***Matters to consider when creating a Remote Desktop Connection through wire and wireless Internet routers**

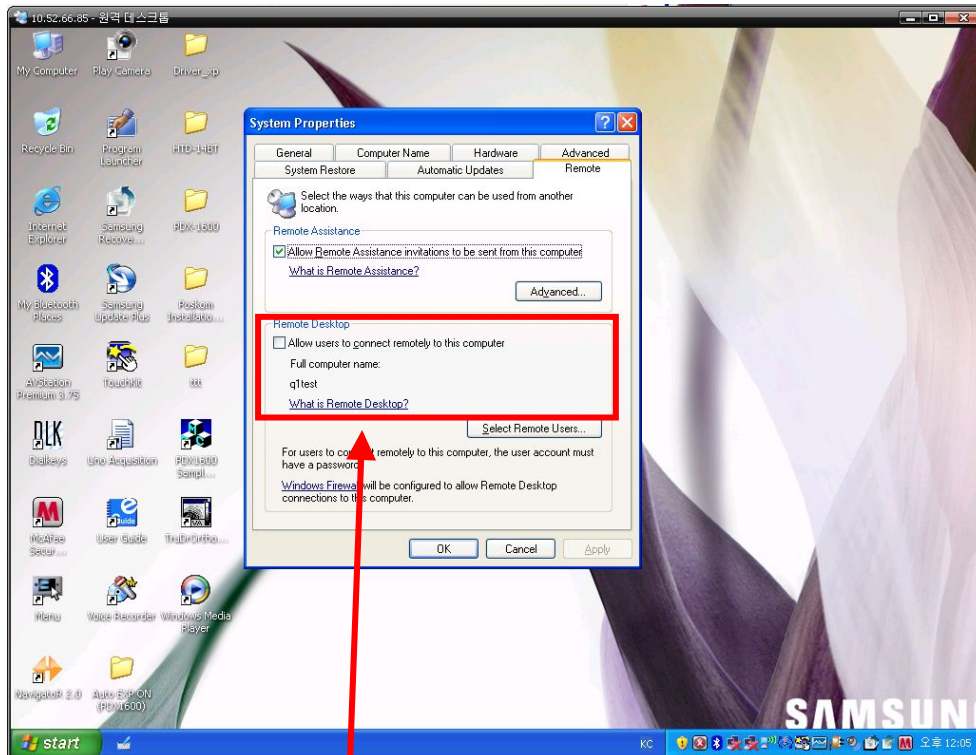
When UMPC (Q1 Ultra) is connected to the internet router, remote desktop connection from the other PC's linked to the router and from other external sources is impossible.

Internet routers use assumed IP addresses, and it is impossible to connect externally to the router. In order to be able to use the remote desktop function, the UMPC (Q1 Ultra) and the PC from which desktop connection is being made must be connected to the same wire or wireless Internet router.

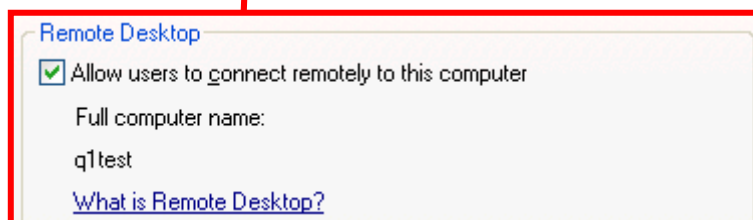
(3) UMPC (Q1 Ultra) Remote Desktop Connection Settings

Under System Properties (found under My Computer) , look under the “Remote” Tab.

Check the box under Remote Desktop that says ‘Allow users to connect remotely to this computer’ to allow remote control. After checking the box, click OK.



< Figure1.11.1.3 Properties under My Computer>



(4) Remote Desktop Connection – Using Default Settings

Run 'Start Menu' -> 'Programs' -> 'Accessories' -> 'Communications' -> 'Remote Desktop Connection'. When a window like the image shown below pops up, enter the wireless IP number of Q1 Ultra. If no further options need to be tweaked, clicking on "Connect" will initiate the connection.

Wireless IP Number : the wireless IP address recorded in (2)

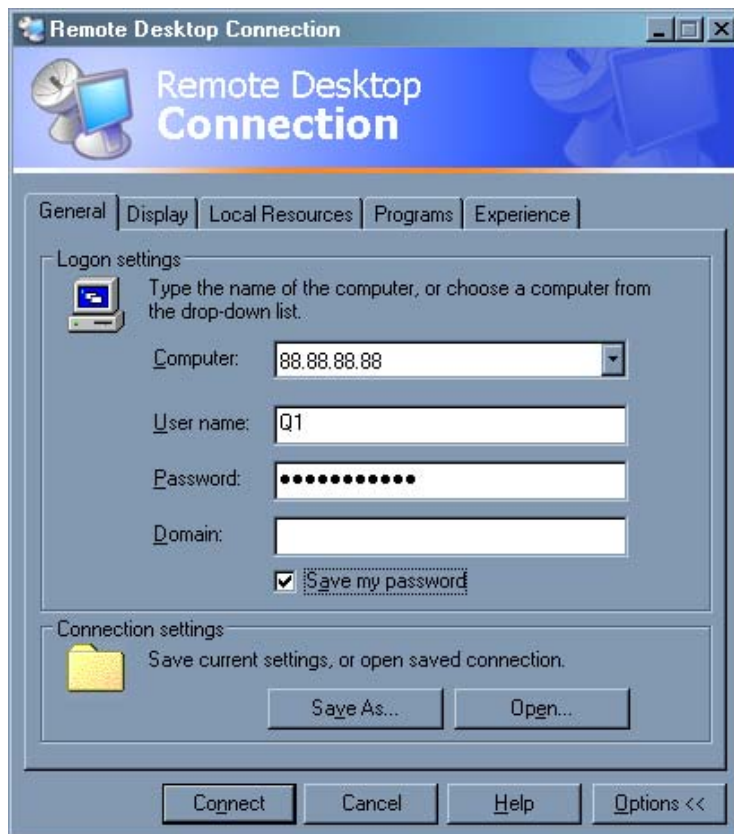


< Figure 1.11.1.4 Remote Desktop Connection Window >

(5) Remote Desktop Connection – Options

a. General

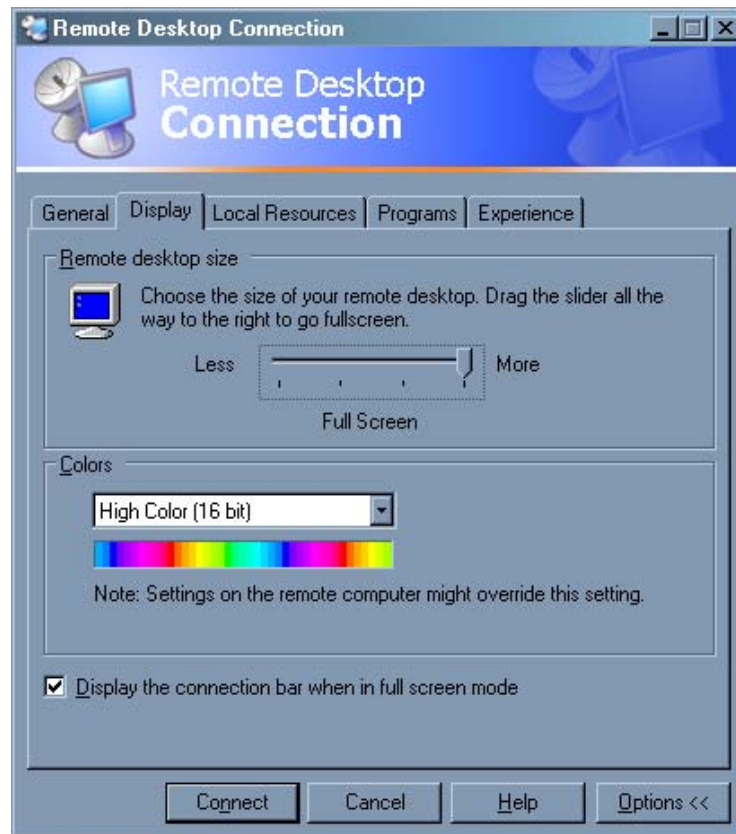
Log-In settings and connection settings can be saved separately. By inputting the necessary information ahead of time, as shown in the image below, you can connect repeatedly with the same settings



< Figure1.11.1.5 Remote Desktop Connection Options Window 1 >

b. Display

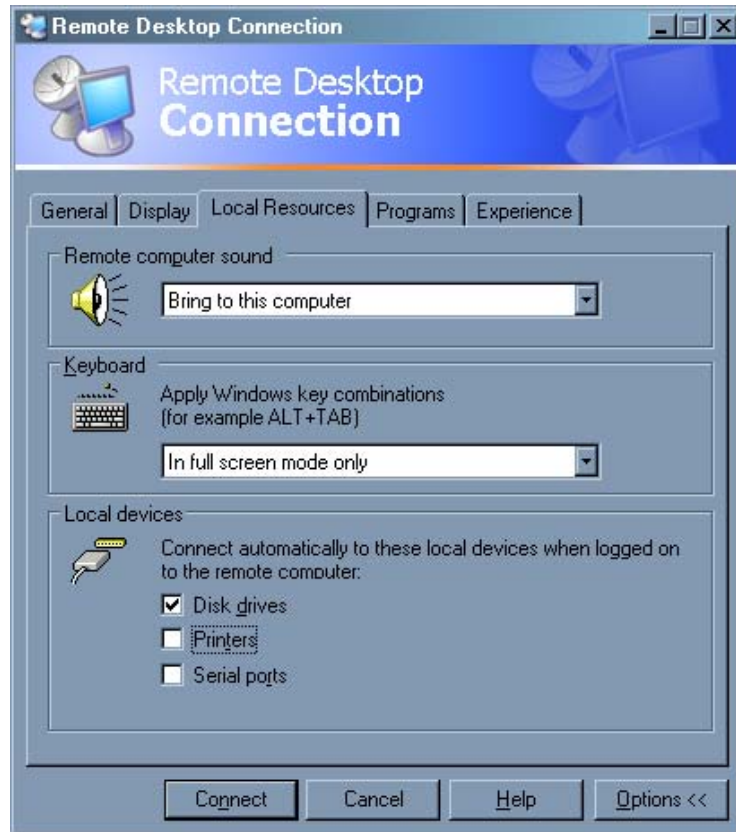
The size and color scheme of the Q1 Ultra desktop can be reset through the connected PC, under the Display Tab of the Remote Desktop Connection Window.



< Figure 1.11.1.6 Remote Desktop Connection Options Window 2 >

c. Local Resources

Various Sound, Keyboard Control and miscellaneous hard disk, printer and Series Port sharing settings of UMPC (Q1 Ultra) can be manipulated on this menu from the remote controlling computer. Setting the menu up as shown below will allow file transfer from My Computer to UMPC (Q1 Ultra) to proceed smoothly.



< Figure 1.11.1.7 Remote Desktop Connection Options Window 3 >

d. Program

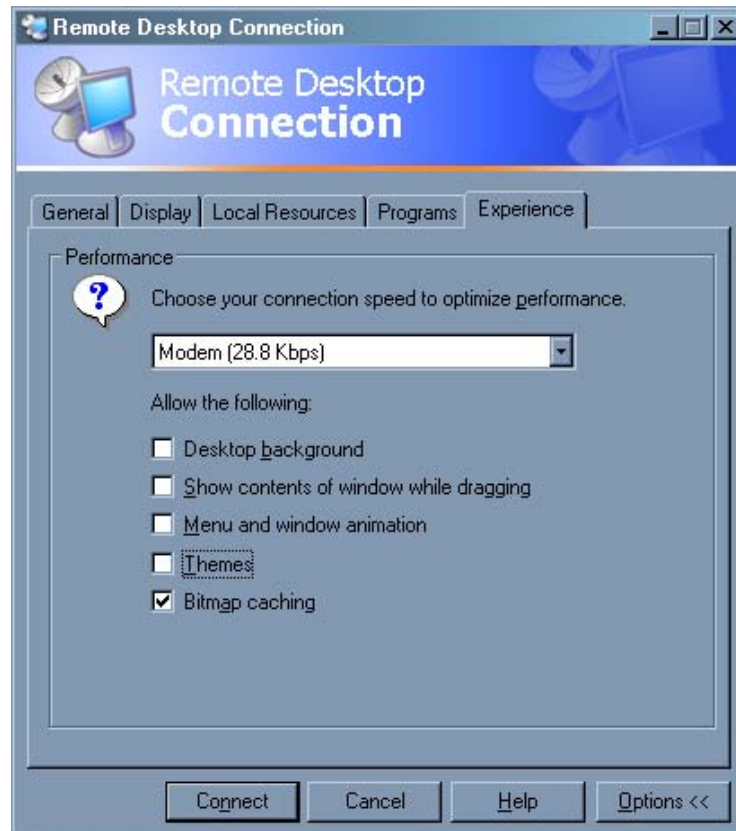
A menu that is set to operate separately after remote connection with UMPC (Q1 Ultra).

No resetting required.

e. Advanced

On this menu, LAN-related deferred processing can be minimized during the remote controlling of UMPC (Q1 Ultra).

The image below shows the setting that minimizes LAN-related processing delays.



< Figure 1.11.1.8 Remote Desktop Connection Options Window 4 >

(6) Connection Screen

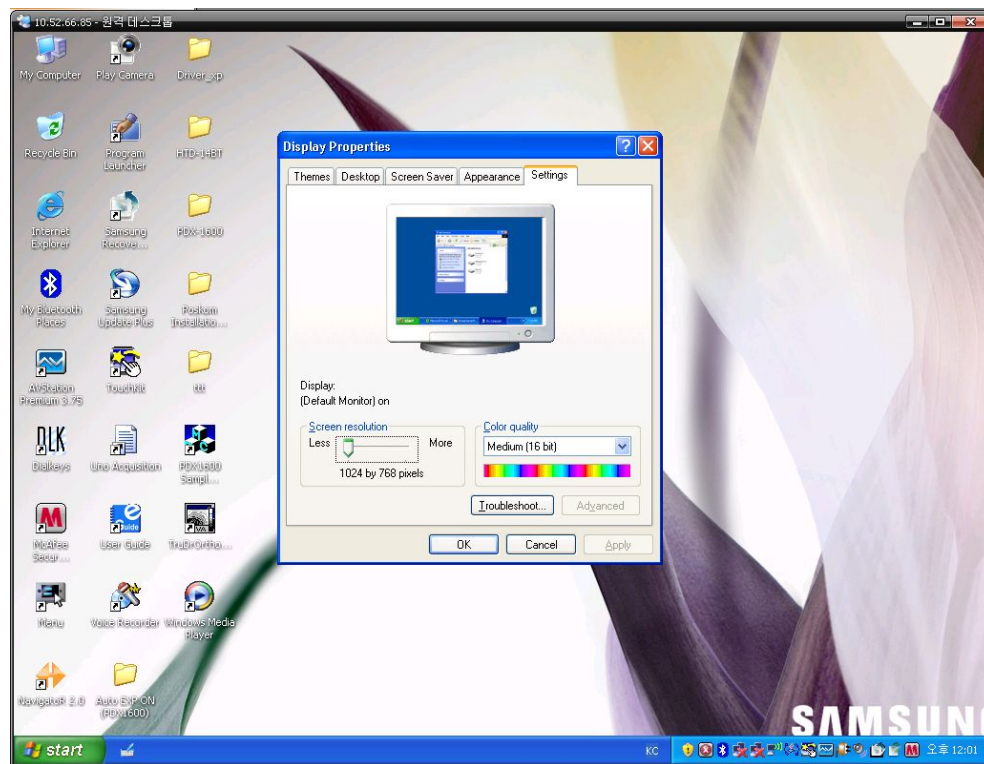
If the Remote Desktop Connection proceeds smoothly, a UMPC (Q1 Ultra) Desktop appears as shown below according to the appropriate resolution (earlier selected in Options).



< Figure1.11.1.9 Remote Desktop Connection Screen >

(7) Checking Connection Resolution

Connection Resolution may be checked in the 'Settings' menu under "Display Properties" (mouse right click on the desktop, selecting Properties).



< Figure 1.11.1.10 Remote Desktop Connection Display Properties Window >

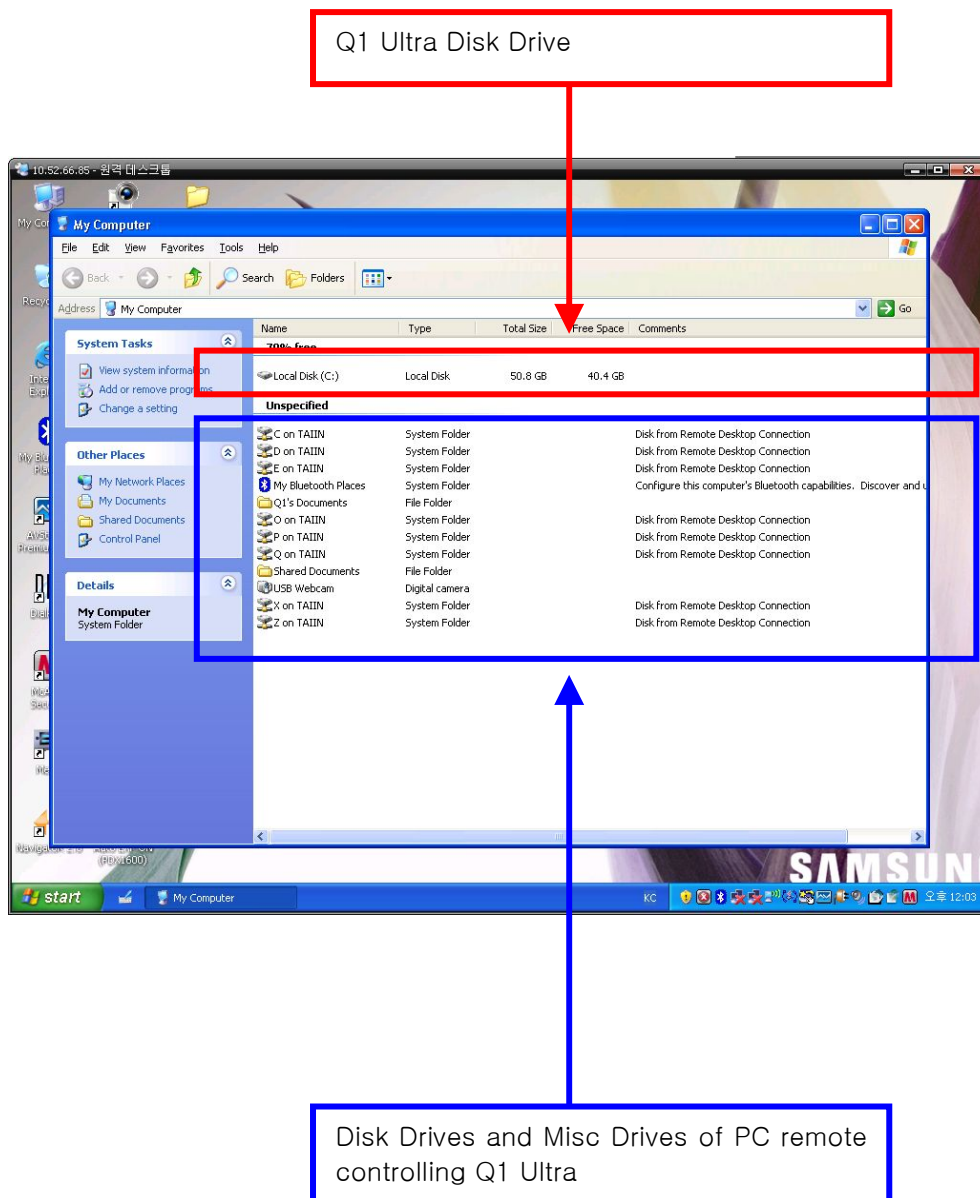
(8) Checking for a Network Drive in UMPC (Q1 Ultra)

To transfer copy files created or edited in UMPC (Q1 Ultra)

Remote Desktop Connection – If you selected 'Disk Drive' in 'Local Services' under Options, You will see the Ultra Disk Drive connected to the Network Drive as shown below.

Files may be transferred by copying and pasting or dragging the selected files, as with USB storage drives.

All drives of the PC remote controlling UMPC (Q1 Ultra) are shown in the image below.



< Figure1.11.1.11 Remote Desktop Connection Disk Information Window>

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PART II. Service Manual

1. Notes to the User

1) If output adjustment after a regular inspection or repairs is needed, consult the procedures detailed as following.



※CAUTION※

Ionization exposure is hazardous.

2) This manual was created to promote the proper use of REXTAR.

Make sure to become acquainted with the manual before use of the device.

3) Improper use or operation may decrease the life of REXTAR device or even cause errors in function.

See Warning in manual.

4) REXTAR must be operated by an expert with thorough knowledge about the device.

5) Use only the power cables, software, and miscellaneous accessories developed and distributed by POSKOM Co. Ltd.

6) POSKOM Co. Ltd. will not accept liability for third-party or patient claims.

7) Store this manual near REXTAR device, in an easy-to-find place.

2. Regular Maintenance

1) Introduction

The device must be inspected regularly according to the following inspection schedule.

2) Inspection Schedule

a. 6-month Regular Inspection

- ◆ Check to see that all displays (status display light, clock, etc.) are functioning normally.
- ◆ Check to see that all functions (UMPC, all switches, software, etc.) are normal.
- ◆ Confirm the adjustment state (4. of the Service Manual, error codes) of the device.
- ◆ Carry out any additional tests as determined by law.

b. Annual Inspection

- ◆ Inspect the exterior for visible signs of damage.
(UMPC, switches, Alarm Lamp, etc.)
- ◆ Check the connection status of all externally-connected electrical cables.
(sensor connective cables, power cables, etc.)
- ◆ Open the cover of the device and check for any visible disorders.
(grounding wires come loose or even slipped off entirely, leaking, damaged wires, etc.)



※WARNING※

Always remember that this device contains potentially harmful elements, and must be handled by a skilled technician.



※WARNING※

As a safety precaution always remove the batteries before conducting the inspection.

4. Common Error Codes

1) Error Codes

Error Code	Nature of Error
Error 01	Hardware Error (errors in voltage, electric current)
Error 10	Exposure Timer Error (occurs with exposure that goes on longer than the designated exposure time)

2) Managing Errors

If an error occurs, release the exposure button, and restart the UMPC.

Recommence the X-ray examination, and if the same error occurs, enquire with the POSCOM Co. Ltd. Service Team, or to a retail center licensed for service



※CAUTION※

If error messages occur repeatedly, stop excessive use the device, but enquire with the POSCOM Co. Ltd. Service Team, or to a retail center licensed for service

GENERATOR SERVICE REQUIRMENTS

This form must be completed fully and submitted with any POSKOM generator returned for warranty considerations or repair requests.

A. GENERAL INFORMATION

- 1) Product Name : _____
- 2) Serial Number : _____
- 3) Date Received : _____
- 4) Date Installed : _____
- 5) Date Found Defective: _____
- 6) Stage at which product was rejected :
 - ☐ at the initial inspection upon receipt ☐ after storage
 - ☐ In course of installation ☐ In actual service in the field

B. DETAIL INFORMATION

- 1) Symptoms in detail _____
 Highest condition used at _____ kV _____ sec
 Most frequently used at _____ kV _____ sec
- 2) Describe any problems experienced

 Setting at time of failure _____ kV _____ sec
 Describe any unusual occurrence _____
 Abnormal symptoms prior to failure _____
 Abnormal symptoms at time of failure _____
- 3) Further details or attachment would be highly appreciated.

Full Name _____	Company/Hospital _____
Telephone _____	Fax _____
Signature _____	Date _____